

ES-401

Written Examination
Review Worksheet

Form ES-401-9

| Q# | 1. LOK (F/H) | 2. LOD (1-5) | 3. Psychometric Flaws | | | | | 4. Job Content Flaws | | | | 5. Other | | 56. U/E/S | 67. Explanation |
|----|--------------|--------------|-----------------------|------|-----|-------------|---------|----------------------|---------|---------|----------|----------|----------|-----------|---|
| | | | Stem Focus | Cues | T/F | Cred. Dist. | Partial | Job-Link | Minutia | #/units | Backward | Q# K/A | SRO Only | | |
| 1 | H | 3 | | | | | | | | | | | | S | RO KA OK |
| 2 | F | 2 | | ✓ | | | | | | | | | | S | C - is 2191 CV same as one 'A'? |
| 3 | F | 2 | | | | | | | | | | | | S | C KA OK - is release accident |
| 4 | F | 1 | | | ✓ | | | | | | ? | | | ① | C only one dist given more situations. Replace it |
| 5 | F | 2 | | | | | | | | | | | | S | RO KA OK Rad Monitor + what? |
| 6 | F | 2 | | | | ✓ | | | | | | | | E | C CR, VEVT SYS 'D' TRM = ? (add TRM & stem) |
| 7 | F | 2 | ✓ | | | | | | | | | | | E | C Stem wording difficult - revised stem |
| 8 | F | 2 | | | | | | | | | | | | S | C Remote our FW control. |
| 9 | F | 2 | | | | | | | | | | | | S | RO TS time on AFW |
| 10 | F | 2 | | | | | | | | | | | | S | RO SG BD Rms |

Instructions

[Refer to Section D of ES-401 and Appendix B for additional information regarding each of the following concepts.]

- Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level.
- Enter the level of difficulty (LOD) of each question using a 1 - 5 (easy - difficult) rating scale (questions in the 2 - 4 range are acceptable).
- Check the appropriate box if a psychometric flaw is identified:
 - The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information).
 - The stem or distractors contain cues (i.e., clues, specific determiners, phrasing, length, etc).
 - The answer choices are a collection of unrelated true/false statements.
 - More than one distractor is not credible.
 - One or more distractors is (are) partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by stem).
- Check the appropriate box if a job content error is identified:
 - 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).
 - 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).
 - The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons).
 - The question requires reverse logic or application compared to the job requirements.
- Check the appropriate box if the sampled question does not match the approved K/A or an SRO-only question is not at the SRO level.
- Based on the reviewer's judgment, is the question as written (U)nacceptable (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?
- For any "U" ratings, at a minimum, explain how the Appendix B psychometric attributes are not being met.

4 comments
- jet#1's like
reshred
11, 37, 99, 108,
125

▼ = SRO ONLY per outline

2

ES-401

2

Form ES-401-9

| Q# | 1. LOK (F/H) | 2. LOD (1-5) | 3. Psychometric Flaws | | | | | 4. Job Content Flaws | | | | 5. Other | | 56. U/E/S | 67. Explanation | |
|----|--------------|--------------|-----------------------|------|-----|-------------|---------|----------------------|---------|---------|----------|----------|----------|-----------|---|---------|
| | | | Stem Focus | Cues | T/F | Cred. Dist. | Partial | Job-Link | Minutia | #/units | Backward | Q# K/A | SRO Only | | | |
| 11 | H | 4 | | | | | | | | | | | ✓ | (U) S | Is this SRO only - Revised to Boxes 9 OK | NRC |
| 12 | F | 3 | | | | | | | | | | | | S | C cond. vac. (K/A OK) | NRC |
| 13 | H | 2 | | | | | | | | | | | | S | R ₀ Cond. vac. exp. | N |
| 4 | H | 3 | | | | | | | | | | | | S | R ₀ Cond. vac. - EOP - Lib SRO Quest. | N |
| 5 | H | 3 | | | | ✓ | | | | | | | ✗ | (E) S | Is this SRO only - Comm. Mce. Revised to Box 9 | N |
| 6 | F | 2 | | | | | | | | | | | ✗ | (X) S | System G - Not SRO only - Is it T.S.? | NRC |
| 7 | F | 2 | | ✓ | | | | | | | | | | E | R ₀ Admin. 'A' distractor - Deleted per. Rep. | N |
| 8 | F | 2 | | | | | | | | | | | | S | C admin (K/A OK) | NRC |
| 9 | H | 2 | | | | | | | | | | | | S | S weak G | N |
| 20 | F | 2 | | | | ✓ | | | | | | | | E | S 'C' dist. english - revised - | NRC |
| 1 | F | 2 | | ✓ | | | | | | | | | | (U) S | B dist - only one with distr. info. revised - | N |
| 2 | F | 2 | | | | | | | | | | | | S | R ₀ sp. mag. det. - Ops | BK |
| 3 | H | 3 | | | | | | | | | | | | S/H | R ₀ 'D' dist - change to 200 to 2000 lbs. could be correct | N |
| 4 | F | 2 | | | | ✓ | | | | | | | | E | C 'C' change to "big Rx + carryout EOP done" | N |
| 25 | H | 2 | | | | | | | | | | | | (U) S | S cont. down. NON DISCRIM. Mod. Stem OK | N |
| 6 | F | 2 | | | | | | | | | | | | S | C Cont. Condy. (K/A OK) | N |
| 7 | H* | 2 | | | | | | | | | | | | S | S CAC's Procedure in Stem Done | N 16 |
| 8 | H | 2 | | | | | | | | | | | | S | C cont. Range (K/A OK) | B-mat |
| 9 | F | 2 | | | | | | | | | | | | S | C cont. Spray | NRC-mod |
| 30 | F | 2 | | | | | | | | | | | | S | C CRD auto Stop | NRC 7 |

LATER

(SRO)

OL ?

OL ?

OL ?

OL ?

| Q# | 1. LOK (F/H) | 2. LOD (1-5) | 3. Psychometric Flaws | | | | | 4. Job Content Flaws | | | | 5. Other | | 56. U/E/S | 67. Explanation | |
|----|--------------|--------------|-----------------------|------|-----|-------------|---------|----------------------|---------|---------|----------|----------|----------|-----------|--|--|
| | | | Stem Focus | Cues | T/F | Cred. Dist. | Partial | Job-Link | Minutia | #/units | Backward | Q# K/A | SRO Only | | | |
| 31 | H | 2 | | | | | | | | | | | | S | RO What is CWP? | |
| 2 | H | 3 | | | | | | | | | | | | S | RO ? Nud AOP-9A to see SW status SRT. | |
| 3 | H | 2 | | | | | | | | | | | | E | S 'D' dist. elim end of sentence. <i>done</i> | |
| 4 | H | 2 | ✓ | | | | | | | | | | | E | C to B also correct? NO revised stem - English | |
| 5 | H | 2 | | | | | | | | | | | | S | RO CVCS auto Lvl control. (KA OK) | |
| 6 | H | 3 | | | | | | | | | | | | S | RO | |
| 7 | H | 2 | | | | | | | | | | | ✓ | U | S <i>OK</i> 125VDC Not SRO - System <i>Revised</i> <i>removed</i> | |
| 8 | H | 2 | | | | | | | | | | | | S | C Dropped and memory. (KA OK) | |
| 9 | H | 2 | | | | | | | | | | | | S | SS SDM on Dropped Rod. | |
| 40 | H | 2 | | | | | | | | | | | | S | C Logic SIMS (KA-address non Reset) <i>OK</i> | |
| 1 | H | 4 | | | | | | | | | | | | S | C Will SD EDG? (KA-OK) | |
| 2 | H | 2 | | | | | | | | | | | | B | RO Check curves check at side | |
| 3 | F | 2 | | | | | | | | | | | | S | SS Not SRO only <i>EMER BOR</i> SYSTEM Level G (KA OK) | |
| 4 | H | 3 | ✓ | ✓ | | | | | | | | | | U | S <i>EMER BOR</i> <i>not stem + dist to stem specific</i> <i>EMER BOR</i> <i>not act. over AOP-1A BOR ref.</i> | |
| 5 | H | 2 | | | | | | | | | | | | S | RO Booth on 1 stick and - New EOP CHNG. | |
| 6 | H | 2 | | | | | | | | | | | | S | C Press time. Control | |
| 7 | H | 2 | | | | | | | | | | | | S | S EAL class. (KA OK) | |
| 8 | H | 2 | ✓ | | | ✓ | | | | | | | | F | S Sm LOCA action <i>not stem</i> <i>not stem</i> <i>not stem</i> | |
| 9 | F | 2 | | | | | | | | | | | | S | C Fire & CR evac. | |
| 50 | F | 2 | | | | | | | | | | | | S | R Alarm Resp. Ref? <i>Heb</i> (KA OK) | |

| Q# | 1. LOK (F/H) | 2. LOD (1-5) | 3. Psychometric Flaws | | | | | 4. Job Content Flaws | | | | 5. Other | | 56. U/E/S | 67. Explanation | |
|----|--------------|--------------|-----------------------|------|-----|-------------|---------|----------------------|---------|---------|----------|----------|----------|-----------|---|------------|
| | | | Stem Focus | Cues | T/F | Cred. Dist. | Partial | Job-Link | Minutia | #/units | Backward | Q# K/A | SRO Only | | | |
| 57 | H | 2 | | | | | | | | | | | | S | C SFP coding (KA OK) Half | N |
| 2 | F | 2 | | | | | | | | | | | | S | C Tagging | NRC |
| 3 | F | 2 | | | | | | | | | | | | S | S Fuel enrich - TS Basis | N |
| 4 | H | 3 | | | | | | | | | | | | S | S TS - COLR 'D' Dist ? SITE OK | NRC EX-MOD |
| 5 | H | 2 | | | | | | | | | | | | S | R TS - Basis LTOP | N |
| 6 | F | 2 | | | | | | | | | | | | S | C ESF start response - (KA OK) | N |
| 7 | F | 3 | | | | | | | | | | | | S | R ESFAS LOGIC Relay. | NRC |
| 8 | H | 3 | | | | | | | | | | | | S | S System 'G' LOEX G - Reactor shut first thought - missed alarm - BASIS | N |
| 9 | H | 2 | | | | | | | | | | | | S | R Reactor Turbine Leak (KA OK) | N |
| 60 | H | 3 | | | | | | | | | | | | S | S RCS Boundary LKG. | N |
| 1 | F | 2 | | | | | | | | | | | | S | C Failop 1 detector | N |
| 2 | F | 2 | | | | | | | | | | | | S | R (GET) - (GEN KA.) Fuel Hand | NRC |
| 3 | F | 2 | | | | | | | | | | | | S | SS Aut. on Hi Rad alarm Fuel Hand | N |
| 4 | F* | 2 | | | | | | | | | | | | S | C Offindex RF BRDG. Fuel Hand | N |
| 5 | H | 2 | | | | | | | | | | | | S | C EOP double Failure (EOP-E) (HERB KA OK) | N |
| 6 | F* | 2 | | | | | | | | | | | | S | C Inc. Pump. flow on P activity. | NRC |
| 7 | F* | 2 | | | | | | | | | | | | S | S Basis G on Coolant act. (KA OK) | NRC |
| 8 | F* | 2 | | | | | | | | | | | | S | C Design Basis. | N |
| 9 | H | 3 | | | | | | | | | | | | S | C ? is OTCC init this soon? | N |
| 70 | H | 3 | | | | | | | | | | | | S | R EOP actions. - elim should be done. NRC | N 40 |

OL? -
OL? -

SRW?

| Q# | 1. LOK (F/H) | 2. LOD (1-5) | 3. Psychometric Flaws | | | | | 4. Job Content Flaws | | | | 5. Other | | 56. U/E/S | 67. Explanation | |
|----|--------------|--------------|-----------------------|------|-----|-------------|---------|----------------------|---------|---------|----------|----------|----------|--------------|-----------------|--|
| | | | Stem Focus | Cues | T/F | Cred. Dist. | Partial | Job-Link | Minutia | #/units | Backward | Q# K/A | SRO Only | | | |
| 71 | H | 3 | | | | | | | | | | | | S | S | get HPSI flow T for EOP-5 |
| 72 | F | 2 | | | | | | | | | | | | S | R ₀ | incor CR. T.S. time & SD Vicig |
| 73 | H | 2 | | | | | | | | | | | | S | S | 'e' dist. only one with 'SDM' |
| 74 | F | 2 | | | | | | | | | | | | S | R ₀ | Rev Supp. Air Comp. (KA OK) ^{TWIST. BUSES LABEL BACKWARD} |
| 75 | F | 2 | ✓ | ✓ | | | | | | | | | | ① | R ₀ | 'c' only dist. that does something physical ^{delete a connecting} |
| 76 | H | 3 | X | | | | | | | | | | | E | S | appropriate ^{required} (System G?) (KA OK) |
| 77 | H | 2 | | | | | | | | | | | | S | R ₀ | OK 'C'? wait child ^{Legion} change |
| 78 | F | 2 | | | | | | | | | | | | S | C | Long Radwaste |
| 79 | H | 3 | | | | | | | | | | | | S | SS | EDG overload (KA OK) |
| 80 | F* | 2 | | | | | | | | | | | | S | C | Value LU prior to start RCP |
| 81 | F | 2 | ✓ | | | | | | | | | | | E | C | correct vs. expected (fixed stem) ✓ |
| 82 | H | 2 | | | | | | | | | | | | S | C | cont. sitting (KA OK) |
| 83 | F | 2 | | | | | | | | | | | | S | SS | Loss of DC 514. SRO System OK |
| 84 | F | 2 | | | | | | | | | | | | S | C | Loss of mtr air (KA OK) |
| 85 | H | 3 | | | | | | | | | | | | S | S | excessing/D prior & loss of fuel |
| 86 | H | 2 | ✓ | | | | | | | | | | | S | R ₀ | correct vs appropriate (KA OK) |
| 87 | H | 2 | | | | | | | | | | | | S | S | System G Not SRO only (KA OK) |
| 88 | H | 2 | | | | | | | | | | | | S | C | Repair NI sys. |
| 89 | H | 2 | ✓ | | | | | | | | | | | E | C | add word for the "Need ^{done} Back in old Dist." |
| 90 | F* | 3 | | | | | | | | | | | | S | C | Loss of Power to WR NI |

| Q# | 1. LOK (F/H) | 2. LOD (1-5) | 3. Psychometric Flaws | | | | | 4. Job Content Flaws | | | | 5. Other | | 56. U/E/S | 67. Explanation |
|-----|--------------|--------------|-----------------------|------|-----|-------------|---------|----------------------|---------|---------|----------|----------|----------|-----------|---|
| | | | Stem Focus | Cues | T/F | Cred. Dist. | Partial | Job-Link | Minutia | #/units | Backward | Q# K/A | SRO Only | | |
| 91 | H* | 2 | | | | | | | | | | | | S | C Ident. chg Adh LK. (KA OK) |
| 2 | F | 2 | | | | | | | | | | | | S | C Loss of 120VAC |
| 3 | H | 2 | | | | | | | | | | | | ✓ (U) S | System Question Not SRO changed Q. to OI - Same item tested |
| 4 | H | 3 | | | | | | | | | | | | S | C SGLCS / Main Feed. |
| 5 | H | 2 | | | | | | | | | | | | S | C MEL and Manint (KA OK) |
| 6 | F | 2 | | | | | | | | | | | | S | C EHC |
| 7 | F | 2 | | | | | | | | | | | | S | C |
| 8 | F | 2 | | | | | | | | | | | | (U) R | Hub - is B also correct Used only in B. Revised B. add ONLY |
| 9 | H | 2 | | | | | | | | | | | | ✓ (U) S | System Question Not SRO only. select correct |
| 100 | F | 2 | | | | | | | | | | | | S | C |
| 1 | H | 2 | | | | | | | | | | | | S | R0 TNCB on Step 7 |
| 2 | H | 3 | | | | | | | | | | | | S | S Fire |
| 3 | H | 3 | | | | | | | | | | | | S | C |
| 4 | H | 3 | | | | | | | | | | | | E | C Page limit fail. OK distractn english |
| 5 | H | 3 | | | | | | | | | | | | S | C |
| 6 | F* | 3 | | | | | | | | | | | | S | C PZR Ltr - set points (KA OK) |
| 7 | H | 3 | | | | | | | | | | | | S | R0 Tai Pipe Temp (KA OK) |
| 8 | H | 2 | ✓ | | | | | | | | | | | ✓ (U) S | Good for R0 was revised for Baruchal ref. for event. |
| 9 | F | 3 | | | | | | | | | | | | S | C |
| 110 | H | 2 | | | | | | | | | | | | S | R0 |

| Q# | 1. LOK (F/H) | 2. LOD (1-5) | 3. Psychometric Flaws | | | | | 4. Job Content Flaws | | | | 5. Other | | 56. U/E/S | 67. Explanation |
|-----|--------------|--------------|-----------------------|------|-----|-------------|---------|----------------------|---------|---------|-----------|----------|----------|-----------|--|
| | | | Stem Focus | Cues | T/F | Cred. Dist. | Partial | Job-Link | Minutia | #/units | Back-ward | Q# K/A | SRO Only | | |
| 111 | H | 2 | | | | | | | | | | | | S | C |
| 112 | H | 3 | ✓ | | | | | | | | | | | E | C <i>engaged - one of voice on</i> ✓ |
| 113 | H | 2 | | | | X | | | | | | | | E | S <i>D' distractor - Noting then trend / Revised</i> ✓ |
| 114 | H | 3 | ✓ | | | | | | | | | | | E | S <i>appropriate → correct (KA OK) signed</i> ✓ |
| 115 | H | 2 | | | | | | | | | | | | S | C |
| 116 | F | 2 | | | | | | | | | | | | S | C |
| 117 | FX | X2 | | | | | | | | | | | | (U) | C <i>high GFE (all correct) will replace OK</i> Revised |
| 118 | F | 2 | | | | | | | | | | | | S | RO |
| 119 | H | 2 | | | | | | | | | | | | S | C <i>Voltages - OK</i> |
| 120 | H | 2 | | | | | | | | | | | | E | RO <i>High - Cues (KA OK) Site Revised C' Dist. ✓</i> |
| 121 | H | 3 | | | | | | | | | | | | S | C |
| 122 | F | 2 | | | | | | | | | | | | S | C |
| 123 | H | 3 | | | | | | | | | | | | S | RO |
| 124 | F | 2 | | | | | | | | | | | | S | C |
| 125 | H | X2 | ✓ | | | | | | | | | | | (U) | CD' <i>obvious ans. Revised B' dist - mid. Proc. ✓</i> |
| 126 | F | 2 | | | | | | | | | | | | S | C <i>Bitting Basis Q'</i> |
| 127 | F | 2 | ✓ | | | | | | | | | | | E | C <i>min/Reg ✓ OK</i> |
| 128 | F | 2 | | | | | | | | | | | | S | C |
| 129 | F | 2 | | | | | | | | | | | | E | R <i>Stem revised & include 'power' ✓</i> Revised |
| 130 | FX | 2 | | | | ✓ | | | | | | | | E | S <i>B' distractor revised.</i> |

N
N
NRC³⁴
~~N~~⁷³
NRC-mod
BK.

Comments to Calvert Cliffs - 7/17/00

Scenarios

1. Question on event 4 - scen. #1. What is action consequences of Pys level \uparrow fail.
2. Scen. #4 event 3. Consequences of chg pmp. aut. on RWST via VET. 700RS RWOT 2500 SDBIO.
3. Scen 5 - Spare - event 2. same as Scen #2. Not a prob. at this point.

JPMs

1. RO/SRO I act. has 5 alt path JPMs. ES 301 R ~~301~~ D.3.b - requires 40%.
2. SRO V act. 4 of 5 alt path - can only have 40% on 2 JPMs.

Wintton - No comment on outline.

*

398's include date of Rx moving.

OF - COMMENTS ON CC 9/2000 EXAM

R0 Admin

A1 Q1 + Q2 OK

A1 Vengy SDM - OK

A2 Chen Check - Will put one instrument out of spec.

A3 Q1 - revise g. Working in red field - how long & reach exp limit.

Q2 changed to closed up.

A4 add fault that 1 community does not answer -

SRO -

A1 - ToS. on SIT and Guns - revise & review Surv.

A1 - Risk assessment - JPM OK

A2 - Determine Post Maint test,

A3 - Same as R0

A4 - Classification + PAR

Wed - 8/30/00 JPM's

1. RAS Veng - Couple of prob. - getting fault in & require operator & take action - Alt Path. ✓

✓ 2. OC DIESEL OK

3. Inadvertent Dilution (alt Path) OK ✓

4. Resp. Feed/condemns rupture - OK

5. NI Cal - Change. - Start at step 2 vs 5 and ch. 'g' ✓

6. Vs 'B' due to equipment prob. ~~alt path~~ - requires cal. ✓

7. Restr. cc - Trip RCP's alt path ✓

R0 7. Loss of SD Cooling - Cont. Sp. used (alt Path). ✓

Upd SRO 8. Loss of SD Cooling Non Faulted.

| E/APE # / Name / Safety Function | K 1 | K 2 | K 3 | A 1 | A 2 | G | K/A Topics | Imp. | Points |
|--|--------|--------|--------|--------|--------|----|--|------|--------|
| 000001 Continuous Rod Withdrawl / 1 | | 8 | | | | | See RO Outline | 3 | 1 |
| 000003 Dropped Control Rod / 1 | | | 4 | | | | See RO Outline | 4.1 | 1 |
| 73 000005 Inoperable/Stuck Control Rod / 1 (SRO) | | | | | 3 | | Determine actions for more than 1 stuck or inoperable CEA | 4.4 | 1 |
| 76 000011 Large Break LOCA / 3 (SRO) | | | | | 10 | | Determine adequate core cooling during event | 4.7 | 1 |
| 000015/17 RCP Malfunctions / 4 | | | 2 | | | | See RO Outline | 3.1 | 1 |
| CE/A13 Natural Circ. / 4 | 2 | | | | | | See RO Outline | 3.5 | 1 |
| 44 000024 Emergency Boration / 1 (SRO) | | | | | 6 | | Determine when boron dilution event is occurring | 3.7 | 1 |
| 000026 Loss of Component Cooling Water / 8 | | | | | 3 | | See RO Outline | 2.9 | 1 |
| 000029 ATWS / 1 | | | | | | 31 | G2.1 See RO Outline | 3.9 | 1 |
| 134 000040 CE/E05 Stm Line Rupture/EHT / 4 | | | 3 | | | | Knowledge of manipulation of controls during ESD event | 4 | 1 |
| CE/A11 RCS Overcooling - PTS / 4 | | | | 2 | | | See RO Outline | 3.4 | 1 |
| 000051 Loss of Condenser Vacuum / 4 | | | | | | 32 | G2.1 See RO Outline | 3.8 | 1 |
| 130 000055 Station Blackout / 6 (SRO) | | | | | 3 | | Determine actions to restore power | 4.7 | 1 |
| 000057 Loss of Vital AC Elec. Inst. Bus / 6 | | | 1 | | | | See RO Outline | 4.4 | 1 |
| 000059 Accidental Liq Waste Release / 9 | | 1 | | | | | See RO Outline | 2.8 | 1 |
| 000062 Loss of Nuclear Service Water (SW) / 4 | | | | 2 | | | See RO Outline | 3.3 | 1 |
| 102 000067 Plant Fire On-site / 9 (SRO) | | | | | 16 | | Determine vital equipment to be maintained during a fire | 4 | 1 |
| 33 000068 Control Room Evac. / 8 (SRO) | | | | | 5 | | Determine availability of heat sink during CR evacuation | 4.3 | 1 |
| 000069 Loss of CTMT Integrity / 5 | | | 1 | | | | See RO Outline | 4.2 | 1 |
| 000074 Inad. Core Cooling / 4 | | | | | | 3 | G2.2 See RO Outline | 3.3 | 1 |
| 000076 High Reactor Coolant Activity / 9 | | | 6 | | | | See RO Outline | 3.8 | 1 |
| 39 000003 Dropped Rod | 7 | | | | | | Effect of Dropped Rod on Shutdown Margin | 3.9 | 1 |
| 43 00024 Emergency Boration | | 1 | | | | | Knowledge on the interrelationship with valves | 2.7 | 1 |
| 67 00076 High RCS Coolant Activity (SRO) | | | | | 2 | | Determine and interpret the corrective actions for Hi activity | 3.4 | 1 |

| | | | | | | | | | |
|----------------------------|---|---|---|---|---|---|--------------------|--|----|
| K/A Category Point Totals: | 2 | 3 | 6 | 2 | 8 | 3 | Group Point Total: | | 24 |
|----------------------------|---|---|---|---|---|---|--------------------|--|----|

CONFIDENTIAL

PWR SRO Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2

| E/APE # / Name / Safety Function | K 1 | K 2 | K 3 | A 1 | A 2 | G | K/A Topics | Imp. | Points |
|--|--------|--------|--------|--------|--------|----|--|------|--------|
| 000007 CE/EO2 Reactor Trip Stable/Recovery / 1 | | 2 | | | | | See RO Outline | 4 | 1 |
| 108 000008 Pressurizer Vapor Space Accident / 3(SRO) | | | | | 25 | | Determine expected leak rate from open PORV/Safety valve | 3.4 | 1 |
| 000009 Small Break LOCA / 3 | | | 23 | | | | See RO Outline | 4.3 | 1 |
| 000022 Loss of Reactor Coolant Makeup / 2 | | | | | 1 | | See RO Outline | 3.8 | 1 |
| 87 000025 Loss of SDC (RHR) / 4 (SRO) | | | | | 4 | | Determine location and isolability of leaks | 3.6 | 1 |
| 000027 Pressurizer Press Control Sys Malf / 3 | | | | | | 32 | G2.1 See RO Outline | 3.8 | 1 |
| 000032 Loss of Source Range NI / 8 | | | | 1 | | | See RO Outline | 3.4* | 1 |
| 000033 Loss of Wide Range NI / 7 | 1 | | | | | | See RO Outline | 3 | 1 |
| 000037 Steam Generator Tube Leak / 3 | | | 7 | | | | See RO Outline | 4.4 | 1 |
| 000038 Steam Generator Tube Rupture / 3 | | | | 11 | | | See RO Outline | 2.5 | 1 |
| 85 000054 (CE/E06) Loss of Main Feedwater / 4 (SRO) | | | | 2 | | | Ability to operate/monitor behavior characteristics during event | 4 | 1 |
| 83 000058 Loss of DC Power / 6 | 1 | | | | | | Operating implication of loss of DC power on equipment/inst | 3.1* | 1 |
| 000060 Accidental Gaseous Radwaste Rel. / 9 | | | 3 | | | | See RO Outline | 4.2 | 1 |
| 000061 ARM System Alarms / 7 | | | | | | 50 | G2.4 See RO Outline | 3.3 | 1 |
| 000065 Loss of Instrument Air / 8 | | | | | 8 | | See RO Outline | 3.3 | 1 |
| CE/E09 Functional Recovery | | 1 | | | | | See RO Outline | 3.9 | 1 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| K/A Category Point Totals: | 2 | 3 | 3 | 2 | 4 | 2 | Group Point Total: | | 16 |

Revised

| E/APE # / Name / Safety Function | K 1 | K 2 | K 3 | A 1 | A 2 | G | K/A Topics | Imp. | Points |
|--|--------|--------|--------|--------|--------|----|--|------|--------|
| 000028 Pressurizer Level Malfunction / 2 | | | | | | | | | |
| 000036 Fuel Handling Accident / 8 | | 1 | | | | | Interrelationship between rad monitor and event | 3.9 | 1 |
| 000056 Loss of Off-site Power / 6 | | | | | | 20 | G24 Operational implications of EOP warnings, cautions and notes | 4 | 1 |
| CE/A16 Excess RCS Leakage / 2 | | 2 | | | | | Interrelationship between event and heat removal system | 3.3 | 1 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| K/A Category Point Totals: | 0 | 2 | 0 | 0 | 0 | 1 | Group Point Total: | | 3 |

Revised

| System # / Name | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A 1 | A 2 | A 3 | A 4 | G | K/A Topics | Imp. | Points |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----|---|------|--------|
| 001 Control Rod Drive | | | | | | | | | | | 27 | G2.1 See RO Outline | 2.9 | |
| 003 Reactor Coolant Pump | | 1 | | | | | | | | | | See RO Outline | 3.1 | |
| 004 Chemical and Volume Control | | | | | | | | | | 17 | | See RO Outline | 2.7 | |
| 58 013 ESF Actuation (SRO) | | | | | | | | 4 | | | | Predict impact of loss of inst bus on sys | 4.2 | |
| 014 Rod Position Indication | | | | | | | | | | | 12 | G2.1 See RO Outline | 4 | |
| 015 Nuclear Instrumentation | 1 | | | | | | | | | | | See RO Outline | 4.2 | |
| 71 017 In-core Temperature Monitoring (SRO) | | | | | | | | 2 | | | | Using CETs to mitigate core damage | 4.1 | |
| 022 Containment Cooling | | | | | | | | | | 1 | | See RO Outline | 3.6 | |
| 026 Containment Spray | | | 1 | | | | | | | | | See RO Outline | 4.1 | |
| 15 056 Condensate (SRO) | | | | | | | | 4 | | | | Predict impact of loss of condensate pps | 2.8* | |
| 93 059 Main Feedwater (SRO) | | | | | | | | 11 | | | | Predict impact of FW control failure | 3.3* | |
| 061 Auxiliary/Emergency Feedwater | | | | | 1 | | | | | | | See RO Outline | 3.9 | |
| 31 063 DC Electrical Distribution (SRO) | | | | | | | | 1 | | | | Predict impact of grounds on DC system | 3.2* | |
| 068 Liquid Radwaste | | | | 1 | | | | | | | | See RO Outline | 4.1 | |
| 071 Waste Gas Disposal | | | | | | | | | | | 29 | See RO Outline | 3.6* | |
| 072 Area Radiation Monitoring | 4 | | | | | | | | | | | See RO Outline | 3.5* | |
| 022 Containment Cooling | 1 | | | | | | | | | | | Cause/effect between CCS and SRW sys | 3.7 | |
| 059 Main Feedwater | | | | | | | | | | 3 | | See RO Outline | 2.9 | |
| 013 ESFAS | | | | | | | | | 2 | | | See RO Outline | 4.2 | |
| K/A Category Point Totals: | 3 | 1 | 1 | 1 | 1 | 0 | 0 | 5 | 1 | 4 | 2 | Group Point Total: | | 19 |

Revised

| System # / Name | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A 1 | A 2 | A 3 | A 4 | G | K/A Topics | Imp. | Points |
|---------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|---|------|--------|
| 002 Reactor Coolant | | | | | 19 | | | | | | | See RO Outline | 2.9 | 1 |
| 006 Emergency Core Cooling | | | | | | | | | | 8 | | See RO Outline | 4.3 | 1 |
| 010 Pressurizer Pressure Control | | | | | | | | | | 3 | | See RO Outline | 3.8 | 1 |
| 011 Pressurizer Level Control | | | 2 | | | | | | | | | See RO Outline | 3.7 | 1 |
| 012 Reactor Protection | | | | | | | | | | | | | | |
| 016 Non-nuclear Instrumentation (SRO) | | | | | | | | 1 | | | | Predict impact of detector failure on sys | 3.1* | 1 |
| 027 Containment Iodine Removal | | | | | | | | | | | | | | |
| 028 H2 Recombiner and Purge Control | | | | | | 1 | | | | | | See RO Outline | 3.1 | 1 |
| 029 Containment Purge | | | | | | | | | 1 | | | See RO Outline | 4 | 1 |
| 033 Spent Fuel Pool Cooling | | | | | | | 1 | | | | | See RO Outline | 3.3 | 1 |
| 034 Fuel Handling Equipment | | | | | | | | | 2 | | | See RO Outline | 3.1 | 1 |
| 035 Steam Generator | | | | | | | | | 1 | | | See RO Outline | 3.9 | 1 |
| 039 Main and Reheat Steam | | | | | | | 9 | | | | | See RO Outline | 2.7* | 1 |
| 055 Condenser Air Removal | | | 1 | | | | | | | | | See RO Outline | 2.7 | 1 |
| 062 AC Electrical Distribution | | | | | | | | | | | | | | |
| 064 Emergency Diesel Generator | | 3 | | | | | | | | | | See RO Outline | 3.6 | 1 |
| 073 Process Radiation Monitoring | | | | | 1 | | | | | | | See RO Outline | 3 | 1 |
| 075 Circulating Water | | | | | | | | | | | | | | |
| 079 Station Air | | | | | | | | | | 1 | | See RO Outline | 2.7 | 1 |
| 086 Fire Protection | | | | | | 4 | | | | | | See RO Outline | 2.9 | 1 |
| 103 Containment | | | | 4 | | | | | | | | Design features of access hatches | 3.2 | 1 |
| K/A Category Point Totals: | 0 | 1 | 2 | 1 | 2 | 2 | 2 | 1 | 3 | 3 | 0 | Group Point Total: | | 17 |

CONFIDENTIAL

| System # / Name | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A 1 | A 2 | A 3 | A 4 | G | K/A Topics | Imp. | Points |
|---|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|---------------------------------------|------|--------|
| 005 Residual Heat Removal / SDC | | | | | | | | | | | | | | |
| 007 Pressurizer Relief/Quench Tank | | | | 1 | | | | | | | | See RO Outline | 2.9 | 1 |
| 008 Component Cooling Water (SRO) | | | | | | | | 9 | | | | Predict impact of letdown temp on IXs | 2.8 | 1 |
| 041 Steam Dump/Turbine Bypass Control | 5 | | | | | | | | | | | See RO Outline | 3.6 | 1 |
| 045 Main Turbine Generator | 20 | | | | | | | | | | | See RO Outline | 3.6 | 1 |
| 076 Service Water | | | | | | | | | | | | | | |
| 078 Instrument Air | | | | | | | | | | | | | | |
| K/A Category Point Totals: | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | Group Point Total: | | 4 |
| Plant Specific Priorities | | | | | | | | | | | | | | |
| System/Topic | Recommended Relacement for: | | | | | | | | | | | Reason | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Plant Specific Priority Total: (limit 10) | | | | | | | | | | | | | | |

CONFIDENTIAL

| y: CCNPP Units 1 & 2 | | Date of Exam 9/22/00 | | Exam Level: SRO | |
|---------------------------------|----------|---|-----|-----------------|---|
| Category | K/A # | Topic | Imp | Points | |
| 21 | 2.1.2 ✓ | Knowledge of operator responsibilities in all Modes | 4 | 1 | ✓ |
| 16 - | 2.1.3 ✓ | See RO Outline | 3.4 | 1 | ✓ |
| 19 - | 2.1.10 ✓ | Knowledge of conditions and limitations of License | 3.9 | 1 | ✓ |
| 20 | 2.1.13 ✓ | Knowledge of CCNPP requirements for vital areas | 2.9 | 1 | ✓ |
| | 2.1.29 ✓ | Knowledge of conduct and verification of valve lineups | 3.3 | 1 | ✓ |
| | 2.1. | | | | |
| | Total | | | 5 | |
| 53 - | 2.2.3 ✓ | Design, procedure or operational difference between Units | 3.3 | 1 | ✓ |
| 54 - | 2.2.13 ✓ | See RO Outline | 3.8 | 1 | ✓ |
| | 2.2.22 ✓ | Knowledge of LCOs and Safety Limits | 4.1 | 1 | ✓ |
| | 2.2.28 ✓ | See RO Outline | 3.5 | 1 | ✓ |
| | 2.2. | | | | |
| | 2.2. | | | | |
| | Total | | | 4 | |
| 113 - | 2.3.2 ✓ | Knowledge of ALARA Program | 2.9 | 1 | ✓ |
| 114 - | 2.3.4 ✓ | See RO Outline | 3.1 | 1 | ✓ |
| | 2.3.6 ✓ | Knowledge of requirements for approving release permits | 3.1 | 1 | ✓ |
| | 2.3.9 ✓ | See RO Outline | 3.4 | 1 | ✓ |
| | 2.3. | | | | |
| | 2.3. | | | | |
| | Total | | | 4 | |
| 48 - | 2.4.1 ✓ | Knowledge of EOP entry conditions and steps | 4.6 | 1 | ✓ |
| | 2.4.11 ✓ | See RO Outline | 3.6 | 1 | ✓ |
| 47 - | 2.4.15 ✓ | See RO Outline | 3.5 | 1 | ✓ |
| | 2.4.40 ✓ | Knowledge of SRO responsibility in ERPIP | 4 | 1 | ✓ |
| | 2.4. | | | | |
| | 2.4. | | | | |
| | Total | | | 4 | |
| Tier 3 Target Point Total (SRO) | | | | 17 | |

CONFIDENTIAL

10

| E/APE # / Name / Safety Function | K 1 | K 2 | K 3 | A 1 | A 2 | G | K/A Topics | Imp. | Points |
|---|--------|--------|--------|--------|--------|----|--|------|--------|
| 000005 Inoperable/Stuck Control Rod / 1 | | | | | 3 | | Determine actions with >1 CEA inoperable | 3.5 | 1 |
| 000015/17 RCP Malfunctions / 4 | | | 2 | | | | Knowledge of CCW lineup to RCPs | 3 | 1 |
| CE/A13 Natural Circ. / 4 | 2 | | | | | | Abnormal/Emergency procedure associated with event | 3.2 | 1 |
| 000024 Emergency Boration / 1 | | | | | 6 | | Determine boron dilution event | 3.6 | 1 |
| 000026 Loss of Component Cooling Water / 8 | | | | | 3 | | Valve lineup necessary to restart CC system | 2.6 | 1 |
| 000027 Prz Pressure Control Sys malfunction / 3 | | | | | | 32 | G2.1- Apply system limits and precautions during event | 3.4 | 1 |
| 000040 CE/E05 Stm Line Rupture/EHT / 4 | | | | | 2 | | Adherence to procedure and operation within facility license | 3.4 | 1 |
| CE/A11 RCS Overcooling - PTS / 4 | | | | 2 | | | Ability to monitor operating characteristics during event | 3.2 | 1 |
| 000051 Loss of Condenser Vacuum / 4 | | | | | | 32 | G2.1- Apply system limits and precautions during event | 3.4 | 1 |
| 000055 Station Blackout / 6 | | | | | 3 | | Determine actions required to restore power during event | 3.9 | 1 |
| 000057 Loss of Vital AC Elec. Inst. Bus / 6 | | | 1 | | | | Actions in AOP for loss of vital AC instrument bus | 4.1 | 1 |
| 000062 Loss of Nuclear Service Water (SW) / 4 | | | | 6 | | | Ability to operate/monitor component flow rates during event | 2.9 | 1 |
| 000067 Plant Fire On-site / 9 | | | | | | | | | |
| 000068 Control Room Evac. / 8 | | | | | 5 | | Determine availability of RCS heat sink during evacuation | 4.2 | 1 |
| 000069 Loss of CTMT Integrity / 5 | | | 1 | | | | Knowledge of steps contained in AOP 4 (Loss of Cont Integrity) | 3.8* | 1 |
| 000074 Inad. Core Cooling / 4 | | | | | | 3 | G2.2- Knowledge of operational differences between Units | 3.1 | 1 |
| 000076 High Reactor Coolant Activity / 9 | | | 6 | | | | Reasons for actions in AOP 6 (Hi RCS Activity) | 3.2 | 1 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| K/A Category Point Totals: | 1 | 0 | 4 | 2 | 6 | 3 | Group Point Total: | | 16 |

CONFIDENTIAL

| E/APE # / Name / Safety Function | K 1 | K 2 | K 3 | A 1 | A 2 | G | K/A Topics | Imp. | Points |
|--|--------|--------|--------|--------|--------|----|---|------|--------|
| 000001 Continuous Rod Withdrawl / 1 | | 8 | | | | | Interrelationship between event and CEA indication | 3.1 | 1 |
| 000003 Dropped Control Rod / 1 | | | 4 | | | | Reasons for actions in AOP 1B (CEA Malfunctions) | 3.8* | 1 |
| 000007 CE/EO2 Reactor Trip Stable/Recovery / 1 | | 2 | | | | | Interrelationship between event and heat removal systems | 3.5 | 1 |
| 000008 Pressurizer Vapor Space Accident/ 3 | 1 | | | | | | Operational implications of open or leaking SV or ERV | 3.2 | 1 |
| 000009 Small Break LOCA / 3 | | | 23 | | | | Reasons for RCP Trip strategy during SBLOCA event | 4.2 | 1 |
| 000011 Large Break LOCA / 3 | | | | | 10 | | Determine adequate core cooling during LBLOCA event | 4.5 | 1 |
| 000022 Loss of Reactor Coolant Makeup / 2 | | | | | 1 | | Determine existence of Charging line leak | 3.2 | 1 |
| 000025 Loss of SDC (RHR) / 4 | 1 | | | | | | Implications of loss of SDC during all modes of operation | 3.9 | 1 |
| 000029 ATWS / 1 | | | | | | 31 | G2.1- Determine correct switch lineup during event | 4.2 | 1 |
| 000032 Loss of Source Range NI / 8 | | | | 1 | | | Operate/monitor restoration of power to Nis. | 3.1* | 1 |
| 000033 Loss of Wide Range NI / 7 | 1 | | | | | | Operational implications of voltage change effects | 2.7 | 1 |
| 000037 Steam Generator Tube Leak / 3 | | | 7 | | | | Actions in AOP 10 for SG leakage | 4.2 | 1 |
| 000038 Steam Generator Tube Rupture / 3 | | | | 1 | | | Monitor for abnormal increases in SG levels during event | 4.5 | 1 |
| 000054 (CE/E06) Loss of Main Feedwater / 4 | | | | | | | | | |
| 000058 Loss of DC Power / 6 | | | | | | | | | |
| 000059 Accidental Liq Waste Release / 9 | | 1 | | | | | Interrelationship between accidental release and monitor | 2.7 | 1 |
| 000060 Accidental Gaseous Radwaste Rel. / 9 | | | 3 | | | | Actions in AOP 6C during accidental Radioactive gas release | 3.8 | 1 |
| 000061 ARM System Alarms / 7 | | | | | | 50 | G2.4- Verify setpoints and operate per Alarm Manual | 3.3 | 1 |
| CE/E09 Functional Recovery | | 1 | | | | | Interrelationship between EOP 8 and reactivity control | 3.6 | 1 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| K/A Category Point Totals: | 3 | 4 | 4 | 2 | 2 | 2 | Group Point Total: | | 17 |

| E/APE # / Name / Safety Function | K 1 | K 2 | K 3 | A 1 | A 2 | G | K/A Topics | Imp. | Points |
|--|--------|--------|--------|--------|--------|----|---|------|--------|
| 000028 Pressurizer Level Malfunction / 2 | | | | | | | | | |
| 000036 Fuel Handling Accident / 8 | | | | | | 27 | G2.2- Knowledge of Refueling process | 2.6 | 1 |
| 000056 Loss of Off-site Power / 6 | | | | | | | | | |
| 000065 Loss of Inst Air / 8 | | | | | 8 | | Determine failure modes of air-operated valves during event | 2.9* | 1 |
| CE/A16 Excess RCS Leakage / 2 | | 1 | | | | | Interrelationship between RCS leakage and control function | 3.2 | 1 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| K/A Category Point Totals: | | 1 | | | 1 | 1 | Group Point Total: | | 3 |

CONFIDENTIAL

Changes

| System # / Name | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A 1 | A 2 | A 3 | A 4 | G | K/A Topics | Imp. | Points |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----|--|------|--------|
| 001 Control Rod Drive | | | | | | | | | | | 27 | G2.1- Knowledge of system function | 2.8 | 1 |
| 003 Reactor Coolant Pump | | 1 | | | | | | | | | | Knowledge of bus power supplies | 3.1 | 1 |
| 004 Chemical and Volume Control | | | | | | | | | | 17 | | Monitor deborating IX operation | 2.7 | 1 |
| 013 Engineered Safety Features Actuation | | | | | | | | 4 | | | | Determine impact of loss of inst bus | 3.6 | 1 |
| 015 Nuclear Instrumentation | 1 | | | | | | | | | | | Cause/effect between Nis and RPS | 4.1 | 1 |
| 017 In-core Temperature Monitoring | | | | | | | | 2 | | | | Using CETs to mitigate core damage | 3.6 | 1 |
| 022 Containment Cooling | | | | | | | | | | 1 | | Monitor CAC operation | 3.6 | 1 |
| 056 Condensate | | | | | | | | 4 | | | | Predict impact of loss of cond. pump(s) | 2.6 | 1 |
| 059 Main Feedwater | | | | | | | | | | 3 | | Predict effect of DFWCS failure | 3.0* | 1 |
| 061 Auxiliary/Emergency Feedwater | | | | | 1 | | | | | | | Interrelationship between AFW and RCS | 3.6 | 1 |
| 068 Liquid Radwaste | | | | | | | | | | | 11 | G2.3- Ability to control Radiation release | 2.7 | 1 |
| 071 Waste Gas Disposal | 4 | | | | | | | | | | | Relationship between WG and ventilation | 2.7 | 1 |
| 072 Area Radiation Monitoring | | | | | | | | 2 | | | | Impact of detector failure | 2.8 | 1 |
| 068 Liquid Radwaste | | | | 1 | | | | | | | | Design features of Misc Waste System | 3.4 | 1 |
| 013 Engineered Safety Features Actuation | | | | | | | | | 2 | | | Monitor auto operation of ESF equip | 4.1 | 1 |
| 072 Area Radiation Monitoring | 4 | | | | | | | | | | | Cause/effect on CR ventilation system | 3.3* | 1 |
| 015 Nuclear Instrumentation | | | | | | | | 3 | | | | Predict impact of Xe oscillation | 3.2 | 1 |
| 003 Reactor Coolant Pump | 13 | | | | | | | | | | | Cause/effect of RCP Oil-lift pump | 2.5 | 1 |
| 061 Auxiliary Feedwater | 7 | | | | | | | | | | | Cause/effect of water source on system | 3.6 | 1 |
| 056 Condensate | 3 | | | | | | | | | | | Cause/effect of MFW on Condensate sys | 2.6* | 1 |
| 004 Chemical and Volume Control | | | | | | | 11 | | | | | Monitor L/D and Charging design flows | 3 | 1 |
| 071 Waste Gas Disposal | | | | | | | | | | 29 | | O2, N2 or H2 Limits of WGDT | 3.0* | 1 |
| 001 Control Rod Drive | | | | 23 | | | | | | | | Design features of CMI | 3.9 | 1 |
| K/A Category Point Totals: | 6 | 1 | 0 | 2 | 1 | 0 | 1 | 6 | 1 | 3 | 2 | Group Point Total: | | 23 |

Revised

| System # / Name | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A 1 | A 2 | A 3 | A 4 | G | K/A Topics | Imp. | Points |
|----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----|---|------|--------|
| 002 Reactor Coolant | | | | | 19 | | | | | | | Implications of neutron embrittlement | 2.6 | 1 |
| 006 Emergency Core Cooling | | | | | | | | | | 8 | | Manually ^{AUTO} operate ESF (including RESET) | 4.2 | 1 |
| 010 Pressurizer Pressure Control | | | | | | | | | | 3 | | Monitor PORV and Block Valves | 4 | 1 |
| 011 Pressurizer Level Control | | | 2 | | | | | | | | | Cause/effect of Malfunction on RCS | 3.5 | 1 |
| 012 Reactor Protection | 6 | | | | | | | | | | | Relationship between RPS and Main Turb | 3.1* | 1 |
| 014 Rod Position Indication | | | | | | | | | | | 12 | G2.1- Apply TRM requirements to RPI | 2.9 | 1 |
| 016 Non-nuclear Instrumentation | | | | | | | | 1 | | | | Predict RRS NI detector failure effects | 3.0* | 1 |
| 026 Containment Spray | | | 1 | | | | | | | | | Effect of malfunction of CS on Cont Clg | 3.9 | 1 |
| 029 Containment Purge | | | | | | | | | 1 | | | Monitor auto isolation of Cont Purge | 3.8 | 1 |
| 033 Spent Fuel Pool Cooling | | | | | | | 1 | | | | | Monitor SFP water level for design limit | 2.7 | 1 |
| 035 Steam Generator | | | | | | | | | 1 | | | Monitor auto water level control | 4 | 1 |
| 039 Main and Reheat Steam | | | | | | | 9 | | | | | Predict effect/monitor MS Rad Monitor | 2.5* | 1 |
| 055 Condenser Air Removal | | | 1 | | | | | | | | | CAR malf effect on Main Condenser | 2.5 | 1 |
| 062 AC Electrical Distribution | | | | 5 | | | | | | | | Interlocks of synchscope (paralleling) | 2.7* | 1 |
| 063 DC Electrical Distribution | | | | | | | | 1 | | | | Impact of ground on DC system | 2.5 | 1 |
| 064 Emergency Diesel Generator | | 3 | | | | | | | | | | Knowledge of control power supplies | 3.2* | 1 |
| 073 Process Radiation Monitoring | | | | | 1 | | | | | | | Operational implications of source (crud) | 2.5 | 1 |
| 075 Circulating Water | 2 | | | | | | | | | | | Cause/effect of CW on liquid release | 2.9 | 1 |
| 079 Station Air | | | | | | | | | | 1 | | Monitor PA to IA CV X-connect op | 2.7 | 1 |
| 086 Fire Protection | | | | | | 4 | | | | | | Effect of malf of fire detector on system | 2.6 | 1 |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| K/A Category Point Totals: | 2 | 1 | 3 | 1 | 2 | 1 | 2 | 2 | 2 | 3 | 1 | Group Point Total: | | 20 |

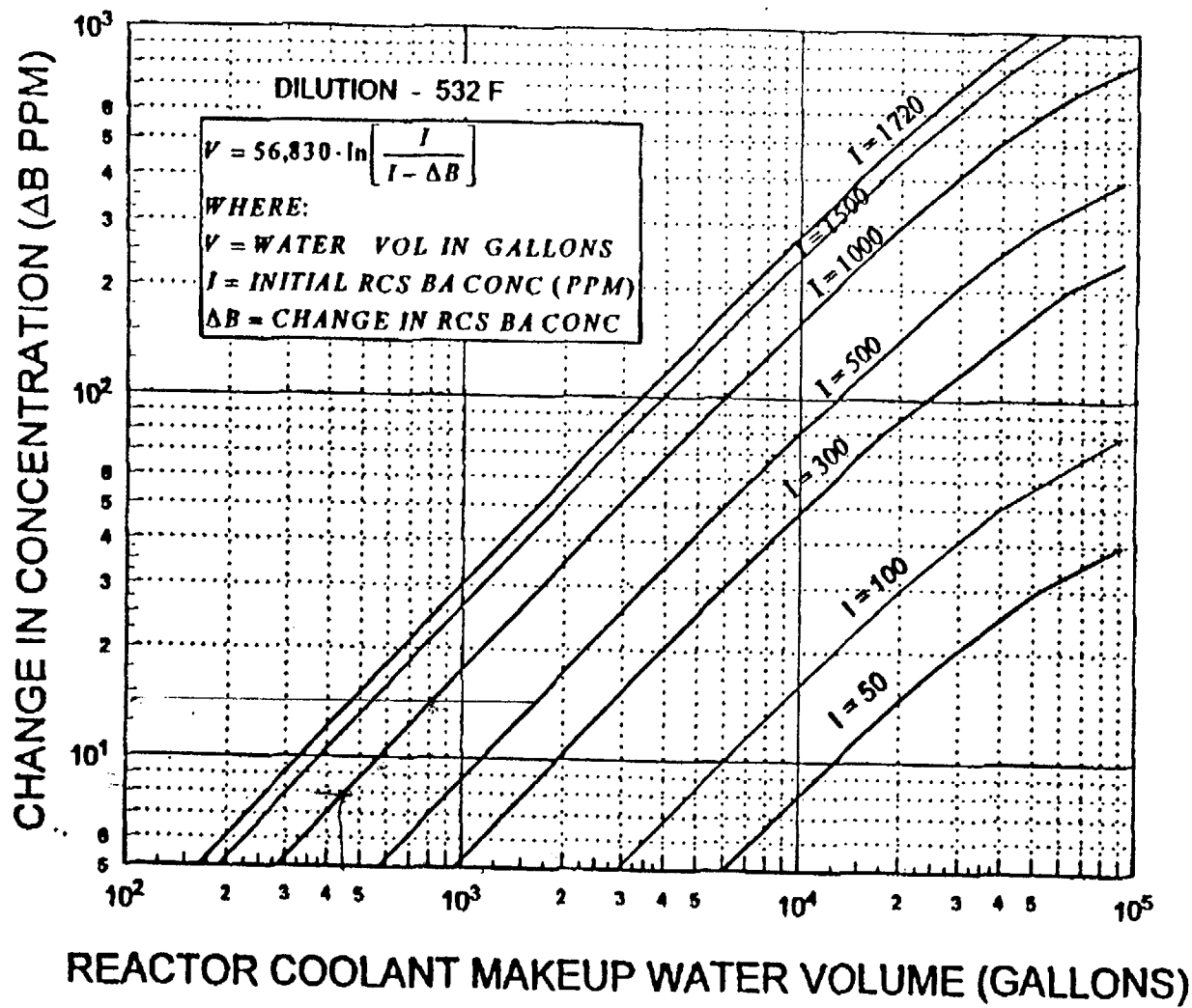
| System # / Name | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A 1 | A 2 | A 3 | A 4 | G | K/A Topics | Imp. | Points |
|---|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|---|------|--------|
| 005 Residual Heat Removal / SDC | | | | | | | | | | | | | | |
| 007 Pressurizer Relief/Quench Tank | | | | 1 | | | | | | | | Design features for Quench Tk cooling | 2.6 | 1 |
| 008 Component Cooling Water | | | | | | | | | | | | | | |
| 027 Containment Iodine Removal | 1 | | | | | | | | | | | Cause/effect of Iodine and CS systems | 3.4* | 1 |
| 028 H2 Recombiner and Purge Control | | | | | | 1 | | | | | | Effect of malf on Hydrogen Recombiners | 2.6 | 1 |
| 034 Fuel Handling Equipment | | | | | | | | | 2 | | | Monitor auto operation of load limits | 2.5* | 1 |
| 041 Steam Dump/Turbine Bypass Control | 5 | | | | | | | | | | | Cause/effect of Stm Dump on RCS | 3.5 | 1 |
| 045 Main Turbine Generator | 20 | | | | | | | | | | | Cause/effect between MT and protection | 3.4 | 1 |
| 076 Service Water | | | | | | | 2 | | | | | Predict effect of temp changes on loads | 2.6* | 1 |
| 078 Instrument Air | | 2 | | | | | | | | | | Knowledge of power supply for SWACs | 3.3* | 1 |
| 103 Containment | | | | | | | | | | | | | | |
| K/A Category Point Totals: | 3 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | Group Point Total: | | 8 |
| Plant Specific Priorities System/ topic | Recommended Replacement for: | | | | | | | | | | | Reason | | Points |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Plant Specific Priority total: (limit 10) | | | | | | | | | | | | | | |

CONFIDENTIAL

| Facility: CCNPP 1 & 2 | | Date of Exam 9/22/00 | Exam Level: RO | |
|--------------------------------|--------|---|----------------|--------|
| Category | K/A # | Topic | Imp | Points |
| Conduct of Operations | 2.1.2 | Knowledge of Operator responsibilities in all Modes <input checked="" type="checkbox"/> | 3 | 1 |
| | 2.1.3 | Knowledge of Shift Turnover practices <input checked="" type="checkbox"/> | 3 | 1 |
| | 2.1.10 | Knowledge of conditions and limitations of license <input checked="" type="checkbox"/> | 2.7 | 1 |
| | 2.1. | | | |
| | 2.1. | | | |
| | 2.1. | | | |
| | Total | | | 3 |
| Equipment Control | 2.2.3 | Design, procedure or operational difference between Units <input checked="" type="checkbox"/> | 3.1 | 1 |
| | 2.2.13 | Knowledge of Safety Tagging procedures <input checked="" type="checkbox"/> | 3.6 | 1 |
| | 2.2.28 | Knowledge of new and spent fuel procedures <input checked="" type="checkbox"/> | 2.6 | 1 |
| | 2.2. | | | |
| | 2.2. | | | |
| | 2.2. | | | |
| | Total | | | 3 |
| Radiation Control | 2.3.2 | Knowledge of ALARA program <input checked="" type="checkbox"/> | 2.5 | 1 |
| | 2.3.4 | Knowledge of radiation exposure limits <input checked="" type="checkbox"/> | 2.5 | 1 |
| | 2.3.9 | Knowledge of performing a Containment Purge <input checked="" type="checkbox"/> | 2.5 | 1 |
| | 2.3. | | | |
| | 2.3. | | | |
| | 2.3. | | | |
| | Total | | | 3 |
| Emergency Procedures and Plan | 2.4.1 | Knowledge of EOP entry conditions and steps <input checked="" type="checkbox"/> | 4.3 | 1 |
| | 2.4.11 | Knowledge of AOP implementation <input checked="" type="checkbox"/> | 3.4 | 1 |
| | 2.4.15 | Knowledge of communications for EOP implementation <input checked="" type="checkbox"/> | 3 | 1 |
| | 2.4.39 | Knowledge of RO responsibilities in ERPIP <input checked="" type="checkbox"/> | 3.3 | 1 |
| | 2.4. | | | |
| | 2.4. | | | |
| | Total | | | 4 |
| Tier 3 Target Point Total (RO) | | | | 13 |

CONFIDENTIAL

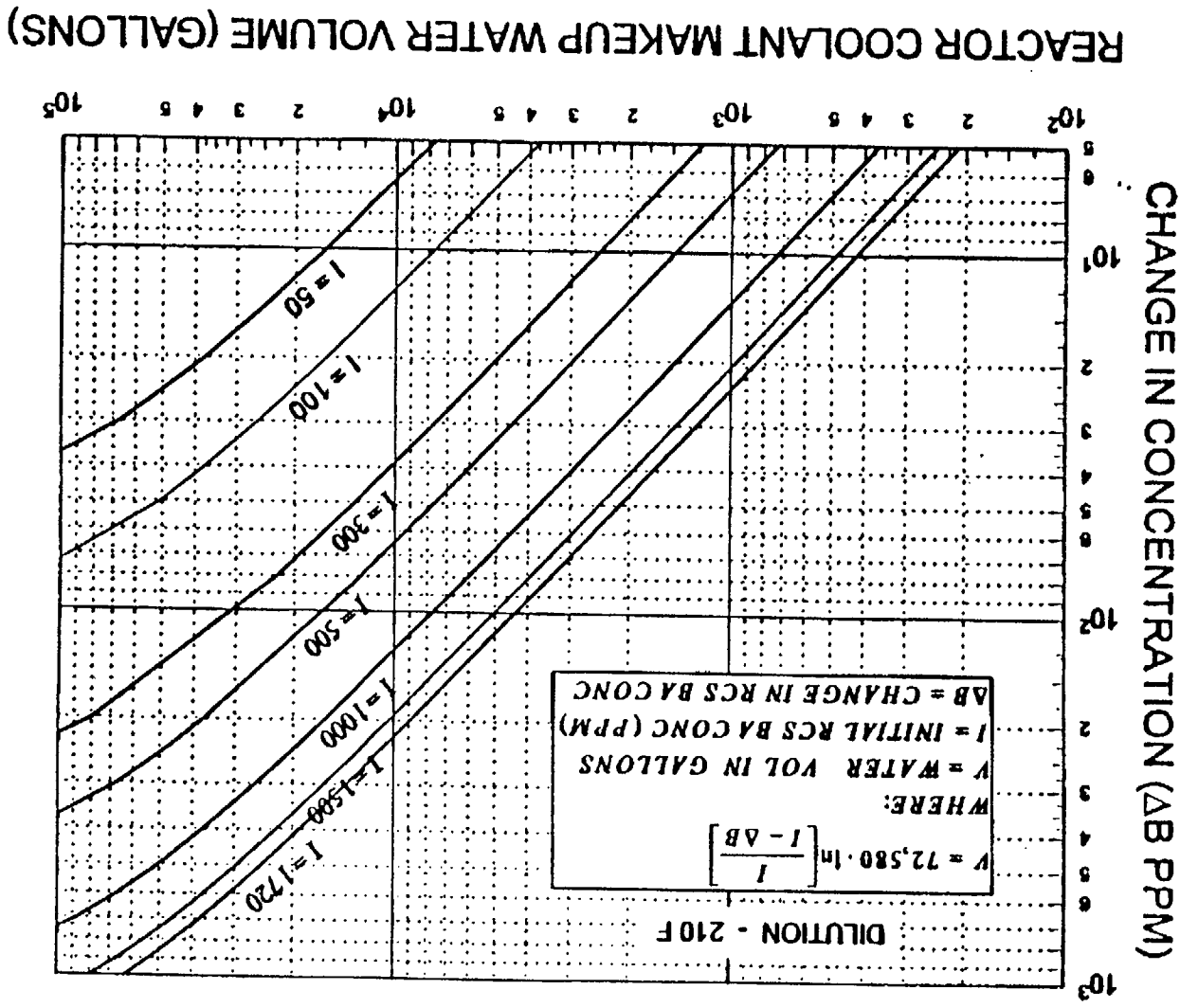
DILUTION VOLUME (GREATER THAN 210°F)



35 $\sqrt[13]{450}$

CVCS BORATION, DILUTION AND MAKEUP OPERATIONS

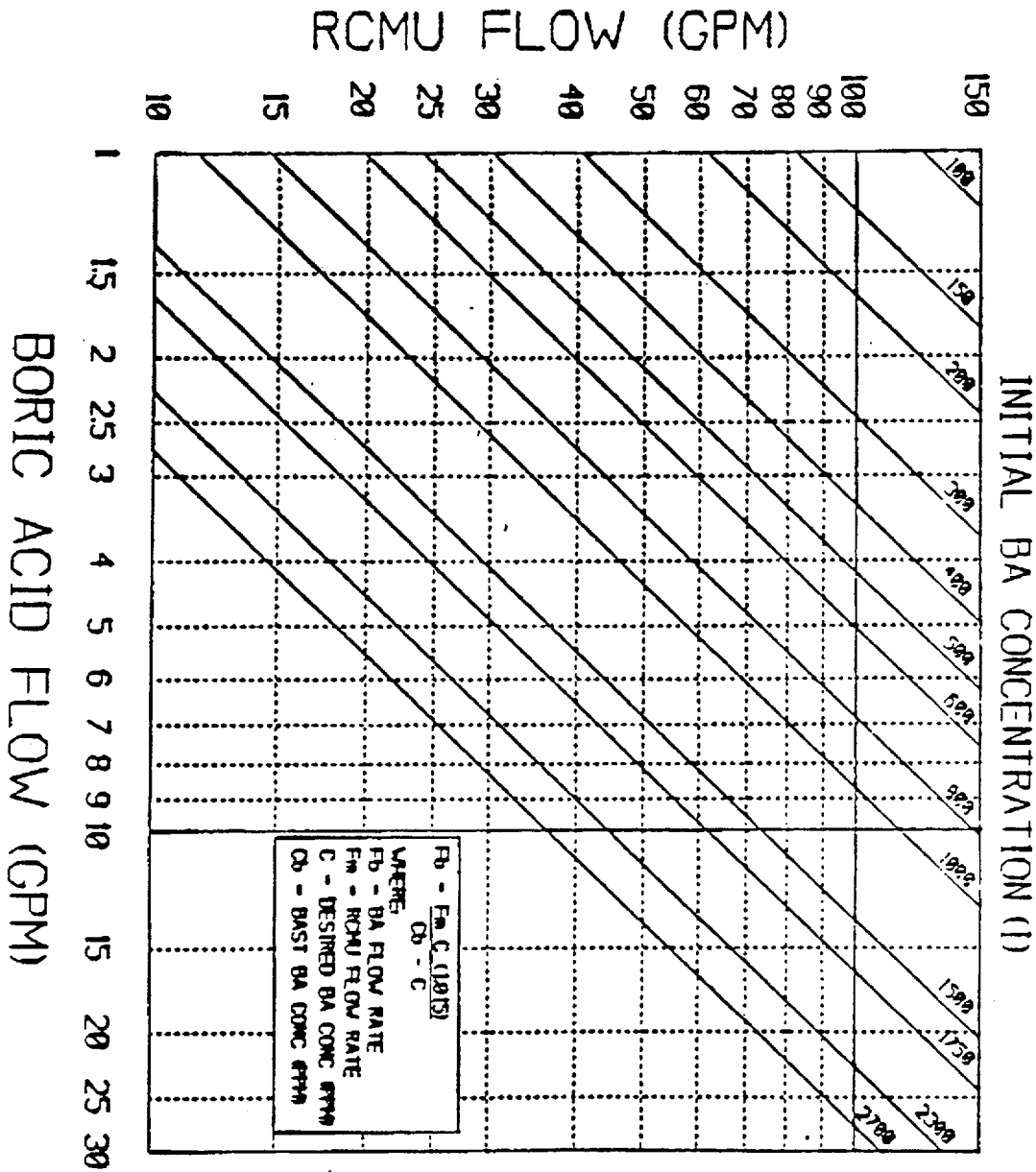
DILUTION VOLUME (LESS THAN or EQUAL TO 210° F)



AUTO MAKEUP AND MANUAL BLEND

NOTE
Based on 7 1/4 W/O in BAST.

To convert BAST boron concentration from W/O to PPM, multiply the W/O by 1748.41.



Humb. 15 total US

+ 2 Rooc Umato

27 allowed = 20%

SRO Question - 12 Umato of 35 questions.

85 total answers.
304 For H. Dingemans.

| | | | |
|---------------|----|-----|-----|
| 11 | 43 | 73 | 108 |
| 15 | 44 | 76 | 113 |
| 16 | 47 | 79 | 114 |
| 19 | 48 | 83 | 130 |
| 21 | 53 | 85 | 134 |
| 22 | 54 | 87 | |
| 23 | 58 | 93 | |
| 33 | 63 | 99 | |
| 37 | 67 | 102 | |
| 39 | 71 | | |

SPO 95

35 total