# Written Examination Review Worksheet

# All questions were reviewed for psychometric flaws and K/A match. The last 25 questions are the SRO questions.

| 0," | 1.   |              |               |         |           |                |           |              |            |             |               |           |             |          |  |
|-----|--|--------------|---------------|---------|-----------|----------------|-----------|--------------|------------|-------------|---------------|-----------|-------------|----------|--|
| Q#  | LOK<br>(F/H)   | LOD<br>(1-5) | Stem<br>Focus | Cues    | T/F       | Cred.<br>Dist. | Partial   | Job-<br>Link | Minutia    | #/<br>units | Back-<br>ward | Q=<br>K/A | SRO<br>Only | U/E/S    | Explanation  |
| 1N  | Н  | 2.5          |               |         |           |                |           |              |            |             |               |           |             | S        |  |
| 2M  | Н  | 2.0          |               |         |           |                |           |              |            |             |               |           |             | S        |  |
| 3N  | F  | 2.0          |               |         |           |                |           |              |            |             |               |           |             | sʉ       | Procedure indicates the RCP should be tripped when the Rx is SD. Note modifies the step to allow continued operation of the RCP. Left as is. |
| 4N  | F  | 2.0          |               |         |           |                |           |              |            |             |               |           |             | S        |  |
| 5B  | Н  | 2.0          |               |         |           |                |           |              |            |             |               |           |             | E        | Check terminology "seal leakoff" vs "seal return flow" Changed to seal leakoff flow.   |
| 1.  |  |              |               |         |           |                |           |              |            |             |               |           |             |          |  |
| 2.  |  |              |               |         |           |                |           |              |            |             |               |           |             |          |  |
| 3.  |  |              |               |         |           |                |           |              |            |             |               |           |             |          |  |
|     | <ul> <li>The stem lacks sufficient focus to elicit the correct answer (e.g., unclear intent, more information is needed, or too much needless information).</li> <li>The stem or distractors contain cues (i.e., clues, specific determiners, phrasing, length, etc).</li> </ul>   |              |               |         |           |                |           |              |            |             |               |           |             |          |  |
|     | •  |              | The an        | swer c  | hoices a  | are a col      | lection o | of unrel     | ated true/ | false s     | statemer      | nts.      | 0,          | 0 /      | ,  |
|     | •  |              |               |         |           |                |           |              |            |             |               |           |             |          | han one is unacceptable.<br>assumptions that are not contradicted by stem).  |
| 4.  | <ul> <li>One or more distractors is (are) partially correct (e.g., if the applicant can make unstated assumptions that are not contradicted by stem).</li> <li>Check the appropriate box if a job content error is identified:         <ul> <li>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).</li> <li>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).</li> <li>The question contains data with an unrealistic level of accuracy or inconsistent units (e.g., panel meter in percent with question in gallons).</li> <li>The question requires reverse logic or application compared to the job requirements.</li> </ul> </li> </ul> |              |               |         |           |                |           |              |            |             |               |           |             |          |  |
| 5.  |  |              |               |         |           |                |           |              |            |             |               |           |             |          |  |
| 6.  | <ol> <li>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?</li> </ol>  |              |               |         |           |                |           |              |            |             |               |           |             |          |  |
| 7.  | A  | t a minir    | num, ex       | plain a | ny "U" ra | atings (e      | e.g., how | the Ap       | opendix B  | s psych     | nometric      | attribu   | utes are    | e not be | ing met).  |

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| <b>0</b> # | 1.           | 2.           | 3             | . Psycl | hometr | ic Flaws       | 3       | 4.           | Job Cont | ent Fla     | aws           | 5. C | ther        | 6.    | 7.  |
|------------|--------------|--------------|---------------|---------|--------|----------------|---------|--------------|----------|-------------|---------------|------|-------------|-------|---|
| Q#         | LOK<br>(F/H) | LOD<br>(1-5) | Stem<br>Focus | Cues    | T/F    | Cred.<br>Dist. | Partial | Job-<br>Link | Minutia  | #/<br>units | Back-<br>ward |      | SRO<br>Only | U/E/S | Explanation   |
| 6N         | Н            | 2.5          |               |         |        |                |         |              |          |             |               |      |             | U     | K/A is not correct. Question replaced.  |
| 7B         | F            | 2.5          |               |         |        |                |         |              |          |             |               |      |             | E     | Capitalize the word "PREFERRED" in the question stem. <i>Capitalized &amp; underlined</i> .   |
| 8M         | н            | 2.5          |               |         |        |                |         |              |          |             |               |      |             | s⊎    | Can distractor c. be correct if the applicant interpolates? If so, then two correct answers. <i>Procedure does not allow interpolation.</i> Question is ok as is. |
| 9M         | Н            | 2.0          |               |         |        |                |         |              |          |             |               |      |             | Е     | Sixth bullet - verb/tense error, 'pressures is.' Fix verb/tense error.<br>Fixed typo.   |
| 10M        | F            | 2.0          |               |         |        |                |         |              |          |             |               |      |             | S     |   |
| 11N        | F            | 2.0          |               |         |        |                |         |              |          |             |               |      |             | S     |   |
| 12B        | F            | 2.0          |               |         |        |                |         |              |          |             |               |      |             | S     |   |
| 13N        | Н            | 2.5          |               |         |        |                |         |              |          |             |               |      |             | S     |   |
| 14B        | F            | 2.5          |               |         |        |                |         |              |          |             |               |      |             | E     | Suggest providing a power level in the given conditions Added power level   |
| 15N        | F            | 2.5          |               |         |        |                |         |              |          |             |               |      |             | S     |   |
| 16B        | F            | 2.0          |               |         |        |                |         |              |          |             |               |      |             | S     |   |
| 17M        | Н            | 2.5          |               |         |        |                |         |              |          |             |               |      |             | S     |   |
| 18M        | н            | 2.5          |               |         |        |                |         |              |          |             |               |      |             | S     |   |
| 19M        | н            | 2.0          |               |         |        |                |         |              |          |             |               |      |             | S     |   |
| 20N        | F            | 2.0          |               |         |        |                |         |              |          |             |               |      |             | S     |   |
| 21B        | Н            | 2.0          |               |         |        |                |         |              |          |             |               |      |             | S     |   |
| 22M        | F            | 2.0          |               |         |        |                |         |              |          |             |               |      |             | S     | Is this material required from memory? Procedure steps. <i>Required from memory. Operators should know this from log taking and system training.</i>              |

# Written Examination Review Worksheet

| Q#  | 1.<br>LOK    | 2.<br>LOD    | 3             | . Psycl | hometr | ric Flaws      | S       | 4.           | Job Cont | ent Fla     | aws           | 5. C      | ther        | 6.    | 7.   |
|-----|--------------|--------------|---------------|---------|--------|----------------|---------|--------------|----------|-------------|---------------|-----------|-------------|-------|--|
| Q#  | LOK<br>(F/H) | LOD<br>(1-5) | Stem<br>Focus | Cues    | T/F    | Cred.<br>Dist. | Partial | Job-<br>Link | Minutia  | #/<br>units | Back-<br>ward | Q=<br>K/A | SRO<br>Only | U/E/S | Explanation  |
| 23B | Н            | 2.5          |               |         |        |                |         |              |          |             |               |           |             | S₩    | Memorizing sequences of steps is not required. Containment spray is<br>only shut off in accordance with the correct answer. SI pumps are never<br>shut off until another injection source is provided. Although they are<br>sequential steps in a procedure, a trained operator should be able to<br>determine the correct answer with plant/system knowledge. |
| 24M | F            | 2.5          |               |         |        |                |         |              |          |             |               |           |             | S     |  |
| 25M | н            | 3.5          |               |         |        |                |         |              |          |             |               |           |             | Е     | Is the steam flow provided in the initial conditions excessive? Value modified to conform with plant conditions.   |
| 26M | F            | 2.5          |               |         |        |                |         |              |          |             |               |           |             | S     |  |
| 27M | н            | 2.5          |               |         |        |                |         |              |          |             |               |           |             | s⊎    | May not be required from memory. Requires specific knowledge of an RNO to get to the right answer. <i>Question is a procedure basis question that an RO is expected to know from memory. OK as is.</i>   |
| 28N | F            | 2.0          |               |         |        |                |         |              |          |             |               |           |             | S     |  |
| 29N | Н            |              |               |         |        |                |         |              |          |             |               |           |             | S     | LOD may be too low - justify. <i>Calculation is required to determine correct answer</i> . <i>Not simple question.</i>   |
| 30N | н            | 2.5          |               |         |        |                |         |              |          |             |               |           |             | S     |  |
| 31N | Н            | 3.0          |               |         |        |                |         |              |          |             |               |           |             | S     |  |
| 32N | F            | 3.0          |               |         |        |                |         |              |          |             |               |           |             | U     | This appears to be more than memory. it requires a comparison of plant conditions with requirements and then making a decision. Is this required RO knowledge/skill? <i>Higher skill. RO required knowledge</i> .  |
| 33M | Н            | 2.5          |               |         |        |                |         |              |          |             |               |           |             | S     |  |
| 34N | F            | 2.6          |               |         |        |                |         |              |          |             |               |           |             | E     | Suggest changing the words: "were NOT returned to their normal position" to: "left in the withdrawn position" to prevent incorrect assumptions. <i>Change made.</i>  |
| 35M | Н            | 3.0          |               |         |        |                |         |              |          |             |               |           |             | S     |  |
| 36B | Н            | 2.0          |               |         |        |                |         |              |          |             |               |           |             | S     |  |
| 37M | Н            | 2.5          |               |         |        |                |         |              |          |             |               |           |             | S     |  |

# Written Examination Review Worksheet

| <b>O</b> # | 1.           | 2.           | 3             | . Psyc | hometr | ric Flaws      | S       | 4.           | Job Cont | ent Fla     | aws           | 5. O      | ther        | 6.    | 7.  |
|------------|--------------|--------------|---------------|--------|--------|----------------|---------|--------------|----------|-------------|---------------|-----------|-------------|-------|---|
| Q#         | LOK<br>(F/H) | LOD<br>(1-5) | Stem<br>Focus | Cues   | T/F    | Cred.<br>Dist. | Partial | Job-<br>Link | Minutia  | #/<br>units | Back-<br>ward | Q=<br>K/A | SRO<br>Only | U/E/S | Explanation   |
| 38N        | Н            | 2.5          |               |        |        |                |         |              |          |             |               |           |             | S     |   |
| 39N        | Н            | 2.5          |               |        |        |                |         |              |          |             |               |           |             | S     |   |
| 40N        | н            | 2.5          |               |        |        |                |         |              |          |             |               |           |             | S     |   |
| 41B        | н            | 2.5          |               |        |        |                |         |              |          |             |               |           |             | S     |   |
| 42N        | н            | 2.0          |               |        |        |                |         |              |          |             |               |           |             | S     | Can the applicant make a reasonable assumption that the low lube oil pressure trip has failed, the pump seized and answer d. is correct? <i>This assumption would be incorrect. answer d. is not correct. Question is ok as is.</i>   |
| 43N        | F            | 2.0          |               |        |        |                |         |              |          |             |               |           |             | S     |   |
| 44B        | F            | 2.5          |               |        |        |                |         |              |          |             |               |           |             | SU    | Verify distractor b. is incorrect. DGs usually start on undervoltage. The explanation/justification may be incorrect. If not incorrect, then 2 correct answers provided. Can distractors c. & d. be reworked? If this is a vital bus, there may be no lockout for the bus making the distractors implausible. <i>Distractor b. is incorrect. Reworked c. &amp; d. Distractors were weak but still plausible as written. Q was not unsat as submitted, but needed enhancement.</i> |
| 45M        | Н            | 2.0          |               |        |        |                |         |              |          |             |               |           |             | S     |   |
| 46M        | н            | 2.0          |               |        |        |                |         |              |          |             |               |           |             | U     | Distractor d. is not plausible. Question is not higher skill, only memory.<br>Agreed. Question changed to memory skill.   |
| 47M        | F            | 3.5          |               |        |        |                |         |              |          |             |               |           |             | E     | See if we can change ONLY. It doesn't complete the stem correctly. From memory? <i>Question is ok as-is.</i>  |
| 48N        | н            | 2.0          |               |        |        |                |         |              |          |             |               |           |             | E     | Distractor b. is not plausible. Enhancement made.   |
| 49N        | F            | 2.0          |               |        |        |                |         |              |          |             |               |           |             | sʉ    | Not required for ROs from memory. ROs are required to recognize entry conditions for tech specs, not memorize action statements. Change action(s) is/are to ensure single and plural actions are evaluated. <i>Immediate action required from tech specs. Operators are required to know this from memory.</i>  |
| 50M        | Н            | 2.5          |               |        |        |                |         |              |          |             |               |           |             | E     | Second part of the stem is not necessary, only a repeat of the question. <i>Agreed, modified question stem.</i>   |

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# Written Examination Review Worksheet

| 0#  | 1. | 2.           | 3             | . Psycl | hometr | ric Flaws      | 6       | 4.           | Job Cont | tent Fla    | aws           | 5. O | ther        | 6.    | 7.   |
|-----|----|--------------|---------------|---------|--------|----------------|---------|--------------|----------|-------------|---------------|------|-------------|-------|--|
| Q#  |    | LOD<br>(1-5) | Stem<br>Focus | Cues    | T/F    | Cred.<br>Dist. | Partial | Job-<br>Link | Minutia  | #/<br>units | Back-<br>ward |      | SRO<br>Only | U/E/S | Explanation  |
| 51N | н  | 2.5          |               |         |        |                |         |              |          |             |               |      |             | S     |  |
| 52N | F  | 2.0          |               |         |        |                |         |              |          |             |               |      |             | S     |  |
| 53N | F  | 2.5          |               |         |        |                |         |              |          |             |               |      |             | S     |  |
| 54M | F  | 2.0          |               |         |        |                |         |              |          |             |               |      |             | S     |  |
| 55M | Н  | 2.5          |               |         |        |                |         |              |          |             |               |      |             | S     |  |
| 56N | F  | 2.5          |               |         |        |                |         |              |          |             |               |      |             | S     |  |
| 57N | Н  | 3.0          |               |         |        |                |         |              |          |             |               |      |             | S     |  |
| 58B | F  | 2.0          |               |         |        |                |         |              |          |             |               |      |             | S     |  |
| 59B | Н  | 2.0          |               |         |        |                |         |              |          |             |               |      |             | U     | This appears to be a fundamental memory question. agreed. Changed to memory level question.  |
| 60N | Н  | 2.0          |               |         |        |                |         |              |          |             |               |      |             | S     |  |
| 61B | Н  | 2.0          |               |         |        |                |         |              |          |             |               |      |             | S     |  |
| 62N | Н  | 2.5          |               |         |        |                |         |              |          |             |               |      |             | U     | Distractor d. is also correct. Sequence in supplementary actions is not required to be memorized, hence, this step is a correct action to execute, although maybe not the next action. <i>Agreed, modified distractor d.</i> |
| 63M | Н  | 2.5          |               |         |        |                |         |              |          |             |               |      |             | U     | This material is memory. Agreed, changed to memory.  |
| 64N | F  | 2.5          |               |         |        |                |         |              |          |             |               |      |             | S     |  |
| 65N | F  | 2.5          |               |         |        |                |         |              |          |             |               |      |             | S     |  |
| 66N | F  | 2.5          |               |         |        |                |         |              |          |             |               |      |             | S     |  |
| 67M | F  | 1.0          |               |         |        |                |         |              |          |             |               |      |             | U     | Question does not discriminate between competent and less-than competent operator. Knowledge is required of non-licensed personnel. <i>Agreed, replaced question.</i>  |
| 68B | F  | 2.0          |               |         |        |                |         |              |          |             |               |      |             | S     |  |

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# Written Examination Review Worksheet

| Q#  | 1.<br>LOK | 2.<br>LOD | 3             | . Psyc | hometr | ric Flaws      | 3       | 4.           | Job Cont | ent Fla     | aws           | 5. O | ther        | 6.    | 7.   |
|-----|-----------|-----------|---------------|--------|--------|----------------|---------|--------------|----------|-------------|---------------|------|-------------|-------|--|
| Q#  | (F/H)     | (1-5)     | Stem<br>Focus | Cues   | T/F    | Cred.<br>Dist. | Partial | Job-<br>Link | Minutia  | #/<br>units | Back-<br>ward |      | SRO<br>Only | U/E/S | Explanation  |
| 69N | F         | 2.0       |               |        |        |                |         |              |          |             |               |      |             | S     |  |
| 70N | н         | 2.5       |               |        |        |                |         |              |          |             |               |      |             | S     |  |
| 71N | F         | 2.5       |               |        |        |                |         |              |          |             |               |      |             | S     |  |
| 72N | F         | 2.5       |               |        |        |                |         |              |          |             |               |      |             | S     |  |
| 73B | F         | 2.5       |               |        |        |                |         |              |          |             |               |      |             | S     |  |
| 74N | F         | 2.5       |               |        |        |                |         |              |          |             |               |      |             | S     |  |
| 75N | F         | 2.5       |               |        |        |                |         |              |          |             |               |      |             | U     | This is a higher skill question based on where the break might be and the response of the fire protection equipment. <i>Agreed, changed to higher skill.</i>   |
| 76M | Н         | 3.0       |               |        |        |                |         |              |          |             |               |      | U           | S     |  |
| 77N | Н         | 3.0       |               |        |        |                |         |              |          |             |               |      | U           | S     |  |
| 78N | Н         | 3.0       |               |        |        |                |         |              |          |             |               |      | U           | S     |  |
| 79N | н         | 2.5       |               |        |        |                |         |              |          |             |               |      | U           | S     |  |
| 80N | н         | 2.0       |               |        |        |                |         |              |          |             |               |      | U           | S     |  |
| 81N | н         | 2.5       |               |        |        |                |         |              |          |             |               |      | U           | S     |  |
| 82N | н         | 3.5       |               |        |        |                |         |              |          |             |               |      | U           | S     |  |
| 83N | F         | 2.5       |               |        |        |                |         |              |          |             |               |      | U           | S     | Make sure distractor a. is incorrect. Not required to re-insert bundle.  |
| 84N | F         | 2.5       |               |        |        |                |         |              |          |             |               |      | U           | E     | Suggest adding the following bullets: "Unit 2 is at 100% power." and, "All other equipment is in normal operation." This will put bounds on any assumptions the applicants may make. <i>Agreed, modified.</i>  |
| 85N | Н         | 2.5       |               |        |        |                |         |              |          |             |               |      | U           | S     | Verify in distractor (d.) that the containment cleanup fans will start with containment pressure at 12 psig. Check this answer is correct since entry into YELLOW path is not required. <i>Cleanup fans will start, answer is correct, entry into YELLOW path is required.</i> |

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# Written Examination Review Worksheet

|          | 1.           | 2.           | 3             | . Psyc | hometr | ric Flaws      | S       | 4.           | Job Cont | ent Fla     | aws           | 5. O | ther        | 6.    | 7.  |
|----------|--------------|--------------|---------------|--------|--------|----------------|---------|--------------|----------|-------------|---------------|------|-------------|-------|---|
| Q#       | LOK<br>(F/H) | LOD<br>(1-5) | Stem<br>Focus | Cues   | T/F    | Cred.<br>Dist. | Partial | Job-<br>Link | Minutia  | #/<br>units | Back-<br>ward |      | SRO<br>Only | U/E/S | Explanation   |
| 86N      | Н            | 2.5          |               |        |        |                |         |              |          |             |               |      | U           | S     |   |
| 87N      | Н            | 3.0          |               |        |        |                |         |              |          |             |               |      | U           | S     |   |
| 88N      | F            | 2.5          |               |        |        |                |         |              |          |             |               |      | U           | S     |   |
| 89N      | Н            | 2.5          |               |        |        |                |         |              |          |             |               |      | U           | S     |   |
| 90N      | Н            | 2.0          |               |        |        |                |         |              |          |             |               |      | U           | S     |   |
| 91N      | F            | 2.0          |               |        |        |                |         |              |          |             |               |      | U           | S     |   |
| 92N      | Н            | 2.0          |               |        |        |                |         |              |          |             |               |      | U           | S     |   |
| 93B      | F            | 2.0          |               |        |        |                |         |              |          |             |               |      | U           | S     |   |
| 94B      | Н            | 2.0          |               |        |        |                |         |              |          |             |               |      | U           | S     |   |
| 95B      | F            | 2.0          |               |        |        |                |         |              |          |             |               |      | U           | S     |   |
| 96B      | F            | 2.0          |               |        |        |                |         |              |          |             |               |      | U           | S     |   |
| 97N      | F            | 2.0          |               |        |        |                |         |              |          |             |               |      | U           | S     |   |
| 98B      | F            | 2.0          |               |        |        |                |         |              |          |             |               |      | U           | S     |   |
| 99M      | F            | 2.0          |               |        |        |                |         |              |          |             |               |      | U           | S     |   |
| 100<br>M | F            | 2.0          |               |        |        |                |         |              |          |             |               |      | U           | U     | Has to decide that an ATWS is occurring based on indications provided.<br>Suggest inserting some LOCA procedures to mix up the procedures.<br>Agreed, changed to higher skill. LOCA would be incorrect and not<br>plausible under the given conditions. |