

# **2003 NRC Exam Writing Workshop**

## **Form 401-9**

---

George Hopper, Sr. Operations Engineer  
Kathleen O'Donohue, Sr. Operations Engineer

# ES-401-9

---

## Question Review Requirements

- C The final draft written examination material will be reviewed after submittal
- C All questions that have unacceptable flaws are documented on ES 401-9, Written Examination Review Worksheet
- C NUREG 1021, Draft Rev. 9 resources are the 401-9 form and Appendix B, Written Examination Guidelines

# ES-401-9

---

LOK - level of knowledge:

- C Memory - tests the recall or recognition of discrete information
- C comprehensive - tests the mental process of understanding
- C Analysis - tests synthesis or application

# ES-401-9

---

LOD - level of difficulty:

- C Difficult to determine the level of difficulty
- C Keep in mind that 80% of the population should be able to answer a question
- C Level 1 and 5 questions should be excluded because they do not discriminate

# ES-401-9

---

## Psychometric Flaws

### Stem Focus

- C Keep the question stem focused on a single concept of topic
- C Convoluted stems result in grading the applicant on test taking skills rather than knowledge

# ES-401-9

---

## Psychometric Flaws

Cues - element in the stem OR answer options that lead the reader to the correct answer

- C Answer option that is longer or shorter than the other 3
- C Stem is plural, one distractor is plural others are singular
- C Tense matches with stem in only one distractor

# ES-401-9

---

## Psychometric Flaws

True / False

- C Does not always test the targeted knowledge because to answer correctly only requires recognizing one portion of the sentence is incorrect

# ES-401-9

---

## Psychometric Flaws

Credible distractors - Draft Rev. 9 requires all three distractors to be credible

- C Use common misunderstandings
- C keep all distractors close to same length or at least set a pattern
- C Use two part answers: this happens because of that



# ES-401-9

---

## Psychometric Flaws

Partial distractors - set of distractors that are partially correct, ie., that allow assumptions not contradicted by the stem

# ES-401-9

---

## Job Content Flaws

Job Link - if the tested individual does not need the information to perform their job correctly there may be a job link issue

C example: test knowledge on a surveillance owned and performed by chemistry

# ES-401-9

---

## Job Content Flaws

Minutia - information detail that is far past the typical job knowledge level

C details found in the depths of FSAR information

C details never expected to be memorized

# ES-401-9

---

## Job Content Flaws

# / Units - data with unrealistic levels of accuracy

Cusing values that are four past the decimal when the data can only be read in units of ten from a gauge

Cproviding data in % when the answers are in gallons, unless that is the skill you are testing

# ES-401-9

---

## Job Content Flaws

Backwards logic - reversing the logic or thought process normally used for the job

C asking for what should be provided and providing in the answer what should be asked in the question: Giving which pumps start and ask the parameter that initiates it

# ES-401-9

---

Match the K/A

- C Must meet the upper tier (K4) AND lower tier (.03) statement of the K/A
- C Just because the K/A has some of the key words in the stem, does not mean it matches the K/A.
- C Using the key words in the incorrect distractors does not mean it matches the K/A

# ES-401-9

---

## ES-401-9 Unacceptable Flaws

Intended as SRO-only questions but are NOT at the SRO license level as described by D.2.d.

D.2.d states:

“The 25 SRO-level questions shall evaluate the additional knowledge and abilities required for the higher license level per 10CFR55.43(b) or licensee’s learning objective.”

# ES-401-9

---

Questions identified as having problems will be listed on the 401-9

- C There are 3 choices when judging the question's adequacy:  
Satisfactory (S), Enhancement (E) OR  
Unsatisfactory (U)



# ES-401-9

---

- C Unsatisfactory questions are inadequate and WILL be revised/replaced
- C Satisfactory questions are “good to go”
- C Questions marked for enhancement contain minor flaws

# ES-401-9

---

When providing feedback, the CE shall, at a minimum, explain how the Appendix B psychometric quantitative and qualitative attributes are NOT being met.

## ES-401-9

---

- C Typically, the CE will initially review the question, have some comments as to the perceived problem, and through discussion(s) with the licensee, resolve any discrepancies and close out the comment.
- C Some questions may first be a U, however after a minor revision the question may become acceptable.

# ES-401-9

---

## Summary

The ES-401-9 form is:

- j Used to identify/evaluate the first 30 questions and then the entire examination.
- j Keep track of each Question and identify if it is;  
Satisfactory (S), Enhancement (E), or  
Unsatisfactory (U)
- j Identify what area(s) the question needs  
improvement.

# ES-401-9

---

## Summary (cont.)

- j Identify what areas, if any need improvement, and document those in block 7, Explanation.
- j Use references from Appendix B and Section D of ES-401 to link the problem areas.
- j Ensure the SRO-only questions are SRO ONLY
- j Unsatisfactory question will be revised, enhancements should be revised, if time available.

# ES-401-9

---

Questions?

Or

Comments?