

# 2003 EXAM WRITING WORKSHOP

SIMULATOR OPERATING TEST  
Tim Kolb, Operations Engineer



# Simulator Operating Test

## ES 301 General Guidelines

- Cannot duplicate test items from audit test unless mitigating actions are significantly different. (D.1.a)
- Incorporate facility and industry operating experience into the test. (D.1.f)
- Ensure walk-through and simulator tests are NOT redundant. (D.1.h)
- Must get Chief Examiners permission to deviate from approved test. (D.1.m)

# Simulator Operating Test

## ES 301 General Guidelines (cont'd)

- Modified scenarios must be altered enough to prevent applicant from recognizing the scenario. (D.5.b)
- Ensure there are enough evolutions and malfunctions for each individual. (D.5 d)
- Ensure scenario allows examiner to evaluate each competency and rating factor. (D.5.d)
- Chief Examiner should approve scenario outline prior to developing details. (D.5.d)

# Simulator Operating Test

ES 301 General Guidelines (cont'd)

- **Operator details should include:** (D.5.f)
  - < Opening, closing and throttling valves
  - < Starting and stopping equipment
  - < Raising and lowering level, flow and pressure
  - < Making decisions and giving directions
  - < Acknowledging alarms and verifying automatic actions
  - < Applicable procedure steps with procedure #
  - < Identify critical tasks

# Simulator Operating Test

ES 301 General Guidelines (cont'd)

- Instrument/Component failure must have verifiable actions. (D.5.f) (App D B.3)
  - < Must MANIPULATE CONTROLS accurately.
  - < Acknowledging annunciator or verifying automatic actions is not enough for an evaluation.
  - < Annunciator response which requires action or starting equipment that failed to automatically start is usually enough to evaluate.
- Perform Simulator Scenario Quality Checklist IAW ES-301-4. (D.5.g)

# Simulator Operating Test

## Simulator Testing Guidelines

- **Select Initial Conditions:** (App D B.2)
  - < Representative of typical plant status
  - < Maintenance or Surveillance activities in progress
  - < Frequently changed to prevent predictability
  - < Should include S/U, low and full power operations

# Simulator Operating Test

## Simulator Testing Guidelines (cont'd)

- **Select and Document Events** (App D B.3)
  - < Sequence events so that component/instrument failures occur prior to the main event.
  - < A logical sequence adds to credibility.
  - < EVERY required operator action should be included on form, especially critical tasks.
  - < Flag continuous action steps.

# Simulator Operating Test

## Simulator Testing Guidelines (cont'd)

- **Determine the Scenario Endpoint.** (App D B.4)
  - < Identify a particular plant condition or procedural step in which to end the scenario.
  - < NRC Examiner in charge of scenario will say when to freeze scenario.

# Simulator Operating Test

## Simulator Testing Guidelines (cont'd)

- **Validate the Scenario.** (App D B.5)
  - < Ensures scenario will run as intended
  - < Ensures completeness of Operator actions
  - < Provides assurance that appropriate individuals receive credit for actions taken
  - < Provides an idea of how long the scenario runs
  - < Allows opportunity to identify possible alternate paths

# SCENARIO ATTRIBUTES

## Qualitative Attributes

- **Realism/Credibility** (App D C.1.a)  
< Strive for Fair and Discriminating exam.
- **Event Sequencing** (App D C.1.b)
- **Simulator Modeling** (App D C.1.c)
- **Evaluating Competencies** (App D C.1.d)
- **Level of Difficulty** (App D C.1.e)

# SCENARIO ATTRIBUTES

## Quantitative Attributes

- Normal Evolutions (1\*) (App D C.2.a)  
< \*Normal and Reactivity changes may be substituted with another malfunction on a one-for-one basis.
- Total Malfunctions (5-8) (App D C.2.b)
- Malfunctions after EOP entry (1-2) (App D C.2.c)
- Abnormal Events (2-4) (App D C.2.d)
- Major Transients (1-2) (App D C.2.e)

# SCENARIO ATTRIBUTES

## Quantitative Attributes (cont'd)

- EOP's Entered (1-2) (App D C.2.f)
- EOP Contingency Procedures Entered (0-2)  
(App D C.2.g)
- Simulator Run Time (App D C.2.h)
- EOP Run Time (App D C.2.i)

# SCENARIO ATTRIBUTES

## Quantitative Attributes (cont'd)

- **Critical Tasks (2-3)** (App D C.2.j) (App D D.1)
  - < **Must have Safety Significance** (fission product release, safety limit violation, etc.)
  - < **Must have a prompt or cue** (verbal direction, alarms, meters, flow chart decision point, etc.)
  - < **Measurable performance indicators** (verifiable action taken by at least one crew member)
  - < **Performance feedback** (provides info on effect of actions to at least one crew member)

# SCENARIO OUTLINE

FORMS ES-D-1 & ES-D-2

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QUESTIONS / COMMENTS