JOB PERFORMANCE MEASURES

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JOB PERFORMANCE MEASURES

- Generic Items
- Administrative JPMs
- Simulator and In-plant JPMs
- Strategies for larger classes
- Questions

GENERIC ITEMS

- Should JPMs demand attention in:
  - … your training programs?
  - … in JPM development?
  - In the last three exams that I have participated in, approximately 1/3 of my applicants were within one JPM of failing the walkthrough portion of the test. No failures resulted, but such a high percentage of close calls warrants attention.

GENERIC ITEMS

- Why do we have to include JPMs as part of the operating test?
  - 10 CFR 55.45 (b) requires a plant walkthrough portion of the exam.
  - 10 CFR 55.45 (a) contains requirements for the conduct of the walkthrough portion of the exam.

GENERIC ITEMS

- NUREG 1021, Revision 9 provides additional guidance and requirements for the walkthrough portion of the exam:
  - ES-301: Preparing
  - ES-301: Administering
  - ES-303: Documenting and Grading
  - Appendix C: JPM Guidelines

GENERIC ITEMS

- No overlap with the audit exam [ES-301, D.1.a]
  - Licensee is required to point out overlap items
  - Overlap items will be allowed on the NRC exam if they have been significantly modified.
    - What is significantly modified?
      - Actions required to complete the task are significantly different from those required during the audit exam.
      - At least one condition has been substantially changed in a manner that alters the course of action of the JPM.

GENERIC ITEMS

- What is the issue with repeating JPMs from previous NRC exams?
  - Discriminatory value of the exam must be maintained. If an applicant can predict that a particular JPM will be on the exam, then that JPM's discriminatory value could decline below an acceptable threshold (LOD=1).
  - Recently we had a facility that had the same SDM JPM on three consecutive exams. - - This JPM is predictable and no longer discriminates.

GENERIC ITEMS

- Repeating JPMs
  - JPMs from the previous two NRC exams must be randomly selected.

GENERIC ITEMS

- Time Validation
  - Attempt to make the time validation as realistic as possible. In other words perform the JPM as the applicant is likely to perform the JPM. Consider:
    - Reading precautions and limitations
    - Travel time from staging area
    - Applicant's propensity to do a quick board walkdown?

ADMINISTRATIVE JPMs

- Most failures on the walkthrough portion of the exam are due to the administrative JPM section.
- A recent exam in Region II resulted in 4 out of 8 applicants being one Admin JPM away from failing the walkthrough.

ADMINISTRATIVE JPMs

- Requirements:
  - SRO Applicants must take a total of 5 Admin JPMs [ES-301, D.3.a]
    - Conduct of Ops (2)
    - Equipment Control (1)
    - Radiation Control (1)
    - E-Plan (1)

ADMINISTRATIVE JPMs

- Requirements:
  - RO Applicants must take a total of 4 Admin JPMs [ES-301, D.3.a]
    - Conduct of Ops (1 or 2)
    - Equipment Control (0 or 1)
    - Radiation Control (0 or 1)
    - E-Plan (0 or 1)

ADMINISTRATIVE JPMs

- Requirements:
  - No more than one repeat JPM from previous 2 exams [ES-301, D.2.a]
  - RO: No more than 3 JPMs directly from Bank. [ES-301-1]
  - SRO: No more than 4 JPMs directly from Bank. [ES-301-1]
  - RO - Retake: No more than 4 JPMs directly from Bank. [ES-301-1]

ADMINISTRATIVE JPMs

- What is the difference between a written exam question and an Admin JPM task?
  - With a written question, the only item of consequence is the answer.
  - With an administrative task, the methodology used to arrive at that correct answer is also of consequence.
    - This results in many of the JPM steps being critical, vice only making the final answer critical.

ADMINISTRATIVE JPMs

- Critical Step
  - Every procedure step that the examinee must perform correctly (i.e., accurately, in the proper sequence, and at the proper time) in order to accomplish the task standard shall be identified as a critical step and shall have an associated performance standard. [App C, B.3]
- Task Standard
  - Outcome against which task performance will be measured. [App C, B.3]

ADMINISTRATIVE JPMs

- JPM Development
  - JPM Task standard must be specific.
  - Task Standard must be precisely and accurately represented in the Initiating Cue which is provided to the applicant.
    - Example:
      - Calculate the amount of BWST volume needed to maintain the reactor subcritical? – Too loose.
        - » The correct answer is anything greater than the minimum amount.
      - Calculate the minimum amount of BWST volume needed to maintain the reactor subcritical. – Much tighter.
        - » The correct answer then falls within an acceptance band documented in the JPM.
        - » Now an incorrect performance of the JPM resulting in an answer of infinity is no longer correct.

ADMINISTRATIVE JPMs

- JPM Development
  - Critical Step standard must be specific.
    - Acceptance bands should be used when appropriate.
      - Bands should be large enough to not penalize for rounding choices.
      - Bands should be large enough to not penalize for the lack of a calibrated eyeball when reading a graph or figure.
      - Bands should be small enough to allow a reasonable applicant, who correctly performs the task, to arrive at an acceptable outcome for each step.

ADMINISTRATIVE JPMs

- When may acceptance bands appropriate?:
  - When values are pulled from a graph
  - When values are obtained from simulator instruments that have variability
  - When values are obtained from simulator instruments that cannot be precisely read
  - When calculations involve any of the above
  - When calculations involve rounding inaccuracy

Simulator and In-plant JPMs

- Requirements: [ES-301, D.4.a]

	RO	Instant	Upgrade
Simulator	8	7	2 or 3
In-Plant	3	3	2 or 3
Total	11	10	5

Simulator and In-plant JPMs

- Requirements:
  - Upgrade SROs must have all 5 of their JPMs from different safety functions. [ES-301, D.4.a]
  - All Simulator JPMs must be from different safety functions. [ES-301, D.4.a]
  - All in-plant JPMs must be from different safety functions. [ES-301, D.4.a]

Simulator and In-plant JPMs

- Requirements:
  - Upgrade SROs must have at least one control room JPM involving an engineered safety feature. [ES-301, D.4.a]
  - For Upgrade SROs, the same system should not be used to evaluate more than one safety function. (I.E. HPI: reactivity and inventory control) [ES-301, D.4.a]
  - No duplication between simulator scenarios and simulator JPMs.
    - The same task is allowed only when plant conditions are different to the point where a different procedure path must be used to complete the task. [ES-301, D.4]

Simulator and In-plant JPMs

- Requirements: [ES-301-1/2]

	RO	Instant	Upgrade
Alt Path	4 - 6	4 - 6	2 - 3
Bank	≤ 9	≤ 8	≤ 4
Emergency / Abnormal In-Plant	≥ 1	≥ 1	≥ 1
Low Power (<5%) / Shutdown	≥ 1	≥ 1	≥ 1

Simulator and In-plant JPMs

- Requirements:

	RO	Instant	Upgrade
New or modified	≥ 2	≥ 2	≥ 1
Previous 2 exams	≤ 3	≤ 3	≤ 2
RCA	≥ 1	≥ 1	≥ 1

Simulator and In-plant JPMs

- What is a critical step?
  - Definition is the same as that for an Admin JPM.
  - A critical step is any part of the assigned task that must be correctly completed in order to successfully complete the task.
  - Critical steps must have an action associated with it, otherwise the task could still be accomplished without doing a particular step.

Simulator and In-plant JPMs

- In-Plant Examiner Cues
  - Detailed cues are important for administration consistency.
  - Cues should state exactly what the operator would see.
    - Handwheel rotates several times clockwise and comes to a hard stop. Valve stem inserts as handwheel is turned. Position indicator is pointing toward “close”. Etc.

Simulator and In-plant JPMs

- In-Plant Examiner Cues
  - Instrument readings should be provided for expected response.
  - Indicating light response should be provided.
  - Sometimes audible cues are appropriate.
    - Flow noise, steam relief noise, compressor loading noise
  - Consider providing cues for (highly predictable) error-likely situations.

Simulator and In-plant JPMs

- In-Plant Examiner Cues
  - It is important to walk down the JPM in the plant and write down exactly what the applicant and examiner will see in the plant.
    - This includes:
      - Component Tag Names (as they appear in the plant)
      - Will the applicant be close enough to the noise source to hear anything?
      - Does the valve have a position indicator.
      - Is the valve a standard MOV where the motor must be disengaged?

Simulator and In-plant JPMs

- In-Plant Examiner Cues
  - The key is to pay attention to the details.

- Also keep cueing in mind if you develop a simulator JPM that has the option of being performed in the plant.

Simulator and In-plant JPMs

- What is an alternate path JPM?
  - Synonymous with former terminology of “faulted JPM”.
  - Alternate paths incorporate malfunctions of instrumentation or components that require the examinee to perform actions other than those performed when a system responds normally. [App C]
  - Must be procedurally driven. [App C]

Simulator and In-plant JPMs

- Alternate Path JPMs.
  - NUREG requires between 4 and 6. [ES-301, D.4.b]
  - Suggestion: Initially write the exam to contain 5 Alternate Path JPMs.
    - If exam is written with only 4 Alt Path JPMs and an applicant takes another correct, but unsuspected path, that does not meet the definition of alternate path, then the exam falls outside of the acceptability window per the NUREG.
    - Many times we (NRC) make minor revisions to the exam during prep week. If exam originally has 6 Alt Path JPMs, then making an additional Alt Path JPM requires revising another JPM to make it non-Alt Path.

Strategies for Larger Classes

- NUREG allows for Upgrade SROs to perform 3 In-Plant JPMs and 2 Simulator JPMs, vice 2 In-Plant JPMs and 3 Simulator JPMs.
- Consider pairing simulator JPMs to allow for simultaneous performance of two at the same time.
  - If one of the pair is alternate path, it should be administered first, then rotate the applicant to the non-alternate path JPM.

Strategies for Larger Classes

- Choose a couple of simulator JPMs that could also be administered in the actual plant control room with cues from the examiner.
- Consider group JPMs for some of the Administrative Topics. Calculations, Tagouts, Radiation Control, Mode Change, etc. can work well in a group setting.

Strategies for Larger Classes

- Have enough escorts on the security agreement to keep the examiners busy at all times. This becomes very important when station keeping is employed by the exam team.

JPMs

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