

JPM#	1. Dyn (D/S)	2. LOD (1-5)	3. Attributes					4. Job Content Errors		5. U/E/S	6. Explanation (See below for instructions)
			IC Focus	Cues	Critical Steps	Scope (N/B)	Overlap	Job-Link	Minutia		
RO (RA1)	S	5								S	FCS could not perform the 1/M plot during their pre-validation. See their separate comments file. Procedure was inadequate for the task-spoke with NRR HQ IOLB and verified it was in the training plan at FCS. Removed from the exam and documenting as inadequate procedure. Replacement JPM is similar (an Estimated critical position calculation) but is a worksheet with detailed instructions and this did not involve KA replacement. JPM is SAT with replacement JPM.
RO (RA2)	S	3								S	
RO (RA3)	S	3								E S	FCS recommended allowing drain valve position to be "closed or at SM discretion" depending on work performed on the item tagged out. NRC agreed. JPM is SAT.
RO (RA4)	S	5								U S	Did not validate well due to confusion over use of hotspot dose or general area dose. Substituted the SA4 JPM on shielding for this JPM and it is now SAT.
SRO (SA1)	S	3								E S	Provide both methods and associated calculational numbers for this JPM in the standard for grading as well as acceptance bands based on method used. Both were deemed acceptable by NRC and changes were made. JPM is now SAT.
SRO (SA2)	S	3								S	Same as RA2
SRO (SA3)	S	3								S	
SRO (SA4)	S	3								S	
SRO (SA5)	S	3								S	Some issues with determination of condition is stable or worsening, which was not critical for this JPM, However it is a training issue because Licensed operators stated that there is no guidance for determining this condition and it could be important for other EAL calls and PAR changes after initial declarations are done. Turned over issue to EP staff for potential enforcement during EP exercise later this year.

**Instructions for Completing Matrix**

**This form is not contained in or required by NUREG-1021.** Utilities are not required or encouraged to use it. The purpose of this form is to enhance regional consistency in reviewing operating tests. Additional information on these areas may be found in Examination Good Practices Appendix D. Check or mark any item(s) requiring comment and explain the issue in the space provided.

- Determine whether the task is dynamic (D) or static (S). A dynamic task is one that involves continuous monitoring and response to varying parameters. A static task is basically a system reconfiguration or realignment.
- Determine level of difficulty (LOD) using established 1-5 rating scale. Levels 1 and 5 represent inappropriate (low or high) discriminatory level for the license being tested.
- Check the appropriate box when an attribute weakness is identified:
  - The initiating cue is not sufficiently clear to ensure the operator understands the task and how to begin.
  - The JPM does not contain sufficient cues that are objective (not leading).
  - All critical steps (elements) have not been properly identified.
  - Scope of the task is either too narrow (N) or too broad (B).

- Excessive overlap with other part of operating test or written examination.
4. Check the appropriate box when a job content error is identified:
    - Topics not linked to job content (e.g., disguised task, not required in real job).
    - Task is trivial and without safety significance.
  5. Based on the reviewer=s judgment, is the JPM as written (U)nacceptable (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?
  6. Provide a brief description of any U or E rating in the explanation column.
  7. Save initial review comments as normal black text; indicate how comments were resolved using [blue text](#) so that each JPM used on the exam is reflected by a (S)atisfactory resolution on this form.

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			IC Focus	Cues	Critical Steps	Scope (N/B)	Over-lap	Job-Link	Minutia		
S1	D									E S	Provide edits as supplied by FCS in their comments file. JPM is now SAT.
S2	D									E S	Provide edits as supplied by FCS in their comments file. JPM is now SAT.
S3	D									E S	Provide edits as supplied by FCS in their comments file. JPM is now SAT.
S4	D									S	FCS could not get the IC to work for pre-validation. We discussed possibility of simulator fidelity issues and use of over-rides and they got it to work prior to exam validation. JPM is SAT.
S5	D									U S	This JPM was scheduled to be performed in parallel with S-6 but due to proximity to boards used for S-6 JPM we agreed to change S-6 to different valve located behind the main control boards. JPM S-5 was not changed and is SAT.
S6	D									U S	This JPM was scheduled to be performed in parallel with S-5 but due to proximity to boards used for S-5 JPM we agreed to change S-6 to a different valve (HCV-746B) located behind the main control boards. JPM S-6 is now SAT.
S7	D									E S	Provide edits as supplied by FCS in their comments file. JPM is now SAT.
S8	D									E S	Provide edits as supplied by FCS in their comments file. JPM is now SAT.
P1	S									E S	Provide edits as supplied by FCS in their comments file. JPM is now SAT.
P2	D									U S	JPM was to be performed in the lab on 480v breaker as dynamic JPM vice in the plant as static, however, the breaker equipment would not work so we had to change the JPM to a 4160v breaker rack out. JPM is now SAT.
P3	S									E S	Provide edits as supplied by FCS in their comments file. JPM is now SAT.

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1. Determine whether the task is dynamic (D) or static (S). A dynamic task is one that involves continuous monitoring and response to varying parameters. A static task is basically a system reconfiguration or realignment.
2. Determine level of difficulty (LOD) using established 1-5 rating scale. Levels 1 and 5 represent inappropriate (low or high) discriminatory level for the license being tested.
3. Check the appropriate box when an attribute weakness is identified:

- \$ The initiating cue is not sufficiently clear to ensure the operator understands the task and how to begin.
  - \$ The JPM does not contain sufficient cues that are objective (not leading).
  - \$ All critical steps (elements) have not been properly identified.
  - \$ Scope of the task is either too narrow (N) or too broad (B).
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4. Check the appropriate box when a job content error is identified:
    - Topics not linked to job content (e.g., disguised task, not required in real job).
    - Task is trivial and without safety significance.
  5. Based on the reviewer=s judgment, is the JPM as written (U)nacceptable (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory?
  6. Provide a brief description of any U or E rating in the explanation column.
  7. Save initial review comments as normal black text; indicate how comments were resolved using **blue text** so that each JPM used on the exam is reflected by a (S)atisfactory resolution on this form.

FCS-1012-04										DRAFT OPERATING TEST COMMENTS	SCENARIOS
Scenario Set	1. ES	2. TS	3. Crit	4. IC	5. Pred	6. TL	7. L/C	8. Eff	9. U/E/S	10. Explanation (See below for instructions)	
1 (spare)									E S	Event 1 took too long during validation week (need to have the crew do the reactivity brief prior to taking watch on exam week) Swap event 3 and 4 order for better flow of scenario. Also shortened steps for event 2 to not include complete recovery of letdown due to time going too long on scenario. We did not agree with FCS recommendations on event 4 to have FW-5A pump already running-this was a good verifiable action needed to credit this bean for the scenario. Crews will probably be reluctant to adjust the DG speed even though procedure directs it, OE from station blackouts in northeast (ie Oyster Creek) were examples of why this event is important (has not been trained on at FCS either). Because the scenario is too long and does not flow as well as the other three scenarios this scenario was marked as the spare. All other FCS comments were incorporated into the scenario and it is now SAT.	
2									S	No comments for changes from FCS on this scenario.	
3									E S	Incorporated FCS comments for this scenario including removal of event 5 iso-bus duct event-plant mod in progress that prohibited it from being performed on simulator and changed down power to maintain power for event 1 to reduce total time of scenario.	
4									E S	Did not agree with change recommended by FCS for event 3 to change to loss of HV power supply to the NI (this would fail it low) because we wanted it to fail high. We also did not delete event 7 as requested by FCS because it is one of the CT's and is a good event.	
<p><u>Instructions for Completing Matrix</u></p> <p><b>This form is not contained in or required by NUREG-1021.</b> Utilities are not required or encouraged to use it. The purpose of this form is to enhance regional consistency in reviewing operating test scenario sets. Additional information on these areas may be found in Examination Good Practices Appendix D. Check or mark any item(s) requiring comment and explain the issue in the space provided.</p> <ol style="list-style-type: none"> <li>ES: ES-301 checklists 4, 5, &amp; 6 satisfied.</li> <li>TS: Set includes SRO TS actions for each SRO, with required actions explicitly detailed.</li> <li>Crit: Each manipulation or evolution has explicit success criteria documented in Form ES-D-2.</li> <li>IC: Out of service equipment and other initial conditions reasonably consistent between scenarios and not predictive of scenario events and actions.</li> <li>Pred: Scenario sequence and other factors avoid predictability issues.</li> <li>TL: Time line constructed, including event and process triggered conditions, such that scenario can run without routine examiner cuing.</li> <li>L/C: Length and complexity for each scenario in the set is reasonable for the crew mix being examined, such that all applicants have reasonably similar exposure and events are needed for evaluation purposes.</li> <li>Eff: Sequence of events is reasonably efficient for examination purposes, especially with respect to long delays or interactions.</li> <li>Based on the reviewer=s judgment, rate the scenario set as (U)nacceptable (requiring repair or replacement), in need of (E)ditorial enhancement, or (S)atisfactory.</li> <li>Provide a brief description of problem in the explanation column.</li> <li>Save initial review comments as normal black text; indicate how comments were resolved using <b>blue text</b> so that each JPM used on the exam is reflected by a (S)atisfactory resolution on this form.</li> </ol>											

**From:** [KOSKE, JERRY E](#)  
**To:** [Clayton, Kelly](#)  
**Cc:** [CADE, RANDALL B](#)  
**Subject:** [WARNING: MESSAGE ENCRYPTED][Not Virus Scanned] Op Test Validation Report and Written Exam grading and LOD spreadsheets (Password protected)  
**Date:** Monday, March 05, 2012 1:42:48 PM  
**Attachments:** [2012 NRC EXAM SCORING.xls](#)  
[FCS LOD.xls](#)  
[Notes on Validation of Operating Test..doc](#)

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Hi Kelly

The Validation report for the Op Test and the Written Exam grading spreadsheet and Level of Difficulty spreadsheet are attached. All are password protected.

Jerry

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## FCS Provided Notes on Validation of FCS Draft Operating Test

### Administrative JPM RA1 (pass rate 50%)

JPM RA1 was validated by both ROs. One was able to obtain the key answer but plotted CEA position with overlap on the abscissa instead of reactivity based on the integral rod worth curve as expected. (The integral rod worth curve was not provided but could be obtained from the TDB-II.) The other RO did not complete the JPM but began using the 1, 2 and 3 values of the abscissa for the first second and third data points.

Note: Even though 1/M plots are on the RO task list, this task is normally performed by the STA.

Recommendation: Provide the integral rod worth curve to the candidate as a handout. Revise the Cue to read: "The CRS has asked you to independently verify the STA's prediction of critical CEA position by performing a 1/M plot per OP-2A, Attachment 2A using the provided integral rod worth curve and graph paper." The graph paper ordinate and abscissa should be labeled as "1/M" and "Reactivity." Increase the validated time to 25 minutes.

### Administrative JPM RA2 and SA2 (pass rate 100%)

JPM RA1 and SA2 was validated by both ROs and 2 SROs. All passed the JPM.

Recommendation: Increase the validated time to 20 minutes.

### Administrative JPM RA3 (pass rate 50%)

JPM RA3 was validated by both ROs. One passed the JPM with no difficulties. The other did not list one of the drain valves (there are two.)

Recommendation: Allow the drain valve position to be listed as "Closed" or "SM Discretion." Provide drawing to candidates rather than requiring them to locate.

### Administrative JPM RA4 (pass rate 0%)

The JPM was validated by both ROs and one SRO. No one came up with the key answer. There was confusion as whether to use the hotspot 30 cm readings (as the key used) or the general area dose rates. Point "A" points to hotspot #45 with a dose rate of 20 mr/hr at 30 cm in a general area of 2-5 mrem/hr. Point "B" points to hotspot # 23 with

## FCS Provided Notes on Validation of FCS Draft Operating Test

a 30 cm dose rate of 80 mr/hr and also to a location where the general area reading indicated 7 mr/hr.

Recommendation: Don't use this JPM. Use SA4 for both RO and SRO.

### Administrative JPM SA1 (pass rate 50%)

This JPM was performed by 2 SROs. One obtained the key values. The other came up with the correct value for total number of gallons, but calculated values for acid and water that were outside of the key range.

Two methods can be used to calculate water and acid required. One yields values within the acceptance band, the other does not.

Recommendation: Modify the cue to specify which equation to use or include the equation in the cue. Or else, provide two acceptance bands to accommodate both methods.

### Administrative JPM SA3 (pass rate 100%)

This JPM was performed successfully by two SROs.

### Administrative JPM SA4 (pass rate 100%)

This JPM was performed successfully by two SROs.

### Administrative JPM SA5 (pass rate 66%)

The JPM was performed successfully by 2 SROs. The other SRO determined the notification was for a "PAR Change" instead of "Initial Declaration" and also determined the prognosis was stable in block 8 of FC-1188. It was also pointed out that there is no guidance for determining if a situation is stable or worsening.

The cue should read CPM vs CPS and that the key is incorrect in block 7. (Should be N/A). We also should have stated that Dose Assessment has not yet been performed in the cue.



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Recommendation: Make the corrections listed above. Make the Classification and PAR (Blocks 1, 2, 3, 4 and 16) steps critical. The other information on form FC-1188 should be non-critical.

### Plant JPM P1

This JPM was reviewed by 2 ROs and a SRO. The following enhancements are recommended: State that the plant is in hot shutdown in the cue, Provide values for TI-1383, no valve indicators, step 5 add to cue "Steam observed when FW-688 is first opened and provide final value for TI-1382.

### Plant JPM P2A/B

This JPM was reviewed by 2 ROs and a SRO. It was noted that the procedure has been revised several times since the referenced procedure. Changes to the required attachments are due to changes in arc flash boundary requirements. It is recommended that the following be added to the cue: "The bus associated with this breaker is deenergized and the requirements of FCSG-15-14 for an Electrically Safe Work Condition are met, therefore arc flash protection clothing and establishment of a flash protection boundary is not required." It is also recommended that procedure figures 1 and 2 be included in the handout.

### Plant JPM P3

This JPM was reviewed by 2 ROs and a SRO. Step 18 contains a typo ("Note" not "Nota"), It was also recommended that the cue be revised to say "The AI-110 hydrogen analyzer is inoperable. The sample pump is operable."

### Simulator JPM S1

This JPM was validated by a SRO evaluator and a RO performer. The validation time was 15 minutes. The initial simulator operator instruction should read "Fail HCV-151 Open (not closed).

## FCS Provided Notes on Validation of FCS Draft Operating Test

### Simulator JPM S2

This JPM was validated by 2 SRO evaluators and 2 RO performers. The step 3 Standard should read “Went to step 3” (not step 2).

### Simulator JPM S3

This JPM was concurrently performed with JPM S8. It was noted that the procedure has been revised, but the JPM still works with the revised procedure. It is recommended that the following note be added before step 6: “NOTE: VA-7C low DP alarm expected.” There was one situation where both JPM performers were in proximity to each other. (One was checking relay status behind CB-20 while the other was at AI-44). This can be easily addressed by starting JPM S3 (The shorter JPM) after the relay status was checked in JPM S8 or by having the examiners direct the path to the back panels.

### Simulator JPM S4

We still need some work building the IC. Could not validate past JPM step 7.

### Simulator JPM S5

This JPM was concurrently performed with JPM S6. It was determined that the candidate performing JPM S6 could potentially observe the alternate path for JPM S5. We recommend that JPM S6 be performed on a different valve. (see below). It was also noted that the step 1 standard should read “adjusted nozzle valves.’ The validator responded to ARP CB-10,11/A9 C-3U after FW-6 tripped and this ARP does not direct going to AOP-28. It is recommended that the IC be changed to have FW-6 already tripped and that the cue be revised to include: “FW-6 has just tripped. CRS directs entry into AOP- 28, section 1.”

### Simulator JPM S6

As mentioned above, we recommend performing this test on another valve, HCV-746B. HCV-746B is operated from the back panels so the candidate performing this test would not be able to observe JPM S5. HCV-746B is part of the Containment Purge system so it would still be safety function 8. The procedure is OP-ST-VA-3001A, attachment 4. Another option would be HCV-742E & F, Attachments 1 and 2 of OP-ST-VA-3001A.

## FCS Provided Notes on Validation of FCS Draft Operating Test

### Simulator JPM S7

This JPM was validated by a SRO evaluator and a RO performer. No problems were noted with the JPM. It was recommended that the IC be modified to have a lower initial VCT level. This IC has been modified with lower VCT level.

### Simulator JPM S8

This JPM was validated by a SRO evaluator and a RO performer. The initial conditions should be corrected to state that Breaker 3451-4 is not available. The simulator IC should also have DS-T1 open. The IC has been modified to include these changes.

### Simulator Scenario 1

This simulator scenario was validated with a SRO and two ROs and observed by a Shift Manager and a Manager and Supervisor from Operations Training.

This is a very long scenario as written (2.5+ hours) and could possibly run much longer. Some of the events took considerable time.

- Event 1- Took over 30 minutes before a 0.25% change in power occurred. Even with a pre-briefing, this will probably take a long time during the exam.
- Event 2 – Took 22 minutes. Also the cause of the failure cannot be determined from the Control Room. We need a cue to report the cause of the failure (broken linkage) or else this event may be even longer.
- Event 3 – During the validation we allowed this event to go on for 20 minutes. Completing all of the actions would have taken an additional 20 minutes. However, in a walk through performed after validation week. We were able to complete in 15 minutes.
- Event 4 – This event went very quickly because the ATCO noticed the valve change position and quickly reclosed it before any alarm was received.
- Event 5 - We allowed this event to last 8 minutes before initiating Event 6. If we had allowed the crew to realign heater drain pumps during the validation before moving on, this event would have taken an additional 10-15 minutes.  
Recommendation: Have FW-5A already running in IC.

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- Events 6, 7 and 8 – Direction to minimize DC loads performed 5 minutes after start of event. (Should be CT) FW-54 Started 9 minutes after start of event. Transition to EOP-07 made 12 minutes after start of event. There was reluctance to increase the governor speed for D/G-2. The Operators discussed raising the governor speed and concluded that with no procedural direction, DC loads minimized and FW-54 supplying water to the S/G's, there was no urgency to power the bus and they had time (8 hours) for Maintenance to troubleshoot.

Recommendations: Add a cue to event 2 to report cause of failure, exchange events 3 and 4, Initiate event 5 before event 4 (old event 3) is fully completed, Have FW-5A already running in the IC and reconsider event 8.

### Simulator Scenario 2

Good scenario. Scenario validation time was 1 hour 32 minutes.

- Event 1 – 22 minutes. Much of the time taken by a required briefing.
- Event 2 – 13 minutes. No problems
- Event 3 – 5 minutes. BOPO recognized problem on DCS and took action before alarm
- Event 4 – 5 minutes. No problem.
- Events 5& 6- 14 minutes to 90% power – No problems
- Event 7 – No problems. Operators manually tripped reactor in 3 minutes due to seal temperatures.
- Event 8 – Performed within 15 seconds of reactor trip.
- Event 9 – CRS transitioned to EOP-03. PPLS pressure never reached. Initiated cooldown 25 minutes after reactor trip.

Recommendations: None

### Simulator Scenario 3

Good scenario, a little bit too long. Scenario validation time was 1 hour 54 minutes.

- Initial Condition- If pressurizer pressure channel is being troubleshoot, then T/U# 8 on A channel should also be bypassed.

## FCS Provided Notes on Validation of FCS Draft Operating Test

- Event 1- 40 minutes. Simulator IC was built by reducing power to 90%. Xenon is building in rapidly making power increase complex. It is recommended that event 1 be changed to maintain power at 90%. This requires significant reactivity control. In support of this, add to the turnover, "The plant entered TS 2.0.1 due to a condition affecting both Diesel Generators. A plant shutdown was initiated. After power had been reduced to 90%, the condition was resolved and TS 2.0.1 was exited. You have been directed to maintain power at 90% until the Reactor Engineer provides PAPER guidance for power ascension back to 100% power."
- Event 2 – 23 minutes. Need to adjust level in other SITs. Use Bias to lower level rather than leak. (Containment sump level increased.)
- Event 3 – 5 minutes. No problems noted.
- Event 4 – 27 minutes. Significant discussion on how to place channel B pressure channel in "TRIP." Using PTTI will place TU's 1,9 and 12 in the tripped condition. TS only requires TU #9 to be tripped. Would it be better to trip TU# 9 by pulling the drawer or having I&C perform and the bypass TUs 1 and 12 on channel B.
- Event 5 – 7 minutes. Configuration problems. Modification to iso-phase bus duct cooling has been partially implemented on the simulator. The simulator still models the old system but the alarm panels have been upgraded to reflect the current plant condition. It is recommended that this malfunction be replaced. (The original draft scenario had a heater drain pump trip.)
- Event 6- 9 minutes. Recommendation from one of the validation operators who used to be a plant chemist. Report a value of 0.20 ppm since the instrument provides results in increments of 0.05 ppm.
- Event 7 – 14 minutes. No problems.
- Events 8, 9 & 10- 14 minutes. Manual reactor trip within seconds of pressurizer pressure instrument failure. LCV-218-3 opened 11 minutes after trip.

Recommendations: Change initial condition and turnover as discussed in bullets 1 and 2. Replace power increase with maintain power, Allow PTTI, pulling B/TU#9 drawer or directing I&C to trip B/TU#9 as correct action for event 4, Replace event 5.

### Simulator Scenario 4

Scenario duration – 1 hr 35 minutes.

- Event 1 – 15 minutes. Briefing took some time. (I was surprised to see this event in the scenario. I thought this had been removed. We developed 2 ICs. One with the pump off and another with it already started.)

## FCS Provided Notes on Validation of FCS Draft Operating Test

- Event 2 – 10 minutes. Operators used control rods to begin power increase so we saw a small power increase relatively quickly. Would have taken considerably longer if operators used dilution per the ES-D-2 form.
- Event 3 – 15 minutes. Malfunction did not provide all of the expected indications.. Recommend using WR channel B loss of HV power supply instead.
- Event 4 – 7 minutes. No problems.
- Event 5 – 8 minutes. No problems.
- Event 6 – 7 minutes. No problems.
- Event 7 – 26 minutes. (Recommend Deleting.)
- Events 8, 9 & 10 – 15 minutes.

Recommendations: Replace Event 3 with power supply failure.