

DAVIS BESSE '2000 INITIAL EXAM OUTLINE REVIEW (7/31-8/3/2000)
(NRC COMMENTS)

EXAM IN GENERAL

- NO PRA/IPE insights indicated in the overall exam outline (written, JPM, simulator scenario) [request licensee to submit an updated outline, with included corrections, to the Chief Examiner, specifically include PRA/IPE info]

WRITTEN EXAM

K/A selection not completely systematic as per Rev 8 requirement, ES 401, D.1.b. The K/A general category up to the 1's, 2's, 3's, etc. are randomly generated by computer program. However, the specific K/A item numbers, i.e., 1.01, 2.03, 2.11, etc. are not completely systematically selected. Once the general categories are randomly generated, the licensee then removes all K/As with ratings less than 2.5, then removes K/As that do not pertain to the specific facility. From the remaining K/As left in the category selected, the independent exam developer selects a K/A that a question could be generated from. [Informed licensee that this may not be sufficient for acceptable systematic K/A generation per Rev 8 with further clarification in Supplement 1 to Rev 8. Need a method or system to remove the exam developers influence in selecting the K/A to generate a question from.] NOTE: This exam was not a Supplement 1 exam.

(NOTE: Written exam for K/A outline review is satisfactory. No excessive K/A repetition, or duplication from last NRC exam.)

- SRO only exam for four SROUs. (NOTE: No indication of the 25 SRO only type questions.) Upon receipt of exam material, need to review for specific for (25) SRO only questions. [remind licensee of the 25 SRO only type questions!]
- SRO exam - 7 K/As duplicated from last NRC exam - < 10% [OK] (Still need to check actual exam material for duplicated questions from NRC and audit exams.)
- noted ONLY one question K/A proposed, pertaining to fuel handling
- noted 4 sets of two K/As each, repeated for the same K/As (two RCP malfunctions; two ESF actuation; two Main Feedwater; and two AFW)

WALKTHROUGH EXAM

GENERAL COMMENT

- NO K/As on Systems JPMs [via telecon asked the K/As used for the system JPMS, received the emergency/abnormal K/A reference, but not the systems K/A reference for the safety function. Will request licensee for updated info on the K/As to verify proper safety function categorization.] NOTE: The SFRCS system is unique to B&W plants, no specific K/A associated with SFRCS. Licensee used plant specific task designations. Closest K/As are associated with 012 (RPS), 015 (Nuclear Instrumentation), and 016 (Non-nuclear Instrumentation, corresponding to safety function 7.

- NO info of new, modified, or bank on the Admin JPMs

ADMIN JPMs

- A.2 Review and approve a clearance (tagout). Are there faults/problems in the tagout which must be identified and corrected? No description, what kind of tagout, on what system? Safety or Non-safety related equipment? ALSO, SIMILAR TO LAST NRC EXAM, i.e., tagout a pump.

SYSTEMS JPMs

- B.1.a Repeat from last NRC exam. However, licensee informed me that system modification was completed and the evolution is different from last NRC exam. It is still the similar system and task, although may have additional steps. Will review material to ascertain further, but I would contend it is still a duplication. It is appropriate to use for the exam due to the recent modification, but it is still a systems JPM task duplication. Recommend changing one of the inplant JPMs which is also a complete duplication from last NRC exam (see B.2.c - CRD clear asymmetric fault).

- B.1.b Perform actions for high s/g level due to a SGTR. Does not appear to be an appropriate task to be tested as a JPM, rather it is more suited for the dynamic simulator scenario. Furthermore, the submitted exam scenario #3 has a SGTR event, which may, in general, be considered a duplication of task between JPM and scenario. Need actual exam material to make final decision on appropriateness and duplication of task. **NOTE: During verification it was found that this JPM has good involvement in additional procedures and actions on bypassing logic. JPM was accepted.**

In addition, need to verify selection of safety function. How does safety function 7 apply?

- B.2.c Duplication from last NRC exam. Minimal entry into RCA. Recommend replacing with another RCA JPM. Propose safety function #3, ECCS local actions in RCA? Considering JPM B.1.a and B.2.c, as duplications from last NRC exam, it exceeds NUREG limits of 30% duplication.

DYNAMIC SIMULATOR EXAM

(NOTE: due to having only two examiners, exam scheduling will require crew makeup of two SROU applicants and an RO surrogate per crew.)

GENERAL COMMENT

- The scenario set does appear to incorporate the use of at least one ECA or functional restoration procedure. Noted as in scenario #2. Need to determine specifics on what is the contingent procedure. Due to the crew makeup, on the SROU, recommend that each SROU as the shift supervisor have the opportunity to demonstrate competency into the ECA

or function restoration procedure usage. Adjust scenario #1, to ensure well established entry into the ATWS mitigation procedure. For B&W procedures, ECA or function restoration procedures are not clearly delineated, must use guidance with Westinghouse. (NUREG 1021, Appendix D, Section C.2.g, "EOP Contingency Procedures Used.")

- Certification/audit exam not yet developed or planned by licensee. Same exam developers are going to develop the audit exam, licensee is aware that there will be no duplication from the audit to the NRC exam, written, walkthrough, and scenarios.
- Scenarios have no indications of it being new or significantly modified. As noted by licensee via telecon, all scenarios submitted are new. **Note: All scenarios were new.**
- Lack of details in the scenario Turnover. For example, no indications of Tech Spec LCO status for given equipment failures in the initial conditions. Expect detailed info on actual exam material submittal.
- Need to ensure scenarios identify the critical tasks.
- Need to correct Form ES 301-5, incorrect count for instrument and component events.
- Need to correct Form ES 301-6, incorrect count and allocation of events for "Comply and Use of Tech Specs," competency. Events following the major malfunction and EOP entry, the operators will not be concentrating on Tech Spec compliance, it will be more of EOP use and major event mitigation. This competency is best evaluated on individual and combination of events prior to the major event leading into EOP mitigation.

SCENARIO # 1

- Success path for the ATWS? Recommend indepth use of ATWS mitigation, to get credit for use of contingency/functional restoration procedure.
- Event 5 should not be accepted as a component failure, it is a precursor to the major malfunction and entry into EOPs following a required reactor trip. Propose to change to major malfunction.

SCENARIO #2

- Propose switching the sequence of events 4 and 5. Have the leak detection and mitigation early to allow for indepth action and Tech Spec usage. Then once decisions are made to shutdown the reactor, give the PZR level instrument failure to challenge the operators' awareness of plant conditions and instrumentation. Giving a small leak, the operators may anticipate the bigger leak and may initially misdiagnose the level instrument problem.
- What is the contingency action procedure entered in this scenario? **Note: Found the scenario goes into Section 13.**

DAVIS BESSE Y2K EXAM MATERIAL REVIEW COMMENTS

A. WRITTEN EXAM - SEE FORM ES 401-9

B. OPERATING EXAM (ADMIN JPMS)

1. A.1.a - Shift Staffing- Recommend changing initiating cue, due to the present cues giving away the answer. Also, editorial changes to make it more of an SRO action. See JPM for recommendation.
2. A.1.b - Recognize entry into TS - The answer does not appear to be correct. Is the attachment #4 the key or the incorrect form given to applicant? For the temperature reactivity calculation, the calculation is correct, but there is nothing wrong and the JPM notes it as a critical step. The actual calculated SDM number does not correspond to the JPMS expected answer. See JPM
3. A.2 - Tagging and Clearance - This JPM is a one critical step JPM. Need to make it more operationally oriented for an SRO, by more than just one critical task (id the tag has wrong breaker number). Propose, for an SRO, should recognize inadequacies of TS requirements (not noted), make the proper operability call, etc. See JPM
4. A.3 - Perform planned gaseous release - No discriminating value. There is nothing wrong with the attached gas release package. Not verifiable. What is the critical performance step? It is to check and see that it is appropriately signed, which it is. Basically if you do nothing you satisfy the JPM. Recommend having the applicant review the release package, but identify that it is a release with no Rad Monitors therefore certain requirements and actions must be taken, which is not noted on the package. If the applicant just looks and sees the proper signature is on the form and releases and authorized the gaseous release, it would be a serious violation of procedure and an unmonitored rad release.
5. A.4 - EAL threshold and classification - Good JPM, but not necessary to go beyond the identification of the required upgrade to a General Emergency, for the applicant is performing a dose assessment. Announcing that it is a General Emergency on the PA system and sounding the alarm, is also not necessary for completion of this JPM.

C. OPERATING EXAM - SYSTEMS JPMS

1. B.1.a - clarify some of the critical steps. Some may not be necessary.
2. B.1.b - clarify some of the critical steps. Some may not be necessary.
3. B.2.a - clarify some of the critical steps. Some may not be necessary.
4. B.2.b - clarify some of the critical steps. Some may not be necessary.
5. B.2.c - clarify some of the critical steps. Some may not be necessary. Licensee took my recommendation and replaced this JPM from the original outline proposal.

D. OPERATING EXAM - SCENARIOS - No comments. Need to check actual performance.

POST NRC VALIDATION CHANGES

WRITTEN:

Tier 1 Group 1

1. Page 4 (Question 2), changed the word drops, in the stem, to decreases.
2. Page 9 (Question 5), inserted the information from page 14 of Tier 1 Group 2 except for the K/A information. The question on page 15 of Tier 1 Group 2 fit the K/A on page 9 of Tier 1 Group 1 better than the question selected.
3. Page 10 (Question 5), replaced this question with the question located on page 15 of Tier 1 Group 2. The question on page 15 of Tier 1 Group 2 fit the K/A on page 9 of Tier 1 Group 1 better than the question selected.
4. Page 16 (Question 8), changed the learning objective to a more appropriate learning objective.
5. Page 17 (Question 8), added “amps and stable” to the second bulleted item in the stem of the question. Removed the word “Immediately” from choices a and b. Edited choice a’s ending to read the same as the ending of choice d. In choice b, added the word “manually” prior to the word “insert” and replaced the word “Safety” with “Control Rod.” In choice c, deleted the words “;and at Step 3.2, Reactivity Control. In choice d, deleted the words “; and at Step 4.1.”
6. Page 18 (Question 9), changed to question source to Bank. Question changes were not significant enough to qualify as a modified question.
7. Page 19 (Question 9) of the first submittal was deleted to remove the original question.
8. Page 22 (Question 11), modified the explanation section to clarify the new distractors on page 23. Changed the 10CFR Part 55 Content from 55.43 to 55.41. Removed the explanation of why the question is SRO level, from the Comments section, due to the question not qualifying as an SRO question.
9. Page 23 (Question 11), combined choice a with the old choice d. In choice b, deleted “Continue cooldown with AFW feeding” and inserted “Use the AFW Pumps to feed.” In choice c, deleted “Continue cooldown with AFW feeding and inserted “Use the MDFP to feed.” Inserted a new choice d, “Align the SUFP to feed SG 1.”
10. Page 44 (Question 21), changed the 10CFR Part 55 Content from 55.43 to 55.41, due to the question not qualifying as an SRO question. Removed the explanation of why the question is SRO level, from the Comments section.
11. Page 49 (Question 23), in choice a the word “still” was deleted and “the Iodine concentration” was inserted.

Tier 1 Group 2

1. Page 8 (Question 28), insert the original question for page 9.
2. Page 9 (Question 28), from choice a deleted “AND indicating light on the PORV switch (HIS RC2.6) is illuminated. In choice b, deleted “with stable pressurizer level AND the red indicating light on the PORV switch (HIS RC6-6) is illuminated” and inserted “with lowering Tave.” In choice c, deleted “AND annunciator alarm 4-1-D, PZR RFL VLV OPEN, is alarming. In choice d, replaced the entire statement with “Pressurizer level decreasing, CTMT Normal sump level constant and CTMT temperature increasing.”
3. Page 14 (Question 31), inserted the information from page 9 of Tier 1 Group 1 except for the K/A information. The question on page 10 of Tier 1 Group 1 fit the K/A on page 14 of Tier 1 Group 2 better than the question selected.
4. Page 15 (Question 31), replaced this question with the question located on page 10 of Tier 1 Group 1. The question on page 10 of Tier 1 Group 1 fit the K/A on page 14 of Tier 1 Group 2 better than the question selected.

5. Page 17 (Question 32), remove the bullet from the last item in the stem and moved it to the left margin.
6. Page 26 (Question 37), changed the 10CFR Part 55 Content from 55.43 to 55.41, due to the question not qualifying as an SRO question. Removed the explanation of why the question is SRO level, from the Comments section.
7. Page 32 (Question 39), deleted “(0 VAC on both)” from the stem of the question. Statement is not necessary.

Tier 1 Group 3

1. Page 1 (Question 41), changed the word “sensing”, in the explanation section, to “reference.”
2. Page 2 (Question 41), deleted “Unidentified leakage has risen by 0.5 gpm.” from the stem. In choice a and b, deleted “A leak on” and changed “has occurred” to “pressure has decreased.” The changes in the choices eliminate the need for the statement “Unidentified leakage has risen by 0.5 gpm.” Changed the answer from b to a.

Tier 2 Group 1

1. Page 17 (Question 51), deleted the hot leg temperature and incore temperature from the choices and placed the information in the stem. In choice a, changed the pressure to 950 psig. In choice c, changed the pressure to 850 psig. In choice d, changed the pressure to 800 psig. The changes were made to make the answer more definitive.

Tier 2 Group 2

1. Page 3 (Question 64), Changed the 10CFR Part 55 Content from 55.43 to 55.41. Removed the explanation of why the question is SRO level, from the Comments section, due to the question not qualifying as an SRO question.
2. Page 20 (Question 71), changed K/A and other information for new question on page 21.
3. Page 21 (Question 71), inserted new question due to previously selected K/A not fitting DBNPS.
4. Page 34 (Question 78), changed information as appropriately for the new question on page 36.
5. Page 35 (Question 78), inserted new question due the initially selected question failing to meet the K/A.

Tier 2 Group 3

1. Page 3 (Question 81), changed to question source to Bank. Question changes were not significant enough to qualify as a modified question.
2. Page 4 (Question 81) of the first submittal was deleted to remove the original question.

Tier 3

1. Page 9 (Question 88), deleted the proposed reference of “DB-OP-06316, Attachment 13.”
2. Page 10 (Question 88), change the sentence “An EO calls up and reports that EDG 2 lube oil temperature is 83°F.”, which is in the stem to read “An EO reports that EDG 2 lube oil temperature is 83°F which according to NOMS make the EDG inoperable.” In choice a, changed it to read “Enter T.S. 3.9.8.2 – Decay Heat Removal and Coolant Circulation.” In choice b and c, deleted “and declare EDG 2 inoperable.” In choice d, changed it to read “Enter T.S. 3.1.2.5 – Reactivity Control System: Decay Heat Pump.”

ADMINISTRATIVE JPMs:

Admin JPM 1-1

1. Enhanced the JPM by starting the JPM in the Control Room and developing a Operations Weekly Schedule that is customized to work with JPM.
2. Changed the time in which the EO left the site from 1300 to 1100 to ensure more than two hours difference before the next crew would come on site.

Admin JPM 1-2

1. Changed the RCS boron concentration from 1450 ppm to 1535 ppm to correct an error in the calculation.
2. Made step 3, 5, 6, 7 and 8 noncritical steps.

Admin JPM 2

1. Enhanced the JPM to incorporate the entry of data into the Inoperable Tracking Log and made an entry on the appropriate log sheet that made HPI pump 2 inoperable but did not restore it. Added a step to identify that the work order needed to be signed to

Admin JPM 3

1. Modified the JPM to add discriminator value. Change the tenth value in item 9.b to 0.65. Added a critical step requiring the examinee to identify the tenth value is less than 1 SCFM which requires the release to be rejected.

Admin JPM 4

1. Shorten the JPM by deleting all the steps after the examinee has identified the need to upgrade to a General Emergency.

WALK THROUGH JPMs:

JPM 1

1. Made step 5 critical due to step 6 being critical.
2. Made step 7 non-critical due later steps being critical that requires the procedure routing.
3. Made step 11 non-critical due to later steps being critical that requires the use of the tools.

JPM 2

1. Made step 9 critical due to shutdown of the EDG 2 is required to prevent inadvertent operation of train 2 equipment due to the Control Room fire.
2. Made step 15 non-critical, the step contains communications that are not critical to completion of the task.
3. Made step 18 critical due to isolation of B bus is required to prevent inadvertent operation of train 2 equipment due to the Control Room fire. Changed the cues to have the green lights off due to source breaker indication power being de-energized. Deleted the comment due to the examinee being required to perform to use the plunger.

JPM 4

1. Changed step 11 such that the examinee will find the CCW train 2 temperature at 105°F.
2. Changed step 30 to a noncritical step.

JPM 94

1. Added a comment to step 2 to read "Verify the examinee can control SG 2 pressure."
2. In step 7, changed "MS 608" to "AF 608".
3. In step 10 under the PERFORMANCE STEP, changed the word "closed" to "open."
4. Made step 11 noncritical.
- 5.

JPM 57

1. Made step 6 critical due to repositioning of the valve being required.

SCENARIOS:

Scenario 1

1. Changed the initial power level from 100% to 93% for time compression and changed event 1 accordingly.
2. Changed the fail to position value of event 9 from 20% to 40% to ensure the cooldown rate is greater than 100°F/hr.
3. Added a statement to event 1 that the SRO should refer to T.S. 3.3.2.3. Entry into the T.S. is not required.
4. Added to event 2 to have the RO place the Reactor Demand Station in hand when the Rod Control Panel is placed in manual which required per DB-OP-06401, Integrated Control System Operating Procedure.
5. Added to event 2 the reference that DB-OP-02504, Nuclear Instrumentation Failures, is to be used to place RPS channel 2 NI-5 Power Range Test Module into Test Operate.
6. Added a note to event 3 that states "RCP 2-2's shaft may shear prior to the examinee stopping the RCP."

Scenario 2

1. Changed the initial power level from 60% to 50% for time compress and eliminated event 1.
2. Moved the Pressurizer level instrument failure to be prior to the Bus C2 and AC transformer lockout. The swapping of the two events is to reduce the scenario's overall time.
3. Reduce the size of the small RCS leak to half its original value. The RCS leak reduction should prevent the RO from estimating the RCS leak rate too high and initiating the SRO into following the undesired course of actions.
4. Added a contingency to events 5 and 6 in the event the crew causes a loss of subcooling margin. The event, under expected operator response, results in subcooling margin approaching the minimum subcooling margin limit. If the operators deviate too far from the expected response then subcooling margin may be lost.

Scenario 3

1. Remove the event for the oil leak on Makeup pump 2 to reduce the overall time of the scenario. Added a failure of Makeup pump 1 breaker to close to ensure the 150 gpm SG leak qualifies as a rupture.
2. Added to event 2 a statement "If desired then shutdown CCW pump 1." The action is allowed per procedure.
3. Added to event 6 the steps to show how the RO should restore makeup and seal injection.