8/18/06

2006 LOI NRC Written Exam Consolidated Comments

FINAL LICENSEE COMMENTS/RESOLUTIONS after 2nd VALIDATION RUN with OPERATORS

Question # **Comment**

RO Exam

Conventions used: Original comment is in black text. Comments from 1st pilot test that were not addressed to licensee satisfaction are in red text. NRC responses are in blue text. Double asterisks (**) leading the question number indicates that the question has been changed significantly – beyond a simple editorial change – and should be reviewed to ensure change has been made appropriately.

1 Put them in EOP-2 or AOP-7C with RCPs tripped. Change answer to test the limit on 200 degrees F for controlled bleedoff. **Incorrectly changed to "in EOP-1"

Revised question completely to test 200 degree limit on when to trip an RCP instead of the 250 degree limit – improved operational validity. Now testing loss of CCW and AOP-7C limit of 200 degrees.

9 Add TIC noun name (Letdown HX temperature controller). Indicate that no adjustment to SW flow was made to the on-service CC HXR. If one is taken off per the procedure, the one in service has its SW adjusted so that there is no change in temperature of CCW.

Will make changes as suggested for clarity and to reflect procedural requirements. **Changes made.**

11 HS-100 is Pressurizer Pressure Select Switch, not spray valve controller.

Editorial in nature – make change as suggested for clarity – **change made**

15 Clarify terminology? **No, it is clear. No changes made, the correct answer was not changed from "CS" to "SI" as requested. Additionally, C is correct. The step for RAS is a continuous step, and you can go forward in the procedure which would allow resetting CSAS before RAS had actuated. Suggest keeping Containment pressure at 5 PSIG.**

Delete "Containment Pressure dropped below 4 PSIG" and "Containment Pressure was 3.5 and slowly decreasing". Change "increasing" to "rising". Add "mode" after recirc or recirculation. Change CS to SI in responses C and D.

Making this change will make some distracters implausible. Change to read "if the operators had not reset CSAS at 0246… - **added**

OK with 2nd changes specified – change to SI system and add bullet on CSAS reset – **changed as requested**

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16. Revise. **Incorrectly revised. The delta T across the SDC HXR has not changed since it was not in service prior to the accident. It is not clear what the reference point is for the initial delta T of the SDC HXR.

Unclear. What is the delta in the delta T? CC vs. CS, CCin vs. CCout, CSin vs.CSout? See validation 1 comment doc.

Clarify the lineup, comparison and delta-T. Put the timeframe at >30 minutes (after RAS) and testing SDC HX delta-T between injection and recirc phases. Changes are OK as discussed. – **Changes made as discussed**

21. Add "when" after "100% power". **Added** In Q, change to ....status of AFW lube oil... Because of the 250 volt in the stem, one responder said he was thinking about other plant loads and was distracted.

Editorial change – will make to enhance / clarify the question – **made change**

23. C should reference CR and troubleshooting. **IR should be replaced with CR in C and D to be consistent with current terminology.**

In stem, 11 bus ground detection panel is also located in U2 cable spreading room—there is only one panel for both units. Change IR to CR.

Note that AOP-7J says "IR" not "CR". Will make the editorial change for clarity. **Made change**

24. First bullet should be 11 and 21 FOSTs

Agree – **made change as requested**

25. Add nomenclature, move the numbers before the answer spaces in stem. **Nomenclature for CVs 2201, 2202, 2191, and 2192 are given as Discharge Isolation valve. 2191 and 2192 are waste gas discharge valves. As written we are asking to memorize valve numbers to obtain the correct answer. Suggest omitting the 2nd blank. Numbers on blanks not moved.

Add Liq waste disch after RI-2201 in C. Move numbers to front of lines in Q stem.

Revise question. Need to revise this question to address concern in red. Note – the nomenclature issue was addressed in the original pilot test discussion. If the comment appears again, the resolution was not accepted. 100% of the operators got the correct answer. Need to understand your concern. – Delete 2nd data element. **Changes made**

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26. Where is blockage, there is no 12 SW discharge header. Could say 12A and B SRW HXR SW outlet is blocked, or 12 CC HXR SW outlet is blocked.

    Revise – accept recommendation – **12 CC HXR SW outlet is blocked – changes made**

**27. Third bullet should be AOP-7D. Similar to question #37?

    Editorial change – changed "AP-07D" to "AOP-07D" – **changes made.**
    Change question to test pressure response for standby air compressor rather than IA cross-connect actions to differentiate it from Q37 - **Changes made**

28. Change 1st bullet to the Purge Exhaust fan spuriously trips. As written, thought that it could come back on when power comes back on.

    Will make this editorial change – will enhance clarity – **changes made**

**33. C and D should say "Reduce setpoint on 1-PIC-4056 to pick up turbine load, reduce turbine load to 40 MWe, open the tie breaker, 552-23, then reduce load on the generator to 0 or slightly negative. And immediately open bus breaker, 552-22." (These are the steps per procedure.)

    Discussed with licensee. Decided to make the change as recommended. – **Changes made**

34. Delete [ABB Automation….] confusing and means nothing to the operators.

    This terminology was extracted directly from SD-43 page 7. It does not match the terminology in SD-77 page 12. Both sets of terminology were provided in order for the operators to pick the terminology that they use in the control room.

    We will delete the SD-43 terminology to clarify the question. – **Changes made**

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35. Replace, evaporators have not been used for over 10 years. **Wrote new Q. Acceptable as is, but new question is a collection of T/F statements and could be answered correctly without the stem of the Q.

In stem, delete "events". Also delete "entering the waste receiver tanks".

Disagree - The question tests a related concept so it is not a collection of true / false statements. The fact that the distractors "stand alone" does not – in and of itself – make it a collection of true/false statements.

Will revise the stem of the question such that it does not trigger a positive test for a collection of true/false statements. **– Revised question as stated**

37. Rephrase distracters C and D, they are awkward. **No correct answer as written. 2059 will not allow PA to supply IA; it only isolates the plant air header. Recommend rewording C and D to "will shut to isolate the PA header…"**

Will make this editorial change as suggested to enhance clarity. This is a terminology issue, not a technical issue. – **Changes made**

38. Bullet one, change completing to performing

Will make this editorial change – will enhance clarity - **change made**

39. 1st bullet, I inch instead of inches.

Will make this editorial change – typo – **change made**

**42. Confusing and not operationally oriented. Tave should be Tc?

Disagree with question not being operationally oriented. The concept of reverse flow in an idle loop is clearly operationally oriented as well as being important. This question has been used on many other NRC exams and is a relatively standard question that we expect operators to know. This appears to be a training deficiency at CCNPP. Tave is necessary for the question accuracy. Tcold is already stated in the question. No changes will be made to this question.

Negotiated that we would try to revise this question using word descriptions rather than arrows. Concern is that the changes in temperatures are very small (less than 1 degree) and would not be noticeable in the simulator. – **Changes made as discussed.**

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45. Which leaking component was isolated—instrument air or the leak into CCW?

    Will make this editorial change – will enhance clarity. It seemed intuitively obvious that the leak is the CCW system leak. However, we will be happy to clarify the location of the leak. – Move bullet on IA to last – **Changes made**

**49. Change 3.8% flow to 56% open. Valve position is on the controller, not flow - 3.8% flow doesn't have meaning to the operators.

    Editorial change - will change the controller display to 56% - instead of 3.8% as stated in SD-45 page 31. – Also change FRV position to 5%. – **Changes made**

    CCNPP - Verify that 3.8% feedwater flow is equivalent to ~5% FRV position in simulator.

56. Change "rod" in stem to "CEAs".

    Editorial change – will enhance clarity – **changes made**

57. Second "and" in stem should be "an".

    Will make this editorial change – typo – **changes made**

58. Remove "preparing to conduct a reactor startup" from stem.

    Editorial change – will enhance clarity - **changes made**

59 Change 1st bullet to, "the turbine has just been paralleled". 100 MWe is over when the Loss of Load Ch trip Byp would be cleared.

    Will make this editorial change – will enhance clarity – **change made**

61. Change to "The Control Room was evacuated; we don't have separate control rooms.

    Will make this editorial change – typo - **change made**

63. First bullet "add of I-131" to eliminate confusion on if that is gross activity.

    Will make this editorial change – will enhance clarity – **change made**

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66 (1) Revise, not RO level w/o reference. C is the correct answer. **Change stem to say "133 inches withdrawn" Revised Q has no correct answer. The misalignment happened at 0210 and has a one hour completion time. Either change B to 0310 or change the stem to read, which of the given statements reflects the latest time to align the CEA and still meet TS requirements.**

(2) Correct answer should be at 0310 (B).

Will make change as suggested. Although the question is technically correct as written, changing the time from 0305 to 0310 will enhance clarity and make it line up with the exact words in Tech Specs. – **Changes made**

68. (1) OK for requal, not for initial. Replace. **Replaced question has no correct answer. CCNPP does not credit 12 HPSI as a replacement for either 11 or 13 HPSI. 11 HPSI would be required to be declared inoperable within 4 hours of 13 HPSI being declared inop per TS 3.8.1.b. Also, distracters A and D are identical. Memory level for RO??? Should give reference.

(2) Correct response is 11 must be declared inoperable when 13 is declared inoperable.

This issues was not apparent from Tech Specs. Will provide reference – Tech spec 3.8.1. Will need to further research this issue to understand issue with 12 HPSI pump. Please provide reference for your concern.

8/17 Discussed with licensee. The 12 HPSI pump is NOT credited for HPSI performance because it is mechanically aligned to the 11 loop (A train) but electrically powered from the 14 vital bus (B train). Only the 11 and 13 HPSI pumps are credited for the HPSI design function. Note this issue is not explicitly listed in Tech Specs. The reference would be "design documents" that operators would not have but must know. **– made changes as discussed.**

69. (1) Change so C is the right response. The RCRO cannot perform any actions. **The RCRO still does not perform any actions. A. could be reworded "Continue to observe NI channels and notify the FHS." B. "Observe nuclear indications and recommend the FHS slow the rate of CEA withdrawal." C. "Report the problem to the FHS and recommend stopping CEA withdrawal.**

(2) See validation 1 comments.

Editorial change to improve clarity of distracters. The RO does not take the action directly – **made changes**

70. (1) Change GTI to fuel assembly. State that more than 2 NIs are originally operable. **Changed GTI to CEA. We don't put CEAs in the upender. CEAs

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are in the fuel assemblies. Change to fuel assembly. Also, we often refuel with only 2 NIs operable, stem should state 3 or all NIs operable to avoid arguments over normal conditions and A.

(2) In C. Refueling floor is a BWR term. Make it Refueling Machine. Can't put a CEA in the upender w/o it being in fuel. Up ender should not be hyphenated. Distracter D doesn't answer the question. Distracter D could be "Containment Purge has been secured by the Operating Instructions.

Refueling floor is not a BWR term – this is a term used by many PWRs as well, although it may not be CCNPP-specific. **Changed terminology to be site specific.**

Distracter D answers the question by providing additional information. The "(if any)" in the stem makes D acceptable. It was our intention to determine if applicants recognize that moving a CEA is a core alteration. However, we have no objection to changing D as you request. Either way, the question should be acceptable.

Used the suggestions above and changed the question.

71. CCNPP in bottom part of stem—missing the second P.

Will make this editorial change - typo. – **Changes made**

SRO Exam

78(3) Remove the 1. under *References Provided.*

Will hide the "1." in hidden text so it is not visible in the question, only in the answer key version. – **Change made**

**79(4) Tc at 518 and 11 S/G pressure is 650 psia, SGIS should have actuated. EOP-0 states that TC should be stabilized where it is, not TBV/ADVs operated to maintain TC 525-535. EITHER CHANGE THE CONDITONS OF THE QUESTION, OR ASK WHY TEMPERATURE IS STABILIZED AT 518, AND A IS THE CORRECT RESPONSE. The EOP basis doc does not support A as being correct for step E.1 as written in the Q.

Will further research and ensure question is corrected. We should discuss this further. – A and C (2) – delete "Stabilize Tcold". Change stem to test the bases for the E1.4 alternate action – add 1.4 into stem – **changes made as discussed.**

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80(5) In distracters A and B, delete Unit 1 before Auxiliary steam.

Will make this editorial change – will enhance clarity – **change made**

**82(7) Bullets 1 and 2 and bottom part of Q stem should be 21 S/G instead of 11. D can be correct—B is already in a tripped condition.

Will make this change for the 21 S/G (unit 2 question) – will enhance clarity.

Disagree on contention that "D" is correct. We think that you must actually take action to place the channel in trip – not simply recognize that the channel is in trip due to a failure. The channel may not be in trip if the instrument signal failed low.

Request you obtain a definitive and binding determination from Operations Management on this tech spec interpretation prior to the exam. Please document this interpretation for the benefit of potential exam appeals.

**83(8) Control room indication pegs high at 50". In the stem state that traveling screen D/P is pegged high instead of 60". (Local indication only goes to 24").

Will change stem to pegged high at 50" in the control room. Take out water level bullet.

Cannot take out CW bay level because it makes B (1) and D (1) not plausible. After discussing with licensee – elected to set Chesapeake Bay level at high tide + 4 ft and CW bay level at -1 ft. This makes B and D plausible while still providing the appropriate relationship between D/P and CW intake level with bay level.

Changes made as discussed.

**88(13) Confusing as written. Delete references to step M.

Need to discuss this suggestion. It needs to be clear that the operator have not yet reached step M in the procedure. – **Clarify that a cooldown has been commenced in step L and had not yet reached step M which required blocking. – Changes made as discussed**

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**90(15) Delete the minus sign in -10 inches in the stem. No one gets how you can be movable but untrippable.

1. Tech Specs makes a clear distinction between "unmovable" and "untrippable". This could occur if the CEA was mechanically bound but the running current was able to overcome the mechanical resistance and move the rod.
2. The pilot testers scored 75% on this question. Please make a convincing argument that this should be revised.

Change to 2 CEAs untrippable instead of all of group 5. Changed distracter D to add "drive stuck CEAs into core if they do not trip"

**91(16) 2nd bullet—TCB indication is not available at 1C43, remote s/d panel.

Need to research further. Why is TCB indication called out in Tech Spec 3.3.11? Please discuss the details of this issue. **Revise question – replace TCB indication with Pressurizer pressure indication**

93(18) last bullet, change to say leak rate per the plant computer is....

Will make this editorial change – will enhance clarity - **changes made**

94(19) Note is very confusing, please delete it.

Need to discuss this request. The note added to enhance clarity and prevent people from having to figure out which action is least restrictive. May need to brief applicants? - **Deleted note**

96(21) Delete OSM; just make it Shift Manager throughout Q.

Will make this editorial change – will enhance clarity – **change made**

99(24) 1st bullet, change 8/25 to 8/26 to ensure right multiplier is used.

Verify the suggested change. Review with facility after review is done.

Change verified – agree with facility – made change

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Question #	Comment
2	OK with editorial comments … change "L/D flow limiter" to "excess flow" **Comment accepted – editorial change made to terminology to improve clarity.**
19	OK with editorial comments … in distracters "B" & "C" change "signal" to "actuated, feed to" & in distracter "C" delete "with no AFAS signal present" **Comment accepted – editorial changes made to the distracters to improve clarity of question.**
22	OK
23	Needs re-write because: • 11 & 14 DC busses are separated by distance & buildings and would not be affected by postulated pipe rupture **Agree in principle** • Operator would not automatically test for grounds on 14 Bus since it is only associated with the 1A DG and not tied to the same annunciator circuit as the 11 DC Bus **Agree – but…** • Suggestion: Red LED lit for 11 bus, LED out for 21 bus, combinations of LED indications for + and – polarities in distracters, and correct answer to be negative ground on 11 bus, submit a CR to have the electric shop commence ground isolation (Operations does not perform ground isolation, it is done under troubleshooting by E&C). **Response: We agree to eliminate the common cause of the grounds (flooding) and test how to operate both ground detector circuits. K/A is "ability to predict the impacts of a [ground]…" No bases provided for why the change is needed. Please provide a bases for the suggested change. Will evaluate this test item further during the pilot test phase.**
24	OK
25	Are candidates expected to know CFR's by #? **Response: There are some CFRs that are important and some that are not – depends on the CFR. All licensed operators should know the basic knowledge that radiation worker / occupational exposure limits are contained in 10CFR 20 and accident limits are contained in 10CFR100. Holding a license implies that operators will operate the plant in accordance**

with the code of federal regulations. The exact detail required depends on the level of the license. The K/A catalogue will provide some additional clarity regarding the expected level of knowledge of the code of regulations.

Suggest change last part of answer to:
A.& C. the fixed setpoint of 0-RI-2201
B. & D the Plant Computer Critical High alarm setpoint. (The valves are shut by the fixed setpoint, but the critical high value is set to alarm on the plant computer and is manual termination criteria.)

Response: The recommendation improves the question by making it closer to the K/A. Accepted the recommendation and made the change. We have eliminated to the reference to 10CFR20 and 10CFR100.

26 OK

27 OK. Suggest change I/A header press to 80 psig so that "B" is not defendable.

Response: Change accepted - improves the question.

28 Needs work in several areas:

- When main exh fan trips the purge exh fan automatically trips which in turn automatically secures the purge supply fan. Therefore, cntmt press would not increase. Could change second bullet to say the purge supply fan fails to trip.

Response: The failure of the automatic trip was implied by the stem. Changed to the stem to improve the question by making this failure more explicit.

- Distracters "A" & "C" should say "Spent Fuel Pool level increases"

Response: Changed distracters to better support site-specific terminology.

- Distracters "B" & "D" should say "Refueling Pool level increases"

Response: Changed distracters to better support site-specific terminology.

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29 Distracters "C" & "D" should say "12 MG Set"

Response: corrected typo in distracters.

30 OK – interested in crew validation comments –

Response: Agreed – but... If you have concerns about the question, it would be better if you communicated those concerns prior to crew validation so we can resolve them up front. We would like to address as many comments as possible before we administer the validation exam.

31 OK

32 OK

34 Re-write using OI-35, Sect 6.9.C. For example, "A channel of 1-RI-1752 is found to be inoperable, what actions are required?"

Response: There are no bases provided for changing the question. Will be happy to consider changes if bases for change is provided. The suggested revision [above] does not meet the K/A. This is a somewhat focused K/A. Will discuss further during pilot testing phase.

35 Borderline (we haven't used the evaporators in over 10 years because of B-10 concerns) suggest modification of question to a scenario using a normal liquid waste discharge

Response: The Boric Acid evaporators are not retired from service and could be used in the future. They part of the licensing bases for the plant. This issue was addressed by Telcon when the question was developed. However, we will be willing to consider any proposed replacement question that improves this operational validity of the question while still meeting the K/A.

36 Question has several problems:

- Question asks for correct automatic response … correct answer is a manual action. **Response: The stem stated "(if any)" - which should psychometrically eliminate this concern. However, we have made an editorial change to the stem to further clarify the intent and improve the question.**

- TS's allow **(A.1)** placing a CRS channel in trip
  <u>OR</u>

(A.2) suspend core alts immediately <u>AND</u> suspend movement of irradiated fuel assemblies within the containment immediately.

Response: The Tech Spec required action A.1 appears to allow refueling to continue as long as the channel is placed in "Trip" within 4 hours.

1. A.1 appears to conflict with tech spec required action A.2 which requires an immediate suspension of core alterations – but A.1 and A.2 are "or-ed" (implement A.1 or A.2). This apparent conflict needs to be better understood. We need to understand the bases for why this is acceptable. Does this comport with Standard Tech Specs?

2. We do not provide the option of placing the affected sensor module in trip within 4 hours as one of the choices. If the applicant "assumes" this choice, then he/she makes an unwarranted assumption.

We will need to discuss this issue further to better understand the coordination of required actions A.1 and A.2 in order to ensure the question is correct.

37 OK

38 OK

39 OK

40 OK

41 OK with editorial comments. 11 4Kv bus is located in the 27' Switchgear Room, 14 4Kv Bus is located in the 45'Switchgear Room.

Response: Made changes as stated above.

42 Conditions specified are not in alignment with actual post trip conditions (ran it on the simulator). Tave would be 532, no delta T. Loop 12 temperature change is negligible (Th rose to 533, Tc lowered to 531.5).

Response: Changed stem to have RCP trip occur immediately after 2 RCPs are secured in EOP-0. This ensures sufficient

decay heat will exist in the core to provide adequate delta-temp for the question to work as written. This question will not work with delta-Temp = 0.

43 Change distracter "D" from "isolate 11 Chg Pp" to "locally vent 11 Chg Pp".

Response: Proposed change accepted - improves the answer – this is what the procedure actually requires.

44 OK

45 OK

46 Change in indicated pressurizer level will be pretty much negligible and letdown flow would change to maintain pressurizer level. See attached proposed question.

Response: We agree conceptually with the comment. However, the proposed replacement question does not fit with the K/A (i.e. a failure in the pressure control system that causes an increase in PZR level). We will change stem to place letdown in manual so the letdown system does not change to compensate for change in level. We will also consider any other proposed replacement questions or revision ideas. We can also consider replacing the K/A and writing a new question if you can show how it meets the site-specific requirement for K/A suppression. We will discuss possible options to improve this question during pilot testing phase.

47 OK– interested in crew validation comments, may not be operationally oriented enough.

Response: This question has been used on other (not CCNPP) NRC exams and met operational validity requirements at those sites. It was first "extracted" from the INPO bank and I have personally used the question on several other NRC exams. It may have a high miss rate because it is not emphasized in training programs and requires some thought to answer.

48 OK

49 OK

50 OK

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55 OK

56 OK

61 OK

64 A couple of problems:

- T.S. limit is <100 gpd for S/G tube leakage, admin procedures limit us to 50 gpd.
- Distracter "B" should be "PORV-402"

Response: Agree with comments. Changed distracter from 7100 gpd to 40 gpd. Changed typo in distracter "B" as requested.

65 OK with editorial comments (Distracter "B" – get rid of "the CRO")

Response: We don't see what difference this makes but we made the change as requested.

66 Make CEA heights CCNPP specific (ARO = 135"). Requires use & interpretation of TS's, Use of 3.1.4 w/o spec might be beyond RO knowledge level. Can see how it goes during Crew validation.

Response: Corrected error by making CEA heights 133" – driving to 123". Will review test item performance at pilot test.

67 OK with editorial comments:

- delete note in stem of question
- Change distracter "B" from "transfer canal weir gate" to "transfer tube gate valve"

Response: Accepted changes – incorporated site specific terminology to improve question.

68 Needs work:

- RO is not required to know FIN CRO responsibilities
- TS response is incomplete

See proposed question.

Response: Clarification well taken. Accepted proposed replacement question with minor modifications. Please review our modifications.

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69

Needs work (may be a good SRO question):

- Detailed knowledge of fuel handling procedures is required
- Where does "expected countrate" come from? Not something our procedures address.
- RCRO coordinates & transmits information. FHS directs operator action.

Response: We do not understand the bases for your objection. The expected count rate comes from the 1/M plots as stated in FH-305 section 5.3.A. There are only a small number of responsibilities assigned to the RCRO. This is one of them and arguably the most important. You also proposed testing this same (or similar) knowledge in the suggested replacement question for #70 (distracter A). We should discuss this issue further to understand your concerns before deciding on the final version of the question.

70

In practice … all answers are correct. Detailed knowledge of fuel handling procedures is required – see suggested replacement question #70

Response: We do not agree that "all answers are correct". We will need to have a better understanding of your reasoning behind this statement. However, we will agree to change the question by replacing distracters "A" and "B" with your proposed new question distracters "C" and "D". While "A" and "B" are valid distracters in our view, we also understand your concern that this requires detailed knowledge of the refueling procedure. The change will eliminate this concern while maintaining operational validity. The proposed change improves the original question.

71

Needs work:

- Limit w/o PGM authorization is 2000 mrem vice 3000 mrem
- Confusion over Ginna dose. Is it year old with results not received or is it supposed to be 2006 dose. If it is 2005 dose the TLD data should have arrived.
- Change stem to "state the maximum amount of …"
- Get rid of ranges on distracters.
- Acronym for Calvert Cliffs Nuclear Power Plant is CCNPP

Response: We understand your concerns and have modified the question to (1) change the PGM authorization from 3000 to 2000 mrem, (2) change the date on the Ginna dose to 2006, (3) change the stem to read as requested.

However, we do not agree that getting rid of ranges on the distracters is appropriate. The intent of providing ranges rather than specific numbers is to ensure that the applicants do not receive inappropriate feedback when they determine the dose margin when their answer is not the same as the 4 choices. When this happens, they continue to refine their calculation until they arrive at one of the 4 choices. This feedback is an artificiality of the multiple choice format and does not (in our opinion) provide the necessary degree of discrimination that is appropriate for the NRC exam.

We do understand your concern that the ranges may be confusing for some if they have not seen this format before the NRC exam. We will agree to brief the applicants on our use of ranges for single calculation questions in the 4-selection multiple choice exam format prior to the exam to eliminate the format confusion.

72 OK – Check during Crew validation

Response: It appears you may have a concern regarding this question. We should discuss your concern prior to the validation.

73 OK with editorial change:

- Change (2) of stem to "the reason for cooldown to <515 Th prior to S/G isolation.

Response: We agree with the proposed change – it improves the clarity of the question.

74 OK

75 OK

2006 NRC RO Written Exam Review

Suggested replacement for question 46

Given the following indications with Unit-2 at 100% power:

Pressurizer pressure, PIC-100X	0 PSIA
Pressurizer level, LIC-110X	360"

What is the cause of these indications?

A. Failure of PT-100X

B. A leak in the reference leg for LT-110X

C. A leak in the variable leg for LT-110X

D. Loss of the instrument bus feeding LT-110X and PT-100X

A is incorrect, level instrument would not be affected.

B is correct. These instruments share a common tap on the reference leg for LT-110X and this would cause a low indication fro pressure and a high indication for level.

C is incorrect, this would cause a low indication for LT-110X and does not affect PT-100X

D is incorrect, loss of power would cause indications to fail off scale low.

Ref. BGE DWG 62729 sh.1

Learning objective: Given a failure of any RCS pressure, temperature or level instrument, predict the response of the system (heaters, spray,charging and letdown) to that failure.

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Suggested replacement for question 68

What actions are required prior to taking 1A Diesel Generator out of service for maintenance with both units at 100% power?

A. Perform Operability verification of Unit-1 ZB train equipment.

B. Perform Operability verification of Unit-1 and Unit-2 ZB train equipment.

C. Perform Operability verification of Unit-1 ZB train equipment and verify 2A, 2B and the OC Diesel generators available to Unit-2.

D. Perform Operability verification of Unit-1 ZB train equipment and Unit-2 ZA equipment.

A is correct, per OI-49.

B is incorrect, but plausible if the applicant knows that the unit-2 DG powering CRVS/CRETS is required to be operable, but doesn't know which train it is on.

C is incorrect but plausible if the applicant does not know that A. contains the steps to verify unit 2 DGs operable.

D is incorrect but plausible if the applicant knows that the unit-2 DG powering CRVS/CRETS is required to be operable, and that A. contains the steps to verify this.

(May consider test starting a DG as a distracter, as this is no longer required)

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Suggested replacement for question #70

Q37900
1 1.00

A core shuffle is in progress and the refueling machine is indexed over a core location with a fuel assembly grappled in the hoist box. What condition would require **core alterations** to be stopped?

A. Count rate raises from 10 CPS to 15 CPS on an NI channel when a fuel bundle is inserted into the core.

B. Communications between fuel handling stations lost.

C. One channel of 4 available nuclear instrumentation channels fails high.

D. Spent fuel pool ventilation exhaust filter is bypassed.

Answer: B

ASSOCIATED INFORMATION:

Associated objective(s):

27977	Establish and maintain administrative and plant conditions to perform refueling operations and recognize any abnormal conditions adverse to nuclear safety requiring securing refueling operation.

Reference Id: Q37900
Must appear: No
Status: Active
User Text:
User Number 1:
User Number 2:
Difficulty: 2.00
Time to complete: 2
Topic: evaluate those conditions and determine the required action(s) for loss of Communications.
Cross Reference:
Comment: B is correct per TRM 15.9.2.
A is incorrect, no requirement exists.
C is incorrect. T.S. only require two channels of NIs.
D is incorrect. Loss of SFP ventilation requires suspending fuel moves in the Aux building
Question Statistics:

Number of Students:	7
Times Used on a Test:	1
Average Score:	1.00
Average Percentage:	100.00
Standard Deviation:	0.00
Number of Times Right:	7
Distractors (M/C only):	D1:0 D2:0 D3:0

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Question #	*Comment:*	*Wasem's comment* **BCH1's response in BOLD**
1 (76)	OK – RCP Seal parameters should be stated in units of psia (not psig) **Corrected to psia**	
2 (77)	CCNPP does not have Core Spray Pumps. Containment Spray Pumps? **Corrected to Containment Spray**	Add boron stratification which is also in the basis – **we should discuss this point. I don't see this listed in the bases** ***(pg 83/93, next-to last-sentence, EOP-5 Basis doc)***
3 (78)	• Volume added does not support conclusions of the stem (2300 gals added/842.15 gals/in = ~ 2.7" level increase in RWT, stated increase is 3"). **Changed numbers** • State: "The operators made a 2300 gallon blended make-up to the RWT" **Made this change** • Too many 0's in required RWT volume stated in distracter analysis on answer key … should be 400,000 **Changed to 400,000**	• For "B" and "D", change to "locate source of in leakage to the RWT" **Changed the words in answers due to NRC comments – the new words may address this concern.**
4 (79)	• RCS temperature, during heat-up, is monitored using Tc instrumentation if the RCPs are running, not Tave as stated in the stem. **Changed to Tcold** • 12 S/G Pressure should be stated in units of psia (not PSID). **Changed to psia** • MSIV's are not necessarily open at this time during the heat-up. The procedure allows them to be closed to support other plant activities (S/G blowdown, etc.). **Added that MSIVs were open to the stem**	•

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5 (80)	• Replace references to "Unit 1 Auxiliary Steam supply" with "Auxiliary Steam supply". Auxiliary Steam system is common to both units. **Change made** • Second part of "correct" answer is incorrect. Should say if SG level is approaching (-)50 inches - **Change made**	• This is way outside procedures—with only 1 SGFP available, OP-2 directs shifting to main/reheat steam prior to entry into Mode 1. Also, the AOP does not direct feeding with AFW unless Main Feed will not be available. **Discuss this comment in further detail to better understand concern** • ***Start at 4% reactor power.*** • ***Correct answer (D) is: (1)Reduce reactor power to less than 1% and allow S/G levels to slowly recover while attempting to restore main feedwater (2) Trip the reactor if S/G level is approaching (-)50"***
6 (81)	Should reference T.S. 3.4.9.1 in stem. **Change made**	Correct the Typo for the dates on "C" and "D" (too many 8s) **changes made**
7 (82)	OK	Could argue there is no correct answer since we do not place an NI channel in trip, we trip the associated RPS trip units. Suggest replace with "Place RPS trip units associated with NI channel…" **This question has been significantly modified because it did not fit the K/A. Review the new question when we arrive on site.**

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8 (83)	Don't particularly like the "0" feet reference **Discussed – decided to leave it as) but added a tape measure reading of –10 ft to the concrete floor**	"at" omitted from B and D prior to 0 feet. Could have CW and/or SW pumps automatically tripping as distracters. **Discuss further**
9 (84)	OK – Do not really like this question though … the CRS would not "direct" the RO/CRO to place the unit in Cold S/D **Understood that concern was over CRS "directing" – addressed concern**	
10 (85)	Remove references to DG loading concerns – **discuss further – this appears to be in the lesson plan**	Delete "11 SRW header was idled" in last bullet of stem, it has no meaning. – **Need to discuss further to understand**
11 (86)	• Is a pretty loose fit to the K/A at best. • Clearly specified in EOP-8 Basis doc … page 25 **Disagree with comment – will be glad to review any other proposed questions that fit the K/A at the SRO level.**	
12 (87)	OK	
13 (88)	• Pretty tough for a "from memory" question • SMECO **Supported by explicit lesson plan objectives – will be happy to consider alternatives**	
14 (89)	• OK with minor editorial corrections (Supply <u>breaker</u> in first bullet of stem). **Editorial changes made** • Reword question … (1) the restoration of power to 1Y01, … **changes made**	

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15 (90)	• OK, but … How can CEAs be movable but untrippable?? **No need to provide reason – we assert they are** • Second sentence of "correct" answer has nothing to do with the question asked. It does not match any of the information given in the stem of the question (it is not given that a misalignment exists). **True but I thought this added to the answer. WE should discuss this further**	
16 (91)	• T.S. 3.3.11 is for "Remote Shutdown Instrumentation" (there is no "safe" in the title). Needs to be corrected in stem & distracters. **Deleted the word "safe"** • Do not get the tie between 3.3.11 & SA-1-102. The LCO's for 3.3.11 encompass all the actions necessary for Remote Shutdown Instrumentation. • Would not expect someone to know what SA-1-102 is from memory. • Much better subject matter available for this K/A	• Could rewrite distracter D to say that Remote S/D instrumentation LCOs were moved to the Technical Requirements Manual since there is no shutdown path associated with these LCOs. **This question has been replaced as a result of Nick's comments. Will show you the new question on Monday.**
17 (92)	• Stem incorrectly states "the operators completed EOP-1" this should state "the operators completed EOP-0" **changed to EOP-0** • Implementation of EOP-8 would not necessarily be an incorrect answer. EOP-8 would successfully combat this casualty. **Discuss further – believe answer is correct** • Change stem to ask "Which one of the following statements **most** correctly describes the required procedural transition from EOP-0"?	• State that no steam driven AFW pumps are available and D becomes the correct answer. Loss of offsite takes away main feed, losing 2B DG takes out 23 AFW pump. No other procedure except EOP-3 directs using unit-1 AFW for Unit 2. Change one of the distracters to EOP-3) **There may be something I do not understand – need to discuss further with you.** • ***Another option: State that 22 steam driven AFW pump is unavailable and replace EOP-8 with EOP-3. This keeps EOP-4 the correct answer.***
18 (93)	OK	

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19 (94)	• Correct answer "B" – wording may be confusing … need to trip "A" Channel and restore either "B" or "A" within 48 hours – **changed words** • Distracter "C" … prior after ?? **deleted the word "prior"**	• I think "D" is correct. At 10^{-3} % power we would be in Mode 2. (Critical data is taken at 10^{-4}% by procedure) We just couldn't go to Mode 1. **OK – will discuss further – I am OK with making D correct but I need to understand your position in greater detail.**
20 (95)	OK – is the candidate really expected to know, from memory, what a "Type 2" decision is? **No – but it is not required to answer the question**	
21 (96)	OK	
22 (97)	OK	
23 (98)	• Individual would be fulfilling the role of the "Interim Emergency Director/Recovery Manager". – **changed title** • ERPIP-832, IEWPs 1 & 2 allow exceeding 25 REM only on a voluntary basis. The IED/RM **cannot** "direct" an individual to do so. May want to use "authorize" in distracters "C" & "D". **Changed direct to authorized**	
24 (99)	• Units used for contamination limits at CCNPP are dpm/100 cm2 … distracters use d/m 100 cm2. • **Changed to dpm (but the reason I used d/p was that was what your lesson plan used)** • RCS level of 40' is not mid-loop (mid-loop is 37.5' in the RCS). Delete reference to mid-loop. Could be written as: "RCS level is 40', in reduced inventory, with the reactor vessel head removed". **Made change** • Time after s/d, as stated, is 24 days, not 25 as specified in distracter analysis … Change stem to reflect current date of 8/26/06 (to make it 25 days) **fixed dates – but it didn't really matter for the answer,**	

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25 (100) OK