ENCLOSURE 3

Florida Power
CORPORATION

January 15, 1988
TRA88 0011

Mr. Bill Dean
Operator Licensing Section
Region II
U.S. Nuclear Regulatory Commission
Suite 2900
101 Marietta Street, NW
Atlanta, GA 30323

Subject: Crystal River Unit 3
1/12/88 - NRC Issued License Exams

Dear Mr. Dean:

As per the current practice for examination reviews after NRC issued operator examinations, please find enclosed our review and comments on the January 12, 1988, Senior Reactor and Reactor Operator Examinations given at Crystal River Unit 3. We are including our comments and recommended action for each question under review.

If you desire any further information, please contact Johnie Smith, Nuclear Operations Training Supervisor, at (904) 795-0504, ext. 107. Thank you for your attention in this very important matter.

Very truly yours,

Larry C. Kelley

Larry C. Kelley
Manager, Nuclear Operations Training

JGS/LCK/lb

Attachment

COMMENTS ON 1-11-88 RO & SRO EXAMS

QUESTION NUMBER RO 1.12

DISCUSSION: This question is a reversal of one used in the CR3 exam bank. The original question asked to student to recognize that due to the latent heat of vaporization, heat can be transferred from a lower enthalpy (higher temperature) fluid to a lower enthalpy fluid. This occurs in the upper regions of the OTSG. However, in the lower areas of the OTSG, the reverse is also true. The enthalpy of the RCS at 555 ^{o} F. is higher that that of the fluid entering the OTSG. Thus the reversal of the question does not make the statement false.

RECOMMENDATION: Delete question from future use.

QUESTION NUMBER RO 1.17 SRO 5.17

DISCUSSION: This question requests the student to list six potential sources of gas intrusion into the RCS if a LOCA were to occur. Attachment ** lists the sources given by ROT-3-5 (referenced lesson plan). This list does not match those given in the answer key.

RECOMMENDATION: Revise answer key per reference 1.

QUESTION NUMBER: RO 2.02 SRO 6.03

DISCUSSION: A recent modification to the EDG circuits has altered this condition. Per the present controls, there is no correct answer to this question. Due to the recent nature of this MAR, this should not have posed a problem on this exam. See reference 2.

RECOMMENDATION: Delete question from bank.

QUESTION NUMBER: RO 2.05 SRO 6.06

DISCUSSION: There is very little difference between responses `A' and `C'. Response `A' is listed as the correct response.

RECOMMENDATION: Accept either `A' or `C' as correct.

QUESTION NUMBER RO 2.11

DISCUSSION: This question requests the cooling water system for the listed components. Item 'D' is the "Motor Driven Emergency Feedpump". The answer given by the answer key (SW) is correct for the pump motor. However, the pump bearings are cooled by recirculation flow from the pump itself. Since the question implied a single cooling source for each item, the student may have answered for either case or both. See reference 3.

RECOMMENDATION: Accept either SW or recirculation flow as correct.

QUESTION NUMBER RO 2.13 SRO 6.15

DISCUSSION: The control rod programmer has been replaced with a new solid state type which is not susceptible to the motor fault (rod motion without a corresponding signal). Therefore, this condition would have no effect on diamond panel operation. See reference 4.

RECOMMENDATION: Give full credit if student identifies result of modification or delete question.

QUESTION NUMBER: RO 2.14

DISCUSSION: The normal practice is to require the student to know the source and voltage of various power supplies to plant equipment. It is not normally required that the number of phases be recalled unless there is particular reason for that design. This information will have little or no affect on the operation of the system from an operators standpoint.

RECOMMENDATION: Delete the requirement for number of phases from question.

QUESTION NUMBER: RO 2.16 SRO 6.16

DISCUSSION: There are several points of consideration on this question.

1. The phrase "Concerning the DC system" should be deleted from the question. This question does not really apply to either the cooling water or electrical `DC' systems. (Examiner did clarify this to students during exam).
2. The term "signal from ES" is vague and leaves room for judgment as to exactly which ES signal (HPI, LPI, RBIC etc) is meant.
3. Based on the above, the term "RB fan assemblies can be read to mean either the fan motor (electrical), the fan coolers (cooling water system) or both. Thus the students answer will depend on the perspective from which the main stem was read. The answer key reflects the response of the cooling water to an RBIC signal but not the motor response to an HPI signal. See reference 5.
4. The normal sea water pump is not directly affected by any ES signal. However, a start of either emergency pump will result in a trip of the normal pump due to other circuits involved.

RECOMMENDATION:

1. Revise prior to future use.
2. Revise prior to future use.
3. Add "shifts to low speed" to the answer key and accept either answer.
4. Accept answers of no affect from ES signal in addition to answer per key.

QUESTION NUMBER RO 2.20 SRO 6.22

DISCUSSION: The last part of this question is based on a statement from the referenced lesson plan which was written during a time when isolation of letdown was a procedurally required action. Due to modifications to the ICS, the need for isolation of letdown is minimal during these events. The information provided by other lesson plans which address this topic more directly advises the operator that specific valves are available for isolation of letdown but leaves the decision of weather or not isolation is desirable to the operator at the time of the event. Based on this, the students may have been hesitant to pronounce isolation of letdown as an appropriate action. See reference 6.

RECOMMENDATION: Delete second part of question from exam.

QUESTION NUMBER: RO 3.02 SRO 6.01

DISCUSSION: The answer key lists `C' as the correct response. The correct response is `D'. See reference 7.

RECOMMENDATION: Change answer key to accept `D' as correct.

QUESTION NUMBER RO 3.11

DISCUSSION: This question requests TWO (2) components which will actuate under the given conditions. The answer key lists the A and B EDG's as these two components. Normal practice both at Crystal River and on past NRC exams is that a breakdown an A and B components does not constitute two components. Thus a student who listed EDG's as one component may have listed another component which he may not have considered as correct simply because the wording the question implied that another response was necessary.

RECOMMENDATION: Do not deduct credit for a second incorrect answer if both EDG's are listed as a single component.

QUESTION NUMBER RO 3.14

DISCUSSION: The answer key lists `CLOSED' as the correct response for part A. The correct answer should be `AS IS'. See reference 8.

RECOMMENDATION: Change answer key to `AS IS'.

QUESTION NUMBER RO 3.18

DISCUSSION: The shifting of the RB Main Fans during a LOCA is accomplished by means of the HPI portion of ES. If for some reason the HPI portion is bypassed and either LPI or RBIC is actuated, HPI will receive an actuation signal from the respective circuit which will in turn shift the RB Fans. This question requires two safeguards signals which will shift the fans for full credit. The answer key lists HPI and RBIC as the two signals. See reference 5.

RECOMMENDATION: Accept LPI as a third possible answer.

QUESTION NUMBER RO 3.19 SRO 6.17

DISCUSSION: The answer key for this question states "The turbine bypass valves will open to restore header pressure...". For the conditions given, there is no reason to expect the turbine bypass valves to open. Normal header pressure control is a function of the turbine control valves.

RECOMMENDATION: Change answer key to read " The turbine control valves will open..."

QUESTION NUMBER RO 3.22

DISCUSSION: The arrangement of this question tends to lead the reader to believe that a three part answer is required. Because of this, some students may give answers which contain information in some parts which may be correct for one part of the situation, but not for the final condition. All information given in response to part 3 should be applicable to the situation desired, but some information needed may be included in the answers to parts 1 and/or 2.

RECOMMENDATION: Grade this question with the above in mind and do not deduct credit for answers in parts 1 and/or 2 which do not apply to the final state and give credit for information in these parts which does apply.

QUESTION NUMBER: RO 3.25

DISCUSSION: Logic diagrams are included in some lesson plans as an aid to understanding. It is not the intention that they be committed to memory by the student. Where an item is of sufficient importance to warrant recall, the student can demonstrate this knowledge by simply stating that information. The ability to translate that information to a logic diagram does not in any way enhance his knowledge or understanding of the system. The objectives for the lesson plan in which the referenced diagram was found do not include any reference to this diagram. See reference 9.

RECOMMENDATION: Delete question from exam.

QUESTION NUMBER: RO 4.04 SRO 7.03

DISCUSSION: There are two competing results of core/downcommer voiding when viewed from the respect of source range counts. First, the loss of fluid from the downcommer will result in a higher count rate due to the loss of attenuation of neutron flux. During the early stages of voiding this is the predominate effect. However, voiding of the core region will result in less moderation of neutrons and thus less fission to produce neutrons. Thus, even with a higher percentage of neutrons produced reaching the detector because of downcomer voiding, there is a point where the reduction of neutron production will result in a lower count rate. With this in mind, it can be seen that depending on the rate of voiding or refill, responses A, B, D, and E can be correct. See reference 10.

RECOMMENDATION: Delete question from exam.

QUESTION NUMBER: RO 4.12

DISCUSSION: The answer key list "control complex" as one answer. This should be either control center or control room. See question number 8.12 on SRO exam.

RECOMMENDATION: Change control complex to control center.

QUESTION NUMBER: RO 4.16 SRO 7.14

DISCUSSION: Question asks for the conditions under which Nuclear Services Water to the CRDM's can be secured. The conditions in the answer key are those for which cooling may NOT be secured. See reference 11.

RECOMMENDATION: Change answer key to read:

1. No CRD Stator alarm (> 160 degrees)
2. No CRD energized
3. RCS temp < 200 degrees

SRO EXAM OF 1-12-88 COMMENTS

QUESTION # 5.13 REF.# 12

COMMENT: Referenced document (ROT-3-8) agrees with answer key. However, B&W technical basis document (II B. 10, enclosed) states "The most positive indication that the transient that is occurring is an overcooling rather than a LOCA is the fact that secondary T-sat will be decreasing rapidly. The primary T-cold will be following close behind SG temperature indicating that the primary and secondary are closely coupled in the overcooling."

Recommendation: Accept decreasing secondary and/or primary temperatures as an additional correct answer.

QUESTION # 5.16 REF. # 13

COMMENT: The stated answers are correct and supported by CR-3 training material. However, if the fact that Thermal neutron flux increases from BOL to EOL (a fact supported by most reactor theory texts, applicable section of CR-3 training material enclosed) is considered, this will also cause a change in differential boron worth. (Higher worth due to more thermal neutrons). This is supported by the statement on page 7-27 of ROT-1-7: "Anything which can affect the energy distribution of neutrons will also tend to have an effect on differential boron worth."

Recommendation: Accept increase in thermal neutron flux as an additional correct answer to 5-16.

QUESTION # 6.12 and 3.15

COMMENT: Answer key does not list Auto Actuation as a method of actuation of the Feedwater Pump Area Cardox system although answer # 1 infers this.

RECOMMENDATION: Accept Auto actuation as a correct answer.

QUESTION # 6.13 and 3.17 REF# 14

COMMENT: Although not specifically addressed in ROT-4-1, Actuation of ACI also results in an annunciator alarm being received (Ref. enclosed section of AR-303).

RECOMMENDATION: Accept annunciator alarm as second automatic action.

QUESTION # 6.25

COMMENT: This question requires that the student recall from memory, the content of an IE notice that is approximately 2 years old and to differentiate between several IE notices that deal with problems with Rosemount D/P transmitters. The problem with the transmitters is not something an operator could readily recognize should it occur. CR-3 has strict procedures governing calibration methods for all transmitter and again this is not something the operators are aware of or have any control over.

RECOMMENDATION: Delete this question from this and future exams.

QUESTION # 7.10

COMMENT: CR-3 EPs and APs no longer have Remedial Actions.

RECOMMENDATION: Delete references to Remedial Actions in further exams.

QUESTION 7.16 REF.# 15

COMMENT: The answers on the answer key are correct per the referenced LERs. However, CR-3 has instituted other administrative requirements regarding in EFIC and other safety related systems. The requirements are implemented by Policy Statements. These requirements include: Problems in these systems shall be worked around the clock until they are resolved, and an I&C supervisor should be present in the field during EFIC maintenance involving half-trip conditions. (Policy Statements 2 and 3 enclosed)

RECOMMENDATION: Accept requirements stated in policy statements as am additional correct answers for this question.

QUESTION # 7.19 REF.# 16

COMMENT: Although not specifically stated in the referenced section of the TBD, use of BWST water that cannot be recovered is a concern during steam generator tube rupture event. This is stated on page III-E-1, 1.1.1 (D) (enclosed) of the TBD.

RECOMMENDATION: Accept limiting the amount of unrecoverable BWST water used as an additional correct response to this question.

QUESTION # 8.06

COMMENT: Reference to Tech Spec 3.2.2 in question should be 3.2.4. (Proper Spec was supplied with exam)

RECOMMENDATION: Correct Typo in Exam bank.

QUESTION # 8.15 REF.# 17

COMMENT: Present revision of the referenced document (RSP-101) in answer key does not contain this information. RSP-314 (enclosed) contains a note (page 4) that the maximum limits for extension are 2500 mrems per quarter not to exceed 5(N-18).

RECOMMENDATION: Accept 2500 mrem or 2.5 Rem as a correct answer to this question.

QUESTION # 8.19

COMMENT: Part 2 of the answer states that entry into mode 3 will be required but the initial conditions stated in the question have the plant in mode 3. Action d of TS 3.6.3.1 requires that the plant be placed in mode 5 if actions a, b, or c cannot be done.

RECOMMENDATION: Accept mode 5 as a correct answer to part 2 of this question. Correct part 2 of the answer key.

QUESTION # 8.23 REF.# 18

COMMENT: The lesson plan from which this question was taken provides a generic treatment of radioactive waste handling and disposal. Gaseous waste releases at CR-3 are strictly controlled by OP-412 B (enclosed). The limits and precautions and body of the procedure provide for sampling, approval, and monitoring requirements.

RECOMMENDATION: Accept requirements stated in OP-412 B as correct answers for this question.

QUESTION # 8.24

COMMENT: The answer key states that the P-T safety limit was violated. The students were NOT given a copy of STS curve 2.1.1 so there is no way that they could determine that a safety limit was violated from the information provided.

RECOMMENDATION:

1. Since the question did indicate that a Limiting Safety System Setting (LSSS) was violated and no reactor trip occurred, most of the students answered the question on that basis. Accept actions based on the LSSS violation as correct answers to this question.

2. If recommendation 1 is not accepted then we request that the question be deleted on the basis of insufficient information supplied to the students to answer this question.