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Dear Mr. Whitesel:

I have enclosed responses to the questions that were generated during the industry workshop sponsored by your organization on May 29 and 30, 1991. I appreciate the effort you and Bob Evans expended to allow us to focus on the pertinent issues.

As many of the questions address topics for which no guidance currently exists, the responses necessarily are preliminary, and may require further refining before a firm policy can be provided. If you have any questions, please give me a call at (301) 492-1031.

Sincerely,

Robert M. Gallo, Chief  
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## ANSWERS TO QUESTIONS FROM THE MAY 29/30, 1991 NUMARC WORKSHOP

Examination Schedule

1. Q: What is the required frequency for conducting operating and written tests? Is it per annum or every 12 months? What is the grace period for giving these exams?

A: 10 CFR 55.57(b)(2)(iii) requires that an operator pass the requalification examinations and annual operating test required by 10 CFR 55.59 as one of the conditions for license renewal. 10 CFR 55.59(a)(2) requires each licensee to pass a comprehensive written exam and an annual operating test to successfully complete a requalification program. 10 CFR 55.59(c)(4)(ii) indicates that there shall be other written examinations administered that evaluate topics covered in requalification and which provide a basis for evaluating an operator's knowledge of abnormal and emergency procedures. This is separate from the comprehensive written examination.

10 CFR 55.59(a)(1) and (c)(1) state that the program should not exceed 24 months in duration, it should be continuous and should be followed promptly by a successive requalification program. Sometime within this period, a comprehensive written exam shall be administered. Additionally, there shall be other examinations administered as required by 10 CFR 55.59(c)(4)(ii) with no set periodicity, as long as they occur during the requalification cycle.

It was intended for the annual operating test to occur on approximately a 12 month basis, however, the wording in the regulation is not specific enough to support this interpretation of the word "annual." As long as the operating test is passed during each calendar year, the regulation is met.

Crew Pilot Examination

Questions in this area will be addressed following the pilot examination process. Answers provided at this time could be reversed in the near future due to results obtained from the pilot examinations.

Scenarios

1. Q: Because of a lack of realism and objectivity in examination scenarios, industry seems to be wasting a lot of resources to train the operators in two ways--one for the exam, and the other for running the plant in day to day operation and reduce risk and cost of operation. It seems that optimization of risk could provide a common and objective basis to achieve this. What steps are the industry and the NRC taking to eliminate this double standard?

A: The scenarios a facility develops can and should be realistic and objective. However, the apparent training difference may never be completely resolved due to the responsibility of the NRC to ensure that the health and safety of the public is maintained. The method by which the NRC ensures that operators can operate the plant safely is to postulate abnormal and emergency situations that effectively evaluate the crew's ability to implement the procedures written to handle such events. This method may appear incongruent with a facility's need to ensure that their operators are proficient in day to day operations. The NRC must focus on those items which are the most safety significant. The dynamic simulator is the best testing method to evaluate abnormal and emergency situations.

2. Q: With the move to scenarios going to FRs and ECAs to get "ISCTs" - if a position has a limited amount of controls that relate to actions that would meet "ISCT" criteria, how can this be addressed so that additional scenarios need not be done?

A: An operator is required to perform at least one ISCT during the course of a dynamic simulator examination. To avoid problems in actually observing an operator perform an ISCT, at least one ISCT is recommended for each operator for each scenario. Normal rotation of crew members and proper simulator scenario design should be sufficient to ensure that the number of scenarios are kept to a minimum.

3. Q: Addressing simulator scenario content:

- \* How will PRA affect content?
- \* How should it affect content?
- \* Should PRA be used as a tool for determination of scenario content for realistic content?
- \* Should an unrealistic event be simulated for an EOP just to ensure all aspects of an EOP are useable?
- \* Should that EOP be deleted if a realistic scenario cannot be developed?

A: The NRC has looked at including PRA philosophies and techniques into simulator scenario development. Though there are some potential benefits, especially in the identification of systems, components and operator actions important to safety, PRA does not always fit smoothly into the items in 10 CFR 55.45(a) that are required to be sampled during an operating test.

Realism, as it applies to developing simulator scenarios, means applying events that create symptoms for which procedures exist that allow the operators to mitigate the event. Certainly, some events are more likely to occur than others, but that does not make the less likely event any less realistic. The NRC approaches the use of EOPs with the understanding that the EOPs were designed to mitigate events that could happen. 10 CFR 55.45(a) and 55.59(a)(2)(ii) both support utilization of scenarios that exercise an operator's ability to execute the scope of abnormal and emergency operating procedures.



4. Q: Depth of scenarios are not consistent with the support staff to which the shift crew has access. Are there plans to allow more interaction with the support staff?

A: It is the crew activities that take place before the TSC can reasonably be expected to be staffed that are being evaluated. Those outside roles that are required to be filled for the proper evaluation to be made should be pre-identified by the exam team, so that they can be accounted for during execution of the scenario. Simulator operators can and should perform any tasks requested for non-control room activities.

5. Q: Didn't the NRC commissioners express that scenarios go too far and that we aren't evaluating against events that already happen in the industry? How are we going to get that balance?

A: During the February Commission Briefing, the Commissioners were concerned with "crash and burn" scenarios where everything goes wrong and not having operators sufficiently prepared for events that may happen every couple of years. They were concerned that scenarios may be evaluating the EOPs and not the operators and they stated that use of actual events is a good technique. The NRC encourages the incorporation of actual events, or events similar to those that have occurred. We also try to ensure that scenarios have a clearly defined success path within the T-OPs. The Examiner Standards indicate that a scenario is too complex if it goes beyond the EOPs.

#### Dynamic Simulator

1. Q: Has any thought been given to specifying criteria for when a dynamic exam will be stopped due to a simulator malfunction and at what point the scenario would count as part of the evaluation versus running a backup scenario?

A: Yes. The exam need not be stopped during the scenario. However if the simulation facility should freeze up or malfunction, causing excessive delay of the examination, the Chief Examiner should discuss the situation with the responsible regional Section Chief, so that a decision on the conduct of the operating test can be made. It may be necessary to substitute a backup scenario or conduct discussions of transient operating conditions, as would be done with no simulation facility available, or to reschedule the simulator examinations for a later date. (Guidance is per ES-302.C.3, Rev 6)

2. Q: Are AOPs and Tech Specs required to be part of each exam scenario? The checklist indicates they should.

A: Yes. Per Rev 6, Form ES-604-1, Simulator Scenario Review Checklist, item 7 states: Scenario requires the use of : (1) Abnormal Operating Procedures, (2) Emergency Operating Procedures, and (3) Technical Specifications.

3. Q: In the presentation, the NRC said, " we don't want simulator exams to be predictable." What does this really mean? Does this mean that the scenario must present events for which EOPs have no prescribed path, or that the scenario must present "infrequently used" EOP paths?

A: This statement was intended to convey the message that scenarios designed for evaluation purposes should have enough flexibility in their initial conditions and sequence of events such that an operator can not predict the scenario's content just by the initial conditions or event precursors.

4. Q: The statement was made that the correct transition between EOPs is not an (SRO) ISCT. Another statement was made that the correct "decision paths" is a potential ISCT. Please comment on the difference between these two SRO tasks. And, other than EPIP calls, what other SRO ISCTs are there if not transitions between EOPs?

A: The actual process of transitioning from one EOP to another is not normally an ISCT. It is carrying out the safety significant actions within the EOP to which the crew transitioned that meets the definition of an ISCT. A situation may exist within a scenario where an SRO must make a decision within the EOPs regarding which of several procedures must be accomplished next. In this case, selecting the correct procedure may be an objective performance measure that indicates whether the SRO understood plant conditions. But it is still the actions within the EOP that need to be performed that remain the safety significant actions. Using procedures correctly and transitioning to other procedures when warranted is important to evaluate, and a competency to cover this aspect of a crew's performance still exists.

5. Q: EOP transitions were identified as "misidentified ISCTs." Why, when this specific example of an ISCT is given in ES-604 (13 of 27)?

A: Experience with the ISCT process has indicated, as noted in the above response, that it is the actual procedural steps that contribute to plant and public safety that are truly critical and not the process of getting to the procedure where the steps are implemented.

6. Q: It appears that ES-601-2-3-4 dissects the construction and development of the requal exam different from what a systematic approach to training using plant specific Job Task Analysis would require. For example, most utility JTAs show that only 15 to 20% of the LOR training time is spent in Systems training, yet the

examiner standard requires that 50% of the written exam (static) is assigned for systems. Plant specific JTAs do not require ROs (and SROs) to do in-plant JPMs (that is an AO's task), yet ES-603 requires all licensed operators to do in-plant JPMs. Simulator scenarios require the operators to go into EOPs almost immediately (to get ISCTs), yet LOR training (simulator time) is not 100% EOPs. If the required exam is a performance-based exam (using a SAT and plant specific JTA), why do the examiner standards direct us to evaluate differently?

A: The examination is intended to sample the safety significant portions of the SAT-based program. Thus the emphasis of the NRC's examination is more heavily weighted towards systems and procedures important to safety.

7. Q: Will the crew competency forms be revised? Is crew failure based on competencies or critical tasks? If based on present competency forms, it will be difficult to be objective.

A: Crew competency forms may be revised depending on information from the requal pilot exams currently being conducted.

Crew failure may be based on either a competency or a critical task as specified in Rev 6, ES-604.D.2.c.(1)/(2).

8. Q: Can differences in parallel grading, where the NRC invokes the "could have a deleterious effect on plant/public safety" in the absence of failed ISCTs, be exempted from the program evaluation criteria?

A: Parallel grading serves as a measure of the facility's ability to perform an unbiased evaluation of their personnel against established standards. However, the facility will not be penalized for grading to a higher standard than the NRC.

9. Q: Why is the classification of an NUE no longer an "ISCT"? Is it in the emergency plan? There is no difference between what is done in the simulator, other than a form and alarm difference. How then can an NUE not be an ISCT?

A: The classification of an NUE is generally not a task which, if omitted or incorrectly performed by an operator, will result in adverse consequence(s) which significantly alter (without subsequent automatic action by plant systems or another operator's action) the event mitigation strategy to the detriment of plant or public safety. In other words, it does not meet the ISCT criteria.



10. Q: Why are we singling out an individual on a crew/team evaluation?

A: Per Rev 6, ES-605.C, an NRC administered requalification examination will be administered to each licensee during the term of the six year license (pursuant to 10 CFR 55.57). Also, per Rev 6, ES-601.D.1, the NRC must be assured that an individual who has failed a requalification examination is removed from licensed duties, receives remedial training and is reexamined prior to being allowed to return to licensed duties.

11. Q: Our current examination process concentrates on emergency procedures to such an extent that training emphasizes such procedures at the expense of normal operations. Are we not collectively setting ourselves up for a "self-fulfilling prophecy?" My point is very simply that improperly performed normal operations lead to abnormal operations. Where is the balance?

A: It is acknowledged that improperly performed normal operations lead to abnormal operations. However, the emphasis of the NRC administered exam is focused on areas having safety significance. A well designed sample plan that is used to develop all three sections of the examination should ensure adequate coverage of normal operations and systems.

12. Q: Are "multiple accidents" appropriate for dynamic scenarios, e.g. an ATWS and a feedline break? If so, what is the purpose?

A: Yes. Multiple malfunctions are one of the principal reasons given in NUREG-0737 for the development of symptom based procedures. The purpose of using such scenarios is to verify that operators can adequately implement those procedures. Dynamic scenarios complexity issues are being currently being addressed by both a NUMARC working group and the staff with release of guidance to follow in the future.

13. Q: The NRC session leader indicated that some areas of EOPs required "multiple accidents" to reach. Does that mean that "multiple accidents" that do not "force" a particular area of EOPs is inappropriate? (e.g. in a BWR, a LOCA plus an ATWS may not test an area not examined by an ATWS and a LOCA separately?)

A: No.

14. Q: Can an STA who is normally located in the control room (but who is allowed by plant procedures to leave the control room) be allowed to stay in the simulator for the entire scenario or must you wait for the crew to call for the STA?

A: Per ES-604.D.1.a.(2), crew composition should be determined as discussed in ES-601, paragraph C.1.b.; ES-601.C.1.b states that the NRC will evaluate at least three and up to five licensed individuals during a dynamic simulator examination. In addition, a Shift Technical Advisor (STA) may be added to the crew. The intent is to evaluate the crews in the configuration in which they are trained and operate, while still maintaining an environment in the simulator in which meaningful individual and crew evaluations can be conducted

without excessive congestion. If the STA is normally in the control room, then the conduct of the examination should take this fact into consideration. The chief examiner or regional managers should be able to resolve any questions regarding the STA.

15. Q: Because teamwork will vary depending upon the relationship among the operators, what criteria will the teamwork be measured against?

A: Within the crew competencies that are contained in ES-604, Rev 6, there are several rating factors that focus on team-dependent skills.

16. Q: Will guidelines be developed to evaluate command and control, communications, and teamwork to enable overall crew evaluation to be more objective than subjective?

A: As noted above, guidelines are already in place per ES-604. The pilot program standard includes new crew evaluation criteria that are currently being evaluated.

17. Q: Will the dynamic simulator examination be moved into shutdown or refuel conditions to further test areas of the EOPs, such as the Plant Vogtle incident and recent industry events with loss of site power in shutdown/refuel condition and major systems out of service?

A: Shutdown/refueling operations are presently being evaluated during the written and walkthrough portion of the examination. Future use of the simulator during shutdown/refueling operations is being evaluated.

#### NUREG 1021 (REV 6)

1. Q: Define "event" or reference where it is defined. Need information in order to better identify/document those systems which can "directly cause an event."

A: An event, as it is intended in Form ES-604-1, "Simulator Scenario Review Checklist," is a perturbation in the operation of the plant that requires implementation of Technical Specifications, abnormal or emergency operating procedures.

2. Concerning a program deemed UNSAT, is it possible to request waivers of portions passed for the program retest?

A: As discussed in ES-601, an unsatisfactory program remains in an unsatisfactory status until it completes those corrective actions agreed upon by the NRC. This would allow a program to be considered "provisionally satisfactory," a category described in a memorandum from the Director, NRR, to all Regional Administrators on April 22, 1991. These corrective actions usually focus on areas of weakness noted during the examination, but a program may not be restored to a fully satisfactory status until a complete NRC administered requalification examination is satisfactorily completed.



3. Q: Is there any way to stipulate in the standard what is a "recommendation" and what is a "requirement" so both the utility and the NRC understand?

A: Unless based on a regulation, order or license condition, the Examiner Standards are recommendations. For example, it is a requirement that a facility have a requalification program that meets 10 CFR 55.59. Methods of examining that are discussed are considered requirements for NRC examiners. It describes how the NRC conducts its work, so it is done in a consistent manner as possible. For example, a utility may decide not to embrace multiple choice questions in which case, the NRC will develop such questions for its exam.

4. Q: When will NUREG-1021 Rev 7 be issued? Will pilot requal results be contained in Rev 7? Why can't NUREG 1021 be frozen at Rev 6 until utilities get all exam banks and procedures in line?

A: Rev 7 of NUREG-1021 will not be issued until the results of the pilot program have been evaluated. This includes making Rev 7 available for industry and public comment.

The NRC is sensitive to the fact that the requalification program continues to evolve. This is due in great part to a desire to be responsive to industry concerns, such as undue stress on the operators. It is anticipated that as the program matures, the need for changes will diminish.

#### Exam Validation

1. Q: Why can't the chief examiner work with the trainers on the time limit of an exam if it is obvious that it wasn't validated properly? The operators are the ones who pay for the error.

A: Though the chief examiner ultimately determines the content of the examination, the exam team should work very closely to ensure a time and content valid exam is prepared.

#### Static Simulator

1. Q: Static simulator exams are very resource intensive to prepare and administer. What does the static exam test provide that the written/dynamic/JPM does not? If we cannot identify a unique benefit, then let us drop it.

A: The static simulator examination is designed to evaluate systems oriented knowledge. The simulator is used as a reference tool to provide realistic information visually and to place the operators

as closely as possible in their normal control room environment.

2. Q: What function does the static simulator exam serve? If it is solely to use the simulator as a reference tool, why not conduct the written exam in the simulator? I am in favor of eliminating the static exam format. Statics are time intensive and modeling changes to the simulator have a direct impact on validity of the static condition. Therefore, this requires revalidation after simulator remodeling.

A: (See answer to question 1) Some facilities have conducted the entire written exam in the simulator but that is dependent upon the simulator's physical arrangement. Most simulator modeling changes are not obvious to the NRC examiner or the candidate. Validation of the exam is performed during the preparatory week by the chief examiner and the facility. This is when the impact of any simulator modeling changes should be resolved.

3. Q: Why is there one transient and one at power static simulator scenario? Why not allow the subjects taught determine the scenarios?

A: It is intended that the static scenarios be developed to incorporate equal program learning objectives. The two different static scenarios are meant to provide sufficient opportunity to do this. However, this suggestion will be considered as part of the Revision 7 review.

4. Q: Consider changing Static (Sec A) to a crew concept exam as the dynamic simulator.

A: (See answer to question 1). This is a portion of the individual's written exam and is not a crew evaluation.

5. Q: Static simulator exam is labor intensive to set up and validate, and the operator does not have benefit of experiencing the events leading up to the static stage. Does the static simulator part have value that the written part cannot achieve? Why not just use the simulator for dynamic scenarios?

A: (See answer to question 1)

6. Q: Why not allow about 5 to 10 minutes prior to a static to provide the examinee time to walk the panels down?

A: The chief examiner should ensure that the candidates have ample time to walk down the control room panels. Five minutes to "walk down" the panels is reasonable.

7. Q: How hard-fast is the NRC on keeping the static simulator in the exam process? The operators at my plant do not like them or see a benefit to them. The static exams are always awkward and do not

examine the operator as he operates. I have been taking NRC exams since 1982 and this is the most stressful part of the exams I have taken.

A: (See answer to question 1)

#### Medical Exams

1. Q: If an operator has received a medical exam for renewal on 6/1/91, when must he/she have the next medical exam? Prior to 6/1/93 or prior to 12/31/93? (Once per 2 calendar years, or once every 24 months?)

A: A medical exam must be conducted by June, 1993. 10 CFR 55.21 requires that an applicant for a license shall have a medical examination by a physician every two years.

#### Information Communications

1. Q: Can the NRC (LCLB) send out a monthly/quarterly newsletter to alert industry to problems, concerns, or changes that are occurring?

A: The NRC has established a good level of communication with NUMARC and PROS, particularly on emerging issues. This includes allowing industry to comment on proposed revisions to the Examiner Standards. It is this relationship that is expected to serve as the conduit for the NRC to communicate with the industry short of issuing Information Notices and Generic Letters.

#### Video Taping

1. Q: What is headquarters position on video taping requal (NRC) exams? Can they be used on appeal of an exam failure?

A: Videotaping of requalification examination dynamic simulator scenarios is no longer required and will not be utilized by NRC examiners. If the facility desires to videotape the scenarios, the current guidance in ES-604 should be applied with all use of the videotape completed prior to the NRC leaving the site. If a disagreement still exists, the facility, at its discretion, may retain the tape for the sole purpose of submitting it to support a request for a regrade by the NRC. The NRC will only review that portion of the videotape under contention during the request for regrade.

#### ISCT

1. Q: It is not clear what is an ISCT and what is not based on mixed signals from AM and PM sessions. If, for example, a plant has 8 ECCS pumps, and 1 fails to start but is not noticed, and core cooling is never in jeopardy, why would this be considered critical?

A: In Rev 6, ES-604.B, page 1 of 27, an ISCT is defined. Based on the example given, a failure of one of eight ECCS pumps to start without being noticed would not be considered an ISCT. The failure to notice that one pump did not start is a weakness that may require some level of remediation.

2. Q: Is it mandatory that each operator perform a minimum of 2 ISCTs per exam set or only perform 1 ISCT successfully and none unsatisfactorily?

A: ES-604.D.3.b.(2), page 9 of 27, states that scenario sets shall be designed such that each operator will perform at least two ISCTs. However, each operator must only perform a minimum of one valid ISCT correctly, and none incorrectly.

3. Q: Are you really getting rid of ISCTs by stating the fact that if the crew picks it up the crew is SAT, although an individual may require remediation?

A: The use of ISCTs is being addressed during the pilot examination process. Once the pilot exam results are evaluated, there may be some revision to this area.

4. Q: Subject: would have/could have. During dynamic simulator if an error does not impact mitigation strategy for that scenario, but could have in a given different event, is that an ISCT? Consistency in parallel grading will be different. Threshold for "could have" may be different between NRC and utility.

A: Under the current definition of an ISCT in, ES-604.B, page 1 of 27, if the incorrect task performance would "significantly alter (without subsequent automatic action by plant systems or another operator's action) the event mitigation strategy to the detriment of plant or public safety," then it meets the criteria of an ISCT. The error in performance should not be translated into an entirely different scenario to imbue the task with a critical quality. The existing scenario is the framework within which the task is to be considered critical.

5. Q: Concerning "would have/could have" post scenario identified ISCT failure - the importance of the procedure was stated by the NRC examiner as grounds for failure (an EOP). Since about 95% of the dynamic scenarios are in "important procedures," any blemish in any EOP step would be grounds for failure, thereby making each step in each EOP an "ISCT by default" for the SRO directing EOP implementation. Is this congruent with NRC headquarters direction?

A: No. The framework described in the Examiner Standards is the basis for determining what is an ISCT. Each particular step has to be evaluated against the ISCT criteria.



6. Q: Please clarify ISCTs again.

A: See the definition in ES-604.B, page 1 of 27.

7. Q: Is there any way we can have some allowance for less than 4.0 performance in the simulator exam to pass, i.e., allowance to fail more than one ISCT? This especially is needed if mis-operation of ECCS (for example) is considered critical when it does not affect plant safety due to other redundant systems.

A: It is only on those tasks that are truly critical that an operator needs to perform correctly to successfully pass the exam. Scenarios should be designed such that failure to perform an ISCT correctly has a measurable impact on the event mitigation strategy.

8. Q: Let's say that starting a certain pump is an ISCT for a given scenario. Now let's look at a scenario identical to the first one except a malfunction undetectable to the operator will prevent the pump from starting. Why is attempting to start the pump not an ISCT in this scenario and it was in the other?

A: This is a good example of what has been emphasized in the responses given above. The actions taken (or not taken) by the operators must have an impact on the event mitigation strategy employed by the crew. The operator must be properly cued to perform a task in order for the task to be considered an ISCT.

9. Q: At the completion of our EOP-0, the SRO performs an event diagnosis, then, based on the diagnosis, determines the next appropriate EOP. Is this not an appropriate SRO ISCT?

A: No, the NRC has reevaluated its position on whether or not EOP transitions constitute ISCTs. It is the directing and performance of the steps within the applicable procedures that are critical to maintaining public health and safety that constitute ISCTs. Poor procedure usage is captured under crew competency ratings, but it is not in itself within the intent of an ISCT.

#### Sampling Plan

1. Q: If I submit a valid JTA that defines the roles of the operators and management that is not in accordance with the Examiner Standards or with different ratings than the KA catalog, will I be allowed to use the systematic approach to training and the JTA, or will I be required to use the standards? In short, what has priority, the plant specific JTA or the standards and KA catalog?

A: Yes, you will be allowed to use the systematic approach to training. The NRC endorses the facility specific JTA as an appropriate tool for prioritizing test items. The Examiner Standards reference use

of the JTA in many places, recognizing it as the link between a test item and a given learning objective.

2. Q: What is meant by 20% outside of the sampling plan?

A: There is a very wide range of knowledge, skills and abilities that an operator must possess which may not be expressly covered in the current requalification cycle, but which are high level K/As, i.e., knowledge and abilities that operators should retain based on their safety significance. 10 CFR 55.59(c)(4)(i) states that the written exam should be comprehensive, indicating coverage beyond just the topics addressed in the current requal cycle.

3. Q: Should we continue with submitting the sampling plan? Suggested substitution: the NRC sends each facility a copy of a short, brief sample plan that meets your needs. The facility can use this as a guide to what they are to submit.

A: Yes, the facility should continue submitting the sample plan. A suggested format for a sampling plan is provided in ES-601, Attachment 2.

4. Q: Does the sampling plan need all of the data required? Does the NRC use it?

A: Per ES-601, Attachment 2, Section 8.4, the format for a sampling plan is a matter of training department preference as long as the plan results in a thorough and accurate assessment of the facility training program and the intended objectives. The guidance contained in the Examiner Standards is intended to provide the industry with some characteristics of a good sampling plan. The NRC does use the information to assess the quality of the requalification program and to assess the content validity of the examinations.

5. Q: The sampling plan takes too many resources as currently written in the NUREG. It should be simplified or done away with. Can we change this in Rev 7? (One way to simplify it would be to list major categories trained on over the last 2 years with the percentages devoted to each, e.g., EOPs - 40%, AOPs - 20%, tech Specs - 10%, etc.; then the annual exam would approximate those percentages.)

A: The intent of the sampling plan is stated in the answer to question 4 above. There is no mandated format.

6. Q: Is the sampling plan for the current years requal, or for the 2-year cycle? Is the sampling plan of any significant value to the NRC?

A: It depends on the span of the facility's requalification cycle. The sampling plan should be developed to link the current requal cycle to the test items selected for the examination.

The sampling plan provides a systematic approach to selecting or developing test items to determine if a student has mastered the skills, knowledge and abilities identified for coverage in a particular training program. The NRC uses the sampling plan in selecting test items and as a factor in the assessment of the quality of the requalification program.

### Stress

1. Q: On the operator stress issue, one topic not mentioned is the requirement to test a certain number of licensees each year. We are a single unit and in 3 years, we will have tested all current licensees. This means that most licensees will be tested at least twice in 6 years. What is the NRC position on administering 2 tests or fewer to the same individual in 6 years?

A: NRC has a goal, not a requirement, to test a certain number of licensees each year. 10 CFR 55.57(b)(2)(iii) requires that an operator pass the requalification examinations and annual operating tests required by 10 CFR 55.59 as one of the conditions for license renewal. For facilities with a satisfactory program, there is no intention for the NRC to examine individuals more than once during the term of their license. However, some individuals may be included as a part of a crew for a simulator examination if the crew makeup includes operators not previously examined.

### JPMs

1. Q: If prescribed JPM questions are eliminated, and the examiner has latitude to ask follow up questions, what is the limit to what can be asked, how much can be asked, and consistency between examiners/examinees?

A: The current Examiner Standards includes JPM questions. Until the results of the pilot requalification exams are evaluated, answering this question would be premature.

2. Q: Can we do away with JPM questions for upcoming exams this year? (Not pilot plants)

A: No, Rev 6 of the Examiner Standards is still in effect.

3. Q: Does the NRC expect the utilities to develop a JPM bank utilizing every task analyzed in the JTA?

A: No, the NRC intends for each facility to continue to develop JPMs that represent all tasks in the JTA that meet the criteria stated in ES-603, C.1.a(2), (3) and (4).



4. Q: Why shouldn't examinees be informed of time limits on JPMs? Candidates should know what is required, when and under what circumstances, and to what standards. Time is a standard.
- A: The NRC does not want to put undue stress on candidates by putting them under a stop watch. Time critical JPMs should be identified for those tasks which the facility has determined that a degree of expediency is required in order to maintain plant or public safety. Time restraints may be included in facility procedures used to complete the JPM. Examiners have been given guidance that a facility may choose to inform its operators that a particular JPM is time critical, but not to inform them of the actual time standard.
5. Q: If faulted JPMs are going to be required to be used, what percentage of these JPMs need to be used? What percentage needs to be in the question bank?
- A: There is no prescribed percentage. A facility's JPM bank should be a reflection of their JTA, including demonstrating the knowledge and skills required to complete associated tasks.
6. Q: Will we need JPMs related to all ISCTs? (i.e., add 2 JPMs for weak simulator performance.)
- A: Until the results of the pilot requalification exams are evaluated, answering this question would be premature.
7. Q: Considering a future move to delete prescribed JPM questions, should I continue to expend time and money resources to develop JPM questions today or backoff?
- A: Revision 6 of the Examiner Standards still includes JPM questions as part of the evaluation process. Until the results of the pilot study are evaluated, answering this question would be premature.
8. Q: How are follow up questions being incorporated into JPMs and by what standard are the operators judged for pass/fail? Is there a time limit? (Also Question 12)
- A: Per ES-603 C.1.c.(1), page 6 of 24, if the NRC examiner or the facility evaluator asked follow-up questions to verify exam item validity, and these questions lend support to an unsatisfactory evaluation on that JPM, then they should be reviewed as soon as possible with the facility representative after the walk-through is completed. Appropriate documentation to support unsatisfactory JPM performance is incorporated in the Operator License Examination Report, Form ES-603-4. Any follow-up questions are graded and weighted as described in ES-603.



The examinee is allowed whatever time is necessary to complete the JPM questions, as long as both the facility evaluator and the NRC examiner agree the operator is making acceptable progress.

9. Q: Exams are to discriminate between those that can and those that can't. JPMs appear to be universally passed satisfactorily. Why then does it (JPMs) exist if no discrimination occurs?

A: JPM discrimination is occurring. Although the pass rate is high, there are still a number of operators who fail to perform JPMs satisfactorily, and they are effectively identified by this exam methodology.

10. Q: It was stated by an NRC regional representative that JPMs should include malfunctions. I disagree with this since the purpose should be to certify that he can operate. What is policy? (Also Question 11)

A: JPMs may include malfunctions. The intent of using JPMs that contain malfunctions (or "faulted JPMs") is to evaluate the operator's ability to perform the task using an alternate path. There should be procedural guidance to direct the operator in pursuing an alternate success path to task completion or termination.

13. Q: If the JPMs are designed to test psycho-motor skills, why are examiners asking us to put malfunctions in them. (Malfunctions in this situation would be diagnostic, not psycho-motor.) (Also Question 14)

A: JPMs are intended to evaluate an individual operator's ability to perform tasks that they may be required to perform or to direct the performance of, as noted in the facility's JTA. A JPM with malfunctions still evaluates psycho-motor skills, in particular, their ability to recognize when expected responses are not obtained and the ability to perform alternate actions needed to achieve task completion.

15. Q: Time critical JPMs are forcing arbitrary time limits and have little if any supporting analysis to indicate that plant degradation will occur if not done in the specified time. What is the intent?

A: Per ES-603 D.2.a.(3), page 10 of 24, some JPMs are very time-critical in nature and are important to the mitigation of significant plant transients. For these JPMs, the facility should have identified a time period which they consider the absolute maximum time in which they would expect an operator to perform this task. Time-critical tasks are intended to be a reflection of facility design and expectations.

16. Q: How will the removal of JPM questions affect "Alternative B" utilities? (One operator does the JPM, the other answers the question.)

A: Until the results of the pilot requalification exams are evaluated, answering this question would be premature.

### Initial Exams

1. Q: Can any thing be done to shorten the initial exam walkthrough?  
Ten hours is unreasonable.

A: ES-302, Attachment 1, page 6 of 8, Part A, item 7, states, "There is no specific time limit for the operating test. The examiner will take whatever time is necessary to cover the areas selected, in the depth and scope required." The time to complete a walkthrough examination depends on many variables, of which the competency of a candidate is important. Examiners are trained to allow candidates a reasonable amount of time to perform tasks and respond to questions. However, candidates that continually reference material to support every answer add excessively to the time it takes to complete an exam. The NRC is trying to emphasize to its examiners that they should only allow use of reference material where the candidate reasonably needs it to answer the question.

Utilization of JPM questions in which references are not allowed would shorten the exam length. Also, encouraging the candidate to answer the question when the answer is known without use of the reference material helps to shorten the exam time. Unnecessary use of reference material increases the time to take the exam.

There is a current initiative within the NRC to revise the walkthrough exam process, which may shorten the time to perform the exam walkthrough.

2. Q: Is there any way to fill industry in on what some of the thoughts are on possible changes to the initial exam process?

A: NRC periodically participates in both regional and national conferences with industry representatives to apprise the industry of the current status of the examination process and any potential changes so that feedback may be obtained.

3. Q: For initial exams, what guidance ensures that the NRC examiners are familiar with the use of facility generated material (i.e., does the examiner understand how to determine which items are required to be performed versus expected to be performed in a JPM?)

A: The Examiner Standards require that the examiners become familiar with facility reference material prior to exam administration. This entails an appropriate level of validation of NRC developed JPMs and scenarios.

4. Q: Will initial exams use the crew critical task concept or the ISCT concept?

A: The Examiner Standards do not use the crew critical task concept or the ISCT concept for initial examinations.

5. Q: On an initial exam, how will the JPMs and simulator scenarios be validated prior to use?

A: Per ES-302.C.3, page 3 of 8, if circumstances permit, each scenario will be "dry run" on the simulator in its entirety. Whenever the conditions exist, the chief examiner will spend time at the facility prior to the exam to validate the scenarios and JPMs. The time needed to perform this varies depending on a number of factors, such as examiner familiarity with the site, quality of JPMs, reliability of the simulator, etc. The first day of exam week can be utilized by the chief examiner to perform exam validation activities. A "dry run" on the simulator may be used for this validation or the chief examiner can use facility staff to operate the simulator for validation.

6. Q: Multiple choice questions are now "at least 75%" of initial exam. Will this change? If so, will it increase/decrease? My recommendation is to allow a mix (50 to 75% multiple choice).

A: As of January 1, 1991, as stated in ES-401, the initial exam is 100% objective in content including multiple choice and matching type questions.

7. Q: Why can't GFE be placed on a computer system like PLATO where anyone can take the examination any time an operator is ready? The FAA does this for its various ratings with smaller numbers of licensed personnel.

A: This suggestion has some individual merit, but integrating with a variety of computer systems nationwide may be beyond the NRC's current capability.

8. Q: Can experienced, non-licensed STAs participate in their normal role during initial licensing exams?

A: During initial licensing exams, it is the individual and not the crew that is being examined. The individual is responsible for identifying data and evaluating it. The use of the STA could tend to limit the candidate's ability to be evaluated in these areas. However, it is appropriate for a simulator operator or other predesignated person to assume the role of STA when appropriate. For example, on a Westinghouse plant during a major transient when the crew leaves the "Reactor Trip or Safety Injection" procedure, they are required to initiate monitoring of status trees. If this is normally done by the STA, then when the SRO requests an STA to perform this task, the person so designated may do so. The extent to which he is able to provide information is determined by the chief examiner.



9. Q: If an examiner for an initial exam wants to evaluate a specific system for which there is no JPM, whose job is it to develop this JPM?

A: Per Rev 6, ES-301 G.c, page 11 of 57, until facilities fully develop their JPM and test item examination banks, the examiner is expected to develop a significant percentage of the testing material. In this case, the NRC examiner would develop the JPM and if needed, ask for the facility's assistance in validating the JPM.

10. Q: Concerning combining initial and requal exam banks: the issue of direct look up (DLU) needs to be addressed. One benefit of the initial license training test at this time is that without use of references the exam bank does not have DLU implications. However, combining the exam banks and using open reference format, the issue of DLU must be addressed. DLU questions appear to penalize utilities with detailed procedures. DLU questions are a viable method of measuring procedural knowledge. When not used to excess they can provide useful data. What can be done to address this issue?

A: By utilizing a higher cognitive level test item than just a recall question in your initial exam bank, the test limits the possibility of having a direct look-up type of question. For example, instead of asking a person to recall a particular setpoint, provide a situation where the setpoint has to be applied to determine the answer. Another method would be to provide circumstances that an operator has to analyze to determine which procedure is appropriate, as opposed to providing the procedure to be used in the stem of the question. By incorporating analysis, the question is removed from the realm of direct look-up.

11. Q: Why must the initial license exam be closed book?

A: The Examiner Standards do not expressly allow an open reference examination similar to the requalification examination, however, it does not preclude the examiner from asking open reference type questions. This would require that the examiner provide the candidates appropriate material such as Technical Specifications, diagrams, charts or procedure excerpts. This method is currently being used on many exams nationwide.

12. Q: Will initial exam material be developed the same as requal exam material (i.e., by the utility's development, review, and evaluation process)?

A: The development of initial examinations is performed by the examiner. It is permissible to use the facility's test item bank to a prescribed extent (see ES-301 and -401). The NRC has also incorporated facility review of the written examination and facility assistance in validating simulator scenarios and JPMs, where appropriate. However, this reflects an effort by the NRC to make the exam as technically accurate and pertinent as possible. There is no intent to have facility's develop initial exam material to the



extent that it is done for the requalification examinations.

13. Q: Initial licensing simulator exams should allow use of the STA and shift manager to allow overview functions to occur. Is this permitted?

A: For a response regarding the use of STAs, see the answer to Question 8. As far as using an individual to fulfill a shift manager's role, the intent of the initial exam is to focus on an individual SRO candidate's ability to direct a crew in a minimum control room staffing configuration. They are not expected to perform shift manager duties during the exam, but to use facility procedures to respond to events that challenge the safety of the plant or public.

14. Q: Why examine in 3 man teams for the initial licensing exam? Why not exam in their normal crew complement?

A: As noted above, the NRC evaluates initial license candidates in a setting that reflects minimum shift staffing allowed by Technical Specifications. Successful performance in this environment allows the NRC to make a licensing decision in a conservative manner, while being able to concentrate on the individual's skills and abilities.

15. Q: For the initial exam, if the NRC modifies plant-generated material, how are the examiners to ensure that specified evaluation points are still valid?

A: Specific examples of the modifications being referred to are needed to assess the concern expressed in the question. The chief examiner ensures that the examination is in accordance with the applicable Examiner Standards. Per Rev 6, ES-301.G.c, page 11 of 57, until facilities fully develop their JPM and test item examination banks, the examiner is expected to develop and validate a significant percentage of the testing material.

DISCUSSION TOPICS FOR 3/24/92 REQUALIFICATION  
EXAMINATION DEVELOPMENT MEETING

- ☛ Draft examiner standard used for pilot simulator exams
- ☛ Scenario depth & complexity guidance from NRR
- ☛ Status of JPM questions
- ☛ Potential elimination of EAL ISCT
- ☛ Other changes under consideration
- ☛ Estimated schedule for changes
- ☛ Need for draft examinations 45 days before exam
- ☛ JPM CT need careful review for validity & performance standard
- ☛ Questions and answers from participants