SEP 2 8 1988

Docket No. 50-266
Docket No. 50-301

Wisconsin Electric Power Company
ATTN: Mr. C. W. Fay
Vice President
Nuclear Power Department
231 West Michigan, Room 308
Milwaukee, WI 53201

Dear Mr. Fay:

SUBJECT: REQUALIFICATION PROGRAM EVALUATION

In a telephone conversation between Dr. R. Bruno, Training Coordinator, and D. Damon, Chief Examiner, arrangements were made for an evaluation of the requalification program at Point Beach Nuclear Plant. The evaluation visit is scheduled for the week of February 27, 1989.

For this visit, the NRC examiner will administer NRC prepared operating and written examinations. The NRC examiners will discuss with the appropriate facility personnel and operators the schedule and the process for these examinations. For the examiners to adequately prepare for this visit, it will be necessary for the facility to furnish the approved reference material listed in Enclosure 1, "Reference Material Requirements". Dr. Bruno has been advised of our reference material requirements and where they are to be sent.

NRC reserves the right to declare a facility training program unsatisfactory and to postpone NRC administered requalification examinations if the facility generated materials are inadequate for examination preparation. Enforcement action may be considered if necessary to bring facility generated material to the level of quality for examination preparation. The facility's good faith effort will be taken into consideration during the interim development period.

Additionally, it is requested that a licensed SRO from both the Point Beach Operations Department and Training Department be designated as the facility representatives for these examinations. These individuals must not be scheduled for an NRC-administered examination during this visit, or participate as an instructor once selected. Also, the facility representatives will be required to certify that, as a result of their involvement, no portion of the examination has been knowingly compromised.

The facility representatives shall be restricted (1) from knowingly communicating by any means the content or scope of the exam to unauthorized persons and (2) from participating in any facility programs such as instruction, examination, or tutoring in which an identified requalification examinee(s) will be present. These restrictions shall apply from 60 days prior to the exam date.

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The facility management is responsible for providing adequate space and accommodations to properly develop and conduct the examinations. Enclosure 2, "Administration of Requalification Examinations," describes our requirements for developing and conducting the examinations. Dr. Bruno has also been informed of these requirements. Also, a facility operations management representative should observe the simulation facility examination process at the site.

Enclosure 3 contains the "NRC Rules and Guidance for Examinees" that will be in effect during the administration of the written examination. The facility management is responsible for ensuring that all operators are aware of these rules.

This request for information was approved by the Office of Management and Budget under Clearance Number 3150-0101, which expires May 31, 1989. Comments on burden and duplication may be directed to the Office of Management and Budget, Reports Management Room 3208, New Executive Office Building, Washington, D. C. 20503.

Thank you for your consideration in this matter. If you have any questions on the evaluation process, please contact T. M. Burdick at 312/790-5566.

Sincerely,

ORIGINAL SIGNED BY GEOFFREY C. WRIGHT

Geoffrey C. Wright, Chief
Operations Branch

Enclosures:
1. Reference Material Requirements for Requalification Program Evaluations
2. Administration of Requalification Examinations
3. NRC Rules and Guidance for Examinees

See Attached Distribution

RIII RIII RIII
Damon/mc Burdick Wright

Distribution

cc w/enclosures:
J. J. Zach, Plant Manager
R. J. Bruno, Training Manager
DCD/DCB (RIDS)
Licensing Fee Management Branch
Resident Inspector, RIII
Virgil Kanable, Chief
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Charles Thompson, Chairman
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Lawrence J. McDonnell, Chief
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K. E. Perkins, LOLB
N. H. Wagner, Project Manager, NRR
R. DeFayette, Section Chief, DRP

ENCLOSURE 1

REFERENCE MATERIAL REQUIREMENTS

1. For the written examination, the following items must be provided to the NRC 60 days prior to the examination date:

   Proposed RO and SRO requalification written examination test items. (A minimum of 350 per section of the examination.)

   Since the written examination is open reference, examination items must meet the following:

   a. Items that require only memorization or recall are not permitted;

   b. Items should require that the examinee comprehend, interpret, integrate, or apply available information;

   c. Items should contain situations, aspects, or conditions that do not duplicate lesson plans or references; and

   d. Items should require examinees to locate and use references.

   The written examination will be composed of two sections, each designed to be completed in 1-1/2 hours. Each section will be separate. Section A will be administered on a static simulator; Section B will be administered in a classroom setting. Section A is designed to evaluate the operator's knowledge of plant systems, integrated plant operations, and instrumentation and controls. In addition, recognition of Technical Specification LCOs and the operator's ability to diagnose postulated events should be evaluated. Section B of the written examination is designed to evaluate the ability of the operator to analyze a given set of conditions and determine the proper procedural and/or administrative guidance.

2. All reference material and objectives for the proposed operating test items.

   For the simulation facility, the following items must be provided to the NRC 60 days prior to the examination date:

   1. A minimum of 15 scenarios

      The scenarios should sample areas such as LERs, emergency and abnormal procedures, and design and procedural changes that exercise the crew's ability to use facility procedures in accident prevention and mitigation. The scenarios should evaluate each crew member as appropriate to his/her license, and shall exercise their abilities in the use of Emergency Operating Procedures, Technical Specifications, and the Emergency Plan. The scenario's net time (not including time spent on briefings, setup or simulation facility problems) should average 50 minutes, based upon real time performance.

For the plant walk through examination, the following items must be provided to the NRC 60 days prior to the examination date:

(1) A list of systems and topics appropriate to the plant walk through examination that were covered during the requalification cycle and are important to safety. All reference material required to support an examination on these topics should be provided.

(2) Seventy five (75) job performance measures.

These performance measures should be both in plant and control room operator functions, that are required for the safe operation of the facility. They shall include acceptable performance criteria.

(3) Any additional reference material required for examination preparation will be requested by the examination team.

3. A sampling plan shall be provided by the facility which indicates the relative emphasis of topics which were included in the most recent requalification training cycle.

ENCLOSURE 2

ADMINISTRATION OF REQUALIFICATION EXAMINATIONS

1. 20 percent of the facility licensed operators shall be selected for evaluation. Normally the crew currently in the requalification cycle will be selected. A random sample without replacement will be used to preclude a satisfactory operator from being subject to reexamination by the NRC during the term of the license. The sample will include other shift(s) made up of licensed personnel who are not routinely performing shift duties.

2. The simulator and a simulator operator(s) will be provided for examination development. The date(s) and duration of time needed to develop the examinations will be agreed upon by the chief examiner and the facility.

3. The reference material used in the simulator will be reviewed by the chief examiner. No material will be made available that is solely used for training.

4. A single room shall be provided for completing Section B of the written examination. The location of this room and supporting rest room facilities shall be such as to prevent contact with all other facility and/or contractor personnel during the duration of the examination.

5. Minimum spacing is required to ensure examination integrity as determined by the chief examiner. Minimum spacing should be one examinee per table, with a 3 foot space between tables. No wall charts, models, and/or other training materials shall be present in the examination room.

6. Copies of reference material for Section B of the written examination will be provided for each examinee. The reference material will be reviewed by the chief examiner and will consist of Technical Specifications, operating/abnormal procedures, administrative procedures, Emergency Plans as available to the plant operators.

7. Video taping capabilities can be utilized. The facility should contact the chief examiner for restrictions related to its usage.

8. Since common tasks and detailed systems knowledge will be probed during the walk through portion of the operating test, operators will be requested not to discuss the walk through with other examinees until after the complete examination has been administered.

9. An attempt will be made to distinguish between RO and SRO knowledge and abilities, to the extent that such a distinction is supported by the facility training materials.

ENCLOSURE 3

NRC RULES AND GUIDANCE FOR EXAMINEES

1. Use black ink or dark pencil ONLY to facilitate legible reproductions.

2. Print your name in the blank provided on the cover sheet of the examination.

3. Fill in the date on the cover sheet of the examination, if necessary.

4. Answer each question on the examination. If additional paper is required, use only the lined paper provided by the examiner.

5. Use abbreviations only if they are commonly used in facility literature.

6. The point value for each question is indicated in parentheses after the question and can be used as a guide for the depth of answer required.

7. Show all calculations, methods or assumptions used to obtain an answer to a mathematical problem, whether asked for in the question or not.

8. Unless solicited, the location of references need not be stated.

9. Partial credit may be given. Therefore, ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWERS BLANK.

10. If parts of the examination are not clear with respect to their intent, ask questions of the examiner only.

11. You must sign the statement on the cover sheet that indicates the work on the examination is your own and that you have not received or been given any assistance in completing the examination. This must be signed AFTER the examination has been completed.

12. Rest room trips are to be limited and only one examinee at a time may leave. You must avoid all contact with anyone outside the examination room to avoid even the appearance or possibility of examination compromise.

13. Cheating on the examination would result in a revocation of your license and could result in more severe penalties.

14. Each section of the examination is designed to take approximately 90 minutes to complete. You will be given two hours to complete each section for a total of four hours.

15. Due to the existence of questions that will require all examinees to refer to the same indications or controls, particular care must be taken to maintain individual examination security and avoid any possibility of compromise or appearance of cheating.

16. When you are finished and have turned in your completed examination, leave the examination area.

THIS DOCUMENT CONTAINS THE
REQUIREMENTS AND PROCEDURES
FOR REQUALIFICATION EXAMINATIONS
AND IS PROVIDED FOR YOUR GUIDANCE
AND INFORMATION IN PREPARING THESE
EXAMINATIONS.

ADMINISTRATION OF NRC REQUALIFICATION PROGRAM EVALUATIONS

A. Purpose

The NRC requalification examinations are administered under this standard per the provisions of 10 CFR 55.59(a)(2)(iii). The program described in this standard will minimize the potential for an adverse impact on the safe operations of facilities, provide the staff with an assessment of the effectiveness of the facilities requalification training programs, and meet the requirements of 10 CFR 55.57(b)(2)(iv).

B. Scope

This standard provides general guidance and requirements to NRC examiners for the administration of NRC requalification examinations. This program evaluates the effectiveness of a facility's licensed operator requalification training program to maintain the competency and currency of licensed operators. This is done by evaluating the ability of the facility to adequately prepare written examination questions and simulator scenarios and their ability to properly evaluate their operators' performance. In addition, satisfactory completion of the examinations by individual operators would satisfy the regulatory requirement to pass an NRC administered requalification examination prior to license renewal. This document is not a substitute for the operator licensing regulations and is subject to revision or other internal operator licensing policy changes.

The requirements and procedures are derived based on a Systems Approach to Training (SAT) program in accordance with INPO Guideline 86-025, and rely upon existing requalification program standards for guiding the NRC examination development and implementation. This approach will allow the NRC to administer requalification examinations that are consistent with existing facility developed programs, thereby reducing the impact on the facilities and improving the reliability of the NRC assessment of requalification training programs.

Each requalification examination will be developed by an examination team consisting of NRC examiners and facility representatives and will be reviewed by facility representatives and by the Resident Inspector where practical. The examination will be based upon the facility requalification program and its learning objectives, to the extent practical. The facility should utilize the facility specific Job and Task Analyses as the basis for the examination development. Importance Factor requirements shall be substantiated by the facility. NUREG 1122/1123 should be used to provide additional guidance for identifying job specific importance factors. This approach will result in more technically sound and operationally oriented examinations. In addition, coevaluation of operator performance by the NRC and the facility will enhance the ability of the NRC to assess both individual and program performance.

The NRC administered requalification examination is composed of an operating test and a written examination. The operating test consists of a simulator evaluation which emphasizes time-critical and team-dependent behavior with follow-up of individual weaknesses. The walk-through evaluation will cover plant systems identified by the NRC and the facility that are important to the safe operation of the facility. The written examination consists of a two section open book examination: Section A will be a "Plant Operations" section and is administered on a static simulator; Section B will be a "Limits and Controls" section and is administered in a classroom setting or in the simulator.

C. Administrative Controls

1. Introduction

The following criteria outlines the requirements for the administration of the NRC Requalification Program.

2. Responsibilities

a. Notifications

(1) NRC notifies the facility to be evaluated at least 90 days in advance of exam date using the attached "Corporate Notifica-tion Letter" (Attachment 1). Site visits should be scheduled to coincide with the requalification training cycle of the facility, if possible.

(2) The facility responds to the "Corporate Notification Letter" at least 60 days in advance of the evaluation by providing to the NRC the following:

- Reference Materials (enclosure 1 to Attachment 1)
- Proposed list of operators
- Two staff employees assigned to assist NRC Team

(3) The NRC will confirm with the facility at least 30 days in advance which operators have been selected to participate in the evaluation.

(4) The NRC will notify the facility immediately of any individual whose performance on the examination is sufficiently poor to require immediate removal from licensed activity.

b. Selection of Operators

The facility will propose operators for NRC examination 60 days prior to the administration date. The NRC will select crews and individuals to be examined based on the following criteria:

(1) Number of individuals on crew not examined during current license term,

(2) Number of examinees required to obtain an adequate sample of at least 12 for program evaluation purposes.

(3) If circumstances exist which preclude the selection of 12 operators, program evaluation will be deferred until 12 operators from consecutive evaluations have been examined.

(4) Number of staff (not crew) licensed personnel not examined during current license term.

(5) Length of time until license expiration.

(6) Priority given to crew(s) in training during the examination week(s).

(7) Minimize perturbation on facility schedules and operations.

An operator who has passed on NRC requalification examination during the term of his/her license may be included in the simulator crew evaluation. Such an individual will not be required to take a written or walk-through examination. This individual will not be included as one of the miminum 12 operators required for program evaluations. Unsatisfactory performance, however, in the simulator examination will be evaluated as described in section D.1.

The personnel sampled may include crews of personnel who are not routinely performing shift duties in order to supplement the sample to an adequate size. Mixed crews of shift and non-shift license operators shall not be allowed unless the facility routinely evaluates such mixed crews in their requalification training program.

c. Facility Involvement

(1) The facility will be requested to provide two employees, one from the operations staff (required) and one from the training staff (optional), to complete the NRC examination team (Attachment 1). The employee from operations shall be an active licensed SRO; the employee from training should preferably be a licensed SRO, but may be a certified instructor. The function of these individuals is to provide facility specific technical assistance to the NRC in the development and review of the written examination items, plant walk-through topics, and simulator scenarios. If necessary the facility representatives may participate in the actual conduct of the operating test or written examination as a facility evaluator.

(2) To ensure examination security, the facility representatives who are on the examination team shall have exam security restrictions placed upon them by the facility. These restrictions begin upon facility submittal of the response

to the component notification letter (60 days prior to exam date) and continue until the exam administration is concluded.

(a) Facility representatives shall not knowingly communicate by any means the content or scope of the exam to unauthorized persons.

(b) Facility representatives shall not participate in any facility programs such as instruction, examination or tutoring in which an identified requalification examinee(s) will be present.

Each facility representative shall be required to sign an Exam Security Agreement (Attachment 2) prior to exam involvement as stated above and a Post Exam Security Agreement (Attachment 3) at the conclusion of the exam process. These agreements reinforce adherence to the above restrictions.

(3) The facility evaluators must provide by the end of each day, preliminary pass/fail results for the simulator and walkthrough portions of the examination and final results prior to the exit brief.

(4) The facility shall grade the written and the operating exams in parallel with the NRC Team.

d. Facility Reference Material

(1) The facility shall supply the reference materials as requested in the Corporate Notification Letter (Attachment 1). The NRC shall evaluate the facility reference materials for adequacy for exam preparation using the ES 601 Examination Check List (Attachment 4)

(2) NRC reserves the right to declare a facility training program unsatisfactory and to postpone NRC administered requalification examinations if the facility generated materials are inadequate for examination preparation. Enforcement action may be considered if necessary to bring facility generated material to the level of quality for examination preparation.

(3) A General Sampling Plan shall be provided by the facility which summarizes the specific examination subject requirements as outlined in the appropriate sections of this examination standard. This sampling plan should indicate the emphasis which each requalification topic received during the most recent requalification cycle.

3. Administrative Procedure

a. Examination Administration

The simulator examination is normally administered first, followed by the plant walk-through evaluations for each crew. The two

part written examination will normally be administered after all simulator and plant walk-through evaluations have been completed. This order of administration is intended to provide for an operational atmosphere prior to the written examination. However, a different order of administration may be used if deemed appropriate by the Chief Examiner and approved by the regional section chief. Each portion of the requalification examination shall include the appropriate oral briefing or rules handout.

b. Requalification Program Evaluation

A program evaluation should normally be based on a minimum sample size of at least 12 licensed operators and senior operators. If the actual sample size does not meet this minimum then the program evaluation will be deferred until inclusion of the next annual cycle, unless the interim results warrant immediate action (refer to E.2).

A satisfactory requalification program must meet each of the following:

(1) 90% pass/fail decisions agreement between the NRC and facility grading of the written and operating examinations.

(2) At least 75% of all operators pass the examination; not including individuals selected who had previously passed the examination.

(3) The program is judged satisfactory in accordance with the guidance given for the simulator evaluation.

(4) The program meets the requirements of 10CFR55.59 [paragraphs (c)(2), (c)(3), and (4)] or, is based on systems approach to training.

Criteria for evaluation of Programmatic Weaknesses include the following examples:

(a) 50% of examinees miss greater than one same common task.

(b) 50% of examinees miss greater than one same common task question.

(c) Failure to train and evaluate operators in all of the positions permitted by their individual license. Especially, SROs Acting as ROs and SROs not directing operators. This is not intended to cover utilization of SROs on CR Panels during only the simulator portion of the examination.

(d) Failure to train operators for "in-plant" JPMs.

(e) 75% of examinees successfully complete 80% of the common task questions.

(f) greater than 1 facility evaluator determined to be unsatisfactory per the "Evaluating Facility Evaluators Checklist" (Attachment 5).

Note: Failure to meet 3 of these items will mandate a facility program determination of unsatisfactory.

When using the above percentages, fractions of individuals should be rounded up to the next highest number. For example, if fifteen (15) licensed individuals are evaluated, 75% passing would be 11.25, thus eleven of fifteen passing would not be considered as meeting the 75% requirement. This rule should be applied throughout this standard.

Overall program adequacy shall be determined based on the NRC examiners evaluations. If the facility evaluators judge greater than 25% of their operators as unsatisfactory, while the NRC does not, then corrective actions may be required but the facility, program would not be found unsatisfactory due to the facilities more stringent grading standards.

c. Requalification Performance for an Individual

For an individual to successfully pass the requalification examination as graded by the NRC, he/she shall satisfactorily complete:

(1) The written examination as described in D.3.c(2)

(2) The walkthrough examination as described in D.2.c(2)(a)

(3) Satisfactorily complete the simulator examination as described in D.1.c(2)(b).

d. Crew Performance Evaluations at NonSimulator Facilities

Until full compliance with 10 CFR 55.45(b), plants without a simulation facility shall propose an alternate method such as a control room mockup for the conduct of this portion of the examination. NRC will determine the usefulness of such alternatives.

e. Timetable for Administration of Requalification Examinations

90 days in advance	The facility is notified.
60 days in advance	The facility provides proposed material for examination construction (including written examination question and simulator scenario banks and job performance measures with follow-on questions for important safety systems).

- The facility proposes crew composition. and team members.
- Facility team member enter security restrictions.

30 days in advance - NRC notifies facility of crew selections.

14 days in advance - NRC team visits the facility to prepare for the examinations.

- Facility supplies simulator operator.

7 days in advance - NRC prepares for examination in the Regional office.

Examination Week - NRC administers requalification examinations to selected crews.

D. Implementation

1. Simulator Evaluations

a. Introduction

During the simulator portion of the requalification examination each crew will be evaluated on at least two simulator scenarios. Scenarios shall be used to evaluate:

- crew time critical and team dependent behavior
- facility requalification training program
- individual competencies and weakness

The scenarios should be developed by the facility and reviewed per Attachment 4 and revised by the NRC. The NRC may augment the facility derived scenarios with no more than 20% NRC developed scenarios. These scenarios will be reviewed with the facility evaluators prior to administration. Crews shall be evaluated by both NRC and facility evaluators with NRC observing facility led critiques. Normally NRC evaluators may ask questions of operators after the critique to follow up on deficiencies observed during the simulator evaluation. In those cases where immediate followup question(s) prior to the critique may be necessary, said questions will be approved by the chief examiner.

The simulator examination provides a comprehensive evaluation of the integrated knowledge and skill requirements in a real time environment and determines if there are areas in which retraining is needed to upgrade licensed operators and senior operator knowledge.

b. Responsibilities

(1) Facility

(a) A facility management representative with responsibilities for the conduct of plant operations (as a minimum, first level above shift supervisor) should be present during administration of the simulator examinations. The NRC Chief Examiner will be the principal point of contact between the facility management and the NRC.

(b) The facility shall provide at least 15 simulator scenarios to the examination team. The scenarios should be approximately 50 minutes in length and both comprehensive and realistic, i.e., not a series of unrelated events.

(c) The scenarios should be based upon lessons covered in the requalification cycle, recent industry events, LERs, emergency and abnormal procedures, and design and procedural changes that exercise the crew's ability to use facility procedures in accident prevention and mitigation.

(d) The facility representatives should substantiate and recommend changes as appropriate to NRC modifications to tasks that are critical to plant safety.

(e) The facility shall provide a qualified simulator operator 14 days prior to the exam date, who will be subject to all security restrictions.

(2) NRC Responsibilities

(a) The minimum number of NRC examiners required for administration of the simulator scenarios is one for every two operators. Another examiner shall be present as a coordinator. The Chief Examiner or his designee must be present during the conduct of all simulator scenarios, and may act as either the coordinator or an examiner.

(b) The NRC will review scenarios to ensure tasks contain abilities from NUREG-1122/1123 "Knowledge and Abilities Catalog for Nuclear Power Plant Operators" with importance factors of 3.0 and above. Facility specific K/A catalogs should be used when available, however, important tasks must be based on public health and safety. The following should also be considered:

- Complex beyond the scope of lessons covered (realistic)
- beyond the ability of procedures
- beyond the simulation facility capability

- too simple should be integrated events
  - no team dependent behavior
  - no time critical behavior
  - absence of equipment malfunctions

(3) Examination Team

(a) The NRC and the facility representatives as the examination team will jointly identify "Individual Simulator Critical Tasks ISCT"* for each scenario that are crucial to the maintenance of plant safety. Any disagreements of selection of ISCT's will be reviewed and approved by the regional Section Chief. To identify ISCTs, review the JTA or other facility training material.

(b) The examination team should verify the scenarios against the facility requalification program learning objectives and compare the ISCT's to the K/A catalog to ensure they possess abilities with importance factors of 3.5 and above. The scenarios may be modified by the team based upon the technical advisement of the facility representatives.

(c) The examination team shall review those scenarios selected for use against the Simulator Scenario Review Checklist (Attachment 6). Due to a simulator scenario not going as planned unanticipated actions by operators may be identified post-scenario by the facility and/or NRC as "critical." Those items will be reviewed in accordance with the guidance provided in paragraph 3-b above.

*Individual Simulator Critical Tasks are defined as step(s) to be taken by an individual during the simulator examination that could challenge the safety status of the facility if not performed properly. Examples of essential safety actions are given in Section c(2)(b).

c. Requalification Process

(1) Conduct of Requalification

(a) A scenario's contact time (not including time spent on briefings, simulator setup or simulation facility problems) should average 50 minutes.

(b) Position rotation shall be dependent upon facility rotation practices. However failure by the facility to rotate each SRO such that the individual would be

required to direct other operators may be identified as a program weakness. Crews will be evaluated in the simulator as they are configured by the facility for operating the plant. When a simulation facility is available control manipulative skills shall be evaluated in the walk-through examination.

(c) The number of scenarios shall be sufficient, with a minimum of two per crew, to ensure that each examinee is tested to the extent that he/she may operate during both normal and emergency operating conditions within the rotation practices of the facility.

(d) Each scenario should exercise each crew member as appropriate to his/her position during the scenario. That is, scenarios should be designed so that each individual performs at least one ISCT during this portion of the operating test. Each simulator evaluation should place individual crew members in the most senior watch standing position in which the individual normally operates on shift. Each evaluation should exercise the crews' abilities in the use of Emergency Operating Procedures, Technical Specifications, and the Emergency Plan (See Attachment 6).

(e) Passive observations shall be made. Questioning of operators should normally be done only after the completion of the facility led scenario critique. Questions asked immediately after the scenario (prior to the critique) should be approved by the Chief Examiner. Follow-up questions for flagged items should be asked at this time. The Chief Examiner may question the plant management representative for clarification, if necessary.

(f) Flagged items of individual weaknesses noted on the simulator examination should be covered through follow-up questions after completion of the scenario critique to determine if there is a need for remedial training, unless resolved during the facility led critique. These questions should also reference a K/A to indicate importance, and be reviewed by the facility representatives after the fact.

(g) The candidates will be briefed prior to the start of any exercises using the "Briefing Checklist" (Attachment 7). Crews may be briefed individually or as a group.

(2) Evaluations

(a) Crew Evaluations

1. Following each scenario, the crew performance will be critiqued by the facility graders at

the simulation facility in accordance with their procedures. The critique is to be observed by the NRC examiners.

2. Crew performance should be evaluated and documented in accordance with the "Simulator Crew Performance Evaluation Form (Attachment 8)." The facility evaluators should also complete a copy of this form or an equivalent facility form for each crew.

3. An incorrect performance by a crew of one ISCT may establish a basis for an UNSATISFACTORY crew evaluation. Incorrect performance of two or more ISCT's shall result in an unsatisfactory crew evaluation for the simulator operating test.

4. A crew judged UNSATISFACTORY in the simulator by the NRC evaluators shall be taken off shift, given remedial training, and reexamined prior to resuming licensed duties. NRC should administer the test if the facility's requalification program is currently judged UNSATISFACTORY and NRC has not verified the adequate corrective measures have been instituted. Otherwise, the facility will be permitted to administer the reexamination.

(b) Individual Evaluations

1. Individual observations record any deficiency noted using ES-301 Attachment 4 or the appropriate facility scenario form. Individual Simulator Critical Tasks are defined as step(s) to be taken by an individual during the simulator examination that could challenge the safety status of the facility if not preformed properly. Examples of essential safety actions are:

- ability to effectively manipulate conrols
- ability to actuate a reactor trip
- ability to ensure ESFAS systems inject/actuate
- ability to emergency borate or initiate ADS
- prevent violation of Technical Specifications
- ability to take any other action or combination of actions that would prevent a challenge to plant safety

- ability to preclude inappropriate actions or combination of actions that create a challenge to plant safety

2. Significant deficiencies will normally be associated with identified ISCT's. Should an individual incorrectly perform one ISCT, this could establish a basis for an UNSATISFACTORY evaluation of his/her simulator examination. Should 2 or more ISCT's be incorrectly performed, an individual examination failure is mandated.

3. An individual who has passed a previously administered NRC requalification examination and is being used as a crew member may fail the examination or be found to require remedial training as a result of poor performance meeting the criteria of D.1.c(2)(b) above.

4. NRC or facility evaluator judgment that a crew is UNSATISFACTORY in the simulator will not necessarily result in an UNSATISFACTORY individual performance evaluation.

5. Any individual weakness observed on tasks detailed on ES-301, Attachment 4, will be potential items for follow-up. Follow-up may not be required if the examiner's concerns are resolved during the facility led scenario critique.

(c) Program Evaluation

1. A program may be judged UNSATISFACTORY if the NRC judges at least one crew UNSATISFACTORY and the facility evaluators judge the same crew SATISFACTORY; (e.g., facility evaluators feel no remedial training is necessary).

2. A program may be judged UNSATISFACTORY if there is less than 90% agreement between the NRC and the facility on the individual pass/fail determinations with the facility evaluating fewer individuals UNSATISFACTORY.

3. If the facility evaluators judge crew performance UNSATISFACTORY and the NRC does not, remedial training is indicated but the program will not be penalized for holding a higher standard of operator performance.

4. If two or more crews are determined to be UNSATISFACTORY by the NRC regardless of individual failures, the overall program will be judged UNSATISFACTORY.

d. Enhancements

(1) The following guidelines apply to video taping.

(a) If equipment is available at the site, the simulator examination will be video taped.

(b) After initial set up of the camera by the licensee's personnel under observation of the Chief Examiner, the recording will be made with unattended camera(s). The only intervention will be to change the tape.

(c) The critiques will be video taped if the scenarios are video taped.

(d) The NRC will be provided a copy in VHS format of the tape before leaving the site.

(2) The video tape will be used primarily to resolve areas of contention between the facility and NRC examiners' parallel evaluations of the operators. Additionally, the facility, the examiners, and the operators will be provided an opportunity to review those portions of the video tape that directly affect the pass/fail decisions, e.g., performance of previously identified critical items, if they so request. The facility will supply the video tapes. After examination results are finalized, and all conflicts resolved, the NRC and the facility will erase the video tapes. The facility tape custodian will sign a statement (Attachment 9) upon receipt of the video tape indicating that the tape will be used only for its intended purpose and will be promptly erased as specified above. The NRC will return its copy of the video tape within 30 days of exam results finalization, unless individual exam results are appealed.

2. Walk Through Evaluations

a. Introduction

The purpose of this portion of the operating test is to assess the individual understanding of and the ability to perform actions associated with plant systems and manipulations that operators may either perform, or direct the performance of, and to assess the requalification program's effectiveness in keeping the operator's knowledge current with respect to these important safety-related tasks and the associated systems. When a simulation

facility is available control manipulative skills shall be evaluated in the walk-through. For example, senior operators may be required to perform control board operations on the simulator.

b. Responsibilities

(1) Facility

(a) The facility will identify those plant systems applicable to maintenance of public health and safety in the mitigation of the consequences of an event, and those systems that can directly initiate an event. Criteria for system selection include:

- Systems covered during the facility requalification cycle.
- New or recently modified systems.
- Systems the subject of recent facility LERs or vendor notices (e.g., GE SILs).
- PRA identified risk dominant systems/components for plant or vendor generic plants.
- NRC Information Notices.

(b) The facility representatives will review the facility JTA including learning objectives and NUREG-1122/1123 high-lighting tasks/abilities for the identified systems that meet the following criteria:

- Are applicable to the facility.
- Are at the AO/RO/SRO level RO is responsible for AO/RO tasks. The SRO is responsible for AO/RO/SRO tasks.
- Have a K/A ability rating of 3.0 or higher. Items may be used that have ratings below 3.0 if proper facility justification exists.
- If a facility specific JTA is used in lieu of NUREG-1122/123, the importance ratings must be based on public health and safety.

(c) A list of plant specific tasks should also be developed. These are tasks/abilities that may not be specifically addressed by the JTA or NUREG-1122/1123 but which have been covered, due to special needs, in the requalification program, e.g., special procedures, EDG operations. The facility representatives will review and concur on job applicability and importance for the complete list of tasks. The tasks should indicate which steps are

critical. Critical step(s) is/are the step(s) which when not performed or when performed incorrectly will prevent the system from functioning correctly or successful task completion.

(d) For each of the tasks identified, review the JTA and/or learning objectives and appropriate cross references to determine the training mode. Seventy-five JPMs shall be submitted by the facility. Refer to the Lesson Plan, Qualification Card or Job Performance Measure which addresses the task. The JPMs should include:

- Initial conditions
- Initiating cues
- References
- Performance elements and standards
- Cues
- Any appropriate output statements.
- In-depth questions and answers related to the JPM. (Attachment 10)
- Criteria for satisfactory completion of the task.
- Performance elements that are critical.
- Validated task time limits.
- Elements steps sequence restrictions.

(e) The questions and answers shall:

- be based on the task objectives in the JTA
- supported by knowledge rating >73.0
- meet the written guidance in Attachment 11
- include the correct answer, & K/A
- emphasize knowledges required for task performance not demonstrated during the specific JPM
- two or more questions per task, based on the number of knowledge areas in the task analysis
- the answer shall not be directly given in the procedures used to complete the task, i.e., lookup

(2) NRC

(a) The NRC team will evaluate the facility identified systems. Absent other information, systems should be selected from those identified in Groups I and II of the "Examiners Hand-book for Developing Licensing Examinations," NUREG/BR-0122 with at least 50% of the selected systems from Group I of the Handbook.

(b) Selected systems will be discussed with the facility representatives to [illegible] optimum site specific relevance. NRC additions and/or substitution will be discussed with the facility representatives to verify applicability.

(3) Examination Team

(a) The team can propose up to 20% of the selected JPM criteria and critical steps based on the technical support of the facility representatives. The examination team should review proposed JPMs per the criteria in the "JPM Quality Checklist" (Attachment 12). All questions and answers will be reviewed by the facility representatives for job relevance and safety significance prior to examination administration. If the NRC or the facility evaluator asked follow-up or probe questions during the walk-through, these questions should be reviewed as soon as possible with the facility representative after the walk-through is completed.

(b) Each examination set shall be reviewed by the Chief Examiner to ensure ES-601 guidance is adhered to.

c. Walk-Through-Process

(1) Conduct

(a) The walk-through will be planned for approximately 2-1/2 hours in length. This includes both the control room and in-plant time and is reflective of actual examination contact time. Time required for nonexamination evolutions/items will not be considered during examination planning. These evolutions/items include, but are not limited to, the following:

- Transit time to and from the plant site.
- Time spent complying with facility security and radiological administrative requirements.
- Transient time from the control room to in plant locations.
- Transit time from one in-plant location to another.

(b) The walk-through will be constructed and administered as follows:

- Time should be allotted during the operating test for evaluating the performance of ten (10) JPMs. A minimum of four (4) JPMs should be evaluated outside the control room. Five of the ten tasks shall be "common" tasks. These common tasks will be administered to

each operator and used in determining the effectiveness of the requalification program in preparing the operators to perform the tasks.

- A JPM worksheet (Attachment 13) will be completed for each task.

(c) The facility examiner will brief the candidate using the "Briefing Checklist" (Attachment 7). If desired, the candidates may be briefed as a group prior to the start of any walk-thrus. The facility examiners will conduct the walk-through while the NRC examiner grades in parallel. The NRC examiner may ask questions of the operator necessary and appropriate to ensure adequate coverage of the content of the walk-through at the completion of each JPM, and to ensure that the operator has demonstrated satisfactory understanding and application of knowledge regarding the JPM. The NRC examiner must ensure that the facility evaluator is conducting an appropriate examination. If the NRC Examiner has determined that the examination being conducted is inadequate to allow a pass/fail determination then, first, the NRC examiner shall privately counsel the facility evaluator. If the examination conduct remains inadequate, the NRC examiner shall stop the examination and request another facility evaluator to conduct the examination.

(d) After administration of each JPM, the NRC shall resolve with the facility representatives all unforeseen technical questions or issues that could result in an individual failing the examination.

(2) Evaluations

(a) Individual Performance Criteria

In order to be judged satisfactory on the walk-through portion of the examination, each operator shall:

(1) NOTE: Satisfactory completion of each JPM within double the allotted contact time is required (unless both the NRC examinee and facility evaluator agree that the progress to completion is acceptable). Satisfactorily complete 80% of the JPMs administered.

(2) Correctly answer 70% of the prewritten questions related to the 10 tasks. Followup questions will be used only to confirm step or element performance and/or confirm the initial response to a prewritten question.

(b) Facility Program Performance Criteria

(1) 90% pass/fail decision agreement between the NRC and facility grading of the walk-through examinations.

(2) At least 75% of all operators pass the walk-through examination.

3. Written Examination Evaluations

a. Introduction

The purpose of the two section open reference written examination is to assess the individual's knowledge of plant systems, procedures, and operating limits including the Technical Specifications.

b. Responsibility

(1) Facility Responsibility

(a) The facility shall provide a bank of at least 700 requalification examination question items.

These items should be reviewed for appropriateness, clarity, and importance to safety, as described in the "Guidelines for the Development and Review of Open Reference Examinations" (Attachment 14).

Additionally the following must be provided for each item:

- Applicable K/A ref. and values
- Reference JTA
- Estimated time to answer
- Appropriate learning objective
- Training material reference
- The licensee should indicate which questions in the bank are applicable to the current requal cycle

(b) Section A of the written examination is designed to utilize the simulator as a reference tool in answering questions. The questions should be related to plant systems, controls, and recognition of TS LCOs in an open reference format.

(c) This section has a minimum of two "frozen" conditions on the simulator, one condition being at power with some equipment in an abnormal status; one condition for which the plant could have experienced a major transient resulting in ESFAS initiation.

(d) Section B of the written examination is designed to utilize plant procedures (including emergency, normal

operation, and abnormal) and administrative controls (including TS, E-plan, Administrative Procedures) in an open reference format.

(e) After the facility representatives have completed the review, they will provide the results to the NRC for use in final examination development. The results will include the time required to answer test items.

(f) The facility will provide a sampling plan (i.e., test specifications which identify the percentage to be sampled of each topic area) with their submitted bank items. The facility sampling plan should document the validity of test items by linking each item topic with:

- a K/A with an importance value of 3.0 or greater (or equivalent safety rating from a facility JTA);
- a facility learning objectives; and
- safetyrelated tasks as identified by the facility JTA.

The facility's sampling plan should indicate the percentage of items on Parts A and B of topics covered during the prior two years. The plan should indicate the systematic approach to training basis and other materials used to develop the plan and document the comprehensiveness per 10 CFR 55.59(a)(2).

(g) The facility shall be responsible for providing all required reference material.

(2) NRC Examination Team Responsibility

(a) A technical review of the references provided for each test item will be conducted to verify item accuracy. Each test item will be reviewed for question construction with emphasis on its applicability to an open reference examination using, (Attachment 11) "NRC Checklist for Open Reference Test Items."

(b) Each test item should be reviewed for an associated learning objective. Learning objectives should be verified as job related and relevant. Review of lesson material for test items should be conducted to determine if the learning objectives are related to corresponding task(s) in the facility JTA and the K/A catalog. The K/A rating should be 3.0 or above.

(c) If a clear tie to the JTA does not exist, the applicability of the item shall be discussed with the facility representatives.

(d) Should it be necessary to develop additional items to satisfy the sampling plan, request the facility to do so.

(e) The NRC may augment the facility's sampling plan. The NRC sampling plan will encompass the facility's sampling plan with an addition of no more than 20% of items beyond the facility's sampling plan.

(f) Proposed items may be modified, deleted, or replaced if it is determined necessary during the NRC review.

(g) The facility representative will review all revised test items, evaluating them for:

- appropriateness,
- time required to answer each item,
- technical accuracy,
- clarity, and
- K/A and objective references.

Examiner Standard ES-401 Attachment 3 should be used to perform a QA review of the examination. The NRC team will review the final examination with the facility representatives for clarity and technical accuracy. Attachment 1 provides guidance for examination administration. The examination shall be entered into the EQB main bank after administration.

(h) The examination may be constructed in alternate forms, i.e., each operator may have a different sequence of questions on his/her examination. This assists in eliminating the need for having multiple sets of reference material. Handouts (e.g., plant curves, blank forms, etc.) may be provided with the test to help relieve the burden on the utility to provide additional sets of reference material.

c. Written Examination Process

(1) Written Examination Conduct

(a) Each section of the examination shall be proctored in accordance with ES-201.I and form ES-201-3 shall be completed.

(b) Section A is a "Plant Operations" section and is normally administered on a static simulator. Until full compliance with 10 CFR 55.45(b), for facilities without a simulator, section A should be administered in a control room mockup if it exists. If neither is available, then a classroom setting should be used. NRC and the facility being evaluated will agree on the compensatory measures (computer printouts, photographs,

etc.), required for a classroom or mockup setting. Section A is designed to evaluate the operator's knowledge of plant systems, integrated plant operations and instruments and controls. In addition, recognition of Technical Specification (TS) LCOs and the operator's ability to diagnose postulated events shall be evaluated.

(c) Section B is a "Limits and Controls" section and is normally administered in a classroom setting, although it may be administered in the simulator if deemed appropriate by the Chief Examiner. Section B of the written examination is designed to evaluate the ability of the operator to analyze a given set of conditions and determine the proper procedural and administrative guidance.

(d) The facility shall be responsible for providing the following reference materials:

During the "Plant Operations" (Section A) portion of the examination, one copy of all controlled material available in the control room should be available to examinees. Examination reference material will NOT include material that is intended for training use only. All reference material must be authorized for actual operation of the power plant.

(e) During the "Limits and Controls" (Section B) portion of the examination, each examinee shall have available for use the following material (complete, controlled, current isssue):

- Technical Specifications
- Plant procedures (EOP/AOP/OP, etc.)
- Emergency Plan (as available in the control room)
- Administrative procedures applicable to operations
- Other plant reference material normally available in the control room (e.g., curves and data book, forms, plant drawings, flow charts, etc.).

NOTE: "Noncontrolled" reference material, such as the Emergency Procedure Owner's Group Basis Documents will not be provided unless the facility certifies that these documents are authorized to be used during plant operations.

(2) Written Examination Evaluations

Using the examination and key, the facility and NRC will independently grade each section of the written examination. The grading of all written examinations shall be completed within 20 working days of the examination administration date. Grades will be recorded on the written examination cover sheet (Attachment 15).

(a) Individual Performance Criteria

In order to be judged satisfactory on the written portion of the examination, each operator must achieve at least 80% overall score as graded by the NRC.

(b) Program Performance Criteria

In order for a facility's requalification program to be judged satisfactory, the following criteria must be met for the individuals evaluated:

- Ninety percent (90%) pass/fail decisions agreement between NRC and facility grading, and
- at least 75% of all operators pass the examination.

E. Actions Required for Unsatisfactory Individual or Program Evaluation

1. Unsatisfactory Individual Evaluation

If an operator fails an NRC administered requalification examination, the operator shall be removed from licensed duties until remediation and reexamination has been completed satisfactorily. NRC should administer the test if the facility's requalification program is currently judged UNSATISFACTORY and the NRC has not verified that adequate corrective measures have been instituted. Otherwise, the facility will be permitted to administer the reexamination for returning the individual to licensed duties; however, license renewal would require another NRC administered exam.

2. Unsatisfactory Requalification Program Evaluation

For any program evaluated as unsatisfactory, the following actions are required unless findings indicate otherwise. Additional actions may be taken at the discretion of the Regional Administrator or his designee. The sequence of actions below is not required. The determination whether plant shutdown is required should be ongoing until the Regional Administrator or his designee has reviewed all in (d) below.

a. Require the facility to identify program deficiencies and corrective actions required to improve operator performance.

b. Meet with senior facility management to review audit findings, identified deficiencies, root causes, corrective actions proposed, schedule for corrective action implementation, and follow-up inspections and examinations.

c. Determine the required corrective actions by the facility, the required follow-up by the NRC, and the schedule for each.

d. The Regional Administrator or his designee shall determine whether plant shutdown pending completing of corrective action is required. This decision should be based on the:

(1) Significance of generic performance deficiencies identified during the program evaluation,

(2) Recent SALP performance, especially as related to Criterion 7, Training Effectiveness and Qualification,

(3) Recent facility events which relate to licensed operator performance, and

(4) Recommendations by resident inspectors.

F. Operator License Renewal Policy

1. Licenses for operators and senior operators will be renewed upon timely application, as described in ES-109/110 if the individual in question has successfully passed an NRC requalification examination within the term of his/her license.

2. If an individual licensee has been administered an NRC requalification examination two (2) times during the term of his/her license without passing any examination, then the individual will be removed from licensed duties and the individuals license will be terminated or will expire without renewal. To resume licensed duties the individual must apply for license under 10 CFR 55.31 and successfully complete an NRC license examination.

3. If an individual has not successfully passed an NRC requalification examination within the term of his/her license but has failed an NRC requalification examination only once, then the individual license is extended under the timely application provisions until the individual conforms with either F.1 or F.2 above.

G. Final Requalification Program Evaluation Report

A final requalification program evaluation report similar to the final examination report for a licensing examination shall be prepared when the grading of requalification examinations has been completed. A complete copy of the report shall be filed in the facility requalification file. A copy of the NRC Administered Requalification Examination Results Summary, shall be forwarded to the Management Assistant, OLB. The results summary is required to verify OLTS data and for statistical data.

H. Record Retention

1. A facility requalification file shall be maintained for each facility. All facility evaluation forms, records, assignment sheets, and correspondence relating to the requalification program audit for the latest two evaluations shall be retained.

2. When the requalification evaluation has been completed by the Regional Office, a copy of all NRC administered written, oral and simulator examination results shall be supplied to the facility. The facilities are required to maintain these records until the operator's or senior operator's license is renewed in accordance with 10 CFR 55.59 or for two years after license expiration.

3. A copy of the results summary shall be sent to the Management Assistant, OLB. These summaries shall be used for statistical data gathering.

4. Material relating to an individual failure shall be retained by the Regional Office as necessary to support denial of license renewal per 10 CFR 55.57(b)(2)(iv). This shall include:

   a. Examination cover page for all exams.

   b. The portions of the examination that resulted in the failure.

Attachments:

1. Corporate Notification Letter
2. Exam Security Agreement
3. Post Exam Security Agreement
4. Evaulation Checklist for ES 601
5. Evaluation of Facility Evaluators
6. Simulator Scenario Review Checklist
7. Briefing Sheet
8. Simulator Crew Evaluation Form
9. Video Tape Agreement
10. System Walk Through Test Plan
11. NRC Checklist for Open Reference Test Items
12. JPM Quality Checklist
13. JPM Work Sheet
14. Guidelines for the Development and Review of Open Reference Examinations
15. Written Examination Cover Sheet

ATTACHMENT 1

CORPORATE NOTIFICATION LETTER

(INSERT CORPORATE ADDRESSEE)
SUBJECT: REQUALIFICATION PROGRAM EVALUATION

In a telephone conversation between M_____ (title) and M_____ (Section Chief), arrangements were made for an evaluation of the requalification program and licensed personnel at the (facility name). The evaluation visit is scheduled for the week of (date).

For this visit, the NRC examiners will administer NRC prepared operating and written examinations. The NRC examiners will discuss with the appropriate facility personnel and operators the schedule and the process for these examinations. For the examiners to adequately prepare for this visit, it will be necessary for the facility to furnish the approved items listed in Enclosure 1 "Reference Material Requirements." M_____ has been advised of our reference material requirements and where they are to be sent.

NRC reserves the right to declare a facility training program unsatisfactory and to postpone NRC administered requalification examinations if the facility generated materials are inadequate for examination preparation. Enforcement action may be considered if necessary to bring facility generated material to the level of quality necessary for examination preparation.

Additionally, it is requested that a licensed SRO from both the _____ (plant name) Operations Department and Training Department be designated as the facility representatives for these examinations. These individuals must not be scheduled for an NRC administered examination during this visit, or participate as an instructor once selected. Also, the facility representatives will be required to certify that, as a result of their involvement, no portion of the examination has been knowingly compromised.

The facility representatives shall be restricted (1) from knowingly communicating by any means the content or scope of the exam to unauthorized persons and (2) from participating in any facility programs such as instruction, examination, or tutoring in which an identified requalification examinee(s) will be present. These restrictions shall apply from 60 days prior to the exam date.

The facility management is responsible for providing adequate space and accommodations to properly develop and conduct the examinations. Enclosure 2, "Administration of Requalification Examinations," describes our requirements for developing and conducting the examinations. M_____ has also been informed of these requirements. Also, a facility operations management representative should observe the simulation facility examination process at the site.

Enclosure 3, contains the "NRC Rules and Guidance for Examinees" that will be in effect during the administration of the written examination. The facility management is responsible for ensuring that all operators are aware of these rules. ~~Enclosure 4, "Requirements and Procedures for Requalification Examinations," is included for your guidance and information in preparing for these examinations.~~

This request for information was approved by the Office of Management and Budget under Clearance Number 3150-0101, which expires May 31, 1989. Comments on burden and duplication may be directed to the Office of Management and Budget, Reports Management Room 3208, New Executive Office _____, Washington, DC.

Thank you for your consideration in this matter. If you have any questions on the evaluation process, please contact (Regional Section Chief and telephone number).

Sincerely,

(Appropriate Regional Title)

Enclosures:
1. Reference Material Requirements
2. Administration of Requalification Examinations
3. NRC Rules and Guidance for Examinees

DISTRIBUTION:
Project Manager
Branch Chief, OLB
Resident Inspector
Regional Section Leader
Examiner(s)
Facility Training Coordinator
Facility Operations Manager

ENCLOSURE 1

REFERENCE MATERIAL REQUIREMENTS

1. For the written examination, the following items must be provided to the NRC 60 days prior to the examination date:

   Proposed RO and SRO requalification written examination test items. (A minimum of 350 per section of the examination.)

   Since the written examination is open reference, examination items must meet the following:

   a. Items that require only memorization or recall are not permitted;

   b. Items should require that the examinee comprehend, interpret, integrate, or apply available information;

   c. Items should contain situations, aspects, or conditions that do not duplicate lesson plans or references; and

   d. Items should require examinees to locate and use references.

   The written examination will be composed of two sections, each designed to be completed in 1-1/2 hours. Each section will be separate. Section A will be administered on a static simulator; Section B will be administered in a classroom setting. Section A is designed to evaluate the operator's knowledge of plant systems, integrated plant operations, and instrumentation and controls. In addition, recognition of Technical Specification LCOs and the operator's ability to diagnose postulated events should be evaluated. Section B of the written examination is designed to evaluate the ability of the operator to analyze a given set of conditions and determine the proper procedural and/or administrative guidance.

2. All reference material and objectives for the proposed operating test items.

   For the simulation facility, the following items must be provided to the NRC 60 days prior to the examination date:

   1. A minimum of 15 scenarios

      The scenarios should sample areas such as LERs, emergency and abnormal procedures, and design and procedural changes that exercise the crew's ability to use facility procedures in accident prevention and mitigation. The scenarios should evaluate each crew member as appropriate to his/her license, and shall exercise their abilities in the use of Emergency Operating Procedures, Technical Specifications, and the Emergency Plan. The scenario's net time (not including time spent on briefings, setup or simulation facility problems) should average 50 minutes, based upon real time performance.

For the plant walk through examination, the following items must be provided to the NRC 60 days prior to the examination date:

(1) A list of systems and topics appropriate to the plant walk through examination that were covered during the requalification cycle and are important to safety. All reference material required to support an examination on these topics should be provided.

(2) Seventy five (75) job performance measures.

These performance measures should be both in plant and control room operator functions, that are required for the safe operation of the facility. They shall include acceptable performance criteria.

(3) Any additional reference material required for examination preparation will be requested by the examination team.

3. A sampling plan shall be provided by the facility which indicates the relative emphasis of topics which were included in the most recent requalification training cycle.

ENCLOSURE 2

ADMINISTRATION OF REQUALIFICATION EXAMINATIONS

1. 20 percent of the facility licensed operators shall be selected for evaluation. Normally the crew currently in the requalification cycle will be selected. A random sample without replacement will be used to preclude a satisfactory operator from being subject to reexamination by the NRC during the term of the license. The sample will include other shift(s) made up of licensed personnel who are not routinely performing shift duties.

2. The simulator and a simulator operator(s) will be provided for examination development. The date(s) and duration of time needed to develop the examinations will be agreed upon by the chief examiner and the facility.

3. The reference material used in the simulator will be reviewed by the chief examiner. No material will be made available that is solely used for training.

4. A single room shall be provided for completing Section B of the written examination. The location of this room and supporting rest room facilities shall be such as to prevent contact with all other facility and/or contractor personnel during the duration of the examination.

5. Minimum spacing is required to ensure examination integrity as determined by the chief examiner. Minimum spacing should be one examinee per table, with a 3 foot space between tables. No wall charts, models, and/or other training materials shall be present in the examination room.

6. Copies of reference material for Section B of the written examination will be provided for each examinee. The reference material will be reviewed by the chief examiner and will consist of Technical Specifications, operating/abnormal procedures, administrative procedures, Emergency Plans as available to the plant operators.

7. Video taping capabilities can be utilized. The facility should contact the chief examiner for restrictions related to its usage.

8. Since common tasks and detailed systems knowledge will be probed during the walk through portion of the operating test, operators will be requested not to discuss the walk through with other examinees until after the complete examination has been administered.

9. An attempt will be made to distinguish between RO and SRO knowledge and abilities, to the extent that such a distinction is supported by the facility training materials.

ENCLOSURE 3

NRC RULES AND GUIDANCE FOR EXAMINEES

1. Use black ink or dark pencil ONLY to facilitate legible reproductions.
2. Print your name in the blank provided on the cover sheet of the examination.
3. Fill in the date on the cover sheet of the examination, if necessary.
4. Answer each question on the examination. If additional paper is required, use only the lined paper provided by the examiner.
5. Use abbreviations only if they are commonly used in facility literature.
6. The point value for each question is indicated in parentheses after the question and can be used as a guide for the depth of answer required.
7. Show all calculations, methods or assumptions used to obtain an answer to a mathematical problem, whether asked for in the question or not.
8. Unless solicited, the location of references need not be stated.
9. Partial credit may be given. Therefore, ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWERS BLANK.
10. If parts of the examination are not clear with respect to their intent, ask questions of the examiner only.
11. You must sign the statement on the cover sheet that indicates the work on the examination is your own and that you have not received or been given any assistance in completing the examination. This must be signed AFTER the examination has been completed.
12. Rest room trips are to be limited and only one examinee at a time may leave. You must avoid all contact with anyone outside the examination room to avoid even the appearance or possibility of examination compromise.
13. Cheating on the examination would result in a revocation of your license and could result in more severe penalties.
14. Each section of the examination is designed to take approximately 90 minutes to complete. You will be given two hours to complete each section for a total of four hours.
15. Due to the existence of questions that will require all examinees to refer to the same indications or controls, particular care must be taken to maintain individual examination security and avoid any possibility of compromise or appearance of cheating.
16. When you are finished and have turned in your completed examination, leave the examination area.

ATTACHMENT 2

EXAM SECURITY AGREEMENT

I _____ agree that I will not knowingly divulge any information
Print Name

concerning the requalification examination scheduled for _____ to any unauthorized persons. I understand that I am not to participate in any instruction involving those operators or senior operators scheduled to be administered the above requalification examination commencing 60 days prior to the examination.

_____ /
Signature/Date

ATTACHMENT 3

POST EXAM SECURITY AGREEMENT

I _____ did not, to the best of my knowledge, divulge any
Print Name

information concerning the examination administered on _____
to any unauthorized persons. I did not participate in providing any instruction to those operators and senior operators who were administered the above requalification examination commencing 60 days prior to the examination.

_____ /
Signature/Date

ATTACHMENT 4

EVALUATION CHECKLIST FOR ES 601

The attached sheets represent the requirements for Facility Generated Reference material. It is intended to give a go-no go analysis of submitted materials comparability to ES 601 requirements. The important checks presently in ES 601 have been incorporated into this checklist. The Evaluator may use NUREG 1220 for a more in depth analysis as appropriate. The Evaluator would make a decision of satisfactory or unsatisfactory based on how well the facility's material met the minimum requirements.

Specific items, as noted in ES 601, may be resolved via negotiations with the facility staff.

FACILITY GENERATED REFERENCE MATERIAL EVALUATION

I. Quantity:

ES 601 establishes that the facility shall supply the following minimum Reference Material to the NRC 60 days prior to the examination.

Reference material	Required minimum	Actual submitted	Comment
A. Open reference written examination items	350 per section		
B. Simulator scenarios	15		
C. Job performance measure	75		
D. Technical specifications	1 copy		
E. Plant procedures	1 set		
F. Emergency Plan	1 copy		
G. Administrative procedures	1 copy		
H. Sampling plan	1 plan		
I. Reference material necessary to identify critical tasks (eg) JTA, K/A catalog	1 set		
J. Systems Training Reference Material	1 set		

II. Functionality

	Circle one	
A. The Reference Material is legible	yes	no
B. Reference Material is arranged and properly labeled for its function	yes	no
C. The Reference Material shows indication of a systematic approach	yes	no
D. Reference Material is available to verify that test items are appropriate, relevant job related, and technically accurate	yes	no
E. Reference Material is available to adequately support the examination topics	yes	no

Comments

III. Quality

Exam sections	Required minimums	Actual (% of Minimum)	Comments
A. Written examination	• items are appropriate • important to safety • clear • applicable to open ref examination • associated with K/A ≥ 3.0 • Job relevant Sampling plan Identifies: • K/A ≥ 3.0 • Learning objectives • Safety related tasks • % part A and B • Indication of SAT basis		

III. Quality (Continued)

Exam sections	Required minimums	Actual (% of Minimum)	Comments
B. Walkthrough	• Applicable plant systems identified by selection criteria: - Systems covered in requal cycle - New or recently modified systems - Recent facility LERs or vendor notices - PRA identified risk dominant - NRC notices • Tasks/abilities for identified systems are: - Applicable to the facility - At the AO/RO/SRO level - Have a K/A value $\geq$ 3.5 • JPMs include: - Initial conditions - Initiating cues - References - Performance elements and standards - Cues - Appropriate output statements		

III. Quality (Continued)

Exam sections	Required minimums	Actual (% of Minimum)	Comments
Walkthrough (Continued)	- Appropriate knowledge areas for in-depth questions and answers - Designated for SRO only or both RO/SRO - Either the task itself or the following questions require operator problem recognition and diagnosis - Critical elements identified - Answers to questions are not found directly in the procedures • Associated procedures are included as reference for JPM • Each question associated with the JPM is keyed to the appropriate K/A • Each JPM has a minimum of 2 questions directly related to the JPM knowledge requirement		

III. Quality (Continued)

Exam sections	Required minimums	Actual (% of Minimum)	Comments
Simulator Examination	• Approximately 50 min. in length • Comprehensive and realistic • Verified against learning objectives • Critical tasks are identified and compared with facility JTA or K/A catalog to verify importance factor ≥ 3.5 • Scenarios are based on: - Lessons covered in requal cycle - Recent industry events - LERs - Emergency and abnormal procedures - Design and procedural changes • Scenarios exercise crew's ability to use facility procedures in accident prevention and mitigation • Scenario events have a K/A importance factor of 3.0 • Scenario contains at least one time-critical response • Scenario contains at least one team-dependent crew response		

III. Quality (Continued)

Exam sections	Required minimums	Actual (% of Minimum)	Comments
	• The scenario events involve each crew member • Scenario is composed of related or linked events • Scenario requires the use of one of the following: - Abnormal procedures - Emergency operating procedure - Technical specifications - Emerg. plan implementing procedures		

ATTACHMENT 5

EVALUATION OF FACILITY EVALUATORS

Cues

- Verbal cues not excessive
- Non-verbal cues (e.g., body language) not excessive
- Doesn't give away which steps are "critical."

Evaluation Skills

- Detection skills (ability to pick-up on errors)
- Probe as required
- Properly grades down JPMs that exceed time guidelines
- Separates out training knowledge (i.e., doesn't give credit due to evaluator's recollection of operator's training program performance)
- Judgement errors

ATTACHMENT 6
Rev, 1
4/15/88

SIMULATOR SCENARIO REVIEW CHECKLIST
(Attach separate copy to each scenario reviewed)
This form completes examination team review

SCENARIO IDENTIFIER: _____ REVIEWER: _____

___ 1. Scenario contains at least one (1) time-critical crew response.

Time-critical is defined to require affirmative action by one or more crew member(s) in order to prevent or mitigate an event within a limited time.

___ 2. Scenario contains at least one (1) team-dependent crew response.

Team-dependent is defined to require transfer of information between crew members in order to prevent or mitigate an event.

___ 3. The scenario events are designed to involve each crew member.

___ 4. Scenario is composed of related or linked events.

___ 5. Scenario requires the use of: (check those that apply)
(Note: The scenario set must include each of the following)

_____ Abnormal operating procedures

_____ Emergency operating procedures

_____ Technical Specifications

_____ Emergency plan implementing procedures

___ 6. Critical tasks are:

_____ Identified by facility

_____ Required to prevent or mitigate event

_____ Importance factor 3.5 in K/A Catalog or facility JTA

_____ Reviewed and approved by Exam Team

___ 7. Scenario events have K/A importance factor 3.0

ATTACHMENT 7

BRIEFING CHECKLIST - SYSTEM WALK-THROUGH

1. If the NRC examiner is a visitor, escort responsibility for ensuring compliance with safety, security and radiation protection procedures is the responsibility of the operator escorting the examiner.

2. Plant equipment should not be operated. Nothing the facility or NRC examiner says or asks will be intended to violate that principle.

3. If clarification of questions is needed during the walk-through, there should be no hesitation to request the examiner reword or clarify the question.

4. The examiner will be taking notes throughout the test to document operator performance. Frequently an examiner will stop questioning for this purpose. The amount of note-taking is not dependent upon the operator s level of performance. The examiner must document satisfactory as well as less than satisfactory performance.

5. The walk-through is considered "open book." The reference material in the facility/control ro. which is normally ava ble to operators is available, including calibration curves, previous log entries, piping and instrumentation diagrams, calculation sheets, and procedures. However, operators are responsible for knowing from memory the immediate actions of emergency and other procedures as appropriate to the facility.

6. The system walk-through has been planned for approximately two hours in length. However, there is no specific time limit for the walk-through. The examiner will take whatever time is necessary to cover the areas selected, in the depth and scope required. There will be a minimum of 4 Job Performance Measures (tasks) evaluated from the control room and 4 Job Performance Measures evaluated outside of the control room. However, the total number of JPM's will be no less than ten (10).

7. The examiner will explain what tasks are to be completed, which steps to simulate or discuss and provide initial conditions. The operator is to proceed with completing the task as if directed by plant procedures and/or shift supervision. During the task the examiner will supply the necessary plant conditions and/or parameters needed to simulate the task. The operator should explain each step of the task to the examiner before doing it.

8. When all of the steps for each task are performed correctly, the criteria for the examination will have been completed.

9. If the operator feels the need for a break during the walk-through, the operator should request this from the examiner. The examiner is not allowed to reveal the results of the walk-through at its conclusion.

10. The NRC examiner may ask clarifying questions of the operator at the end of each JPM.

11. The NRC examiner will indicate to the operator that no aspects of his examination should be discussed with any other examinees until the conclusion of the examination.

Part B - For tests with simulation facility available

1. The primary responsibility is to operate the simulation facility as if it were the actual plant.

2. Team work and communication between operators is evaluated. It benefits the exam process to verbalize observations, analysis, and reasons for actions more than normally would be done during actual plant operations.

3. If an operator recognizes an incorrect decision, response, answer, analysis, action taken, or interpretation of the team of which the operator is a part but fails to correct, then the examiner may assume that that operator agrees with the incorrect item.

4. A rough log may be kept during each exercise that would be sufficient to complete necessary formal log entries which may be evaluated under administrative topics.

5. A designated facility instructor will act as the auxiliary operators, radiation health and chemistry technicians, maintenance supervisors, plant management, and anyone else needed outside the control room area.

6. The facility examiner will provide a shift turnover before the exercise begins. The shift turnover will include present plant conditions, power history, equipment out of service, abnormal conditions, surveillance due, and instructions for the shift.

7. The control board switches may be purposely misaligned to enhance a simulated scenario or transient where appropriate and is not part to the evaluation. If misaligned they should be tagged or otherwise highlighted as appropriate to the facility. The examiner will not misalign switches during the scenario as an awareness drill.

Note: The chief examiner will tell the operators that no control board switches will be misaligned on a given scenario or set of scenarios.

8. Operators will be allowed three to five minutes to familiarize themselves with the status/conditions of the control boards prior to the start of the experience.

9. The simulation facility part of the examination will consist of a minimum of two exercises lasting approximately 50 minutes each. There will be a short break between exercises to set up the initial conditions for the next exercise.

10. If the operators have any questions concerning the administration of the operating test, those questions should be answered prior to the start of the test.

11. The NRC examiner will indicate to the operator that no aspects of his examination should be discussed with any other examinees until the conclusion of the examination.

ATTACHMENT 8

INSTRUCTIONS ON USE OF SIMULATOR CREW EVALUATION FORM

Enclosed is an evaluation form for use during the trial simulator examination component of the requalification examination. In keeping with the purpose of the requalification exam, these scales are geared toward evaluating the crew as a whole, rather than individual operators. Please follow the instructions below when rating team performance on the simulator examination:

1. Review the rating scales prior to the onset of the simulator examination to familiarize yourself with each performance issue to be evaluated.

2. Use the "Operator Actions" Form (ES-302. attachment 6), and the expected operator actions included on that form, to make notes during the examination, as described in ES-302.

3. Immediately after the simulator examination is over, evaluate the crew by completing the Simulator Crew Evaluation Form. Be sure to address all the rating factors for all 6 competencies.

4. Provide an overall rating of "satisfactory" or "unsatisfactory" for each competence. If you gave the crew more than one rating of "1" on the rating factors for that competence, your score for them on that competence overall should be "unsatisfactory." Although part of the purpose of the walk-through is to follow up on areas of weakness noted during the simulator portion of the examination, if the crew receives a rating of "unsatisfactory" on one or more competences, their overall evaluation should also be unsatisfactory.

5. There is space for comments beneath each competence rating and below the overall rating. This space is provided if you feel the need to annotate or explain rating(s). In particular, use this space to document the failure of an individual candidate due to his/her exceptionally poor performance.

SIMULATOR EXAMINATION SUMMARY SHEET

CREW MEMBERS:

Name	Position
_____	_____
_____	_____
_____	_____
_____	_____

OVERALL TEAM RATING ON THE SIMULATOR EXAMINATION:

Satisfactory _____ Unsatisfactory _____

Comments: _____

_____

_____

_____

_____

Please use the space below to note your comments on the evaluation form (attach additional pages, if necessary):

UNDERSTANDING/INTERPRETATION OF ANNUNCIATOR/ALARM SIGNALS

DID THE CREW:

(a) NOTICE and ACKNOWLEDGE alarms, and ATTEND TO alarms in order of their importance/severity?

3	2	1
All alarms that directly related to significant changes in plant conditions were noted	Minor awareness or response difficulties or lapses	Failed to notice and/or extremely slow at responding to significant alarms at critical times; easily distracted by nuisance alarms

(b) Correctly INTERPRET the meaning and significance of alarms and annunciators (including the use of the Alarm Response Procedures, as applicable)?

3	2	1
Crew readily determined what failures/events alarms were indicating	Minor inaccuracies in alarm interpretation but without safety related consequences	Significant misinterpretations, resulting in plant degradation

(c) VERIFY that annunciators/alarm signals were consistent with plant/system conditions?

3	2	1
All necessary verifications performed, including the identification of erroneous alarms	Minor lapes in alarm verification, but no inappropriate actions taken as a result of inadequate verification	Verification of failed systems was poor or altogether absent

SCORE ON UNDERSTANDING/INTERPRETATION OF ANNUNCIATORS/ALARM SIGNALS:

Satisfactory _____ Unsatisfactory _____

Comments: _____

_____

_____

_____

DIAGNOSIS OF EVENTS/CONDITIONS BASED ON SIGNALS/READINGS

DID THE CREW:

(a) RECOGNIZE off-normal trends/status?

3	2	1
Timely and accurate recognition of trends even prior to alarms	Recognition of trends at time of, but not prior to, sounding of alarms	Failed to recognize trends, even after sounding of alarms and annunciators

(b) USE INFORMATION and use REFERENCE MATERIAL (prints, books, charts) to aid in the diagnosis/classification of events and conditions?

3	2	1
Correct, timely use of information and reference material led to accurate diagnoses	Minor errors by crew in use or interpretation of information and reference material	Failure to use reference material, misuse/misinterpretation of information resulted in improper diagnoses

(c) Correctly DIAGNOSE plant conditions based on those control room indications?

3	2	1
Diagnoses by crew were accurate and timely	Minor errors/difficulties in diagnoses	Faulty diagnoses resulted in incorrect control manipulations

SCORE ON DIAGNOSIS OF EVENTS/CONDITIONS BASED ON SIGNALS/READINGS.

Satisfactory _____ Unsatisfactory _____

Comments: _____

_____

_____

_____

_____

UNDERSTANDING OF PLANT/SYSTEMS RESPONSE

DID THE CREW:

(a) LOCATE and INTERPRET control room indicators correctly and efficiently to ascertain and verify the status/operation of plant systems?

3	2	1
Accurate and efficient instrument location & interpretation by all crew members	Minor errors in locating or interpreting instruments and displays; some crew members required assistance	Serious omissions delays or inaccuracies made in instrument interpretation

(b) Demonstrate an UNDERSTANDING of how the plant, systems, and components operate, including setpoints, interlocks, and automatic actions?

3	2	1
All crew members demonstrated thorough understanding of how systems/components operate	Minor instances of errors due to gaps in crew knowledge of system/component operation; some crew members required assistance	Inadequate knowledge of system/component operation resulted in serious mistakes or plant degradations

(c) Demonstrate an understanding of how their ACTIONS (or inaction) affected system/plant conditions?

3	2	1
All members understood the effect that actions or directives had on plant/system conditions	Actions or directives indicated minor inaccuracies in understanding by individuals, but actions were corrected by team	Crew appeared to act without knowledge of or disregard to, effect on plant

SCORES ON UNDERSTANDING OF PLANT/SYSTEM RESPONSE:

Satisfactory _____ Unsatisfactory _____

Comment: _____

_____

_____

_____

COMPLIANCE/USE OF PROCEDURES AND TECHNICAL SPECIFICATIONS

DID THE CREW:

(a) REFER TO the appropriate procedures in a timely manner?

3	2	1
Crew used procedures as required; knew what conditions were covered by procedures and where to find them	Minor failures by crew to refer to procedures without prompting, but did affect plant status	Failed to correctly refer to procedures when required, resulting in faulty system operation

(b) CORRECTLY IMPLEMENT procedures, including following procedural steps in correct sequence, abiding by cautions and limitations, selecting correct paths on decision blocks, and correctly transitioning between procedures?

3	2	1
Timely, accurate enactment of procedural steps by crew, demonstrating thorough understanding of procedural purposes/bases	Minor instances of misapplication, but corrections made in sufficient time to avoid adverse impact	Importance procedural steps were not enacted correctly, which led to impeded and/or slow recovery or unnecessary degradation

(c) RECOGNIZE EOP ENTRY CONDITIONS and carry out appropriate immediate actions without the aid of references or other forms of assistance?

3	2	1
Consistently accurate and timely recognition and implementation	Minor lapses or errors; individual crew members needed assistance from others to implement procedures	Failed to accurately recognize conditions or execute actions, even with use of aids

(d) CORRECTLY RECOGNIZE and COMPLY with Technical Specifications and Action Statements of LCOs?

3	2	1
Recognized and fully complied with LCOs/Action Statements	Minor difficulties in referring to and/or applying Tech. Specs.; crew had to prompt SRO on TS requirements	Failure to recognize/ comply with Tech Spec LCOs

SCORE ON COMPLIANCE/USE OF PROCEDURES AND TECHNICAL SPECIFICATIONS:
Satisfactory _____ Unsatisfactory _____

Comments: _____

_____

CONTROL BOARD OPERATIONS

DID THE CREW:

(a) LOCATE CONTROLS efficiently and accurately?

3	2	1
Controls and indicators were located without hesitation by individual operators	Instances of hesitancy/ difficulty in locating controls by one or more operators	Instances of failure to locate controls jeopardized system status

(b) MANIPULATE CONTROLS in an accurate and timely manner?

3	2	1
Smooth manipulation of the plant within controlled parameters	Minor shortcomings in manipulations, but recovery from errors without causing problems	Mistakes made in manipulating controls caused system transients and related problems

(c) Take MANUAL CONTROL of automatic functions, when appropriate?

3	2	1
All operators took control, and smoothly operatored automatic systems manually, without assistance, thereby averting adverse events	Minor delays and/or prompting necessary before overriding/ operating automatic functions, but plant transients were avoided when possible	Failed to control automatic systems manually, even when ample time and indications existed

SCORE ON CONTROL BOARD OPERATIONS:

Satisfactory _____ Unsatisfactory _____

Comments: _____

_____

_____

_____

_____

COMMUNICATIONS/CREW INTERACTIONS

DID THE CREW:

(a) EXCHANGE complete and relevant information in a clear, accurate, and attentive manner?

3	2	1
Members informed each other of relevant info. and actively sought and listened to info. from others as/when necessary	Communications generally complete and accurate, but some instances of needing to be prompted, or failing to acknowledge or respond to info. from others	Members did not inform each other of abnormal indications or when performing evolutions; inattentive when important info. was requested or provided

(b) INTERACT with other regarding issues/circumstances outside of their individual area of responsibility to facilitate safe plant conditions?

3	2	1
Members assumed responsibility for issues outside their own boards, as appropriate	Members listened to each others conversations in general; major technical errors corrected	Members were inattentive to what was happening around them; poor coordination of activities

(c) MAKE TEAM DECISIONS in a timely, effective manner?

3	2	1
All individuals provided input to decisions. Decisions resulted in early, recuperative action	Major team decisions generally included input from most crew members, but some delays or other problems in reaching effective decisions	Leader or other crew members did not accept input from others, resulting in incorrect or untimely decisions/ directives

SCORE ON COMMUNICATIONS/CREW INTERACTIONS:

Satisfactory _____ Unsatisfactory _____

Comments: _____

_____

_____

_____

ATTACHMENT 9

VIDEO TAPE AGREEMENT

I hereby agree that I assume responsibility for this video tape of the simulator examination that took place on _____ at _____. I will use this video tape only to make an evaluation of the examination results and after all conflicts have been resolved I will erase the video tape. I also agree to make no copies of this video tape.

_____
(NAME)

_____
(TITLE)

_____
(FACILITY)

ATTACHMENT 10

SYSTEM WALK-THROUGH TEST PLAN

Page ___ of ___

Facility: _____ System _____
Topic: _____ Performance Measurement: _____

Question ___: KA _____ Rating ____ _____

Answer: _____

Response/Comments: _____

Question ___: KA _____ Rating ____ _____

Answer: _____

Response/Comments _____

Question ___: KA _____ Rating ____ _____

Answer: _____

Response/Comments: _____

Question ___: KA _____ Rating ____ _____

Answer: _____

Response/Comments: _____

SYSTEM WALK-THROUGH FOLLOW-UP DOCUMENTATION

Question Derivation (can be completed after examination):
Simulator Evaluation Deficiency (identify) _____
Topic Area Evaluation: 1.Performance Measurement _____
2.Question Number _____

Question (to be completed during exam): _____
_____
_____

Response (to be completed during exam): _____
_____
_____

Question Derivation (can be completed after examination):
Simulator Evaluation Deficiency (identify) _____
Topic Area Evaluation. 1.Performance Measurement _____
2.Question Number _____

Question (to be completed during exam): _____
_____
_____

Response (to be completed during exam): _____
_____
_____

Question Derivation (can be completed after examination):
Simulator Evaluation Deficiency (identify) _____
Topic Area Evaluation: 1.Performance Measurement _____
2.Question Number _____

Question (to be completed during exam): _____
_____
_____

Response (to be completed during exam): _____
_____
_____

Question Derivation (can be completed after examination):
Simulator Evaluation Deficiency (identify) _____
Topic Area Evaluation: 1.Performance Measurement _____
2.Question Number _____

Question (to be completed during exam): _____
_____
_____

Response (to be completed during exam): _____
_____
_____

ATTACHMENT 11

NRC CHECKLIST FOR OPEN REFERENCE TEST ITEMS

Item Level

1. Does each test item have a documented link to important operator tasks, K/As, and/or facility learning objectives?

2. Is each test item operationally oriented, i.e., is there a match between job demands and test demands?

3. Is the question at least at the "comprehension" level of knowledge?

4. Is the context of the questions realistic and free of window dressing and backwards logic?

5. Does the item require an appropriate use of reference material, i.e., is it free of "look up" questions?

6. Is the item at the correct level of difficulty for the job position?

7. Is the item appropriate for the written examination and the selected written exam format (e.g., short answer; multiple choice)?

8. Is an appropriate mix of operating modes presented in the scenarios in Section A - "Plant Operations?"

9. Do questions in Section A take advantage of the simulator control room setting?

10. Is the item free of double jeopardy?

11. Is the item clear, precise and easy to read and understand?

12. Is there only one correct answer to the question?

13. Does the item pose situations and problems other than those presented during training?

Test Level

1. Does the facility sampling plan adequately cover the requalification topics?

2. Does the facility sampling plan ensure comprehensive, balanced coverage of the requalification program topics?

3. Can the test be completed in the time allotted?

ATTACHMENT 12

JOB PERFORMANCE MEASURE QUALITY CHECKLIST

1. Supported by facility's job/task analysis.

2. Operationally important (meets threshold criteria of K/A 3.(or as determined by the facility and agreed to by NRC).

3. Designated as either SRO only or both RO/SRO.

4. Time validated (time allowed for task completion indicated on JPM). Questions related to the task need not be time validated.

5. Either the task itself or the questions that follow require operator problem recognition and diagnosis. Questions require knowledge correct actions for abnormal system responses whenever applicable.

6. Performance standards are specific in that exact control and indication nomenclature and criteria (switch position, meter reading) are specified, even if such criteria are not specified in the procedural step.

7. Critical elements and associated performance standards are identified and agreed to by the facility and the NRC.

8. Performance standards should provide complete and proper system response cues where appropriate such that the examiner can properly cue the operator when asked.

9. Answers to questions at the end of the task are NOT found directly in the procedure just used (i.e., do not ask why a certain caution exists if the caution itself identifies the answer).

ATTACHMENT 13

JOB PERFORMANCE MEASURE WORKSHEET

Facility:
Task Title:
Task No.:
Job Performance Measure No.:
K/A Reference:
Operator:
Evaluator: Date:
Applicable methods of testing:
Simulate performance _____ Actual performance _____
Classroom _____ Simulator _____ Plant _____

READ TO THE OPERATOR

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

Task Standards:

Required Materials:

General References:

Initiating Cues:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

_____ Performance step:

Standard:

Comment:

_____ Performance step:

Standard:

Comment:

_____ Performance step:

Standard:

Comment:

_____ Performance step:

Standard:

Comment:

_____ Performance step:

Standard:

Comment:

Terminating cue:

VERIFICATION OF COMPLETION

Job Performance Measure No. _____

Operator's Name:

Date performed:

Evaluator:

Number of attempts:

Result: (Denote by an S for satisfactory or a U for unsatisfactory and requires remedial training).

_____

Evaluator's signature and date: _____

ATTACHMENT 14

GUIDELINES FOR THE DEVELOPMENT AND REVIEW OF OPEN REFERENCE EXAMINATIONS

I. INTRODUCTION

The following guidelines are intended for those who are involved in the development and/or review of test items for the written portion of the NRC Requalification Examination. As described in ES-601, "Administration of NRC Requalification Program Evaluations," the written examination consists of two sections, one that utilizes the simulator to provide a context for questions on plant systems and controls, and a second that focuses on plant procedures and administrative controls. Both sections are administered in an "open reference" format. Candidates are allowed to use reference material, including simulator displays, during examination administration.

The intent of the change from closed to open reference written examinations, is twofold:

1. Examination Validity

   By permitting the use of references that are available to the operator, the conditions and requirements of the written examination more closely approximate those of the actual Job. The information provided to the operators in the test items can and should closely parallel the information typically available to them on the job, while the responses elicited by the questions should be similar or identical to the decisions, solutions, and actions required for effective job performance. In other words, the open reference format enhances the match between job demands and test demands --a cornerstone of examination validity.

2. Level of Knowledge

   The open reference format also enhances examination validity by elevating the level of knowledge of the test items. As described later in these guidelines, candidate access to references precludes the use of questions that test for the mere recall of facts and specifics. Instead, open reference test items require test takers to demonstrate that they can apply, analyze, evaluate, or otherwise USE knowledge to handle the problems and issues encountered on the job.

II. Open Reference Guidelines

Most principles for effective test item construction apply equally to all types of written questions, regardless of format. Therefore, open reference test item developers and reviewers should consult references such as NUREG BR-0122, "Examiners' Handbook for Developing Operator Licensing Examinations," INPO's "Principles of Training System Development Addendum I, Test Item Development," and NUMARC's "Guidelines for Developing Written Test Items for the NRC Requalification Exam." The guidelines below are those that have been found to be especially pertinent to the creation of open reference test items. These guidelines are divided into five categories:

(1) Selection of Test Topics
(2) General Guidelines for Sections 1 & 2
(3) Specific Guidelines for Section 1, "Plant Operations"
(4) Ideas for Open Reference Formats
(5) Open Reference Test Item Review Checklist

1. Selection of Test Topics

Test item topics for the NRC requalification examination should be selected based on the following criteria.

A. Requalification Training Program Curriculum .
Test topics should be based on the curriculum of the most recent operator requalification program training cycle. However, NRC may substitute up to 20% of the examination topics selected by the facility with subjects not emphasized during the requalification cycle under 10 CFR 55.59.

B. Performance Basis

Like the requalification program itself, test topics should be drawn from a job-task analysis (JTA) of the operator and senior operator positions. The facility should validate their test items by demonstrating a link between each item and the following JTA products:

- important operator tasks as identified by the JTA

- important K/As (rated 3.0 or higher) as identified in the NRC K/A

- Catalog (NUREG 1122/1123) or a facility-specific K/A catalog

- facility learning objectives identified as important to safety

C. Adequacy of Test Coverage

The facility's proposed sampling plan (or curriculum evaluation plan) should be checked to ensure that it provides balanced, comprehensive coverage of the topics covered during the requalification training cycle. Facility test item topics may be revised if subject areas are found to be under or over-represented in the sampling plan relative to their coverage in the requalification program. In addition, 20% may be substituted by the NRC. Recent safety-related issues and events (e.g., relevant LERs) should be addressed in the sampling plan.

2. General Guidelines

The following guidelines should be followed in the construction and review of test items for both parts of the written examination. These guidelines are intended to supplement, not replace, the good practice criteria found in NUREG BR-0122 and related documents.

A. Operational Orientation

As discussed earlier, examination validity is enhanced to the extent that the demands of the test match the demands of the job. Therefore, in addition to being derived from important K/As and testing objectives, the context and stipulations of test items should mirror the situations encountered in the work setting. The following example illustrates effective and ineffective ways to design test items from K/As and learning objectives.

K/A: Knowledge of the design attributes of the Turbine Driven Auxiliary Feedwater Pump Differential Pressure Controller.

Task: Operate the TDAFWP controls during all modes of plant operation.

Terminal Learning Objective: The student will be able to operate the TDAFWP Differential Pressure Controller without error during a loss of feedwater event.

Enabling Objective: Upon completion of this lesson, the student will be able to explain the operation of the TDAFWP Differential Pressure Controller.

Poor Test Item: State the parameters used by the TDAFWP Differential Pressure Controller.

Better Test Item: Prior to isolating the "C" steam generator (per EPP11), it was noted that the transducer-fed auxiliary feed flow indicators for the "C" steam generator were reading greater than the flow indicators to the "A" and "B" steam generators. What is the reason for this flow deviation?

Notice that the second test item requires the candidate to demonstrate mastery of the knowledge by applying it to an actual job situation. In developing items, it may be useful to ask oneself "why is the K/A important to satisfactory job performance?" and "in what situation will be operator need this K/A?" The answers to these questions can provide a basis/context for test items.

B. Level of Knowledge

The operational orientation required of test items on the open reference examinations, as well as the candidates' access to controlled documents, precludes the use of questions that test for mere recall or memorization. Rather than requiring candidates to simply recognize or recall facts and specifics, open reference test items should have the candidates demonstrate understanding by requiring them to use their knowledge to address real-life situations and Problems. A test item at the higher level of knowledge requires candidates to determine or identify the appropriate fact, rule, or principle to a novel situation

and then correctly apply it. A description of each level of knowledge, along with common verbs and example questions, is found in Table 1.

C. Realistic Context

To provide additional assurance of examination validity, the situation or problem posed in the open reference test item should be as similar as possible to the actual situations that candidates encounter on the job. Situations described in the questions should not only be realistic, but should also be free of common "context" problems, including "backwards logic" and "window dressing."

Backwards logic questions provide candidates with information they normally have to produce, while asking them for information they normally receive. For example:

K/A: Ability to calculate shutdown margins.

Backward Logic Item: Given a shutdown margin is 5.5%, how long has the unit been shut down?

Better Item: The unit has been shut down for x hours. Calculate the shutdown margin.

Questions with window dressing have additional, unnecessary information, typically in an attempt to make a memory level item more operationally oriented. For example:

Item with Window Dressing: The plant has tripped due to the effect of a tornado crossing the site boundary. You, as Shift Supervisor, direct the phone talker to complete the 15 minute notifications. He informs you that the normal notification network is inoperable. What method do you direct him to use for completing the 15 minute notification?

Revised Item: If the normal notification network is inoperable, what method do you direct the phone talker to use to complete the 15 minute notification after the plant has tripped?

Another common problem when constructing questions with realistic contexts is that quite often "real world" situations have more than one correct solution or response. Check the question and references over carefully to ensure that each test item has only one correct answer.

D. Question Novelty

One of the most effective ways to ensure that candidates have higher levels of knowledge is to present them with novel situations and require them to both realize what information is relevant and how to apply it. If test questions do not contain unique or varied circumstances compared to that which was presented in training, the item

will be reduced to simple recall. Review the training material to ensure that questions do not include overly familiar conditions. Keep in mind, however, that all conditions and situations should be reasonable, realistic, and safety-related.

E. Use of References

References should be considered tools that candidates use to solve problems. It should be the proper use of these tools that is tested during the open reference examination, not the recall of facts and specifics. Purely "look up" questions should not be included in the examination; rather, questions should be restricted to those that test to see if candidates can identify, locate, or select appropriate reference information to produce organized responses and satisfactory solutions to job related problems and issues. For example:

Pure "Look up" Item: In the event that a safety limit is violated, the reactor shall be:

a. placed in a hot shutdown condition within 1 hour
b. placed in a hot shutdown condition within 4 hours
c. placed in a cold shutdown condition within 24 hours
d. placed in a cold shutdown condition within 30 hours.

Better Use of References: While operating at 100% power, VCT and pressurizer alarms and indications show decreasing pressurizer level. Also, the blowdown and main steam radiation monitors have alarmed. While following the appropriate Abnormal or Emergency Procedures, you as the Shift Supervisor must evaluate the existing condition

Based on this information, the following emergency classification should be declared:

a. Notification of Unusual Event
b. Alert
c. Site Area Emergency
d. General Emergency

F. Difficulty Level

It is not unusual for test constructors to believe, erroneously, that open reference test items should be more difficult, to compensate for the candidates' access to reference material. Frequently, this increased difficulty is in the form of requiring knowledge of more obscure or otherwise unnecessary information. Both open and closed reference examination items should have the same standard of difficulty; that is, difficulty should be based on the job demands and responsibilities of operators.

G. Time Limits

Relative to closed reference examinations, candidates take considerably longer to answer open reference test items. (Weaker candidates especially have been found to spend an appreciable amount of exam time consulting references versus writing responses). It is important to provide candidates an ample amount of time to complete the examination, although not so much time as to allow less than competent operators the opportunity to locate answers without prior familiarization. The following guidelines should be used to determine the appropriate length of the examination:

1. Each two hour examination section should be constructed to take a competent operator an expected 1 hour 30 minutes to complete.

2. When possible, the response time of each question should be estimated by having a subject matter expert actually answer the question, including searching through references.

H. Correct Mode of Measurement

No matter how high their importance ratings or operational relevance, certain operator knowledges, skills and abilities are not amenable to written testing. For example:

Arrange the major steps in the proper sequence to start parallel, and load DG-2:

_____Use Governer Control to increase DG-2 KW
_____Raise DG Speed to 900 RPM
_____Press start button on A130B
_____Match Voltage with Bus 1A2 Voltage
_____Close Breaker 1AD2.

Despite its operational orientation, the underlying skill addressed in the above test item would be better assessed by having the candidate simulate or step through the steps during either the simulator or walkthrough portions of the operating examination. Table 2 provides an overview of the best uses for each test mode. Make sure that the K/As and learning objectives selected for the written examination can be effectively measured during the written testing.

3. Specific Guidelines for Section A, "Plant Operations"

The following guidelines are specific to the Plant Operations section of the written examination, performed on a static simulator. These guidelines are divided into two sections, Question Development and Simulator Setup.

Question Development

a. To ensure that the operators' knowledge of plant operations is adequately evaluated, Section A of the written examination should address a mix of normal, abnormal and emergency modes of operation.

b. Questions should require the operators, to the extent possible, to refer to control room indications in formulating their responses, as in the following example:

Which one of the following describes the location of the steam break?

(a) Inside containment, upstream of the steam line flow transmitters
(b) Inside containment, downstream of the steam line flow transmitters
(c) Outside containment, between "C" MSIV and "C" main steam line check valve.
(d) Outside containment, between "C" MSIV and "C" main steam line containment penetration.

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c. The number of scenarios used should be minimized due to the extensive amount of time necessary to set up, run and check the transients.

d. The number of malfunctions/failures for each scenario should be limited. In general, the scenario should contain one major failure (e.g., LOCA, SGTR, steam line breaks, ejected control rods, loss of all AC power). In addition to the major failures, no more than four minor failures should be used (e.g., failure of a safety related pump to start, failed pressurizer pressure meter indication, nuclear instrumentation failure). In many cases, one major failure and 2-3 minor failures will provide sufficient effects to test a wide range of objectives.

e. Questions may be used that do not relate to the transient but use the simulator as a frame of reference only, provided the candidates are aware of this lack of relationship to the transient.

f. Special attention should be given to ensure that multiple questions stemming from one event do not suffer from double jeopardy. The candidate should be able to be understand and correctly answer each question based only on the information given in the question, rather than on the answer to a previous question.

Simulator Setup

g. Prior to the test, the simulator recorders should be rotated to provide clean readings, and the recorders should be checked for proper operation.

h. All indications should be checked (e.g., bulbs, meters, manual loader indications, etc) to ensure they are in proper working order.

i. When the simulator has been frozen, the chart recorder drive power should be secured, if necessary.

j. Prior to administering the test, the simulator indications should be verified proper based on expected question responses.

k. Any "first-out" annunciators that would normally blink to announce first-out conditions should be frozen and provided to candidates.

l. If a transient is stabilized by use of plant procedures, the step at which the simulator is frozen should be noted and this information recorded on the simulator operations summary sheet. Progress of the procedure step in effect should also be given to the examinees as necessary.

4. Ideas for Open Book Formats

Table 3 provides a list of sample formats to assist question developers in generating performance-based, open reference test items.

TABLE 1

LEVEL OF KNOWLEDGE DESCRIPTIONS AND EXAMPLES

1. MEMORY

The memory level involves the recall of facts and specifics, the recall of methods and processes, or the recall of a pattern, structure, or setting. For measurement purposes, the recall situation involves little more than bringing to mind the appropriate material. Appropriate verbs include:

To define	To develop
To distinguish	To outline
To recall	To identify
To recognize	To list

For the operator licensing examination some examples include:

State the basis for a procedural step or caution.
State the basis for a procedural change.
State the purpose of a specific procedure.

Items that require only memorization or recall are not permitted on open-reference examinations.

2. COMPREHENSION

Comprehension represents the lowest level of true understanding. It refers to a type of understanding such that the individual knows what is being communicated and can make use of the material without necessarily relating it to other material or realizing its fullest implications. Appropriate verbs include:

To translate	To estimate
To prepare	To differentiate
To comprehend	To explain
To interpret	To summarize
To grasp	To demonstrate by example
To distinguish	To see implication effects, and consequence

Questions based at this level and above are permissible to ask on an open-reference examination.

3. APPLICATION

These types of questions require candidates to apply the knowledge to various concrete situations. The knowledge may be in the form of general ideas, rules of procedures, or generalized methods. Appropriate verbs include:

To apply	To predict
To employ	To use
To relate	To develop

For the operator licensing examination examples of this cognitive level would include:

Calculation of plant parameters.
Use of reference material such as graphs, charts, curves, etc.

4. ANALYSIS

The analysis level involves the breakdown of a communication into its constituent elements or parts such that the relative hierarchy of ideas is made clear
and/or the relations between the ideas expressed are made explicit. Appropriate verbs include:

To discriminate	To categorize
To analyze	To choose
To detect	To discover
To infer	To select

5. SYNTHESIS

Synthesis involves the putting together of elements and parts so as to form a whole. Appropriate verbs include:

To create	To perceive
To propose	To organize
To integrate	To prepare
To plan	To compile
To design	To incorporate
To synthesize	To visualize

6. EVALUATION

The evaluation level involves judgment about the value and methods for given purposes. Appropriate verbs include:

To judge	To evaluate
To assess	To decide
To compare	To determine
To appraise	

Evaluation is the optimum level of open-reference procedures questions. Typically questions at this level would propose a situation and require the operator to use analysis and synthesis to formulate judgments/decisions about appropriate actions.

EXAMPLES

A knowledge level question, requiring the operator to respond from memory on the basis of a caution:

A caution at the beginning of FRP-H.1 requires RCS bleed and feed to be started at STEP 9 if ANY S/G wide range level decreases to less than 60% [63%]. Which item below is the basis for this caution?

A) Steps 1 through 8 deal only with diagnostic evaluation of the event and may be time consuming.

B) Steps 1 through 8 consist of a "loop" that is difficult to exit from.

C) Wide range level is not calibrated (therefore not accurate) for 60% [63%].

D) This level assumes S/G dryout is imminent and RCS bleed and feed must be started immediately for core cooling.

A comprehension level question, requiring the operator to differentiate between types of turbine runbacks.

Indicate what type of turbine runback occurred: LOAD LIMIT, LOAD REFERENCE or BOTH.

The following question falls into the application level (i.e., applying a procedure).

HBR Unit #2 is at 100% power, steady state. The HP-97 calculator in the control room is OOS. Based on the values given below, determine the "QUADRANT POWER TILT" as defined in Technical Specifications.

NORMAL UPPER DETECTOR CURRENTS

N-41 = 230 N-42 = 235 N-43 = 232 N-44 = 236

NORMAL LOWER DETECTOR CURRENTS

N-41 = 233 N-42 = 238 N-43 = 231 N-44 = 240

PRESENT INDICATED DETECTOR CURRENTS

	UPPER	LOWER
N-41	232	236
N-42	238	243
N-43	235	234
N-44	239	243

The following question is at the analysis level, it requires the operator analyze conditions and discriminate an idea:

Determine the posting required for a room using the results of the following radiological survey:

1. AIRBORNE ACTIVITY: 6.34 E-9 uci/cc (Co-60)

2. FLOOR SMEAR: Beta- 610 dpm/cm squared; Alpha- 4dpm/cm squared

3. EQUIPMENT SMEAR: Beta- 1800 dpm/cm squared: Alpha- 16 dpm/cm squared

4. GENERAL RADIATION LEVEL: 110 mr/hr

The following question represents the synthesis/evaluation level -- putting together of elements and parts to form a whole:

Determine if plant conditions satisfy the requirements of foldout "B" SI TERMINATION CRITERIA. Justify your answer with specific values of any required plant parameters.

TABLE 2

OVERVIEW OF THE BEST USES FOR EACH TEST MODE

Written:

- Knowledge and abilities that are difficult to infer from behavior alone.
- Knowledge of factual information.
- Paper & pencil abilities and skills (e.g., calculations)
- Responses requiring information that can be supplied on paper
- Interpretation of reference, if open reference

Walkthrough:

- Areas needing interpretation
- Areas needing props
- Knowledge of locations
- Interpretation of references
- Administrative requirements

Simulator:

- Overall ability to operate
- Integrated use of knowledge and abilities
- Communications
- Team Interactions
- Time-critical

TABLE 3

EXAMPLE FORMATS FOR OPEN REFERENCE QUESTIONS

PROVIDE THE OPERATOR WITH:	REQUIRE THE OPERATOR TO:
1. Plant/System/Component Condition(s)/Problem(s)	Diagnose cause of the problem(s)
2. Plant/System/Component Condition(s)/Problems(s)	Identify location of problem(s)
3. Plant/System/Component Condition(s)/Problem(s)	Indicate appropriate (recuperative) action(s)
4. Plant/System/Component conditions	Indicate actions to achieve specified effect
5. Plant/System/Component Corditions	Identify precipatory events/ actions
6. Plant/System/Component Conditions	Classify/Categorize or otherwise indicate if conditions meet specified criteria
7. Proposed/Hypothetical course of action/recommendation	Comment on Appropriateness/ Acceptability of these actions/recommendations
8. Plant conditions and operator actions/procedural steps	Indicate purpose of/reasoning behind these actions/steps
9. Requisite data	Computation of parameters
10. Plant conditions and/or operator actions	Predict expected plant/ system/component response(s)
11. System/Component status	Indicate effect on same or other system(s)/component(s)
12. Plant/System/Component Conditions	Indicate proper procedure(s)/ references to turn to.

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U. S. NUCLEAR REGULATORY COMMISSION REQUALIFICATION EXAMINATION REPORT		
EXAMINEE'S NAME:	LICENSE NO.: EXPIRATION DATE:	DOCKET NO.: 55-
FACILITY NAME:		

SUMMARY		
EXAMINATION TYPE: RO / SRO	FIRST / SECOND EXAM	LAST EXAM DATE:
WRITTEN		
DATE:	NRC EXAMINER (PRINT):	FACILITY EXAMINER (PRINT):
GRADES	NRC	FACILITY
A		
B		
OVERALL		
SIMULATOR		
DATE:	NRC EXAMINER (PRINT):	FACILITY EXAMINER (PRINT):
	PASS / FAIL	PASS / FAIL
WALK-THROUGH		
DATE:	NRC EXAMINER (PRINT):	FACILITY EXAMINER (PRINT):
NO. JPMs CORRECT		
% QUESTIONS CORRECT		

RECOMMENDATIONS		
NRC EXAMINERS		
CATEGORY	CIRCLE	SIGNATURE
WRITTEN	PASS / FAIL	
SIMULATOR	PASS / FAIL	
WALK-THROUGH	PASS / FAIL	
SECTION CHIEF		
PASS / FAIL	SIGNATURE	

ATTACHMENT 15

U. S. NUCLEAR REGULATORY COMMISSION
REACTOR OPERATOR REQUALIFICATION EXAMINATION

FACILITY:

REACTOR TYPE:

DATE ADMINISTERED:

OPERATOR: _____

SECTION	CATEGORY VALUE	OPERATOR'S SCORE	% OF CATEGORY VALUE
A Plant Proficiency	_____	_____	_____
B Limits and Controls	_____	_____	_____

_____
Final Grade