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ORAL EXAMINATIONS



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FOREWORD

This document provides information to DOE staff and contractors that can be used by training staffs (e.g., instructors, designers, developers and managers) and others for the development and performance of oral examinations. This document has been prepared on the basis of oral examination methods used at various DOE nuclear facilities. This document, used in conjunction with Design, Development, and Implementation of Examinations (available in this Library), can be used as an aid to provide a framework for the systematic development of valid and reliable oral examinations.

Users are not obligated to adopt any part of this document; rather, they can selectively use the information to establish or improve facility training programs as applicable. This document was based upon DOE Handbook Guide to Good Practices for Oral Examinations.

Beneficial comments (recommendations, additions, and deletions) and any pertinent data that may be of use in improving this document or subject area should be addressed in the Support Forum Section of this Site.

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1. INTRODUCTION

1.1 Purpose

The purpose of *Oral Examinations* is to provide DOE nuclear facilities (and others) with guidance that can be used to incorporate oral examination techniques and processes into their training programs. The oral examination in some form is an integral part of any qualification process. The contents of this document can help training organizations more effectively use oral examinations in their qualification programs. Knowledge of a subject (theory, operational interrelationship, etc.) is always required for qualification, and oral examinations are an effective method to determine whether the person understands the job, the task, or the evolution.

1.2 Background

This document has been developed on the basis of experience in the nuclear industry and incorporates information from civilian, military, commercial and DOE nuclear sources. Oral examinations (e.g., oral checkouts, knowledge requirements in on-the-job training, knowledge of system operation during facility walkthrough, etc.) are used in qualification programs throughout not only the Department of Energy, but industry as well. In keeping with industry practice, DOE O 426.2, *Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities*, incorporated the use of oral examinations of different types in individual qualification. The different types of oral examinations are addressed and discussed in this document.

1.3 Application

This document is intended to provide guidance to DOE facilities relative to using oral examinations in their training programs. Facilities are encouraged to review existing oral examination practices against the good practices in this document and implement the desired changes to their procedures or policies. DOE O 426.2 requires that personnel in the operating organization at DOE nuclear facilities are qualified to perform their jobs safely. Examinations are an integral part of qualification and oral examinations of one type or another provide the foundation for many examinations. For example, the simplest form of oral examination involves the questions that are asked of a student, trainee, or incumbent as the individual demonstrates how to perform a simple task. This is typically the evaluation element of on-the-job training. Another example of oral examination is a formally-convened and administered board consisting of a group of "experts" asking questions to determine the person's knowledge relative to the position for which qualification is sought. Other forms of oral examinations are also used. These include oral checkouts, facility walkthroughs, operational examinations, performance demonstrations, and others. This document presents information that is useful in

providing consistent and reliable oral examinations regardless of the setting in which they are used.

Within this document the terms "qualification" and "certification" are used interchangeably. DOE Order O 426.2 should be consulted for the formal use and definitions of qualification and certification.

2. SOURCE DOCUMENTS

- A. DOE ORDER 426.2, *Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities.*
- B. *Design, Development, and Implementation of Examinations* (available on the DOE Training Resources Site).
- C. *On-the-Job Training* (available on the DOE Training Resources Site).
- D. DOE STD-1070-94, *Criteria for Evaluation of Nuclear Facility Training Programs.*
- E. DOE HDBK-1078-94, *A Systematic Approach to Training.*
- F. DOE HDBK-1074-95, *Alternative Systematic Approaches to Training.*

3. DEFINITIONS

Operational Evaluation — A documented evaluation of an individual's knowledge and skills. The operational evaluation is a facility walkthrough that may include system and/or component operation, or simulation of operations, during which the candidate is observed and questioned regarding procedures, safety implications, and technical safety requirements.

Oral Board — An oral examination covering a broad area of knowledge (at the job level vs. task or duty area) involving the questioning of one trainee/job candidate by one or more examiners.

Oral Board Chair — A member of the oral board (as determined by facility procedure) who presides over the board.

Oral Board Member — Personnel qualified to actively participate in the oral board (as determined by facility procedure).

Oral Checkout - An examination of a trainee's understanding relative to a specific system or process that constitutes only a portion of the trainee's prospective job.

Oral Examination — An examination of a trainee's knowledge during which a trainee answers oral questions related to a knowledge requirement for the applicable learning objectives, tasks, or qualification standard.

Program Evaluation Board — An oral board used for the purpose of identifying problems in a training program when poor performance by a trainee is identified.

Progress Review Board — An oral board used to determine a trainee's progress in a qualification/certification program. A progress review board should only cover the portions of the program which the trainee has completed.

Qualification Standard — A document that identifies the knowledge and skill requirements necessary for successful completion of a qualification for a specific position.

4. ORAL EXAMINATIONS

Oral examinations are used in many occupations, including the medical and dental fields, civil service, emergency response organizations, union apprenticeship programs, and commercial and DOE nuclear industries. If oral examinations are properly developed and consistently administered, they are useful to test the level of learning and comprehension.

Several types of oral examinations are used for the qualification or certification of DOE nuclear facility personnel. The most common include the oral checkout, oral board, performance demonstration, and operational evaluation. Regardless of the type of oral examination used, questions are based on learning objectives derived from an analysis of the job.

4.1 Oral Checkout

The oral checkout is an oral examination usually conducted one-on-one, examiner to trainee. Oral checkouts ascertain an individual's fundamental knowledge of theoretical concepts, equipment and system operation, normal and abnormal operating procedures, and interrelated systems or components. Oral checkouts should use the learning objectives or qualification standard as the basis for the questions.

There may be special cases in which a written examination is administered by using an oral checkout. In these cases, a written exam is given to a trainee by reading the questions to the trainee. The responses should be recorded for the trainee by the examination proctor or verified against the correct answer. When the trainee is required to read and understand facility procedures and warning signs to perform the job, oral administration of written examinations in related areas should be prohibited.

4.2 Oral Board

The oral board is an oral examination wherein a panel is convened to determine if a trainee has achieved the level of knowledge required for qualification as a facility operator, supervisor, etc. An oral board may be used as the final check of qualification, or it may be combined with an operational evaluation/plant walkthrough. Oral boards usually cover all facets of facility or process operation. This includes:

- facility components
- system interrelationships
- normal/abnormal situations involving systems and interrelated systems and components.

Two other types of oral boards are the Progress Review and Program Evaluation Boards.

4.2.1 Progress Review Board

The progress review board can be used to evaluate a trainee's progress toward the completion of assigned qualifications or for determining if a trainee possesses the knowledge to enter a higher level of qualification. Progress review boards may also be used to determine whether or not a trainee is having difficulty with the training program or has a reasonable probability of completing the program. Problems with meeting the minimum progress requirements may be due to personality conflicts or due to a lack of understanding of fundamental principles and concepts. The progress review board can be used to identify the cause of the problem. It may also uncover problems with the training program that had been missed during program evaluations (this discovery could lead to using the program evaluation board on most or all the trainees to determine the extent of the problem). The progress review board is more valuable early in the qualification process than near the end. The progress review board also serves as training in board techniques for both trainees and prospective board members. Progress review boards should follow the guidelines for administering oral boards as discussed in the section titled Conduct of Oral Boards.

4.2.2 Program Evaluation Board

The program evaluation board can be used for identifying problems in the training program. When a problem is identified with a training program, (e.g., incidents involving qualified personnel, slow qualification times compared with the past norms, abnormally high examination failure rates, etc.) a program evaluation board could be used to identify the cause of the problem. The program evaluation board should also provide recommendations for corrective action, (e.g., re-teaching the required material) that are based on the causal factors. Program evaluation boards need not follow the guidelines for administering oral boards. For example, the program evaluation board may be administered to several trainees at the same time, and board membership should consist of personnel who are responsible for the training program in question. Typically, membership should include line organization and training organization personnel.

4.3 Performance Demonstration

During the performance demonstration a trainee demonstrates mastery of a task (i.e., a Job Performance Measure). The performance demonstration is an integral part of the on-the-job training (OJT) program, and is the evaluation of a specific task on the qualification card. Administration is accomplished by observing the trainee perform the task. Predetermined questions (oral examination) on theory and principles of operation, interactions with other systems or components, and normal and abnormal operations are asked as part of the performance demonstration.

4.4 Operational Evaluation

Whereas the performance demonstration is used to evaluate a specific task, the operational evaluation is used to evaluate the trainee's overall job abilities. The operational evaluation is an evaluation of the trainee's ability to perform a predetermined set of interrelated tasks and explain the associated underlying principles of operation of the components and systems that will be used in the performance of their job. The operational evaluation is a facility walkthrough that includes system and/or component operation, or simulation of operations, during which the trainee is observed and questioned regarding procedures, safety implications, and technical safety requirements. Operational evaluations should be designed such that when completed satisfactorily they provide reasonable assurance that the trainee understands and is able to safely and correctly perform job functions.

Generally, it is sufficient to select the critical tasks associated with the position and develop the operational evaluation so that these tasks are comprehensively evaluated.

5. GUIDELINES FOR ADMINISTERING ORAL EXAMINATIONS

5.1 General Oral Examination Guidelines

5.1.1 Internal Procedures

DOE facilities should develop procedures that describe how to develop and administer all types of oral examinations used at the facility. These procedures should address the following issues:

- Materials that will be available to the trainee during the examination (these should include materials that are normally available to a person during job performance).
- Qualification of personnel who conduct each type of oral examination, or how a person is approved to conduct oral examinations (this includes determining the makeup of an oral board).
- Management of non-typical situations (e.g. interruptions of oral examinations due to unexpected facility conditions, high background noise, etc.).
- Methods of grading oral examinations to ensure reliable, consistent, and equitable oral examinations.
- Methods of assigning relative importance to questions (e.g. questions relating to significant facility processes, safety systems, etc., are valued higher than questions relating to non-vital auxiliary systems or components).

5.1.2 Examination Intent

Oral examinations should probe the trainee's understanding of fundamental principles, the ability to apply these principles to practical situations, equipment and system operation, and normal and abnormal operating procedures. Examinations should be based on knowledge of information within the scope of the learning objectives.

An effective way to probe understanding is to ask the *whys*, *hows*, and *what ifs*. The following are examples of the types of questions that can determine a person's understanding:

- Why is the equipment built as it is?
- Why does step one come before step two, and what would be the consequences of reversing the order?
- Why does the process work as it does?
- How does the facility respond to specific action?
- How does the operator respond to a specific facility condition?

- What happens to process indications in system A if system B does this (describe the action)?
- What action(s) can the operator take if process indications show this symptom (describe the symptom)?

5.1.3 Question Development Process

Questions should be asked which test the trainee's knowledge at all appropriate cognitive levels. Questions involving a choice between alternatives, or questions involving situations not directly covered by a procedure, are examples of questions testing the higher cognitive levels. When answering questions concerning abnormal events, a trainee's answer should be consistent with the requirements set by facility procedures. Situation problems should be described as they actually occur in the facility.

When probing the trainee's level of knowledge of the facility operations area, the examiner should ask the trainee questions relating to both normal and abnormal situations. For example, to see if a trainee really understands what happens during a loss of control air, the examiner asks:

- What are the loads on the control air system?
- What happens if normal control air is lost?
- What happens if the backup compressor does not work properly? What happens if the startup procedure is not followed?
- What should an operator do if a normal corrective action fails to rectify a problem?

A line of questioning such as this gives the trainee ample opportunity to use collective knowledge and explain how things work.

Trick questions with hidden meanings should never be used. The examiner who repetitively questions many trainees on the same familiar material may tend to think that the fundamental, straightforward approach is too simple. This may lead the examiners to develop clever or unusual (trick) questions. A trainee exposed to this type of questioning technique may be inclined to search for hidden meanings in subsequent straightforward questions. This tendency may adversely affect the trainee's ability to express a true level of understanding.

Questions and answers for the oral examination portion of OJT evaluations should be prepared in advance during the development of the job performance measure (JPM) or other instrument used to evaluate OJT. The primary and planned follow-up questions and answers should be prepared in advance. Any follow-up questions, generated by something the trainee said, should be written down along with the answer on the JPM at

the time they are asked. Any follow-up question should be tied directly to their primary question.

5.1.4 Question Types

The examiner has the option of asking several different types of questions during an oral examination. The two most common types of questions are open-ended and closed-ended. The open-ended question places the burden of conversation on the trainee. The trainee brings all known information together to answer the question. Examples of open-ended questions are:

Example 1. What are the reasons for starting the recirculation pump with the discharge valve closed rather than open?

Example 2. Why does the safety system actuate at that pressure?

Closed-ended questions are used to elicit specific answers. They should be worded so they are not answered as "yes" or "no," but with an answer that demonstrates knowledge of the component, system, procedure, etc. An example of the yes/no question is: Does the pump have a white "POWER ON" light? Example 3 is the preferred method of asking this question.

Example 3. What indications does the main control panel operator have that the recirculation pump motor controller is energized?

Another example of a closed-ended question is:

Example 4. What indications of a loss of pump prime are available to you at this control panel?

The examiner can use closed-ended questions to clarify a statement that the trainee makes in response to an open-ended question. Using a mix of question types should provide the examiner with enough information to determine whether the trainee has adequate knowledge.

5.1.5 Questioning Process

Questions should not be asked in a manner which tends to lead the trainee to the answer. One of the reasons for having the original questions and any planned follow-up questions written prior to the examination is to help prevent asking leading questions. The examiners should state the question clearly, as written, and then give the trainee reasonable time to think and answer. Only one question at a time should be asked. Additional or follow-up questions should not be asked before the trainee has time to answer the original question. Additional questions could distract the trainee or could lead the trainee to the answer.

The examiner(s) should encourage the trainee to explain what the trainee knows. For example, ask the trainee to apply a principle of good watchstanding to determine the

proper action in a specific practical situation. This ensures understanding of the principle rather than just memorization of the words of the concept.

If a trainee gives an incorrect, partially correct, or unclear answer to a question, the topic should be probed further to establish the trainee's true level of knowledge and understanding. Questions should be clarified and restated as needed in response to trainee requests. The examiner should ensure that restating a question does not change the original question's intent, or learning objective basis, and does not lead the trainee to the correct response.

5.2 Oral Checkouts

5.2.1 Conduct of Oral Checkouts

Examiners should refer to the associated learning objective(s) when conducting oral checkouts. Generally, the learning objectives will specify that the trainee demonstrate knowledge using the stated reference. Examiners should ensure the trainee has access to, and uses, references such as system diagrams or procedures during the oral checkout.

Oral checkouts should include an in-depth questioning of the trainee's understanding of fundamental theory, system equipment, processes, and a discussion of procedures as required by the learning objective(s). Special emphasis should be placed on the trainee's ability to apply this knowledge to facility operations. Questions asked during oral checkouts should not be restricted to verbatim restatements of the learning objective(s), but may be rephrased. The oral checkout may be used to test understanding and judgment, as well as factual knowledge.

The length of time for an oral checkout should be dependent on the requirements of the learning objective(s). Industry practices show that oral checkouts typically last 5 to 20 minutes, depending on the examiner's and trainee's preparation and the complexity of the subject. Facilities should not set specific time limits for oral checkouts, because the checkout should last as long as necessary for the examiner to determine that the level of knowledge of the trainee is consistent with the requirements of the learning objective. However, an oral checkout should normally be completed in one session.

5.2.2 Examiner Action at Completion of Oral Checkout

At the completion of an oral checkout, the examiner should make an objective determination, referring to the learning objective(s) or qualification standard, as to whether the trainee has a satisfactory level of knowledge. The signature of the examiner indicates that the trainee has successfully completed the oral checkout, and that the trainee possesses the minimum required knowledge. Several possible outcomes from an oral checkout are discussed in the following paragraphs.

Satisfactory with no deficiencies: The trainee displayed a satisfactory knowledge showing no weak points of any significance, and receives a signature.

Satisfactory with minor deficiencies (corrected to satisfactory): The trainee demonstrated a good overall understanding of the topic, but lacked information on minor details. The examiner should teach the trainee those details and consider the checkout to be satisfactory or have the trainee review those details and return with the correct answer to those questions. The same approach should be used if the trainee has a lack of understanding on some principles for which a reference is not readily available. After the details are discussed to the satisfaction of the examiner, the trainee receives a signature.

Unsatisfactory: The trainee has a significant lack of understanding of the material. In this case, the trainee should not receive a signature and should be counseled as to (1) what material to restudy and (2) the best method of studying it (including scheduled retraining if necessary) before receiving another checkout. The examiner should establish the date for the trainee to return for the checkout. Establishing a date for the checkout gives the trainee direction and a goal for the completion of the restudying.

5.3 Oral Boards

5.3.1 Oral Board Preparation

The trainee's manager and/or the training manager (or other persons as described in the training program description) should determine when a trainee approaches the point in their qualification program where an oral board is deemed appropriate. Management selects the oral board members and chair, as specified by facility procedure. The location of the oral board should be selected using the guidelines in the section on Oral Board Facilities. The board date should be established well in advance so that the trainee and board members have sufficient time to prepare. The board chair should also schedule time after the board with the Training Manager to discuss any significant problems identified in the trainee's knowledge.

Before convening an oral board, the board chair should ensure that board members meet the requirements to sit on the board (see section on Oral Board Participation for more details). The training department and board members should review the trainee's training records to verify that all prerequisites, such as practical factors, oral checkouts, walkthroughs, and written examinations, have been completed and properly documented. This prevents examining a trainee who hasn't completed all the requirements for qualification.

Oral board panels typically consist of 3 to 5 members. Individual members ask questions to probe and assess knowledge. To prepare for the board, each board member should prepare questions (with answers) to be asked during the board. Questions should represent a cross section of the material contained in the learning

objectives. Follow-up questions (with answers) should also be prepared prior to the board.

NOTE

The guideline of having prepared questions and follow-up questions should not prevent the board member from developing and asking probing questions (with answers) during the conduct of the board. These questions, however, are to be tied directly to the topic covered by the prepared questions.

The questions and answers may be selected from an examination (test item) bank or developed based on the learning objectives. The questions that are not taken directly from the examination bank should be reviewed by the training organization for relevancy to the learning objectives before the board convenes.

Board members should bring copies of their prepared questions and answers to share with the other board members. This practice helps prevent grading differences between board members.

5.3.2 Oral Board Participation

Each facility should include in their oral examination procedure a section that specifies who can participate in oral boards and who can act as the board chair. This section of the procedure should also specify the voting process, and should accommodate both the presence and absence of DOE participants. There should be a separate oral board membership list for each job position. Persons participating in the board should be at an equal or greater qualification level than the trainee. A representative of the training department should always be present to ensure consistent application of the training and qualification requirements.

DOE Order 426.2, *Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities*, assigns the DOE field organizations responsibility to observe, review, or actively participate as co-evaluators on oral boards for certain positions. The DOE field organizations should determine the extent of their involvement with facility oral boards, and the qualifications necessary to participate in the examination process. The DOE field organization representative should grade only in areas of expertise. DOE representatives participating as co-evaluators should follow the same guidelines as other board members with respect to preparation, participation, and grading.

The number of persons present during an oral board should be limited to ensure board integrity and to minimize distractions to the trainee. Other trainees should not be allowed to be present during an oral board. Other examiners may be present either to

witness the oral board as part of their training or to audit the performance of the examiner(s) administering the oral board. Others may be allowed to observe the oral board if (a) the board chair approves their presence, and (b) the trainee does not object to the observers' presence.

The conduct of observers should be described in the facility procedure on oral examinations. Observers should neither enter into the questioning, nor interrupt the proceedings. Any comments they wish to make or questions they have concerning the conduct of the board should be held until the examination is completed and the trainee is out of the room or area.

5.3.3 Oral Board Facilities

Facilities should have a room that can be used to conduct oral boards. The room should be designed in such a way that it provides an atmosphere that is conducive to conducting an oral board effectively and without interruptions from outside sources. Below is a list of items to consider when establishing an oral board room:

- Black/green board and chalk, or a white board and markers is available for use by the trainee.
- All reference materials that are normally available to the trainee, when qualified and on the job site, should be placed in the board room prior to the examination.
- Beepers or pagers should be turned off during the oral board, if possible.
- Telephones should be disconnected.
- Interruptions should be on an "emergency only" basis.

5.3.4 Conduct of Oral Boards

The board chair ensures that all required training or operations documents necessary for the board are present as indicated in the Oral Board Preparation section of this document. When the oral board chair is prepared to begin, the trainee is asked to enter the board room. The oral board chair should cover the board guidelines with the trainee. Appendix A is an example of oral board conduct guidelines.

Oral board members should actively participate in questioning the trainee. The questions may be asked in one subject area at a time or in a round-table fashion with board members asking questions in their areas in-turn. However, each board member should grade only subject areas in which he/she is qualified (as determined by facility procedure) to grade. Board members should refrain from coaching the trainee to an answer by head-nods, smiles, head-shaking, and the like.

The board chair should ensure that the board is conducted in a formal fashion, and that all board members conduct themselves accordingly at all times. The facility procedure on oral examinations should be present during all oral boards. The board chair should

ensure that no discussions concerning answers, grades, materials, or opinions take place until the trainee leaves the room. Board members should not discuss grades until all board members have completed grading the trainee. Each board member's grade should represent an independent assessment of the trainee's performance (assigning grades in the topic areas and overall board grade is discussed in the next section).

An oral board may last from one to three hours, depending on the complexity of the qualification and the level of qualification (non-supervisory boards being shorter and supervisory boards being longer). If the board lasts too long, the trainee and oral board members will not be able to function efficiently. In all cases, questioning should continue until all board members are satisfied that they have determined the trainee's level of knowledge and can accurately grade the trainee's performance. At the conclusion of the board, the board chair should ensure a representative sampling of the learning objectives has been covered in sufficient detail to determine the trainee's level of knowledge.

Breaks can be allowed during oral boards. Subjects covered before a break should not be discussed after the break. At least one board member should remain with the grading and question/answer sheets at all times to prevent examination compromise.

At the conclusion of questioning, the board chair should dismiss the trainee. The oral board members should then tabulate their individual grades, and determine the trainee's pass/fail status. When the associated paperwork is completed, the board chair recalls the trainee and informs the trainee of the board's decision. The board chair should discuss highlights of the results (discuss all areas in which the trainee may need to study to correct any identified knowledge deficiencies, and indicate areas of excellent performance) of the board with the trainee. The trainee should be encouraged to ask questions regarding the outcome of the board.

5.3.5 Oral Board Grading

The grading standard for pass/fail should be set by facility procedure. Each board member should independently grade each question that the board member is qualified to grade. The grades should be recorded on a standard form by each board member, and the overall board grade is assigned by the board chair. These forms, completed and signed by each board member, should become a part of the trainee's training record.

The board questioning should be organized into distinct areas such as theory, systems and components, normal operations, abnormal operations, administrative controls, technical safety requirements, etc. Questions pertaining to each area may be asked by one or more of the board members.

Assigning a grade to each question, each area of questioning, and to the overall board can be difficult. Table I provides an example of a method for grading oral boards. It includes criteria for use with a 4.0 scale, a 100% scale, and for pass/fail.

TABLE I. Example board grading method

SCORE			PERFORMANCE CATEGORY	PERFORMANCE DESCRIPTION
4.0 Scale	% Scale	Pass/Fail		
<3.2	<80	Fail	Unsatisfactory	The trainee's knowledge of applied fundamental principles, systems, or watchstation operation is not acceptable.
≥3.2 <3.5	80-87.5	Pass	Satisfactory/Good	A satisfactory/good understanding of the applied fundamental principles, systems, or watchstation operation. Some weaknesses.
≥3.5 <3.8	87.6-94.9	Pass	Excellent	Above average understanding of the applied fundamental principles, systems, or watchstation operation. <i>A few weak points.</i>
≥3.8-4.0	95-100	Pass	Outstanding	Exceptionally detailed understanding of the applied fundamental principles, systems, or watchstation operation. No weak points noted in the trainee's responses.

Each board member calculates the trainee's area grades using this method:

- Grade each question using a relative importance scale (i.e., questions covering safety systems, technical safety requirements, and integrated system operation are of greater importance than questions concerning auxiliary component/system operation).
- To arrive at the area grade, count the grade assigned to the higher importance questions twice and those of lower importance once. Therefore, if two questions were high importance and five questions were low importance the total number of

grades averaged would be nine. Using this method gives added weight to the higher importance questions.

An example of the grading method mentioned, using HI for high importance questions and LO for low importance questions, is:

- The trainee received the following grades from a board member; (1) 3.7 (HI); (2) 3.4 (LO); (3) 2.8 (HI); (4) 3.8 (LO); (5) 3.7 (LO); (6) 2.9 (LO); (7) 3.6 (HI); (8) 3.2 (LO).

- Calculate the area grade average the grades in this manner:

$$3.7+3.7+3.4+2.8+2.8+3.8+3.7+2.9+3.6+3.6+3.2 = 37.2.$$

- Divide 37.2 by 11 and the area grade is 3.38.

Appendix B is an example of an individual board member grading sheet (the above grading method was used to calculate the area grade for the Theory and Abnormal Operations areas which have high and low importance questions). The area grades are given to the board chair to determine the overall board grade.

The oral board chair should transfer each board member's area grades to the oral board grading sheet and calculate both the overall area grades and the final oral board grade. The facility oral examination procedure should describe how to derive the overall area grade and the final grade; however, the overall area grade is usually a numerical average of the grades given by each board member in that area. Appendix C is an example of a final board grading sheet. The final board grade is determined in this manner:

- **Pass;** If all overall area grades are above the minimum necessary to pass.
- **Fail;** If one or more overall area grades are below the minimum necessary to pass the board. If any overall area grade is less than the minimum required to pass the board, the lowest area grade becomes the grade for the board. For example, if 3.2 is the minimum required to pass and the overall area grades are 3.3, 3.2, and <3.2 the oral board grade would be <3.2 and be classified as a failure.

The board member's signature on the grade sheet signifies that the member participated in the examination of the trainee, and that in their opinion the trainee performed as indicated on the grade sheet. At this time the board chair should review the grading of each area. If there is significant grading variation (such as one examiner gives a 3.6 and another gives a 3.0) on the same area, the board chair should discuss this variation in grades with the board members. Individual grades assigned by the individual board members should be reviewed to determine the reason for the variation. Significant differences should be resolved before an overall board grade is assigned.

When differences have been resolved, the grades should be changed on the individual board member grading sheet to reflect the revised grade. Notation on the board grading sheet should be made to explain the correction.

If remediation is assigned by the board to correct noted deficiencies (a remedial may be given whether the trainee passes or fails the board), board members should review their individual question record sheets and assist the oral board chair in determining the required remedial actions. Remedial actions may vary from minor points discussed with the trainee directly after the board, or more extensive requirements (formal remediation that is tracked and evaluated). The specific remedial action plans should be developed by the trainee's training organization and approved by line management. The training organization should document and track all remedial actions that the trainee has been assigned.

5.4 Performance Demonstrations and Operational Evaluations

5.4.1 Preparations

The performance demonstration is used to verify a trainee's ability to safely and correctly perform a task. Specific guidelines for trainee and examiner preparations are contained in *On-the-Job Training* (available on the DOE Training Resources Site). To prepare for a performance demonstration, the trainee prepares to perform the task and to answer questions concerning it. The examiner prepares to evaluate the trainee's performance while he/she performs the task.

NOTE

The subject component(s) or system(s) may have to be configured to comply with the evaluation instrument (a JPM or equivalent), and necessitate obtaining permission to change component or system status.

The operational evaluation is used to verify that a trainee has gained the skill and knowledge to safely operate the components or systems that are related to the position or the job. The operational evaluation is usually performed at the end of qualification. The preparations are similar to the performance demonstration except that all tasks that are performed for the particular qualification are subject to examination. Operational evaluations should include a representative sampling of critical tasks that cover the range of duties applicable to the job.

5.4.2 Qualifications to Conduct

The facility should develop a procedure that specifies the requirements for qualification as an examiner of performance demonstrations or operational evaluations. The basic qualification requirements should be similar. However, the operational evaluation is a

broad-based examination and requires knowledge of all components, systems, and system interrelationships in the area of the trainee's qualification.

5.4.3 Conduct

The process for conducting these examinations is contained in *On-the-Job Training* (available on the DOE Training Resources Site). The performance demonstrations are conducted based on the requirements of the qualification standard. For each task the evaluation instrument should specify the method of performance/accomplishment as: "P" (perform), "S" (simulate), "O" (observe), or "D" (discuss).

The operational evaluation should be conducted in accordance with the facility procedure. The operational evaluation is conducted as a walkthrough with the trainee performing tasks chosen by the evaluator. An operational evaluation may be performed by using several JPMs (or equivalent) that represent a cross-section of qualification requirements. Questions to be asked during the operational evaluation should be developed in advance.

5.4.4 Grading

Performance demonstrations and operational evaluations contain both skill and knowledge requirements. The grading of these examinations is conducted by using an evaluation instrument (JPM or equivalent) that contains the grading criteria for both skill and knowledge items. Additional guidelines for developing and using evaluation instruments are in *On-the-Job Training* (available on the DOE Training Resources Site).

APPENDIX A - EXAMPLE ORAL BOARD INSTRUCTIONS

This is an example of oral board instructions. The oral board chair should read these instructions to the examinee at the beginning of the board.

- We are here for your (Position) oral board. I am (name) and I will be the board chair. (name) is representing the (organization) and (name) is representing the (other required organizations). (Introduce any observers that may be present.)
- The examination will take about _____ hours to complete.
- You have been recommended for qualification as a(n) _____ . We are here to determine if you have the necessary knowledge and understanding for that position.
- The scope of this examination is broad in nature and is intended to be the final check of your ability to perform as a qualified operator.
- You may ask for clarification of a question whenever you feel it is necessary.
- Unless otherwise stated by the examiner, assume that the facility is in an operational status with all systems functioning as designed.
- You are expected to answer each question as if you were performing your assigned duties with all available resources and indications. When required, these will be provided for you.
- As you answer each question, you should take some time to arrange your thoughts and answer each question in as much detail as possible. The board members will stop you when they are satisfied with your responses.
- If during your discussion, you should expect to hear an alarm, make or receive a report, or observe some indication, state the fact to us. We will inform you of the indication, report, or alarm status when appropriate.

- If you are unclear on how to answer a particular question, you may “pass” on that questions (i.e., ask to come back to that question later) and answer the question at a later time in the board.
- Breaks may be taken whenever you feel it is necessary. However, any question that was not answered at the time asked should be answered prior to the break. Unanswered questions will be graded as a failure/unsatisfactory once a break is taken.
- We will not indicate whether your responses are correct or incorrect.
- We will record all questions and answers. The fact that we are taking notes has no bearing on the correctness of your answer.
- At the completion of the board you will be excused from the room while the board evaluates your performance and determines if you passed or failed.
- Do you have any questions?
- Begin the examination.

APPENDIX B - EXAMPLE OF AN INDIVIDUAL ORAL BOARD MEMBER GRADING SHEET

QUESTIONS BY AREA	QUESTION GRADES	AREA GRADE
THEORY AREA Question 1 - Relative importance is high. Question 2 - Relative importance is high. (Two questions were asked, both of high importance, and one was given a failing grade. A failing area grade of 3.1 is calculated)	3.4 2.8	3.1
SYSTEM & COMPONENTS AREA Question 1 Question 2	3.3 3.4	3.3
NORMAL OPERATIONS AREA Question 1 Question 2	3.6 3.3	3.4
ABNORMAL OPERATIONS AREA Question 1 - Relative importance is high. Question 2 - Relative importance is low. Question 3 - Relative importance is low. (One high importance and two low importance questions were asked, with one low importance graded as a fail. A passing area grade of 3.4 is calculated)	3.7 3.5 2.7	3.4
ADMINISTRATIVE CONTROLS AREA Question 1 Question 2	3.3 3.4	3.3
TECHNICAL SAFETY REQUIREMENTS AREA Question 1 Question 2	3.5 3.5	3.5

Print Name: _____

Signature: _____

APPENDIX C - EXAMPLE OF FINAL ORAL BOARD GRADING SHEET

AREA	BOARD MEMBER GRADE (GRADES FROM APPENDIX B)	BOARD MEMBER GRADE	BOARD MEMBER GRADE	BOARD MEMBER GRADE (DOE BOARD MEMBER)	BOARD MEMBER GRADE	OVERALL AREA GRADE
THEORY	3.1	3.0	3.2	N/A	3.1	3.1
SYSTEMS & COMPONENTS	3.3	3.3	3.4	N/A	3.4	3.35
NORMAL OPERATIONS	3.4	3.3	3.5	N/A	3.5	3.43
ABNORMAL OPERATIONS	3.4	3.4	3.6	N/A	3.4	3.45
ADMINISTRATIVE CONTROLS	3.3	3.3	3.5	N/A	3.4	3.38
TECHNICAL SAFETY REQUIREMENTS	3.5	3.3	3.2	3.4	3.5	3.38
FINAL BOARD GRADE						*3.1

* Minimum grade for passing the Board is 3.2.

I _____ (print name) _____, Board Chair of the Oral Board for (print trainee name), assign a grade of _____, and declare this Board a PASS OR FAILURE (circle one).

_____, (signature Board Chair)