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DOE HANDBOOK

TABLE-TOP JOB ANALYSIS

U.S. Department of Energy
Washington, D.C. 20585

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FOREWORD

The purpose of this Handbook is to establish general training program guidelines for training personnel in developing training for operation, maintenance, and technical support personnel at Department of Energy (DOE) nuclear facilities.

TTJA can be used for needs, job, and task analysis, but the focus of this Handbook will be on job analysis. Department of Energy (DOE) Orders 5480.18B, *Nuclear Facility Traiing Accreditation Program* and 5480.20A, *Personnel Selection, Qualification and Training Requirements for DOE Nuclear Facilities,* stress the importance of training programs that are based on a systematic approach. An integral part of any systematically-developed training program includes an analysis of the jobs to be performed. TTJA is one "systematic" method of many that can be used by DOE contractor organizations to obtain high quality job analysis.

TTJA is not the only method of job analysis; however, when conducted properly TTJA can be cost effective, efficient, and self-validating, and represents an effective method of defining job requirements. The table-top job analysis is suggested in the DOE Training Accreditation Program manuals as an acceptable alternative to traditional methods of analyzing job requirements. DOE 5480.20A strongly endorses and recommends it as the preferred method for analyzing jobs for positions addressed by the Order.

Much of the initial research and development of the DOE Handbook, *Table-Top Job Analysis* was developed on the basis of DACUM (Developing A Curriculum) principles that were refined at Ohio State University. The National Center for Research in Vocational Education was also helpful with information exchange during the development of this Handbook.

DOE contractors should not feel obligated to adopt all parts of this Handbook. Rather, they can use information from this Handbook in conducting job analysis as the information and methods apply to their facility.

Beneficial comments (recommendations, additions, and deletions) and any pertinent data that may be of use in improving this document should be addressed to: Manager, Secretary for Environment, Safety and Health U.S. Department of Energy, Washington, DC 20585, or by using the self-addressed Standardization Document Improvement Proposal (DOE Form 1300.X) appearing at the end of this document.

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1. SCOPE

1.1 Scope. This Handbook establishes the guidance necessary to conduct table-top job analysis. An overview of job analysis is provided that is followed by a look at some of the types of analysis that are conducted. Finally, the table-top job analysis method is explained in detail. Appendices include facilitator and coordinator guides to provide further information and examples of table-top job analysis.

1.2 TTJA is One Method. TTJA is not the only method of job analysis; however, when conducted properly TTJA can be cost effective, efficient, and self-validating, and represents an effective method of defining job requirements.

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2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 DOE standards, handbooks, technical standards lists (TSLs), and specifications. The following DOE standards, handbooks, TSLs, and specifications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the *DOE Standards Index* (DOESI) cited in the contracting document.

DOE HANDBOOK, *Training Program Handbook: A Systematic Approach to Training*, DOE-HDBK-1078-94.

Unless otherwise indicated, copies of DOE standards, handbooks, and TSLs are available from the Office of Scientific and Technical Information (OSTI), P.O. Box 62, Oak Ridge, Tennessee 37831.

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the contracting document.

DOE Order 5480.20A	-	*Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*
DOE Order 5480.18B	-	*Nuclear Facility Training Accreditation Program*

Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Naval Publications and Forms Center, (Attn: NPODS), 5801 Tabor Avenue, Philadelphia, PA 19120-5099.

2.2 Non-Government publications. The following document(s) form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents adopted by DOE are those listed in the issue of the DOESI cited in the contracting document. Issues of documents that are not listed in that DOESI shall be the issues of the non-Government standards cited in the contracting document.

Blank, William E., *Handbook for Developing Competency-based Training Programs,* Englewood Cliffs, N.J., Prentice-Hall, 1982.

General Physics Courseware, *Designing and Managing Instructional Programs,* Volume III in the Instructor Training Series, 1983.

Norton, Robert E., *DACUM Handbook,* The National Center for Research in Vocational Education, Ohio State University, 1985.

"Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services."

2.3 Order of precedence. In the event of conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specified exemption has been obtained.

3. GENERAL GUIDANCE

3.1 What is Analysis? Developing training using a systematic approach, involves five phases: analysis, design, development, implementation , and evaluation. In the analysis phase, training needs are determined. When training is selected as part of the solution, the analysis phase creates the data that serves as the foundation for the systematic development or revision of training programs. This data is obtained from three sources: job needs, learner needs, and organizational needs. When done effectively analysis is a cost benefit. It saves more than it costs by ensuring that training resources are spent where they are most needed.

The products of analysis can include descriptions of training deficiencies, recommended solutions, required content, and if a job specific training program is being developed, a list of tasks for job performance. Job analysis is specifically used to develop a task list.

3.2 Overview of Job Analysis. Job analysis is a systematic method used in obtaining a valid task list for a specific job. A job is a group of major activities assigned to one individual (e.g., a maintenance mechanic). A job can be divided into functional units called duty areas. A duty area is a distinct major activity involved in performing the job (e.g., duty areas for a maintenance mechanic job could be pumps and fans). Although identifying duty areas is not required, duty areas are a convenience in organizing tasks when conducting job analysis. Duty areas consist of collections of related tasks. A task is a measurable, well-defined unit of work, with an identifiable beginning and end (e.g., tasks for the pump duty area could be install pump, repair pump, service pump, inspect pump).

The job analysis process involves the following steps:

1. Developing a list of tasks performed in the job
2. Validating the task list
3. Selecting tasks for training
4. Entering all tasks in a task-to-training matrix

There are several methods that can be used to perform job analysis. All methods of analysis have advantages and disadvantages, so each analysis situation must be considered to determine the best method of analysis. Some of the types of job analysis are briefly discussed below.

3.3 Types of Job Analysis.

3.3.1 Verification Analysis. Verification analysis is the process of reviewing task lists of similar job positions to extract task statements that match or nearly match the job being analyzed. This method of job analysis should always be considered first. There are many jobs within and external to the DOE community for which task lists have been developed. Detailed operator job (and task) analyses have been conducted and are available for DOE's reactor facilities. Additionally, industry analyses that can be adapted to many of the DOE nuclear facility positions are available for many of the maintenance and technician positions. Time can be saved by locating and using these lists, and with the help of subject matter experts (SMEs) and instructional technologists, deciding which tasks apply and which do not, and identifying the tasks that are different. Other sources of task lists include DOE orders, Guide to Good Practices, DOE Handbooks and Standards, other DOE facilities, commercial nuclear utilities, and vocational programs.

3.3.2 Document Analysis. Document analysis involves a systematic review of operating and administrative procedures and other job related documents to develop a task list. After an initial list is developed from these sources, SMEs validate the results and select tasks for training using surveys, table top, or other consensus-based approaches to determine facility needs. This method is especially appropriate when job responsibilities are well documented by accurate procedures and other job-related documents. Often task lists can be written directly from the list of procedures with little additional analysis.

3.3.3 "Traditional" Job Analysis. Traditional job analysis involves a combination of research, job incumbent interviews, and surveys. The process typically involves the following eight steps: (1) review available job information; (2) select and train job analysts; (3) develop the task listing; (4) validate the task listing; (5) prepare the survey questionnaire; (6) select the survey sample and conduct the survey; (7) analyze the survey results; and (8) validate the results. This method can be relatively time- and resource-intensive and should only be used when the job is complex and very critical to the mission of the facility, or when adequate accurate sources of information are not available (i.e., accurate procedures, task lists, SMEs) or other less rigorous methods are not considered adequate to produce necessary results.

The method that this Handbook will focus on is the table-top job analysis method.

3.3.4 Table-Top Job Analysis. Table-top job analysis (TTJA) is one way to determine training requirements. TTJA is a process which uses small focus groups and a facilitator to reach consensus on job needs. TTJA has been used successfully in conducting needs, job, and task analysis. It can be a very effective method of quickly determining, at reasonable costs, the tasks that must be performed by persons employed in a given job area. Conventional analysis methods can be slow, laborious, expensive and unusable. This method is also referred to as a focus group approach.

Although the TTJA process can be used for different types of analysis, this Handbook will focus on its use in conducting job analysis. The Handbook provides techniques and information in conducting job analysis using a table-top or focus group approach.

3.4 Purpose of Table-Top Job Analysis. Table-top job analysis has been used to analyze jobs at various levels including professional, technical, skilled, and semi-skilled. Table-top job analysis operates on the following three premises.

- ***Expert workers*** are better able to describe/define their job than anyone else.
- Any job can be effectively and sufficiently described in terms of the ***tasks*** that ***successful*** workers perform in that job.
- All tasks have direct implications for the ***knowledge, skills*** and ***attitudes*** that workers must have in order to perform the tasks correctly.

A carefully chosen group of expert workers (subject matter experts and supervisors) from the job being analyzed form a TTJA team. A facilitator guides the team through the two- or three-day session to complete the task list (There is also some up-front time involved in properly planning the table-top job analysis). Brainstorming is one technique used to obtain the collective expertise and help the team reach consensus.

Since the team consists of people with expertise in their job, team members do not need advance preparation. Generally, team members find work on the team both professionally stimulating and rewarding.

It must be stressed, however, that some job positions may not have any "experts." This is especially true when a new position is created or at facilities that are in the early stages of operation. In these cases, the job analysts may decide to use a method other than table-top job analysis.

A six step process is guided by the facilitator during the session:

1. Orient team (training portion)
2. Review job
3. Identify duty areas
4. Identify tasks
5. Sequence tasks and duty areas
6. Select tasks for training.

The TTJA normally results in identifying 8 to 12 duty areas and 50 to 200 task statements that outline what a successful worker in a job area must be able to do (These numbers may vary depending on the job being analyzed.)

Accurate work by the TTJA team is important since these tasks will form the basis for developing lesson plans and/or courses for their training program. Since analysis is the first step in the performance-based training model, it is imperative that the team work together to establish an accurate task list. If the analysis is faulty, the instructional products developed will be faulty. An analysis of these tasks is performed to provide the basis for the skills and knowledge that are incorporated into the instructional products.

3.5 Advantages of Table-Top Job Analysis. TTJA, when used properly, can provide a more efficient and cost-effective method of job analysis than traditional methods. TTJA is inexpensive in comparison with job task analysis since each analysis is completed in two to three days. The end product of a TTJA, the task list, can be favorably compared in validity with any other method.

An additional benefit of the process is the partnership that forms between the training department and the operating organization doing the analysis since the team is primarily comprised of people from both areas.

3.6 When Should Table-Top Job Analysis be Used? Although TTJA has been used for several purposes, it is ideally suited for determining (a) the tasks that should be addressed when developing new training programs (b) the tasks that should be covered by existing training programs, and (c) the current accuracy and relevance of an existing task list.

TTJA can quickly identify the tasks that a successful worker must be able to perform on the job. Using the identified tasks in the instructional products of a new training program will help ensure curriculum relevance.

TTJA can be used to verify the tasks that currently exist in training programs. Once the tasks have been generated by the TTJA team, the tasks can be compared with existing tasks and training materials, and the necessary revisions can be made.

TTJA can also be used to review existing task lists to determine if they still portray an accurate picture of the tasks performed by workers in a job. Changes can be made to existing tasks lists based on information from TTJA sessions.

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4. DETAILED GUIDANCE

4.1 Table-Top Job Analysis Quality

4.1.1 Factors That Impact Quality. TTJA quality is directly linked to two critical factors: (a) assembling a team of two to six subject matter experts, 1 supervisor, and 1 safety engineer/specialist, and (b) using a trained TTJA facilitator. A trained TTJA facilitator (one who has been trained in the methods of table-top job analysis) is required to maximize effectiveness of the job analysis. Without both factors, the resulting analysis is questionable at best.

Some general conventions associated with TTJA are listed below:

1. The coordinator/facilitator is qualified through training and practical experience.
2. Team members are subject matter experts (SMEs).
3. Supervisors that are on the team are SMEs as well.
4. The same team members participate throughout the entire session
5. Tasks statements meet the criteria for acceptable task statements

4.1.2 Table-Top Job Analysis Team Member Roles. For TTJA to be successful, the team that is put together must operate together as a team. Each member must be aware of his/her role and responsibilities while on a TTJA team. Observers are welcome but must not participate as team members.

4.1.3 Table-Top Job Analysis Coordinator. In this Handbook, the term *table-top job analysis coordinator* is used to refer to the person who plans the job analysis process, makes the necessary pre-session arrangements (including selection of team members) and provides for verification of the team-generated tasks. The coordinator may or may not act as the facilitator of the session.

See Addendum A - Coordinator Guide for further information.

4.1.4 Table-Top Job Analysis Facilitator. A key role in the TTJA process is the facilitator. This person will guide the team throughout the session and often the success of the TTJA session rests with the proficiency of the facilitator. Whereas many persons can perform the role of coordinator (i.e., carry out the pre-session planning and arrangements and post-session activities), the facilitator's job requires some special personal qualities, traits, and characteristics. A TTJA facilitator might be characterized by many of the following attributes:

- A professional image and outlook
- A sensitivity for others
- The ability to establish and maintain enthusiasm
- A sense of humor
- The ability to show empathy
- The ability to display and maintain a positive image
- Patience
- The ability to make decisions
- Skill in job analysis procedures
- The ability to display warmth and establish rapport quickly with team members
- Skill in questioning
- A high degree of sensitivity to both verbal and nonverbal communication
- The ability to motivate, encourage, and focus team members
- Ability to act as process expert while team members act as content experts
- Appreciation of small-group processes so that team members can work things through by themselves
- Excellent listening skills and memory
- The ability to encourage a consensus from the individuals on the team

The facilitator must be intimately familiar with the TTJA process, since the process is so structured. Although some flexibility is allowed during facilitation, there are definite parameters and sequences of events.

The multi-skilled facilitator must establish and maintain the team's pace, balance, and participation style; clarify vague statements; and facilitate selection of the most appropriate action verbs, task statement modifiers, and nouns. The facilitator must motivate and lead the group and monitor the process, yet never impose content judgments or decisions on the team members.

When an organization is looking to designate a TTJA facilitator, the organization management must carefully assess the candidate's personal traits and characteristics before assigning this responsibility. At a minimum, the candidate should be extremely familiar with the job/task analysis process (Instructional Technologists in a training department are normally adept at this) and have excellent facilitation/process skills. When possible, the candidate should also successfully complete TTJA training.

Addendum B contains a Facilitator Guide.

4.1.5 Co-facilitator. A co-facilitator should be selected to assist the facilitator from the beginning to the end of the session. This person's function is to assist the facilitator as necessary in conducting the TTJA session. The co-facilitator may be asked to do the following:

- Assist in teaching orientation lessons
- Facilitate in various steps of the process
- Help post duty areas, tasks, and any supporting materials
- Generate task lists and other TTJA materials on the computer.

The facilitator and co-facilitator may switch roles throughout the seminar. The role of the co-facilitator is further explained throughout Addendum B.

4.2 Planning the Table-Top Job Analysis Session. Proper planning will help ensure that a successful and productive TTJA session occurs. Major areas of concern in the pre-session planning phase include: (a) securing management's approval and support, (b) involving appropriate staff in the planning process, and (c) developing a schedule of major events and activities. Normally, the TTJA coordinator is responsible for initiating the planning process and making the necessary arrangements, however, the coordinator must enlist the assistance of those people necessary to gain their understanding, support and commitment to the entire process.

4.2.1 Securing Management's Approval. Before any TTJA session is planned or conducted, key personnel within the facility must be informed, and more importantly, become committed to the TTJA process. TTJA will not be a success unless the facility administration and management is behind the process. Management can allot the necessary funds and personnel to help ensure the success of the session.

4.2.2 Involving Staff in the Planning Process. Whenever a coordinator conducts activities that may affect others at a facility the way TTJA can, the coordinator should involve, as appropriate, those people who are likely to be affected by or concerned about the resulting changes. Involving these people elicits their understanding and support of the process, which is vital for changes to take place as a result of the TTJA. When planning for a TTJA session at a facility, the coordinator should try to involve the following individuals: (a) managers, (b) instructional staff, and (c) support personnel.

Facility managers whose people will be used on the team should be informed of the TTJA process, its benefits, and the reasons for selecting specific people for the team. These managers should also be aware of the coordinator's plans so that they can approve the time schedule, budget, personnel involved, and job selected.

Since the results of the TTJA are going to be used as the basis for developing or improving instructional products, facility instructional staff should become involved in the process. The instructional staff should send representatives to observe the process and take notes. The discussions that take place among the team members can be beneficial to the instructors. It is best to keep instructors off of the team. However, the instructors can be used as sources of information about prospective team members.

The instructional staff may also act as coordinators, facilitators, or as sources of information to help identify program areas needing TTJA task lists.

4.2.3 Determining the Size of the Table-Top Job Analysis Team. A successful TTJA team can consist of as few as three members, not including the facilitator. The subject matter experts are those who perform the job being analyzed, and undoubtedly are in the best position to explain "what they do." Their immediate supervisors can provide continuity to the process since they also know the worker's jobs. The supervisors can also act to filter the tendencies of some personnel to include managerial or other higher level tasks that they do not actually perform. For example, Facility A is going to conduct a TTJA session on the Laboratory Technician job description; the best team members for the team would consist of Laboratory workers and supervisors from Facility A.

Sometimes, a facility is so small that it is impossible (because of scheduling, shift obligations, etc.) to assign enough team members to the team. One option for smaller facilities is to reduce team size down to the minimum, only three members plus the facilitator. If a team still cannot be generated at a facility due to a lack of personnel, the facility can contact neighboring facilities that also employ the job being analyzed. For example, a TTJA team for Laboratory Technicians at Savannah River Lab might consist of Laboratory Technicians from S-Area, H-Area, and K-Area.

4.2.4 Developing a Schedule of Events and Activities. A number of specific activities need to be planned and carried out in advance of the session by the staff and coordinator. A schedule of activities from ninety days prior to the session and a daily session schedule are included in Addendum A.

4.2.5 Selecting and Preparing Room for Session. Because the TTJA process depends heavily on group dynamics, there are certain features required for the room in which the session will be conducted. The room selected should have an unbroken wall surface of at least 30 feet and should be of sufficient size to house the team and any observers comfortably. There should be no doors, windows, or other obstructions on the wall that will be used to construct the TTJA chart. The room should be located in a quiet area and should be well lighted and ventilated. The facilitator should check the climate control system prior to the session.

To facilitate interactions that must take place in a TTJA session, the members should be comfortably seated so that they can easily see and hear each other, as well as read items placed on the wall. The best arrangement is to seat team members in a semicircular arrangement, so that they can actually face the wall where their ideas will be posted. The tables also create work space for the team members. A small table for the recorder should be located at one end of the wall. Figure 1 illustrates the desired seating arrangement.

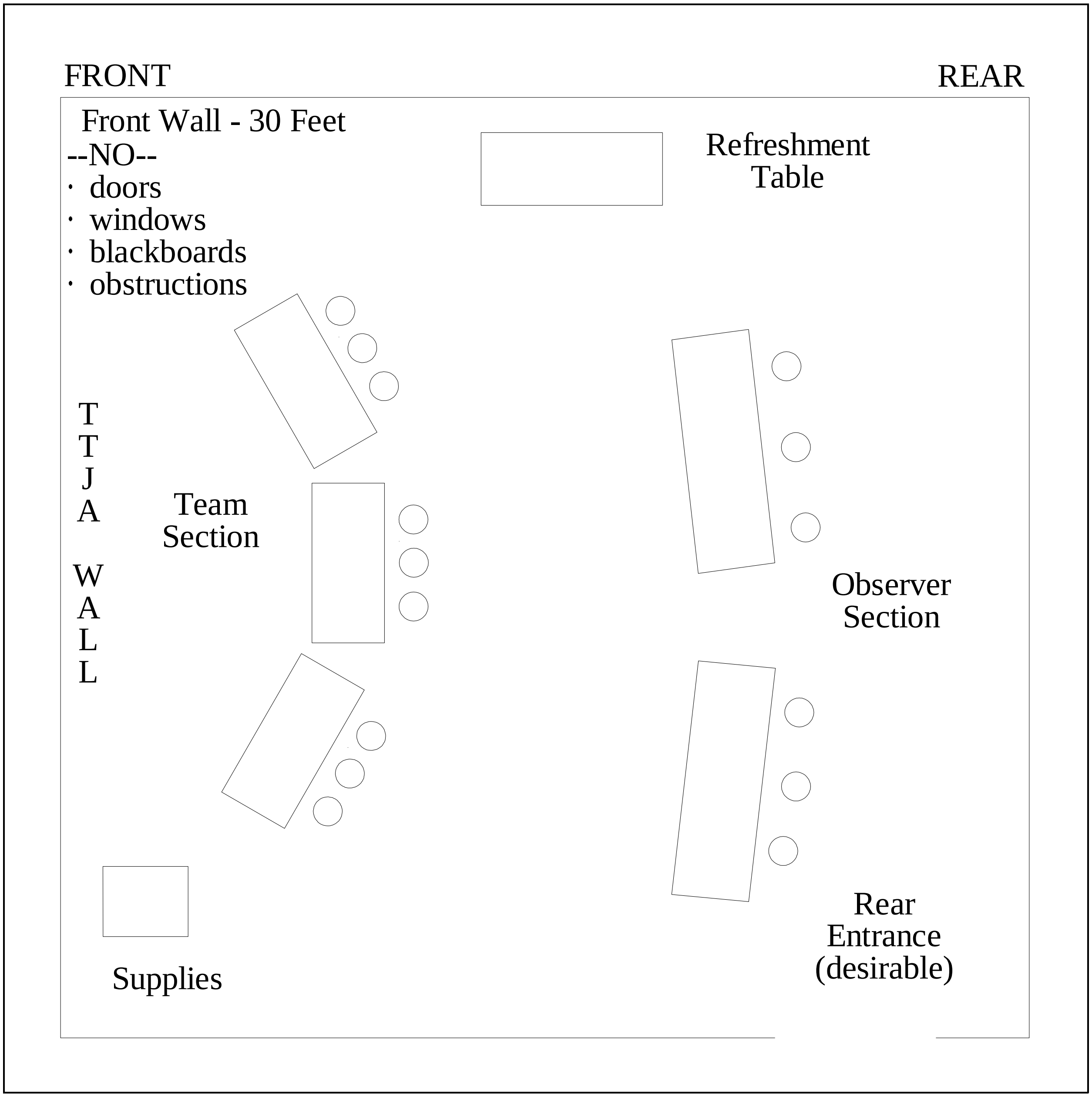

Figure 1. Ideal TTJA Seating Arrangement

There are pros and cons to conducting the TTJA session at the facility versus away from the facility. As long as a room is conducive to interaction and is free from distraction, the specific location is a secondary consideration. However, when a TTJA session is conducted at a facility, work-related distractions can be more frequent. For this reason, it may be more beneficial to conduct the session in an offsite meeting room.

4.2.6 Selecting Team Members. One of the most important tasks associated with TTJA session preparation is selecting team members. If the team members are improperly selected it is very possible that the results of the TTJA will be incorrect. Several considerations must be taken when selecting team members.

The first priority is to determine the job to be analyzed. Too wide or too narrow definitions of a job can be detrimental to the TTJA process. Defining the job too narrowly may result in training programs that limit the progress and opportunities for workers. Defining the job too widely may result in a program that requires more time than is reasonable, or trainees who receive only general preparation for completion of a task. When a team is assembled with extreme diversities the process may break down, since members may not be familiar with the work of others in the group.

Since the job definition that is used predetermines who the eligible team members are, it is imperative to define the job as accurately as possible. Decisions must be made, based on selection criteria, as to the types of workers to be included and excluded.

For the TTJA coordinator, the selection of these team members is probably the most critical aspect of organizing a successful session. The quality of the interactions, as well as the quality of the generated task list, depend heavily on the people selected. Experience suggests the following criteria to guide the selection process:

- Technical Competence
- Full-Time Employment
- Occupational Representativeness
- Communication Skills
- Team Player

- Freedom from Bias
- Full-Time Commitment

Anyone selected as a TTJA team member must be ***technically competent*** and perceived as an expert in the job being analyzed. Individuals selected should be highly skilled in their job and should be aware of current developments and needs in the field. Many years of employment does not necessarily qualify a person as a competent TTJA team member. Generally, the immediate supervisor of the workers can identify the most technically competent individuals.

Individuals selected should be ***full-time employees*** in the job that is to be analyzed. This helps enure their knowledge of and familiarity with all aspects of the job. Some of the people may be supervisors, as long as they are directly supervising the workers whose jobs are being analyzed. Supervisors who have had recent practioner-level experience in the job can provide useful insights into the job being analyzed and continuity to the process. However, no more than 20% of the team should be supervisors.

If the job to be analyzed is diversified, the team members should be selected for ***occupational representativeness***. To the maximum extent possible, the make-up of the team should reflect the actual employment situation for the job being analyzed.

Team members must possess ***communication skills***, since they must be able to describe the tasks they perform. Some highly skilled workers are either unable or extremely reluctant to interact in a group setting. To be effective contributors, team members should be reasonably articulate in order to explain what they do in a precise and accurate way. Because the TTJA process involves brainstorming and consensus seeking, the team members must be able to listen respectfully to the views of others and participate effectively in group discussions.

Each member should be a ***team player*** who believes in the TTJA approach to job analysis and who desires to participate in the process. This excludes people who are "sent" without explanation or are simply assigned by their supervisor to "fill a seat" on the team. Members should be able to interact without dominating or being dominated and should not overreact to criticism or to having their contributions analyzed or reorganized.

Team members should have an open mind and be ***free from biases*** related to training methods, training time, and trainee qualifications. This is the primary reason for not including instructors as part of the team. Since instructors might be concerned with having to teach identified tasks, instructors may try to influence the team's contributions.

Team members should make a ***full-time commitment*** to the session for the required time. It is better to select an alternate member than to accept someone who will disrupt the process or destroy the continuity by being there only part of the time. It is important to stress the importance of being on time for all sessions, because people who are late or are part-timers who miss some of the orientation or group discussion, may seriously disrupt the group process. This is one of the reasons that an off-site meeting room may be more beneficial than an on-site meeting room.

4.2.7 Informing Team Members. At this point, the coordinator should have defined the job to be analyzed, identified potential sources of team members, and determined the criteria to be used in the selection of members. Two other major tasks must be carried out before the TTJA session: (a) contacting the organizations that have the type of expert workers needed, and (b) contacting the prospective team members.

A coordinator may be hesitant about contacting organizational management to ask if they are willing to participate in the TTJA session by releasing one or more of their best workers for two to three days. However, management will gladly participate in the process when they know that the effort will be worthwhile.

An important aspect of contacting the organizational management required for the TTJA session is to stress how the organization's expertise is needed to update or establish a training program. The coordinator should assure the organizational management that the process will not be successful without the help of the organization's experts.

When possible, it is important for coordinators to make an appointment to visit the necessary managers to explain the TTJA process and to request their cooperation in nominating and releasing one or more workers. During the visit with the organization, the coordinator should be prepared to explain the TTJA process, how the results will be used, and the qualifications of the worker or supervisor needed. A one- or two-page written explanation and a sample TTJA task list to leave with the organizational management can be very helpful.

The best way to obtain team members for a TTJA team is to meet personally with each nominee, as arranged through the organizational management, thirty to sixty days in advance of the session. If there is sufficient time, this one-on-one technique elicits the best results.

Prospective team members may be hesitant to make commitments to a new or different experience. The TTJA coordinator should explain the member's role in the process. The prospective members should be told what to expect from the TTJA session and that support from management for their involvement has been secured.

During the explanation, the coordinator should stress the importance of the full-time commitment to the session. Each team member should be present and participate in all portions of the session. Coordinators should not ask someone to be a team member if they are obviously not interested in the activity. Such a person probably will not be a major contributor to the process and may even be detrimental to the session success.

If proper selection procedures are followed, few workers will object to participating. Most people will gladly donate their time to the TTJA process.

To complete the selection process, it is highly recommended that the coordinator make confirming phone calls to each member five to ten days prior to the session. This provides them with an opportunity to ask any questions and to confirm their plans to attend the session. If several people must cancel at this time, there is still time to seek qualified alternates.

4.3 Conducting the Session. After preparations have been made, the next task is to conduct the session. There are six major steps involved in conducting a successful TTJA session. The steps are listed below.

1. Orient team (training portion)
2. Review job
3. Identify duty areas
4. Identify tasks
5. Sequence tasks and duty areas
6. Select tasks for training

4.3.1 Orient Team (Step 1). The first step in any TTJA session is to carefully orient the team with what will be happening during the session. The orientation must be well done and should use an informal, nontechnical explanation of the process. A process that uses the table top approach appears in Addendums A and B.

4.3.1.1 Conduct Introductions. The normal procedure for conducting introductions is for the TTJA coordinator to start the meeting at the designated time and then to introduce the responsible organization's representative so that he/she can officially welcome the team members. This introduction should be brief, however, it is important that a high-level official greet the members to help stress the importance of the session.

The TTJA coordinator should then introduce the facilitator (assuming a different person fills this role) to the team. The coordinator should acknowledge the skills and experiences of the facilitator that relate to conducting TTJA. The most important thing is to keep the introduction brief, since lengthy introductions may annoy some people.

At this point, the facilitator should take over and maintain leadership of the session. The facilitator should immediately establish a warm, safe, and friendly environment. After a brief personal greeting, the facilitator should ask the members to briefly introduce themselves. Ice breaker activities are very effective for introductions. At a minimum, the members should give their names, organization's name, current position, and a brief description of the work they perform on a daily basis.

The facilitator should also introduce the recorder and briefly explain the nature of that person's job. It is important that the team members understand that the recorder is not one of them but is present to help the facilitator accurately record the team's contributions.

4.3.1.2 Establish Rapport and Create a Participatory Atmosphere. After the appropriate introductions, the facilitator's major responsibility begins. The facilitator must present an overview of the entire TTJA process in a relaxed but forceful manner. The opening minutes of the session can "make" or "break" the members' enthusiasm and attitudes.

The facilitator should quickly establish a first-name basis with the members, and congratulate them on their selection into the team. The facilitator must also stress the importance of the member's individual and collective participation in the process.

The facilitator should exude his or her enthusiasm and belief in the TTJA process. One approach is to discuss generally how organizations have successfully used the TTJA process to develop and update task lists upon which the technical training program will be based.

The facilitator should try to put the workers at ease and reduce possible anxieties by telling them their job is primarily one of collectively describing what tasks they perform when carrying out their jobs successfully. The responsibility of developing instructional strategies and materials will rest with the training organization.

Once a safe environment and rapport has been established, a formal explanation of TTJA can begin.

4.3.1.3 State the Philosophy Behind TTJA. To gain the full cooperation of the team members, it is useful to explain the following three assumptions, which are the foundation for the TTJA process:

- ***Expert Workers*** are better able to describe their own job than anyone else.

- Any job can be effectively and sufficiently described in terms of the ***tasks*** successful workers in the occupation perform.
- All tasks have direct implications for the ***knowledge, skills,*** and ***attitudes*** that workers must have in order to perform the tasks correctly.

These three statements summarize, simply but clearly, the philosophy behind the TTJA process. The members need to understand and accept the premise that, in order to perform a task correctly, a worker must know what to do when and how (knowledge), as well as understand why (attitudes) the task should be performed in the first place and that a worker must be able to perform a given task (skill).

The facilitator should explain the step following job analysis, which is determining training program content. This is where each task statement is broken down into the specific steps or operations involved, knowledge needed, attitudes required, tools and equipment needed, etc.

The results of this process will be used in preparing instructional materials for the trainer and trainees.

4.3.1.4 Clarify the Role of the Facilitator and the Team Member. The facilitator must establish his/her role clearly and thereby establish his/her credibility as the process expert, simultaneously acknowledging the team members as the job experts. Since the facilitator is not a job expert, there is less chance of his/her being biased with any decisions that the team makes.

The facilitator has a very difficult role. He or she cannot influence the technical judgments or contributions of the team. If the members feel that a task is completed by their occupation, the facilitator must include it on the chart. The facilitator must agree with all decisions that are reached consensually.

Nevertheless, he or she should insist that members operate within specific guidelines. The facilitator must provide them with criteria, directions, sets of guidelines, and analogies that will help them accomplish their task.

The team members in the TTJA process are charged with listing the tasks required to be successful in the job. Hence, their role is vital in development of the TTJA task list.

The role of the team member is a unique one. Singly, and in groups, the members are asked to define their jobs by identifying all of the important tasks they currently perform on the job. The team members are the experts, and it is they who must discuss, debate, and occasionally even argue about what is really important to their jobs.

Team members must be given the authority to make decisions regarding the tasks involved in the job. If the facilitator tells them they are the experts and carefully listens to them as the analysis proceeds, they will accept the collective decision-making role and produce a good analysis. If, on the other hand, the facilitator says they are the experts and then proceeds to drive the analysis process, he or she soon loses the support and cooperation of the team.

4.3.1.5 Explain the TTJA Process. At this point, the facilitator should be ready to provide an overview of the six steps of the TTJA process while motivating them to get started. Detailed explanations should not be presented at this time.

Step 1 -- Orient Team. The facilitator is in the process of performing this step, which should be finished shortly. The goal has been to provide an introduction to the TTJA process and to explain to the members the importance of their role in it. Emphasis should be placed on the advantages of using this technique, which includes the fact that, in a short period of time, at low cost, TTJA can be used to effectively identify the tasks important to the job being analyzed.

Step 2 -- Review Job. In this step, the major purpose is to explain the boundaries of the job being analyzed. Any related job titles and specializations to be included or excluded must be known by all members.

Step 3 -- Identify duty areas. The next step is to determine the duty areas of the job. These statements should reflect functional areas of responsibility under which all the specific tasks will fit. Most jobs can be divided into eight to twelve duty areas. These statements are then written on 8 1/2" X 11" sheets of paper and placed in a vertical column on the left side of the wall facing the team.

Step 4 -- Identify tasks. The fourth step involves taking each duty area and specifying the tasks that are performed within that duty area. This step takes the most time, since 50 to 200 tasks may be involved, depending on the complexity of the job. Each task statement should begin with an action verb and describe an observable behavior.

Step 5 -- Sequence tasks and duty areas. Once the tasks are identified, the team must organize the tasks into some logical sequence. Since the task lists are used to develop instructional material, it is logical to ask the members to sequence the tasks within each area in the recommended instructional sequence. The members then sequence the duty areas.

Step 6 -- Select tasks for training. The team should use criteria to determine the frequency, importance, and difficulty of each task. The team also must determine whether the tasks are PT - pre-train, T - train, OT - overtrain, or NT - no train, using established criteria.

4.3.1.6 Explain the Guidelines for Team Operation. The following guidelines or ground rules for team member participation have proven to be effective and should be discussed with any new team:

- Everyone should participate appropriately. All team members have been carefully selected and are considered equally qualified.
- Members should share their ideas freely with the group. There are no right or wrong answers. Members should think out loud and let other team members help frame task statements.
- Members are encouraged to "piggyback" on the ideas of others. Members can give their spontaneous responses without weighing their value at the time of the response.

- Members should focus on offering constructive suggestions rather than negative criticisms or comments. This means that each member must listen carefully to the views and comments of others.
- Task statements should be accepted as soon as a consensus is reached on them. Group consensus occurs when the entire team can accept a decision that is made. If consensus is not readily reached, record the task and come back to it at the end of the session. Subsequent discussion may help clear up any issues the group may have.
- Members should use references AFTER brainstorming to ensure that no tasks have been missed.
- Any observers who are present CANNOT participate.
- All task statements should begin with an action verb and should reflect observable worker performances.

4.3.1.7 Facilitating Group Interaction. Two major responsibilities should be dealt with concurrently as the next phase of the TTJA session begins. Immediately following the orientation to TTJA, the facilitator should simultaneously begin facilitating group interaction and constructing the TTJA task list.

A TTJA facilitator must cultivate and use his/her interpersonal skills. Basically, the TTJA process requires the facilitator to guide the participation and interaction of team members in a specific sequence through brainstorming and consensus-seeking activities. At the same time, the facilitator must enforce the basic ground rules of brainstorming and adhere to the basic principles of TTJA.

Because a facilitator is responsible for facilitating many small-group brainstorming sessions, the rules for productive brainstorming during a TTJA session are summarized here.

The facilitator should:

- Stay focused on the group process "how are they accomplishing their task"
- Encourage each team member to contribute

- Listen actively to all contributions
- Control participants who try to dominate
- Readily accept as many contributions as possible
- Avoid criticizing participant's contributions
- Verbalize contributions to ensure accuracy and clarity
- Provide frequent positive reinforcement
- Repress own biases and opinions
- Probe and encourage with questions
- Set and maintain an enthusiastic climate.

The team members should be encouraged to do the following:

- Offer content contributions freely
- Share ideas among themselves
- Help one another frame statements
- Limit value judgments about the contributions of others
- Begin all task statements with an action verb
- Avoid statements using knowledge and attitudes.

The facilitator must be adept at communication skills for the session to be a success.

At this point the facilitator starts to apply his/her TTJA facilitation skills in actually constructing the TTJA task list. It is assumed that the facilitator has already oriented the team members and has satisfactorily answered their questions concerning TTJA. The next section deals with information defining the job and its scope and proceeds step-by-step through each of the remaining stages of task list development.

4.3.2 Review Job (Step 2). Immediately following the orientation, the facilitator should state which job the operating organization needs to have analyzed. The major purpose of this discussion is to clearly establish the parameters of the job to be analyzed. Everyone needs to know the specific program that is to be analyzed.

4.3.3 Identify Duty Areas (Step 3). The next step after defining the job is to determine the duty areas of the job under which all specific tasks will fit. A duty area is one of the job incumbents main functions, characterized by a grouping of closely related tasks. This is where the brainstorming process really begins, and where the facilitator must provide enthusiastic leadership. At this point, the team may be unsure of itself and need considerable guidance.

For example, the team may have difficulty distinguishing between task statements and duty areas. The facilitator should point out that each duty area can generally be broken down into six or more task statements. Initially, it is important to get the information on paper and on the wall, even though the facilitator is aware that revisions may occur.

Generally, there are eight to twelve duty areas common for most occupations. However, the facilitator should continue to solicit contributions until the group feels that they have exhausted all possibilities regardless of the number of duty areas chosen.

Near the end of this phase of the analysis, the facilitator may ask, "Can you think of any job tasks that would not appropriately fit under one of the duty statements already on the wall?" The existence of such job tasks suggest that another area is needed.

After about an hour of discussion, the facilitator should have listed on the left side of the wall, in a vertical column, most of the duty areas of the job. When the contributions appear to be exhausted, the facilitator should read each of the duty areas aloud. Then the team should be asked if they wish to consider combining or modifying any of them. The facilitator should restate that any duty area that cannot be subdivided into six or more specific tasks should not remain as a separate duty area. Similarly, a single duty area should not be so broadly stated that it contains an excessive number of tasks.

The revision process should not be belabored at this point. The team will be able to make further changes as the analysis process continues.

Some sample duty areas include the following:

- Diagnostics
- Welding Equipment
- Pumps
- Cooling System
- Fans
- Preventive Maintenance

4.3.4 Identify Tasks (Step 4). Once the duty areas have been established to the satisfaction of the team, the facilitator should be ready to focus attention on one duty area that could be fairly easy to delineate. Usually, the team can suggest a duty area in which a number of tasks can be readily identified.

This step is also primarily a brainstorming activity. This is the most important part of the TTJA process, since the task statements that are derived are the core of the task list. The content of a training program will be generated from these tasks.

During this phase, the facilitator should emphasize the need for statements that contain an action verb and clearly reflect observable worker performances rather than knowledge or attitudes. Unacceptable statement are any that begin as follows:

- The worker should know . . .
- The worker must understand . . .
- The worker has got to appreciate . . .

If certain attitudes or knowledge are needed by the workers, there must be one or more tasks for which the knowledge or attitude are needed. Instead of blanket rejections of a knowledge or attitude statement, however, the facilitator may respond by asking the following:

- What does the worker do with that knowledge?
- Why does the worker need to know that?
- Why is that attitude important?
- How does the worker use that attitude?

These questions usually encourage the contributor or another team member to respond by saying "If the worker doesn't know theory X, he or she can't _______." This should suggest an observable task statement. If it doesn't, the facilitator should permit the members to discuss the task further, so long as they stay on topic. The facilitator should also remind the team that each task statement should begin with the unwritten preface, "The worker must be able to. . ." Frequent verbal repetition of the task being delineated may be needed to help maintain the focus of the group discussion.

As the team begins to define the first duty area, it is important that the recorder record and post the task statements as soon as possible, with a minimum of debate and negative comment. It is easy to lose a team's commitment to the process at this point if the members begin to perceive the TTJA procedure as unworkable.

Facilitators should distribute a list of action verbs to the team members. Members may also review completed task lists to enhance their understanding of the process. An effective facilitator must be an expert at writing clear and concise task statements in order to guide the team. The facilitator must also know the criteria that characterize job tasks and high-quality task statements. Criteria for job tasks and task statements are as follows:

Job tasks

- Have a definite beginning and ending point
- Can be performed over a short period of time
- Can be performed independent of other work
- Consist of two or more steps
- Can be observed and measured
- Result in a product, service, or decision

Task statements

- Reflect a meaningful unit of work
- Contain an action verb and an object that receives the action

- May contain one or more relevant qualifiers but omit qualifiers such as effectively and efficiently
- Each statement is precise and short
- Each statement should stand alone
- Use terminology, common to the job
- Avoid use of double verbs, such as "remove and repair." Use the more inclusive of the two
- Avoid use of unnecessary and flowery modifiers such as correctly. accurately, etc.
- Avoid the use of equipment or tools statements that merely support task performance. The use of tools in and of themselves is not a task activity, but a means to achieving the work task.
- Include only one task in a single statement.

If statements are well written and meet the criteria as stated, less time will be required reviewing and refining the statements.

The facilitator should keep the team members from trying to focus on more than one duty area at a time. Similarly, the facilitator should not allow the team to resequence task statements during the initial brainstorming session; A sequencing step occurs later in the process. However, if a specific process is being delineated, it may be helpful to tentatively arrange the tasks in order to assist the flow of ideas.

A concern often arises over the specification of tasks related to the tools and equipment of the trade. Generally tools or equipment operation should be included as statements only when they reflect actual occupational tasks. The team should be instructed to think about whether the tool is used as a means to an end.

For example, an auto mechanic may use several tools when performing the task of "adjust a carburetor," the mechanic's use of a screwdriver and other wrenches in the process does not represent tasks by themselves.

Once the members seem to have exhausted all of the tasks for one duty area, the facilitator should determine if the team is ready to move to another. The facilitator must not curtail the task listing too soon, and no breaks should be scheduled while listing tasks for a duty area. The facilitator should then try to guide the team in selecting a duty area with similar tasks to the one that was just completed. It is easy for the team to bog down if it switches from procedural tasks to analytical or problem-solving tasks.

This process is continued until the group has identified tasks for all duty areas. Because this stage of the TTJA process is the most time consuming, it can tax everyone's endurance, patience, and adherence to the process. As long as the facilitator remains highly motivated and dedicated to the task, the team is likely to remain so, as well.

Once all the tasks for each duty area have been identified, the facilitator should conduct a review of each task statement on the task list. The goal at this time is to improve the overall quality of the task list. The skill of the team members to identify worker tasks accurately and precisely should have continued to improve as they advance from duty area to duty area. The facilitator can capitalize on this expertise by reviewing each statement and refining those that need improvement. No sequencing should be done at this time. The team should be permitted to add any new tasks found missing or to delete or reword tasks that overlap one another.

The facilitator should normally review the tasks in the same order that they were initially identified. The facilitator should repeat the statement as it is worded and ask the team members the following:

- <u>Critique the action verb</u>. Is it the most accurate descriptor of what the worker actually does?
- <u>Review the object</u>. Does it represent the thing or person acted upon by the worker?
- <u>Check the modifiers or qualifiers, if any</u>. Are the correct ones used? Are others needed? Have unnecessary modifiers, such as "effectively" and "efficiently," been omitted?

Reviewing the task list at this stage should result in considerable clarification and numerous word changes. New cards should be written for statements that are changed in order to keep the task list as neat as possible.

The facilitator must constantly challenge the team to think of the most accurate and descriptive terms. It is important to insist on consistency and clarity.

A few other points should be stressed. A task statement should contain as few words as possible (usually a maximum of eight) and still be completely descriptive. Often, two or three words are sufficient. Long statements tend to lack focus.

Each duty area should contain at least six specific task statements. If the group can specify only two or three tasks, the duty area should probably be combined with another related area. Conversely, if a particular duty area results in a large number of tasks (e.g., fifteen to thirty), there may be justification for dividing that large area into two duty areas.

Once the tasks in each duty area have been refined, the facilitator should ask the team if the duty statement is still an accurate description of that general area of responsibility. Sometimes the scope of the duty areas should be narrowed or broadened to reflect the specific tasks more accurately. To the extent possible, each duty area should include all the tasks within the area and exclude all the tasks specified for the other duty areas.

A quick check of available work procedures is beneficial to help validate this list. This review may identify some overlooked tasks. For example, while looking at procedures a task is found that is only performed every three years, is critical, but was not discovered during the brainstorming session due to its infrequency.

The facilitator's role is to stimulate the team to make any necessary refinements that may be needed. The facilitator should question and challenge their statements and even propose alterative wording, but must always allow the team to make all the technical content decisions.

4.3.5 Sequence Task and Duty Areas (Step 5). Although sequencing the duty areas and task statements does not take a lot of time, the results of the sequencing add significantly to the quality and appearance of the final task list.

Before sequencing the task statements within each duty area, the facilitator should provide the team with a rationale for sequencing them. Because a TTJA analysis is usually conducted to provide a sound basis for later curriculum and instructional development, the best rationale for sequencing is to place the tasks that workers would normally learn and use first on the job on the left side of the wall.

The facilitator may ask team members to role-play the hiring of a new employee who cannot perform any of the tasks on the chart. The members then should decide, area by area, which tasks they would expect the employee to learn and practice first.

A few other factors should also be considered when sequencing the tasks. Some tasks, because they represent parts of an overall process, are performed in a natural, chronological flow and are very easy to sequence. Other tasks may involve activities that are very difficult to sequence because the order in which they are learned or performed is arbitrary. Sometimes they will discover two or more subsets of tasks in one duty area that logically follow one another.

Usually, the facilitator should select the first duty area to be sequenced. Based on his or her knowledge of what needs to be done, the facilitator can select an area in which some of the tasks are already sequenced according to the criteria or in which it appears that such sequencing may be readily accomplished.

An option here is to start with a duty area that has a clear space below it and simply move the duty area downward and begin placing the task statements to the right of it.

During the task sequencing phase, the team may discover a missing task statement, one that overlaps another, or some other need for revision to improve quality. The facilitator should not permit major changes at this point, but some revision can be expected. Once a group of tasks has been sequenced, review it from beginning to end (left to right) to ensure final agreement before going on to the next duty area.

Once the group has sequenced all of the task statements, the facilitator should ask the team to study all duty areas. The objective now is to organize the entire analysis as it will appear on the printed task list. Two factors should be considered at this point.

First, sequence the duty areas logically (i.e., chronologically or hierarchically).

Second, the facilitator should suggest the vertical shifting of one or more duties adjacent to an area that has similar tasks or that logically follows the previous band. It should be noted, however, as with the task statements, that the top-to-bottom sequencing of the duty areas usually is partly an arbitrary one.

The facilitator should now be ready to obtain final agreement on whether the task list is a reasonably accurate and comprehensive description of the job. Normally, the members will quickly agree that the chart is complete, especially if the process has been followed, and will want to know how soon they can show a copy to their supervisor(s) and colleagues.

4.3.6 Select Tasks for Training (Step 6). During this step the facilitator will help the team members to sort each task into categories of "no train," "pre-train," "train," or "overtrain" tasks. The facilitator should inform the team that some training can be effectively completed with non-formal training; these will be the "no-train" tasks. Other tasks will require documented training and evaluation in a formal training program ("train" and "overtrain"), while still others require formal training and evaluation "pre-train" just prior to task performance (for example, a task completed only every three years).

The team will apply criteria to determine the designation of each task.

4.3.6.1 Criteria for a "No Train" Task.

- High frequency of performance

- Low difficulty
- Low probability of error
- Low consequence of error
- Can be confidently performed with mentoring, informal OJT, job experience, and/or a job aid/procedure

4.3.6.2 Criteria for a "Pre-Train" Task.

- Extremely low frequency
- Time is available for training prior to task performance
- Worker needs training prior to task performance

4.3.6.3 Criteria for a "Train" Task.

- Moderate consequence of error
- Related task performance maintains proficiency on the task
- One-time training is sufficient for task performance
- Moderate frequency
- Can task be performed without use of a job aid/procedure?

4.3.6.4 Criteria for an "Overtrain" Task.

- Task requires frequent practice to maintain proficiency
- Proper task performance is critical to safety (extreme consequences)
- Generally low frequency

4.3.6.5 Selecting Tasks. The team will now categorize tasks within each duty area as "no train," "pre-train," "train," or "overtrain" based on the aforementioned criteria. The team will then come to consensus on each task. All tasks with similar classifications will be grouped together.

For further information, refer to Addendum B - Facilitator Guide.

4.4 Completing the Task List. It is important that the format that is chosen for the task list be professional looking and user friendly. The physical layout and appearance of the format adopted can do much to create a favorable impression for those who use the task list. Once the design is chosen, it should be used for all of the facility's table top analysis.

Once the task list with the tasks selected for training is printed, the team members should review the tasks and their selections one last time. When the review is complete the team should document their participation in the process approval of the task list. In addition to the team members, an empowered member of the instructional staff should also review and approve of the task list.

The final review should be made by facility management. A cognizant manager should approve the list showing management buy-in to the process and demonstrating their commitment.

These reviews close out this job analysis process, with the result being a self-validated task list with tasks selected for training. With proper coordination between management, the recorder, the instructional staff, and the team, the review and approval process can be an integral part of the session.

4.5 Follow-up Activities. One of the most important follow-up activities is to determine training program content. The task list will facilitate this activity. A table top team can be used in order to identify:

- the steps/activities involved
- the related knowledge required
- the attitudes involved
- the performance standards expected
- the tools and materials needed
- the entry-level criteria
- and the safety concerns.

This information will provide the basis for developing the instructional materials.

It is extremely important that each DOE facility conducting table-top job analysis carefully document the process that was used during the job analysis. A document which details the personnel involved, the task list prepared by the team, and the Task-to-Training Matrix (see ASAT Handbook) should be maintained by the facility for auditing purposes. The facility should also describe how the Task-to-Training Matrix will be updated.

TTJA has proven itself an effective, efficient, and viable alternative to traditional job analysis procedures. When properly used, TTJA is a powerful tool for evaluating an existing program or developing a new one.

5. NOTES ON USING ADDENDUMS

Much of the material that is included in the addendums is taken directly from courseware used to facilitate TTJA sessions at facilities.

Addendum A is a Coordinator Guide. The Coordinator Guide is a self-study instrument designed to facilitate TTJA coordination. It includes information and recommendations to assist the person designated as Coordinator in scheduling and planning of a TTJA seminar. Time guidelines and recommended timelines for various events are included to assist the Coordinator. Self-checks are provided throughout the document to help ensure understanding of the process.

Addendum B is a Facilitator Guide. It also is a self-study guide for the appointed Facilitator. Prospective facilitators will get the information they need to perform their duties as facilitators with the guide. The Facilitator Guide also contains lesson plans associated with the orientation process. Training aids are not provided, since this addendum is for reference only.

Addendum C is a verb list that can be used when writing task statements.

ADDENDUM A

COORDINATOR GUIDE

U.S. Department of Energy

DOE/ID-10435

5480.20 Training Seminar Series:

"Table-Top Job Analysis"

Coordinator Guide

March 1994

FOREWORD

The table-top process is a method of job analysis in which a team of subject-matter experts--job incumbents, engineers, supervisors, and other experts as applicable--and instructional technologists meets to identify the tasks performed in a specified job position. The task list serves as the basis for determining the content that should be included in the training program.

To coordinate the table top job analysis (TTJA) seminar, someone at the facility must be designated as the "Coordinator," who is responsible for making the necessary pre-seminar arrangements. **This *Coordinator Guide* is for use by the facility-designated Coordinator**. It will help the Coordinator organize a successful TTJA seminar by providing an overview of TTJA and step-by-step directions and easy-to-use checklists and examples needed to fulfill all Coordinator responsibilities.

The 3-day TTJA seminar helps the facility develop a valid task list and select tasks for training, as reflected in the seminar's terminal objective:

> **"Using the Table-Top Job Analysis process, participants will DEVELOP a task list and SELECT tasks for training that meet the intent of DOE Orders 5480.18A and/or 5480.20."**

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CONTENTS, Cont'd

HOW TO USE THE COORDINATOR GUIDE

Thank you for serving as the "Coordinator" for organizing the 3-day seminar titled "Table-Top Job Analysis" (TTJA). Your role is crucial to the success of the seminar; a success which in turn will promote the quality and usefulness of the seminar end product: a task list that will serve as the basis for training program content. Your participation as Coordinator will help your facility efficiently and cost-effectively meet the requirements of DOE Order 5480.18A and/or 5480.20.

This *Coordinator Guide* provides step-by-step directions, easy-to-use checklists, and examples to help you prepare for and follow-up after the seminar.

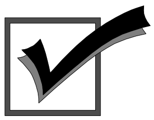
This Guide is divided into three segments:

Segment	Topic
1	How Do You Know if You Need the TTJA Seminar?
2	Directions for Completing Each Item on the Coordinator Checklist
3	Coordinator Checklist

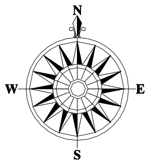
Feel free to write in this Guide and use it as a note-taking tool. Your facility will be given a master set of all TTJA seminar materials from which you can make clean copies for future TTJA seminars. An extra "TTJA Planning Sheet" and "TTJA Checklist" are provided in the pockets of this Guide for your use. You may also want to keep additional notes and memos in the pockets so you will have a complete record of your work as you organize the seminar.

SYMBOLS

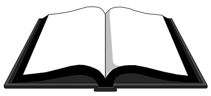
Symbols are used in this Guide to alert you to important activities or points.



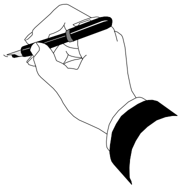
This symbol denotes a checkpoint where you will apply the information in the segment to your specific needs.



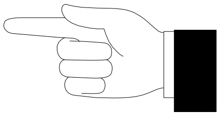
If you see this, read the directions.



This symbol means read the text.



This symbol means to write your response in the space provided or take the action specified.



When you see this symbol, we'll recap previous information.

SEGMENT 1

HOW DO YOU KNOW IF YOU NEED THE TTJA SEMINAR?

WHY CONDUCT JOB ANALYSIS?

Learning objectives and evaluations are based on the task list, so training is effective and efficient

Job analysis results in a valid task list which serves as the basis for objectives that job incumbents learn and perform in a formal training program. This analysis ensures that job incumbents learn exactly what is needed to perform their jobs safely and competently without spending too much time in training (learning things irrelevant to their job) or too little time in training (not learning everything they need to know, or not having their performance of tasks evaluated before working in the field). Basing a training program on a valid task list leads to more productive, safe, and competent job performance.

WHAT IS THE PURPOSE OF THE TTJA SEMINAR? WHAT ARE THE PRODUCTS?

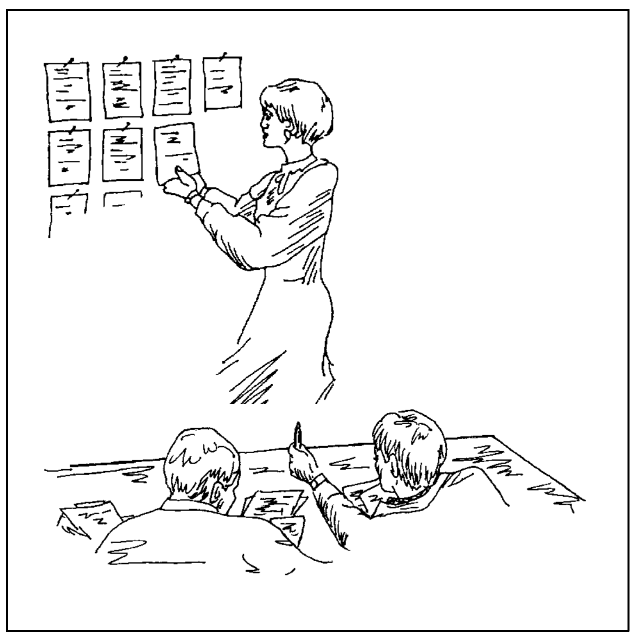


Table-top job analysis includes a team of subject matter experts (SMEs) and a supervisor that meets in a workshop to identify a list of tasks performed in a specific job and to determine which of those tasks should be included in the formal training program. A Facilitator guides the team through the process and writes and posts the task statements on a wall or other easy-to-see surface. The end product of the seminar will be a valid list of tasks selected for training for that one job position.

The end product of TTJA is a valid task list with tasks selected for training

TTJA Steps

1. Orient team (training portion)
2. Review job
3. Identify duty areas
4. Identify tasks
5. Sequence tasks and duty areas
6. Select tasks for training

The 3-day TTJA seminar includes a 1/2-day "training portion" (participants learn the TTJA terms and steps) and 2-1/2 days of "workshop" (participants apply what they learned as they perform each TTJA step).

WHO SHOULD BE INVOLVED?

TTJA is usually conducted for one job position at a time. A **job position** involves all the activities assigned to one individual. Numerous individuals may be employed with the same job position (though not necessarily the same job title).

Examples of job positions include:

- Health Physics Technicians
- Chemistry Technicians
- Reactor Operators
- Tank Farm Operators
- Distribution and Inspection Operators
- Hazardous Waste Management Technicians
- Pipefitters

The people who would be involved in a given TTJA session would be those SMEs and a supervisor who are familiar with the specific job position being analyzed. The SMEs would include job incumbents and/or engineers who understand the design of facility systems (as applicable). Depending on the job, SMEs from similar facilities might also participate. For example, if you want to base a "Health Physics Technician" training program on a valid task list, you would invite 2-4 Health Physics Technicians, 1 of their immediate supervisors, and, as applicable, 1-2 other facility Health Physics SMEs to participate in the TTJA seminar. You would <u>not</u> want to invite 1 Health Physics Technician, 1 Chemistry Technician, and 1 Reactor Operator to participate as team members in one TTJA seminar. These are very different jobs, so the people on the team would not be able to work together productively to develop a list of "Health Physics Technician" tasks.

WHEN IS THE TTJA SEMINAR APPROPRIATE FOR YOUR NEEDS?

The TTJA process will satisfy requirements of DOE Orders 5480.18A and/or 5480.20

When you are responsible for developing or revising a job-specific training program using a systematic approach to training and:

1. No training program currently exists for the job position, or

2. There is an existing training program for the job position but it is not based on a current, valid task list,

then this seminar is for you.

The table-top process, when used properly, has proven to be a more efficient, cost-effective method for developing a task list than traditional job analysis methods such as survey questionnaire or observation. It is effective as a stand-alone process and when used in combination with other job analysis methods such as verification analysis (using another facility's task list as a basis for your own) and document analysis (reviewing procedures or other documents to determine tasks). This TTJA seminar combines the table-top approach with verification analysis and documentation analysis.

WHAT IS THE COORDINATOR'S ROLE IN TTJA?

Coordinator's responsibilities

As the Coordinator, your role is to make the necessary pre-seminar arrangements, such as selecting TTJA team members, gathering job-related information for use during the seminar, and scheduling the seminar meeting room. The Coordinator may or may not act as the Facilitator of the seminar.

Summary

1. TTJA involves a team of SMEs (job incumbents, engineers, etc.) and supervisors who identify the tasks involved in one specific job position. An instructional technologist should also be involved, usually in the role of Facilitator.

2. The valid list of tasks selected for training serves as the basis for training program content.

3. The Coordinator's role is to arrange the 3-day TTJA seminar by completing this Coordinator Guide.

Checkpoint

Who initiated the request for the 3-day seminar?
Name Phone

For which job position will your facility be developing a task list during the 3-day TTJA seminar?

Is there an existing task list at your facility for this job position or a similar job position?

Does your facility have well-written procedures that describe task performance?

SEGMENT
2

DIRECTIONS FOR COMPLETING EACH ITEM ON COORDINATOR CHECKLIST

Directions

USE THE YELLOW PLANNING SHEET AND CHECKLIST TO PREPARE FOR AND FOLLOW-UP THE TTJA SEMINAR.

Read the information in **THIS SEGMENT** to obtain **DETAILED EXPLANATIONS** of each item on the checklist.

NOTE: It will not require a full-time effort for 30-90 days to complete these items, but it will most likely require 30-90 days for adequate leeway in scheduling participants and a meeting room.

30-90 DAYS PRIOR TO TTJA SEMINAR

NOTE: The items listed in this section will typically be completed concurrently rather than sequentially.

Item 1: Identify Potential TTJA Participants

TTJA involves a team of SMEs and supervisors and a Facilitator (usually an Instructional Technologist). You may invite observers to learn the TTJA process.

Size of team

The team members (SMEs and supervisors) use their technical expertise to determine the task list. The same team members should participate throughout the entire TTJA seminar. The ideal TTJA team is composed of 2-5 SMEs and 1 immediate supervisor. TTJA should be conducted with enough team members to fairly represent the workers involved in a job position and to allow group interaction. If there are so few job incumbents in the position being analyzed that a facility cannot commit at least three members, perhaps people from a neighboring facility who have similar job positions could provide additional team members. For example, a TTJA team for Laboratory Technicians at Savannah River Site might consist of laboratory technicians from S-Area, H-Area, and K-

Area. It is best to select 5-8 people so that if one or two people cannot participate at the last minute, the team will still be functional.

Number of observers

The people responsible for developing the subsequent training materials should facilitate or at least observe the process. Other people who wish to learn how to conduct the process should also observe. **NOTE**: We suggest you do not invite more observers to attend than you have as team members. For example, if there are 4 team members and 9 observers, the team members may feel uncomfortable, like they are "on trial," and this may reduce their effectiveness on the team. If there are 4 team members, invite 4 or fewer observers.

One of the most critical aspects for organizing a TTJA seminar is selecting the most appropriate team members. The quality of team interactions and thus the end product--the task list--will depend heavily on the people selected. After discussions with management, select team members based on the qualifications described below.

Subject Matter Experts (SMEs)

Who are SMEs?

In the context of this seminar, the term **subject matter experts** typically means the actual job incumbents of the job position being analyzed and, as applicable, engineering personnel responsible for the design and safety analysis of facilities/activities. In some cases there may be no expert job incumbents (e.g., when determining training requirements to teach people a new system/process). In this case, the SMEs may consist of engineering and design personnel or perhaps experts from other facilities who may be familiar with that system/process.

Job incumbent qualifications

Job Incumbent Qualifications

1. Full-time employee in job being analyzed
2. Perceived as the "role model" for proper job performance
3. Highly skilled and knowledgeable regarding the tasks
4. Aware of new procedures, equipment, and "lessons learned"

Job Incumbents

Expert job incumbents are in the best position to explain "what they do." Therefore, the job incumbents selected as TTJA team members should be full-time employees in the job being analyzed. Being full-time helps ensure their knowledge of and

familiarity with all aspects of the job. They must be technically competent and perceived as "role models"
for proper job performance. They must be highly skilled and knowledgeable regarding the tasks required to perform the job, and aware of current developments such as new procedures, new equipment, as well as facility and industry "lessons learned." Many years of employment does not necessarily qualify a person as a competent TTJA member.

Engineers

Engineer qualifications

As applicable, engineers should be selected based on their knowledge of how the facility systems are designed and should be operated. They must also be familiar with the tasks involved in the job position being analyzed and have a good working relationship with the job incumbents.

Other SMEs

If the TTJA seminar is being conducted for a job that is performed in more than one facility at a site, then you might want to consider broader-based "job representativeness" as an additional selection criterion. For example, the Health Physics Technician job position is common in the DOE community. If TTJA is being conducted at the Oak Ridge National Laboratory for the Health Physics Technician job, then the team might consist of representatives from Y-12, X-10, K-25, etc. (assuming one master task list for this job position will be used throughout ORNL). Additionally, if two or more DOE sites choose to save money by sharing a task list for a common job position, the TTJA team might also have representatives from Paducah and Portsmouth.

Supervisors

Supervisor qualifications

Supervisors should be those who directly supervise the job incumbents performing the job being analyzed. Supervisors who have had recent practitioner-level experience in the job can provide useful insights into the job being analyzed and can provide continuity to the process since

Supervisor Qualifications

1. Directly supervise the job incumbents who perform the job being analyzed
2. Recent practitioner-level experience in the job
3. Good working relationship with job incumbents serving on team

they know what is considered "desirable" worker performance. Supervisors also help filter the tendencies of some job incumbents to include managerial or other higher-level tasks that job incumbents do not actually perform. The caution is to make sure the supervisors have a good working relationship with the job incumbents so the SMEs on the team will not feel hindered or threatened when describing their jobs. The supervisor selected to participate on the team must be someone who will listen to and consider the contributions of all team members, even though the supervisor may disagree on some discussion points. The entire team must be able to come to consensus on decision points, without the supervisor's opinion carrying more weight than the other team members'.

CAUTION

In addition to the technical competence required of the SMEs, supervisors, and engineers, there are some interpersonal skills they must all possess:

Qualifications for all team members

Interpersonal Skills Required by all Team Members

- the ability and willingness to clearly describe the tasks they perform in a precise and accurate way
- the skill of listening respectfully to the views of others and participating effectively in group discussions without dominating or being dominated
- the disposition toward not overreacting to criticism or having their contributions analyzed/reorganized
- the disposition toward being a team player who believes in the TTJA process and who wants to participate in the process (this excludes people who are "sent" without explanation or are simply assigned by their supervisor to "fill a seat" on the team)
- the ability to be open-minded and free from biases related to training methods, training time, and trainee qualifications

Facilitator

Facilitator's Role

The Facilitator's role is the TTJA process expert who facilitates the TTJA steps but does not provide technical input toward the task list. Two people usually serve as Facilitators, alternating between

"Facilitator" and "Co-Facilitator." Facilitators must have technical expertise in conducting job analysis and expertise in the table-top analysis method. Preferably, Facilitators will be qualified to facilitate TTJA through training and practical experience. In the context of this 3-day seminar, the Facilitators must also possess strong instructional skills in order to teach the lessons on the first day dealing with TTJA, nominal group technique, and consensus decison-making.

A successful TTJA seminar hinges on the Facilitator's succesful use of (a) interpersonal skills, (b) special facilitating skills, and (c) expertise in the entire Systematic Approach to Training (SAT) process.

Facilitator qualifications

Interpersonal Skills Needed by Facilitator

- FLEXIBILITY!!!
- the ability to establish and maintain enthusiasm -
- patience
- the ability to display and maintain a positive image
- a high degree of sensitivity to both verbal and nonverbal communication
- excellent memory
- a sensitivity to others
- a sense of humor

the ability to make decisions

- excellent listening skills
- the ability to display warmth and establish rapport quickly with team members
- the ability to motivate, encourage, and focus team members

Special Skills Required of TTJA Facilitators

- expertise in job analysis processes
- expertise in the table-top analysis method
- skill in questioning techniques
- the ability to act as a process expert who leads and controls the process but allows team members to act as content experts who make content judgments and decisions
- skill in small-group dynamics
- skill in obtaining small-group consensus
- the ability to establish and maintain the team's pace, balance, and participation
- the ability to recognize vague statements and help the team select the most appropriate action verbs, task statement modifiers, and nouns

When selecting a TTJA Facilitator, you must carefully compare a candidate with the checklist of interpersonal skills as well as the special skills listed above. At a minimum, the candidate should be extremely familiar with the job analysis and task analysis processes and possess excellent facilitation skills. Someone who is flexible and can adjust to changing needs is crucial. Because of the importance of the Facilitator, if the right person cannot be found, you may consider using outside experts who have been trained in this particular TTJA process.

Who are "observers"?

Observers

Several types of people might be interested in observing the 3-day seminar. Most important are those who will be required to develop the training materials based on the task list that will be produced during the seminar. These "developers" should attend the entire 3 days, taking notes on the many training-related discussions. Observing will also help them follow through with follow-on SAT steps.

Other training staff from your facility training department may want to learn how to conduct future TTJA seminars and would therefore benefit from observing the process. These trainers should participate during the "training" portion and then observe during the "workshop" portion. To gain TTJA facilitation experience, the Facilitator may ask these trainers to co-facilitate portions of the seminar.

Procedure writers from your facility may also benefit from observing the seminar. Since procedures should be based on the tasks required for competent job performance, this provides an excellent base for ensuring that all procedures are written as needed, are based on current information, and have buy-in from the job incumbents.

People from other DOE facilities may also be interested in observing to see how the process can be used at their own facility. This has helped save time and money throughout the DOE complex. One caution, however, is that having observers from other facilities may promote an unhealthy feeling of "competition" with your facility. Be careful to set a positive tone when inviting observers from other facilities, and the Facilitator should be careful to explain the role of observers.

Item 2: Secure Management Approval

With whom must you seek approval?

Name Phone

It is important for you to personally, if possible, explain the TTJA process to all affected management levels and obtain their commitment to the planned TTJA seminar. If you cannot do this in person, make the necessary contacts by phone.

Possible People to Contact

1. Your management for approval of your participation as Coordinator
2. Operating organization(s) management that employs people in the job being analyzed
3. The managers who can release expert job incumbents and their supervisors for participation in the seminar
4. Training organization management responsible for associated training program

NOTE: Securing management approval has been shown to be critical. Without management support for allowing the team members to participate the entire time, uninterrupted, then the seminar may not be completed within the allotted time and the results may not be completely valid. Recognize, however, that management may be reluctant about this process at first. They may have previously experienced traditional job analysis methods, where much SME time was requested to participate in surveys, interviews, and other methods. You will need to be sensitive to this and help management understand that this process requires only 3 days of full-time commitment by a handful of SMEs and supervisors and it will result in an immediate product--a valid list of tasks selected for training that will serve as the foundation for training program content.

Your discussions with management should include topics such as:

1. *Why job analysis is beneficial and why the Table-Top process produces fast results*. Use Segment 1 of this Guide to explain the necessity of job analysis. Point out that in order to meet DOE Orders 5480.20 and 5480.18A (if applicable), the training program content for the (name of job position being analyzed) should be based on a valid task list.

2. *Purpose of Seminar*. Explain that during a 3-day TTJA seminar, the task list will be developed and, at the same time, facility training staff will learn how to conduct future table-top job analyses for other training programs that must meet the Orders.

3. *Agenda*. An agenda for the 3-day seminar is shown on the next page.

4. *Who Needs to be Involved*. Using the information from the previous section, explain that the seminar must involve a special mix of people who must be allowed to participate, uninterrupted, for the entire 3 days:

   - 2-5 SMEs
   - 1 supervisor
   - 1 coordinator
   - 2 facilitators
   - 1-5 observers

Solicit suggestions for potential team members and a possible date

   In addition, 1 manager from the operating organization needing the task list should conduct a brief (1-2 min.) welcome during the "Introduction" lesson on the first morning of the seminar. This person should welcome the team officially, thank the team members for their participation, and recognize the importance of the team's contributions in the seminar. The operating organization management should drop-in periodically throughout the seminar to see how it is progressing. Especially toward the end of the seminar, management should observe long enough to understand the resulting product and express their support for the people who participated in the process.

Ensure management will be somewhat visible throughout seminar

Have management talk with potential team members in advance

   Ask managers to suggest potential team members based on the "qualifications" described in the previous section. Ask **management** to inform potential team members of the upcoming seminar prior to the time when you invite the team members to participate (refer to Segment 2, Appendix A, for a sample letter management could use to invite participants). This will help alleviate resistance by job incumbents and eliminate rumors about why the job position is being examined.

Item 3: Establish Dates for 3-Day TTJA Seminar

There are several things to keep in mind when selecting the date for the 3-day TTJA seminar.

Agenda for Table-Top Job Analysis Seminar

Day 1

8:00 - 12:00	Step 1: Orient Team (training portion)
1:00 - 5:00	Workshop
	Step 2: Review the job
	Step 3: Identify duty areas
	Step 4: Identify tasks

Day 2

8:00 - 5:00	Workshop (cont'd)
	Step 4: Identify tasks (cont'd)

Day 3

8:00 - 4:30	Workshop (cont'd)
	Step 5: Sequence tasks and duty areas
	Step 6: Select tasks for training
4:30 - 5:00	Seminar Summary

1. Remember that it may take you up to 30-90 days to complete all Coordinator responsibilities (only part time, of course).

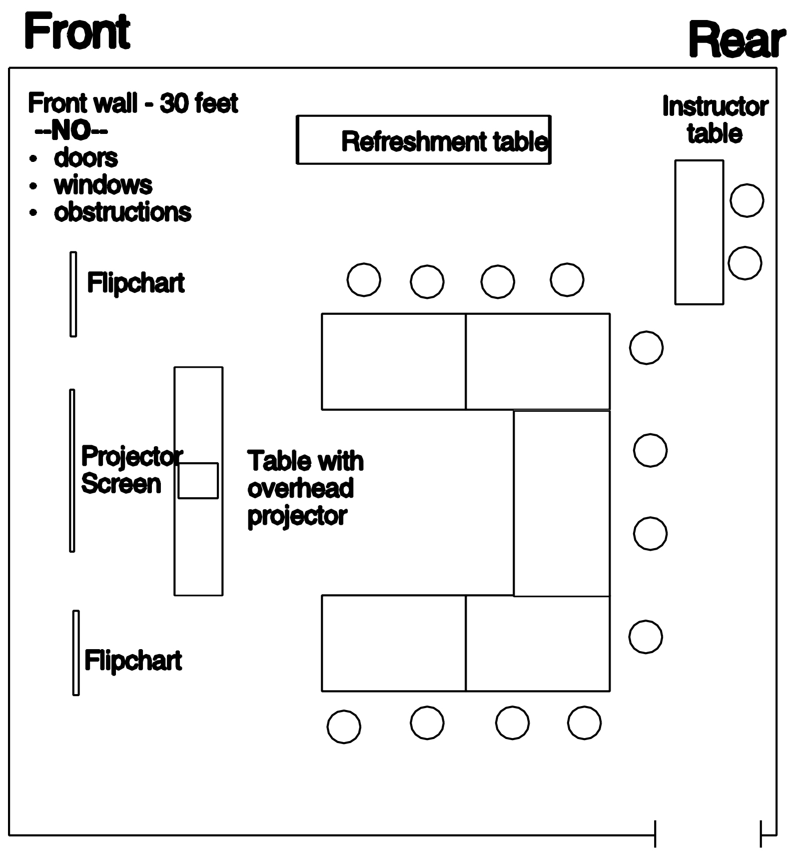
2. When the 3-day TTJA seminar is being delivered by outside experts, you will need to work with them to schedule a date. Tuesday through Thursday may work best to accommodate travel schedules.

3. When seeking management's approval (previous section), ask if they have suggestions for dates that would best accommodate potential TTJA team members (shift schedules, scheduled outages, etc.).

4. Depending on where the seminar will be held and who is invited, consider whether people will need time to transfer security clearances.

Item 4: Select and Schedule Seminar Meeting Room

In what room will the seminar be held?



Check the room to make sure it meets these standards

Make sure there is adequate wall space to post all tasks

Because the TTJA process depends heavily on group dynamics, certain features are required of the room in which the seminar will be conducted. The room should have an unbroken wall surface of at least 30 feet on two walls and should be of sufficient size to comfortably accommodate the team and observers. Since the Facilitator will be writing each task on a separate piece of paper and then posting it on the wall (and there may be literally hundreds of tasks, so it may take more than one wall to post all tasks), there should be no doors, windows, or other obstructions on the TTJA walls.

Notice the wall surface

Notice the surface of the walls. Hundreds of pages will be hung on the wall and moved around, yet the integrity of the wall must be maintained. Are they hard painted walls? Are they corkboard or some other cloth-covered surface? Make a note of the surface so you can tell the

Facilitator which materials will be most appropriate for hanging the pages on the wall (non-marking putty, tape, post-it pads, push pins, staples, etc.). (Refer to the supply list provided later in this segment.) Note: Due to the uneven surface, the folding, accordion-style partition walls will not work for this seminar.

Make sure tables can be arranged as needed

To facilitate interactions during the TTJA seminar, the members should be comfortably seated so they can easily see and hear each other, as well as read items placed on the wall. The best arrangement is to seat team members in a semicircular arrangement. The members should actually face the wall where their ideas will be posted. The tables create work space for the team members. Observers will also need table space and should be seated in the semicircle with the participants during the training portion of the seminar. A small table for supplies should be located at one end of the wall.

Schedule equipment

The room will need to be equipped with a VHS VCR with a monitor or TV, an overhead projector with screen, two flipchart stands with 4 pads of flipchart paper, and one small calculator. The Facilitator will need a portable computer and access to a printer. Make sure you coordinate computer needs with the Facilitator.

Arrange for refreshments, if possible

The Facilitator must be allowed to apply accelerated learning techniques during this seminar. People need to be relaxed, alert, and energized to make the seminar a success. To help with this, arrange for healthful refreshments such as juice, ice water, coffee/tea, fruit, vegetables, crackers, etc. The Facilitator may bring a music system with appropriate music (if this is allowed in the facility).

Check the lighting

There are pros and cons to conducting the TTJA seminar at the facility vs. away from the facility. Holding the seminar on-site is convenient if team members need to refer to procedures, reports, etc., to help them identify the tasks involved in the job. Holding the seminar off-site will help reduce work-related distractions and, if people from outside the facility will be attending, it will reduce the amount of paperwork needed for security clearances. The guiding principle is to select a room that meets the criteria listed above, is conducive to interaction, and is free from distraction. The room should be located in a quiet area and should be well-lighted (no dark shadows on the work tables or on the walls) and well-ventilated. Check the climate control system prior to the seminar.

30-60 DAYS PRIOR TO TTJA SEMINAR

Item 1: Contact Prospective Team Members

Team members are the SMEs (job incumbents, engineers, others) and supervisor

The best way to inform team members is to meet personally with each potential member, as arranged through the organization management, 30-60 days prior to the seminar. If there is time, this one-on-one technique elicits the best results. Then send a formal invitation (refer to Segment 2, Appendix B, for example).

Team members may be hesitant to make commitments to a new or different experience. Job incumbents, in particular, may fear their jobs are being examined for possible reorganization or lay-offs. To alleviate this fear, organization management should discuss TTJA with all job incumbents prior to your meeting with them. You must also reinforce the purpose for the seminar by explaining to the team members:

Explain these issues to potential team members

1. *The purpose of job analysis*. Use Segment 1 of this Guide to explain to potential team members the purpose of job analysis.

2. *Why they were chosen as potential team members*. Management chose people to participate on the TTJA team because of their expert knowledge of the job and ability to work effectively on the team.

3. *Their role as team members*. The role of team members is to use their technical expertise by working with the team to identify/develop a list of tasks performed in a specific job position.

4. *Date of Seminar*. The 3-day TTJA seminar will be conducted (date of seminar) and management has approved time for team members to participate the entire three days.

5. *Attendance requirements*. If interested in participating, team members must commit to be in attendance throughout the entire seminar. Confirmation letters will be sent 2-3 weeks before the seminar.

Who agreed to participate?

Names

Do not ask someone to be a team member if they are obviously not interested in the activity, since that person will probably not be a major contributor and may even be detrimental to the success of the seminar. Do not accept a potential team member if the person cannot make a full-time commitment to the seminar for the 3 days. It is better to select an alternate member than to accept someone who will disrupt the process or destroy the continuity by being there only part of the time.

Item 2: Contact Prospective Observers

Observers are the developers, trainers, procedure writers, others

The purpose of this 3-day TTJA seminar is to develop a task list for the job position, but it is also to teach the facility training staff how to conduct TTJA. When you discussed this process with training management, you should have solicited names of people to attend the seminar to learn the process. When contacting them, explain that they are invited to attend the entire 3-days, take part in the training portion the first day, and then observe the TTJA process the following two days. The Facilitator may ask them to help facilitate portions of the seminar to help them learn how to conduct the seminar themselves. Training staff will be given a set of all lesson plans, guides, and materials for them to follow along as they observe and to use when conducting future TTJA seminars. (Refer to Segment 2, Appendix C, for sample invitation letter.)

Item 3: Contact Operating Organization Management

Ensure that the operating organization manager who agreed to serve as the "welcoming official" understands he/she should drop in periodically to observe the seminar proceedings. Near the end of the seminar, this person should attend long enough to show visible buy-in of the results. (Refer to Segment 2, Appendix D, for sample invitation letter.)

20-30 DAYS PRIOR TO TTJA SEMINAR

Item 1: Gather/Send Information for Review by Facilitator

You will need to gather job information and send it to the Facilitator at least 20-30 days prior to the TTJA seminar. A list of this information is provided on the next page. Prior to the seminar, the Facilitator will use this information to prepare real-life examples for use during the seminar and to determine if the procedures will be useful to the team when identifying tasks for the position being analyzed. Having this information in advance and during the seminar will greatly enhance the Facilitator's ability to help the team progress through each TTJA step.

Send to the Facilitator:

- the title of the job position/program being analyzed
- a brief job description (job posting)
- the completed TTJA Planning Sheet (refer to Segment 3)
- the existing task list for the job position or a similar job
- a list of all procedures associated with the job
- 3-5 procedures that describe the tasks involved in the job (or all of them, if possible and not too bulky)

Item 2: Confirm Arrangements with all TTJA Participants

The confirmation letter you send to all participants (refer to sample in Segment 2, Appendix E) should include the meeting time and location. Stress that each team member must be present and participate in all portions of the seminar. Each team member must also be on time for all sessions, because people who are late or part-timers who miss some of the orientation or group discussion may seriously disrupt the proceedings. Send copies of these letters to the appropriate supervisors or managers. Remember also to confirm the introduction, observations, and ending by the operating organization manager (welcoming official).

5-10 DAYS PRIOR TO TTJA SEMINAR

Item 1: Call each TTJA Participant

It is highly recommended that you make confirming phone calls to each TTJA participant (team members, observers, and welcoming official) 5-10 days prior to the seminar. This provides them with an opportunity to ask questions and to confirm their plans to attend. If several people must cancel at this time, there is still time to seek qualified alternates.

Item 2: Gather Seminar Supplies

The lists on the next page show all items necessary for conducting the seminar. The Facilitator usually brings the supplies, participant materials, and instructional materials. The Coordinator is usually responsible for having "equipment" and "other" supplies available in the

Supply List (Facilitator will provide)

3 pkg	Plasti-Tac non-marking putty for hanging pages on wall
2 reams	8-1/2" x 11" white paper (unlined)
1 ream	8-1/2" x 11" yellow paper (unlined)
1 pkg	looseleaf notebook paper
10	6" x 4" post-it note pads (unlined)
10	1-1/2" x 2" post-it note pad (unlined)
15	black or blue ink pens
15	yellow highlighters
15	pencils
3 boxes	flipchart markers with permanent, non-bleed through ink in a variety of dark/bright colors (not orange or yellow)
1 set	transparency markers
1 box	whiteboard markers
1	pointer
1 box	push pins or thumb tacks
1	stapler with staples
1 roll	duct tape
2 rolls	masking tape
1 roll (w/dispenser)	scotch tape
2 rolls (w/dispenser)	post-it tape

Participant Materials (Facilitator will provide)

15	name placards
15	Participant Manual (enough for all attendees, including observers)
1 set	Seminar materials for each observer (Coordinator Guide, Facilitator Guide with lesson plans)

Instructional Materials (Facilitator will provide)

Posters
Videotape
Distributed handouts
Overhead transparencies

Equipment List (Coordinator must provide in meeting room)

1	VCR (VHS) with monitor or tv
1	overhead projector
1	overhead projector screen
2	flipchart stands
4 pads	flipchart paper
1	calculator
1	computer and printer (coordinate with Facilitator)

Other (Coordinator must provide in meeting room)

3 copies	available job information (all job-related procedures, system descriptions, process and instrument diagrams, and other materials relevant to the job position)

meeting room. Coordinate these arrangements with the Facilitator.

DAY BEFORE TTJA SEMINAR

Item 1: Make Final Check of the room, supplies, equipment, refreshments, and all other arrangements. Bring several copies of all documents that may help team members identify tasks (procedures, system descriptions, process and instrumentation diagrams, manufacturer documents, technical specifications, safety analysis reports, operational safety requirements, etc.). Be sure the tables are arranged appropriately.

Item 2: Meet and Review Plans with Facilitator

In addition to ensuring everything is set up appropriately in the room, ask the Facilitator what you should say when introducing the Facilitator during the seminar introduction. The Facilitator should give a brief biography to you for this purpose.

Item 3: Discuss Introductions with Welcoming Official

Make sure the welcoming official (a manager from the operating organization needing the task list) understands what he/she is supposed to say and how long to spend talking during the Introduction (refer to next section). Ask the welcoming official if there is anything special he/she would like you to say when you introduce him/her.

DAY OF TTJA SEMINAR

Item 1: Conduct Introductions

This seminar begins with a series of short introductions:

1. First, you should introduce the welcoming official. The manager should welcome the team officially, thank the team members for their participation, and acknowledge the importance of their contribution in this TTJA seminar. (This should only take 1 minute.)
2. Second, you should introduce the Instructor/Facilitator for this seminar. You should acknowledge the skills required to be a Facilitator and then briefly explain the Facilitator's qualifications and experience according to the biography. (This should only take 1 minute.)

3. Then the Facilitator will introduce him/herself by stating his/her name, where he/she works, what his/her primary job is, and what his/her experience has been in performing table-top job analysis. (This should only take 2 minutes.)

AFTER THE SEMINAR

Obtain from the Facilitator:

1. The cover letter explaining how the task list was developed and who was involved
2. The typed list of tasks selected for training (on disk and a hardcopy signed by team members)
3. The pile of tasks, numbered and labelled to indicate sequence and designation as "non-formal train," "train," "overtrain," and "pre-train"
4. The disk of "content" that was incorporated under each task statement
5. The roster of people who participated
6. If used, the forms used to rate each task for DIF (difficulty, importance, and frequency)

<u>Item 1: Obtain Documentation from Facilitator</u>

Give this information to the appropriate training staff to keep a permanent record of what happened during the seminar, who was involved, and what product resulted. <u>Keep this information</u> since it can serve as auditable documentation for many "reviewers" (e.g., Defense Nuclear Facilities Safety Board, Training Accreditation Program, DOE, etc.) who may want to know how the task list was developed.

<u>Item 2: Complete any TTJA Steps not Finished During Seminar</u>

It is important for you to have attended the entire seminar so you will clearly understand what work (if any) remains after the 3-day event. For the most part, 3 days should be sufficient to complete the entire TTJA process. (If not, you or the Facilitator may have follow-up work.) At a minimum, the Facilitator will show the team how to complete each TTJA step. However, some job positions within DOE are so complex that the Facilitator may not have time to thoroughly complete each TTJA step. The following are example situations for which you might need to complete some of the TTJA steps after the seminar:

1. The Facilitator will help the team identify all tasks involved in the job, but due to time constraints, may not have time to help the team refine all of the task statements to the point that they meet the criteria for a "well-written" task statement.

2. The Facilitator will at least start the team in the process of selecting tasks for training, but due to time constraints may not be able to go through the process for every task.

3. If the right mix of people (SMEs and supervisors) is not involved throughout the entire process, the task list may not be considered "valid." Under these circumstances, you would need to conduct a "validation" process to get appropriate signatures on the task list. (Normally there is no need for a separate validation process when appropriate people, as explained in this Guide, are involved.)

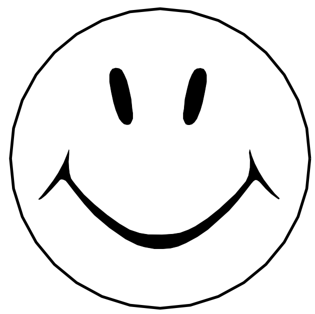
<u>Item 3: Send Thank-You Letters</u>

Within 10 working days after the seminar, send thank-you letters to all participants.

REMAINING SAT STEPS

Congratulations! You've come a long way toward helping your facility implement the Systematic Approach to Training (SAT). This TTJA seminar helped your facility perform the analysis phase of SAT. Use the "pre-train," "train," and "overtrain" tasks identified in this seminar to design your training program structure and determine the content of the training program. One approach to the training program design is discussed in the seminar titled "Table-Top Training Design" (TTTD).
Like TTJA, the TTTD seminar helps your facility progress through the design phase of SAT and results in several design products, such as a task-to-training matrix, training program description, and design specifications for each training session. Since you have used a table-top approach to develop the task list, you may want to consider using the same participants in this TTTD seminar to continue building your training program.

CONGRATULATIONS! YOU'VE FINISHED!



APPENDIX A: SAMPLE INVITATION LETTER FROM MANAGEMENT

Date:

To: Distribution

From: *[Name of Operating Organization Manager]*

Subject: PARTICIPATION IN TABLE-TOP JOB ANALYSIS

As a person with a reputation for technical expertise, a positive work attitude, and good interpersonal skills, you have been selected to participate with *[number of people to be invited]* people as a team for a Table-Top Job Analysis (TTJA) Seminar soon to take place for *[name of job position being analyzed]*.

This 3-day seminar is an important step toward building a top-notch training program and ensuring the accuracy of our operating procedures. The table-top approach used in this seminar has proven to be an efficient, cost-effective, and pleasant way to create a task list. The list that your team develops will then serve as the foundation for training program content.

I support your uninterrupted involvement in this 3-day seminar and ask that you ensure its success by contributing your positive energy and subject matter expertise.

If you are able to participate, please contact the Coordinator, *[name and phone number of Coordinator]*. If you have any questions about the purpose or end product of this seminar, please contact *[name of Coordinator]* or myself. Thank you for your cooperation.

<u>Distribution</u>:

cc: *[name of Coordinator]*

APPENDIX B: SAMPLE PARTICIPANT INVITATION LETTER

Date:

To: *[Name of Potential TTJA Participant]*

From: *[Name of Coordinator]*

Subject: PARTICIPATION IN TABLE-TOP JOB ANALYSIS SEMINAR

[Name of Operating Organization Manager] and I invite you to participate in the "Table-Top Job Analysis" (TTJA) seminar *[dates of seminar]* in *[meeting room location]*. *[Name of Operating Organization Manager]* chose you to participate in this seminar because of your expert knowledge of the job and your ability to work effectively with others. You will be part of a team--made up of subject matter experts and a supervisor--that meets in a workshop with a Facilitator to identify a list of tasks performed in the *[name of job position being analyzed]* job and to determine which of those tasks should be included in our formal training program.

This analysis ensures that people learn exactly what is needed to perform their jobs safely and competently without spending too much time (learning things irrelevant to their job) or too little time (not learning everything they need to know or not having their performance evaluated) in training. Basing a training program on a valid task list leads to more productive, safe, and competent job performance.

[Name of Operating Organization Manager] has approved time for you to participate, uninterrupted, the entire three days.

If you are able to participate, please call me at *[phone number]* by *[deadline for responding]*. You must commit to be in attendance throughout the entire 3-day seminar, from *[start/finish time each day, e.g., 8:00 a.m to 5:00 p.m.]* each day. I will send you a confirmation letter 2-3 weeks before the seminar. Thank you for your participation. If you have any questions, please call me.

cc: *[Operating Organization Manager]*
[Name of Participant's Supervisor]

APPENDIX C: SAMPLE OBSERVER INVITATION LETTER

Date:

To: *[Name of Potential TTJA Observer]*

From: *[Name of Coordinator]*

Subject: TABLE-TOP JOB ANALYSIS SEMINAR

A "Table-Top Job Analysis" (TTJA) seminar will be held *[dates of seminar]* in *[meeting room location]*. The objective of this seminar is to develop a valid task list for *[name of job position being analyzed]*. Another purpose of this seminar is to teach people how to conduct TTJA for other job positions. The table-top approach, when facilitated properly, has proven to be a pleasant, cost-effective, efficient method of job analysis. It also provides an excellent baseline for ensuring the accuracy of operating procedures. This particular seminar has received excellent reviews from other Department of Energy nuclear facilities.

If you are interested in learning the TTJA process, you are invited to participate as an "observer" during the seminar. As an observer, you will take part in the training portion the first morning and then observe the TTJA process the following 2-1/2 days. As an observer, you will NOT contribute to the technical content of the task list, though the Facilitator may ask you to co-facilitate portions of the seminar to give you practice conducting the *process*. You will receive a set of study guides and lesson plans to follow along as you observe and to use when conducting future TTJA seminars.

The seminar will begin at *[start time, e.g. 8:00 a.m.]* on *[date of Day 1]* and you will want to participate that entire day. On *[dates of Days 2 and 3]*, you are welcome to observe the entire time, but the Facilitator will inform you that portions of the seminar are repetitive and it will be left to your discretion to determine how much time you observe those days. You are welcome to bring some quiet work for those "repetitive" times or, if you prefer, you can establish agreed-upon times with the Facilitator to leave and return to the seminar.

If you are interested in participating as an observer, please call me at *[phone number]* by *[deadline for responding]*. Seating is limited, so call soon to reserve your seat. I will send a confirmation letter 2-3 weeks before the seminar. If you have any questions, please call me at *[Coordinator's phone number]*.

APPENDIX D: SAMPLE WELCOMING OFFICIAL LETTER

Date:

To: *[Name of Welcoming Official]*

From: *[Name of Coordinator]*

Subject: WELCOMING OFFICIAL FOR TABLE-TOP JOB ANALYSIS SEMINAR

[Manager of Operating Organization] and I invite you to make the opening remarks at the "Table-Top Job Analysis" (TTJA) seminar to be held *[dates of seminar]* in *[meeting room location]* to identify the tasks involved in the *[job position]* job. Your responsibility would be to briefly (2-5 minutes) welcome the team of subject matter experts, job incumbents, and supervisors at *[start time and date, e.g., 8:00 a.m on March 17]*. You might want to include thanking them for their participation and recognizing the importance of their contribution during this seminar.

Toward the end of the seminar, we ask you to observe long enough to understand the results and express your support for the people who are participating and for the process itself. We also encourage you to drop in periodically throughout the seminar to see how it is progressing and to underscore the value of the process. Your positive attitude is crucial to the success of the seminar and the validity of its resulting task list.

The task list developed in this seminar is the basis for objectives in a formal training program which ensures that people learn exactly what is necessary in order to do their jobs safely and competently without spending too much time (learning more than they need) or too little time (not learning all they need to know for safe, correct perrormance) in training. Basing a training program on a valid task list also provides an excellent baseline for ensuring the accuracy of operating procedures. This seminar has received excellent reviews from other Department of Energy nuclear facilities and has saved them thousands of dollars and hundreds of hours compared to traditional job analysis methods.

If you are able to participate as the welcoming official, please call me at *[phone number]* by *[deadline for responding]*. I will send a confirmation letter 2-3 weeks before the seminar. Thank you for your support.

cc: *[Operating Organization Manager]*

APPENDIX E: SAMPLE <u>CONFIRMATION</u> LETTER

Date:

To: *[Name of Participant]*

From: *[Name of Coordinator]*

Subject: PARTICIPATION IN TABLE-TOP JOB ANALYSIS SEMINAR

This letter confirms your participation in the Table-Top Job Analysis (TTJA) seminar to be held *[dates of seminar]* in *[meeting room location]*. The seminar will begin at *[start time]* each day and conclude at approximately *[end time]* each afternoon. It is important that you are on time and participate in all portions of the seminar because late or part-time participants who miss some of the training or group discussion may seriously disrupt the proceedings. Remember, though, that the seminar will be a pleasant experience. If you would like to share snacks or your favorite music with the other participants, please feel free to bring them with you. If you have any questions, please call me at *[phone number]*. I look forward to seeing you in the seminar!

cc: *[the person's supervisor, as appropriate]*

SEGMENT

3

CHECKLIST OF COORDINATOR TASKS TO PREPARE FOR TTJA SEMINAR

The TTJA Planning Sheet and Checklists are provided on the following pages. The purpose of the TTJA Planning Sheet is to gather information and the purpose of the Checklist is for your use when documenting the completion of each step described in Segment 2. Use the yellow copies of the Planning Sheet and Checklist (located in the pocket of this folder) to document your arrangements as you organize the seminar. We highly suggest you complete these job aids using a pencil. The following pages are for your use if you need to make additional clean copies of the Planning Sheet and Checklist.

As you progress through each task on the Coordinator Checklist, read the information in Segment 2 for examples and step-by-step directions. It is a good idea for you to read through all of the directions at least once so you understand the entire process.

The Facilitator will assume you have completed this checklist before the seminar begins.

Send a copy of this completed sheet to the Facilitator 20-30 days prior to the seminar

TTJA PLANNING SHEET

<table>
<tr><th colspan="4">BACKGROUND INFORMATION</th></tr>
<tr><td colspan="2">1. Who initiated the request for the 3-day TTJA seminar?</td><td>Name:</td><td>Phone:</td></tr>
<tr><td colspan="3">2. For which job position/program will a task list be developed during the 3-day seminar?</td><td>3. How many job incumbents are currently employed in this job position/program?</td></tr>
<tr><td colspan="4">4. With whom must you seek approval to organize and conduct this 3-day TTJA seminar?</td></tr>
<tr><td></td><td>Name(s)</td><td>Phone</td><td>Date Approved</td></tr>
<tr><td>Your management</td><td></td><td></td><td></td></tr>
<tr><td>Training Management</td><td></td><td></td><td></td></tr>
<tr><td>Line management who must release SMEs</td><td></td><td></td><td></td></tr>
<tr><td>Other</td><td></td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="2">AVAILABLE JOB INFORMATION</th></tr>
<tr><td>5. Obtain a brief description of the job position/program</td><td>Date Sent to Facilitator:</td></tr>
<tr><td>6. Is there an existing task list at your facility for this job position/program?

Yes No</td><td>Date Sent to Facilitator:</td></tr>
<tr><td>7. Are there well-written procedures and other references that describe the tasks performed in the job position/program?</td><td>Date Sent to Facilitator:</td></tr>
</table>

TTJA PLANNING SHEET

SEMINAR DATA

Dates of Seminar:		Meeting Room:		
Names of Attendees	Phone	Date of Initial Contact	Date Sent: Confirmation Letter	Date Sent: Thank-You Letter
Facilitator:				
Co-Facilitator:				
SME:				
SME:				
SME:				
SME:				
SME:				
SME:				
SME:				
SME:				
Engineer:				
Engineer:				
Supervisor:				
Supervisor:				
Observer:				
Observer:				
Observer:				
Observer:				
Observer:				
Organization Manager:				
Other Notes:				

COORDINATOR CHECKLIST

DIRECTIONS: Use the yellow Planning Sheet and Coordinator Checklist to prepare for and follow-up the TTJA seminar. Refer to the information in Segment 2 of this Guide to obtain detailed explanations of each task on the Checklist.

30-90 Days Prior to TTJA Seminar		
Compl. Date	**Item to Perform**	**Notes/Comments**
	1. Identify potential job incumbents, engineers, other SMEs, supervisors, facilitators, and observers according to the required qualifications	
	2. Secure management approval and ask management to talk with potential team members about the seminar (Refer to Segment 2, Appendix A, for sample letter)	
	3. Establish dates for the 3-day TTJA seminar	
	4. Select and schedule a meeting room that meets stated requirements	

30-60 Days Prior to TTJA Seminar		
Compl. Date	**Item to Perform**	**Notes/Comments**
	1. Contact all prospective team members by phone (or, if possible, in person) to explain TTJA and answer questions (Refer to Segment 2, Appendix B, for sample letter)	
	2. Contact all prospective observers (Refer to Segment 2, Appendix C, for sample letter)	
	3. Contact operating organization manager to see if he/she will act as welcoming official, observe periodically, and attend the end of the seminar (Refer to Segment 2, Appendix D, for sample letter)	

COORDINATOR CHECKLIST

20-30 Days Prior to TTJA Seminar		
Compl. Date	**Item to Perform**	**Notes/Comments**
	1. Gather information for review by Facilitator - completed TTJA Planning Sheet - title of job position - brief job description (job posting) - existing task list for the job position or for similar job position (if available) - a list of all procedures applicable to the job - copies of 3-5 procedures representative of the tasks involved in the job (send all the procedures, if there aren't too many)	
	2. Confirm arrangements with all TTJA team members, observers, and the welcoming official by letter, including meeting time and location. Send copies of these letters to the appropriate supervisors or managers. (Refer to Segment 2, Appendix E for sample letter.)	

5-10 Days Prior to TTJA Seminar		
Compl. Date	**Item to Perform**	**Notes/Comments**
	1. Call each TTJA participant (including welcoming official) to confirm their involvement and answer remaining questions	
	2. Gather seminar supplies	

COORDINATOR CHECKLIST

Day Before TTJA Seminar		
Compl. Date	**Item to Perform**	**Notes/Comments**
	1. Make a final check of the room, supplies, equipment, refreshments, and all other arrangements. Put in the meeting room all procedure manuals and other documents related to the job, such as PRA results, OSRs, Technical Specifications, Safety Analysis Reports, manufacturers documents, etc.	
	2. Meet and review plans with TTJA Facilitator	
	3. Make sure the welcoming official understands his/her role	

Day of TTJA Seminar		
Compl. Date	**Item to Perform**	**Notes/Comments**
	1. Conduct Introductions: - Introduce welcoming official - Introduce Facilitator	
	2. Have operating organization manager observe periodically throughout seminar	
	3. Have operating organization manager attend end of seminar for visible buy-in	

COORDINATOR CHECKLIST

After Seminar		
Compl. Date	**Item to Perform**	**Notes/Comments**
	1. Obtain documentation from Facilitator	
	2. Complete any TTJA steps not finished during seminar	
	3. Send thank-you letters to all TTJA participants	

Other Notes:

REFERENCES

1. *Guide to Good Practices for Table-Top Job Analysis*, U.S. Department of Energy, 1994.

2. Norton, Robert E., *DACUM Handbook*, The National Center for Research in Vocational Education, Ohio State University, 1985.

3. International Board of Standards for Training Performance and Instruction, *Training Manager Competencies: The Standards*, "Nominal Group Technique."

4. TAP2, Performance-Based Training Manual, U.S. Department of Energy Training Accreditation Program, DOE/NE-0102T, July 1991.

5. DOE Order 5480.20, Personnel Selection, Qualification, Training, and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities, February 1991.

6. DOE Order 5480.18A, Accreditation of Performance-Based Training for Category A Reactors and Nuclear Facilities, July 1991.

7. Management and Oversight of PBT Programs Course, DOE Training Coordination and Accreditation Program, DOE/ID-10388, December 1992.

8. Instructional Analysis and Design Course, DOE Training Accreditation Program, DOE/ID-10327, August 1991.

ADDENDUM B

FACILITATOR GUIDE

U.S. Department of Energy
DOE/ID-10435

5480.20 Training Seminar Series:

"Table-Top Job Analysis"

Facilitator Guide

March 1994

FOREWORD

The table-top process is a method of job analysis in which a team of subject-matter experts--job incumbents, engineers, supervisors, and other experts as applicable--and instructional technologists meets to identify the tasks performed in a specified job position.
The task list serves as the basis for determining the content that should be included in the training program.

This *Facilitator Guide* is for use by the Facilitator. The Facilitator is usually an Instructional Technologist who will be responsible for teaching the lessons during the 1/2-day training portion of the seminar and for facilitating the actual TTJA process during the workshop portion. This *Facilitator Guide* will help the Facilitator conduct a successful TTJA seminar by providing an overview of TTJA, step-by-step directions, and easy-to-use checklists needed to prepare for, conduct, and conclude the TTJA seminar.

CONTENTS

CONTENTS, Cont'd

HOW TO USE THE FACILITATOR GUIDE

Thank you for serving as the "Facilitator" for the 3-day seminar titled "Table-Top Job Analysis" (TTJA). Your role is crucial to the success of the seminar, which in turn will promote the quality and usefulness of the seminar end product--a task list that will serve as the basis for training program content. Your participation as Facilitator will help the facility efficiently and cost-effectively meet the requirements of DOE Orders 5480.18A and/or 5480.20.

Your expertise in the Systematic Approach to Training (SAT) will help you efficiently perform your Facilitator responsibilities. Since you may not be familiar with the TTJA method of job analysis, this *Facilitator Guide* gives you:

- information about the TTJA method,
- lesson plans that you will use to teach the TTJA team members about TTJA and how to participate in the seminar, and
- step-by-step directions and easy-to-use checklists that will help you prepare for, conduct, and conclude the TTJA seminar.

This guide is divided into five segments:

Segment	Topic
1	Overview of Facilitator's Role in Table-Top Job Analysis
2	How to Prepare for the Seminar
3	How to Conduct the Seminar
	Appendix A--Example format to document task content
	Appendix B--Example task list cover letter
	Appendix C--Example task list format
4	What to Do Following the Seminar
5	Facilitator's Checklist for Conducting TTJA

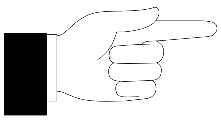
You will also use the three attachments:

Attachment	Title
1	Lesson Plan: "Introduction"
2	Lesson Plan: "Overview of Table-Top Job Analysis"
3	Lesson Plan: "Maximizing Team Effectiveness"

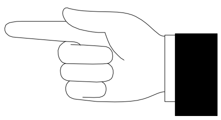
These attachments will be explained in Segment 1.

SYMBOLS

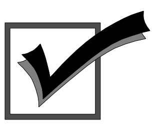
Symbols are used in this Guide to alert you to important activities or points.



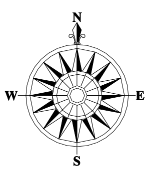
When you see this symbol, we will be previewing what's coming up next.



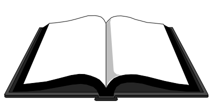
When you see this symbol, we'll recap previous information.



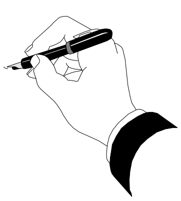
This symbol denotes a checkpoint where you will apply the information in the segment to your specific needs.



If you see this, read the directions.



This symbol means read the text.



This symbol means to write your response in the space provided.

SEGMENT

1

OVERVIEW OF FACILITATOR'S ROLE IN TTJA

What is Table-Top Job Analysis? When is Table-Top Analysis the most appropriate job analysis method? What is the Facilitator's role? What qualities must the Facilitator possess?

Directions

Read the information about TTJA and your role. After the segment you will be asked to apply this material to your needs.

WHAT IS TABLE-TOP JOB ANALYSIS?

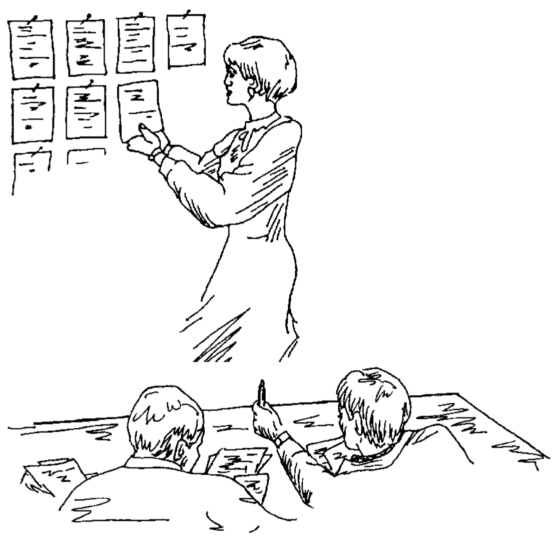


Table-top job analysis includes a team of subject matter experts (SMEs) and a supervisor that meets in a workshop to identify a list of tasks performed in a specific job and to determine which of those tasks should be included in the formal training program. A Facilitator guides the team through the process and writes and posts the task statements on a wall or other easy-to-see surface. The end product of the seminar will be a valid list of tasks selected for training for that one job position.

Each step is explained in detail in Segment 3

An agenda is shown on the next page

Steps in TTJA Process

1. Orient team
2. Review job
3. Identify duty areas
4. Identify tasks
5. Sequence tasks and duty areas
6. Select tasks for training

The 3-day TTJA seminar will implement the six TTJA steps. The seminar is divided into two portions: a training portion and a workshop portion. During the 1/2-day training portion, you will use Attachments 1-3 to teach three lessons to the participants, explaining what they need to know in order to fulfill the terminal objective of the seminar. The training portion is TTJA Step 1--orient team to the TTJA process. Then you will become the Facilitator for the workshop portion. During the workshop you will use Segment 5 as a job aid that helps you remember everything involved when performing TTJA Steps 2-6.

WHEN IS TABLE-TOP ANALYSIS THE MOST APPROPRIATE JOB ANALYSIS METHOD?

TTJA, when used appropriately, has proven to be a more efficient, cost-effective, and accurate method for developing a task list than other analysis methods such as survey questionnaire or observation. It is also effective when used in combination with methods such as verification analysis (using another facility's task list as the basis for your own) and procedural review (reviewing procedures to identify tasks). (This 3-day seminar will use the combination of TTJA, verification analysis, and procedural review.)

When is Table-Top Job Analysis appropriate?

1. When no task list exists for the given job position
2. When there is an existing task list but it is outdated and/or incomplete
3. When another facility's task list is available and, with modification, can be used as the basis for the facility's task list.

Agenda for Table-Top Job Analysis Seminar

Day 1

8:00 - 12:00	Step 1: Orient Team (training portion)
12:00 - 1:00	Lunch
1:00 - 5:00	Workshop
	Step 2: Review the job
	Step 3: Identify duty areas
	Step 4: Identify tasks

Day 2

8:00 - 5:00	Workshop (cont'd)
	Step 4: Identify tasks (cont'd)

Day 3

8:00 - 4:30	Workshop (cont'd)
	Step 5: Sequence tasks and duty areas
	Step 6: Select tasks for training
4:30 - 5:00	Seminar Summary

Although TTJA can be used to develop a task list for a new job position, in the DOE community most job positions and associated training programs have been in existence for many years. However, not all existing training programs are based on a valid task list.

TTJA can be used effectively to create a task list for existing job positions, thereby validating existing task lists or creating a task list in those cases when one does not exist.

WHAT IS THE FACILITATOR'S ROLE IN TTJA?

Team Member's Role

As the Facilitator, you have the pivotal role in the TTJA process. You will be responsible for teaching the lessons during the 1/2-day training portion of the seminar and for facilitating the team members during the TTJA workshop portion. The team members are the SMEs (job incumbents and engineers) and supervisors who will use their technical expertise to identify the tasks involved in the job. As you help the team reach consensus on the tasks involved in the job, the Co-Facilitator will print each task on a separate sheet of paper and post it on the wall.

Observer's Role

Members of the facility training staff may be in attendance for the entire 3-day seminar in order to learn how to conduct TTJA. During the training portion of the seminar, the training staff will be involved as participants and should sit at the same tables as the team members. During the workshop portion of the seminar, the training staff will observe your conduct from the back of the room as you guide team members through the TTJA steps. During TTJA Steps 4 and 6, they will have an opportunity to help facilitate the identification of tasks and selection of tasks for training (refer to Steps 4 and 6 in Segment 3). During all of the TTJA steps, the observers [especially the person(s) who will be developing the subsequent training program for this job] must pay close attention to the proceedings and take notes of any training-related discussions. These notes will be valuable during the design and development of the training program. You must be careful to serve as a role model for the training staff and make time available during lunches or evenings to answer any questions they may have.

Who is the Coordinator for the 3-day TTJA Seminar?

Name Phone

Another key player in the TTJA process is the "Coordinator." The Coordinator is responsible for making the necessary pre-seminar arrangements including selecting and scheduling team members, gathering job-related information for your review prior to the seminar, and scheduling an appropriate meeting room. The Coordinator has been given a *Coordinator Guide*. You will need to work closely with the Coordinator as you prepare for the TTJA seminar.

Many people can assume the role of Coordinator, but few have all the necessary qualities to perform as the Facilitator. With input from management, the Coordinator chose you as the Facilitator. The choice was carefully made, based on the qualities required of a Facilitator.

Facilitator's Role

WHAT QUALITIES MUST THE FACILITATOR POSSESS?

Your role during the TTJA seminar is to serve as an instructor during the "training" portion and as a facilitator during the "workshop" portion. As an instructor, you must possess strong instructional skills in order to teach the lessons. As Facilitator, you will serve as a **process** expert who facilitates the sessions but does not provide technical input regarding the task list. Successful facilitation hinges on three factors: your interpersonal skills, your expertise in the entire SAT process, and your ability to perform special skills associated with facilitating table-top analysis. At a minimum, you should be extremely familiar with the job analysis processes, the difference between job analysis and task analysis, and possess excellent facilitation skills. Being FLEXIBLE and able to adjust to changing circumstances is CRUCIAL. Preferably, you are qualified to facilitate TTJA through training and practical experience.

Interpersonal Skills Needed by Facilitator

- FLEXIBILITY!!!
- the ability to establish and maintain enthusiasm -
- patience
- the ability to display and maintain a positive image
- a high degree of sensitivity to both verbal and nonverbal communication
- excellent memory
- a sensitivity to others
- a sense of humor

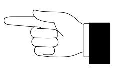
the ability to make decisions

- excellent listening skills
- the ability to display warmth and establish rapport quickly with team members
- the ability to motivate, encourage, and focus team members

This *Facilitator Guide*, in combination with the attached lesson plans, can serve as a self-study to help you gain the knowledge needed for the special skills shown on the next page.

Special Skills Required of TTJA Facilitators

- expertise in job analysis processes
- expertise in the table-top analysis method
- skill in Nominal Group Techniques
- skill in questioning techniques
- the ability to act as a process expert who leads and controls the process but allows team members to act as content experts who make content judgments and decisions
- skill in small-group dynamics
- skill in obtaining small-group consensus
- the ability to establish and maintain the team's pace, balance, and participation
- the ability to recognize vague statements and help the team select the most appropriate action verbs, task statement modifiers, and nouns



Summary

1. The TTJA Facilitator guides the team of SMEs (job incumbents, engineers, etc.) and supervisors as they identify the tasks involved in a given job position. When the seminar is delivered by TCAP, the Facilitator will be from TCAP.

2. The Facilitator must prepare for and conduct the TTJA seminar by completing this Facilitator Guide, using the lesson plans, and following the TTJA Checklist. The Facilitator must work closely with the Coordinator who should follow the Coordinator Guide.

3. The 3-day seminar will result in a valid list of tasks selected for training. In addition, when TCAP delivers the seminar, it will also result in trained facility staff who can conduct future TTJA seminars.

Checkpoint

For what facility and job position will you be developing the task list?

SEGMENT

2

HOW TO PREPARE FOR THE SEMINAR

What do you need to do to prepare for the seminar? How should you use the lesson plans? What information will be available for you to review? What skills do you need to practice?

Spend adequate time preparing **every time** you facilitate this seminar

Directions

Read the information about preparing for the seminar. **Use the Checklist (Segment 5) as your tool to ensure you have done everything required for adequate preparation**.

READ through the lesson plans once, now, to better comprehend the remainder of this Guide

USE THE LESSON PLANS

Attachments 1-3 are the lesson plans you will use during the training portion of "Orient Team" (TTJA Step 1). You **MUST** spend adequate time preparing to teach these lessons, especially to build in the examples described in the next section ("Review Available Information"). We suggest you read through the lesson plans once, now, to see the "big picture" of what you will be doing during the TTJA seminar. (This will also help you determine how much time it will take you to prepare for teaching the lessons.) The lesson plans provide detailed information on job analysis, TTJA, Nominal Group Technique, and consensus decision-making. Reading the lesson plans will help improve your comprehension of the remainder of this Facilitator Guide.

CAUTION

We suggest the lead and co-Facilitators team-teach the lessons so participants will be comfortable with both people. The table on the next page shows a suggested way of dividing the lessons among the two Facilitators. **CAUTION**: In order to do a good job of instructing and facilitating the workshop, both Facilitators must be intimately familiar with **everything** in each lesson plan and not just the sections they teach.

Suggested plan for team-teaching the lessons

When teaching, follow the lesson plans because they have been carefully designed to help team members succeed during the workshop (making the workshop more efficient and pleasant, and resulting in a usable end product). The lessons will also help the observers understand how the task list should be used in the training program and what information they need to explain when conducting their own TTJA seminars.

ATTACHMENT 1: INTRODUCTION LESSON	
Both instructors	I. Welcome
Instructor 1	II. General Introduction A. Motivator B. Purpose of Seminar
Instructor 2	C. Seminar Objective D. Seminar Overview E. Participant Materials F. Roles
Both instructors	III. Icebreaker
Instructor 1	IV. Housekeeping V. Expectations
ATTACHMENT 2: OVERVIEW LESSON	
Instructor 1	I. Introduction II. Performance-Based Training
Instructor 2	III. Terms
Instructor 1	IV. Table-Top Job Analysis A. Step 1: Orient team B. Step 2: Review job C. Step 3: Identify duty areas
Instructor 2	D. Step 4: Identify tasks
Instructor 1	E. Step 5: Sequence duty areas and tasks F. Step 6: Select tasks for training V. Summary
ATTACHMENT 3: TEAM EFFECTIVENESS LESSON	
Instructor 1	I. Introduction II. Definitions
Instructor 2	III. Steps in the Process
Instructor 1	IV. Guidelines for Applying the Process V. Summary

REVIEW AVAILABLE INFORMATION

Obtain from the Coordinator:

The Needs Analysis Worksheet (only applies to TCAP deliveries)

The TTJA Planning Sheet (from Coordinator Guide)

Job Information (if available)
- A brief job description
- A task list for the job or a similar job at the facility
- A task list for a similar job position at another facility
- A list of procedures applicable to the job position
- Copies of 2-5 procedures that reflect the tasks involved in the job

Use the job information to familiarize yourself with the job and to **build examples into the "Overview" lesson** that are specific to the job that will be analyzed during the seminar.

Twenty to thirty days prior to the seminar, the Coordinator should send you planning information and available job information. You should use the job information in two ways. First, familiarize yourself with the job and form an idea of the types of task statements that will arise from the TTJA. Second, create a possible list of duty areas and task statements for the job and, as you prepare to teach, build them into the "Overview" lesson as examples.

NOTE: Building job-specific examples of "well-written" vs. "poorly-written" task statements and job-specific examples illustrating the concept of task "levels" has proven to be crucial in helping team members understand these concepts. Make sure you take the time to create these examples using the information the Coordinator sends you.

During TTJA Step 4, the Coordinator will have in the meeting room **all** available job information (standard operating procedures, system descriptions, process and instrument diagrams, and other materials relevant to the job position) so team members can refer to it when identifying the duty areas and tasks. During Step 4, team members will also compare their task list with the list you develop and, if available, with a task list from another facility. (This will be explained further in Segment 3 when discussing TTJA Steps 3 and 4).

CAUTION

CAUTION: You should use this information only to become familiar with the job and to build examples into the "Overview" lesson. You SHOULD NOT use this information to contribute to the task list when conducting TTJA. You can use this information to lead team members into thinking of a task, but DO NOT offer suggestions of a task. Remember, your role is as a process expert...the team members must act as the content experts.

STUDY NOMINAL GROUP TECHNIQUE AND CONSENSUS DECISION-MAKING PROCESSES

Refer to the "Maximizing Team Effectiveness" lesson for additional information

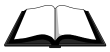
The team will use various techniques to identify the tasks involved in the job. The team will have access to available job information to identify the duty areas and tasks, but a certain amount of discussion and consensus decision-making will also be required to help the team think of additional tasks. Study the Nominal Group Technique (NGT) and Consensus Decision-Making (CDM) techniques described in the "Maximizing Team Effectiveness" lesson so you can effectively apply the techniques throughout the workshop portion of the seminar.

What the "Maximizing" lesson does <u>not</u> describe is <u>your</u> role during these processes. You must use verbal and non-verbal communication skills to effectively implement the NGT and CDM techniques.

During Nominal Group Technique and Consensus Decision-Making processes, the Facilitator should:

- Encourage each team member to contribute
- Listen actively to all contributions
- Control participants who try to dominate
- Verbalize contributions to ensure accuracy and clarity
- Provide frequent positive reinforcement
- Repress own biases and opinions
- Probe and encourage with questions
- Set and maintain an enthusiastic climate

CONFIRM DETAILS WITH COORDINATOR



Prior to Seminar:
Which job position is being analyzed? Make sure the Coordinator realizes only 1 job position is typically analyzed at a time. A common mistake is that the Coordinator will arrange to analyze a "crafts" job position, for example, and will invite 1 electrician, 1 pipefitter, and 1 mechanic to participate on the same TTJA team. This does not work well because these are three separate job positions. Rather, the Coordinator should schedule 3 electricians to do a TTJA seminar for the "electrician" job position. Sometimes, though, it is possible to analyze two job positions simultaneously. This would require two separate teams and 3 Facilitators, but they would share the same meeting room. (This works well if the "second" team's job position is not likely to have many tasks.)

Do you need to bring refreshments the first day?

Bring music and the music player

What to bring to the seminar? Refer to Segment 3, Step 1, which describes the accelerated learning techniques that you should apply during the seminar. Check with the Coordinator to see if healthful refreshments will be provided or whether you will have to supply them. Also check to see if you will be allowed to bring a music system so you can play selected music to enhance the learning environment.

Coordinate your computing needs

Since you will need to type the task list and cover letter during the seminar, you will need access to a computer and printer. If you have your own portable equipment, check with the Coordinator to see if you are allowed to bring these into the meeting room. Otherwise, discuss your needs with the Coordinator to make sure the Coordinator makes adequate arrangements. (A disk with the standard task list and cover letter format is provided in the pocket of this Guide.)

Who?

Who is providing supplies? Five to ten days prior to the seminar, you should confirm with the Coordinator who is responsible for gathering and taking all supplies to the seminar. The Facilitator usually brings the supplies, participant manuals, and instructional materials. The Coordinator is usually responsible for having "equipment" and "other" supplies available in the meeting room. Coordinate these arrangements with the Coordinator.

Refer to the "Introduction" lesson for additional information

Supply List (Facilitator will provide)

3 pkg	Plasti-Tac non-marking putty for hanging pages on wall
2 reams	8-1/2" x 11" white paper (unlined)
1 ream	8-1/2" x 11" yellow paper (unlined)
1 pkg	looseleaf notebook paper
10	6" x 4" post-it note pads (unlined)
10	1-1/2" x 2" post-it note pad (unlined)
15	black or blue ink pens
15	yellow highlighters
15	pencils
3 boxes	flipchart markers with permanent, non-bleed through ink in a variety of dark/bright colors (not orange or yellow)
1 set	transparency markers
1 box	whiteboard markers
1	pointer
1 box	push pins or thumb tacks
1	stapler with staples
1 roll	duct tape
2 rolls	masking tape
1 roll (w/dispenser)	scotch tape
2 rolls (w/dispenser)	post-it tape

Participant Materials (Facilitator will provide)

15	name placards
15	Participant Manual (enough for all attendees, including observers)
1 set	Seminar materials for each observer (Coordinator Guide, Facilitator Guide with lesson plans)

Instructional Materials (Facilitator will provide)

Posters
Videotape
Distributed handouts
Overhead transparencies

Equipment List (Coordinator must provide in meeting room)

1	VCR (VHS) with monitor or tv
1	overhead projector
1	overhead projector screen
2	flipchart stands
4 pads	flipchart paper
1	calculator
1	computer and printer (coordinate with Facilitator)

Other (Coordinator must provide in meeting room)

3 copies	available job information (job-related procedures, system descriptions, process and instrument diagrams, and other materials relevant to the job position)

Day Before Seminar:

<u>*What to say during Introductions?*</u> The Introduction lesson begins with a series of short (1 min. each) introductions:

- The Coordinator introduces a manager from the operating organization that needs the task list
- The Coordinator introduces you as the Instructor/Facilitator for this seminar
- You introduce yourself

We recommend that you confirm the introductions with the Coordinator and prepare a very brief biography of your qualifications and experience for the Coordinator's use when introducing you.

Summary

1. Read the attached lesson plans NOW to help you plan your preparation time and comprehend this Facilitator Guide.

2. Spend adequate time to become completely familiar with the lesson plans so you can teach well and serve as a role model.

3. Review available job information to familiarize yourself with the job and incorporate the information as examples in the "Overview" lesson. DO NOT use it as a way to contribute technical input to the task list; this must be done by team members.

4. Fine-tune your Nominal Group Technique and Consensus Decision-Making skills.

5. Confirm all details with the Coordinator.

Checkpoint

1. *What are the dates for the 3-day seminar?*

2. *When will the Coordinator be sending you the job information?*

3. *What is the status of refreshments, music, computers, printers, and supplies?*

SEGMENT
3

HOW TO CONDUCT THE SEMINAR

How should you perform each step of the TTJA process?

Directions

Use Segment 5 as your job aid when actually performing the steps

Read the information about the TTJA steps. The Facilitator and Co-Facilitator are very active throughout the entire seminar and must effectively work together, sometimes switching roles from "lead" to "co" Facilitator. *The italic print throughout this segment will denote the activities of the Co-Facilitator*. Segment 5, the Facilitator Checklist for Conducting TTJA, summarizes the key information you should convey and actions you should take as you conduct the TTJA workshop. Use this segment as your self-study to learn each step.

STEP 1 - ORIENT THE TEAM

Teach Lessons

Briefly review the "big picture" each morning

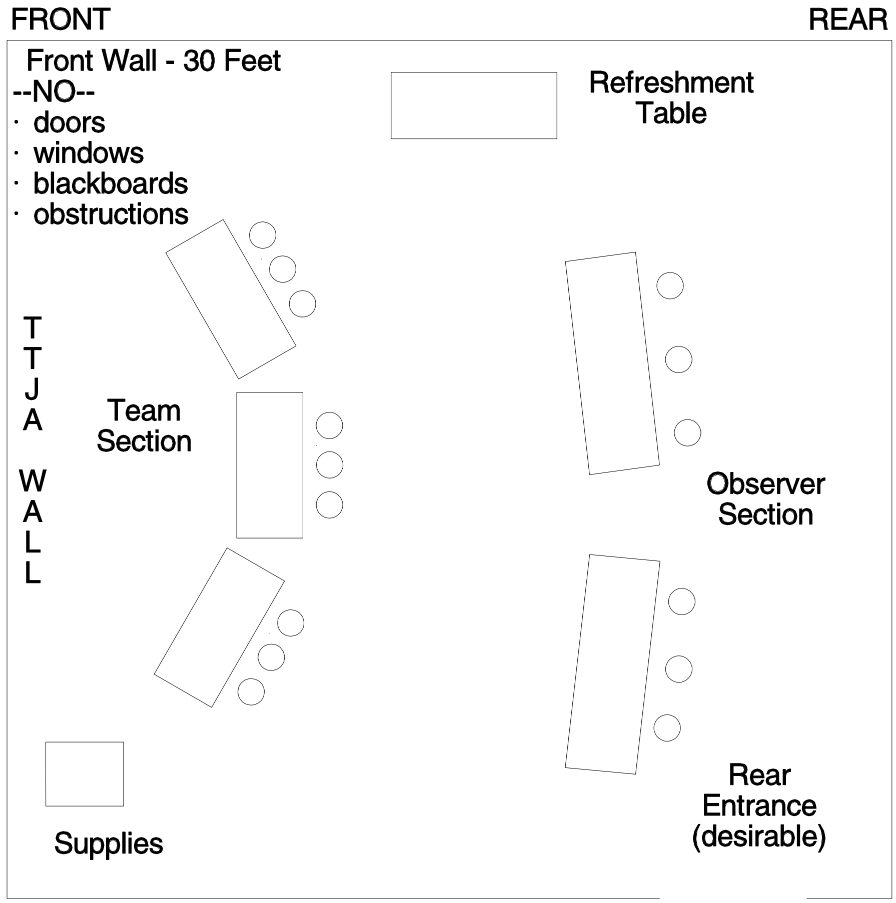
The orientation step is one of the most important steps of the process. The orientation must be well done to help participants be able to apply the terms and concepts in the TTJA process. The lessons provided in Attachments 1-3 are carefully designed to fulfill the requirements of a "well-done" orientation. By teaching those lessons, you have completed this step. Each morning, it is good idea for you to briefly review the "big picture" in terms of where you are in the TTJA process and how the results (the task list) will be used after the seminar.

Prepare for Workshop

Arrange Room

When you have finished teaching the lessons, you will need to take a break to set up the room for the workshop. The picture on the next page shows a standard room set-up when analyzing one job position.

If you are conducting analyses for two different job positions simultaneously, the room would need to be much larger. In that case, you would still set up the room as shown in the picture, but you would



also put the "second" team members at tables in the back of the room, with their own supply table. Rather than using 8-1/2" x 11" sheets of paper during TTJA Steps 2-5, this second team would use 3" x 5" post-it note pads to write their duty area and task statements. A third Co-Facilitator would work with the second team. The intent would be for the "second" team to listen and watch the lead Facilitator as the lead Facilitator explains to the "primary" team how to do each step. Then, both teams would perform the step simultaneously.

Set-up Supply Table

A supply table should be placed at the front of the room, in a place convenient for the Co-Facilitator to hang pages on the wall and easily see the flipcharts that will be used during Steps 3 and 4. To the extent possible, the table should not interfere with the participant's ability to see

Organize the following supplies on the supply table:

- 50 shts 8-1/2"x11" yellow paper
- 1000 shts 8-1/2"x11" white paper
- wide-tipped, permanent markers that do not bleed through paper (in a variety of colors)
- 1 pkg non-marking putty
- 1 box push pins or thumb tacks
- 1 roll of post-it tape
- 2 pencils (with erasers)
- 2 ink pens
- the computer

the pages once they are hung on the wall. (You may have to move the table from one side of the room to the other once the wall starts filling up with pages.) The best location for the supply table is usually the front corner near a power outlet (because the Co-Facilitator will need to use the computer).

Organize the supply table so the Co-Facilitator will have writing space and easy access to the materials needed for writing and posting the duty areas and task statements on the wall.

Talk with Observers

Have observers follow along with seminar materials as they observe the TTJA process from the back of the room

Remember that during the lessons, Observers are allowed to participate and sit at tables with the team members. When moving into the workshop portion of the seminar, discreetly remind the Observers to sit at separate tables in the back of the room. Give them copies of all seminar materials (*Coordinator Guide* and *Facilitator Guide* with lesson plans). Suggest that they follow along with the *Facilitator Guide* and Facilitator Checklist as you conduct each TTJA step. Make sure they realize that they will help facilitate during Steps 4 and 6, so they will need to read the *Facilitator Guide* by that time. Remind them to take notes of discussions that will have impact on the design and development of the training program. Explain that if they have questions about any of the steps during the TTJA workshop, they may ask you during breaks or after the sessions.

Check the Wall Surface

Hundreds of pages of 8-1/2" × 11" paper will be hung on the walls and moved around during the TTJA workshop. Therefore, it is important to identify which materials will be most appropriate for preparing the page so you can hang it on the wall. "Preparing" the page depends on the wall surface. The overriding principle is to not damage the wall during the workshop. The materials used to hang the pages have to preserve the integrity of the wall. For example, if the wall is a hard wall with paint, apply non-marking putty to the back of the page. If tape will not harm the wall, apply a piece of tape to the top of the page. If the wall has a cork-board or other cloth-covered surface, perhaps push-pins or staples would work best. Have whatever materials are most appropriate available on the supply table.

Once the room is set up and everybody is seated correctly, you are ready to begin the workshop portion of the seminar. Throughout the workshop, apply accelerated learning techniques.

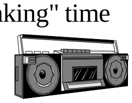
Apply Accelerated Learning Techniques

This seminar provides an excellent opportunity to apply some accelerated learning techniques. It is crucial for the Facilitator to set a pleasant, relaxed, productive environment in which participants feel refreshed and open to express their ideas. The following techniques can help promote that kind of environment.

Bring a toy or noisemaker for each participant

Bring a fun toy and/or noisemaker for each participant's use during the seminar (they will return them to you after the seminar). The toys provide a way for participants to break the stress when they start feeling burned out or to light-heartedly help keep someone "on track." Koosh® balls and light-weight small Nerf® balls are good for tossing around during breaks. Noisemakers are good for when someone makes a really good (or really bad) suggestion. Encourage participants to pick and choose their toy/noisemaker and to trade them for others as the seminar progresses. NOTE: For health reasons, do NOT use noisemakers that require someone to blow on/through them. Also, use good taste and ensure a gender-safe training environment when selecting toys and noisemakers (e.g., you would not want to bring a noisemaker that says profane things when the buttons are pushed.)

Bring music for breaks and "quiet thinking" time



Music can greatly enhance the environment. CD players and CDs are allowed in most DOE facilities (whereas tapes and tape recorders are not). Bring a selection of light jazz (with little or no singing) to play during breaks (Kenny G, Earl Klugh, Richard Elliott). You can also ask the participants to bring in their "favorites" to play during breaks, but use discretion so other participants are not offended by the music. The music played during breaks should be at "conversation level" in terms of loudness. Bring a selection of soothing Baroque music (no vocals) to play during quiet moments, such as during the exercises in the lessons or as participants are doing Nominal Group Technique during the workshop. (Example: Bach's "Air on the G String.") This music should be loud enough to be barely audible from the back of the room. Of course, if any participant comments that the music is distracting, either turn it down or do not play it.

A 10-minute break should be taken each hour. You may want to take one extended break (20-30 minutes) in the afternoon if the participants get burned out (this is common during Step 4). Sometimes giving them a little extra time so they can go outside and take a short walk can greatly increase their productivity when they return.

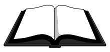
Bring healthful refreshments

Having the right kind of refreshments can also help maintain the stamina of the participants. Healthful refreshments such as fruit, vegetables, crackers, and juice will **maintain** a high energy level, whereas "junk foods" will cause people to experience sugar highs and lows. The Coordinator should have arranged for healthful refreshments to be available. If not, suggest that everyone bring an item to share with the entire group.

Use colors effectively throughout the room

Making the room look "more pleasant" can also enhance the environment. Rather than writing all the task pages (Step 4) using a plain black marker, try writing the pages for one entire duty area in one color (e.g., blue), all the tasks for the next duty area in another color (e.g., green), etc. The net effect will be a "rainbow" as the pages are added to the wall. NOTE: Do NOT write each page in a duty area in a different color or this would be too distracting.

Be creative and have fun making the environment as pleasant and productive as possible!



STEP 2 - REVIEW JOB

Begin the workshop portion of the seminar by re-stating which job the operating organization needs to have analyzed. The major purpose of this discussion is to clarify job titles and specializations that will be included or excluded from the analysis. For example, if you are

Make sure everyone understands exactly which job position is being analyzed

analyzing the job of "Health Physics Technicians" (HP Techs), will you be including all tasks for all HP Techs (those who work in Dosimetry, Analytical Services, and Area Monitoring), or just the "Area Monitoring HP Techs"? If you are analyzing the job of "Tank Farm Operators," will you be including all tasks for all Tank Farm Operators (including those who work in the Evaporators, Saltwells, and other site areas), or just the "Saltwell Tank Farm Operators"? If you are analyzing the job of "Waste Management Technicians," will you be including both "Radiological" and "Hazardous" Waste Management Technicians? If you are analyzing the job of "Reactor Operators," will you be including tasks for Auxiliary Operators, Reactor Operators, Senior Reactor Operators and Supervisors? This step is crucial to clearly establish the parameters of the job to be analyzed.

Co-Facilitator: Once the job position has been clarified, write the job title (horizontally) on a white 8-1/2" x 11" page and post it at the top, center of the TTJA wall.

STEP 3 - IDENTIFY DUTY AREAS

The next step is to have team members determine the duty areas of the job under which all specific tasks will fit. A duty area is a distinct major activity (group of related tasks) involved in performing the job.

Determine how to group duty areas

First the team needs to determine how they will select duty areas, as explained in the "Overview" lesson. Depending on the type of job being analyzed, would it be better to identify duty areas based on systems? Or components? By location? Or by procedures? A combination? Something else? Refer team members to the task lists located in the "Workshop" portion of the Participant Manual to see examples of how duty areas were chosen for previously-analyzed jobs.

As Facilitator, be aware of the fact that how duty areas are chosen may have an impact on the ability to write task statements at an appropriate level. For example, during an analysis of "Distribution and Inspection Utility Operators," duty areas were chosen based on systems. When writing tasks, the team realized that they would have to write the same task statement numerous times within that duty area to indicate the different buildings in which that system exists. This significantly increased the number of tasks listed on the task list, almost to the point of it becoming unmanageable. In this case, it would have been better to select duty areas based on "building."

It may be difficult to determine the best way to select duty areas in advance. Once the team starts identifying tasks, if it seems there may be a problem like the one explained above, suggest that the team identify duty areas in a different way. (Note: When you are preparing for the seminar, if you use the information the Coordinator sends you in advance to identify possible duty areas and task statements, you may be able to avoid this potential problem.) **CAUTION**: Do not "scare" the participants by explaining this potential problem. Just let them know, in a positive tone, that the team can always revise the duty areas, if needed, later in the process.

Provide plenty of guidance and reassurance

Be aware that when the team begins this step, the members may be unsure of themselves and need considerable guidance. For example, the team may have difficulty distinguishing between task statements and duty areas. Remind the team of the definition of duty area and that there are typically five to twelve duty areas involved in most DOE occupations. Each duty area can generally be broken down into 15-20 task statements.

Use NGT to identify duty areas

During round robin, record answers on flipchart

Technique: To begin identifying the duty areas, use the Nominal Group Technique by asking the team members to privately generate and write down their ideas for what duty areas are involved in the job. Provide several minutes of quiet thinking time. Then, in a round robin style, ask each person to state one of the duty areas they wrote. (A round robin involves each person taking a turn to state one suggestion from his/her list; the next person states one suggestion, and so on until all persons have made one suggestion; then the first person states a second suggestion from his/her list, etc.) Record their answers on the flipchart, alternating with two different-colored markers. If a duty area has been suggested, the next person should state another duty area or "pass" to the next person. Remind team members that if someone else's suggestion stimulates another thought, they are welcome to add to their list. Continue the round robin until all team members have had an opportunity to exhaust their list. Initially, it is important for you to record their ideas on the flipchart, even though you are aware that revisions may occur.

Briefly combine or modify duty areas if needed

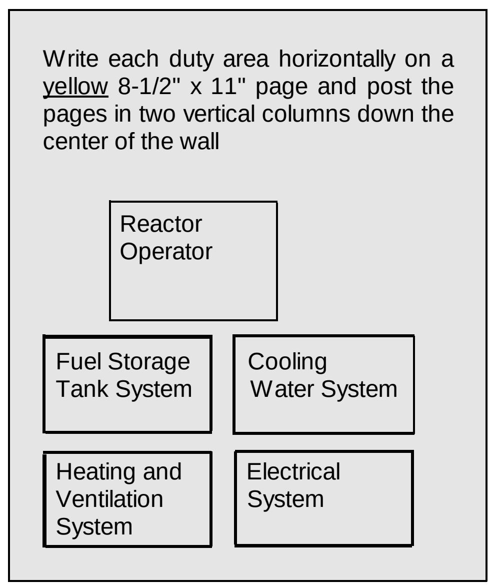
Once all ideas have been written on the flipchart, read each duty area aloud. Restate that any duty area that cannot be subdivided into six or more specific tasks should not remain as a separate duty area. Similarly, a single duty area should not be so broadly stated that it might contain an excessive number of tasks (more than 20). Remind the team to ensure tasks performed under emergency/abnormal situations will be encompassed under the duty areas they select. Use the consensus decision-making techniques to ask the team if they would like to discuss, clarify, or explain any of the answers. The team should identify any answers they feel can be combined or eliminated because of duplication.

Use the "circles and color-coding" technique to track which items were "folded" into the chosen statement

Technique: As the team comes to consensus on what to keep as duty area statements and what to delete, **CIRCLE** the duty area statement and, with the **same** color marker, **CROSS THROUGH** the items that were deleted because of the circled item. For the next statement they choose to keep as a duty area, circle it with a **DIFFERENT COLOR** marker and cross through the applicable items with that **SAME** marker. This way, in the end, it will show a clear link of where each suggestion was "folded into" the final choices. [If you run out of different marker colors, try drawing "clouds" around the final choice (rather than a circle) and then drawing a squiggly line through the crossed out items (rather than a straight line).] It will be even more important to use this technique during Step 4, because that input will be valuable during the "design" phase of SAT when determining training program content.

Follow these guidelines when writing the duty area pages

Post the duty area statements in two vertical columns down the center of the TTJA wall



Co-Facilitator: As the team reaches consensus on each duty area, print each duty area statement (the "circled" items) horizontally on a separate piece of yellow 8-1/2" x 11" paper. Use a wide-tip, black, permanent marker that does not bleed through the paper. Write legibly and make the letters at least 1" tall so all team members can easily read the page once it is posted on the wall. After writing a duty area on a page, prepare the page so it can hang it on the wall, using the guidelines described in

Step 1 of this segment. Hang the duty area pages in two vertical columns down the center of the wall. Note: Wall space will be at a premium, so place the pages very close together, but do not tape them together.

Do not belabor the revision process at this point. Let the team know they will be able to make further changes later in the process, if needed.

STEP 4 - IDENTIFY TASKS

Review Information with the Team

Since this step will require the most effort, you can increase the team's efficiency in identifying all of the tasks within each duty area by reminding the team members of some key points regarding tasks and task statements.

As needed, refer team members to the job aids showing criteria for tasks and criteria for task statements

First, review the criteria for a task and criteria for a well-written task statement. These are provided in the "Workshop" section of the Participant Manual as a job aid for team members to use as they identify tasks during this step. They are also shown here for your convenience.

Criteria for Task:

- Is a trainable chunk of work
- Has identifiable beginning and end
- Involves several elements
- Results in an identifiable product, service, or decision
- Can be performed over a short period of time
- Can be performed independent of other work
- Can be observed and measured

Team members should attempt to apply these criteria as they silently generate their task lists during the Nominal Group Technique.

You must help the team further apply the criteria as you obtain group consensus on each task statement.

Criteria for Task Statements:

- Contains an action verb and object of the action
- Clearly reflects observable worker performance
- May contain one or more relevant qualifiers, but omit unnecessary qualifiers such as effectively, efficiently, correctly, accurately
- Is explicit, precise, and stands alone
- Avoids reference to knowledge, skills, attitudes, or abilities that merely support task performance
- Avoids reference to tools or equipment that merely support task performance. The use of tools in and of themselves is not a task, but a means of performing the task.
- Reflects terminology used on the job
- Avoids use of double verbs such as "remove and repair." Use the more inclusive of the two, which is "repair."
- Should contain as few words as possible (usually a maximum of eight) while being completely descriptive. Often, two or three words are sufficient

To obtain a task statement, ask questions such as:

- What tasks are associated with this duty area?
- If you were the boss, you would give direction to a worker by saying, "We need you to ________ " (task statement)
- What requests for your services would customers have?

Emphasize the need for task statements that clearly reflect observable worker performance rather than elements of a task or the knowledge, skills or attitudes involved in performing the task.

If participants suggest a statement that is an element or a knowledge or skill (rather than a task), respond by asking:

- Why does the worker need to do that?
- Why does the worker need to know that?
- What does the worker do with that knowledge?
- Is this a trainable event?

These questions usually encourage the contributor or another team member to respond by saying "If the worker doesn't know theory X, he or she can't _______." This should suggest an observable task statement.

Review acceptable action verbs

Second, remind the team that each task statement must contain an observable, measurable action verb. Have the team use the list of action verbs (provided in the Workshop section of their Participant Manual) as a job aid to choose the most appropriate action verb. Unacceptable statements are any that begin as follows:

- The worker should know . . .
- The worker must understand . . .
- The worker has to appreciate . . .

Determine the level at which to write tasks

Third, remind the team of the most appropriate level at which to write the tasks. The level will depend on (a) the scope of the job being analyzed, (b) the complexity of the facility, and (c) how the team chose to group duty areas. The overriding principle is that the tasks must be useful for further SAT processes and the total number of tasks must be manageable. Because of your preparation prior to the seminar, you should have determined the most appropriate task level and guided team members to agreement on the level during the "Overview" lesson.

A concern often arises over the specification of tasks related to the tools and equipment of the trade. Generally tools or equipment operation should be included as task statements only when they reflect actual occupational tasks. Instruct the team to think about whether the tool is used as a means to an end. For example, an auto mechanic may use several tools when performing the task of "adjust a carburetor." The mechanic's use of a screwdriver and other wrenches in the process do not represent tasks by themselves.

Similarly, the verb "operate" is not normally used correctly. Using the verb "operate" in a task statement can lead to tasks being written at too low a level or at too high a level. For example, "operate a forklift" is typically at too low a level. The *purpose* for operating the forklift (e.g., "pick up pathological waste" or "store hazardous waste") would be the actual task, with "operate the forklift" being one step involved in performing that task. "Operate the primary coolant system" may be at too high a level, especially in a complex facility, because each step involved in operating that system (e.g., "start-up the system," "maintain the system in steady-state," "shut-down the system," etc.) would themselves be so complex that they should be considered the tasks. Perhaps in a smaller facility with few components involved in the system the task "operate the xyz system" would be written at an appropriate level. Typically, "operate" is not a good verb to use in a task statement unless it is an actual occupational task (e.g., a warehouse worker whose job does not involve many tasks might have the task "operate a forklift").

You must be an expert at writing good task statements and recognizing the appropriate task "level" in order to guide the team. You must help them apply the criteria for tasks and criteria for task statements.

Have Team Members Identify the Tasks

Using Nominal Group Technique and consensus decision-making techniques, have team members identify the tasks by:
- brainstorming
- looking at the procedures
- verification analysis (using an existing task list)

To identify the tasks performed within each duty area, employ a combination of Nominal Group Technique (NGT), procedural review, and verification analysis. We suggest the use of pure NGT (brainstorming without referring to existing materials) to begin with, until the team establishes a consistent level at which to write task statements. (Otherwise, since most procedures and other documents are written at inconsistent levels, the team may become confused and frustrated.) Once the team feels comfortable with identifying tasks at a consistent level, allow them to use the available job information--procedures, existing task lists, and other materials relevant to the job position--AS they do their NGT to identify the tasks involved in the job. The order in which you use these processes (brainstorming followed by procedural review or vice-versa) is left to your discretion as the Facilitator. Because you will have reviewed the available job information prior to the seminar, you will know which method(s) will be most efficient and result in the most accurate task list.

Start with a duty area in which the tasks will be easy to identify

The first duty area in which you focus attention should be an area wherein the tasks are fairly easy to delineate. Use NGT to have team members identify the tasks within this duty area.

Focus on identifying tasks for one duty area at a time; do not sequence tasks at this time

Technique: As you conduct the round robin to obtain their input, write their task statements on the flipchart, alternating with two different color markers. Use the "color-coded circles and cross-throughs" technique (refer to Step 3) as you gain consensus on which suggestions are the actual task statements and which information should be crossed off because of each task statement. Also, MAKE SURE the task statement reflects the duty area. For example, suppose there are duty areas such as "hazardous waste handling," "radiological waste handling," and "industrial waste." Within each of these duty areas there may be the task of "pick up waste." To reflect the duty area, the task statements should say "pick up *hazardous* waste" and "pick up *radiological* waste" rather than having two pages saying "pick up waste." This is important because later in the process (both in the TTJA seminar and subsequent SAT processes), when the task pages get separated from the duty area pages, the intent of the task statement needs to be very clear.

As you obtain group consensus on task statements, write each task statement horizontally on a white sheet of 8-1/2" x 11" paper. Use the same guidelines for the size of letters as described for duty areas. Use one color marker to write each task page in one row, but use a different color marker for each row. Post the pages next to the applicable duty area, horizontally across the wall.

Co-Facilitator: As the team reaches consensus on a task (indicated by the "circled" items on the flipchart), write each task statement on a separate page and post it on the wall. Also, begin typing the "task content" document (refer to Segment 3, Appendix A, for example). This document shows each task and its associated "folded-in" items (as indicated by the color-coded crossed-out items on the flipchart). This information serves as some of the task content information that will be very useful during the design phase of SAT, so you need to document it accurately.

Take breaks between duty areas

Once the members have identified all of the tasks for the first duty area, determine if the team is ready to move to another. Breaks should be taken between the identification of tasks for a duty area. (Do not take a break while listing tasks for a duty area.) Guide the team in selecting the next duty area to analyze, which should have similar tasks to the one that was just completed. It is easy for the team to bog down if it switches from procedural tasks to analytical or problem-solving tasks.

Allow observers to practice facilitating

After you have demonstrated this process for the first two duty areas, have the observers take turns facilitating the identification of tasks for the remaining duty areas. Provide non-threatening critique and guidance as necessary.

Continue this process until the group has delineated the tasks for all duty areas. Because this stage of the TTJA process is the most time consuming, it can tax everyone's endurance, patience, and adherence to the process. As long as you remain highly motivated and dedicated to the process, the team is likely to remain so, as well.

CAUTION

CAUTION:
If the team members feel that a task is completed by their occupation, you must include it on the wall. You must agree with all decisions that are reached consensually. The team members are the experts, and it is they who must discuss, debate, and occasionally even argue about what is really important to their jobs. In all decisions regarding the tasks involved in the job, the team members must be given the authority to decide.

The skill of the team members to identify task statements accurately and precisely should improve as they advance from duty area to duty area. Repeat the statement as it is worded and ask the team members the following:

Review Task Statements

- Critique the action verb. Is it the most accurate descriptor of what the worker actually does?
- Review the object. Does it represent the thing or person acted upon by the worker?
- Check the modifiers or qualifiers, if any. Are the correct ones used? Are others needed? Have unnecessary modifiers, such as "effectively" and "efficiently," been eliminated?

Use as few words as possible

Constantly challenge the team to think of the most accurate and descriptive terms. It is important to insist on precision. Remind team members that a task statement should contain as few words as possible (usually a maximum of eight) and still be completely descriptive. Often, two or three words are sufficient.

Conduct verification analysis

Once the team feels comfortable with their task list, have them compare their task list with the one you developed when reviewing the available job information prior to the seminar. Also have them compare their list with any other task lists for similar jobs at other facilities. The purpose is to have the team determine whether they have omitted any tasks. If so, add them to their list.

Document the verification analysis

Co-Facilitator: In the "cover letter" (refer to Segment 3, Appendix B, for example) that will precede the typed task list, document which (if any) task lists were used for verification analysis.

After all tasks have been identified, re-examine the duty areas. Each duty area should contain at least six specific task statements. If the group can specify only two or three tasks, the duty area should probably be combined with another related area. Conversely, if a particular duty area results in a large number of tasks (e.g., more than twenty), there may be justification for dividing that large area into two duty areas.

Re-examine the duty area statements

Once the tasks in each duty area have been refined, ask the team if the duty area statement is still an accurate descriptor to encompass the tasks performed. Sometimes the scope of the duty areas should be narrowed or broadened to reflect the specific tasks more accurately. To the extent possible, each duty area should include all the tasks within the area and exclude all the tasks specified for the other duty areas.

Your role is to stimulate the team to make any necessary refinements that may be needed. You should question and challenge their statements and even propose alternative wording, but always allow the team to make all the technical content decisions.

STEP 5 - SEQUENCE TASKS AND DUTY AREAS

The purpose of this step is to give the team a chance to read all task statements, in sequential order, which will help them determine whether they need to add to or delete from the task list. It also provides a means for establishing a task numbering scheme. Sequencing the duty areas and task statements does not take a lot of time and the results of the sequencing add significantly to the accuracy and completeness of the final task list.

Possible sequencing rationales:

- chronological order
- in the order in which a worker should learn the tasks on the job
- simple to more complex
- arbitrary

Explain possible sequencing rationales to the team

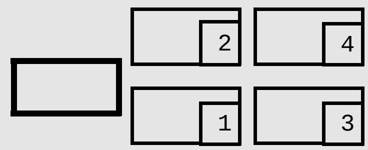
Before sequencing the task statements within each duty area, provide the team with possible sequencing rationales. Sometimes the team will discover two or more subsets of tasks in one duty area that logically follow one another. Remember, though, that some tasks need not be sequenced because the order in which they are learned or performed is arbitrary.

You choose the duty area to begin sequencing tasks

First, you will have the team members sequence the task statements within the duty areas. Usually, you should select the first duty area to be sequenced. Based on your knowledge of what needs to be done, you can select an area in which some of the tasks are already sequenced or in which it appears that such sequencing may be readily accomplished. Let the team determine which sequencing rationale is most applicable to the duty area being examined.

Technique: To indicate the sequential order, write the number (1, 2, 3, etc.) on the *right-hand side* of a separate 1" x 2" post-it note pad and attach the post-it note to the page on which the task statement is written. This will make it easy to revise if the sequence changes later during the process.

Sequence the task statements by writing the task number on the right-hand side of a small (1" x 2") post-it note pad and attaching it to the task statement page



Co-Facilitator: To save time, begin writing the numbers on the post-it note pads so you can hand them, already prepared, to the Facilitator.

When sequencing tasks, allow minor--not major--revisions to task statements

During the task sequencing phase, the team may discover a missing task statement, one that overlaps another, or some other need for revision. Do not permit major changes at this point, but do allow some revision.

Sequence the duty areas as appropriate

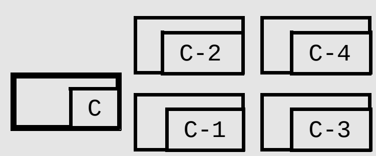
Once the team has sequenced all task statements in every duty area, ask the team to sequence the duty areas. Possible duty area sequencing rationales include:

1. Sequence the duty areas from most important to least important

2. Follow a duty area with another duty area that has similar tasks or that logically follows the previous band.

As with the task statements, the duty area sequence is partly arbitrary.

Add the duty area label to each duty area and task statement page



Technique: To indicate the duty area sequence, write an A, B, C, etc. on a post-it note pad and attach the note to the yellow duty area page. Write the duty area letter on the left side of the affiliated task statement post-it note that was already placed on the white task pages.

Co-Facilitator: As soon as the first duty area has been sequenced, begin typing the task list. (Refer to Segment 3, Appendix C, for an example.) Hint: Do NOT type in tasks before they have been sequenced, as it takes more time to re-arrange them on the computer than to just wait to begin typing as each duty area is sequenced.

Technique: After all tasks and duty areas have been sequenced, take a break in order to arrange all of the task statements in sequential order (but do not worry about arranging the duty areas in sequential order...this is too much work).

Ensure task list is complete

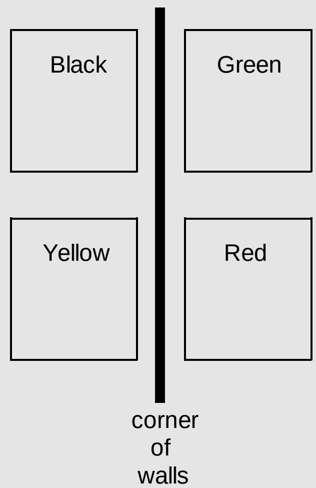
When the team returns from the break, have them review each duty area, reading the task statements in sequence (first to last) to ensure the task list is a reasonably accurate and comprehensive description of the job.

STEP 6 - SELECT TASKS FOR TRAINING

Perform the step without explanation

During this step the team members will simply place each task into a "colored box" according to the criteria shown in each box. The reason the Facilitator should NOT explain the intent or process of this step BEFORE participants select tasks for training is because of lessons learned when doing this process. When participants are told upfront how their selection will impact the training program, they often quit using the CRITERIA to make their selections and instead jump to the end result to make their decision. For example, a common comment the participants would make is "Oh, yuck, I don't want to have to go through training on that every two years...let's call it a 'non-formal train' task." The intent of using "colors" (black, yellow, green, and red) instead of "titles" (of non-formal train, train, pre-train, and overtrain) on the boxes is to get the team to USE THE CRITERIA to sort the tasks, not some pre-conceived notion of how that box will impact the amount of training they will receive on the task. Therefore, DO NOT EXPLAIN these terms or the end result to the participants until AFTER they have completed this step.

Hang the posters showing the criteria for each colored box near the corners of two walls. This will give you plenty of room to move each task statement page next to the appropriate poster as the team reaches consensus on each task.



Room Set-Up: Hang the four colored posters that show the criteria for each box. Place the "black" and "yellow" posters on one wall and the "green" and "red" posters on the adjacent wall. Leave enough space for you to be able to move the task statement pages next to the applicable poster as the team reaches consensus.

Separate posters are available that display these criteria

"Black" Criteria

- Task performed often enough that one does not forget how to do it
- There is low difficulty when performing task
- There is low probability of error when performing task
- Improper task performance makes no difference in plant operations or causes no personnel harm (low consequences of error)
- Task can be learned and competently performed with just mentoring, informal OJT, job experience, and/or a job aid/procedure

"Yellow" Criteria

* Task is only performed once every 2-1/2 to 5+ years
* Time would be available for training prior to need for task performance
- If task is performed improperly, there are moderate- to high-consequences

* If task does not meet this criteria, choose another box

"Green" Criteria

- Improper task performance may impair reliability of a system or process or may require a UOR (moderate consequence of error)
- Related task performance maintains proficiency on this task
- One-time training is sufficient to learn competent task performance

"Red" Criteria

- Task requires frequent practice to maintain proficiency
- Proper task performance is critical to safety (extreme consequences--serious injury, death, or site emergency)
- Task performed seldom enough that one may forget how to perform task

Intent of Step 6: The intent of this step is for participants to select one color for each task. The color should be chosen based on which poster **"BEST FITS"** the task. There are a couple of techniques that can be used during this step. Use whichever of the following techniques that takes the least amount of time.

Technique 1: Use the "Selection Form"

Use Nominal Group Technique to select a box for each task in the first duty area

Distribute to each team member 20 copies of the "Selection Form" (refer to "Workshop" section of their Participant Manual). Use NGT to have each team member **use the criteria** to silently determine in which box each task in Duty Area "A" **best fits**. (NOTE: It will be a "best fit" decision--a task may not meet *all* the criteria in one box but can still be placed in that box. A task may fit criteria in several boxes, but should be placed in the box where it meets the most criteria.)

Tally the results during the round robin

Each participant will use the Selection Form to silently write down their choice for each task within the entire duty area. When using the round robin, indicate on the flipchart how many indicated "black," "yellow," "green," or "red" for each task. Then circle the majority answer. **Only discuss those items where there is no majority** (otherwise you will run out of time in the seminar!) Then move on, having the team use NGT for the next duty area. This duty-area by duty-area technique typically takes the least amount of time.

As team members state their color during the round robin, keep track of the status on a flipchart by making a tick mark under "black," "yellow," "green," or "red."

Task	black	yellow	green	red
A-1	///		/	
A-2			////	
A-3			///	/
A-4	//		//	
A-5	//	/	/	
A-6			/	///

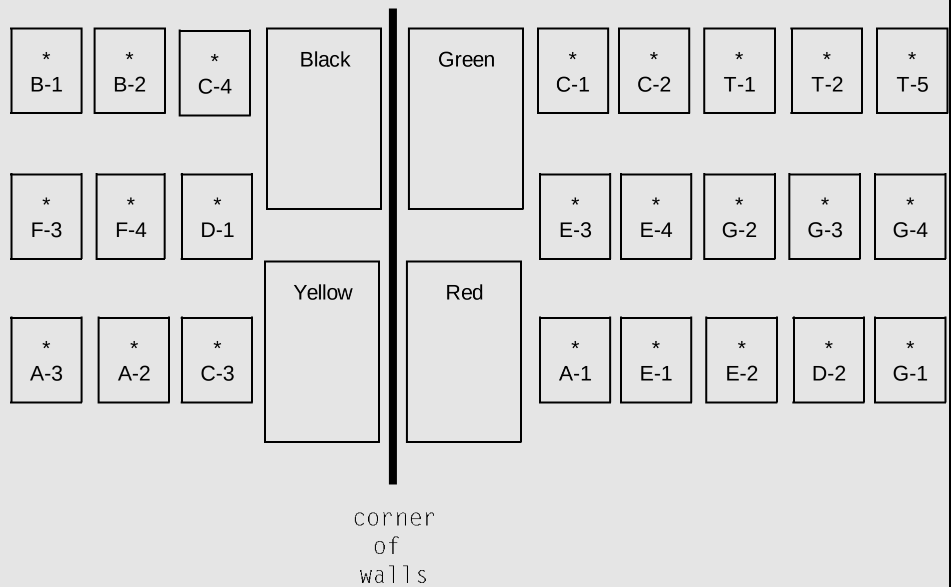
Technique 2: "Olympic Judges" Game

Have each team member draw a large, black, filled-in box on a 3 x 5 post-it note pad. Have them make three others, one with a yellow box, one with a green box, and one with a red box. Focusing on Duty Area A, have them hold up the appropriate-colored box to indicate their selection for Task A-1. (NOTE: Keep reminding team members that they should make their selection based on the criteria!) As Facilitator, simply look at what everyone is holding up and state which color is the majority. Then have them hold up their selected color for Task A-2, etc. NOTE: If it looks like the team members will be debating over the answer for each task, revert to Technique 1 above. There is not enough time in the seminar to debate **every task** in terms of which color it should be.

Place each task statement next to the applicable poster

Co-Facilitator: When consensus is reached (indicated by the circled answer on the flipchart OR by what the Facilitator says is the majority), remove the task statement page from the TTJA wall and place it on the wall next to the appropriate poster. Put a black, yellow, green, or red dot on the post-it page where the task number is written. For each task, type the selection into the task list format (refer to Segment 3, Appendix A, for an example).

As the team reaches consensus on each task, move the task statement page next to the appropriate poster. Write an appropriate colored dot (black, yellow, green, or red) on the post-it note where the task number is written.



Allow observers to practice facilitating

Make sure the developers who are observing the process document any training-related discussions, especially when the team describes how people could learn the tasks placed in the "black" box.

After you have demonstrated this process for the first two or three duty areas, have the observers take turns facilitating the selection of tasks as training for the remaining duty areas. Provide non-threatening critique and guidance as necessary.

Explain the Results

AFTER all tasks have been placed in the appropriate box based on the criteria, explain what implications their selections have had on the training program:

1. The black box indicates those tasks (termed "non-formal train" tasks) which can be learned via non-formal training methods (such as mentoring, informal OJT, using job aids, or following procedures). Formal training (with documented lesson plans, tests, and attendance records) need **not** be developed for the "non-formal training" tasks, although the job aids and procedures would need to be developed.

2. The green box indicates those tasks (termed "train" tasks) that should be **formally** taught, one time, as part of the **initial training** program. Because they will be included in the formal training program, lesson plans (for classroom, formal OJT, laboratory, self-study, and/or simulator) and tests need to be developed and used for training. However, these materials may not need extensive development efforts (e.g., "boilerplate" lesson plans and tests may suffice). Because it is formal training, records need to be kept to indicate which people attended the training.

3. The red box indicates those tasks (termed "overtrain" tasks) that should be **formally** taught, both in **initial training and** on a **continuing** basis, such as biennially. Because they will be included in the formal training program, lesson plans (for classroom, formal OJT, laboratory, self-study and/or simulator) and tests need to be developed and used for training. However, because of the critical consequences that may occur if these tasks are not performed correctly, more extensive development efforts may be appropriate (e.g., detailed lesson plan content, detailed test content, detailed instructions, etc.). Because it is formal training, records need to be kept to indicate which people attended the training.

4. The yellow box indicates those tasks (termed "pre-train" tasks) that should be **formally** taught, but only taught just prior to when the task

needs to be performed. Therefore, it would **not** be taught in initial training or even every 2 years in continuing training. The tasks would only be taught just prior to when the task needs to be performed. (The tasks placed in this box were those that are only performed once every 2-1/2 to 5+ years and can be planned far enough in advance to conduct training. Therefore, it would not be cost-effective to teach people how to perform the task when they first arrive on the job and then keep re-teaching them every two years if they only have to perform that task once every five years.) Because it is included in the formal training program, lesson plans and tests would need to be developed and used, and records need to be kept to indicate which people attended the training. NOTE: For many job positions, there may be no "yellow" tasks.

As the Facilitator, keep in mind there is one "last resort" option for completing this step. If the team members absolutely cannot come to consensus on the designation of "black," "yellow," "green," or "red" by using the criteria in the boxes, you may choose to conduct this step by using the "DIF" process. Refer participants to the "DIF" form and instructions in the "Workshop" portion of their Participant Manual. Read the instructions with the participants and then ask each team member to silently rate each task for "difficulty," "importance," and "frequency" (DIF). When they are finished, have the participants take a break so you and the Co-Facilitator can calculate the **average** results for each task in terms of DIF. Then, using the average DIF results for each task, apply the task results to the "Decision Tree," also located in the Participant Manual (perhaps the team members can help you do this to save time), to determine if the task is a "no train" (equivalent to a black box), "train" (green box) or "overtrain" (red box). There is no "pre-train" (yellow box) using this method.

NOTE: The DIF process is, in our opinion, more time consuming and does not provide the excellent training-related discussions that arise with the "box" method. Use this ONLY as a very last resort.

SEMINAR SUMMARY

Co-Facilitator: Print the completed cover letter and list of tasks selected for training. Have all team members and Facilitators sign the task list, documenting their participation in the process and agreement with the validity of the results. Facilitators should keep both a disk and hard copy of the task list.

As the Co-Facilitator is preparing the final task list for signature, explain how the list of tasks selected for training will be used in the next SAT stages. If the facility conducts the seminar titled "Table-Top Training Design" (TTTD), the task list would be used in several ways. First, the team members (the same people who participated in this TTJA seminar) would help determine the training program structure--what training sessions should be taught and how often (annually, biennially, etc.) Next, the team members would place each train and overtrain task within the appropriate training sessions. Then, for the highest-priority training sessions, the team members would determine what content to teach in the training session, based on the tasks included in that training session. The trainers and Facilitators would write the learning objectives for those training sessions based on the content described by the team members. The products resulting from the TTTD seminar would include a training program description, a task-to-training matrix, and design specifications for the highest-priority training sessions.

To wrap up the seminar, sincerely thank the members for their cooperation and persistence. Re-emphasize the importance of the member's contribution to the facility's training efforts. The Coordinator will send thank-you letters and a certificate to each member of the team soon after the workshop. If you have not already done so, collect the attendance roster.

Collect the seminar evaluation forms that you distributed to all participants during the Introduction lesson.

APPENDIX A--FORMAT FOR CAPTURING TASK CONTENT

Directions: Type this document during TTJA Step 4, "Identify Tasks." This document does not need to be anything fancy, but it does need to accurately record each item that gets "crossed-out" as a result of "circling" the task statement. This document will be used in the "Table-Top Training Design" seminar as a way of reviewing some of the "content" involved in each task.

CAUTION: The intent is **NOT** for the TTJA Facilitator to have the team think of every element or step of a task so that it can be recorded in this document. (That is beyond the scope and intent of TTJA.) Rather, this document serves as a means to capture information that **naturally** falls out during TTJA Step 4 so that during the Table-Top Training Design seminar participants will have a "head start" when attempting to think of the elements/steps involved in each task.

NAME OF DUTY AREA

Name of Task

- First item that was folded into this task
- Second item that was folded into this task
- Third item that was folded into this task
- Etc.

Name of Task

-
-
-

NAME OF DUTY AREA

Name of Task

APPENDIX B--EXAMPLE TASK LIST COVER LETTER

Directions: This letter serves as "auditable documentation" of the process and people used to develop the valid task list. You should place this letter and the list of tasks selected for training in the training files of your facility. The same basic content should be used each time this seminar is delivered, but since it describes the TTJA process used, you may need to "customize" it a little to describe any verification analysis or other techniques incorporated into this particular delivery.

Date: *(Today's Date)*

To: *(Manager of Operating Organization)*

From: *(Manager of Training Department)*

Subject: TABLE-TOP JOB ANALYSIS FOR *(NAME OF POSITION AND NAME OF FACILITY)*

From *(dates of seminar)*, the people listed on Attachment 1 participated in the "Table-Top Job Analysis" seminar. The results are provided in Attachment 1. Using a table-top approach, the team developed a valid task list for the job position and selected tasks as "non-formal training," "pre-train," "train," and "overtrain." Because of the combination of *(list the types of people involved--job incumbents, subject matter experts, first-line supervisors, other managers, etc.)*, the results provided in Attachment 1 are self-validating and may not require further review prior to continuing with the systematic approach to training process. The table-top process included the following steps:

1. Orient the team to the process

2. Review the boundaries of the job (which positions included in this analysis)

3. Identify duty areas

4. Identify tasks using a combination of these methods:
   a. nominal group technique
   b. procedural review
   c. verification analysis using *(name of task list and facility)*

5. Sequence tasks and duty areas

Page 2

6. Select tasks for training based on the following criteria:

   a. Non-Formal Training tasks (impact: not included in formal training program)
      - task performed often enough that one does not forget how to do it
      - there is low difficulty when performing task
      - there is low probability of error when performing task
      - improper task performance makes no difference in plant operations or harm to personnel (low consequences of error)
      - task can be learned and competently performed with just mentoring, informal OJT, job experience, and/or a job aid/procedures

   b. Pre-Train tasks (impact: tasks are taught formally, on an as-needed basis)
      - task is only performed once every 2-1/2 to 5+ years
      - time would be available for training prior to need for task performance
      - if task is performed improperly, there are moderate- to high-consequences

   c. Train tasks (impact: tasks are formally taught once during initial training using boilerplate lesson plans and tests)
      - improper task performance may impair reliability of a system or process or may require a UOR (moderate consequences of error)
      - related task performance maintains proficiency on this task
      - one-time training is sufficient to learn competent task performance

   d. Overtrain tasks (impact: tasks are taught formally in initial and continuing training using more detailed lesson plans and tests)
      - task requires frequent practice to maintain proficiency
      - proper task performance is critical to safety (extreme consequences--serious injury, death, or site emergency)
      - task performed seldom enough that one may forget how to perform task

A detailed description of the table-top process used during this seminar is provided in the *Facilitator Guide*, which is Attachment 2. Signatures of the participants involved in creating Attachment 1 are provided on Attachment 1. If you have any questions or require further information, please contact me.

Attachments: 1. Valid list of tasks selected for training
2. "Table-Top Job Analysis - Facilitator Guide"

APPENDIX C--FORMAT FOR DOCUMENTING THE LIST OF TASKS SELECTED FOR TRAINING

Directions:

1. After TTJA Step 5 (Sequence Tasks and Duty Areas), when all tasks and duty areas have been sequenced, type each duty area and its associated tasks in sequential order into Column 1, "Complete Task Listing."

2. During TTJA Step 6 (Select Tasks for Training), as each task is placed in a "box," type an "X" in the appropriate column:
   - black = non-formal training
   - yellow = pre-training
   - green = initial training (train)
   - red = continuing training (overtrain)

3. NOTE: The last column, "Training Session(s) and JPMs in which Task is Taught/Evaluated," will NOT be filled in during the TTJA seminar. Rather, this column will be filled in during the subsequent "Table-Top Training Design" seminar.

Name of Facility | NAME OF JOB POSITION | Month/Year

TASK-TO-TRAINING MATRIX

Complete Task Listing	Non-Formal Training	Formal Training: Pre-Training	Formal Training: Initial Training (Train)	Formal Training: Continuing Training (Overtrain)	Training Session(s) and JPMs in which Task is Taught/Evaluated
DUTY AREA A: NAME OF DUTY AREA					
A-1:					
A-2:					

Page 1 of #

Reviews: Table-Top Job Analysis Committee

Title:______________________ Name:____________________________ Date:__________

Title:______________________ Name:____________________________ Date:__________

Title:______________________ Name:____________________________ Date:__________

Title:______________________ Name:____________________________ Date:__________

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Title:______________________ Name:____________________________ Date:__________

Title:______________________ Name:____________________________ Date:__________

Page # of #

SEGMENT
4

WHAT TO DO FOLLOWING THE SEMINAR

What do you need to do with the items on the wall? What do you need to give the Coordinator?

Directions

Read the information about what to do following the seminar.

REMOVE THE TASK LIST FROM THE WALL

CAUTION

As soon as the team members have departed, remove all duty area and task statement pages from the wall, being sure the post-it pads indicating duty area, task number, and designation as "black," "yellow," "green," or "red" are secured to the page. These pages will be needed if the facility continues with the "Table-Top Training Design" seminar. (**CAUTION**: Do not allow the pages to get taped together. This will make it difficult to separate them later.)

DE-BRIEF WITH THE COORDINATOR

Give to Coordinator:

1. The cover letter explaining how the task list was developed and who was involved
2. The typed list of tasks selected for training (on disk and a hardcopy signed by team members)
3. The pile of tasks, numbered and labelled to indicate sequence and designation as "no-train", "train", "overtrain", and "pre-train"
4. The disk of "content" that was incorporated under a task statement
5. The roster of people who participated
6. If used, the forms used to rate each task for DIF

Give this information to the Coordinator to serve as auditable documentation showing how the task list and selection of tasks as no train, pre-train, train or overtrain were developed.

NOTE TO FACILITATORS:
Keep a copy of the attendance roster, all evaluation forms, and the task list. Complete a "Facilitator" evaluation form (TTJA Introduction-HD-3) and return it to whomever maintains the seminar materials.

CONGRATULATIONS! YOU'VE FINISHED!

SEGMENT

5

Use the yellow copy in the front folder as your job aid when preparing for, conducting, and concluding the TTJA seminar

FACILITATOR'S CHECKLIST FOR CONDUCTING TTJA

DIRECTIONS:

The TTJA Checklist is provided on the following pages. The copy you should use is printed on yellow paper and is provided in the front pocket. This checklist is a job aid to remind you of the activities required for adequate preparation, the proper sequence of TTJA steps, and the activities required to conclude the seminar. It summarizes what you read in Segments 2, 3, and 4, so if you need to refresh your memory as to what each item entails, refer to Segment 3. We suggest you use a pencil as you check off each item so you can re-use the checklist each time you conduct the seminar.

Under each TTJA item, the checklist indicates the following:

→ = Perform the action shown

? = Ask the team the comprehension question shown. This is to refresh the team's memory at a time when they need to apply their knowledge.

-- = Reminders to you that you need <u>not</u> convey to the team

☑	TTJA CHECKLIST
	PREPARING FOR THE SEMINAR
___	→ Study the entire *Facilitator Guide* and all lesson plans
___	→ Assign team-teaching responsibilities
___	→ Confirm details with Coordinator -- Number of job positions to be analyzed during the seminar -- Who is providing healthful refreshments -- Will a music system be allowed in meeting room -- Coordinate computer and printer needs -- Who is providing supplies and equipment -- Confirm introductions
___	→ Obtain job information from Coordinator -- Needs Analysis Worksheet -- TTJA Planning Sheet -- Brief job description -- Any existing task list(s) for the job → A task list from a similar position at another facility -- A list of procedures applicable to the job position -- Copy of 2-5 procedures that reflect tasks involved in job
___	→ To familiarize yourself with the job, create a possible list of duty areas and tasks for the job position
___	→ Build job-specific examples into the "Overview" lesson

✔	TTJA CHECKLIST
	STEP 1 - ORIENT TEAM (~4 hr)
___	→ Team-teach the lessons using Attachments 1-3
___	→ Each morning, briefly review the "big picture" described in the Overview lesson
___	→ Prepare for the workshop
___	→ Arrange the room
___	→ Set up supply table
___	→ Check wall surface
___	→ Use accelerated learning techniques -- toys/noisemakers for each participant -- music -- refreshments -- breaks
___	→ Have observers move to back of room and read the *Facilitator Guide* to help them perform during TTJA Steps 4 and 6.
___	→ Remind the person who will be developing the training to take notes during training-related discussions.
	STEP 2 - REVIEW JOB (~15 min.)
___	→ Clarify job title(s) and specializations to be analyzed in this seminar
___	→ *Post job title on white 8-1/2" x 11" paper at top center of TTJA wall*

✔	TTJA CHECKLIST
	STEP 3 - IDENTIFY DUTY AREAS (~1 hr.)
___	? Ask for definition of "duty area"
___	? Ask how many duty areas are typically involved in a job (5-12)
___	? Ask for examples of how duty areas can be grouped (systems, location, components, procedures, other)
___	→ Have team select the most appropriate way to group duty areas for this job position
___	→ Refer team to previous analyses (in "Workshop" section of Participant Manual) to get ideas -- Keep in mind how the duty areas will impact the ability to write tasks at an appropriate level
___	→ Use Nominal Group Technique to have team identify duty areas
___	-- Have each team member silently generate a list of duty areas → During round robin, write their suggestions on flipchart, alternating lines with two different color markers -- Provide guidance and reassurance
___	→ Have team briefly determine if duty areas should be combined or modified
___	→ Use color coding/cross-through technique to track what gets "folded into" the final choice -- Ensure tasks performed under emergency/abnormal conditions will be encompassed by the duty areas chosen
___	→ *As group consensus is obtained, write each duty area horizontally on a separate yellow 8-1/2" x 11" sheet*
___	→ *Post duty area sheets in two vertical columns down center of TTJA wall*

✔	TTJA CHECKLIST
	STEP 4 - IDENTIFY TASKS (~10 hr.)
___	? Ask for definition of "task"
___	? Ask how many tasks typically included in each duty area (6-20)
___	? Ask the team to state the preferred number of words a task statement should have (maximum 8, 2-3 preferred)
___	→ Review with team the criteria for tasks and task statements → Refer team to these pages in Workshop section of Participant Manual → Refer team to list of acceptable action verbs in Workshop section of Participant Manual
___	→ Have the team select the most appropriate level at which to write the tasks
___	→ Choose an easy duty area to begin
___	→ Use Nominal Group Technique to have team identify tasks within first duty area -- Use brainstorming, procedural review, and verification analysis as appropriate -- Have each team member silently generate a list of tasks for the duty area → During round robin, write their suggestions on flipchart, alternating lines with two different color markers → Use color coding/cross-through technique to track items that are "folded into" the final choice
___	-- Make sure the task statement reflects the duty area statement
___	-- Help team critique action verb, review object, and check modifiers/qualifiers of task statements
___	

☑	TTJA CHECKLIST
	STEP 4 - IDENTIFY TASKS, Cont'd (~10 hr)
___	→ *As group consensus is reached, write each task statement horizontally on a white 8-1/2" x 11" sheet*
	-- *Use one color marker to write all tasks for one duty area; use another color for all tasks in the next duty area, etc.*
___	→ *Type the "task content" document*
___	→ *Post task statements to the right (or left) of the applicable duty area page*
	-- Focus on one duty area at a time -- Do not spend time sequencing tasks -- Take breaks between duty areas -- When moving to next duty area, select one with similar tasks as previous area
___	→ After you finish the first two duty areas, have an observer conduct this step for the next duty area
	-- Provide non-threatening critique and guidance
___	→ Have team compare their task list with the one you developed during preparation and/or another facility's task list (verification analysis)
___	→ *In the cover letter, document whether this process occurred*
___	→ Have team check the number of tasks per duty area; combine or divide duty areas as necessary
___	→ Have team determine if duty area still encompasses all tasks; revise duty area statement as necessary

TTJA CHECKLIST

STEP 5 - SEQUENCE TASKS AND DUTY AREAS (~1 hr)

___ → Explain the purpose of this step

___ → Explain task sequencing techniques to team

-- chronological order
-- order in which should learn on job
-- simple to complex
-- arbitrary

___ → Have team sequence tasks within duty areas

___ -- Start with a duty area where some tasks are already sequenced
→ Write number (1, 2, 3, etc.) on the right side of a post-it note and attach to sheet
-- Allow some revision to task statements, but no major revisions
-- Review entire sequence before going to next duty area

___ → Explain duty area sequencing techniques to team

-- Sequence duty areas from most important to least important
-- Look for duty areas that logically follow one another
-- Arbitrary

___ → Have team sequence duty areas

___ → Write duty area letter (A, B, C, etc.) on a post-it note and place on duty area sheet

___ → Write duty area letter on the left side of the previously-attached post-it note to indicate duty area on each task statement sheet (A-1, A-2, etc.)

☑	TTJA CHECKLIST
	STEP 5 - SEQUENCE TASKS AND DUTY AREAS, Cont'd (~1 hr)
___	→ *Start typing task list as each duty area is sequenced*
___	→ When all tasks and duty areas are sequenced, take a break and move the task pages in sequential order (but not necessarily the duty area pages)
___	→ Obtain final agreement on entire task list
	STEP 6 - SELECT TASKS FOR TRAINING (~5-1/2 hr)
___	→ Post criteria posters, TTJA Overview-P-7 through P-10, near the corner of two walls
___	→ Remind the person who will be developing the training to take notes during training-related discussions
___	→ Refer to TTJA Overview-P-7 through P-10 and use Nominal Group Technique for each person to select tasks for training within the first duty area -- Have each team member use the "Selection" Form in their Participant Manual to silently determine "black," "yellow," "green," or "red" for each task within that duty area OR -- Use the "Olympic Judges" technique
___	→ As you conduct the round robin, indicate (for each task) how many people chose "black," "yellow," "green," or "red"

✔	TTJA CHECKLIST
	STEP 6 - SELECT TASKS FOR TRAINING, Cont'd (~5-1/2 hr)
___	→ *As consensus is reached, move each task statement next to the applicable poster*
___	→ *Put an applicable color dot on the previously-attached post-it note (that shows the duty area letter and task number)*
___	→ *Type the selection into the task list*
___	→ After you finish the first two duty areas, have an observer conduct this step for the next duty area.
	-- Provide non-threatening critique and guidance
___	→ Explain to participants how their selection of black, yellow, green, or red impacts the training program
	SEMINAR SUMMARY (1/2 hr)
___	→ *Print cover letter and list of tasks selected for training; have all team members and Facilitators sign the list*
___	→ Explain how the TTJA results will be used in the Table-Top Training Design seminar
___	→ Sincerely thank team members and observers for their cooperation and persistence
___	→ Explain that everyone will receive a certificate for their efforts
___	→ Collect seminar evaluation forms from participants and observers (TTJA Introduction-HD-2 and HD-3)

TTJA CHECKLIST

AFTER THE SEMINAR

→ Remove the task and duty area pages from the wall

-- Don't let the pages get taped together

→ Complete your evaluation form (TTJA Introduction-HD-3)

→ Give to the Coordinator:

-- cover letter (hardcopy and disk)
-- list of tasks selected for training (signed hardcopy and disk)
-- pile of task and duty area pages
-- task content (hardcopy and disk)
-- attendance roster
-- all evaluation forms
-- DIF forms, if used

→ Facilitator keep:
-- cover letter (hardcopy)
-- list of tasks selected for training (hardcopy and disk)
-- task content (hardcopy)
-- copy of attendance roster
-- copy of evaluation forms

REFERENCES

1. Norton, Robert E., *DACUM Handbook*, The National Center for Research in Vocational Education, Ohio State University, 1985.

2. International Board of Standards for Training Performance and Instruction, *Training Manager Competencies: The Standards*, "Nominal Group Technique."

3. Zenger-Miller, *Team Leadership*, "Helping Your Team Reach Consensus," 1992.

4. Haynes, Marion E., *Effective Meeting Skills*, Crisp Publications: Los Altos, California, 1988.

5. TAP2, Performance-Based Training Manual, U.S. Department of Energy Training Accreditation Program, DOE/NE-0102T, July 1991.

6. DOE Order 5480.20, Personnel Selection, Qualification, Training, and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities, February 1991.

7. DOE Order 5480.18A, Accreditation of Performance-Based Training for Category A Reactors and Nuclear Facilities, July 1991.

8. Management and Oversight of PBT Programs Course, DOE Training Coordination and Accreditation Program, DOE/ID-10388, December 1992.

9. Instructional Analysis and Design Course, DOE Training Accreditation Program, DOE/ID-10327, August 1991.

INSTRUCTOR PREPARATION PAGE

COURSE TITLE: Table-Top Job Analysis

LESSON TITLE: Introduction

TIME REQUIRED: 40 min.

REFERENCES:

OBJECTIVE: Seminar Purpose: Given all training materials and guides, the facility training staff will be able to CONDUCT Table-Top Job Analysis in a consistent and repeatable manner and DEVELOP task lists for the job positions/programs required to meet DOE Orders 5480.18A and/or 5480.20.

Seminar Terminal Objective: Using the Table-Top Job Analysis process, participants will DEVELOP a task list and SELECT tasks for training that will meet the intent of DOE Orders 5480.18A and/or 5480.20.

INSTRUCTIONAL AIDS: Poster P-1; Distributed Handouts HD-1 through HD-3; Overhead transparencies O-1 through O-6; Sign S-1, Overhead projector and screen, one flipchart stand with flipchart pads, flipchart markers

PARTICIPANT PREPARATION: None

PRESENTATION METHOD: Lecture, introductions

EVALUATION METHOD: N/A

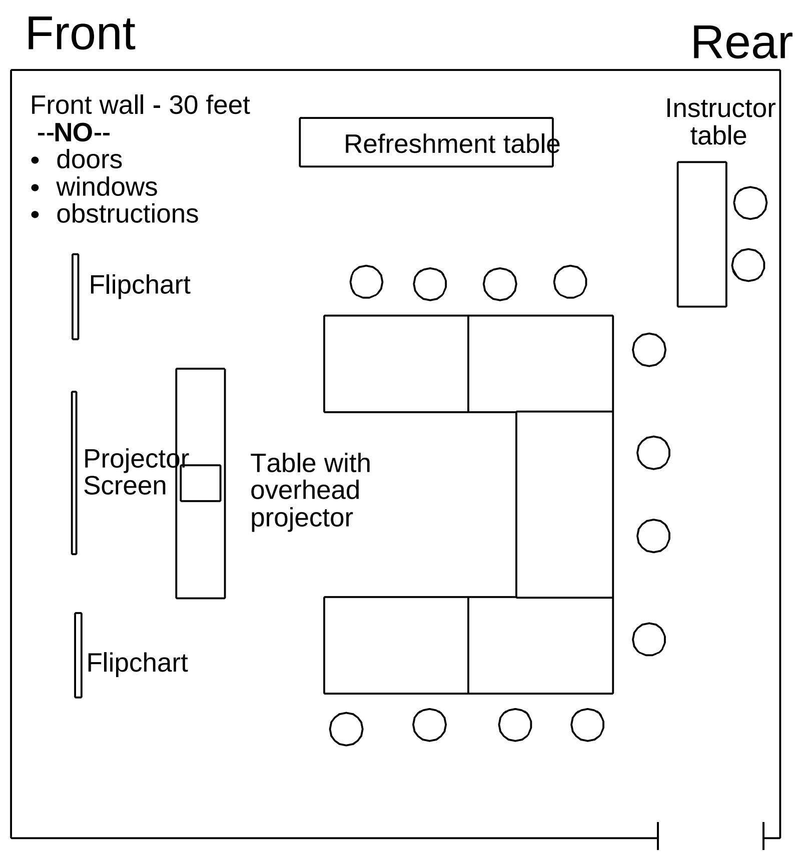
NOTES TO INSTRUCTOR:

TO PREPARE FOR THE ENTIRE SEMINAR:

1. Arrive at class location 1 hour early.

2. Set up the room by completing the following tasks:

INSTRUCTOR PREPARATION PAGE



a. Arrange table and chairs in a U-shape, with the overhead projector, screen, and flipchart stands at the opening of the U. Team members and observers will participate in this lesson. Leave plenty of writing space between participants.

b. Neatly place the following on the table for each participant:
- Participant Manual
- name tent
- pencil/pen
- yellow highlighter
- one flipchart marker per table, in dark/bright colors
- one small (1-1/2"x2") post-it note pad per table
- one large (4"x6") post-it note pad per table

c. If available, provide each table with a pitcher of ice water and glasses.

3. It is very important that we apply accelerated learning techniques during this seminar. People need to be relaxed, alert, and energized to make the seminar a success. We cannot forget or underestimate the importance of climate setting. Therefore, please do the following:

   a. Unless the Coordinator has made these arrangements, on the first day bring healthful snacks such as fresh fruits, vegetables, crackers, juice, etc. In this lesson participants are asked to bring healthful refreshments the following days.

   b. Play music such as light jazz (with no singing) or other upbeat music during breaks. Earl Klugh and Kenny G are good examples.

   c. Distribute a toy and/or noisemaker to each participant.

   Refer to the Facilitator Guide for additional information regarding accelerated learning techniques.

4. Post "TTJA Seminar" sign outside of classroom door.

5. Ensure training equipment works, i.e. overhead (check focus), VCR, monitor, etc.

6. Write the following names and phone numbers on flipchart paper and leave displayed throughout the seminar:

   - The instructor/facilitator(s)
   - The TTJA Coordinator

TO PREPARE FOR THIS LESSON:

1. Post PBT-INTRODUCTION-P-1 (Course Objective) on a wall other than the TTJA wall, but in a location easily viewed by entire class. Leave posted throughout the seminar.

2. Ask facility manager about the parking policy, smoking policy, location of restrooms and availability of phones.

3. Ensure that enough copies of distributed handouts for this lesson are available.
   a. 1 TTJA Roster (TTJA INTRODUCTION-HD-1) [Note to OTTA Staff: When it has been completed, make a copy of the roster for our attendance records.]
   b. 15 Seminar Evaluation forms for Team Members and Observers (TTJA INTRODUCTION-HD-2)
   c. Enough Seminar Evaluation forms for Coordinator and Facilitators (TTJA INTRODUCTION-HD-3)

This lesson begins with a series of short introductions:

1. First, the Coordinator will introduce a manager from the operating organization that needs the task list. The manager should welcome the team officially, thank the team members for their participation, and acknowledge the importance of their contribution to this TTJA seminar. (This should only take 1 minute.) By completing the "Coordinator Guide," the Coordinator should know that this is supposed to happen. It would be helpful if you confirm this with the Coordinator prior to the TTJA seminar.)

2. Second, the Coordinator will introduce you as the Instructor/Facilitator for this seminar. The Coordinator should acknowledge the skills required to be a Facilitator and then briefly explain your qualifications and experience. (This should only take 1 minute. Prior to the seminar, you should discuss with the Coordinator what you want the Coordinator to say during this Introduction.)

3. Third, you will introduce yourself by stating your name, where you work, what your primary job is, and what your experience has been in performing job analysis and table-top job analysis. (This should only take 2 minutes.)

Throughout this lesson you must exude enthusiasm for how well the TTJA process works, while creating a relaxed, risk-free, congenial environment for all participants. You should also extend a personal greeting to the participants and congratulate the team members on being recognized as experts in their field.

INSTRUCTOR PREPARATION PAGE

SKELETAL OUTLINE (Note: The skeletal outline is NOT meant to replace the lesson plan. Rather, it is to serve as an aid to the instructor when preparing to teach this lesson so the instructor may easily see the overall structure and flow of this lesson.)

I. Welcomes
   - A. From representative of organization needing the task list (1 min.)
   - B. Coordinator introduces Facilitator (1 min.)
   - C. Facilitator introduces self (2 min.)

II. General Introduction
   - A. Motivator
   - B. Purpose of Seminar
   - C. Seminar Objective
   - D. Seminar Overview
   - E. Participant's Materials
   - F. Roles

III. Icebreaker

IV. Housekeeping

V. Expectations
   - A. Attendance requirements
   - B. Seminar evaluation form
   - C. Other

INSTRUCTOR PREPARATION PAGE

Discussion Points	Instructor / Trainee Activity
I. WELCOME	REFER to "Notes to Instructor"
A. Welcome from Manager of Operating Organization Needing Task List (1 min.)	
B. Welcome from Coordinator who Introduces Facilitator (1 min.)	
C. Facilitator Welcome (2 min.)	
1. Welcome to the "Table-Top Job Analysis Seminar."	
2. Introduce self a. Your name b. Where you work c. What your primary job is d. Your experience in conducting Table-Top Job Analysis	INTRODUCE yourself and REFER to your name and number on the board or flipchart (5 min into lesson)
II. GENERAL INTRODUCTION	
A. Motivator	

1. ASK the following questions to motivate participants and lead into the seminar purpose:

   - How long have you been in this job?

Discussion Points	Instructor / Trainee Activity
- What kind of training did you receive when you first started?	
- How effective was the training?	
- Was the training time well-spent?	
- Did it help you learn to perform your job well?	
- Would a new person be able to perform your job well if they received the same training you did?	ASK: What do you consider to be the benefits of a good training program?
2. A good training program ensures that workers can safely, competently, and efficiently perform their job.	
It teaches workers what they need to know and do to perform well, yet it does not waste their time on topics irrelevant to their job.	HOLD up Workbook and have participants turn to page 2 behind the "Introduction" tab.

Discussion Points	Instructor / Trainee Activity
3. In order for the training program to be "good," as described, the training program content must be based on the tasks involved in performing the job.	(10 min into lesson)
B. Purpose of Seminar	
1. You were selected to participate in this seminar because you are perceived as "role models" for excellent job performance.	
2. In this seminar you will use your expertise and experience to develop a list of the tasks involved in your job.	
3. The task list will then serve as the foundation for training program content so that your co-workers and any new hires can benefit from your expertise and perform as safely and competently as you do.	

Discussion Points	Instructor / Trainee Activity
4. At the same time, we will be showing your training staff how to conduct future TTJA seminars to develop task lists for other job positions. This helps meet the overall seminar purpose:	
"Given all training materials and guides, the facility training staff will be able to CONDUCT Table-Top Job Analysis in a consistent and repeatable manner and DEVELOP task lists for the job positions/programs required to meet DOE Orders 5480.18A and/or 5480.20."	SHOW: TTJA-INTRODUCTION-O-1, Seminar Purpose
C. Seminar Objective	READ: TTJA-INTRODUCTION-P-1, Seminar Objective
1. What you will be performing in this seminar is the objective:	
"Using the Table-Top Job Analysis process, participants will DEVELOP a task list and SELECT tasks for training that meet the intent of DOE Orders 5480.20 and/or 5480.18A."	

Discussion Points	Instructor / Trainee Activity
2. The process we will use to develop the task list is called Table-Top Job Analysis.	
3. Table-top job analysis involves a team of subject matter experts, supervisors, and (as appropriate) engineers who understand the design of facility systems. The team meets in a workshop to develop a list of the tasks performed in a specified job position. A Facilitator (usually an instructional technologist) guides the team through the process and posts the task statements on a wall or other easy-to-see surface.	
4. Note: The task list developed in this seminar (or in any job analysis process) is not going to be 100% perfect. To strive for perfection is cost prohibitive. The training program evaluation process will identify any changes required in the task list.	

Discussion Points	Instructor / Trainee Activity
5. You will learn more about job analysis and TTJA in the next lesson.	(15 min into lesson)
D. Seminar Overview	SHOW: TTJA INTRODUCTION-O-2, Seminar Overview
1. This seminar is divided into two segments: a training portion and a workshop portion.	REFER participants to Workbook p. 4
2. During the training portion, I will give you what you need to know in order to perform well during the seminar.	
3. Then I will become the Facilitator and guide you through the Table-Top Job Analysis workshop.	
E. Participant Materials	
Your workbook provides you with information that you will apply during this seminar.	

Discussion Points	Instructor / Trainee Activity

1. The Lesson Section is labeled with the name of the lesson (e.g., "Introduction," "Overview," and "Team Skills"). Use this section to follow along during the lesson. Feel free to write ideas or take notes during the seminar.

2. The Handout Section is labeled as the "H" tab (e.g., "Overview-H"). It provides additional handouts to refer to during the lessons.

3. The last section of the workbook is the Workshop Section. You will use the forms and other information in this section when we are conducting the actual TTJA workshop.

F. Roles

Transition: Our objective this week is to develop a list of tasks associated with the job. In order to accomplish this we are using a team. Within the team, different people have defined roles.

Discussion Points	Instructor / Trainee Activity
1. Team members	SHOW: TTJA INTRODUCTION-O-3, Role of Team Members
a. The role of team members (SMEs, supervisors, engineers) is to use their technical expertise to identify the tasks involved in the job.	ASK: Who in here is an SME, supervisor, or engineer?
b. You will participate in discussion sessions to identify the tasks involved in the job position being analyzed.	
c. You will also examine existing task lists, procedures, and other reference materials to help you identify other tasks.	
d. You will learn more about these techniques in the next lesson.	SHOW: TTJA INTRODUCTION-O-4, Role of Facilitator
2. As Facilitator, my role is to:	
a. Teach lessons that give you the background information you need to succeed when working as a team to develop the task list.	

Discussion Points	Instructor / Trainee Activity
b. I will guide you through each TTJA step.	
c. I will use my expertise in job analysis and TTJA to facilitate the seminar, but I will not provide technical input for the task list.	
d. You are the technical experts...I am the process expert.	
3. Observers	SHOW: TTJA INTRODUCTION-O-5, Role of Observers
a. Training staff who want to learn how to conduct TTJA will participate in the lessons.	ASK: Who in here are observers?
b. However, when the actual TTJA process begins, the observers will move to the back of the room.	

Discussion Points	Instructor / Trainee Activity
c. For the most part, they will <u>silently</u> observe the workshop, but they will have an opportunity to help facilitate TTJA Steps 4 and 6 (described in the next lesson). However, they should NOT attempt to influence the technical decisions of the team.	
This will give the trainers practice facilitating the TTJA process. We should all support their efforts and provide constructive, non-threatening comments to help them become excellent facilitators for future seminars.	ASK: Who will be responsible for developing the training materials for this job position?
d. The person who will be responsible for developing the subsequent training program should take careful notes throughout the TTJA process. Excellent training-related discussions occur during the process, and good notes will help the developer later.	(20 min into lesson)

Discussion Points	Instructor / Trainee Activity
III. ICEBREAKER	HAVE team members and observers introduce themselves (1 min each x 10 people = 10 min)
1. Please introduce yourself to the rest of the group. Your introduction should include: - your name - where you work - your primary job	
2. Start the class in the introduction process by having the individual on the left begin.	(30 min into lesson)
IV. HOUSEKEEPING	REFER participants to Workbook p. 7
A. Starting, ending, lunch time	
The seminar is scheduled for 3 days, but if we get through all TTJA steps in less time, we may end early.	ESTABLISH times, but allow for full work days
ASK: What is the best time to start each morning?	
ASK: What is the best time to take lunch?	
ASK: Do you want 1 hour or 1/2 hour for lunch?	
ASK: What is the best time to end each afternoon?	

Discussion Points	Instructor / Trainee Activity
B. Breaks	
1. As a general rule, we will provide a 10-min. break every 50 minutes.	
2. This may vary depending on lesson length, but you will not have to work more than 1-1/2 hours without a break.	IF seminar is being held away from participants' job site, EXPLAIN location and other information
C. Other	
1. Refreshments	
a. coffee and vending machines	
b. everyone bring in healthful refreshments such as fruit, crackers, and juice	
2. Restrooms	
3. Parking policy	(35 min into lesson)
4. No smoking policy	

Discussion Points	Instructor / Trainee Activity
V. EXPECTATIONS	
A. Attendance	SHOW: TTJA INTRODUCTION-O-6, Expectations
1. People who are late or are part-timers will miss some of the group discussions, which may seriously disrupt the proceedings. Therefore:	
a. You must be present and participate in all portions of the seminar	
b. You must be on time for all sessions	
2. You will receive a DOE completion certificate for your full participation in this seminar.	NOTE TO INSTRUCTOR: Item 2 is only valid when the seminar is delivered by TCAP
3. Please sign the attendance roster <u>as you would like your name to appear on the certificate</u>.	DISTRIBUTE: TTJA INTRODUCTION-HD-1, Attendance Roster
a. We will keep a copy of this form for our records.	

Discussion Points	Instructor / Trainee Activity
b. This form will also serve as your facility's auditable documentation of your participation in developing the task list.	
B. Seminar Evaluation Form	DISTRIBUTE: TTJA INTRODUCTION-HD-2, Seminar Evaluation Form to everyone
1. Your input on the seminar evaluation form will provide us with feedback on the effectiveness of this seminar and of my performance as the instructor/ facilitator.	DISTRIBUTE: TTJA INTRODUCTION-HD-3, Evaluation Form to Coordinator and Facilitators
2. Please complete the Evaluation Form at the end of the workshop as the directions state.	
3. I will collect the Evaluation Form at the end of the seminar.	
4. You DO NOT have to put your name on the form.	

Discussion Points	Instructor / Trainee Activity
C. Other	
1. Please feel free to ask questions or make comments at any time during the seminar.	ASK if there are any questions regarding what they can expect during the seminar, what is expected of them, or the seminar purpose
2. My goal is to help you succeed in developing a usable task list using a cost effective, efficient, and enjoyable method--Table-Top Job Analysis.	(40 min into lesson)
	COLLECT Attendance Roster and keep a copy for TCAP records

INSTRUCTOR PREPARATION PAGE

COURSE TITLE: 5480.20 Training Seminar Series: Table-Top Job Analysis

LESSON TITLE: Overview of Table-Top Job Analysis

TIME REQUIRED: 2 hours 25 minutes

REFERENCES:

1. Norton, Robert E., DACUM Handbook, The National Center for Research in Vocational Education, Ohio State University, 1985.
2. U.S. Department of Energy, Training Accreditation Program, TAP Manuals 1-3.
3. U.S. Department of Energy, DOE Orders 5480.18A/5480.20.
4. DOE TCAP Course, Management and Oversight of PBT Programs, Lesson "Analysis Phase," 1992.
5. DOE TCAP Course, Instructional Analysis and Design, Lesson 1 "Introduction to Analysis and Design," 1991.
6. DOE Guide to Good Practices, "Table-Top Job Analysis," 1994.
7. DOE Standard: A Graded Systematic Approach to Training, Draft, March 1993.

OBJECTIVES:

Terminal: Given a job position, participants will IDENTIFY duty areas and WRITE task statements that meet the stated criteria.

Enabling:

OVERVIEW.1 - Describe how analysis products are used in each PBT phase

OVERVIEW.2 - Define and differentiate between the following terms: job, duty area, and task

OVERVIEW.3 - List each step involved in TTJA

OVERVIEW.4 - Differentiate between well-written and poorly-written task statements using the criteria for tasks and task statements

INSTRUCTIONAL AIDS:

50 sheets 8-1/2"x11" white typing paper
50 sheets 8-1/2"x11" yellow typing paper
1 1" x 2" post-it note pad (unlined)
1 box push pins
1 roll tape
VHS VCR with monitor
overhead projector and screen

transparency pens
flipchart with pad
flipchart markers
"finger"
page for "revelation technique" near overhead projector

PARTICIPANT PREPARATION: None required.

PRESENTATION METHOD: Lecture, group discussion, exercise

EVALUATION METHOD: Participation in class discussion, completion of exercise, participation during TTJA workshop

NOTES TO INSTRUCTOR: Following an overview of PBT, this lesson introduces participants to the common terms, processes, and products of Table-Top Job Analysis. The intent is to provide them with enough information to function well during the TTJA workshop, during which they must identify the duty areas and tasks involved in the job being analyzed.

PREPARE for this lesson by obtaining procedures, a job description, and other available information that pertains to the job that will be analyzed for the seminar. IT IS CRUCIAL that the Facilitator review these materials to develop examples as indicated throughout this lesson.

Read TTJA-Overview-R-2 prior to the lesson to familiarize yourself with the potential different levels of tasks, their advantages, and their disadvantages.

To complete all lessons before lunch, this lesson has only 1 break at midpoint (which should suffice).

The team members and observers should all participate as trainees during this lesson.

POST TTJA OVERVIEW-P-1, Terminal Objective (take down after lesson)

POST TTJA OVERVIEW-P-2, Overview (take down after lesson)

POST TTJA OVERVIEW-P-3, "Big Picture" and leave displayed throughout seminar

POST TTJA OVERVIEW-P-4, TTJA Steps, and leave displayed throughout seminar

POST TTJA OVERVIEW-P-5, Criteria for Tasks (cover until needed), and leave displayed throughout remainder of seminar

POST TTJA OVERVIEW-P-6, Criteria for Task Statements (cover until needed), and leave displayed throughout remainder of seminar

POST your hand-made posters of job-specific tasks to illustrate criteria for tasks, criteria for well-written task statements, and "levels" of tasks; cover until needed in lesson (take down after lesson)

Posters OVERVIEW-P-7 through P-10, Training Boxes, will NOT actually be used during this lesson. Rather, they will be used during Step 6 of the actual workshop.

SET UP video equipment and ensure video (OVERVIEW-V-1) is re-wound and ready

Have transparencies OVERVIEW-O-1 through O-5 ready

SKELETAL OUTLINE (Note: The skeletal outline is NOT meant to replace the lesson plan. Rather, it is to serve as an aid to the instructor when preparing to teach this lesson so the instructor may easily see the overall structure and flow of this lesson.)

I. INTRODUCTION (5 min.)

II. PERFORMANCE-BASED TRAINING (10 min.)
OVERVIEW.1 - Describe how analysis products are used in each PBT phase

A. Overview of PBT (video)
B. Big Picture

III. TERMS (10 min.)
OVERVIEW.2 - Define and differentiate between the following terms: job, duty area, and task

A. Job
B. Duty area
C. Task

Exercise (10 min): differentiate between terms

IV. TABLE TOP JOB ANALYSIS
OVERVIEW.3 - List each step involved in TTJA
OVERVIEW.4 - Differentiate between well-written and poorly-written task statements using the criteria for tasks and task statements

A. Orient team to TTJA (1 min.)

B. Review job (4 min.)
C. Identify duty areas

Exercise (10 min): Identify duty areas for a nurse

D. Identify tasks (5 min.) — BUILD-IN AND USE JOB-SPECIFIC EXAMPLES
   1. Criteria for tasks
   2. Criteria for well written task statements

Exercise: (20 min): Differentiate between good and bad task statements

(10 min. break)

   3. Concept of task levels (10 min.) — BUILD-IN AND USE JOB-SPECIFIC EXAMPLES
      - Analysis can get too detailed
      - Elements contain knowledge, skills, and abilities
      - Pick appropriate level
      - General guidelines on numbers of tasks
      - Key point

Exercise: (20 min): Differentiate between task "levels"

Exercise: (15 min): Identify tasks for nurse position

E. Sequence tasks and duty areas

Exercise: (5 min): Sequence the "nurse" tasks

F. Select tasks for training (5 min.)

V. SUMMARY (5 min.)

Discussion Points	Instructor / Trainee Activity
I. INTRODUCTION	
A. Preliminaries	
1. Instructor's name	ENSURE name visible
2. Participant materials	REFER to "Overview" tab
3. Participant comfort	ELIMINATE distractions
B. Motivator	ASK: How many of you are familiar with job analysis?
1. For those of you unfamiliar with job analysis, this lesson will provide background information necessary to be successful during the actual conduct of Table-Top Job Analysis.	
2. For those of you familiar with job analysis, this lesson will provide refresher information and an opportunity to apply your experience when determining tasks associated with a job.	

Discussion Points	Instructor / Trainee Activity
3. This seminar eliminates the "horrors" of job analysis by using an <u>efficient</u>, <u>pleasant</u> process that results in a <u>usable</u> task list.	ASK: Have you heard or experienced any horror stories about job analysis? (Relate a story)
C. Lesson Title and Terminal Objective	REFER to TTJA OVERVIEW-P-1, Terminal Objective
D. Enabling Objectives	SHOW: TTJA OVERVIEW-O-1, Enabling Objectives
E. Overview 1. Performance-Based Training 2. Terms 3. Table-Top Job Analysis - Steps - Task Criteria	REFER to TTJA OVERVIEW-P-2, Overview (5 min into lesson)
II. PERFORMANCE-BASED TRAINING	E.O. 1

A. Overview of PBT

1. Introduce Video

Discussion Points	Instructor / Trainee Activity
a. To understand the big picture in terms of how your contributions during this seminar will be used as the basis for a training program, you must understand a little about Performance-Based Training (PBT).	
b. This 8-minute video will provide a quick overview of the PBT process.	
2. As you watch the video, complete Workbook p. 5. We will discuss the answers after the video is finished.	SHOW: TTJA OVERVIEW-V-1, PBT Video.
3. Turn on video, darken the room as needed.	
4. When the video is over, raise the lights and ask for comments, questions, or concerns regarding the PBT overview.	
5. Make sure they have filled in Workbook p. 5 with the words "analysis, design, development, implementation, and evaluation."	
B. Big Picture of How the TTJA Products Feed into Other PBT Phases	REFER to TTJA OVERVIEW-P-3, Big Picture
1. The product of this TTJA seminar will be a valid task list.	

Discussion Points	Instructor / Trainee Activity
2. The task list will serve as input into the "Design" phase of PBT (which we do in a follow-on seminar), where the training program structure is determined (training sessions, settings, and testing requirements) and where the learning objectives and training content are determined.	
3. This provides input to the "Development" phase where lesson plans and tests are written based on the learning objectives and content.	REFER to TTJA OVERVIEW-P-2, Overview, for transition
Transition: The success and effectiveness of the entire PBT training program hinges on the quality of the analysis data.	
That is why you have been asked to participate in this seminar--to ensure that we obtain an accurate, complete task list upon which the entire training program will be developed.	(15 min into lesson)

Discussion Points	Instructor / Trainee Activity
III. TERMS	E.O. 2
A. A job is all the major activities assigned to one individual.	SHOW: TTJA OVERVIEW-O-2, Terms USE revelation, showing "Job" HAVE participants fill in the first block on Workbook p. 6 with the word "job"
Example job - Maintenance Mechanic	ASK: What would be some other examples of a job?
A job can be divided into functional units called duty areas.	
B. A Duty Area is a distinct major activity involved in performance of a job.	Reveal DUTY AREAS
Example duty areas for a maintenance mechanic - Pumps and Fans	ASK: What would be examples of other duty areas?

Discussion Points	Instructor / Trainee Activity
1. Duty areas serve as a convenient method for grouping similar tasks. 2. Some job positions lend themselves to duty area groupings based on systems, while others may work better based on components, procedures, or location. Still others may require a combination. 3. The key is to find a logical way to sub-divide the job that makes most sense for that job. A duty area consists of a collection of related tasks.	REFER participants to Workbook p. 7 and EXPLAIN the example ways to group duty areas
C. A <u>Task</u> is a measurable, well-defined, trainable unit of work, with an identifiable beginning and end.	Reveal TASKS NOTE TO INSTRUCTOR: Do NOT elaborate on what a task is...this is done later in this lesson
Example Tasks for "Pump" duty area: • Repair acid pumps • Repair make-up pump	ASK: What would be some other tasks?

Discussion Points	Instructor / Trainee Activity
In summary, your entire job can be divided into convenient duty areas which will then be further sub-divided into related tasks. The end product of job analysis is a <u>valid task list</u>--a list of all the tasks performed in a specific job position, validated and signed by management.	SHOW: TTJA OVERVIEW-O-3, Graphic Representation REFER participants to the "Workshop" section of their manual to quickly examine some task lists generated via this TTJA process The INTENT is to let them see different ways to group duty areas and to see what task statements look like. (25 min into lesson)

Exercise:

1. Explain that the purpose of this exercise is to give participants a chance to differentiate between the various terms used in TTJA.

2. Have participants turn to Workbook p. 8.

Discussion Points	Instructor / Trainee Activity
3. Working individually, identify whether each statement reflects a job, a duty area, or a task.	5 min.
4. State the "expert" answers and discuss any comments or discrepancies. Ensure that the terms are clearly understood. 1. duty area 2. job 3. task 4. duty area 5. task 6. job 7. duty area 8. task 9. job 10. task 11. task 12. job	5 min.
Now that you have an understanding of the terms, you can better understand the TTJA process.	REFER to TTJA OVERVIEW-P-2, Overview, for transition (35 min into lesson)

Discussion Points	Instructor / Trainee Activity
IV. TABLE-TOP JOB ANALYSIS	E.O.3 REFER to TTJA OVERVIEW-P-4, TTJA Steps (place the "finger" on each step as each step is discussed) STATE that as we briefly cover each step we will work through an example job.
A. Step 1 - Orient the team The purpose of orienting the team is to provide an introduction to the TTJA process, to explain the team members' role in it, and to provide practice using the terms/concepts before having to apply them during the real TTJA process.	PLACE finger on Step 1 EXPLAIN the purpose of this lesson is TTJA Step 1--to orient the team to TTJA

Discussion Points	Instructor / Trainee Activity
B. Step 2 - Review the job The purpose of this step is to explain the boundaries of the job being analyzed, clarifying job titles and specializations that will be included or excluded from the analysis. Exercise: 1. STATE: As an example, let's work through the process of analyzing a "nurse" job position. 2. ASK: What clarification of job titles or specializations would we need to consider? (LPN, RN, etc.) 3. ASK: What would be some additional "boundaries" that would impact what a nurse does? (whether employed at a large hospital, a small doctor's office, home care, etc.) 4. STATE: Let's use "Registered Nurse in a large hospital" as the example throughout this lesson.	MOVE FINGER to Step 2

Discussion Points	Instructor / Trainee Activity
5. WRITE the job title "Registered Nurse" horizontally on a sheet of white 8-1/2" x 11" paper and post at the top, center of the wall.	(40 min into lesson)
C. Step 3 - Identify the duty areas	MOVE FINGER to Step 3
In this step you will identify the duty areas involved in the job.	ASK: Does someone remember what we mean by duty area? (A convenient way of sub-dividing the job) ASK: What were some ways to group duty areas? (components, systems, procedures, location, whatever)
EXERCISE: 1. Divide the class into groups of 2-4 and distribute yellow sheets of 8-1/2" x 11" paper to each group.	DISTRIBUTE yellow paper

2. Explain that the purpose of this exercise is to give participants practice in determining duty areas.

Discussion Points	Instructor / Trainee Activity
3. REMIND people NOT to confuse duty areas with tasks	5 min.
4. Ask the groups to spend 5 min. to identify duty areas associated with the Nurse job position defined previously and document <u>each</u> duty area on a <u>separate</u> sheet of yellow 8 1/2 x 11" paper.	
5. Have each group post their duty areas on the wall.	5 min.
6. Have the class as a whole come to consensus on what the duty areas are and leave these on the wall. (Tactfully take down the others)	INSTRUCTOR: If needed, refer to Overview-R-1 for example "Nurse" duty areas (note: these should NOT be considered the "right" answers)
7. EXPLAIN: This process is similar to what you will do this week.	
	(50 min into lesson)
	E.O. 4
D. Step 4 - Identify tasks This is when you will determine what tasks are performed within each duty area. This step will take the most time during this seminar.	MOVE FINGER to Step 4

Discussion Points	Instructor / Trainee Activity
In order to develop a good task list, it is important that you clearly understand what constitutes a task. We will discuss several concepts to help you get a clear understanding of a task.	REFER participants to Workbook p. 10.
1. Criteria for Tasks	REFER to TTJA OVERVIEW-P-5, What is a Task? INSTRUCTOR: Prior to this lesson, write some example task statements from the job-specific procedures to illustrate the "criteria for tasks;" write some statements that meet the criteria and write some that do not meet the criteria.

Discussion Points	Instructor / Trainee Activity
a. Is a trainable chunk of work b. Has identifiable beginning and end c. Involves several elements d. Results in an identifiable product, service, or decision e. Can be performed over a short period of time f. Can be performed independent of other work g. Can be observed and measured	AS YOU state each criteria, point to one of your examples and ASK: Does this example meet this criteria? DO THE SAME for "criteria for a well-written task statement"
2. Criteria for a Well-Written Task Statement In job analysis, we list each task in the form of a task statement. A <u>well-written</u> task statement has the following characteristics:	REFER to TTJA OVERVIEW-P-6, What Constitutes a Well-Written Task Statement?
a. Contains an action verb and object of the action b. Clearly reflects observable worker performance	REFER participants to TTJA OVERVIEW-H-1, List of Acceptable Action Verbs

Discussion Points	Instructor / Trainee Activity
c. May contain one or more relevant qualifiers, but omits unnecessary qualifiers such as effectively, efficiently, correctly, accurately	
d. Is explicit, precise, and stands alone	
e. Avoids reference to knowledge, skills, attitudes, or abilities that merely support task performance	
f. Avoids references to tools or equipment that merely support task performance. The use of tools in and of themselves is not a task, but a means of performing the task.	
g. Reflects terminology used on the job	
h. Avoids use of double verbs such as "remove and repair." Use the more inclusive of the two, which is "repair."	
i. Should contain as few words as possible (usually a maximum of eight) while being completely descriptive. Often, two or three words are sufficient.	(55 min into lesson)

Discussion Points	Instructor / Trainee Activity
Exercise:	
1. Explain that the purpose of this exercise is to give participants practice differentiating between well-written and poorly-written task statements.	
2. Have participants turn to Workbook p. 11.	10 min.
3. Divide the class into groups of two or three (depending on number of team members and observers).	
4. Have each group work together to identify whether each statement: a. Is a task (if not, why?) b. Is a well-written task statement (if not, why?)	10 min.
5. State the "expert" answers and discuss discrepancies: (1) Yes, it's a task. Yes, it's well-written. (2) Yes, it's a task. Yes, it's well-written but could be better if it said "<u>Test</u> natural gas piping." (3) No, it's not a task. It looks more like a topic. There is no action verb, no beginning/ending, no product.	

Discussion Points	Instructor / Trainee Activity
(4) Yes, it's a task. No, it's not well-written (remove unnecessary word "correctly")	
(5) No, it's not a task, just like #3.	
(6) Unclear as to whether this is a task. If "steam" is an action verb, it may be a task. But if it is, it's a poorly-written task statement because it is not explicit and clear.	
(7) If the steps involved in "removing and installing" a boiler are exactly the same except in reverse order, then it is acceptable to have both action verbs in one task statement. If not, it should be written as two separate task statements. It could be better written (reduce words: "Remove and install" rather than "removal and installation of").	(1 hr 15 min into lesson) TAKE 10 MIN BREAK (1 hr 25 min into lesson)

Discussion Points	Instructor / Trainee Activity
3. Concept of Task "Levels"	SHOW: TTJA OVERVIEW-O-4, Task Analysis
A common problem when performing job analysis is that the analysis becomes too detailed (too many tasks are identified, which becomes unmanageable).	
a. This is generally the result of people identifying the elements of a task or the knowledge and skills required to perform the task, rather than the task itself.	
b. A task contains several elements. An <u>element</u> is a specific step in the performance of a task.	EXPLAIN: Understanding this will help you differentiate between tasks and their elements, knowledge, skills, and abilities so when you identify tasks you will keep from getting too detailed.
Each task element contains knowledge, skills, and abilities.	
a. During task analysis (which is beyond the scope of this seminar), the knowledge, skills and abilities needed to perform each element are identified.	

Discussion Points	Instructor / Trainee Activity
b. During job analysis (the purpose of this seminar), we only want to identify the tasks involved in the job.	SHOW: TTJA OVERVIEW-O-5, For This Week
In traditional job and task analysis, people were not always careful to pick an appropriate "level" at which to write tasks.	REFER participants to Workbook p. 12
a. People would often pick too "low" a level (or too detailed, possibly listing elements rather than tasks) Thus, they would end up with task lists that had 300-1000 tasks (and elements that they called tasks) listed on it, which became unmanageable. b. On the other hand, we don't want to write tasks at too high (or too broad) a level just for the sake of reducing the number of tasks on the task list. We certainly want to ensure that all vital tasks are listed.	INSTRUCTOR: Prior to this lesson, prepare some example task statements for the job being analyzed that illustrate an "appropriate" task level; show one that is written at too high a level (too broad), one that drops down one notch, one that is at too low (too narrow, like an element rather than a task) a level, etc. REFER to TTJA

Discussion Points	Instructor / Trainee Activity
Concentrating on an appropriate "level," a typical job within DOE will have 5-12 duty areas. For each duty area, there will typically be 6-20 tasks (48-240 tasks total).	Overview-R-2 for an example
NOTE: This is a general guideline and should not be taken as an absolute. You do not have to meet either the minimum or the maximum number of duty areas or tasks stated here. These numbers are intended to be guidelines to determine if the level of analysis is on target.	POINT OUT: It is the Facilitator's role to help keep the analysis at the appropriate level of detail.
The "appropriate level" at which to write tasks and the number of tasks identified will depend on the complexity of the job and complexity of the facility.	REFER to Workbook p. 13 for examples to illustrate this point
The key point is that when performing job analysis, we must identify <u>all</u> the tasks required for competent job performance, but it must be done at a level that:	

Discussion Points	Instructor / Trainee Activity
a. is useful when designing a training program,	
b. is at an appropriate level of detail so the number of tasks is manageable, and	(1 hr 35 min into lesson)
c. is compatible with the job being analyzed.	
Exercise:	
1. The purpose of this exercise is to have participants determine if sample task statements are written at an appropriate "level."	
2. Refer participants to Workbook p. 14.	
3. Divide the class into groups of two or three (depending on number of participants).	10 min.
4. Have each group work together to determine: a. Based on the scope of that job, is the task written at an appropriate level? b. If not, is the level too high or too low?	10 min.
5. After 10 min., read the "expert answers" and discuss any comments or discrepancies.	

Discussion Points	Instructor / Trainee Activity
(1) Too low: if listed every type of cookie, every type of cake, every type of doughnut, etc., plus maintaining supplies and all the other activities, the task list would be longer than necessary, considering hazards and complexity associated with the job. "Make cookies" might be more appropriate.	
(2) Appropriate level	
(3) Appropriate level	
(4) Too low: An element of "change tires" or other task(s)	
(5) Too high	
(6) Too high: Should be "Perform personnel beta/gamma radiation survey," "Perform workplace beta/gamma radiation survey," "Perform neutron survey," etc.	(1 hr 55 min into lesson)
(7) Appropriate level	
Exercise:	
1. Again divide the class into groups of 2-3.	DISTRIBUTE white paper
2. The purpose of this exercise is to provide practice determining tasks for a job.	
3. Distribute numerous sheets of white 8-1/2" x 11" paper to each group.	

Discussion Points	Instructor / Trainee Activity
4. Using ONE duty area for the "Nurse" job posted on the wall, have each group determine tasks for <u>that</u> duty area. (Have all groups identify tasks for the SAME duty area so you can compare task "levels.") Have groups write <u>each</u> task on a SEPARATE piece of white 8-1/2" x 11" paper and post their tasks on the wall. (Sequence is not important yet.)	10 min IF NEEDED, REFER to Overview-R-1 for example Nurse tasks (but these should NOT be considered the "correct" answers)
5. Compare the results, helping the entire class come to consensus on the most appropriate "level." Leave the pages on the wall that are written at an appropriate level, but tactfully remove all others.	5 min
	(2 hr 10 min into lesson)
Step 5 - Sequence tasks and duty areas The team will sequence the tasks within each duty area and then sequence the duty areas as appropriate. In the real seminar, this step will allow the team to review the entire task list, in sequential order, which may help the team determine if any tasks need to be added to or deleted from the list.	MOVE FINGER to Step 5

Discussion Points	Instructor / Trainee Activity
Some sequencing approaches include: 1. Chronological order 2. The order in which the worker does the tasks on the job 3. Simple to complex 4. Other 5. Sometimes arbitrary	
Exercise: 1. The purpose of this whole-group exercise is to allow the class to sequence tasks.	
2. Refer to the tasks still posted on the wall from the previous exercise. ASK the class as a whole what the <u>basis</u> for selecting the tasks should be (chronological, etc.)	5 min.
3. ASK the class as a whole what the <u>sequence</u> of tasks should be.	
4. Write the number (1, 2, 3, etc.) on a 1x2" post-it note pad and attach it to the task page as the class dictates the sequence.	INSTRUCTOR: Refer to the *Facilitator Guide* if you need additional information on how to do this (2 hr 15 min into lesson)

Discussion Points	Instructor / Trainee Activity
F. Step 6 - Select Tasks for Training	MOVE FINGER to Step 6
A valid task list provides the foundation for the content of a training program and ensures that training prepares individuals to work competently. However, <u>not all</u> tasks require extensive, formal training.	REFER to Workbook p. 15
The purpose of selecting tasks for training is to determine WHICH tasks from the task list REALLY need to be included in the formal training program.	
During this step, each task will be evaluated by the team according to set criteria. The team will come to a consensus decision for the box in which the task should reside.	REFER participants to Workbook p. 16
This will be explained further during the actual workshop.	(2 hr 20 min into lesson)

Discussion Points	Instructor / Trainee Activity
VI. SUMMARY AND REVIEW	
A. Review Enabling Objectives	ASK: What is the end product of Table-Top Job Analysis?
1. Table-Top Job Analysis is one method used to develop a list of tasks for a job position.	ASK: How will the task list be used for the training program?
2. The content of the training program will be based on the tasks.	REFER to TTJA OVERVIEW-P-1, Terminal Objective
B. Terminal Objective	(2 hr 25 min)

INSTRUCTOR PREPARATION PAGE

COURSE TITLE: 5480.20 Training Seminar Series: Table-Top Job Analysis

LESSON TITLE: Maximizing Team Effectiveness

TIME REQUIRED: 35 minutes

REFERENCES:

1. International Board of Standards for Training Performance and Instruction, *Training Manager Competencies: The Standards*, "Nominal Group Technique."
2. Effective Meeting Skills, Marion E. Haynes, Crisp Publications, Inc., Los Altos, California, 1988.
3. Zenger-Miller, Team Leadership, Helping Your Team Reach Consensus, 1992.

OBJECTIVES:

Terminal: Given the guidelines for effective Nominal Group Technique and Consensus Decision-Making, team members will APPLY the guidelines while contributing ideas during the Table Top Job Analysis workshop.

Enabling:

Team.1 - Define the terms "Nominal Group Technique" and "Consensus Decision-Making"

Team.2 - Describe the steps involved in Nominal Group Technique and Consensus Decision-Making

Team.3 - List the guidelines for applying the Nominal Group Technique and Consensus Decision-Making processes

INSTRUCTIONAL: AIDS: Flipchart stand and paper, flipchart markers.

PARTICIPANT PREPARATION: None required.

PRESENTATION METHOD: Lecture, NGT/CDM exercise

EVALUATION METHOD: Participation in TTJA workshop NGT/CDM activities in accordance with the guidelines provided.

INSTRUCTOR PREPARATION PAGE

NOTES TO INSTRUCTOR:

This lesson introduces participants to the terms and processes of Nominal Group Technique (NGT) and Consensus Decision-Making (CDM). The intent is to provide them with enough information to function well during the TTJA workshop, during which they must apply the guidelines as they develop a task list and select tasks for training.

Refer to TTJA TEAM-R-1 for additional information on NGT and to the TTJA *Facilitator Guide* to see how it will be used in the actual seminar.

All team members and observers should participate as trainees during this lesson.

POST TTJA TEAM-P-1, Terminal Objective (take down after lesson)

POST TTJA TEAM-P-2, Overview (take down after lesson)

POST TTJA TEAM-P-3, Guidelines for NGT/CDM (cover until needed), and leave displayed throughout remainder of seminar.

Have transparencies ready (TTJA TEAM-O-1 through O-8)

SKELETAL OUTLINE (Note: The skeletal outline is NOT meant to replace the lesson plan. Rather, it is to serve as an aid to the instructor when preparing to teach this lesson so the instructor may easily see the overall structure and flow of this lesson.)

I. INTRODUCTION (05 min.)

II. DEFINITIONS (02 min.)

- A. Nominal Group Technique
- B. Consensus Decision-Making

III. STEPS IN THE PROCESS

- A. Steps (03 min.)
  1. Silently generate/write ideas
  2. State ideas in round robin
  3. Discuss/clarify ideas
  4. Combine ideas as appropriate
- B. Exercise (15 min.)

IV. GUIDELINES FOR APPLYING PROCESS (05 min.)

- A. NGT

1. Apply applicable criteria
2. Add to your list

B. CDM
1. Help others formulate their statements
2. Present ideas lucidly and logically
3. Empower yourselves

V. SUMMARY (02 min.)

INSTRUCTOR PREPARATION PAGE

Discussion Points	Instructor / Trainee Activity
I. INTRODUCTION	
A. Preliminaries	
1. Instructor's name	ENSURE instructor's name is visible
2. Participant materials	REFER participants to "Team" section
3. Participant comfort	ELIMINATE distractions
B. Motivator	
1. One of the assumptions of TTJA is that a team of SMEs can be used to analyze training requirements better than a single individual or as well as a group of individuals surveyed separately.	
2. However, gathering a group of competent SMEs has its own problems: - Some people dominate - Ideas or other contributions are lost or dismissed	ASK: What problems might occur when a group of highly competent people meet to discuss/ resolve a problem?

Discussion Points	Instructor / Trainee Activity

- Some people never participate
- Non-productive environment for any creative process

The result may be an ineffective, low-quality, time-consuming meeting.

3. Our goal during this seminar is to use a combination of idea-gathering and decision-making processes that eliminate those problems.

   We need to reduce the social interaction and communication problems that interfere with good decisions and effective use of time, and at the same time make the best possible use of the talent available.

4. The first process we will use is called Nominal Group Technique.

5. The second process we will employ is Consensus Decision-Making.

Discussion Points	Instructor / Trainee Activity
6. By applying both of these processes, your contributions during this seminar will lead to developing a usable task list in the most efficient manner.	
C. Lesson Title and Terminal Objective	REFER to Team-P-1, Terminal Objective
D. Enabling Objectives	SHOW: TTJA Team-O-1, Enabling Objectives
E. Overview	REFER to Team-P-2, Overview
1. Definitions of NGT and CDM	
2. Steps in the NGT and CDM Process	
3. Guidelines for Applying the NGT and CDM Process	(5 min into lesson)
II. DEFINITIONS	E.O. 1
A. Nominal Group Technique	SHOW: TTJA Team-O-2, NGT
NGT is a structured group process resulting in the maximum contribution of experienced individuals to a common goal.	

Discussion Points	Instructor / Trainee Activity
B. Consensus Decision-Making	SHOW: TTJA Team-O-3, CDM
Consensus is a general agreement among several people. It occurs when all team members can <u>support</u> and <u>live with</u> the decision without compromising important needs or values.	
In consensus decision-making, complete unanimity is not the goal--it is rarely achieved. But each individual should be able to accept the group's decision on the basis of logic and feasibility.	
III. STEPS IN THE PROCESS	E.O. 2
A. The steps involved in Nominal Group Technique include:	
Step 1. Each person silently generates/writes ideas	SHOW: TTJA Team-O-4, Step 1

Discussion Points	Instructor / Trainee Activity
Step 2. All persons state ideas in a round robin	SHOW: TTJA Team-O-5, Step 2

a. A round robin involves each person taking a turn to state one suggestion from his/her list.

b. The next person states one suggestion, and so on until all persons have made one suggestion.

c. Then the first person states a second suggestion from his/her list, etc.

d. If a task statement has been suggested, the next person should state another suggestion or "pass" to the next person.

e. This process continues until all team members have had an opportunity to exhaust their list.

INSTRUCTOR PREPARATION PAGE

Discussion Points	Instructor / Trainee Activity
B. Then the Consensus Decision-Making process takes over:	
Step 3. Discuss/clarify ideas	SHOW: TTJA Team-O-6, Step 3
Step 4. Combine ideas as appropriate	SHOW: TTJA Team-O-7, Step 4 (10 min into lesson)
C. EXERCISE	
1. Explain the purpose of this exercise is to illustrate how the NGT/CDM process works.	REFER participants to Workbook p. 6
2. Explain that the instructor will ask a question. Each person should work alone, without communicating, to write down as many task statements (answers to the question) as possible, with each statement containing: - an action verb - a noun (receiver of the action) - 4-5 words maximum	
3. Start the exercise by ASKING: What do people do in the morning from the time they wake up until they get to work?	SHOW: TTJA Team-O-8, Exercise Directions

Discussion Points	Instructor / Trainee Activity
4. Allow 1 minute of quiet time for participants to write down their task statements.	In a light-hearted manner, discourage any social activity
5. In a round robin style, ask each person to state one of the task statements they wrote. Record their answers on the flipchart.	Do this quickly without allowing participants to comment on the viability of the task statements If their lists have not been exhausted after one minute, stop. (Explain that when doing this during TTJA, we would not put time limits on developing or exhausting their lists.)
6. Discuss any tasks that need clarification. Allow the <u>individuals</u> to clarify the statements, if required.	
7. Combine statements as appropriate.	
8. Discuss the NGT process by asking: ASK: What happened? ASK: What was different from traditional discussion? ASK: Why is NGT a good idea?	

Discussion Points	Instructor / Trainee Activity
Transition: Now that you have participated in the process, let's briefly discuss how we can effectively apply the process during this seminar.	REFER to Overview for transition (25 min into lesson)
IV. GUIDELINES FOR APPLYING PROCESS	E.O. 3
A. Nominal Group Technique	REFER to TTJA Team-P-3, NGT and CDM Guidelines
1. When silently generating your lists, <u>apply applicable criteria</u> to the best of your ability. This means: - level of task - criteria for a task - criteria for a well-written task statement	REFER participants to Workbook, p. 7
2. During the round robin, if someone else's suggestion stimulates another thought, <u>add it to your list</u> and make sure you state it during one of the subsequent "rounds."	

Discussion Points	Instructor / Trainee Activity
B. Consensus Decision-Making	
During the subsequent discussion to clarify statements or combine items as applicable, be an effective team member by doing the following:	
1. <u>Help others formulate their statements</u>. This means: - Help write the task at the appropriate level - Help begin all task statements with an action verb - Help apply applicable criteria	
2. <u>Present your ideas as lucidly and logically as possible</u>, but avoid arguing for your position. Listen to the other members' reactions and consider them carefully.	EXPLAIN that the noisemakers and toys can be light-hearted tools to help keep discussions on track
3. <u>Empower yourselves</u> to keep the consensus decision-making process useful. If someone begins dominating, any team member has the right to call "time out" and get the discussion back on track.	

Discussion Points	Instructor / Trainee Activity
Remember that for consensus you don't have to have things exactly as you would want; you only have to be able to support the decision. Ask yourself, "Can I <u>live with</u> the decision?"	HAVE participants write this question where they will see it throughout the seminar (30 min into lesson)
VI. SUMMARY	
A. Review key points	
1. NGT helps reduce the social interaction and communication problems that interfere with good decisions and effective use of time, while gaining maximum contribution of experienced individuals.	ASK: What is the purpose for using Nominal Group Technique?
2. Can I live with the decision?	ASK: What is the key question that consensus decision-making requires?
B. Review the terminal objective.	REFER to TTJA Team-P-1, Terminal Objective.

ADDENDUM C

VERB LIST

ACTION VERB LIST

Acknowledge	To recognize and respond to an indication of alarm.
Actuate	To put into mechanical action or motion.
Adjust	To bring a continuous effort into proper or exact position.
Align	To adjust or correct relative position of an item.
Alternate	To change or substitute one to another.
Analyze	To break down a complex whole into its component parts.
Announce	To give notice of an event or evolution via the public address system.
Answer	To respond to a request for information.
Anticipate	To give advance thought, discussion or treatment; to foresee.
Apply	To bring into action; to put into operation.
Assemble	To fit together parts into a complete structure or unit.
Assess	To determine the importance, size, or value.
Assist	To give support or aid.
Authorize	To legally approve an action; to empower.
Backwash	To move air or water backward by a propelling force.
Balance	To equalize opposing forces.

Begin	To commence or initiate.
Bleed	To extract or cause to escape from a contained source.
Block	To obstruct passage or progress.
Boil	To heat to the boiling point.
Borate	To add boric acid.
Build	To construct according to a specific plan or process.
Bypass	To avoid or circumvent.
Calculate	To determine by mathematical processes.
Calibrate	To detect, correlate, report, or eliminate by adjustment and discrepancy in accuracy of an instrument or measuring device being compared with the national standard.
Call	To communicate orally in person or by phone.
Center	To place or adjust around a center area or position.
Change	To replace.
Charge	To restore or load to capacity.
Check	To look at carefully or critically; to verify.
Choose	To select after consideration of alternatives.
Circulate	To flow in a circular path.
Clean	To free from dirt or contamination.
Clear	To free from obstruction or limitation.
Close	To bring or come to a natural or proper end; to cease operation.
Code	To assign symbols or signals (i.e., letters, numbers, words).
Collect	To bring together into one body or place.

Compare	To examine the character or qualities in order to discover resemblances or differences.
Complete	To bring to an end; having all necessary parts.
Compute	To determine by mathematical means.
Connect	To join or fasten together.
Control	To manage with authority.
Cool	To cause to lose heat or warmth.
Correct	To alter or adjust to a required condition or standard.
Construct	To make or form by combining parts.
Decide	To come to a conclusion based on available information.
Decrease	To make less (as in size, number, or intensity).
Deenergize	To disconnect energy or voltage.
Depress	To press down.
Deselect	To stop a selected function.
Detect	To discover the existence or presence of something.
Determine	To decide or resolve conclusively.
Diagnose	To recognize or determine the nature or cause of a condition by consideration of signs or symptoms.
Dilute	To make thinner, or diminish the strength of by admixture.
Direct	To assign activities to another person.
Disassemble	To take apart.
Disconnect	To sever or terminate a connection.
Display	To exhibit for visual evidence.
Dispose	To get rid of.

Dissolve	To cause to pass into solution.
Don	To put on clothing or equipment.
Energize	To impart energy or voltage.
Enter	To input data.
Establish	To make firm or stable.
Estimate	To appraise or establish value based on judgment or opinion.
Exit	To go out or go away.
Explain	To make understandable.
Feed	To supply a signal to an electric circuit.
Flush	To clean or wash out with a fluid.
Heat	To add energy to supply higher temperature.
Hoist	To raise into position using a tackle.
Hold	To retain by force; to apply continuous pressure.
Identify	To regard or recognize clearly.
Immerse	To plunge or dip into a fluid.
Increase	To add or enlarge in size, extent, quantity.
Inform	To communicate information.
Inspect	To examine officially; to determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards.
Install	To seat, or fix into position a component or assembly to allow the proper functioning of equipment or system.
Interpolate	To determine or estimate intermediate values from two given values.
Interpret	To translate the meaning of.
Insert	To put in.

Isolate	To separate from another.
Jog	To move; start and then stop quickly.
Letdown	To descend.
Lineup	To organize in a linear or sequential arrangement.
Load	To place power output on line.
Locate	To find a particular spot or place.
Lock	To secure by key or combination; to restrict the action of by fastening.
Log	To record required information in a book.
Lower	To decrease in elevation.
Lubricate	To make smooth or slippery by applying a substance capable of reducing friction.
Maintain	To keep in an existing state.
Manipulate	To operate mechanically or with skillful hands.
Measure	To regulate by a standard.
Mix	To combine or blend.
Monitor	To check or observe the operation of a system and its components over a period of time.
Move	To go or pass from one place to another with continuous motion.
Multiple	To increase in number greatly or in multiples.
Neutralize	To counteract the activity or effect; to make electrically inert.
Notify	To give formal notice to.
Observe	To watch with careful attention.
Obtain	To hold on to; to gain by planned action.

Open	To make available for entry or activity.
Operate	To start, stop, or influence the operation of a specified component or system.
Organize	To arrange into a coherent unit or function.
Overhaul	To restore to a completely serviceable or operational condition as prescribed by maintenance standards.
Override	To bypass the action of an automatic control.
Perform	To carry out an action, to conform to a prescribed procedure.
Plan	To devise or formulate a program of future or contingency activity.
Plot	To represent by means of a curve constructed by placing points on a graph.
Position	To place a control in a discrete state.
Prepare	To get an item ready for delivery or operation.
Pressurize	To apply force in a contained vessel.
Prime	To prepare for work by filling or charging with something.
Print	To produce something in printed form.
Pull	To draw out or hold back.
Pump	To raise, lower, transfer, or compress fluid or gasses by suction or pressure or both.
Push	To force away.
Purge	To free of sediment or relieve of trapped air by bleeding.
Rack In/Out	To insert or remove the breaker from the cabinet.
Raise	To increase in elevation.
Reactivate	To cause to become active or functioning again.
Read	To understand visual information which is presented symbolically by scanning.

Realize	To bring into existence.
Rebuild	To restore unserviceable equipment to a like-new condition in accordance with original manufacturing standards.
Receive	To be given written or verbal information.
Recirculate	To begin flow again.
Record	To write information or document events or trends.
Release	To set free.
Remember	To retain information or to recall information.
Remove	To take away.
Repair	To restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in component or assembly.
Replace	To substitute serviceable component or assembly for an unserviceable counterpart.
Report	To give an account of; a formal document of proceedings of a meeting.
Request	To ask for information.
Respond	To react in response; to answer.
Return	The act of restoring something to a former state or condition.
Rinse	To clean by flushing with liquid.
Run	To continue in force or operation.
Sample	To draw a specimen for judging the quality of the whole.
Scan	To read hastily.
Secure	To protect from damage; to control access.
Select	To choose from a group.
Sequence	To arrange in order.
Service	To keep an item in proper operating condition.

Shut	To stop or suspend operation (see close).
Shutdown	To stop or suspend operation (see close).
Sketch	To draw roughly.
Spray	To apply a jet of vapor or mist.
Start	To begin to set in operation.
Start Up	To start.
Stop	To close or cease (see close).
Store	To lay away for future use.
Stow	To store.
Switch	To shift to another electrical circuit; to exchange.
Subtract	To take away by reducing.
Supply	To provide or furnish.
Synchronize	To arrange operations to occur simultaneously.
Telephone	To communicate by phone.
Test	To verify serviceability and detect failure by measuring against prescribed standards.
Throttle	To decrease the flow of; to regulate the speed of.
Titrate	To determine the strength of a solution or the concentration of a substance in solution in terms of the smallest amount of a reagent of known concentration required to bring about a given effect in reaction with a known volume of a test solution.
Total	To add up; to compute.
Trace	To discover signs, evidence, or remains of.
Track	To be aware of a progression of activities.
Transfer	To convey from one place or situation to another.

Transmit	To send or transfer from one person to another.
Transport	To transfer or convey from one place to another by mechanical means.
Trip	To remove from service rapidly.
Tune	To adjust to respond to radio waves of a particular frequency.
Turn	To rotate or revolve.
Type	To operate a keyboard.
Unlatch	To open or loosen by lifting a latch.
Unload	To take off.
Upgrade	To raise the quality of; to improve.
Update	To bring up to date; to revise.
Unlock	To unfasten; to free from restraint.
Uncouple	To detach or disconnect.
Vent	To release gas, liquid, or pressure.
Verify	To confirm the accuracy of.
Ventilate	To expose to air.
Wait	To expect or remain in readiness.
Warm	To make ready for operation by preliminary exercise or operation.
Weigh	To ascertain the heaviness of.
Withdraw	To remove from use.
Zero	To adjust to zero.

CONCLUDING MATERIAL

Preparing Activity:
DOE-EH

Project Number:
6910-0038

Review Activity:

DOE	Field Offices
AD	AL
BPA	CH
CE	FN
DP	ID
EH	NV
EM	OR
ER	RL
FE	SF
GC	SR
IE	
IG	National Laboratories
NE	ANL
NS	BNL
RW	FNAL
SA	INEL
WAPA	LBL
	LANL
	LLNL
	NREL
	ORNL
	PNL
	SNL