DOE HANDBOOK

TABLE-TOP TRAINING PROGRAM DESIGN

U.S. Department of Energy   **FSC-6910**
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Table-Top Training Program Design

Page/Section	Change
Page iii, FOREWORD	Delete reference to DOE 5480.18B, Nuclear Facility Training Accreditation Program, and update preparing organization from EH-31 to EH-53
Page 3, Section 2.1.2	Delete reference to DOE 5480.18B, Nuclear Facility Training Accreditation Program.
Concluding Material	The Preparing Activity was updated from EH-31 to EH-53.

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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.

Table-Top methods can be used for many purposes, but the focus of this Handbook is on training program design. Department of Energy (DOE) Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities,* stresses the importance of training programs that are based on a systematic approach. An integral part of any systematically-developed training program includes designing the training program and determining the content of that program. Table-Top Training Program Design (TTTD) is one "systematic" method that can be used by DOE contractor organizations to achieve a cost-effective and high quality training program.

TTTD is not the only method of program design; however, when conducted properly TTTD can be a cost effective, efficient, and self-validating method of defining a training program based on job requirements. The table-top training program design is an acceptable alternative to traditional methods of task analysis and design. DOE 5480.20A endorses and recommends it as a method for designing training programs for positions addressed by the Order.

Much of the initial research and development of the DOE Handbook, *Table-Top Training Program Design* was based on 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 program design as the information and methods apply to their facility. Operating contractors are encouraged to use good practices selectively in developing or improving programs applicable to their facilities. Good practices can be used in whole or in part, as furnished or modified, to meet the specific needs of the facility involved.

Beneficial comments (recommendations, additions, deletions) and any pertinent data that may improve this document should be sent to:

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by letter or by using the self-addressed Document Improvement Proposal (DOE F 1300.3) appearing at the end of this document.

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1. SCOPE

1.1 <u>Scope</u>. This Handbook establishes the guidance necessary to conduct table-top training program design. An overview of content analysis and program design is provided and is followed by the table-top training program design method, which is explained in detail. Appendices include facilitator and coordinator guides to provide further information and examples of table-top design.

1.2 <u>TTTD is One Method</u>. TTTD is <u>not</u> the only method of task/content analysis and design; however, when conducted properly TTTD can be a cost effective, efficient, and self-validating method of determining content and training program design based on defined 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 *DOE Standards Index* (DOESI) cited in the contracting document.

        DOE-HDBK-1074-95, Alternative Systematic Approaches to Training

        DOE-STD-1077-94, Training Accreditation Program Standard: Requirements and Guidelines

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

        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, TN 37831.

    2.1.2 Other Government Documents, Drawings, and Publications. The following additional 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 5480.19, *Conduct of Operations Requirements for DOE Facilities*

        DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*

        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 documents 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 DOESI cited in the contracting document. Issues of documents that are not listed in the DOESI are 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.

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

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

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3. GENERAL GUIDANCE

3.1 <u>Intent of Table-Top Training Program Design</u>. 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. Effective analysis is a cost benefit by saving more than it costs through ensuring that training resources are spent where they are most needed.

Table-Top Training Program Design will help your facility conduct analysis and the entire design phase of a systematic approach to training for a job position/program. Your facility should have already developed a valid task list and selected which tasks require formal training for the job position. The team will use that list of tasks selected for training as the basis for analyzing and designing the training program content. The process used in TTTD is based on analyzing content while simultaneously designing the training/qualification program. This process has proven to require much less time than traditional task analysis methods -- in fact saving hundreds of hours -- with valid results.

3.2 <u>Who is Involved</u>. During the process, a coordinator makes the necessary arrangements and one or two facilitators guide a team of job incumbents, subject matter experts (including an immediate supervisor and a safety analyst), and instructional technologists (who will be responsible for developing the subsequent training program) through the process.

3.3 <u>Steps in the Process</u>. During the process, the facilitators guide the team members through the following steps:

a. Step 1. Orient the team. This involves:

1. Reviewing the valid task list.

2. Providing participants with a vision of where the TTTD process is going and the reasonably achievable goals of the process.

3. Providing the participants with the skills to reach these goals.

b. Step 2. Design the training program structure including the training flow paths for both the initial and continuing training program, training settings and testing requirements.

c. Step 3. Place the tasks within the training program structure. Assign each task to a topic or major training block in the training program structure. Thus, common tasks are placed together.

d. Step 4. Prioritize topics or training blocks for development efforts. Identify which topics already have sufficient training material to teach them and which tasks need to have training material developed.

e. Step 5. Determine the course content. This sets the training content for each topic prioritized for development.

f. Step 6. Identify additional content. Examine regulatory requirements to list additional content mandated for inclusion in the training program.

g. Step 7. Identify applicable existing training. Identify training materials that can be modified or used "as is" which may already exist locally with vendors, universities, or at other facilities that have similar job positions. This avoids unnecessary duplication of development efforts.

h. Step 8. Write terminal and enabling objectives for each topic.

3.4 Purpose of Table-Top Training Program Design. Table-top training design has been used to design training programs at various levels including professional, technical, skilled, and semi-skilled. Table-top training program design is based on the following three premises:

a. *Expert workers* are better able to describe/define their job than anyone else.

b. Any job can be effectively and sufficiently described in terms of the *tasks* that *successful* workers perform in that job.

c. 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, a supervisor, and a safety analyst) from the job form a TTTD team. A facilitator guides the team through the session to complete the program design (some up-front time is involved in properly planning the table-top training design). 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 working on the team to be 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 facility may decide to use a method other than table-top training design.

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Accurate work by the TTTD team is important since these tasks will form the basis for developing lesson plans and/or courses for their training program. It is imperative that the team work together to establish an accurate product. If the work is faulty, the instructional products developed will be faulty.

3.5 <u>Advantages of Table-Top Training Program Design</u>. TTTD, when used properly, can provide an efficient and cost-effective method of content analysis and program design. TTTD is inexpensive in comparison with some other training program design methods since the process is completed in a few days. The end products of TTTD 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 designing the content since the team is primarily comprised of people from both areas. Additionally this process establishes a sense of ownership of the training program by the line organization.

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4. DETAILED GUIDANCE

4.1 <u>Factors that Impact Quality</u>. TTTD quality is directly linked to two critical factors: (a) assembling a team of two to six subject matter experts, one supervisor, and one safety engineer/specialist, and (b) using a trained TTTD facilitator. A trained TTTD facilitator (one who has been trained in the methods of table-top training program design) is required to maximize effectiveness of the design process. Some general conventions associated with TTTD are:

a.   The coordinator/facilitator is qualified through training and practical experience.

b.   Team members are subject matter experts (SMEs).

c.   Supervisors that are on the team are SMEs as well.

d.   The same team members participate throughout the entire session.

4.2 <u>Team Member Roles</u>. For TTTD to be successful, the people assembled must operate as a team. Each member must be aware of his/her role and responsibilities while on a TTTD team. Observers are welcome but must not participate as team members.

4.3 <u>Table-Top Training Design Coordinator</u>. In this Handbook, the term *table-top training design coordinator* is used to refer to the person who plans the design process, and makes the necessary pre-session arrangements (including selection of team members). The coordinator may or may not act as the facilitator of the session.

4.4 <u>Table-Top Training Design Facilitator</u>. The facilitator has the pivotal role in the TTTD process. The facilitator will be responsible for teaching the lessons during the training portion of the process and for facilitating the design team throughout the workshop portion of this process.

The suggested team membership is SMEs, their immediate supervisor, and instructional technologists, as appropriate. The facilitator's ultimate goal is to guide the team to a consensus decision regarding the design and content of the training program, while the others use their technical expertise to discuss important elements.

The facilitator also has an additional responsibility. Members of the facility training staff may be in attendance during the entire process in order to learn how to conduct TTTD. During the training portion of this process, the training staff will participate and should sit at the same tables as the team members. During the workshop portion of this process, the training staff will help lead various portions of the steps. The facilitator 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. During all of the TTTD steps, the observers who will be developing the subsequent training program for this job must pay close attention to the proceedings and take notes of training-related discussions. These notes will be valuable during the development phase of the training program.

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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 should choose the facilitator. The choice should be carefully made, based on the qualities required of a facilitator.

4.5 Facilitator Qualities. The facilitator's role during TTTD will be to serve as a process expert who facilitates the sessions but does not provide technical input for the training program content. Successful facilitation hinges on three factors: interpersonal skills, expertise in content analysis and design process, and possession of special skills associated with facilitating the design effort of the training program. At a minimum, the facilitator should be extremely familiar with task, document, and design processes. Preferably, the facilitator should be qualified to facilitate TTTD through training and practical experience.

This Handbook can serve as a self-study guide to help the facilitator gain the knowledge needed for the special skills shown below.

Special Skills Required of TTTD Facilitators

- Expertise in task and document analysis processes
- Expertise in training program content design process
- Expertise in the table-top design 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 poorly written or vague learning objectives and help the team select the most appropriate action verbs, task statement modifiers, and nouns

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4.6 Planning the Session. Proper planning will help ensure a successful and productive TTTD session. Major areas of concern in pre-session planning 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 TTTD coordinator is responsible for initiating the planning process and making the necessary arrangements, however, the coordinator must gain the understanding, support, and commitment to the entire process of the people involved.

4.6.1 Secure Management Approval. Since the design process being implemented involves facility personnel, it is important to communicate the purpose and secure commitment to the process and its end products of all affected

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management levels. The facilitator's discussions with management should include:

a.   *Purpose of Process.* Explain that during the TTTD process, facility personnel can facilitate the analysis and design processes, while at the same time teaching facility training staff how to conduct the process.

b.   *Who Needs to be Involved.* Explain that this process should involve the people described in Step 3 below, who must be allowed to participate for the entire time. Managers should suggest potential team members based on the team member qualifications listed in Step 3. The SMEs, supervisor, and safety analyst must be experts (not just bodies to fill a position on the team) so the process will be successful and ensure an effective training program.

c.   *Agenda.* Explain that the introduction and overview of the process will take place on the first morning and should last until lunch. The workshop begins right after lunch. The amount of time spent on the workshop depends on the needs of the facility.

Possible People to Contact

1.   Management for approval of participation as Coordinator

2.   Operating organization(s) management can release expert job incumbents and their supervisors for participation in this process

3.   Safety organization to release a safety analyst who understands the safety implications involved

4.   Training organization management responsible for the associated training program

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4.6.2   Involving Staff in the Planning Process.
Whenever a coordinator conducts activities that may affect others at a facility as TTTD may, the coordinator should involve those people who are likely to be affected by or concerned with 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 TTTD. When planning for a TTTD session at a facility, the coordinator should try to involve the following: (a) managers, (b) instructional staff, and (c) support personnel.

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

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Since the results of TTTD 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.

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

4.6.3   Select Team Members.   The quality of team interactions and thus the end product--the training program content--will depend heavily on the people selected to participate in this process. These people must be included on the team:

    a.   2-5 SMEs (those job incumbents in the position who are considered "role models" for safe, competent performance).

    b.   1 person who directly supervises the job incumbents in the job.

    c.   1 safety analyst who understands the design of facility systems and the impact on safety that these job incumbents have.

    d.   1-5 training people who are responsible for developing the subsequent training program.

    e.   2 facilitators (one facilitator should act as a recorder when not actively facilitating).

    f.   1 coordinator who will arrange the process.

In addition, the following people may also be invited to attend as observers:

    a.   1-5 observers from the facility training department who want to learn how to conduct this process for other job positions.

    b.   1-2 procedure writers may benefit by observing to document any changes required in job-related procedures.

NOTE: If your facility has used a Table-Top Job Analysis Process to develop the valid list of tasks selected for training, it would be most effective if you invited the same job incumbents and supervisor to participate in the TTTD process.

4.6.3.1   Team Member Qualifications. Using input from management, select team members based on the qualifications described below.

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The SMEs, supervisor, and safety analyst are the team members who will use their technical expertise to determine the content of the training program. The same team members should participate throughout the entire process (up to 5-6 days).

4.6.3.2 <u>SME Qualifications</u>. Expert job incumbents are in the best position to explain "what they do." Therefore, the SMEs selected as team members should be full-time employees in the job to help 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 of the tasks required to perform the job, and aware of current developments such as new procedures, new equipment, and facility and industry "lessons learned." In the circumstances where the job requirements are changing, the position is still under development, or no expert worker is yet functioning, system engineers/procedure writers may be used in lieu of SMEs.

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

4.6.3.3 <u>Supervisor Qualifications</u>. The supervisor should directly supervise those who perform the job. A supervisor with recent practitioner-level experience in the job can provide useful insights and continuity to the process since he or she knows what is considered "desirable" worker performance. The caution is to make sure the supervisor has 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 without the supervisor's opinion bearing more weight than the other team members'.

> **Supervisor Qualifications**
>
> 1. Directly supervises the job incumbents who perform the job
> 2. Recent practitioner-level experience in the job
> 3. Has good working relationship with job incumbents serving on the team

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4.6.3.4 <u>Safety Analyst/Engineer Qualifications</u>. The safety analyst/engineer should be selected based on his or her knowledge of how the facility systems are designed and familiarity with the facility's Safety Analysis Report or equivalent. The safety representative must also be familiar with the tasks involved in the job position being analyzed and have a good working relationship with the job incumbents.

4.6.3.5 <u>Training Personnel Qualifications</u>. The training personnel who will be responsible for developing the training program must also be in attendance throughout the entire process. In fact, they will be responsible for facilitating portions of the 3½-day process and for finishing any remaining training design steps. The product of this process will serve as the trainer's input for the development phase of the systematic approach to training.

Training Personnel Qualifications

1. Responsible for developing the training program (lesson plans, OJT guides, exams, etc.)
2. Capable of facilitating the content analysis/design process with the team until the process is complete (may take up to 1-3 days after the 3½-day process)
3. Aware of the status of any existing training taking place and of the settings available at the facility
4. Capable of facilitating without directing team members in content decisions

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In addition to the technical competence required of the SMEs, supervisor, safety analyst, and the training staff, all team members must possess interpersonal skills:

Interpersonal Skills Required by All Team Members

- The ability and willingness to clearly describe the knowledge and skills required to perform their jobs (N/A for trainers)
- The skill of listening respectfully to the views of others and participating effectively in group discussions without dominating or being dominated
- A disposition not prone to overreacting to criticism or to having their contributions analyzed or reorganized
- A disposition of a team player who believes in the process and 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

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4.6.4   Establish Dates for Process and Follow-on Activities. When selecting the
date for the TTTD process, keep in mind that it may take 60-90 days to finish
all coordinator responsibilities. When seeking management's approval, ask if
they have suggestions for dates that would best accommodate potential team
members (shift schedules, scheduled outages, etc.).

4.6.5   Select the Facilitator. Regardless of where the facilitator is from, the
facilitator's role is that of a process expert who facilitates the process but
does not provide technical input for training content. The facilitator must be
open to trying a new concept of analysis (the one built into this process) and
have technical expertise in all phases of the systematic approach to training.
Facilitators should also have some knowledge of the job or they could be led
down the wrong path unknowingly.

When selecting the facilitator(s), carefully compare the candidate with the
checklist of interpersonal and facilitation skills on the next page. Instructional
Technologists in the training departments usually have the necessary
experience and skills to facilitate this training design process.

Interpersonal Skills Needed by Facilitator

-    A sensitivity for others
-    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

-    The ability to show empathy
-    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

Facilitation Skills Required of Facilitator

-    Expertise in the systematic approach to training
-    Experience using the training design process built into this process
-    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 using nominal group technique
-    Skill in obtaining small-group consensus
-    The ability to establish and maintain the team's pace, balance, and
participation

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4.6.6   <u>Gather Information for Review by the Facilitator</u>. Job information should be gathered and sent to the facilitator at least 20-30 days prior to the process. The facilitator will use this information to prepare real-life examples for use during the process and to understand the content of the training program. Having this information will greatly improve the facilitator's ability to help the team progress through each step.

Send to the Facilitator:

-    The title of the job position/program being designed
-    A brief job description (job posting)
-    A list of the **existing** entry-level requirements for the job including *all* selection requirements (i.e., education, experience, and medical), *all* entry-level knowledge and skills, and *all* entry-level training (i.e., facility- and site-specific training, training driven by requirements, etc.)
-    The valid list of tasks selected for training
-    The procedures that describe the tasks involved in the job
-    A description of what training and evaluations are already in place (e.g., 80-hour fundamentals class, followed by OJT, followed by job performance measures, etc.)
-    Any regulatory requirements that suggest content of the training program (DOE Orders, Guides, Rad Con Manual, etc.)

4.6.7   <u>Roles of the Participants</u>. The "team" consists of the SMEs, supervisor, safety analyst, and training personnel responsible for developing the training materials. The role of the SMEs, supervisor, and safety analyst is to use their technical expertise to identify what knowledge and skills should be taught in the training program. The role of the trainers during the process is to help facilitate the process, provide training strategy suggestions, and document the results. After the process, the trainers will be responsible for completing any training design steps that may not be finished during the session, and will use the results to develop training materials. This completes the "design" phase of a systematic approach to training, and the trainers will be responsible for beginning the "development" phase.

The "observers" may consist of other training staff and procedure writers. The role of these trainers will be primarily to observe, but they will have an opportunity to help facilitate portions of the process. The role of the procedure writers is to observe and take notes of any changes required to job-related procedures. The observers may NOT contribute technical input during this process or attempt to sway the decisions of the team members.

4.6.8   <u>Developing a Schedule of Events and Activities</u>. A number of specific activities must 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

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session and a daily session schedule are included in Addendum A, *Checklist of Coordinator Steps to Prepare for Table-Top Training Design Process*.

4.6.9   <u>Informing Team Members</u>. At this point, the coordinator should have defined the job, 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 TTTD 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 TTTD 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 TTTD 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 TTTD 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 TTTD process, how the results will be used, and the qualifications of the worker or supervisor needed. A one- or two-page written explanation and sample TTTD products to leave with the organizational management can be very helpful.

The best way to obtain team members for a TTTD 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 hesitate to make commitments to a new or different experience. The TTTD coordinator should explain the member's role in the process. Prospective members should be told what to expect from the TTTD 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 its success.

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If proper selection procedures are followed, few workers will object to participating. Most people will gladly contribute their expertise the TTTD 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.

4.7 <u>Facilitator Preparation for TTTD</u>.

4.7.1 <u>Study and Use the Lesson Plans</u>. Addenda C,D,E, and F are lessons that may be used during the TTTD process. Addenda C-E may be used to "Orient the Team to TTTD" (TTTD Step 1). The Participant Manual (Addendum G) should be provided to process participants during the introduction lesson (Addendum C) and used in conjunction with Addenda D, E, and F. Addendum F may be taught just prior to Step 8 "Write the Learning Objectives" and equips them to perform Step 8.

Using the "Maximizing" lesson plan (Addendum E) will depend on the team members' familiarity with nominal group technique and consensus decision-making skills. See "Study Nominal Group Technique and Consensus Decision-Making Processes" in this segment to determine whether to use this Addendum.

Adequate time must be spent preparing to teach these lessons. They have been carefully designed to help members succeed during the workshop.

> **The coordinator should send:**
>
> <u>The TTTD Planning Sheet</u>
> - Who initiated the request for this process
> - For which job position/program the training program content is being designed
> - The dates of the process
> - The meeting room where the process will be held
> - The names of the SMEs, supervisor, and observers
>
> <u>A Validated Task List for the Job</u>
>
> <u>Job Information (if available)</u>
> - A brief job description (job posting)
> - Copies of procedures that reflect the tasks involved in the job
> - Systems descriptions if procedures are not available
> - A task list for a similar job position at another facility

4.7.2 <u>Review available information</u>. Twenty to thirty days prior to the process, the coordinator should send planning information, job information, and the validated task list.   The job information should be used for familiarization with the job. The duty areas and task statements should be used to gain an idea of what kind of structure the training program might take. During TTTD Step 2, the coordinator will have all available job information in the meeting room (standard operating

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procedures, system descriptions, process and instrument diagrams, and other materials relevant to the job position) to allow team members to reference them when identifying the different subject areas that will be part of the training program structure. Also, team members will look at several types of program structures. It would be valuable if the facilitator could bring example structure(s) from similar job positions so they might have a working guide as they design their program's structure.

4.7.3   Study Nominal Group Technique and Consensus Decision Making Processes. The team will use various techniques to design the training program content. They will have access to available job information and procedures to assist them in designing the curriculum, but discussion and consensus decision-making will also be required to help the team think of additional information and reach important group decisions about the content and structure of the program. Facilitators of the TTTD process use nominal group technique (NGT) and consensus decision-making (CDM) techniques to facilitate these ends. The NGT and CDM processes are described at length in Addendum E, "Maximizing Team Effectiveness" lesson plan.

What the "Maximizing" lesson does *not* describe is the facilitator's role during these processes. Verbal and non-verbal communication skills must be used to effectively implement the NGT and CDM techniques.

During the Nominal Group Technique and Consensus Decision-Making processes, the facilitator is to:

- 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 facilitative questions
- Set and maintain an enthusiastic climate

4.7.4   Confirm Details with the Coordinator. Prior to a TTTD session the facilitator should make sure that all needed documents related to the job position will be available in the meeting room:

a.   DOE Order 5480.20A

b.   DOE Order 5480.19

c.   The facility's Training Implementation Matrix (TIM)

    d.   Qualification Cards

    e.   Other regulatory requirements

    f.   The valid task list for the job position

A supply table should be provided at the front of the workshop room. The supply table should be organized to allow sufficient writing space and easy access to the materials. Make sure the space in front of the walls is clear.

Organize the following supplies on your table:

- 50 shts 8-1/2"x11" yellow paper
- 1000 shts 8-1/2"x11" white paper
- 2 black, wide-tipped, permanent markers that do not bleed through paper
- 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

4.8   <u>Conducting the Session</u>. After preparations have been made, the next task is to conduct the session. There are eight major steps involved in conducting a successful TTTD session. The steps are listed below.

    a.   Orient the team (if necessary).

    b.   Design the training program structure.

    c.   Place the tasks within the training program structure.

    d.   Prioritize the topics.

    e.   Determine the course content.

    f.   Identify any additional content.

    g.   Identify applicable existing training.

    h.   Write terminal and enabling objectives.

While this segment provides a "step-by-step" process for completing the design process, understand that the "steps" are meant to provide more of a "suggested" model to follow rather than a rigid step-by-step process. While it is true that some steps must take place before others (for instance, Step 1 "Orient the Team", must be done first), many steps can be completed out of order, or even while another step is taking place. For instance, "Identify Possible Existing Training" can be performed at almost any time during the process after the team has been oriented. To complete "Design the Training Program Structure," later work in "Place the Tasks on the Training Program Structure" may be considered. Thus, these steps may be completed concurrently. Therefore, the process outlined is meant to provide a loose model of how the process should proceed and not a rigid outline. Because the needs of workers and a facility affect the design of a training program, each process may

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demand a different approach while still completing each step. This complexity requires flexibility on the part of the facilitator not only to recognize the varying needs that may develop during the design process, but also to adjust process proceedings to meet those needs and to accomplish the overall goal of the TTTD process.
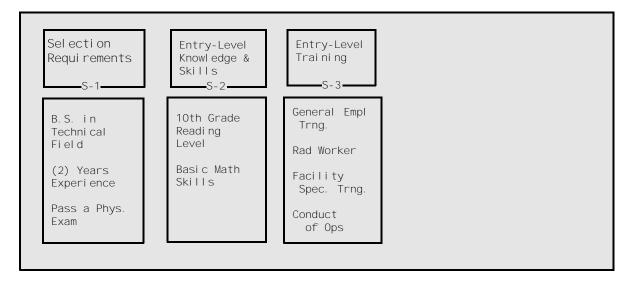
4.8.1   Step 1 - Orient the Team. The first step in any TTTD session is to orient the team carefully to what will be happening during the session. The orientation must be well done and should use an informal, non-technical explanation of the process. Addenda C-E were carefully designed to fulfill the requirements of a "well-done" orientation.

Remember that during the lessons, the observers are allowed to participate and sit at the tables with the team members. Once these lessons are completed, the observers should be reminded (during the break after the "Maximizing" lesson) to sit at separate tables in the back of the room with copies of all process materials. Future developers should be reminded to take notes on discussions that will have an impact on the development of the training program.
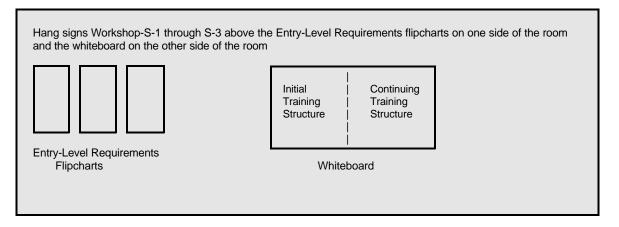
4.8.2   Step 2 - Design the Training Program Structure.

4.8.2.1   Set-Up for Step 2. Prior to the start of the process, all entry-level requirements (including selection requirements, entry-level knowledge and skills, and entry-level training) should be written on flipchart pages and posted on the far left-hand side of the wall.

A whiteboard (or flipchart if whiteboard is unavailable) should be placed on the other side of the room. The whiteboard must be large enough for the initial and continuing training structures to be drawn. The initial and

```
+---------------------------------------------------------------+
|  +----------------+   +----------------+   +----------------+  |
|  | Selection      |   | Entry-Level    |   | Entry-Level    |  |
|  | Requirements   |   | Knowledge &    |   | Training       |  |
|  |                |   | Skills         |   |                |  |
|  |     -S-1-      |   |     -S-2-      |   |     -S-3-      |  |
|  +----------------+   +----------------+   +----------------+  |
|  +----------------+   +----------------+   +----------------+  |
|  | B.S. in        |   | 10th Grade     |   | General Empl   |  |
|  | Technical      |   | Reading        |   |  Trng.         |  |
|  | Field          |   | Level          |   |                |  |
|  |                |   |                |   | Rad Worker     |  |
|  | (2) Years      |   | Basic Math     |   |                |  |
|  | Experience     |   | Skills         |   | Facility       |  |
|  |                |   |                |   |  Spec. Trng.   |  |
|  | Pass a Phys.   |   |                |   |                |  |
|  | Exam           |   |                |   | Conduct        |  |
|  |                |   |                |   |  of Ops        |  |
|  +----------------+   +----------------+   +----------------+  |
+---------------------------------------------------------------+
```
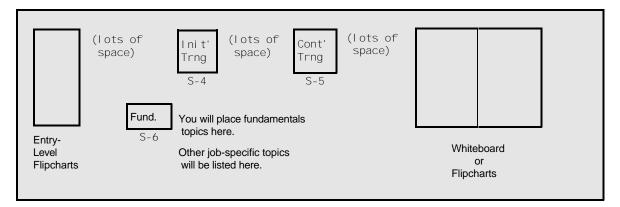
continuing training structures should be displayed during the entire process to provide a global picture of how the structure is developing.

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Hang signs Workshop-S-1 through S-3 above the Entry-Level Requirements flipcharts on one side of the room and the whiteboard on the other side of the room

Entry-Level Requirements
Flipcharts

| Initial Training Structure | Continuing Training Structure |

Whiteboard
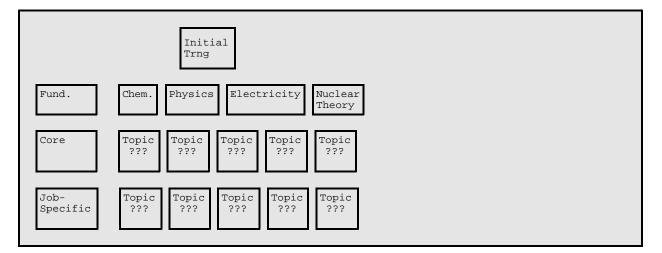
4.8.2.2 <u>Conducting Step 2</u>. The workshop portion of the TTTD process will start by stating that the team will focus on designing the training program structure. The participants should be reminded that the goal is to design an efficient, effective training program that addresses the needs of the job incumbents and their supervisors.

    a.   <u>Design the Structure of Initial Training.</u> The participants should be reminded that as they learned during the "Overview" lesson, the next step involves identifying the topic areas and the flow-chart through which incumbents will progress during initial training.

        The front of the room should be set up as in the illustration below.

```
Entry-
Level
Flipcharts

(lots of space)    Init' Trng   (lots of space)   Cont' Trng   (lots of space)
                      S-4                            S-5

              Fund.    You will place fundamentals
               S-6      topics here.

                        Other job-specific topics
                         will be listed here.

Whiteboard
or
Flipcharts
```

    1.   <u>Fundamentals.</u> Using nominal group technique and consensus decision-making, have participants list any "fundamentals" courses existing or needed. Write each fundamentals course on separate 8½X11 pages and place them in horizontal rows on the wall (see illustration below).

    2.   <u>Other Job-Specific Training.</u> Direct the participants to identify the remaining job-specific training courses. Write them on separate 8½X11 pages and place them in horizontal rows beneath the fundamentals topics you just completed. Ask the team if the

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category such as "core" or "job-specific" or other? If the answer is "yes," create a sign and write the category name on the sign. Place the courses that fall under that category to the right of the sign (see illustration).

After all the courses have been identified, facilitate a discussion concerning the order in which the job incumbents will proceed through the initial training program. Some questions that could be asked might include: "Which course or courses should job incumbents take first?" "What course or courses should they take after that?" etc. Use the whiteboard (or flipchart) as a "working board." As the team directs, construct a flow-chart on the whiteboard showing the path in which a job incumbent would proceed during the initial training program. Be sure to include the topic of the training session, the setting in which the training will take place, and any type of testing (e.g., written, performance, etc.) associated with the training.

b.   Design the Structure of Continuing Training. Remind participants from the "Overview" lesson that the continuing training program encompasses a variety of training, all conducted at different intervals. DOE 5480.20A requires applicable job incumbents to have completed all continuing training within 2-year intervals. This training can take the form of drills, abnormal and emergency procedures training, regulatory training, and requalification training.

Another category of training that will be placed under continuing training is pre-training (as-needed training). Remind the team that pre-train topics include training that occurs so infrequently (i.e., "one-time ever" performance, or several years between performance) that it is more beneficial to do the training "immediately before" the event.

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1. Annual Training. Have the participants identify whether any drills are needed. And if so, how often? Refer to the task list and locate any "vital" tasks. If the facility has not yet identified vital tasks, ask the team to examine each task statement on the complete task list and answer the following question: Could improper task performance cause a violation of a Technical Safety Requirement, breach containment, impact the operation of protective systems, cause an unplanned or uncontrolled nuclear criticality, or result in a release of hazardous substance to the environment? If so, mark the task as "vital" on the task listing. Write a "V" on the task statement page of each vital task. If applicable, write each drill and its frequency on a separate 8½X11 page and place it under the continuing training sign.

    Have the participants identify any regulatory training required more often than every 2 years. Direct them to refer to qualification cards or other documents (e.g., DOE Orders, OSHA) that might list these requirements in concise form.

    Write each regulatory training session on a separate 8½X11 page and place them under the continuing training poster.

2. Biennial Training. Have participants identify the structure of requalification training by looking at the overtrain tasks on the task list, DOE 5480.20A, and/or the facility's TIM. Also discuss and/or look at other regulatory requirements that impact the training for this job position.
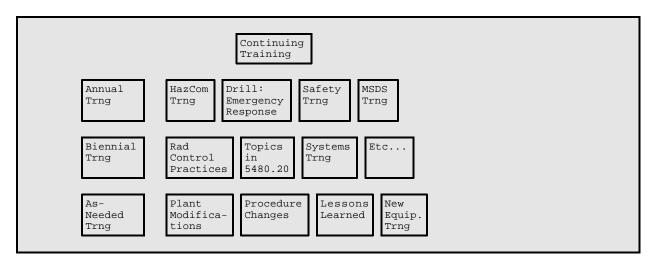
    Write each regulatory training session on a separate 8½X11 page and place them under the continuing training sign.

3. As-Needed Training. Have the team identify any pre-train topics that should be included in the training program structure. As-needed training also includes training on new equipment and changes to procedures of which participants may be aware.

    Write each pre-train topic on a separate 8½X11 page and place them under the continuing training poster.

    Once all of the continuing training courses have been identified and placed on the wall, it should look similar to the example on the next page.

    After all the courses have been identified, facilitate a discussion similar to the one for the initial training flow-path. The discussion should center around determining the flow-path through which the job incumbents will proceed during the continuing training program, training settings, requalification tests, etc.

```
                          ┌──────────────┐
                          │ Continuing   │
                          │ Training     │
                          └──────────────┘

┌──────────┐  ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐
│ Annual   │  │ HazCom   │ │ Drill:   │ │ Safety   │ │ MSDS     │
│ Trng     │  │ Trng     │ │ Emergency│ │ Trng     │ │ Trng     │
│          │  │          │ │ Response │ │          │ │          │
└──────────┘  └──────────┘ └──────────┘ └──────────┘ └──────────┘

┌──────────┐  ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐
│ Biennial │  │ Rad      │ │ Topics   │ │ Systems  │ │ Etc...   │
│ Trng     │  │ Control  │ │ in       │ │ Trng     │ │          │
│          │  │ Practices│ │ 5480.20  │ │          │ │          │
└──────────┘  └──────────┘ └──────────┘ └──────────┘ └──────────┘

┌──────────┐  ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐
│ As-      │  │ Plant    │ │ Procedure│ │ Lessons  │ │ New      │
│ Needed   │  │ Modifica-│ │ Changes  │ │ Learned  │ │ Equip.   │
│ Trng     │  │ tions    │ │          │ │          │ │ Trng     │
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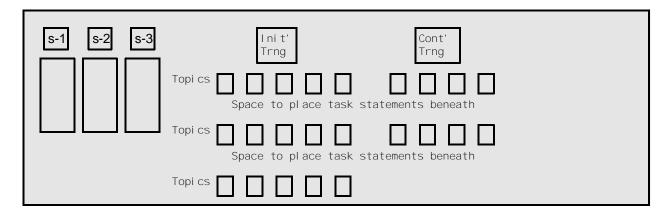
At this point, Step 2 is complete. Keep in mind, however, that the structure will be reviewed several times throughout the process before arriving at the final form.

4.8.3   Step 3 - Place the Tasks in the Training Program Structure.

4.8.3.1   Set-Up for Step 3. Leave all of the signs and pages from Step 2 intact on the wall. Re-draw the initial training structure on the whiteboard onto a flipchart page (and the continuing training structure on a separate flipchart page) and erase the whiteboard. Hang both flipchart pages on the wall (or on flipchart stands if there is no room on the wall) where they can easily be seen. Arrange the topic pages beneath the initial and continuing training signs to allow room to place task statements beneath them (See illustration next page).

4.8.3.2   Conducting Step 3. One of the purposes of Step 3 is to collect enough data to establish a foundation that will resemble a task-to-training matrix.

Take the valid task list and have the team place each task statement on the training program structure. The task or group of tasks will be assigned to one of the topic areas by placing it beneath the topic area or attaching it to the topic area with tape. Remind the team from the overview that the tasks could be assigned to a topic area under any one of the three areas of entry-level requirements, initial training, and continuing training. Remember that overtrain designated tasks could go in all of these areas.

Take one of the 8½X11 task statements in hand and show it to the class. Then ask "Where does it make the most sense to teach this task?" Another question might be, "Under which topic will the information associated with completing this task be taught?" Ask the SMEs to direct

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s-1	s-2	s-3		Init' Trng					Cont' Trng			

Topics ☐ ☐ ☐ ☐ ☐   ☐ ☐ ☐ ☐

Space to place task statements beneath

Topics ☐ ☐ ☐ ☐ ☐   ☐ ☐ ☐ ☐

Space to place task statements beneath

Topics ☐ ☐ ☐ ☐ ☐

its placement. Sometimes an entire duty area with all of its tasks will be placed under a particular topic. At other times the tasks under one duty area will be split up and placed under different topics. If tasks fit equally well under several headings, accommodate this by duplicating the task on other 8½X11 pages and placing them in the appropriate locations. Proceed in this manner until all tasks have been placed under topic areas in one of the three areas.

Please note that many of the tasks may already exist in the original program structure under one of the three areas. Although the task's location in the original structure may be the best place for it, do not assume this. In other words, the team should be discouraged from placing tasks in certain places in the structure just because "that is where they have always been taught." Of course, if where the task is being taught in the original structure *is* the best location, then placing it there is beneficial. The point is that the only criterion which determines where a task is placed is where it makes the *most* sense to teach the task.

Once all the tasks have been placed, look for large groupings of tasks. Draw attention to these groupings and ask if the larger groups could be sub-divided into smaller groups to make the structure less jumbled and more organized.

Next, ask if topics should be added, deleted or combined based on task sorting. Ask if the order should be changed. Write any new topics down on 8½X11 pages and place them on the program structure.

Finally, direct the attention of the team once again to the flow-charts for initial and continuing training structures. Lead a discussion of whether the training flow-path should be changed based on the decisions made during Step 3. As the team directs, reconstruct the flow-chart on the flipchart showing the revised path in which a job incumbent would proceed during the initial training and/or continuing training program. Be sure to include the topics of training sessions, the settings in which they take place (if possible), and any associated requalification testing.

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REMEMBER: The facilitator's role is to stimulate the team to make any adjustments that may be needed. Question and challenge their statements when it seems necessary, but always allow the team to make any technical decisions.

4.8.4   Step 4 - Prioritize Courses for Development Efforts.

4.8.4.1   Set-Up for Step 4. Once again, leave all of the signs and pages from Step 3 intact on the wall. Re-draw the initial training structure on a flipchart page (and the continuing training structure on a separate flipchart page) to reflect the changes and additions generated during Step 3. Hang the revised training structures back up on the wall before beginning the next step.

4.8.4.2   Conducting Step 4. Begin Step 4 by reminding trainees from the "Overview" lesson that this step involves identifying which topics have the most immediate need for the development of training materials.

If there is already an existing training program for the job for which the team is designing a training program structure, then some of the topics of the validated task list might already have adequate training. Other topics which need to have training developed will be identified during this step. Management will want to play a large part in this decision. Make sure that any management personnel are present during this step to provide their input.
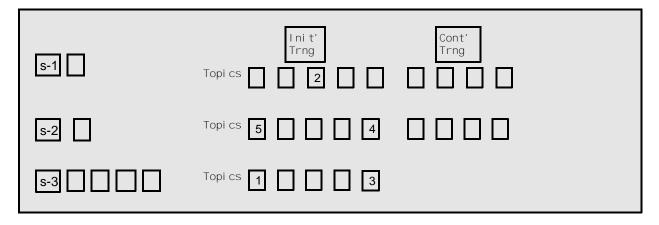
Using consensus decision-making, ask the participants, "Which five topics do you feel are most necessary to have training developed?" Place 1½X2 Post-its on each topic page identified. Then have the participants rank those five topics in order of priority by asking, "Which topic needs training developed for it the most?" Write a large number "1" on the 1½X2 Post-it you attached to the topic page. Ask, "Which topic would you say should be next in priority?" Write a large number "2" on the 1½X2 Post-it you attached to it.

Continue prioritizing topics 3 through 5 until a level of priority has been assigned to all five topics (see illustration on the next page).

4.8.5   Step 5 - Determine Course Content.

4.8.5.1   Set-Up for Step 5. Isolate the prioritized topics and their task statements on a separate wall. Set up a flipchart with a pad of paper at the front of the room where all participants can see it.
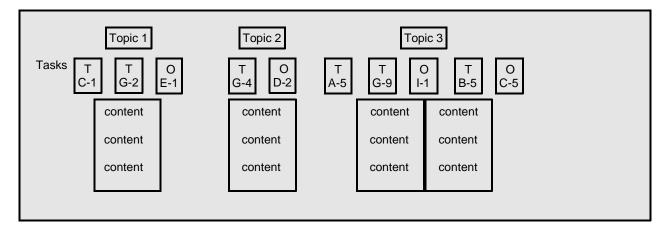
NOTE: All signs and pages from previous steps should be left up in order to retain a global picture of the program.

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A couple of markers should be on hand. If the topics for which you will be analyzing content have procedures written for them, be sure each participant has a copy of the procedure.

4.8.5.2   Conducting Step 5. Remind participants from the "Overview" lesson that determining the course content involves determining what should be taught to trainees during a lesson so they can adequately perform the task. Before determining content, agree on the most appropriate level at which to write it. Share some examples with the team illustrating different levels at which content can be written. Have them decide on the most appropriate level.

Next, direct the team's focus to the highest prioritized topic area. Write the content on a flipchart page or pages and place it under its topic area and task statements (see illustration on the next page).

NOTE: The co-facilitator should begin filling out Addenda H & I.   See Addenda H & I for directions.

4.8.5.3   Methods for Determining Content. There are several methods for determining the content of a topic area.   Methods include document

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analysis, brainstorming, and traditional task analysis. Usually, combinations of these methods will be necessary depending upon the situation. Determine the most appropriate method based on the criteria listed under each method below. Understand that the following list of methods is not exhaustive. If there is another method that would be beneficial to the situation, employ it. The goal is to use methods that will most efficiently and effectively accomplish the goal of analyzing the content of the chosen topic.

a. <u>Document Analysis</u>. Document analysis is one method that can be used to determine the content of a training program, course, or lesson using information obtained directly from operating documents. The goal of this method is to extract knowledge and skill requirements directly from process documents. Once the content is determined, learning objectives can be written. The analysis process is explained below along with several guidelines and techniques a facilitator should keep in mind.

For a task-based training system, a key document for analysis is the operating procedure. An operating procedure is a document that lists the steps for accomplishing work. The discussion below assumes the use of an operating procedure. Similar guidelines and techniques could apply to the analysis of other types of documents.

Before starting the process, ensure that each team member has a copy of the procedure for which the training content will be determined.

1. <u>Verify the Usability of the Procedure</u>. Determine the usability of the procedure by asking the team questions such as:

- Does this procedure reflect how the job is currently being performed?

If the answer is "yes," the procedure can be used to determine training content. Write the title of the procedure at the top of the flipchart. If the answer is "no," the procedure will not be useful and document analysis should not be used. If they answer that the procedure is partially correct, document analysis can be used; however, the facilitator will need to guide the team in identifying steps in the procedure that do not apply, and should guide the team in determining what new content should be added or changed that would reflect the correct performance of the task. While performing document analysis, ask questions such as:

- What content would you include that would address recent changes that have occurred in the task?

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DO NOT allow the session to turn into a critique on how the procedure should be changed. Keep the focus on determining what content needs to be taught in order to adequately perform the task.

2. Explain the Desired End Product. Explain to the team that since procedures are used by the workers as job aids when they perform the task, the only training content that needs to be identified is that which is not readily obvious from reading the procedure. Explain that as the team searches the procedure, they can determine content by asking themselves one of the following questions:

    -   If I were going to teach this task to someone, what do they need to know in addition to what is stated in order to perform each step? or...

    -   What would a developer need to include in the training material on this task to ensure that a trainee will be trained to perform the task safely and according to established standards?

3. Determine the Prerequisites. Ask the team what courses should be completed before receiving training on the task. Usually, prerequisites will consist of fundamentals courses, but should not be limited to fundamentals alone.

4. Determine Content from Procedure Front Matter. Most all procedures have introductory material preceding the actual steps of the procedure. Have the team determine if any content can be found in this material. Write the title of the procedure at the top of a flipchart page. Then ask the team:

    -   Consider the front matter of the procedure. Is there any content that we would need to teach in order for a worker to understand the front matter?

    Employ nominal group technique (NGT) or brainstorming to list the content. Choose the technique that will be most effective. Be willing to change your technique if you sense it is not working. If using NGT, have each individual write their ideas on paper. When it appears they have exhausted their ideas, go around the room in round-robin style having each person share an idea until all ideas are exhausted. As they share, record their ideas on the flipchart. If using brainstorming, have the members share their ideas and write them on the flipchart.

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NGT or brainstorming can be used as a team, or the team may be split up into smaller groups and have each group take a different procedure. Then get back together as one team to review and discuss each group's results and come to consensus. Both methods may be used in order to incorporate variety in the process so that the activity does not get tedious for the team members.

5. <u>Determine Content from the Steps</u>. Direct team members to look at the first step to determine what content should be taught about the particular step in order for a worker to complete it. Some possible questions to stimulate their thoughts are:

   - What would a person need to know to complete this step that the procedure does not explain?

   - Is there anything that could go wrong when performing this step that the procedure itself does not identify and should be taught?

   - Is there any information missing from the step in which the worker should be trained that would fall in one of the following areas:

     • Administrative knowledge
     • Theory requirements
     • Interactions with other equipment or systems
     • Interactions with other personnel
     • Etc.

   Use NGT and/or brainstorming to identify the content. Repeat the process with each step until complete.

6. <u>Evaluate the Final List</u>. Once the content is identified, there are several questions the facilitator should ask to guide the team in evaluating the content. The facilitator should have the team evaluate whether all possible content has been identified that will train the worker on the task. To determine this, the facilitator should ask a question similar to the following:

   - Looking at this list of content, is there anything else you can think of that you want to include as content for this step?

   Also, the facilitator should ensure that the content that has been identified is not already taught somewhere else. To avoid redundancy in the program, the facilitator should ask the following question:

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- Is any of this content taught elsewhere in your training structure before we include it as content for this lesson?

Content may even be identified which should have its own course or be taught under a different topic which contains similar content. Questions similar to the following can establish this:

- This seems like it would probably be a big topic. Should we create a new course to teach this content and make it a prerequisite to the content we are presently working on? or...

- This content seems similar to that taught under this course over here. Should we teach this content under that topic instead? or

- This appears to be a recurring content area for many of the tasks. Should we teach this content under one topic instead of teaching it over and over in each lesson?

A thorough understanding of the preceding process is needed in order to guide the team in an effective manner. Keep in mind the guidelines outlined below.

7. <u>Guidelines</u>. Several factors influence the validity of the content that is determined for a task using the procedural analysis process. These are (1) the quality of the procedure, (2) the expertise of the SMEs, and (3) the skill of the facilitator. When conducting procedural analysis, course content has the highest probability of being valid when you have a high quality procedure, a very knowledgeable and experienced team of SMEs, and a facilitator who has the skills (questioning skills, etc.) that draw out all content possibilities.

<u>The Quality of the Procedure</u>. A high quality procedure is one that is up-to-date and reflects how the task is currently being performed by the workers. The more a procedure explains exactly how a task is done, the less training will need to take place to learn the task.

<u>The Expertise of the SMEs</u>. A team of SMEs that is very experienced in the position being analyzed will tend to yield the most valid content information. The less experienced the SMEs are, the more the facilitator will need to be skilled in questioning and probing in order for the appropriate information to be drawn out of the SMEs. While it is best to have a team of SMEs with several years of experience, this type of group can present problems. SMEs with several years experience can tend to view

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the tasks they perform in "simplified" ways since they have been performing them for years. The facilitator can compensate for this tendency by reminding the SMEs to assume the perspective of a new-hire--keeping in mind that what is "simple" to the SMEs because of many hours of repeating the procedure will most likely seem very difficult to a new-hire who has never performed the specific task. For this reason, a question like the following can be helpful:

- Look at the procedure from the perspective of a new-hire. Have you included all the content you believe they would need to be taught in order to adequately perform the task? What else would you include?

The Skills of the Facilitator. The skills of the facilitator will also affect the validity of the final content. A good facilitator will keep in mind the above factors about the quality of the procedure and the expertise of the SMEs. A good facilitator also knows the end product he or she wants the group to achieve, can communicate that end product to the team in a way that is understandable, and can draw out appropriate information (using questioning skills, etc.) in order to lead the team in obtaining that end product. A good facilitator observes the group dynamics taking place and varies the analysis methods and approaches as needed. For instance: Are all members participating? Are a select few dominating the discussion? Is constructive dialogue taking place that leads to valid content? Is information being thrown out haphazardly and assumed to be correct? Is group consensus taking place? Is there dissension regarding final decisions? The facilitator must help the group to understand and achieve the group dynamics that will assure the quality of the end product.

b. Brainstorming. Simple brainstorming (or brainstorming using NGT) is another method to determine the content of a training program, course, or lesson. Brainstorming should be used when the SMEs are very familiar with the task, the procedure is inadequate, or there is not a procedure written.

Most of the questions, processes, and guidelines that applied to document analysis apply to brainstorming as well. However, when brainstorming, procedures will not provide a great amount of the content (as in document analysis), so much more detailed content information should be obtained from the SMEs about the task or task-group. Simply take the task or task groupings one at a time in the order that they have been prioritized. Place them before the SMEs and ask them many of the same questions that were asked for document analysis such as:

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- If I were going to teach this task to someone, what do they need to know in order to perform this task?

- What would a developer need to include in the training material on this task to ensure that a trainee will be trained to perform the task safely and according to established standards?

- What do you wish you had been taught about the task when you were first trained?

- Should the worker be trained in any of the following areas:

    - Administrative knowledge
    - Theory requirements
    - Interactions with other equipment or systems
    - Interactions with other personnel
    - Safety considerations
    - Etc.

Write the content on a flipchart. When the SMEs feel they have exhausted all content possibilities, tape the task statement or statements to the content page for the developer's later use. Proceed with each prioritized task until content has been determined for all tasks. Encourage the SMEs to continue to think about possible content areas for tasks even though they may feel they have exhausted all content possibilities. Additional content can be added throughout the process.

c. <u>Traditional Analysis</u>. Occasionally, traditional analysis methods for determining content must be employed. Traditional analysis methods should be used when the SMEs are very *un*familiar with the task, and do not have a good procedure written for it.

Again, most of the questions, processes, and guidelines that applied to document analysis and brainstorming apply to traditional analysis as well. However, when using traditional analysis, you will want to break the task down into its elements, and the elements into the knowledge, skills, and abilities (KSAs) needed to perform the elements. As with the other methods, simply take the task or task groupings one at a time in the order in which they have been prioritized. Place them before the SMEs and ask them many of the same questions that were asked for document analysis such as:

- What do you do first? second? etc.

- For what tools\equipment does an incumbent need training?

- What knowledge does an incumbent need to perform this task?

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- What skills does a job incumbent need to have in order to perform this task?

- Is there any knowledge or skill that should be included from one of the following areas:

  - Administrative
  - Theory requirements
  - Interactions with other equipment or systems
  - Interactions with other personnel
  - Safety considerations
  - Etc.

  Write the elements, knowledge, and skills on a flipchart. When the SMEs feel they have exhausted all element, knowledge, and skill possibilities, tape the task statement or statements to the content page for the developer's later use. Proceed with each prioritized task until knowledge and skills have been determined for all tasks. Encourage the SMEs to continue to think about possible knowledge and skills for the tasks even though they may feel they have exhausted all possibilities. Additional knowledge and skills can be added throughout the process.

d. <u>Template Method</u>. The facilitators should look for the opportunity to use a template approach to determining training content. An already existing template may be used by the facilitators and presented for validation by the SMEs, or a template may be constructed by the design team. Contractors subject to DOE 5480.20A should use this method to determine the content of various training programs. DOE 5480.20A requires that "Training in the following facility-specific subject areas shall be included as appropriate to position:" DOE 5480.20A then provides a list (template) of topics for the facility to analyze for applicability.

   The template method provides a simplified process for determining appropriate content or learning objectives associated with, for instance, the operation or maintenance of a specified facility system. Below is an example of a portion of a template for a job which requires systems knowledge and operation. The system or equipment name can be inserted in the blanks. Note that it was determined that the training content for each system, no matter what the system, involves a knowledge of the purpose of the system and the components of the system. No matter what the system, knowledge of terms and symbols associated with the system should be taught. Operational characteristics and capabilities of the system need to be included as content, etc.

Systems (General Content):

State the purpose(s) of the _____.
State that the _____ consist of the following components: Include the function of each.
Define the terms and symbols used with the _____ (for example, _____, _____, and _____.
State the operational characteristics and capabilities of the _____ (i.e., power, logic levels, capacity, emergency, tolerance, and accuracies when applicable).
Describe the differences between _____. [Models]
State the security requirements for the _____.

Systems (Physical Description):

Describe all major and associated components of the _____. Include name, quantity required, physical appearance, location, etc.

Describe displays, controls and indicators directly associated with the _____.

Coming up with or using already constructed templates dramatically cuts down on the amount of time it takes to determine content for a training program. And when the content is written in the form of learning objectives, like the examples above, it eliminates the performance of this step later. While templates can simplify and speed up the content analysis process, facilitators should recognize that *most* training situations will also require the development of some unique content. Therefore, be careful in assuming that a particular template addresses *all* the knowledge and skills an employee needs to perform a particular task.

e. Incorporating Various Methods. The TTTD situation may require the use of all four methods mentioned above. Combining methods based on observed need is beneficial since the facility may have procedures for some tasks and not for others. Therefore, document analysis processes would be used for the proceduralized tasks and brainstorming for the tasks which have no procedures. There may be some tasks about which the SMEs are knowledgeable, but others that are new and about which they know very little. Brainstorming should be used for tasks in which they have greater knowledge and traditional analysis for the tasks in which they have little knowledge. Often, brainstorming the content followed by brief document analysis is effective.

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> Simply apply the method that is best based on the determining criteria. Incorporating different methods is good since it ensures that the appropriate content will be determined and it also provides variety to the process, making it seem less tedious to the SMEs.

4.8.6   Step 6 - Identify Additional Content.

4.8.6.1   Set-Up for Step 6. Ensure that the documents needed for this step are in the room. Various sources of information that the team should check include:

a. Regulatory requirements (DOE, OSHA, EPA, etc.)

b. DOE Order 5480.20A

c. DOE Order 5480.19

d. The facility's Safety Analysis Report

e. Occurrence Reporting and Processing System (ORPS) reports

f. Documents describing recent facility events

Ensure that enough copies of the documents are available for all participants to read. The flipchart and markers used in Step 5 will also be needed.

4.8.6.2   Conducting Step 6. Now that all of the content has been identified, remind the team from the "Overview" lesson that they need to ensure that they have not forgotten any content mandated for inclusion in the program by various requirements documents. State that other content could possibly be included in the training program due to recent industry events (accidents or incidents that occurred, why they occurred, what could have been done to prevent them, lessons learned from industry, etc.).

Using NGT or brainstorming, have the team identify the regulatory requirements and, as possible, industry and facility events that impact the job position being analyzed. Divide the documents among participants and have them examine the documents to identify additional knowledge and skills. As participants find additional content, have them write it on an 8½X11 page and direct you to place the content in accordance with the following:

a. If the content is already being taught somewhere in the existing training program structure because it is mandatory, place it on the training program structure (signs and flipchart page drawings created during Step 2 of this process).

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b. If the content is not being taught currently, place it on the most applicable content analysis flipchart page (with the previously-identified content).

Write an appropriate identifying number on the top corner (along with an "R" to indicate it is a regulatory requirement) on separate 1½X2 Post-it notes for each content area identified during this step. If the regulatory requirement also states the frequency that the content area needs to be taught, add that on the Post-it note.

4.8.7   Step 7 - Identify Applicable Existing Training.

4.8.7.1   Set-Up for Step 7. Set up a flipchart stand with a pad of paper at the front of the room where all participants can see it. The facilitator will need a few different colored felt-tipped markers.

4.8.7.2   Conducting Step 7. **NOTE: Identifying applicable existing training that can be utilized during future development efforts may actually take place sporadically throughout the entire design process. For instance, when the team is deciding on the topics that will be a part of their training structure, a particular course that may teach the information under that topic may be mentioned. When this happens at any time during the process, immediately make a note on a 6X4 Post-it and attach it to the topic. The note should read something like, "Check [course title] for possible training materials."**

Even though identifying possible existing training materials can take place throughout the entire process process, it should be conducted as a separate step as well in order to focus the step and ensure that all possibilities have been exhausted.

Therefore, remind participants from the "Overview" lesson that the purpose of analyzing existing training materials is to save time and money, to avoid duplicated efforts in design and development, and to improve the quality of the lessons.

Using NGT or brainstorming, have the participants identify sources where existing training materials might be found. Have the team identify *internal* sources first, including possible material from other training departments at their site including operations and maintenance divisions, supervisors, and engineering and design departments.

List all of the possible materials on a flipchart. Use consensus decision-making to decide which materials would be useful and eliminate those which are not. When the team comes to consensus regarding particular course materials, as stated above, make a note on a 6X4 Post-it and attach it to the topic. The note should read something like, "Check [course title] for possible training materials."

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Next, using NGT or brainstorming again, have the participants identify *external* sources where existing training materials might be found including possible material from:

a. The DOE Training Coordination and Assistance Program

b. Other DOE facilities

c. Commercial utilities

d. Vendors

e. Training Resources Data Exchange (TRADE)

f. Vocational education programs

g. Technical trade schools

List all of the possible materials on a flipchart. Use consensus decision-making to finalize the list of material. Again, attach a 6X4 Post-it note to the topic identifying the course as a possibility.

Point out that for now, this step must end. However, analyzing the materials that have been identified must continue later. One or two SMEs and an instructional technologist will need to complete the following steps before the existing materials are approved for use:

a. Gather the training material.

b. Analyze the training material.

      1.   Are the objectives clear?

      2.   Are the tests appropriate?

      3.   Is the material user-friendly?

c. Summarize the analysis and make recommendations for how to use the material.

d. Document the results.

4.8.8   <u>Step 8 - Write the Learning Objectives</u>.

    4.8.8.1   <u>Set-Up for Step 8</u>. Directions on how to set-up for Step 8 are included in the "Writing Learning Objectives" lesson plan (Addendum F).

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4.8.8.2   Conducting Step 8. Teach the lesson in Addendum F, "Writing Learning Objectives." This lesson was carefully designed to equip the team members to perform adequately during Step 8 of the TTTD process.

NOTE: The team of SMEs may not be writing the learning objectives. If this is the case, do not teach the team this lesson or continue this step.

After the lesson is taught, write terminal and enabling objectives for the program content. If there is an overwhelming number of topics to write objectives for, split the participants up into smaller teams (if possible). Divide the tasks between the teams. If the participants are split into teams, be aware of the areas of expertise of the SMEs on each team, and divide the tasks between the groups so that certain tasks go to those SMEs that have expertise in that particular area.

NOTE: Record terminal and enabling objectives using the format in Addendum J.

The facilitator(s) should place a flipchart stand (which will serve as a working board) in front of the group of SMEs. The trainer who will be in charge of training development will document, on a piece of paper, the *final* form of the terminal and enabling objectives.

The facilitator(s) should choose a topic and guide the group in coming up with a terminal objective in the same way they were guided in the "Writing Learning Objectives" lesson. The facilitator(s) should then guide the group in determining the enabling objectives for the task and, once they are all listed, place them in the best order. Once the objectives are in finalized form, copies should be given to the appropriate trainers and supervisor(s) of the facility.

4.8.9   Summary. Once the team's work is finished, thank the members for their cooperation and persistence. Re-emphasize the importance of each 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.

Remind participants that the design phase is not completed until test items and a training program description have been written.

4.9 Follow-Up Activities.

4.9.1   Review With the Coordinator.

Give the information at the right to the Coordinator to serve as auditable documentation showing how the training program was designed and how tasks were assigned to training.

Explain that the design phase continues after the process by writing a training program description, task-to-training matrix, lesson and curriculum specifications, a development plan, and test items. Each facility may have its own documents that serve these purposes.

4.9.2   <u>Complete any Design Steps</u>. Occasionally, all eight steps are not completed during the time allotted. The coordinator should make sure that these steps are completed prior to starting development efforts.

Give to Coordinator:

1. The participant roster.
2. All evaluation forms (from participants, observers, and facilitators).
3. The stack of duty areas, task statement pages, and the flipcharts containing the content determined for each task.
4. The flipchart pages containing the training program flowpath.
5. A disk containing all appendices (the training program content, the draft task-to-training matrix, and learning objectives).

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**ADDENDUM A
COORDINATOR CHECKLIST AND PLANNING SHEET**

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TABLE-TOP TRAINING DESIGN PLANNING SHEET

BACKGROUND INFORMATION

1. For which job position/program will the training program content be determined during the 3½-day process?	2. How many job incumbents are currently employed in this job position/program?

3. What process(es) was used to develop the valid task list for this job position? (Circle all that apply)

Table-Top   Survey/Questionnaire   Observation   Procedural Review   Other (please explain)

4. With whom must you seek approval to organize and conduct the design process?

	Name(s)	Phone	Date Approved
Your management			
Training management			
Line management who must release expert workers			
Safety organization management			
Other			

AVAILABLE JOB INFORMATION

5. Send the existing valid list of tasks selected for training for this job position	Date Sent to Facilitator:
6. Send a list of the DOE Orders or other regulatory requirements for developing training for this job position	Date Sent to Facilitator:
7. Send a representative sample of procedures and other documents that describe the tasks performed in the job position	Date Sent to Facilitator:

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TABLE-TOP TRAINING DESIGN PLANNING SHEET				
TTTD DATA				
Dates of TTTD:		Meeting Room:		
Names of Attendees	Phone	Date of Initial Contact	Date Sent Confirmation Letter	Date Sent Thank-You Letter
Facilitator:				
Facilitator:				
SME:				
SME:				
SME:				
SME:				
SME:				
Supervisor:				
Safety Analyst:				
Trainer:				
Trainer:				
Trainer:				
Trainer:				
Trainer:				
Procedure Writer:				
Procedure Writer:				
Observer:				
Observer:				
Observer:				
Other Notes:				

A-4

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COORDINATOR CHECKLIST

	60-90 Days Prior to Seminar	
Compl. Date	**Step to Perform**	**Notes/Comments**
	1. Make sure you understand intent of TTTD	
	2. Secure management approval	
	3. Select team members according to required qualifications	
	4. Establish dates for the 3½-day process and follow-on effort	
	5. Select facilitators (unless facilitators are from TCAP)	
	6. Gather information for review by facilitator - completed planning sheet - title of job position - brief job description (job posting) - valid list of tasks selected for training - description of training and evaluations taking place in existing training program for this position - procedures representative of the tasks involved in the job - a list of regulatory documents (Orders, guides, etc.) that relate to the job	

Other Notes:

A-5

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COORDINATOR CHECKLIST

<table>
<tr><td colspan="3" align="center">30-60 Days Prior to TTTD</td></tr>
<tr><td>Compl. Date</td><td align="center">Step to Perform</td><td>Notes/Comments</td></tr>
<tr><td></td><td>1.   Contact all prospective team members and observers by phone (or, if possible, in person) to explain the purpose of the process, their role, the dates, and attendance requirements</td><td></td></tr>
<tr><td></td><td>2.   Select and schedule a meeting room in accordance with room requirements</td><td></td></tr>
</table>

<table>
<tr><td colspan="3" align="center">20-30 Days Prior to TTTD</td></tr>
<tr><td>Compl. Date</td><td align="center">Step to Perform</td><td>Notes/Comments</td></tr>
<tr><td></td><td>1.   Send information for review by facilitator (refer to Step 6, 60-90 Days Prior, for a list of information to send).</td><td></td></tr>
<tr><td></td><td>2.   Confirm arrangements with all participants by letter, including meeting time and location. Send copies of these letters to the appropriate supervisors or managers.</td><td></td></tr>
</table>

Other Notes:

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COORDINATOR CHECKLIST

<table>
<tr><td colspan="3" align="center">5-10 Days Prior to TTTD</td></tr>
<tr><td>Compl. Date</td><td align="center">Step to Perform</td><td>Notes/Comments</td></tr>
<tr><td></td><td>1.   Call each participant to confirm their involvement and answer remaining questions</td><td></td></tr>
<tr><td></td><td>2.   Gather supplies</td><td></td></tr>
<tr><td></td><td>3.   Confirm details with facilitator
-   how early room will be open
-   how to get to meeting room
-   security requirements</td><td></td></tr>
</table>

<table>
<tr><td colspan="3" align="center">Day Before TTTD</td></tr>
<tr><td>Compl. Date</td><td align="center">Step to Perform</td><td>Notes/Comments</td></tr>
<tr><td></td><td>1.   Make a final check of the room, supplies, equipment, refreshments, and all other arrangements. Put in the meeting room all procedure manuals, 3-5 copies of the valid list of tasks selected for training and other documents related to the job, such as PRA results, Technical Safety Requirements, Safety Analysis Reports, manufacturer's documents, etc.</td><td></td></tr>
</table>

Other Notes:

A-7

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COORDINATOR CHECKLIST

	Day of TTTD	
Compl. Date	**Step to Perform**	**Notes/Comments**
	1. Attend entire process	

	After Seminar	
Compl. Date	**Step to Perform**	**Notes/Comments**
	1. Obtain documentation from facilitator	
	2. Complete any training design steps not finished during process	
	3. Send thank-you letters to all participants, including facilitators	

Other Notes:
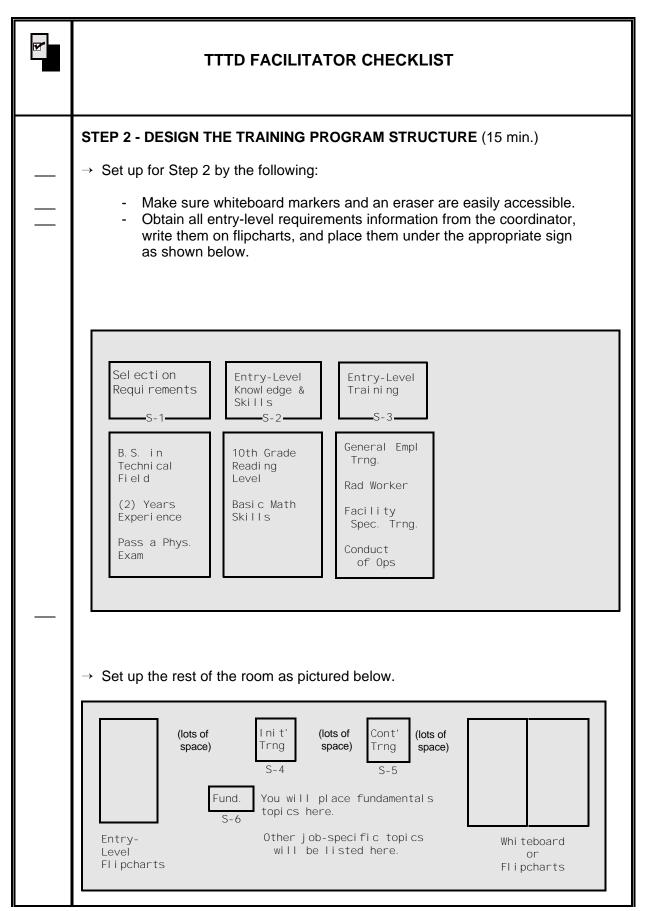
ADDENDUM B
TTTD FACILITATOR CHECKLIST

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☑	# TTTD FACILITATOR CHECKLIST

STEP 1 - ORIENT THE TEAM (4 hr)

___ → Set up the room by the following:

___ - Post a sign on outside of the door.
___ - Determine how you will use the walls of the room.
___ - Write and post 8½X11 train and overtrain task statements.
___ - Arrange the tables, chairs, overhead projector, etc.
___ - Place material on the tables for each participant.
___ - Ensure that several copies of needed documentation are in the room.
___ - Set-up a snack table with pitcher of water and glasses (if possible).
- Ensure that all training equipment works (e.g., VCR, overhead proj., etc.).
___ - Write the facilitator and coordinator names and phone numbers on flipchart paper.
___ - Explain to the facility trainer(s) how to follow along.
___ - Prepare the overheads and set up flipcharts.
- Ask facility manager about the parking policy, smoking policy, location of restrooms, and availability of phones.
___ - Ensure that enough copies of distributed handouts for the lessons are available.
- Make supervisor aware of how he/she can unknowingly influence the participants during the seminar.

♪ Remember to exude enthusiasm for how well the TTTD process works, and seek to create a relaxed, risk-free, congenial environment for all participants.

___ → Teach the lessons using Addenda C-E.

___ → Have observers move to the back of the room.

___ → Remind the person who will be developing the training to take notes during training-related discussions.

☑ TTTD FACILITATOR CHECKLIST

STEP 2 - DESIGN THE TRAINING PROGRAM STRUCTURE (15 min.)

→ Set up for Step 2 by the following:

- Make sure whiteboard markers and an eraser are easily accessible.
- Obtain all entry-level requirements information from the coordinator, write them on flipcharts, and place them under the appropriate sign as shown below.

→ Set up the rest of the room as pictured below.

☑	**TTTD FACILITATOR CHECKLIST**
| | **STEP 2 - DESIGN THE TRAINING PROGRAM STRUCTURE** (Contd')<br><br>→ Summarize the process of Step 2 and the end product(s) desired.<br><br>→ Quickly review the entry-level requirements and state that these requirements should be kept in mind as the program is designed.<br><br>? ASK: What types of areas fall under initial training? **(fundamentals, job-specific training)**.<br><br>? ASK: What are some examples of fundamentals topics from the overview lesson? **(chemistry, physics, nuclear theory)**<br><br>→ Use nominal group technique to have team identify fundamentals and other topics that should be included under their initial training.<br><br>♪ Have each team member silently generate a list of possible topics.<br><br>→ During a round robin, write their suggestions of fundamentals courses first, then proceed by identifying other needed courses.<br><br>→ As you obtain group consensus, write each fundamentals topic on an 8½X11 sheet and place it on the wall.<br><br>```
         Initial
         Trng

Fund.   Chem.  Physics  Electricity  Nuclear
S-6                                  Theory
```<br><br>→ Create a "core" or "job-specific" page and place it under the fundamentals topics.<br><br>? ASK: What job-specific topics will you need?<br><br>♪ Encourage the team to look at the task statements in order to stimulate their thoughts for possible topic areas. |

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☑	**TTTD FACILITATOR CHECKLIST**

STEP 2 - DESIGN THE TRAINING PROGRAM STRUCTURE (Cont'd)

→ As the team names possible topics, write the name on an 8½X11 page and place it under the initial training poster.

  ♪ When you are finished determining topic areas, your wall should look similar to the example below.

```
                          ┌──────────┐
                          │ Initial  │
                          │ Trng     │
                          └──────────┘

┌──────────┐   ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐
│ Fund.    │   │ Chem.    │ │ Physics  │ │Electricity│ │ Nuclear  │
│          │   │          │ │          │ │          │ │ Theory   │
└──────────┘   └──────────┘ └──────────┘ └──────────┘ └──────────┘

┌──────────┐   ┌───────┐ ┌───────┐ ┌───────┐ ┌───────┐ ┌───────┐
│ Core     │   │ Topic │ │ Topic │ │ Topic │ │ Topic │ │ Topic │
│          │   │ ???   │ │ ???   │ │ ???   │ │ ???   │ │ ???   │
└──────────┘   └───────┘ └───────┘ └───────┘ └───────┘ └───────┘

┌──────────┐   ┌───────┐ ┌───────┐ ┌───────┐ ┌───────┐ ┌───────┐
│ Job-     │   │ Topic │ │ Topic │ │ Topic │ │ Topic │ │ Topic │
│ Specific │   │ ???   │ │ ???   │ │ ???   │ │ ???   │ │ ???   │
└──────────┘   └───────┘ └───────┘ └───────┘ └───────┘ └───────┘
```

→ Facilitate a discussion concerning the order in which the job incumbents will proceed through the initial training program (if applicable).

→ As the team directs, construct a flow-chart on the whiteboard or flipchart showing the path a job incumbent would follow.

  ♪ If possible, include possible training settings. This probably cannot be decided until content has been determined.

☑	**TTTD FACILITATOR CHECKLIST**

	STEP 2 - DESIGN THE TRAINING PROGRAM STRUCTURE (Cont'd)
	
	? ASK: What types of topics would fall under continuing training? **(drills, regulatory training, re-qual training, pre-training, etc...)**
	
	? ASK: Are any drills needed in this training program?
	
	→ If so, write each drill and its frequency on 8½X11 sheets and place them under the continuing training poster.
	
	→ Direct the team's attention to the task statements to identify vital tasks and ask the question below.
	
	? ASK: Could improper task performance cause a violation of a Technical Safety Requirement, breach containment, impact the operation of protective systems, cause an unplanned or uncontrolled nuclear criticality, or result in a release of hazardous substance to the environment?
	
	→ If the team identifies vital tasks, mark the tasks as "vital" on the task listing and write a "V" on the task statement page of each vital task.
	
	→ Have the team identify all <u>regulatory training</u> required more often than every 2 years.
	
	  ♪ Use document review (qual cards, etc.) and brainstorming techniques as appropriate.
	
	→ Write each regulatory training session on a separate 3x5 Post-it note and place them under the continuing training poster.
	
	→ Have the team identify any <u>requalification training</u> required in the training program structure.
	
	  ♪ Refer the team to the overtrain tasks.
	
	  ♪ Use document review (DOE 5480.20A, facility TIM, etc.) and brainstorming techniques as appropriate.
	
	→ Write each requalification training session on a separate 3x5 Post-it note and place them under the continuing training poster.

☑	**TTTD FACILITATOR CHECKLIST**
— — —	**STEP 2 - DESIGN THE TRAINING PROGRAM STRUCTURE** (Cont'd) ? ASK: What types of topics fall under <u>as-needed training</u>? **(pre-train topics, or training that occurs very infrequently; training on changes in procedures, equipment, etc.)** → Have the team identify any <u>as-needed training</u> required in the training program structure. → Write each as-needed training session on a separate 3x5 Post-it note and place them under the continuing training poster. ♪ When you are finished determining topic areas, your wall should look similar to the example below.

Continuing Training

Annual Trng	HazCom Trng	Drill: Emergency Response	Safety Trng	MSDS Trng
Biennial Trng	Rad Control Practices	Topics in 5480.20	Systems Trng	Etc...
As-Needed Trng	Plant Modifica-tions	Procedure Changes	Lessons Learned	New Equip. Trng

→ Facilitate a discussion concerning the order in which the job incumbents will proceed through the initial training program (if applicable).

→ As the team directs you, construct a flow-chart on the whiteboard or flipchart showing the path a job incumbent would follow.

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☑	**TTTD FACILITATOR CHECKLIST**

STEP 3 - PLACE THE TASKS ON THE TRAINING PROGRAM STRUCTURE (1 hr.)

→ Set up for Step 3 by the following:

- Leave all of the signs and Post-it notes from Step 2 on the wall.
- Re-draw the initial training structure on the whiteboard onto a flipchart.
- Re-draw the continuing training structure on a separate flipchart page.
- Erase the whiteboard.
- Arrange the initial and continuing training flipcharts on the wall as shown below.

→ Summarize the process of Step 3 and the end product(s) desired.

? ASK: What should be the criteria that determine where we place a task in the training program structure? **(Where would the task best be taught?)**

→ Show the class an 8½X11 task statement and ask them where the task should be placed in the training program structure.

♪ Remember, sometimes an entire duty area with its task statements may fit under a topic. Seek to combine common tasks under one topic when possible.

→ Use consensus decision-making as appropriate if there are differing opinions about where to place a task until all tasks are placed.

☑	**TTTD FACILITATOR CHECKLIST**

STEP 3 - PLACE THE TASKS ON THE TRAINING PROGRAM STRUCTURE (Cont'd)

→ Draw attention to any large groupings of tasks.

? ASK: Should any of these groups of tasks be subdivided into smaller groups?

♪ You would want to subdivide the groups only if it would separate the group into more digestible chunks of information.

→ Sub-divide the tasks as directed by the team.

→ If new topics are created during this step, write them down on an 8½X11 page and place them on the wall under the appropriate area.

→ Direct the attention of the team once again to the flow-charts for initial and continuing training structures.

→ Lead a discussion concerning whether and/or how the training flow-path should be changed based upon the decisions made during Step 3.

→ Redraw the training program structure based on the changes made during Step 3.

STEP 4 - PRIORITIZE COURSES FOR DEVELOPMENT EFFORTS (8 hr.)

→ Set up for Step 4 by the following:

- Leave all signs and Post-it notes from Step 3 on the wall.
- Revise initial training structure to reflect the changes from Step 3.
- Revise continuing training structure to reflect changes from Step 3.
- Place revised flipcharts back on wall before beginning this step.

→ Summarize the process of Step 4 and the end product(s) desired.

? ASK: Of all these courses, which need development work most urgently?

♪ Be sure management is present to contribute to the discussion.

→ Isolate to a different portion of the wall the courses that will be focused on.

☑	**TTTD FACILITATOR CHECKLIST**
	STEP 5 - DETERMINE COURSE CONTENT (2 hr)

    → Set up for Step 5 by the following:

        - Determine the best analysis approach(s) for determining the content of the training program.
        - Set up a flipchart stand with a pad of paper at the front of the room.
        - Have at least 2 or 3 different colored felt-tipped markers at hand.

    → Summarize the process of Step 5 and the end product(s) desired.

    ? ASK: Why is determining at which level you will write content important?

    → Determine the level at which you will write the content.

    → Begin with the highest prioritized task determined by the group in Step 4.

    → ASK: What prerequisites (usually fundamentals topics) should a person have before attending training for these tasks?

    → List the prerequisites on the flipchart in one color and the content in another color.

    → ASK: What content should we include in the training program for this task or tasks?

    → Determine the content using the analysis method(s) you determined would be most effective.

    → Have the team evaluate the content (regarding level, etc.).

    → As the team reaches consensus, write the content on the flipchart page.

    → Hang the flipchart on the wall for further reference. Explain to the team that additional content can be added at any time should they remember any.

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 TTTD FACILITATOR CHECKLIST

STEP 6 - IDENTIFY ADDITIONAL CONTENT (1 hr)

→ Set up for Step 6 by the following:

- Set up a flipchart stand with a pad of paper at the front of the room.
- Have at least 2 or 3 different colored felt-tipped markers in-hand.
- Ensure that various sources of information are available including:

  • Regulatory requirements (DOE, OSHA, EPA, etc.)
  • The facility's Safety Analysis Report
  • ORPS reports
  • Documents describing recent facility events

→ Summarize the process of Step 6 and the end product(s) desired.

→ Use Nominal Group Technique to have the team identify additional content within the above documents.

♪ Use document review and brainstorming techniques as appropriate.
♪ Have each team member silently generate a list of content.

→ During round robin, write their suggestions of content on a flipchart.

→ Have the team evaluate the content (regarding level, etc.).

→ As the team reaches consensus, write the content on the flipchart page and place it in accordance with the following criteria:

- If the content is already being taught somewhere in the existing training structure because it is mandatory, place it on the training program structure (flipchart page drawings created during Step 2 of this process).

- If the content is not being taught currently, place it on the most applicable content analysis flipchart page (with previously-identified content); when necessary, establish it as a separate lesson or course.

☑	**TTTD FACILITATOR CHECKLIST**

STEP 7 - IDENTIFY POTENTIAL EXISTING TRAINING (6 hr)

→ Set up for Step 7 by the following:

- Set up a flipchart stand with a pad of paper at the front of the room.
- Have at least 2 or 3 different colored felt-tipped markers in-hand.

→ Summarize the process of Step 7 and the end product(s) desired.

? ASK: What are two types of sources where existing materials can be found?

? ASK: What are several places a training program might look for other materials?

→ Use nominal group technique to identify potential sources where existing training sources might be found and used. Begin with potential *internal* sources, then *external*.

♪ Have each team member silently generate a list of possibilities

→ During round robin, write their suggestions of content on a flipchart.

→ Direct the person who will be developing the training to write down the potential sources so they may be analyzed later.

STEP 8 - WRITE THE OBJECTIVES (1/2 hr)

→ Set up for Step 8 by the following:

- Set up a flipchart stand with a pad of paper at the front of room.
- Have at least 3 different colored felt-tipped markers in-hand.

→ Teach the "Writing Learning Objectives" Lesson (Addendum F).

→ When the lesson is finished, determine whether you will write the objectives as a team, or split up the objectives and write them as smaller teams.

♪ If you divide into teams, match task content with appropriate group of SMEs that have expertise about that content.

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☑	**TTTD FACILITATOR CHECKLIST**

STEP 8 - WRITE THE OBJECTIVES (Contd')

→ Place a flipchart in front of the team.

→ Choose a content area to write objectives for.

→ Determine the terminal objectives.

 ♪ Direct team to use "Action Verb Lists" and other materials that are useful.

→ Determine the enabling objectives for each terminal objective.

→ Determine the best order in which the enabling objectives should be taught.

→ Direct the trainer who will lead the development efforts to write down the finalized form of the objectives.

→ Make copies of the finalized form of the objectives to give to the appropriate trainers and supervisor(s) of the facility.

SEMINAR SUMMARY

→ Sincerely thank team members and observers for their cooperation and persistence.

→ Remind participants from the "Overview" that the design phase is not finished, but that test items, lesson specifications, and a program description must still be written.

→ Re-emphasize the importance of the team's contributions to the facility's training efforts.

→ Explain that everyone will receive a certificate for their efforts.

→ Collect seminar evaluation forms from observers and participants

→ Complete your evaluation form.

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ADDENDUM C

INTRODUCTION LESSON PLAN

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Table-Top Training Design

INSTRUCTOR PREPARATION PAGE

Introduction

COURSE TITLE: Table-Top Training Design (5480.20A Training Series)

LESSON TITLE: Introduction

TIME REQUIRED: <u>30</u> min. (If the group participated in TTJA together, this lesson should take 30 minutes or less. An extra 10 minutes may be required if the team is meeting to participate in the process for the first time.)

REFERENCES: Table-Top Job Analysis Seminar of the DOE 5480.20A Training Seminar Series, DOE Training Coordination and Assistance Program, DOE/ID-10435, June 1993.

OBJECTIVE: **Seminar Purpose**: To train facility personnel how to DESIGN training program content in a cost-effective manner in accordance with DOE Orders 5480.18B and/or 5480.20A. An end product of the training process is a usable training program design complete with learning objectives.

Seminar Terminal Objective: Given a validated task list and using a table-top approach, the design team will DETERMINE curriculum content and WRITE learning objectives for the training program.

INSTRUCTIONAL AIDS:

Introduction-P-1,	Seminar Objective
Introduction-P-2,	TTTD Steps (Written on Flipchart)
Introduction-O-1,	Seminar Agenda
Introduction-O-2,	Role of Team Members
Introduction-O-3,	Role of Facilitator
Introduction-O-4,	Role of Observers
Introduction-O-5,	Expectations
Introduction-H-1,	Seminar Roster
Introduction-H-2,	Evaluation Forms/Participant
Introduction-H-3,	Evaluation Forms Facilitator/Coordinator
Introduction-S-1,	"Table-Top Training Design"

Table-Top Training Design

INSTRUCTOR PREPARATION PAGE

Introduction

Overhead projector and screen, two flipchart stands with 3 flipchart pads available, flipchart markers, computer and TTTD Workshop-D-1, 4 x 6 Post-it note pads, felt-tipped markers, and 2 reams of 8½X11 white paper.

PARTICIPANT PREPARATION: None.

PRESENTATION METHOD: Lecture, introductions.

EVALUATION METHOD: None.

NOTES TO INSTRUCTOR:

TO PREPARE FOR THE ENTIRE PROCESS:

1. Discuss with co-facilitator which steps each facilitator will lead in the TTTD process.
2. If possible, bring copies of other task analyses for similar job positions to this process.
3. Review ORPS and print recent (within the past year) occurrences that are relevant to the job position being analyzed.

TO SET UP ROOM FOR ENTIRE PROCESS:

1. Arrive at the classroom 1 hour early.

2. Set up the room by according to the following:

   a. If the tasks are still posted on individual sheets on the wall (as a result of the TTJA Seminar as shown on the next page), no further preparation is necessary.

   b. If this process is being conducted separately from the Table-Top Job Analysis Seminar and you have only a printout of the task list indicating

Table-Top Training Design

INSTRUCTOR PREPARATION PAGE

Introduction

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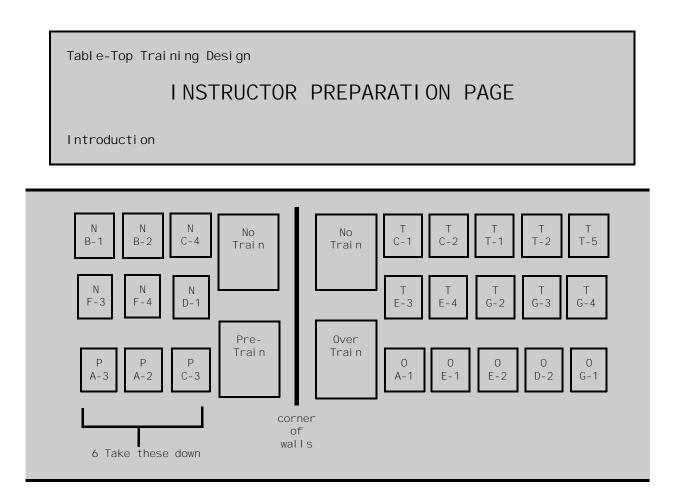
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                                      corner
                                        of
   6 Take these down                   walls
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the selection of "no train," "train," and "overtrain" tasks, write each duty area and "train" and "overtrain" (NOT "no train" or "pre-train" tasks) on an individual sheet of 8½x11 paper and post each sheet on the wall. (Have these prepared in advance to save time.) You may want to write the duty area on yellow (or another color) 8½X11 sheets to differentiate them from the tasks. Make sure the task statements are noted whether the task is a "train" task or an "overtrain" task. Also write a "V" on the "vital" task pages.

c.   Determine how the walls will be used (which wall will be best for hanging the task pages, which will be best for designing the training program structure, which wall will be best for grouping common knowledge and skills, etc.).

d.   Arrange the tables, chairs, and overhead location as appropriate for the selected wall use. The tables and chairs should be in a half-circle facing a direction in which participants can best see the task pages and training program structure walls. (You will probably need to re-arrange the tables later in the process so participants can see the other walls.) For this lesson observers will participate, but during the workshop

Table-Top Training Design

INSTRUCTOR PREPARATION PAGE

Introduction

portion of the process they should sit at separate tables and chairs in the back of the room.

FRONT   **REAR**

Front Wall - 30 Feet
--NO--
· **doors**
· **windows**
· **blackboards**
· **obstructions**

Refreshment Table

T T T D

Facilitator

W A L L

Team Section

Observer Section

Supplies

Rear Entrance (desirable)

e. Neatly place the following on the table for each participant:
   - name tents
   - pencil/pen
   - yellow highlighter
   - one (1½"x2") Post-it note pad
   - one (4"x6") Post-it note pad

f. Make sure several copies of all needed documentation are in the room:
   - the valid task list for the job being analyzed
   - DOE 5480.20A
   - the facility's Training Implementation Matrix
   - job-related procedures

Table-Top Training Design

INSTRUCTOR PREPARATION PAGE

Introduction

- existing qualification cards
- other regulatory requirements relevant to the job being analyzed
- the facility's Safety Analysis Report

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

3.   It is important to apply accelerated learning techniques. Team members need to be relaxed, alert, and energized to make the process a success. We cannot forget or underestimate the importance of climate setting. Therefore, please:

a.   On the first day, bring healthful snacks such as fresh fruits, vegetables, crackers, juice, etc. Participants may be asked to bring healthful refreshments on the following days.

b.   Play upbeat music during breaks. If the class does not find it distracting, play Baroque music during the thinking sessions.

4.   Post "TTTD" sign outside of classroom door.

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

6.   Write the names and phone numbers of the facilitator and coordinator on flipchart paper and leave displayed throughout the process.

TO PREPARE FOR THIS LESSON:

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

2.   Ensure that enough copies of distributed handouts for this lesson are available.

3.   Talk discreetly with the supervisor who will be participating in this process, explaining that sometimes by virtue of the supervisor's position, his/her opinions can sway those of the team and possibly subvert the decision-making process. The supervisor needs to be aware of this possibility so that

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Table-Top Training Design

INSTRUCTOR PREPARATION PAGE

Introduction

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he/she can contribute as necessary, but be conscious of the influence he/she has.

Throughout this lesson you must exude enthusiasm for how well the TTTD process works, while creating a relaxed, risk-free, congenial environment for all participants.

Table-Top Training Design

INSTRUCTOR PAGE

Introduction

Discussion Points   Instructor / Trainee Activity

Discussion Points	Instructor / Trainee Activity
I. WELCOME	PERFORM quick "introductions" if you are following up a TTJA process.
A. Coordinator Welcome	
1. Introduces facilitators	
B. Facilitator Welcome	
1. Welcome to the "Table-Top Training Design" Process	
2. Introduce self	INTRODUCE yourself and REFER to your name and number on the board or flipchart
a. Your name	
b. Where you work	
c. Your primary occupation	
d. Your experience in conducting analysis and design	
	ALLOW co-facilitator to introduce self
	(5 min into lesson)

C-9

Table-Top Training Design

INSTRUCTOR PAGE

Introduction

Discussion Points   Instructor / Trainee Activity

II. GENERAL INTRODUCTION

A. Motivator

    1. STATE that you have two questions for the participants:

        - How many of you wish you could spend more time in training?

                STATE: Most workers recognize benefits of training but want to spend as little time in it as possible.

        - How many of you have attended training in which you sat and said to yourself, "I've already learned this. Why am I here?"

                STATE: It's a waste of time attending courses that teach what we already know, isn't it?

    2. During this process, we are going to work as a team to address these two issues as we design your training program structure.

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Table-Top Training Design
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INSTRUCTOR PAGE

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Introduction
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Discussion Points   Instructor / Trainee Activity

3. We would all admit that we need to spend *some* time in training. Training based on the knowledge and skills involved in performing the job ensures that workers can safely, competently, and efficiently perform their jobs.

4. However, a well-analyzed and well-designed training program ensures that content will be taught in such a way that people spend as little time as possible in training while retaining most of what they learn.

STATE: During this process, we hope to determine exactly what you need to be trained in -- nothing more, nothing less.

5. It also teaches workers what they need to know and do to perform well, yet it does not waste their time on topics irrelevant to their jobs.

STATE: When we are finished, we will have determined exactly what you need to know to do the job and weed out what you don't.

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Table-Top Training Design

              INSTRUCTOR PAGE

Introduction
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Discussion Points   Instructor / Trainee Activity

	STATE: Addressing both of these issues translates into trainees spending as little time in training as possible while still providing them with quality training.
	HOLD up Workbook and have participants turn to page 2 of the Introduction.
	INFORM participants to follow along as we progress through each lesson.
	(10 min into lesson)
B. Purpose of Process	
1. Your management selected you to participate in this process because you are perceived as "role models" for excellent job performance.	REFER participants to Workbook page 3.
2. In this process you will use your expertise and experience to design and analyze the content that should be included in an efficient, effective training program based on your needs and a valid task list.	ASK: How many of you were involved in developing the valid task list?

Table-Top Training Design

INSTRUCTOR PAGE

Introduction

Discussion Points   Instructor / Trainee Activity

3. At the same time, we will be showing your
    training staff how to conduct future analysis
    and design processes so they can build
    effective training programs for other job
    positions.

C. Process Objective

"Given a validated task list and using a table-top   READ: TTTD
approach, the design team will DETERMINE   Introduction-P-1,
curriculum content and WRITE learning   Process Objective.
objectives for the training program."

D. Process Overview   SHOW: TTTD
                                                       Introduction-O-1,
                                                       Process Overview.

1. This process is divided into two segments: REFER participants to
    a training portion and a workshop portion.   Workbook page 4.

2. During the training portion, we will explain
    the terms and concepts involved in training
    design and give you a chance to practice
    applying that information prior to working on
    your job position. This training will help you
    perform well during the workshop portion of
    the process.

3. Then I will transition into the role of a
    facilitator, who guides you through the
    design process.

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INSTRUCTOR PAGE

Introduction

Discussion Points   Instructor / Trainee Activity

E. Participant Materials

Your workbook provides you with information
that will help you understand the terms and
concepts involved in training design.

1. The Lesson Section is labeled with the   REFER participants to
    name of the lesson. Use this section to   the Overview section.
    follow along during the lesson. Feel free to
    write ideas or take notes during the process.

2. The Handout Section is labeled as "H" tab.   REFER participants to
    It provides space for the handouts that you   the Overview-H tab.
    will be provided during the course of each
    lesson.

    Each handout has an individual number
    assigned. For example: TTTD Overview-H-
    1 indicates the name of the process, the title
    of the lesson, the handout section, and the
    number of the handout.

F. Roles

Transition: We will use a team approach this
week to analyze the tasks and design your
training program. Within the team, different
people have different roles.

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Table-Top Training Design
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INSTRUCTOR PAGE

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Introduction
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Discussion Points   Instructor / Trainee Activity

1. SMEs, Supervisors, Engineers

    a. The role of the SMEs, supervisors, and engineers is to use their technical expertise to analyze the content and provide input into the training program design.

    b. To do this, they will brainstorm their ideas and examine existing analysis data, procedures, and other reference materials to identify the knowledge and skills required for competent task performance.

2. Facility Training Staff

    a. The facility training staff who must develop the subsequent training materials for this job position will have an opportunity to facilitate during this process if they wish.

    b. They should also take notes of training-related discussions.

SHOW: TTTD Introduction-O-2, Role of Team Members (Technical and Training)

Table-Top Training Design

INSTRUCTOR PAGE

Introduction

Discussion Points   Instructor / Trainee Activity

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    c.   However, they will not provide technical input as we analyze the knowledge and skills required for competent task performance.

  3. As the facilitators, our role is to: SHOW: TTTD Introduction-O-3, Role of Facilitator.

    a.   Teach the lessons that give you the background information you need to succeed during this process.

    b.   Guide you through each analysis and design step.

    c.   Use our expertise in analysis and design to facilitate the process, but not provide technical input.

    d.   You are the technical experts...we are the process experts.

  4. Observing Trainers   SHOW: TTTD Introduction-O-4, Role of Observers.

Table-Top Training Design

INSTRUCTOR PAGE

Introduction

Discussion Points   Instructor / Trainee Activity

a. Training staff who want to learn how to conduct the training design processes built into this workshop will participate in the lessons, but when the actual workshop begins, they will move to the tables in the back of the room.

STATE: Observers are not required to facilitate, but they may do so if they wish.

b. They will mostly observe as we conduct the TTTD Workshop, but they may have an opportunity to practice facilitating some of the steps if they wish.

We should all support their efforts and provide constructive, non-threatening comments to help them become excellent facilitators so they can perform well when conducting future workshops.

c. However, observers should NOT attempt to influence the technical decisions of the group.

5. Observing Procedure Writers

a. The procedure writers may also participate in the lessons, but will move to the back of the room when the workshop begins.

Table-Top Training Design

INSTRUCTOR PAGE

Introduction

Discussion Points   Instructor / Trainee Activity

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   b.   They are here to capture your expertise
      of what knowledge and skills are
      required for task performance so they
      can write technically accurate and up-
      to-date procedures.

   c.   Again, as observers, the procedure
      writers should NOT attempt to influence
      the technical decisions of the group.

III. ICEBREAKER

NOTE: Proceed quickly if continuing TTJA process.

A. Please introduce yourself to the rest of the group. Your introduction should include:

REFER participants to Workbook page 6.

   -   your name

   -   where you work

   -   your primary occupation

HAVE team members and observers introduce themselves (1 min each x 10 people = 10 min)

B. Start the class in the introduction process by having the individual on the left begin.

(15 min into lesson)

Table-Top Training Design

INSTRUCTOR PAGE

Introduction

Discussion Points   Instructor / Trainee Activity

	REFER participants to Workbook page 7.
IV. HOUSEKEEPING	
A. Starting, ending, lunch time	
We will need all of the technical participants and observers here for ~＿ days, since there are ＿ tasks to analyze. If we get through all the tasks in less time, then we will end early. The training persons responsible for developing the training program will need to be here an additional day.	FILL in the blanks depending on the circumstances of this facility.
During those days,	
ASK: What is the best time to start each morning?	ESTABLISH times, but allow for full work days.
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?	
B. Breaks	
1. As a general rule, we will provide a 10-min. break every 50 minutes.	
2. This may vary, but you will not have to work more than 1-1/2 hours without a break.	

Table-Top Training Design

INSTRUCTOR PAGE

Introduction

Discussion Points   Instructor / Trainee Activity

Discussion Points	Instructor / Trainee Activity
C. Other	IF the process is being held away from participants' job site, EXPLAIN location and other information.
1. Refreshments	
a. coffee and vending machines	
b. everyone bring in healthful refreshments such as fruit, crackers, and juice	
2. Restrooms	
3. Parking policy	
4. No smoking policy	(25 min into lesson) SHOW: TTTD Introduction-O-5, Expectations.
V. EXPECTATIONS	
A. Attendance	
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 process (except observers).	
b. You must be on time for all sessions.	

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INSTRUCTOR PAGE

Introduction

Discussion Points	Instructor / Trainee Activity

Discussion Points	Instructor / Trainee Activity

2. Please sign the attendance roster *as you would like your name to appear on the certificate.*
 	
   a. We will keep a copy of this form for our records.
 	
   b. This form will also serve as your facility's auditable documentation of your participation in the design process.
	DISTRIBUTE: TTTD Introduction-H-1, Attendance Roster.

B. Evaluation Form	
1. Your input on the Evaluation Form will provide us with feedback on the effectiveness of this process.	DISTRIBUTE: TTTD Introduction-H-2, Process Evaluation Form to Team Members and Observers. DISTRIBUTE: TTTD Introduction-H-3, Process 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.	
4. You DO NOT have to put your name on the form.	

Table-Top Training Design

INSTRUCTOR PAGE

Introduction

Discussion Points   Instructor / Trainee Activity

C. Other

1. Please feel free to ask questions or make comments at any time during the process.

2. Our goal is to help you succeed in developing training program content that meets your needs, using the most cost-effective, efficient, and enjoyable methods possible.

ASK: Are there any questions about what you can expect during the process, what is expected of you, or the purpose of the process?

(30 min into lesson)

COLLECT Attendance Roster.

POSTERS, OVERHEADS, AND HANDOUTS

Table-Top Training Design

| Seminar Objective |

Given a validated task list and using a table-top approach, the design team will DETERMINE curriculum content and WRITE learning objectives for the training program

TTTD INTRODUCTION-P-1

| Seminar Steps |

1. **Orient the team**
2. **Design the trianing program structure**
3. **Place the tasks**
4. **Prioritize courses for development efforts**
5. **Determine training program content**
6. **Identify additional content**
7. **Identify applicable existing training**
8. **Write the objectives**

TTTD INTRODUCTION-P-2

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POSTERS, OVERHEADS, AND HANDOUTS

Table-Top Training Design Seminar

TTTD INTRODUCTION-S-1

POSTERS, OVERHEADS, AND HANDOUTS

Seminar Overview

Agenda

Day 1

Introduction	8:00-8:40
Overview	8:50-10:50
Team Skills	11:00-11:30
Lunch	11:30-12:30
Workshop	12:30-5:00

Days 2&3

Workshop	8:00-12:00
Lunch	12:00-1:00
Workshop	1:00-5:00

Day 4 (if needed)

Workshop	8:00-12:00

TTTD Introduction-O-1
Rev. 0 - 3/94

TTTD INTRODUCTION-O-1

POSTERS, OVERHEADS, AND HANDOUTS

Subject Matter Experts (SMEs), Supervisors, and Engineers

- Use their technical expertise to design training for the job
- Examine existing task lists, procedures, and other reference materials to help determine content
  for the training program

TTTD INTRODUCTION-O-2

Facilitator

- **Teaches lessons that orient team members to TTTD**
- **Guides team through each TTTD step**
- **Uses process expertise**
- **Does not provide technical input about training content or design**

Training Flowpath

TTTD INTRODUCTION-O-3

POSTERS, OVERHEADS, AND HANDOUTS

Observers

- **Participate in lessons**
- **Observe during TTTD Workshop**
- **Help facilitate TTTD steps**
- **Take notes during training-related discussions**

TTTD INTRODUCTION-O-4

Expectations

Attendance

Evaluation Form

Questions

TTTD INTRODUCTION-O-5

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TTTD INTRODUCTION-H-1

TABLE-TOP
TRAINING DESIGN SEMINAR

ATTENDANCE ROSTER

DATE: _____

FACILITY: _____

TRAINING DESIGNED FOR WHAT JOB?: _____

Check one:

☐ **Coordinator**
_____
Print Name   **Job Title**

☐ **Facilitator**

☐ **SME**
_____
Company   **Work Phone**

☐ **Management Rep.**

☐ **Engineering Rep.**
_____
Work Mailing Address, P.O. Box,   **Mail Stop**

☐ **Observer**

_____
City,   **State,**   **Zip Code**

Check one:

☐ **Coordinator**
_____
Print Name   **Job Title**

☐ **Facilitator**

☐ **SME**
_____
Company   **Work Phone**

☐ **Management Rep.**

☐ **Engineering Rep.**
_____
Work Mailing Address, P.O. Box,   **Mail Stop**

☐ **Observer**

_____
City,   **State,**   **Zip Code**

TTTD INTRODUCTION-H-1

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Check one:

☐ **Coordinator**

Print Name   **Job Title**

☐ **Facilitator**

☐ **SME**   **Company**   **Work Phone**

☐ **Management Rep.**

☐ **Engineering Rep.**   **Work Mailing Address, P.O. Box,**   **Mail Stop**

☐ **Observer**

City,   **State,**   **Zip Code**

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Check one:

☐ **Coordinator**

Print Name   **Job Title**

☐ **Facilitator**

☐ **SME**   **Company**   **Work Phone**

☐ **Management Rep.**

☐ **Engineering Rep.**   **Work Mailing Address, P.O. Box,**   **Mail Stop**

☐ **Observer**

City,   **State,**   **Zip Code**

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Check one:

☐ **Coordinator**

Print Name   **Job Title**

☐ **Facilitator**

☐ **SME**   **Company**   **Work Phone**

☐ **Management Rep.**

☐ **Engineering Rep.**   **Work Mailing Address, P.O. Box,**   **Mail Stop**

☐ **Observer**

City,   **State,**   **Zip Code**

TTTD Seminar Evaluation Form

The purpose of this evaluation is to provide feedback for use in planning and conducting future seminars. Please complete the following by marking the most appropriate response -- Strongly Agree, Agree, Disagree, or Strongly Disagree.

SA	A	D	SD		
☐	☐	☐	☐	1.	Information the coordinator gave to you about the seminar prior to your arrival was sufficient.
☐	☐	☐	☐	2.	The seminar moved in a smooth, businesslike manner.
☐	☐	☐	☐	3.	The seminar facilitator carried out his/her role in a positive, knowledgeable manner.
☐	☐	☐	☐	4.	The seminar resulted in a usable end product.
☐	☐	☐	☐	5.	Sufficient time was allocated for completing the seminar activities.
☐	☐	☐	☐	6.	The seminar facilities were adequate.
☐	☐	☐	☐	7.	The "Introduction" lesson helped you understand the purpose of the seminar and your role in it.
☐	☐	☐	☐	8.	The "Overview of Table-Top Training Design" lesson provided the knowledge you needed to succeed in this seminar.
☐	☐	☐	☐	9.	The "Maximizing Team Effectiveness" lesson helped you participate effectively in this seminar.
☐	☐	☐	☐	10.	My participation in this seminar was a worthwhile endeavor.
☐	☐	☐	☐	11.	I would recommend participation in similar seminars to co-workers.

Comments: ....

....

....

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TTTD Seminar Evaluation Form

The purpose of this evaluation is to provide feedback for use in planning and conducting future seminars. Please complete the following by marking the most appropriate response -- Strongly Agree, Agree, Disagree, or Strongly Disagree.

SA	A	D	SD		**For Coordinator to Complete**
☐	☐	☐	☐	1.	**The "*Coordinator Guide*" helped me succeed in organizing this seminar.**
☐	☐	☐	☐	2.	**The set of TTTD materials will help my facility conduct future TTTD seminars in a consistent, repeatable, and efficient manner.**

For Facilitator to Complete

SA	A	D	SD		
☐	☐	☐	☐	1.	**The "*Facilitator Guide*" helped me succeed in preparing for, conducting, and following up this seminar.**
☐	☐	☐	☐	2.	**The lesson plans were well-written and easy to use.**

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ADDENDUM D

OVERVIEW LESSON PLAN

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DOE-HDBK-1086-95

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Table-Top Training Design

    INSTRUCTOR PREPARATION PAGE

Overview of Table-Top Training Design
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COURSE TITLE: Table-Top Training Design (5480.20A Training Series)

LESSON TITLE: Overview of Table-Top Training Design

TIME REQUIRED: <u>**1.75**</u> hours

REFERENCES: 1.   Table-Top Job Analysis Seminar of the DOE 5480.20A
                         Training Seminar Series, DOE Training Coordination
                         and Assistance Program, DOE/ID-10435, June 1993.
                   2.   DOE-STD-1074-95, "Alternative Systematic Approaches
                         to Training."
                   3.   DOE Order 5480.20A, "Personnel Selection,
                         Qualification, and Training Requirements for DOE
                         Nuclear Facilities."
                   4.   DOE Order 5480.18B, "Nuclear Facility Training
                         Accreditation Program."

OBJECTIVES: <u>**Terminal**</u>: Given a list of tasks selected for training, DESIGN
                   a training program structure and ANALYZE the tasks in
                   accordance with the stated criteria.

                   <u>**Enabling**</u>:

                   OVERVIEW.1 -   Describe how analysis and design
                                    products are used in each SAT phase.
                   OVERVIEW.2 -   State and briefly describe each step of
                                    Table-Top Training Design.
                   OVERVIEW.3 -   Explain the concepts of entry-level
                                    requirements, initial training, and
                                    continuing training, and cite examples of
                                    the content of each.
                   OVERVIEW.4 -   Describe the process for determining the
                                    content of the training program.

INSTRUCTIONAL
AIDS: Overview-P-1,   Terminal Objective
                   Overview-P-2,   Overview
                   Overview-O-1,   Enabling Objectives
                   Overview-O-2,   Methods

Table-Top Training Design

INSTRUCTOR PREPARATION PAGE

Overview of Table-Top Training Design

Overview-O-3,   Traditional Task Analysis
Overview-O-4,   Identify Additional Content

3 3"x5" Post-it note pads; stapler with staples; overhead projector and screen; transparency pens; 2 flipcharts with pads; 1 set flipchart markers; 1 set felt-tipped markers.

PARTICIPANT PREPARATION: None required.

PRESENTATION METHOD: Facilitation, group discussion, and exercises.

EVALUATION METHOD: Participation in class discussion, completion of exercises, participation during TTTD workshop.

NOTES TO INSTRUCTOR: Following an overview of SAT, this lesson introduces participants to the terms, processes, and products of this task analysis and design process. The intent is to provide them with enough information to function well during the TTTD workshop, during which they must design the training program structure and analyze the tasks selected for training.

The facilitator should prepare for this lesson by first obtaining examples of existing analyses from similar facilities, facility procedures or references, a job description, and other available information about the job that will be analyzed for the process. The facilitator should review these materials to develop examples that can be used throughout the lesson.

The team members and any observers who are learning the analysis and design processes should all participate as trainees during this lesson.

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Table-Top Training Design

INSTRUCTOR PREPARATION PAGE

Overview of Table-Top Training Design

POST TTTD Overview-P-1, Terminal Objective, on a wall other than the TTTD wall and leave displayed throughout the lesson.

POST TTTD Introduction-P-2, Overview, on the same wall as Overview-P-1 and leave displayed throughout the lesson.

The whiteboard must be clean and large enough for the training structure for initial training and continuing training to be drawn.

Make sure whiteboard markers and an eraser are easily accessible.

Have transparencies ready.

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Table-Top Training Design

INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

I. INTRODUCTION

A. Preliminaries

   1. Instructor's Name

   2. Participant Materials

   3. Participant Comfort

B. Motivator

   1. In this process we want to help you build the structure and content of a training program that you will be proud to call your own.

   2. The obvious "goals" for your training program might be:

     a. To teach job incumbents the knowledge and skills required for competent job performance.

     b. To design the most efficient training program possible.

     c. To build the most effective training program possible.

   3. However, the training program should also help resolve any human performance problems toward which you may have noticed a trend.

	Instructor / Trainee Activity
Instructor's Name	ENSURE name is visible
Participant Comfort	ELIMINATE distractions
The obvious "goals"	WRITE these goals on a flipchart in advance and REFER to them now

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Table-Top Training Design

INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

A human performance problem is the
difference between desired performance and
actual performance. Training can help resolve
those human performance problems that are a
result of true knowledge or skill deficiencies
(could the person do the task correctly if
his/her life depended on it).

a. Think about things that, <u>if the people in
this job position knew</u>, could help people
do their job even better, resulting in less:

- time spent doing a task

- re-work

- difficulty for other job incumbents to do
their jobs efficiently

- occurrences

- etc.

b. These could be <u>your</u> specific goals for the   HAVE participants
training program: BRAINSTORM these items
                                                         for a minute.
                                                         WRITE their responses on
                                                         a clean flipchart page.

Examples:

- Higher productivity

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Table-Top Training Design

INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

     -    Better quality product, process, or service

     -    Fewer mistakes

4.   In this process you will build your training program structure and content that will meet these goals. In essence, your contributions this week will help each person be a better, safer worker. That's a training program we hope you will be proud to call your own.

                                         WRITE on the "goals" flipchart page a few goal statements, as related to the ideas they just brainstormed.

5.   In this lesson we will give you an overview of the processes you will be accomplishing in this workshop, and some practice trying them prior to applying them to your own job position.

    This will help you successfully contribute ideas during this process and keep us from making some time-consuming mistakes that commonly occur.

C. Lesson Title and Terminal Objective   REFER to TTTD Overview-P-1, Terminal Objective.

D. Enabling Objectives   SHOW: TTTD Overview-O-1, Enabling Objectives.

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Table-Top Training Design

INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

	REFER participants to Workbook page 3.
E. Overview	REFER to TTTD Introduction-P-2, Seminar Steps.
	(10 min into lesson)
II. SYSTEMATIC APPROACH TO TRAINING	
A. Overview of SAT	ASK: What are the steps of SAT? (Write 5 phases on flipchart)
1. SAT consists of Analysis, Design, Development, Implementation, and Evaluation.	
a. This process (as the title implies) covers the Design phase of SAT.	
b. You will get the opportunity to design your own training program, and determine the content that will be taught and how it is taught.	
Transition: The success and effectiveness of the entire SAT training program hinges on the quality of the analysis data and the care with which you design your training program.	REFER to TTTD Overview-P-2, Overview.

Table-Top Training Design

INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

That is why you have been asked to participate in this process--to ensure that we build a training program structure meeting *your* needs and teaching accurate, complete information based on the valid task list.

III. TABLE-TOP TRAINING DESIGN

There are 8 steps in the TTTD process.

REFER participants to Workbook page 6.

A. STEP 1: **Orient the Team**

1. This is what we are doing right now.

2. The purpose of this step is to get everyone to speak the same language. We all should understand our roles and our contribution to this process.

B. STEP 2: **Design the Training Program Structure**

1. Purpose

In order to know how best to teach people the tasks identified in job analysis, you must understand what a complete training program looks like.

DOE-HDBK-1086-95

Table-Top Training Design

INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

We will use a flow chart method to help
stimulate your thoughts and help you design
the most efficient, effective training program
that teaches workers the knowledge and skills
required for competent job performance.

ASK: What do you think is
meant by an "efficient"
training program?

a. By efficient, we mean there is no
   unnecessary repetition of training content
   as a person progresses through the
   training program--people should not have
   to complete more hours of training than is
   necessary.

ASK: What do you think is
meant by an "effective"
training program?

b. By effective, we mean:

   1) Teaching people "need-to-know"
      information in the training settings that
      will best suit the learning that must
      occur.

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Table-Top Training Design

INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

2) As a trainee progresses through the
training program, building the trainees'
knowledge to higher cognitive levels,
as appropriate, so they can safely
perform their tasks even in unusual or
emergency situations.

SHOW various examples
of training structures
developed as a result of
this process.

3) Testing people using methods that will
best evaluate their safe, competent job
performance.

(25/15 min into lesson)
Spend little time on this
topic.

During this step we will begin building the
training "flowchart," which will serve as the
visual example and your "thinking board."

As we progress through the remaining steps in
this process, we will modify this flowchart
appropriately.

ASK: What do you think is
meant by the term "entry-
level requirements"?

Table-Top Training Design

INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

2. Entry-Level Requirements

    a. "Entry-level requirements" means the
        training or other requirements the job
        incumbent must possess or have
        completed prior to entering the job-specific
        training program (where the tasks selected
        for training during job analysis will be
        taught).

        The reason we think about entry-level   ASK: How can this
        requirements is to design the most efficient   contribute to the efficiency
        training program.   of the program?

        If we establish what the person has
        already been trained in, we can eliminate
        any duplicate training from the rest of the   CAUTION is required here
        program.   due to possible legal
                                                       problems.

    b. Selection requirements
        DOE 5480.20A specifies the selection
        requirements for operating organization
        positions. For positions not addressed by
        DOE 5480.20A, the selection requirements
        for these positions need to be identified.

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Table-Top Training Design

INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

Examples:

- Education (H.S. Diploma or GED)

- Experience (2 yrs operations experience, 1 of which is nuclear)

- Medical exam for color blindness, weight-lifting

STRESS We must be careful to avoid "making up" selection requirements. These have to be based on the valid needs of the job, since they will probably be used as hiring criteria.

ASK: For one possible selection requirement and write on FLIP CHART under heading of "Entry-level"

c. Entry-level knowledge and skills

There may also be some knowledge and skills that you would expect a new person being hired for the job position to already possess (and not need to be trained in).

Examples:

- 10th grade reading level
- Basic math skills (addition, subtraction, multiplication, division to the 4th decimal place)

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DOE-HDBK-1086-95

Table-Top Training Design

INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

Again, these entry-level knowledge and
skills must be job-related. Your personnel
department may already check for some of
them via selection testing.

| OBTAIN a possible example from the trainees and enter on the FLIPCHART under the Entry-level heading.

d. Entry-level training

Once hired, there will be some required
entry-level training that people must
successfully complete prior to entering the
job-specific training program.

Examples:

- General Employee Training

- Radiation Worker Training

- Site Core Fundamentals

- Facility Employee Training

WRITE on FLIPCHART in
the Entry-level area GET
and ASK if this is a safe
bet.

(30/20 min into lesson)

DOE-HDBK-1086-95

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Table-Top Training Design
```

INSTRUCTOR PAGE

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Overview of Table-Top Training Design
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Discussion Points   Instructor / Trainee Activity

3. Initial Training

    a. Initial training is the job-specific training
        that new job incumbents receive.

        Initial training will take place in various
        training settings, such as:

        -   Classroom

        -   On-the-Job Training (OJT)

        -   Self-study (in the form of
            instruction/reading booklets, kits that
            can be assembled/disassembled,
            computer-based training, etc.)

        -   Laboratory (not just chemical
            laboratories)

        By designing a training structure, we mean
        identifying the sequence of training
        sessions (including the settings) and
        testing through which incumbents will
        progress during initial training.

REFER participants to
Workbook page 7.

ASK: What do you think is
meant by "initial" training?

ASK: What training
settings do you have
available here?

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Table-Top Training Design

        INSTRUCTOR  PAGE

Overview of Table-Top Training Design
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Discussion Points   Instructor / Trainee Activity

Later, we will begin identifying the <u>content</u> for each training and testing session.

b. <u>Fundamentals training</u>   (35/25 min into lesson)

Usually there is a "Fundamental" (or core) of courses involved in initial training.

Examples:

- Chemistry

- Physics

- Electricity

- Systems overviews

1) These fundamentals are often taught as classroom or self-study. It would not benefit anybody if there were only one person going through fundamentals every year and if all training were classroom lessons.

2) The subjects taught in fundamentals can be derived from many sources.

WRITE an example of fundamentals training on the Flowpath flipchart

- Currently existing courses at your facility

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Discussion Points   Instructor / Trainee Activity

- DOE Standards and training
  documents

- GOCO Guidelines (i.e., Chem Tech
  Manuals)

- Brainstorming

c. Initial training models

After fundamentals there will be **other**
initial training in which new job incumbents
learn:

- the train tasks

- the overtrain tasks

- any team/communications training
  applicable to the job position

We can design the structure of initial
training in any way that makes sense for
the job.

Example Training Structure 1:   REFER participants to
                                                 Example 1 on Workbook
                                                 page 7.

Maybe there will be several "qualification
areas" that involve a combination of:

- classroom sessions and associated
  written tests, and

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Discussion Points   Instructor / Trainee Activity

- OJT sessions and associated performance tests followed by a comprehensive exam that "qualifies" the person to perform tasks in that qualification area.

Example Training Structure 2:

REFER participants to Example 2 on Workbook page 8.

Or perhaps there will be a series of "pre-OJT" training sessions in the classroom, laboratory, or self-study settings, followed by OJT and then in-plant performance tests.

After all initial training is complete, if the job position involves significant hazards, you may want to have overall "job-qualification" exams [written exam, operational evaluation, and/or oral exam (oral walkthrough or oral board)].

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Table-Top Training Design

INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

d. Remember that the training program is YOURS and should be designed to fit your needs.

ASK: What tasks could be taught together? (Pull **two** tasks off the wall and move them to the front of the room.) MAKE UP a name for this "OJT Course" and place on the Flowpath flipchart.

Take into account the tasks themselves. What tasks can or should be taught together (efficiency and effectiveness)?

e. You now have an example of a mini training program. Entry-level selection criteria, knowledge, and skills; fundamentals training; and OJT job-specific training to qualify you for your job. There is one piece missing though.

(45/35 min into lesson)

4. Continuing Training

ASK: What do you think is meant by "continuing" training?

a. Continuing training is meant to maintain and build on the knowledge and skills learned in initial training and from ongoing operating experience.

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Table-Top Training Design

INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

The continuing training program
encompasses a variety of types of training,
all conducted at different intervals. DOE
5480.20A requires applicable job
incumbents to complete all continuing
training in 2-year cycles.

  b. Annual training   REFER participants to
                                                     Workbook page 9.

     Some training may need to take place
     more frequently than every 2 years.

    1). Drills

        For example, you might want to have
        "drills" every 6 months or every year
        on abnormal procedures and
        emergency response. The need for
        drills would usually be based on the
        "vital" tasks. There may be no need
        for drills at all.

    2). Regulatory requirements

                                               (60/50 min into lesson)

        Other annual training would be the
        regulatory-required training such as
        OSHA training and safety training.

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Table-Top Training Design

            INSTRUCTOR PAGE

Overview of Table-Top Training Design
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Discussion Points   Instructor / Trainee Activity

c. Biennial training

As per DOE 5480.20A and the facility procedures, job incumbents have to "re-qualify" at least every two years by maintaining satisfactory job performance and completing continuing training.

The content of the biennial "re-qualification" training would usually be on overtrain tasks and other items required via regulatory requirements. Again, there may be an overall job-qualification exam every 2 years at the end of all continuing training.

d. As-needed training

The "as-needed" continuing training that would take place within the 2-year time-frame would be in:

1). Pre-train tasks, which would be taught in formal training sessions.

2). Information gathered through program evaluation activities would also be conveyed, such as:

- lessons learned

- plant modifications

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Table-Top Training Design

INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

- new/revised procedures, etc.

For most job positions, this information would typically be communicated to qualified job incumbents in a variety of ways:

- shift briefings

- required reading

- classroom/OJT/lab training, etc.

Depending on the hazards involved in the facility and job position, the shift briefings and required reading may need to be documented through testing.

3). This "as-needed" training block is not something we can plan at this point in this process.

MAJOR TRANSITION

Once we have established the training program structure, we are ready for Step 3 of the TTTD process.

(1 hr 5 min/55 min into lesson)

DOE-HDBK-1086-95

Table-Top Training Design

INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

C. Step 3: **Place The Tasks In The Training Program Structure**

    1. Purpose

       a. The purpose of this section is to assign each task to one of the major training blocks in the training program structure.

       b. There are a few factors that can influence where you might want to place a task.

       c. Ask yourself the following questions:

          - Where does it make the most sense to teach this task?

          - Under which topic will the information associated with completing this task be taught?

       d. Sometimes an entire duty area with all of its tasks will be placed under a particular topic. At other times the tasks under one duty area will be split up and placed under different topics.

Remove some possible common tasks from the wall and place under a topic and ASK: These tasks look like they could be taught together under this topic. Would these tasks be taught together and is this the best place for it?

D-25

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Table-Top Training Design

INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

     e.   Reconstruct the flow chart showing the revised path in which a job incumbent would proceed during the initial training and/or program. Be sure to include:

         -   the topics of training sessions

         -   the settings in which they take place

         -   any types of re-qualification testing (e.g., written, performance, etc.) associated with the training.

Transition: As you will notice, Steps 2 and 3 are often performed or at least thought about together. At this point you have designed the structure of your training program and decided where the tasks will be taught. We now go on to the next step in the process.

D. Step 4: **Prioritize Courses for Development Efforts**

    1.   This step gives you the opportunity to review the program structure and determine which courses should be developed first.

    2.   This is important information the developer needs in order to assign priorities.

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│  Table-Top Training Design                                  │
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│                  INSTRUCTOR PAGE                            │
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│  Overview of Table-Top Training Design                      │
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Discussion Points   Instructor / Trainee Activity

Discussion Points	Instructor / Trainee Activity
3. This is also an opportunity for a management viewpoint on where development efforts should concentrate.	ASK: What might be a management priority and is it also the workers' priority for development? (Identify their response on the Flipchart) (1 hr 10 min/60 min into lesson)
E. Step 5: **Determine Course Content** 1. This step determines what a new employee should be taught to enable them to become a safe, efficient worker. 2. There are several methods for determining the content of a topic area. These methods include document analysis, brain storming, NGT/CDM, and traditional task analysis.	
3. Combinations of the above methods may be necessary depending upon the situation. We encourage you to determine the most appropriate method.	SHOW: TTTD Overview-O-2, Methods.

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INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

4. If you are aware of or discover another method that would be beneficial to the situation, we encourage you to employ it. The goal is to use methods that will most efficiently and effectively accomplish the goal of analyzing the content of the chosen topic.

5. Traditional task analysis | SHOW: TTTD Overview-O-3, Traditional Task Analysis.

   a. This method is probably the most common method used, but it is also the most involved. | POINT OUT a Task removed from the wall earlier.

   b. Task analysis consists of:

     - Looking at each task individually, | IDENTIFY some elements that could be part of this task and FLIPCHART.

     - Breaking each task down into its basic elements, and | For an element, IDENTIFY some knowledge and skills and FLIPCHART.

     - Identifying the root knowledge and skills for each element of that task. | POINT OUT that this could be good information for creating a procedure or necessary for a high hazard task.

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INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

c. This method can be used where there is no procedures and one must be developed or when the hazards are extremely high.

ASK: Do you want to use this method?

d. The results are very detailed and usually are at the most basic level.

e. Very few tasks require this level of rigor to determine the content necessary for the training program.

6. Document analysis

a. This is an effective method if good procedures and documents already exist.

b. It consists of looking at the documents that are relevant to the training session and determining what the worker would need to be taught, in addition to using the procedure, in order to perform the tasks safely and efficiently.

Using the same task identified above, COMBINE the grouped tasks and walk through an example of document analysis and FLIPCHART the results.

c. Questions you can ask yourself are:

- What do you wish you had been taught prior to performing the task?

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Table-Top Training Design

INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

- What is missing from the procedure
  that is required to perform the task?

- What information in the procedure is
  not clear and requires training?

    ASK: Might you want to
    use this method?

7. Brainstorming and NGT/CDM

    a. These methods use a group, such as
       yourselves, to conduct content analysis.

    b. They can be used in conjunction with the
       above methods or alone.

    c. Which of these methods should be used
       depends on which can achieve the desired
       information more efficiently.

    d. Given the training course, brainstorm the
       content required for the course.

    e. The participants' expertise is vital to
       achieving the desired results.

8. Template Method

    a. This method can be used when the same
       content applies across several topic areas.

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Discussion Points   Instructor / Trainee Activity

b. For instance, an individual who works on several different systems or uses several different instruments will need to know the same information about each system or instrument.

c. Rather than take each and every system or instrument and analyze each one for its content, develop a template that applies to all of them.

d. All that needs to be filled in is the name of the system. The content applies no matter what system name is inserted in the blanks.

9. Once the content is identified, you should evaluate your work to determine whether the content identified is correct for an effective training program.

F. Step 6: **Identify Additional Content**

1. This step ensures that you have not forgotten any content mandated for inclusion in the program by various requirements.

STATE that other content could possibly be included in the training program due to recent industry events.

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INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

2. Information to consider include accidents or incidents that occurred, why they occurred, what could have been done to prevent them, lessons learned from industry, etc.

SHOW: TTTD Overview-O-4, Identify Additional Content.

Using the same tasks as above, ASK: What might be some regulatory required training for your job and these tasks? (FLIPCHART the result)

3. Using brainstorming or NGT/CDM, identify the regulatory requirements and, as possible, industry and facility events that impact the job position being analyzed.

(1hr 30min into lesson)

G. Step 7: **Identify Applicable Existing Training**

1. This step spends some time identifying possible sources of existing training material.

2. In this day and age of cost savings, we are not immune. If a course exists and is adequate, why reinvent the course?

3. If a course exists and is adequate with some modification, we would still save time and money.

4. Sources for existing materials include your own facility, any other DOE facility, Guides to Good Practices, and GOCO Manuals.

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Table-Top Training Design

            INSTRUCTOR PAGE

Overview of Table-Top Training Design
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Discussion Points   Instructor / Trainee Activity

H. Step 8: **Write the Learning Objectives**

NOTE: The lesson on writing learning objectives is taught later in this process if necessary. Do not spend any time here.

1. In this step you use the content for the training program to write learning objectives.

2. Depending on the circumstances of this process, a lesson will be taught on how to write learning objectives.

IV. SUMMARY AND REVIEW

A. By the end of this process you will have designed your training program, determined what will be taught in your courses, in what settings the material will be taught, and will have written learning objectives for the courses.

B. This is exactly what a developer needs to write test items/performance measures, develop OJT materials, and develop the remainder of the training program.

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Table-Top Training Design

INSTRUCTOR PAGE

Overview of Table-Top Training Design

Discussion Points   Instructor / Trainee Activity

C. Your job is not done, however. Because it is your
    program, you must be available to the developer to
    answer questions and to review and pilot the
    materials.   ASK: What are the end
                                                            products of Table-Top
                                                            Training Design?

D. Review Enabling Objectives

    1. Table-Top Training Design is one method
        used to design a training program.
                                                            ASK: What are some
                                                            methods for determining
                                                            content?

    2. There are several methods to determine the
        content of your training program.

E. Terminal Objective

                                                            REFER to TTTD
                                                            OVERVIEW-P-1, Terminal
                                                            Objective
                                                            (1 hr 45 min)

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POSTERS AND OVERHEADS

Overview of Training Design

Terminal Objective

Given a list of tasks selected for training, DESIGN a training program structure and ANALYZE some of the tasks in accordance with the stated criteria.

TTTD OVERVIEW-P-1

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POSTERS AND OVERHEADS

(**Enabling Objectives**)

- Describe how analysis and design products are used in each PBT phase

- State and briefly describe each step of the Table-Top Training Design Seminar

- Explain the concepts of entry level requirements, initial training, and continuining training, and cite examples of the content of each

- Describe the methods for determining the content of the training program

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TTTD OVERVIEW-O-1

Determine Course Content

Methods

- Traditional Task Analysis

- Document Analysis

- Brainstorming

- Nominal Group Technique - Consensus Decision Making

- Template Method

TTTD OVERVIEW-O-2

POSTERS AND OVERHEADS

Determine Course Content
Traditional Task Analysis

Task : Repair centrifugal pump

Element 1 : Perform pre-task activities

Element 2 : Remove interferences

Element 3 : Disassemble pump

Skill 1: Disassemble coupling

Skill 2: Remove impeller

Skill 3: Remove mechanical seal

Skill 4: Remove bearings

Knowledge 1: How to use hydraulic press

Knowledge 2: Safety requirements associated with hydraulic press

Skill 5: Inspect pump

TTTD OVERVIEW-O-3

Identify Additional Content

Regulatory Requirements

DOE Orders

ORPS

Safety Analysis Reports

Recent Facility Events

Facility Required Training

TTTD OVERVIEW-O-4

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ADDENDUM E

MAXIMIZING TEAM EFFECTIVENESS LESSON PLAN

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Table-Top Training Design
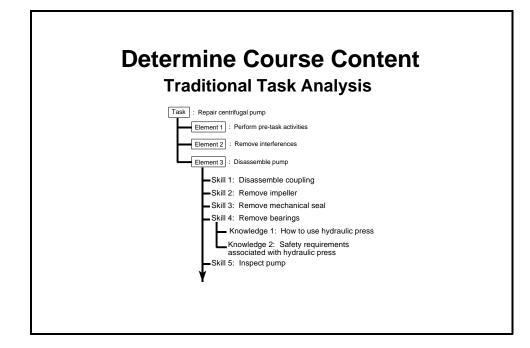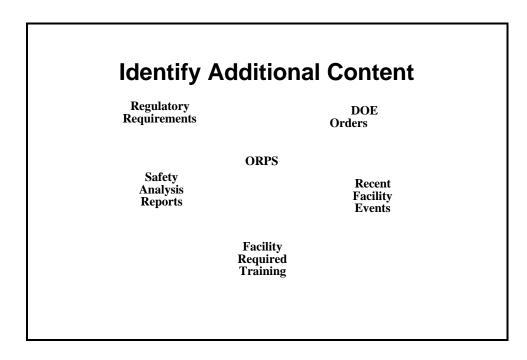
   INSTRUCTOR PREPARATION PAGE

Maximizing Team Effectiveness
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COURSE TITLE: Table-Top Training Design (5480.20A Training Seminar Series)

LESSON TITLE: Maximizing Team Effectiveness

TIME REQUIRED: **35** minutes

REFERENCES: 1.   Haynes, Marion E., <u>Effective Meeting Skills</u>, Crisp
                       Publications, Inc., Los Altos, California, 1988.
                  2.   Zenger-Miller, "Helping Your Team Reach Consensus,"
                       <u>Team Leadership</u>, 1992.
                  3.   DOE-HDBK-1076-94, Table-Top Job Analysis.
                  4.   Training Manager Competencies: The Standards,
                       "Nominal Group Technique."

OBJECTIVES: <u>**Terminal**</u>: Given the guidelines for effective Nominal Group
                  Technique and Consensus Decision-Making, team members
                  will APPLY the guidelines while contributing ideas during Table-
                  Top Training Design.

                  <u>**Enabling**</u>:

                  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: Team-P-1,   Terminal Objective
                    Team-P-2,   Overview (Written on flipchart paper)
                    Team-P-3,   Guidelines for Nominal Group Technique
                                     and Consensus Decision-Making
                    Team-O-1,   Enabling Objectives
                    Team-O-2,   NGT Definition

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Table-Top Training Design

INSTRUCTOR PREPARATION PAGE

Maximizing Team Effectiveness

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Team-O-3,	CDM Definition
Team-O-4,	Steps of NGT and CDM
Team-O-5,	Exercise Directions

Flipchart stand and paper, flipchart markers.

PARTICIPANT PREPARATION: None required.

PRESENTATION METHOD: Lecture, Nominal Group Technique exercise.

EVALUATION METHOD: Participation in TTTD Nominal Group Technique and consensus activities in accordance with the guidelines provided.

NOTES TO INSTRUCTOR: This lesson introduces participants to the terms and processes of Nominal Group Technique and Consensus Decision-Making. The intent is to provide them with enough information to function well while analyzing and designing training program content during which they must apply the guidelines as they develop a task list and select tasks for training.

The team members and any observers who are learning analysis and design methods should participate as trainees during this lesson.

Hang all posters on a wall other than the TTTD wall:

POST TTTD Team-P-1, Terminal Objective, and leave displayed throughout the lesson.

WRITE and POST TTTD Team-P-2, Overview, on a flipchart page and leave it displayed throughout the lesson.

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Table-Top Training Design

INSTRUCTOR PREPARATION PAGE

Maximizing Team Effectiveness

POST TTTD Team-P-3, Guidelines for Nominal Group Technique and Consensus Decision-Making (cover until needed), and leave displayed throughout the remainder of the process.

Have transparencies organized and ready.

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Table-Top Training Design

INSTRUCTOR PAGE

Maximizing Team Effectiveness

Discussion Points   Instructor / Trainee Activity

I. INTRODUCTION

A. Preliminaries

    1. Instructor's Name

    2. Participant Materials

    3. Participant Comfort

B. Motivator

    1. One of the assumptions of TTTD is that a team of SMEs can analyze training requirements better than a single individual or as well as a group of individuals surveyed separately.

    2. However, a group of competent SMEs will have its own problems:

       - Some people dominate

       - Ideas or other contributions are lost or dismissed

       - Some people never participate

Instructor / Trainee Activity:

ENSURE instructor's name is visible

REFER participants to "Team" section.

ELIMINATE distractions

ASK: What are some problems that may occur when a group of highly competent people meet to discuss/resolve a problem?

Table-Top Training Design

INSTRUCTOR PAGE

Maximizing Team Effectiveness

Discussion Points   Instructor / Trainee Activity

- Non-productive environment for any creative process

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

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

We need to reduce negative social interactions 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 the "nominal group technique."

It gets its name because it really isn't a group at all. It is several individuals making individual contributions, with very little social interaction.

5. The second process we will employ is decision making by consensus.

6. By applying both of these processes, your contributions during this process will lead to the development of a training program structure in the most efficient manner.

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INSTRUCTOR PAGE

Maximizing Team Effectiveness

Discussion Points   Instructor / Trainee Activity

Discussion Points	Instructor / Trainee Activity
C. Lesson Title and Terminal Objective	REFER to TTTD Team-P-1, Terminal Objective.
D. Enabling Objectives	SHOW: TTTD Team-O-1, Enabling Objectives.
E. Overview	REFER to TTTD 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	(05 min into lesson)
II. DEFINITIONS	
A. Nominal Group Technique	SHOW: TTTD Team-O-2, NGT Definition. REFER participants to Workbook page 4.
NGT is a structured group process resulting in the maximum contribution of experienced individuals to a common goal.	
B. Consensus Decision-Making	SHOW: TTTD Team-O-3, CDM Definition.

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Discussion Points   Instructor / Trainee Activity

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

A. The steps involved in nominal group technique and consensus decision-making include:

REFER participants to Workbook page 5.
SHOW: TTTD Team-O-4, The NGT and CDM Process.

<u>NGT</u>

1. Each person silently generates/ writes ideas

USE REVELATION technique to show each step.

2. All persons state ideas in a round robin

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

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INSTRUCTOR PAGE

Maximizing Team Effectiveness

Discussion Points   Instructor / Trainee Activity

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 person suggests something from his or her list, the next person should state a different suggestion or "pass."

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

CDM

3. Discuss/clarify ideas

4. Combine ideas as appropriate

B. Exercise

1. Explain that the purpose of this exercise is to illustrate how the NGT/CDM process works.

(10 min into lesson)

REFER participants to Workbook page 6.

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INSTRUCTOR PAGE

Maximizing Team Effectiveness

Discussion Points   Instructor / Trainee Activity
_____   _____

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 (object of the action)

    -   4-5 words maximum

                                                SHOW: TTTD Team-O-5,
                                                Exercise Directions.

3. Start the exercise by ASKING: What do
    people do in the morning between the time   In a light-hearted manner,
    they wake up until they get to work?   discourage any social
                                                   activity

4. Allow 1 minute of quiet time for participants
    to write down their task statements.

5. In a round robin, ask each person to state
    one of the task statements they wrote.   Do this quickly without
    Record their answers on the flipchart.   allowing participants to
                                                   comment on the viability of
                                                   the task statements

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Table-Top Training Design

INSTRUCTOR PAGE

Maximizing Team Effectiveness

Discussion Points   Instructor / Trainee Activity

	If their lists have not been exhausted after two minutes, stop. (Explain that when doing this during TTTD, we would not stop until all lists have been exhausted.)
6. Discuss any tasks that need clarification. Allow the <u>individuals</u> to clarify the statements, if required.	
7. Combine tasks as appropriate.	
8. Discuss the NGT process by asking: What happened? What was different from traditional discussion? Why is NGT a good idea?	
Transition: Now that you have participated in the process, let's briefly discuss how we can effectively apply these principles during this process.	(25 min into lesson)

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│              INSTRUCTOR  PAGE                             │
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│ Maximizing Team Effectiveness                            │
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Discussion Points   Instructor / Trainee Activity

IV. GUIDELINES FOR APPLYING PROCESS	
A. Nominal Group Technique	REFER to TTTD Team-P-3, NGT and CDM Guidelines.
1. When silently generating your lists, <u>apply relevant criteria</u> to the best of your ability when:	REFER participants to Workbook page 7.
- designing the structure,	
- placing the elements of tasks in the program structure, and	
- deciding on the qualities of a well-written learning objective.	
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."	
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>.	
- Help identify entry-level requirements	

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Table-Top Training Design

              INSTRUCTOR PAGE

Maximizing Team Effectiveness
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Discussion Points   Instructor / Trainee Activity

- Help pick out action verbs for learning objectives

- Help apply applicable criteria

2. <u>Present your ideas as clearly and logically as possible</u>, but avoid arguing for your position. Listen to the other members' reactions and consider them carefully.

3. <u>Empower yourselves</u> to keep the 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.

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?"

(30 min into lesson)

V. SUMMARY

ASK: What is the purpose for using nominal group technique?

A. NGT helps reduce negative social interactions and communication problems that interfere with good decisions and effective use of time, while gaining maximum contribution of experienced individuals.

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Maximizing Team Effectiveness
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Discussion Points   Instructor / Trainee Activity
_____   _____

B. Can I live with the decision?   ASK: What is the key
                                                 question that consensus
                                                 decision-making asks?

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POSTERS AND OVERHEADS

Maximizing Team Effectiveness

| *Terminal Objective* |

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 Training Design Workshop.

TTTD TEAM-P-1

Overview

- **Definitions**

- **Steps in the NGT and CDM Process**

- **Guidelines for Applying the NGT and CDM Process**

TTTD TEAM-P-2

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POSTERS AND OVERHEADS

Guidelines for NGT and CDM

✓ **Apply applicable criteria**

✓ **Add to your list**

✓ **Help others formulate their statements**

✓ **Present your ideas clearly and logically, but don't argue**

✓ **Empower yourselves to make this work!**

TTTD TEAM-P-3

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POSTERS AND OVERHEADS

Enabling Objectives

- **Define the terms "Nominal Group Technique" and "Consensus Decision-Making"**
- **Describe the steps involved in Nominal Group Technique and Consensus Decision-Making**
- **List the guidelines for applying the Nominal Group Technique and Consensus Decision-Making processes**

TTTD TEAM-O-1

Nominal Group Technique

A structured group process resulting in the maximum contribution of experienced individuals to a common goal

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TTTD TEAM-O-2

E-19

POSTERS AND OVERHEADS

Consensus Decision-Making

Obtaining a general (not necessarily unanimous) agreement among several people

TTTD TEAM-O-3

NGT:

1. Each person silently generates/ writes ideas
2. All persons state ideas in a round robin

CDM:

3. Discuss/clarify ideas
4. Combine ideas as appropriate

TTTD TEAM-O-4

Directions

What do people do in the morning between the time they wake up and the time they get to work?

Write your answers on a sheet of paper.

Your answers should contain:
- an action verb
- an object of the action (noun)
- 4-5 words maximum

TTTD TEAM-O-5

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ADDENDUM F

WRITING LEARNING OBJECTIVES LESSON PLAN

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Table-Top Training Design

INSTRUCTOR PREPARATION PAGE

Writing Learning Objectives

COURSE TITLE: Table-Top Training Design (5480.20A Training Seminar Series)

LESSON TITLE: Writing Learning Objectives

TIME REQUIRED: **25** Minutes

REFERENCES: 1.   United States Department of Energy course <u>Instructional Analysis and Design</u>.
2.   United States Department of Energy course <u>On-the-Job Instructor Training</u>.
3.   United States Department of Energy Guideline, DOE-STD-1005-92, *Guide to Good Practices for Developing Learning Objectives*; July 1992.

OBJECTIVE: <u>**Terminal**</u>: Given an example task and a method for writing learning objectives, CONSTRUCT a learning objective containing a condition, a performance statement, and a standard.

<u>**Enabling**</u>:

OBJECTIVES.1 -   Describe the three elements of a learning objective.

OBJECTIVES.2 -   Explain how enabling objectives support a terminal objective.

OBJECTIVES.3 -   State the four qualities of a good learning objective.

OBJECTIVES.4 -   Write several objectives using the template method.

INSTRUCTIONAL AIDS:

Objectives-P-1,	Terminal Objective
Objectives-P-2,	Enabling Objectives
Objectives-P-3,	Overview (Written on flipchart)
Objectives-O-1,	Definition of Learning Objective
Objectives-O-2,	Action Verbs

Table-Top Training Design

INSTRUCTOR PREPARATION PAGE

Writing Learning Objectives

Objectives-O-3,	Non-Action Verbs
Objectives-O-4,	Conditions
Objectives-O-5,	Standards
Objectives-O-6,	Levels of Learning Objectives
Objectives-O-7,	Qualities of Good Learning Objectives
Objectives-H-1,	List of Action Verbs
Objectives-H-2,	Templates of Action, Condition, and Standard Statements
Objectives-H-3,	Model Skills and Knowledge Statements

Flipchart stand and paper, (3) colors of flipchart markers.

PARTICIPANT PREPARATION: None.

INSTRUCTOR PREPARATION: Set up a flipchart stand with a pad of paper at the front of the room where everyone can see it. The facilitator will need at least 3 different colored felt-tipped markers in-hand. WRITE "Overview" on a flipchart sheet and hang up.

PRESENTATION METHOD: Lecture, short application exercises.

EVALUATION METHOD: Participation in TTTD Step 8, the development of course objectives for the training program in accordance with the guidelines provided.

NOTES TO INSTRUCTOR: This lesson introduces those who will be writing the learning objectives to the terms and processes involved in writing them. This lesson is designed to equip them with the knowledge and skill necessary to perform adequately during Step 8 of the TTTD Process. Step 8, "Write the Learning Objectives," requires those who will write the objectives to take the course content and develop terminal and enabling objectives.

Hang all posters on a wall other than the TTTD wall:

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Table-Top Training Design

INSTRUCTOR PREPARATION PAGE

Writing Learning Objectives

POST TTTD Objectives-P-1, Terminal Objective, and leave displayed throughout the lesson.

POST TTTD Objectives-P-2, Enabling Objectives, and leave displayed throughout the lesson.

WRITE and POST Objectives-P-3, Overview, on a flipchart and leave displayed throughout the lesson.

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Table-Top Training Design

            INSTRUCTOR PAGE


Writing Learning Objectives
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Discussion Points   Instructor / Trainee Activity

Discussion Points	Instructor / Trainee Activity
I. INTRODUCTION	
A. Preliminaries	
1. Instructor's Name	ENSURE that your name is visible
2. Participant Materials	REFER participants to "Objectives" section.
3. Participant Comfort	ELIMINATE distractions
B. Motivator	WRITE on a flipchart or whiteboard the quotation: "If you aim for nothing, you're bound to hit it!"
1. Think about this statement for a few seconds...(pause). What planning concept does this statement address? (Identifying goals)	
2. You're not going to reach a goal if you don't identify it first. Once you identify it, <u>then</u> you can make plans to effectively reach it.	

Table-Top Training Design

INSTRUCTOR PAGE

Writing Learning Objectives

Discussion Points   Instructor / Trainee Activity

3. The concept of goal setting has significant implications for the training process.

STATE: Imagine yourself as an instructor who is writing a lesson.

ASK: What value would there be in setting goals for what you want your trainees to learn?

4. You can then develop your instructional material in a way that will most effectively reach that goal.

5. One of the most crucial steps in the design phase is setting goals for learning, or establishing what you want the trainees to have learned, once training is complete.

6. We call these goals "learning objectives."

STATE: This lesson will equip you to write learning objectives (Step 8).

Table-Top Training Design

INSTRUCTOR PAGE

Writing Learning Objectives

Discussion Points   Instructor / Trainee Activity

C. Objectives

Terminal: Given an example task and a method
for writing learning objectives, CONSTRUCT a
learning objective containing a condition, a
performance statement, and a standard.

Enabling:

- Describe the three elements of a learning
  objective.
- Explain how enabling objectives support a
  terminal objective.
- State the four qualities of a good learning
  objective.
- Write several objectives using the template
  method.

D. Overview

1. The three elements of a learning objective.
2. The levels of a learning objective.
3. The four qualities of a good learning
    objective.

	Instructor / Trainee Activity
	REFER to TTTD Objectives-P-1, Terminal Objectives. REFER participants to Workbook page 3.
	REFER to TTTD Objectives-P-2, Enabling Objectives.
	REFER to TTTD Objectives-P-3, Overview.

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Table-Top Training Design

INSTRUCTOR PAGE

Writing Learning Objectives

Discussion Points   Instructor / Trainee Activity
_____   _____

4. Writing objectives using the template
   method.

II. ELEMENTS OF LEARNING OBJECTIVES   ASK: Who can tell me
                                                 what a learning objective
                                                 is?

A. Definition   SHOW: TTTD
                                                 Objectives-O-1, Definition
1. A "learning objective" is (1) a statement that   of Learning Objective.
   specifies a measurable behavior that a
   trainee should exhibit after instruction, (2)   REFER participants to
   the conditions under which the behavior will   Workbook page 4.
   be evaluated, and (3) the standards for
   performance.   STATE: Notice that three
                                                   elements make up
                                                   objectives.

Table-Top Training Design

INSTRUCTOR PAGE

Writing Learning Objectives

Discussion Points	Instructor / Trainee Activity

Leave space for title

Condition(s)

Performance Statement

Standard(s)

Flipchart Page

WRITE on the flipchart (a different color for each word) "Performance Statement", "Condition(s)" and "Standard(s)".

REFER participants to Workbook pages 5 and 6.

B. Performance Statement

   1. A "performance statement" has an action verb and direct object.

STRESS: Importance of picking the action verb that **best** describes what you want the trainee to do.

SHOW: TTTD Objectives-O-2, Action Verbs.

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INSTRUCTOR PAGE

Writing Learning Objectives

Discussion Points   Instructor / Trainee Activity

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2. The action verb must be measurable. Action verbs like, "perform," "describe," "calculate," or "construct" have measurable ends and describe exactly what the trainee must do.

STRESS: It is very difficult, maybe impossible to measure whether someone "believes" or "understands" something.

3. Vague action verbs which cannot be measured include verbs like, "understand," "believe," or "recognize."

SHOW: TTTD Objectives-O-3, Non-Action Verbs.

APPLICATION:

STATE: Suppose you work for a landscaping company and one of the duty areas is lawn care. One of the tasks is mowing lawns. Let's develop a learning objective for mowing a lawn.

WRITE: "Mowing a Lawn" at the top of the flip chart page.

ASK: What would be a good performance statement for your learning objective? (mow a lawn)

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INSTRUCTOR PAGE

Writing Learning Objectives

Discussion Points   Instructor / Trainee Activity

WRITE: "mow a lawn" under "performance statement" on your flipchart.

ASK: Why wouldn't "understand how to mow a lawn" be a good performance statement?

STATE: "understand" is not measurable and does not describe exactly what you want the trainee to do. You want them to "mow the lawn", not just "know how to."

DISTRIBUTE Objectives-H-1, Action Verb List.

C. Conditions

SHOW: TTTD Objectives-O-4, Examples of Conditions.

REFER participants to Workbook page 7.

1. The "condition" is the necessary circumstance under which the task will be performed.

2. Good examples of condition statements include:

- Given the necessary materials and equipment

- Using test instruments

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INSTRUCTOR PAGE

Writing Learning Objectives

Discussion Points   Instructor / Trainee Activity

● Given some simulated condition

APPLICATION:

WRITE: "Given an XYZ lawn mower" under "conditions" on your flipchart.

D. Standards

1. The "standard" describes the acceptable performance, or how well the trainee must perform the task to be considered acceptable.

POINT OUT that conditions can be based on the use of equipment or based on a situation.

STATE: Let's come up with a condition statement for our task "mow a lawn."

ASK: Given the explanation of "conditions," what would be a good condition statement for mowing the lawn? (Given an XYZ lawn mower)

SHOW: TTTD Objectives-O-5, Examples of Standards.

REFER participants to Workbook page 8.

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            INSTRUCTOR PAGE

Writing Learning Objectives
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Discussion Points   Instructor / Trainee Activity

	STATE: Notice the different ways these standards have been written.
2. Standard could describe: • <u>how the trainee should perform a task</u>, such as: "within 30 minutes," or "performing all steps in sequence." • <u>how the finished product should turn out</u>, such as: "according to manufacturer's specs," "according to procedure XYZ," or "with 100% accuracy."	
<u>APPLICATION</u>:	STATE: Let's come up with a standard statement for our task "mow a lawn." ASK: Given the explanation of "standards," what would be a good standard statement for mowing the lawn? (missing no spots, or in a criss-cross pattern)

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INSTRUCTOR PAGE

Writing Learning Objectives

Discussion Points   Instructor / Trainee Activity

Discussion Points	Instructor / Trainee Activity
WRITE: "in a criss-cross pattern" under "standards" on your flipchart.	
READ the entire learning objective to the class ("given an XYZ lawn mower, mow the lawn in a criss-cross pattern").	ASK: What are the 3 parts of a learning objective? (performance, condition and standard statements)
Transition: Now that you know the 3 parts of learning objectives, let's look at the different levels of objectives.	
III. LEVELS OF LEARNING OBJECTIVES	STATE: There are two levels of learning objectives.
	ASK: Can someone tell me what they are? (terminal and enabling)
A. Terminal Objectives	SHOW: TTTD Objectives-O-6, Levels of Learning Objectives.
1. The terminal objective is the end result intended for instruction.	REFER participants to Workbook page 9.
2. Terminal objectives are directly tied to the tasks in a training lesson.	

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INSTRUCTOR PAGE

Writing Learning Objectives

Discussion Points   Instructor / Trainee Activity

	ASK: What, then, are enabling objectives?
B. Enabling Objectives	
1. Enabling objectives are detailed statements of the elements, or knowledge and skills.	
2. These objectives must be met in order to meet the terminal objective.	
	POINT OUT that the enablers must be met before the trainee can accomplish the terminal objective of "mow the lawn."
a. In other words, enablers are "steps" toward achieving the terminal objective.	
b. The order of the steps is logical. For example, safety considerations probably should be taught before any operation of the mower takes place.	
c. Also, the knowledge "builds" on previous knowledge as the lesson progresses.	POINT OUT that enabling objectives normally consist of performance statements only.

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INSTRUCTOR PAGE

Writing Learning Objectives

Discussion Points   Instructor / Trainee Activity

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    d. When the conditions and standards of the Enabling Objectives are the same as the Terminal Objective, they are normally implied (not written). If they are different, they must be written.

Transition: We now know what objectives are. Let's find out what qualities make objectives "good."

IV. QUALITIES OF GOOD LEARNING OBJECTIVES

SHOW: TTTD Objectives-O-7, Qualities of Good Learning Objectives.

REFER participants to Workbook page 10.

STATE: Good learning objectives have 4 qualities.

A. Specific

Concisely worded? No unnecessary verbiage?

TELL the participants to note the questions they can ask to evaluate quality.

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INSTRUCTOR PAGE

Writing Learning Objectives

Discussion Points   Instructor / Trainee Activity

B. Clear

   If you presented the objective to several
   persons, would they all interpret it in the same
   way?

C. Attainable (realistic)

   Can the average trainee achieve the objective?

D. Measurable

   1. Can I measure the behavior required by the
       objective?   ASK: What are some
                                                          verbs that are hard to
                                                          measure?

   2. "Belief" or "understanding" are hard to
       measure.

                                                          REFER to flipchart with
                                                          the learning objective the
                                                          class worked on earlier.
                                                          ASK: How does the
                                                          learning objective we
                                                          came up with earlier
                                                          compare against these
                                                          "(4) qualities of good
                                                          objectives."

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INSTRUCTOR PAGE

Writing Learning Objectives

Discussion Points   Instructor / Trainee Activity

	ASK: Is this objective in the form of an enabling objective or a terminal objective? (Terminal)
EXERCISE:	

EXERCISE:

Lead the class through the writing of a terminal objective based on the TTTD content. DO NOT provide any of your own input during this process, but write the results on a flipchart. When complete, ask the participants to evaluate the terminal objective against the criteria for good learning objectives.

Transition: You have just learned one way to write learning objectives. There is an alternative method which we will now examine.

V. WRITING OBJECTIVES USING THE TEMPLATE METHOD

A. What is a template?

A template is a pattern or model that one follows.

NOTE: If the template method will not be used by the participants during the process, skip Section V and go to Section VI, "APPLICATION."

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INSTRUCTOR PAGE

Writing Learning Objectives

Discussion Points   Instructor / Trainee Activity

Illustration

Suppose you have to make 100 rocking horses in 2
weeks. The horses will be identical in every way.
You have the wood and all the tools you need.

ASK: How would you
approach making these
horses in the quickest
way? (USE Sewing 100
identical shirts" if more
appropriate to the
audience.

Suggest the answer below if needed:

Create patterns of the various parts of the horse
and trace them onto the wood to cut out. Then you
won't have to start all over again with figuring the
dimensions once you finish the first horse. The
dimensions already exist in your template.

Templates can be used for writing learning
objectives as well.

In the same way the dimensions were already
established by the template for the rocking horse so
they did not have to be re-figured for the next horse,
dimensions can be established in the form of action
verbs, conditions and standards in learning
objectives.

The action verbs, standards, and conditions are
established in the form of a template beforehand
and the job-specific information is added.

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INSTRUCTOR PAGE

Writing Learning Objectives

Discussion Points   Instructor / Trainee Activity

B. Examples of templates

1. Let's look at some examples of templates for various job functions.

2. The template approach is based on the premise that technical training has common objectives that apply across many areas.

3. For example, workers who operate or maintain facility systems would be expected to meet the objectives on workbook page 11.

4. Templates also can be established for conditions and standards statements as well.

REFER participants to Workbook page 11.

DISTRIBUTE Objectives-H-2 pages 1 through 8 and Objectives-H-3. POINT OUT the example conditions, action, and standard statements.

ASK: Can anyone see a weakness in using templates?

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INSTRUCTOR PAGE

Writing Learning Objectives

Discussion Points   Instructor / Trainee Activity

C. Cautions for using templates

1. While templates can simplify the development of learning objectives, we need to recognize that *most* training situations will also require the development of some unique learning objectives.

2. Therefore, AVOID the assumption that your template objectives are addressing *all* the knowledge and skills the trainee needs to do the job.

EXERCISE

Lead the class through the writing of a terminal objective based on the TTTD content and using the template method. Direct the participant's attentention to content that would benefit from the template method. DO NOT provide any of your own input during this process (except guidance in using templates), but write their results on a flipchart.

POINT OUT content to the team.

ASK: How would you apply the template method with this content?

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Discussion Points	Instructor / Trainee Activity
VI. SUMMARY	ASK: Why should we establish learning objectives?
A. Learning objectives assist us in gearing our materials to meet those objectives.	ASK: What are the 3 elements of learning objectives?
B. Condition, performance and standard statements.	ASK: What are the 4 qualities of good learning objectives?
C. Specific, clear, attainable, measurable (SCAM).	ASK: Describe the relationship between the terminal and enabling objectives.
D. The enabling objectives are "steps" to attaining the terminal objective.	

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Discussion Points   Instructor / Trainee Activity

	ASK: What caution would you give to someone using the template method for writing learning objectives?
E. Avoid the assumption that template objectives are addressing **all** the knowledge and skills a trainee needs to perform a task.	
VII. APPLICATION	TELL participants they will find the action verb list and the other handouts useful as they write objectives during Step 8.
A. Step 8 Now that you have completed this lesson, let's move into TTTD Step 8 and write the learning objectives for the content we have identified.	

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Intentionally Blank

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POSTERS, OVERHEADS, AND HANDOUTS

Writing Learning Objectives

Terminal Objective

Given an example task and a method for writing learning objectives, construct a learning objective containing a condition, a performance statement and a standard.

TTTD OBJECTIVE-P-1

Writing Learning Objectives

Enabling Objectives

1. Describe the three elements of a learning objective.
2. Explain how the enabling objectives support a terminal objective.
3. State the four qualities of good learning objectives.
4. Write several objectives using the template method.

TTTD OBJECTIVE-P-2

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Overview

- **The three elements of learning objectives**

- **The levels of learning objectives**

- **The four qualities of good learning objectives**

- **Writing objectives using the template method**

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POSTERS, OVERHEADS, AND HANDOUTS

Learning Objectives consist of:

1. A statement that specifies a measurable behavior

2. The conditions under which the behavior will be evaluated

3. The standards for performance

TTTD OBJECTIVE-O-1

Action Verbs

Calculate	Define	Describe
List	Recite	Assemble
Construct	Underline	Demonstrate
Indentify	Select	Perform
Solve	Operate	Saw
Fasten	Drill	Paint

TTTD OBJECTIVE-O-2

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POSTERS, OVERHEADS, AND HANDOUTS

Non-Action Verbs

Believe	Realize	Hear
Perceive	Feel	See
Think	Recognize	Memorize
Know	Understand	Appreciate

TTTD OBJECTIVE-O-3

Examples of Conditions

Equipment:

- **Given the necessary tools**
- **Using test instruments**
- **Using a manual, specs., etc.**

Situations:

- **Given a work order, verbal instructions, blueprint, etc.**
- **Provided with results of a diagnostic test**
- **Under some simulated condition**

TTTD OBJECTIVE-O-4

POSTERS, OVERHEADS, AND HANDOUTS

Examples of Conditions

Equipment:

- **Given the necessary tools**
- **Using test instruments**
- **Using a manual, specs., etc.**

Situations:

- **Given a work order, verbal instructions, blueprint, etc.**
- **Provided with results of a diagnostic test**
- **Under some simulated condition**

TTTD OBJECTIVE-O-5

Levels of Learning Objectives

Terminal: End result intended
for instruction

Enabling: Supporting steps
toward obtainment of
terminal objective

T. O.
Mow a lawn

E. O.
State safety
considerations

E. O.
Prepare the lawn
for mowing

E. O.
Prepare the lawn
mower for operation

E. O.
Demonstrate the (3)
mowing patterns

TTTD OBJECTIVE-O-6

Learning Objectives

Qualities:

- **Specific**

- **Clear**

- **Obtainable**

- **Measurable**

TTTD OBJECTIVE-O-7

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TTTD OBJECTIVES-H-1

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.

TTTD OBJECTIVES-H-1

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.

TTTD OBJECTIVES-H-1

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.

TTTD OBJECTIVES-H-1

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.

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TTTD OBJECTIVES-H-1

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.

TTTD OBJECTIVES-H-1

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.

TTTD OBJECTIVES-H-1

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.

TTTD OBJECTIVES-H-1

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.

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TTTD OBJECTIVES-H-1

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.

TTTD OBJECTIVES-H-1

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.

TTTD OBJECTIVES-H-1

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.

TTTD OBJECTIVES-H-2

EXAMPLE CONDITIONS STATEMENTS

The following phrases illustrate several types of condition statements. They are a sample of many different possible combinations and include plant, job, information, and qualitative examples. Fill-in-the-blank spaces are included in statements that can be used in a variety of applications.

Facility

- During normal conditions,

- During facility mode ___,

- Given a ___ transient,

- Given a change in ___,

- Given ___ failure(s),

- Given immediate action conditions,

- Given entry-level conditions to technical specifications/operational safety requirements,

- Given entry-level conditions to abnormal (or emergency) procedures,

- Under all conditions,

Job

- During shift turnover,

- While performing facility rounds,

- While standing the ___ shift,

- While making ___ log entries,

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TTTD OBJECTIVES-H-2

- While alone in the ___,

- Prior to conducting ___,

- Given an unlabeled ___,

- Using the ___ (tools, equipment, etc.),

Information

- Using ___ procedures/references,

- Using available indicators,

- Using alternative indicators,

- Using ___ survey results,

- Using ___ surveillance test results,

- Upon receiving ___ annunciators/alarms,

- Given abnormal ___ indications,

- Given any abnormal indications,

Qualitative

- Upon request,

- From memory,

- Through observation,

- Using only sound,

- From smell alone,

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TTTD OBJECTIVES-H-2

- From touch alone,

- Upon direction,

- Without prompting,

EXAMPLE ACTION STATEMENTS

Example action statements are provided in the affective,cognitive, and psychomotor performance areas. Each set of examples uses a series of fill-in-the-blank statements arranged from higher to lower levels of performance. They are a sample of many possible combinations.

AFFECTIVE

- prevent ___

- exhibit ___

COGNITIVE

Purpose

- state the purpose of the ___ system

Safety Precautions

- encourage others to carry out the following safety precautions:

- predict the damage that each of the following can cause:

- list the precautions associated with the ___ system

- identify the personnel hazards or dangers associated with the system

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TTTD OBJECTIVES-H-2

Design and interrelationships

- predict the ___ system response during a ___ transient:

- predict the effects of a loss or malfunction of ___ on ___

- explain the purpose of each of the following ___ system interlocks:

- identify normal and alternate ___ power supplies to the following:

- describe the functional dependencies that exist between the ___ and ___ systems

- match the following ___ system parameters to facility modes:

- locate the components of the ___ system

- draw a one-line diagram of the system that shows its key components and physical connections with other systems

- name the major components of the ___ system

- state the design basis of the ___ system

Procedures

- report errors in ___ procedures

- use procedure ___ to ___

- describe the process for reporting errors or sources of confusion in ___ procedures

- list the consequences of improperly performing a ___

- select the procedure(s) for the ___ activity

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TTTD OBJECTIVES-H-2

Controls

•   evaluate the loss of ___ control to determine alternative means for regaining control

•   evaluate how the ___ control layout, design, and operation limitations might contribute to human performance error

•   identify any peculiar features of ___ that might contribute to humanerror

•   relate ___ control adjustments to their effects on the following system parameters:

•   identify where the ___ system controls are located

Alarms

•   verify a ___ alarm

•   identify the ___ alarms expected during the following facility activities:

•   recognize the setpoints of the ___ alarms

•   locate the ___ alarm annunciator

•   identify where the following ___ alarm sensors monitor the system:

•   identify the alarms associated with the ___

Indicators

•   detect ____ trends displayed by the ____ recorder

•   recognize the failure modes of each of the ____ following monitors:

•   match ____ indications to specific facility conditions

•   obtain information from the ____ recorder

TTTD OBJECTIVES-H-2

- locate where in the flow path each of the following indicators senses _____ system parameters:

- identify the monitors associated with the _____ system

Sampling

- evaluate the need for an additional _____ sample

- record the parameters of a _____ sample

- list the factors that can influence _____ analysis results

- identify the labeling information required on _____ samples

- determine the flushing/recirculation requirements for sampling the _____

- identify the sample points in the _____

Teamwork

- critique individual and team performance

- manage conflict through collaboration

- exhibit initiative and leadership

- provide complete input and feedback

- advocate a position or concern

- inquire to obtain needed information

Operations

- avert a problem in the _____

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TTTD OBJECTIVES-H-2

- mitigate the effects of a ___ on the ___

- evaluate the system response during a ___ event

- evaluate operating limitations of the ___ system

- detect ___ performance errors

- detect abnormal conditions

- detect changes in ___

- monitor the ___

- determine an alternative explanation of ___ conditions

- interpret the following conditions:

- use alternative indicators to confirm ___ conditions

- identify the symptoms associated with ___

- identify abnormal characteristics

PSYCHOMOTOR

- (any task or element statement is a possible psychomotor action statement)

- practice ___

- observe ___

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TTTD OBJECTIVES-H-2

EXAMPLE STANDARDS STATEMENTS

The following statements suggest the type of phrases that can identify the performance criteria that trainees must fulfill to meet learning objectives. This is not an exhaustive list. It simply depicts some alternatives. Quantitative, procedural, and qualitative examples are provided. Fill-in-the-blank spaces are included in statements that can be used in a variety of applications. Designers (or developers) are encouraged to use statements that closely approximate actual performance criteria.

QUANTITATIVE

- with less than ___ errors

- to + ___

- within ___ seconds/minutes/hours

- without producing more than ___ units of waste

- without receiving more than ___ mrems

PROCEDURAL

- predict how changing environmental conditions affect the ___ system

- predict the consequences of ___ component failure on the ___ system

- explain the bases for limiting conditions of operations and safety limits of the ___

- match facility events to the notification requirements of outside agencies

- relate ___ system status to the notification requirements of facility personnel

- relate individual performance responsibilities to each mode of facilityoperation

- place the ___ in a safe condition

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TTTD OBJECTIVES-H-2

- classify the following ___ system conditions into normal or abnormal:

- relate each ___ system test to the parameters it monitors

- select the applicable technical specifications/operational safety requirements for each of the following facility conditions:

- identify the correct ___ system alignments for each of the following conditions:

- determine the ___ alignment for ___

- state the reason for ___

- describe the normal operation of the ___ system

Diagnostics

- evaluate the effects of ___ corrective actions

- implement corrective actions

- evaluate alternatives

- assess the safety implications of each of the following recovery alternatives

- determine the urgency of a ___ condition

- evaluate the potential for ___ to worsen

- predict the effects of ___ on other facility systems

- relate changes in to ___ the need for action

- in accordance with ALARA policy

- in accordance with the RWP

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TTTD OBJECTIVES-H-2

- in accordance with all certification criteria

- in accordance with applicable labor agreements

- in accordance with steps ___ through ___ of the emergency plan

- in accordance with steps ___ through ___ of procedure number ___

QUALITATIVE

- without error

- without spillage

- without breakage

- without loss of material

- without hesitation

- with absolute clarity

- on schedule

- on the first attempt

- before proceeding

- to minimize time and optimize distance and shielding

- to the accuracy of the instrument

- before conditions degrade

- prior to equipment damage

- prior to performing subsequent actions

TTTD OBJECTIVES-H-2

- without entering a limiting condition of operation

- while remaining within technical specifications/operational safety requirements

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TTTD OBJECTIVES-H-3

MODEL SKILLS & KNOWLEDGE STATEMENTS WORKSHEET

1.   [SYSTEM] or [SUBSYSTEM] or [EQUIPMENT] Knowledge

1-1 GENERAL

1-1-1   State the purpose(s) of the _____.

a.

b.

-OR-

State that the purpose of the _____is
to_____.

1-1-X   State that the _____ consists of
the following: Include the function of each.

a.

b.

-OR-

State the relationship, including function, of each _____ to each
_____ and the following equipment:

a.

b.

TTTD OBJECTIVES-H-3

1-1-X   Define the abbreviations, terms and symbols used with the
_____(for example, _____,_____,
and_____).

1-1-X   State the operational characteristics and capabilities of the
_____.

      a.   [Power, logic levels, capacity, emergency, tolerance, and accuracies
         when applicable]

1-1-X   Describe the differences between _____. [Models]

1-1-X   State the security requirements for the _____.

1-2 PHYSICAL DESCRIPTION

1-2-1   Describe all major and associated components of the
_____. Include name, quantity required,
physical appearance, reference designator, location and construction
features.

      a.

      b.

1-2-X   Describe displays, controls and indicators directly associated with the
_____. Include name, reference designators,
positions, colors and location.

      a.

      b.

TTTD OBJECTIVES-H-3

1-3 FUNCTIONAL DESCRIPTION

1-3-1   Describe the functional operation of the _____[in conjunction with the _____]. Include control, logic, signal flow, sequential operation and indications.

   a.   [list major components, subassemblies, and/or functional areas]

1-3-X   Describe the functional operation of the loops within the_____. Include fuse words or phrases from above or new ones as appropriate].

1-3-X   Describe the functions of each control and indicator required to operate and maintain the _____ in each position, condition and color.

1-3-X   Describe each program used with the _____. Include name, purpose, program numbers, and assumptions and restraints imposed by the program.

   a.   [indicate programs, subprograms, routines, commands, instructions, codes, options, etc.]

1-4 INTERFACE DESCRIPTION

1-4-1   Describe the physical interface(s) between the _____ and the remainder of the _____ system(s).

<div align="center">-OR-</div>

Describe the physical interface between the _____ and related external equipment.

<div align="center">-OR-</div>

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TTTD OBJECTIVES-H-3

Describe the physical interface between the _____
and the following associated systems/equipment: Include applicable
electrical, hydraulic, mechanical or pneumatic interfaces.

    a.

    b.

1-4-X   Describe the functional interface(s) between the _____
and the remainder of the _____ system.

<p align="center">-OR-</p>

Describe the functional interface(s) between the _____ and
related external equipment.

<p align="center">-AND-</p>

    a.   Power sources

    b.   Input signals (types, format and sources)

    c.   Output signals (types, format and
       destinations)

    d.   Pneumatics

    e.   Hydraulics

1-5 OPERATIONAL DESCRIPTION

1-5-1   Describe the authority and regulations pertaining to the operation of the
_____, including external equipment tie-in.

TTTD OBJECTIVES-H-3

1-5-X   Describe the operational tasks to perform:

    a.   Pre-operations

        1) [list pre-operational tasks]

    b.   Operations (Normal/Typical)

    c.   Post-operational tasks

1-5-X   Describe the indications which should or may occur during operation of the
_____. Include alarms, indicators, displays, readouts and
printouts/typeouts.

1-5-X   Describe data reduction techniques and associated log requirements.
Include method, materials required and calculations performed (including
results).

<div align="center">-OR-</div>

Describe data logging requirements for the _____ .
Include method and type of data logged and disposition.

1-5-X   Describe [casualty] [abnormal] [degraded] [emergency] mode(s) of
operation of the _____.

1-5-X   Describe personnel and equipment safety precautions which are to be
observed during operation.

1-6 MAINTENANCE DESCRIPTION

1-6-1   Define the maintenance policy for:

    a.   Preventive Maintenance - the requirement for periodic performance of
tasks to minimize equipment malfunctions.

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TTTD OBJECTIVES-H-3

1) Servicing

   a) Cleaning
   b) Inspection
   c) Lubrication
   d) Painting/Preservation

2) Operational checks

   a) Pre-maintenance procedures
   b) Performance checks
   c) Degradation/deterioration checks

3) Progressive maintenance [surveillance] (if applicable - periodic refurbishment of components or assemblies in order to maintain levels of performance and reliability.)

b. Corrective Maintenance - checks and procedures used to locate and correct malfunctions.

1) Authorized repair responsibility - correction of malfunctions to the authorized maintenance level.

2) Fault isolation - location of faults to the level of available spares and authorized repair level.

   a) Equipment operational checks and tests

   b) Fault isolation tests and procedures

3) Analytical procedures - isolation of faults, using authorized techniques not contained in prescribed maintenance documentation.

4) Post maintenance procedures - procedures performed after repair. (Includes surveillance)

1-6-X   Describe the use of special tools and test equipment required for maintenance of the _____ as prescribed in applicable documentation.

1-6-X   Describe preventive maintenance (tickler card) procedures for the_____. Include recognition and interpretation of all indications; and records, reports and instructions.

1-6-X   Describe alignment, adjustment and calibration procedures for the _____.

1-6-X   Describe operational tests for maintenance of the_____. Include name, use and procedures.

1-6-X   Describe the recognition and interpretation of all malfunction indications for the _____.

1-6-X   Describe systematic fault isolation procedures contained in prescribed maintenance documentation for the _____.

1-6-X   Describe procedures to disassemble, repair, and reassemble the _____to the authorized maintenance level.

1-6-X   Describe post-repair procedures for the _____.

1-6-X   Describe personnel and equipment safety precautions which are to be observed when performing maintenance of the _____.

1-7 DOCUMENTATION

1-7-1   Describe the organization, content and use of all technical documentation provided for use with the _____.

   a.   [technical manuals, prints, tickler cards, manufacturer's literature, operation/maintenance/ surveillance procedures, etc.]

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TTTD OBJECTIVES-H-3

2. **[SYSTEM] or [SUBSYSTEM] or [EQUIPMENT] skills**

2-1 OPERATION

2-1-1   Perform tasks for operation of the _____.

[May breakdown as:
      Pre-operational procedures
      Operational procedures
      Post-operational procedures]

(Also, may make separate item callouts for each, providing a separate item callout is made in section 1-5)

2-1-X   [Only if absolutely needed, otherwise considered to be part of 2-1-1 above]

Recognize and interpret all indications occurring during the performance of the operating procedures and perform the appropriate operator actions in the proper sequence, including _____for the _____.

2-1-X   Comply with personnel and equipment safety precautions during operation of the _____.

2-2 MAINTENANCE

2-2-1   Use special tools and test equipment required for maintenance of the_____, as prescribed in applicable documentation.

2-2-X   Perform preventive maintenance (tickler card) procedures on the _____ as scheduled by [PMS].

2-2-X   Perform alignment, adjustment and calibration procedures on the_____.

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TTTD OBJECTIVES-H-3

2-2-X   Perform operational tests (and diagnostic programs) for maintenance of the _____.

2-2-X   Recognize and interpret malfunctions of the _____.

2-2-X   Perform fault isolation procedures on the _____as prescribed by [maintenance documentation].

2-2-X   Use authorized techniques to isolate faults in the _____ which cannot be located using procedures contained in prescribed maintenance documentation.

2-2-X   Disassemble, repair and reassemble the _____ to the authorized maintenance level.

2-2-X   Perform post-repair procedures for the _____.

2-3 ASSEMBLY

2-3-1   Unpack and visually inspect (each/the) _____ for shipping and handling damage.

2-3-X   Assemble (each/the) _____ in accordance with applicable procedures.

2-3-X   Perform post-assembly procedures for the _____.

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ADDENDUM G

PARTICIPANT MANUAL

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Table-Top Training Design

Introduction

Welcome to the Table-Top Training Design Seminar!

A "good" training program ensures that workers can safely, competently, and efficiently perform their jobs. 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 jobs. In order for the training program to be "good," the training program content must be based on the tasks involved in performing the job.

This seminar will help your facility design a training program for your job position. You will write learning objectives which will serve as the foundation for the development of training materials. The training materials will contain the content you believe new hires need to be trained upon in order to perform the job tasks as safely and competently as the subject matter experts (SMEs) who have been selected to participate in this Seminar.

Who Requested This Seminar?

Someone from your operating organization initially determined that a training program should be designed for the job position being focused upon in this seminar. That person then identified a coordinator who arranged this seminar.

The Table-Top Training Design (TTTD) Coordinator is someone from your facility whom you can call for additional information regarding the training program being designed during this Seminar.

Who Coordinated This Seminar?

Name _____ Phone _____

Who are your Instructors/ Facilitators?

Your instructors/facilitators are subject matter experts in the areas of Performance-Based Training (PBT), training content analysis, and table-top training design.

Name _____ Phone _____

Name _____ Phone _____

Table-Top Training Design   Introduction Lesson - Page 2

What is the Purpose of This Seminar?

Your management carefully selected you to participate in this seminar because you are perceived as a "role model" for excellent job performance.

- In this seminar, team members will use their expertise and experience to design a training program for your job. The task list will then serve as the foundation for the development of training materials.

- Members of your facility training staff may also participate to learn how to conduct future Table-Top Training Design (TTTD) Seminars.

What Objective Will You Accomplish?

Using the Table-Top Training Design process, participants will DETERMINE curriculum content and WRITE learning objectives for the training program.

Table-Top Training Design

Introduction Lesson - Page 3

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Seminar Overview

Agenda

Day 1

Introduction	8:00-8:40
Overview	8:50-10:50
Team Skills	11:00-11:30
Lunch	11:30-12:30
Workshop	12:30-5:00

Days 2&3

Workshop	8:00-12:00
Lunch	12:00-1:00
Workshop	1:00-5:00

Day 4 (if needed)

Workshop	8:00-12:00

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Roles

Team Members
Subject Matter Experts (SMEs),
Supervisors, and Engineers

- Use their technical expertise to design training for the job
- Examine existing task lists, procedures, and other reference materials to help determine content for the training program

Facilitator
(Instructional Technologist)

- Teaches lessons that orient team members to TTTD
- Guides team through each TTTD step
- Uses process expertise
- Does not provide technical input about training content or design

Observers
(Training Staff)

- Participate in lessons
- Observe during TTTD workshop
- Help facilitate TTTD steps if desired
- Take notes during training discussions

| **Icebreaker** |

Who is Participating During this Seminar?
Name   **Work Responsibilities**

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Table-Top Training Design   Introduction Lesson - Page 6

Housekeeping

TIME

When would you prefer to do the following?

- Start time: _____

- Lunch time: _____-_____

- End time: _____

A 10-minute break will usually take place every 50 minutes. The actual timing will be left to the discretion of the instructor/facilitator.

REFRESHMENTS

Have you located the coffee and vending machines?

If facility policy allows, please bring in healthful refreshments such as fruit, crackers, and juice to share with the group. We will need it to maintain our stamina!

OTHER

Have you located the restrooms? Telephones?

Are you aware of the parking policy? Smoking policy?

Expectations

Attendance Policy

Your management is aware that this seminar relies on all of your participation. People who are late or are part-timers will miss some of the group discussions, which may seriously disrupt the proceedings. Therefore:

- You must be present and participate in all portions of the seminar.

- You must be on time for all sessions.

Please sign your name on the attendance form as you would like it to appear on the Certificate you will receive for participating in this seminar.

Seminar Evaluation Form

Please complete the seminar Evaluation Form at the end of the seminar as the directions state. The instructor/facilitator will collect the Evaluation Form at the end of the seminar. You DO NOT have to put your name on the form.

Questions

Please feel free to ask questions at any time during the seminar.

Thanks for Being Part of the TEAM!

Table-Top Training Design

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Table-Top Training Design

Overview of Table-Top Training Design

Ideas

Notes

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Table-Top Training Design

Overview Lesson - Page 2

Writing Learning Objectives

Learning Objectives

TERMINAL OBJECTIVE:

Given a list of tasks selected for training, DESIGN a training program structure and ANALYZE some of the tasks in accordance with the stated criteria.

ENABLING OBJECTIVES:

1. Describe how analysis and design products are used in each PBT phase.

2. State and briefly describe each step of the Table Top Training Design Seminar.

3. Explain the concepts of entry-level requirements, initial training, and continuing training, and cite examples of the content of each.

4. Describe the methods for determining the content of the training program.

How Analysis and Design Products Are Used in Each PBT Phase

Phase: Purpose:

A_____   nalyze job performance requirements
                          ● Develop valid task list

D_____   Based on Task List. write:
                          ● Learning objectives
                          ● Test items

D_____   Based on objectives and test items, write:
                          ● Lesson Plans
                          ● Tests

I_____   Based on lesson plans and tests, provide:
                          ● Consistent instruction and evaluation of
                            trainees

E_____   Throughout process:
                          ● Evaluate effectiveness of each phase
                          ● Evaluate effectiveness of training program
                          ● Use results to maintain/improve the
                            process and the training program

The success and effectiveness of the entire PBT training program hinges on the quality of the analysis data and training program design..

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Table-TopTraining Design

The Steps

1. Orient the Team

2. Design the Training Program Structure

3. Place the Tasks in the Training Program Structure

4. Prioritize Courses for Development Efforts

5. Determine Course Content

6. Identify Additional Content

7. Identify Existing Materials

8. Write Learning Objectives

Table-Top Training Design

Overview Lesson - Page 5

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Design the Training Program Structure

Entry-Level Requirements

Entry-level requirements include the education, experience, knowledge, skills and other training a person must possess or have completed prior to entering the job-specific training program.

Examples

Selection Requirements	
● **Education** ● **Experience** ● **Medical**	H.S. Diploma or GED 2 yrs. operations experience, 1 yr nuclear experience Successful medical exam (vision, hearing, lifting)

Entry-Level Knowledge and Skills	
	● 10th grade reading level ● Basic math skills (addition, subtraction, multiplication, and division to 4th decimal place)

Entry-Level Training	
	● General Employee Training ● Radiation Worker Training ● Site Core Fundamentals ● Facility Employee Training ● Conduct of Operations

Make sure whatever entry-level requirements are appropriate for this job are documented in the position descriptions, verified in individuals' records, described in procedures, consistent with the facility's Training Implementation Matrix, added to Qualification Cards, and have exceptions/alternatives documented.

Design the Training Program Structure

Initial Training

Fundamentals Training

Examples

- Chemistry - classroom - written exam
- Physics - self-study - written exam
- Electricity - self-study - written exam
- Nuclear Theory - classroom - written exam

Other Initial Training

- Train tasks
- Overtrain tasks
- Info taught in "as needed" training
- Team training/ communications

Example 1

1. Qualification Area A

   Classroom -1   - written test

   OJT 1   - performance test

2. Qualification Area A Performance Test

3. Qualification Area B

   Self-study 1   - written test

   Laboratory 1   - performance test

   Classroom 2   - written test

   OJT 2   - performance test

4. Qualification Area B Performance Test

Table-Top Training Design

Design the Training Program Structure

Initial Training

Example 2

3.
2.
1.

Oper-
ational

OJT

Pre-OJT
(classroom, lab, self-study)

Application of Example 2:

Pre-OJT

- Systems Overview - classroom/walkthrough - written exam
- Pumps - laboratory/walkthrough - performance exam
- Electrical Supply - classroom/walkthrough - written exam
- Effluent Treatment - classroom - written exam
- Emergency Operations - classroom - written exam

↓

OJT

- Hydraulics repair - self-study/OJT - performance test
- Waste pick-up - OJT - performance test
- Contamination surveys - lab/OJT - performance test
- Routine operations - OJT - performance test
- Emergency operations - self-study/OJT - performance test

↓

Job-Qualification Exams
(as per 5480.20A)

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Design the Training Program Structure

Continuing Training

Examples

Annual Training
- HazCom Training - classroom - written test
- Lock/Tag-out - OJT - performance test
- Vital tasks
* Drill: Abnormal Procedures and Emergency
- Regulatory training   Response - performance test
- Safety Training - classroom - written test
- MSDS Training - classroom - written test
- OSHA Awareness - classroom - written test

As-Needed Training
* Industry and facility events/lessons learned
* Plant modifications
- Pre-train tasks
* Procedure changes
- Info gathered from
* Training to correct identified job performance
  program evaluation   deficiencies
  activities

Biennial Training
- Emergency Response - classroom/lab -
  written and performance tests
- Overtrain tasks
- Radiation Control Practices - classroom/
- Other regulatory re   OJT - written and performance tests
  qual training
* Use of systems to control or mitigate accidents
- Info taught in "as
* Other topics in 5480.20A
  needed" training
  during the previous
  2 yrs.

Job Re-Qual
Exam
(per 5480.20A)

* Required for certified positions as per DOE 5480.20A

Table-Top Training Design

Overview Lesson - Page 9

Place the Tasks in the Training Program Structure

Course 1
Hot Plate Digestion

Task A-1

Task B-2

Task B-3

Task C-1

Course 2
Microscopy

Duty Area D

This Step is often performed with Step 2.

Prioritize Courses for Development Efforts

Table-Top Training Design

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Determine Course Content

Methods

➜ **Traditional Task Analysis**

➜ **Document Analysis**

➜ **Brainstorming**

➜ **Nominal Group Technique**
   Concensus Decision Making

➜ **Template Method**

Table-Top Training Design

Overview Lesson - Page 11

Identify Additional Content

To ensure all appropriate content is included in the training program content, there are various sources of information the team should check:

➤ *Regulatory Requirements (DOE, OSHA, EPA, etc.)*

➤ *DOE 5480.20*

➤ *DOE 5480.19*

➤ *The facility's Safety Analysis Report*

➤ *ORPS reports*

➤ *Documents describing recent facility events*

➤ *Facility required training.*

Identify Applicable Existing Training

**If a course exists and is adequate,
why reinvent the course?**

Your own
Facility

Any other
DOE
Facility

Sources

Guides to
Good
Practices

GOCO
Manuals

Others

Table-Top Training Design

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Table-Top Training Design

Maximizing Team Effectiveness

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Ideas

Notes

Maximizing Team Effectiveness

Learning Objectives

TERMINAL OBJECTIVE:

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 Training Design Workshop.

ENABLING OBJECTIVES:

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

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

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

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Definitions

In order to avoid some common problems that occur when there is a gathering of highly competent people

-- some people dominate
-- ideas or other contributions are lost or dismissed
-- some people never participate
-- non-productive environment for any creative process
you will apply the following techniques during this seminar.

Nominal Group Technique is a structured group process resulting in the maximum contribution of experienced individuals to a common goal.

Consensus Decision-Making is a process of obtaining general agreement among several people.

Steps in Nominal Group Technique and Consensus Decision-Making

Using a combination of Nominal Group Technique and Consensus Decision-Making, we will reduce the negative social interactions 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.

1. Silently generate/write ideas

2. State ideas in round robin

3. Discuss/clarify ideas

4. Combine ideas as appropriate

Table-Top Training Design

Team Lesson - Page 5

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Exercise

Write down your answers to the instructor's question, making sure each answer contains:
- an action verb
- a noun (object of the action)
- 4-5 words maximum

Guidelines for NGT and CDM

When participating in this seminar, please remember the following:

✓ Apply relevant criteria

✓ Add to your list

✓ Help others formulate their statements

✓ Present your ideas clearly and logically, but don't argue

✓ Empower yourselves to make this work!

Summary

TERMINAL OBJECTIVE:

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 OBJECTIVES:

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

. . . .

. . . .

. . . .

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

. . . .

. . . .

. . . .

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

. . . .

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References

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

3. Zenger-Miller, "Team Leadership," *Helping Your Team Reach Consensus*, San Jose, California: Zenger-Miller, International, 1992.

Table-Top Training Design

Team Lesson - Page 9

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Table-Top Training Design

Writing Learning Objectives

Training Flowpath

| Entry Level Selection Requirements | Entry Level Skills and Knowledge | Entry Level Training | Initial Train (Includes Phase |

RCT Phase IV Duty Area Training

Field Support

Decontamination

Instrumentation

Event Support

RCT Phase II Core/Site Practical Training

DOE-HDBK-1086-95

Ideas

Notes

Writing Learning Objectives

Learning Objectives

TERMINAL OBJECTIVE:

Given an example task and a method for writing learning objectives, CONSTRUCT a learning objective containing a condition, a performance statement and a standard.

ENABLING OBJECTIVES:

1. Describe the three elements of a learning objective.

2. Explain how enabling objectives support a terminal objective.

3. State the four qualities of a good learning objective.

4. Write several objectives using the template method.

Learning Objective

A Learning Objective is a statement that specifies:

✔ a measurable behavior a trainee should exhibit after instruction

✔ the conditions under which the behavior will be evaluated

✔ the standards of performance.

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Table-Top Training Design   **Objectives Lesson - Page 4**

Action Verbs

Use action verbs that describe exactly what the trainee will do, such as:

Calculate	Define	Describe
List	Recite	Assemble
Construct	Underline	Demonstrate
Identify	Select	Perform
Solve	Operate	Saw
Fasten	Drill	Paint

Non-Action Verbs

The best objective is clear cut and specifically stated. Therefore, AVOID using vague "non-action verbs" that are subject to a wide range of interpretations, such as:

Believe	Capacity	Comprehend	Conceptualize
Depth	Experience	Feel	Hear
Intelligence	Know	Listen	Memorize
Perceive	Realize	Recognize	See
Think	Self-actualize	Understand	

SHOW:

Appreciation for...	Attitude of ...	Awareness of ...
Comprehension of ...	Enjoyment of ...	Feeling for ...
Understanding of ...	Knowledge of ...	Interest in ...

BECOME:

Acquainted with ...	Adjusted to ...	Capable of ...
Self-confident in ...	Conscious of ...	Familiar with ...
Knowledgeable about ...	Interested in ...	Cognizant of ...

Table-Top Training Design   Objectives Lesson - Page 6

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Examples of Conditions

Equipment:

- Given the necessary tools

- Given consumable supplies

- Using test instruments

- Using manual, specifications, etc.

- Given a lathe, motor, or other major piece of equipment

Situations:

- Using customer's car or other work item

- Under some simulated condition

- Presented with picture, problems, case study

- Given a work order, verbal instructions, blueprint, etc.

- Provided with results of a diagnostic test

- Provided with the data, measurements, parameters, map, schematics

- Given a list of terms, parts, tools, etc.

- Given a field situation

- Given numbers, figures, or problems

Examples of Standards

_____ Standards: (How the trainee performs the task)

- Within 30 minutes

- Performing all steps in sequence

- Following safety practices

- Following manufacturer's maintenance procedure

- Not exceeding flat-rate time by more than 25%

- Using proper tools and equipment

_____ Standards: (How the finished product turned out)

- According to the manufacturer's specifications

- No visible cracks or pits

- With no errors (100% accuracy)

- Conforms to local building code

- With 90% accuracy

- Within 10% of actual reading

Table-Top Training Design

Objectives Lesson - Page 8

Levels of Learning Objectives

Objective:

End result intended for instruction (keyed to task performance)

Objective:

Detailed statements of the elements (knowledge, skills, and attitudes) that support and explain how the terminal objective will be reached

T. O.
Mow a lawn

E. O.
Demonstrate the (3)
mowing patterns

E. O.
Prepare the lawn
mower for operation

E. O.
Prepare the lawn
for mowing

Notes..
....
....
....

E. O.
State safety
considerations

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Learning Objectives

A learning objective must be:

- Specific: [   ]

- Clear: [   ] [   ]

- Attainable: [   ]

- Measurable: [   ]

Memory

Specific
Clear
Attainable
Measurable

Learning Objectives

Template-type condition, action, and standard statements are tools for use in writing learning objectives. This approach is based on the premise that technical training has common objectives that apply across many areas. Previously developed templates from other facilities or courses may also be used to identify the objectives for fundamental knowledge training. For example, individuals who operate or maintain facility systems would be expected to meet the following types of objectives:

- state the purpose of the _____ system

- name the major components of the _____ system

- match _____ system parameters to facility mode

- predict the effects of a loss of _____ on _____

- test a _____

- diagnose a _____ problem in a _____

- repair a _____

Used wisely, template statements can simplify development of learning objectives for common tasks and fundamental knowledge. However, users should recognize that most training situations will also require the development of unique learning objectives. Rigidly adhering to a set of template statements in these situations may prevent needed learning objectives from being developed. Objectives created using this method, as with any method, should be reviewed and approved for use.

Ideas

Notes

ADDENDUM H

FORMAT FOR CAPTURING TRAINING PROGRAM CONTENT

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FORMAT FOR CAPTURING TRAINING PROGRAM CONTENT

Directions: Type this document during Step 5 of the TTTD Seminar, "Determine Training Program Content." This document must accurately record each topic area and the content items that fall beneath it. When finished with the seminar, save this file under a name to retrieve for additional use.

Type the Topic area first as shown below and the tasks which will be taught under that topic area. Then list the prerequisites (if any) which precede the topic area. Then list the content that is determined by the team for the topic area.

))
Facility/Company Name
Job Position

(TOPIC AREA)--Task #A-?, Task #D-?, etc.

PREREQUISITES:

-
-

CONTENT

-
-

(TOPIC AREA)--Task #A-?, Task #D-?, etc.

PREREQUISITES:

-
-

CONTENT

-
-

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ADDENDUM I

FORMAT FOR DOCUMENTING THE TASK-TO-TRAINING MATRIX

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FORMAT FOR DOCUMENTING THE TASK-TO-TRAINING MATRIX

Directions:

1. Once tasks are assigned to training topics, type the original duty area along with the tasks under it and indicate under "Training Level" whether the item is T-train task, OT-overtrain task, PT-pre-train task, or an NT, non-formal train task. If training settings were determined during the seminar, indicate these under the "Setting" header. Next, indicate where in the program the training will take place (i.e., initial training, continuing) under the "Frequency" header.

2. The remaining information, primary procedure, OJT Guide Number and JPM number will be filled out by the facility training personnel as the training materials are developed.

3. Give the facility a hardcopy and disk copy of this document for them to continue to fill out as the training is developed.

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Task-to-Training Matrix

Task #	Task Description/Duty area	Train Level	Setting	Frequency	Lesson Plan Number	Primary Procedure	OJT Guide Number	JPM Number
Job Position								
Duty Area								
A-1								
A-2								
A-3								

I-4

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Reviews: Table-Top Training Design Committee

Title: _____   Name: _____   Date: _____

Title: _____   Name: _____   Date: _____

Title: _____   Name: _____   Date: _____

Title: _____   Name: _____   Date: _____

Title: _____   Name: _____   Date: _____

Title: _____   Name: _____   Date: _____

Title: _____   Name: _____   Date: _____

Title: _____   Name: _____   Date: _____

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ADDENDUM J

FORMAT FOR RECORDING TERMINAL AND ENABLING OBJECTIVES

J-1

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FORMAT FOR RECORDING TERMINAL AND ENABLING OBJECTIVES

Directions: Type this document during or immediately after Step 8, "Write the Objectives." This document must accurately record each objective. When finished with the seminar, save this file under a name to retrieve for additional use.

Type the Topic area first as shown below and then the terminal objective, then the enabling objectives which will be taught under that topic area. Make sure the objectives are in the appropriate sequence (if applicable).

) Q
Facility/Company Name
Job Position

(TOPIC AREA)--Task #A-?, Task #D-?, etc.

TERMINAL OBJECTIVE:

-

ENABLING OBJECTIVES:

1.

2.

(TOPIC AREA)--Task #A-?, Task #D-?, etc.

TERMINAL OBJECTIVE:

-

ENABLING OBJECTIVES:

1.

2.

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CONCLUDING MATERIAL

Review Activities: **Preparing Activity:**

<u>DOE</u>   <u>Field Offices</u>   DOE-EH-53

AD   AL

BPA   CH   **Project Number:**

CE   FN   6910-0045

DP   ID

EH   NV

EM   OR

ER   RL

FE   SF

GC   SR

IE

IG   <u>National Laboratories</u>

NE   ANL

NS   BNL

RW   FNAL

SA   INEL

WAPA   LBL

               LANL

               LLNL

               NREL

               ORNL

               PNL

               SNL