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TDP.5

DEVELOPMENT AND IMPLEMENTATION
OF TRAINING PROGRAMS AND MATERIALS

1.0 PURPOSE

To provide for the development and implementation of training programs for all categories of personnel and to establish guidelines concerning the form and content of documentation governing such programs and associated training materials.

2.0 REFERENCES

- .1 NUCLEAR OPERATIONS TRAINING PROGRAM (AP.700)
- .2 Criteria, INPO 82-011

3.0 PROCEDURE

- 2-- .1 Training programs shall be developed for each of the categories of employees listed in Appendix A.
 - .1 The training programs shall be developed by the training department in consultation with the relevant division superintendent under the direction of the Nuclear Training Superintendent.
 - .2 Each training program shall include a formal statement of goals and objectives, and an evaluation strategy.
 - .1 Training program goals and objectives shall be established as the result of the identification of training needs.
 - .3 Each training program shall be fully documented.
 - .1 Training programs, courses or modules that are offered by the Training Division shall be documented in accordance with Enclosure 4.1.
 - .2 Training programs or portions of training programs provided by a vendor will be documented in accordance with CONTRACTED TRAINING (TDP.10).

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PROEDURES (Continued)

- 2→ 3.1 .3 .3 Records of each training program, including associated documentation and materials, shall be maintained by the Training Division in accordance with TRAINING DIVISION RECORD KEEPING (TDP.7). A sample attendance sheet is included as Enclosure 4.2.
- .4 Lecture attendance records and quiz/test scores shall be collected and recorded in accordance with the Training Records Information Management System User's Manual.
- .2 Training Programs shall be implemented in accordance with the training needs of the plant.
- .1 The Nuclear Training Superintendent shall be responsible for implementation of training programs in accordance with NUCLEAR OPERATIONS TRAINING PROGRAM (AP.700).
- .2 The Nuclear Training Superintendent shall have final responsibility for ensuring the quality of all training programs.

4.0 ENCLOSURES

- 2→ .1 Guidelines for Documentation of Training Programs
- ← .2 Attendance Sheet for _____ Training

GUIDELINES FOR DOCUMENTATION OF TRAINING PROGRAMS

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DEFINITIONS

CLASSROOM OUTLINE	Provides basic framework of information needed during classroom delivery. Instructors to fill in details as they prepare for instruction. One outline to be prepared for each proposed Instructional Period.
COMPONENT	A subdivision of a training program.
COURSE	Component of a Training Program. Appropriate for delivery in specially designed instructional areas such as classrooms, workshops, laboratories, etc.
EVALUATION	See Program Evaluation and Training Evaluation
EXAMINATION	A method used to evaluate trainee performance at end of course or training program. Conducted in formal session of two hours length or more. Compare with Test and Quiz.
GOAL	See Program Goal.
INSTRUCTIONAL PERIOD	A 50-minute segment of instruction, separated from the next segment by a break of at least 10-minutes. There may be several such periods in a Lesson.
LESSON	Component of a course that is concerned with the teaching of one topic. May include one or more 50-minute Instructional Periods.
LESSON DOCUMENTATION	The complete set of materials used in connection with a Lesson. Includes lesson plan preparation guide and test item bank.
LESSON PLAN	Document to guide instructor in delivery of instruction. Contains Lesson Specifications, Classroom Outlines, and Trainee Handouts.
LESSON SPECIFICA- TIONS	Section of Lesson Plan that sets out the facility's requirements for instruction in a given topic. May be used alone, for administrative purposes, or as part of the Lesson Plan, in conjunction with the Preparation Guide.

DEFINITIONS (Continued)

MODULE A section of a Training Program delivered as On-The-Job Training or as Self-Study materials.

OBJECTIVE

ENABLING
OBJECTIVE An objective that specifies behavior that is a necessary basis for the achievement of Terminal Objectives and is itself to be achieved as a part of this course or program of instruction.

INSTRUCTIONAL
OBJECTIVE Outcome of instruction. Stated in terms of required student behavior.

TERMINAL
OBJECTIVE An objective that specifies the behavior required of a trainee at the end of the Course or Training Program to which the objective applies.

OUTLINE See Classroom Outline

PERIOD See Instructional Period

PHASE Type or mode of training; i.e., classroom phase, self-study phase, job training phase.

PREPARATION
GUIDE Document to guide instructors in preparation of instruction. Contains Subject Matter Notes and Teaching Notes to correspond to each Lesson Plan.

PROGRAM Total set of activities designed to provide training for a particular group of employees. May include several Components/Courses/Modules.

PROGRAM
DESCRIPTION Document that gives an overview of the Training Program provided for a particular group of employees.

PROGRAM
EVALUATION Process of obtaining information about a Training Program. Used to determine the effectiveness of a Program. This information could lead to changes in the Program.

DEFINITIONS (Continued)

PROGRAM GOALS	Desired outcome of Training Program expressed in terms of trainee behaviors on the job.
QUIZ	A method used to collect feed-back about trainee learning during various phases of instruction. Normally takes 30 minutes or less and consists of short answer questions. Compare with Test and Examination.
SEGMENT	The smallest constituent part of a Topic or Lesson
SELF-STUDY	Phase of Training Program in which trainees assume major responsibility for their own training.
STUDY GUIDE	A document that provides step-by-step guidance to trainees for the conduct of a Self-Study Module.
TEACHING NOTES	Suggestions regarding teaching strategy, use of teaching aids, etc. Forms part of Preparation Guide.
TEST	A method used to evaluate trainee learning during various Phases of instruction. May take 1 hour or more and include questions of different types. Compare with Quiz and Examination.
TOPIC	A major subdivision of the subject material in a Course or a Module.
TRAINEE EVALUATION	Process of evaluating trainees within Training Program to determine final grades and provide feedback on an on-going basis. Also applies when deciding on trainee placement or change of status.
TRAINING GUIDE	A document that provides step-by-step guidance to the trainee for the conduct of a Job-Training Module.
TRAINING PROGRAM	See Program

SECTION 1. INTRODUCTION

1.1 Purpose and Scope of Guidelines

The Guidelines describe the documentation required for each training program offered by the Training Division. They outline the contents of the various documents and the way in which they are to be presented using examples and specimens where appropriate.

The Guidelines are designed to assist Training Division personnel in interpreting the provisions of Procedure TDP.5, "Development and Implementation of Training Programs and Materials," in a uniform and consistent manner.

Program evaluation and associated issues are the subject of a separate training division procedure, TDP.6, Evaluation and Revision of Training Programs.

1.2 The Documentation

Each program of instruction offered by the Training Department should be developed and documented in accordance with these Guidelines.

1.2.1 Purpose of Documentation

The purpose of the documentation is to:

- . maintain a permanent record of the instruction that is provided in each training program;
- . assure consistency and continuity of training independent of the particular instructor or supervisor who is responsible for the training and the occasion on which the training is delivered;
- . assist individual classroom instructors in the preparation and delivery of instruction of a uniformly high standard;
- . assist on-site supervisors to provide on-the-job training of a uniformly high standard;
- . ensure that self-study training modules are designed and administered in such a way as to provide quality, cost-effective learning.

1.2.2 Nature of Documentation

The following documents should be prepared for each training program:

- . A Program Description giving an overview of the program goals, structure and content;
- . Course Plan for each course of classroom instruction included in the Program, to indicate the scope and content of each course, course objectives and identify necessary pretraining;
- . Lesson Plan, Preparation Guide, and Test Item Bank for each course topic, to assist in the preparation and delivery of instruction, and trainee evaluation;
- . Module Plan to indicate the scope, content, and objectives of each training module and its place in the program;
- . Study Guides for trainee guidance to conduct self-study modules;
- . Training Guides for trainee guidance to conduct job training module.

Figure 1.1 illustrates the relationship between the structure of a training program and associated documentation.

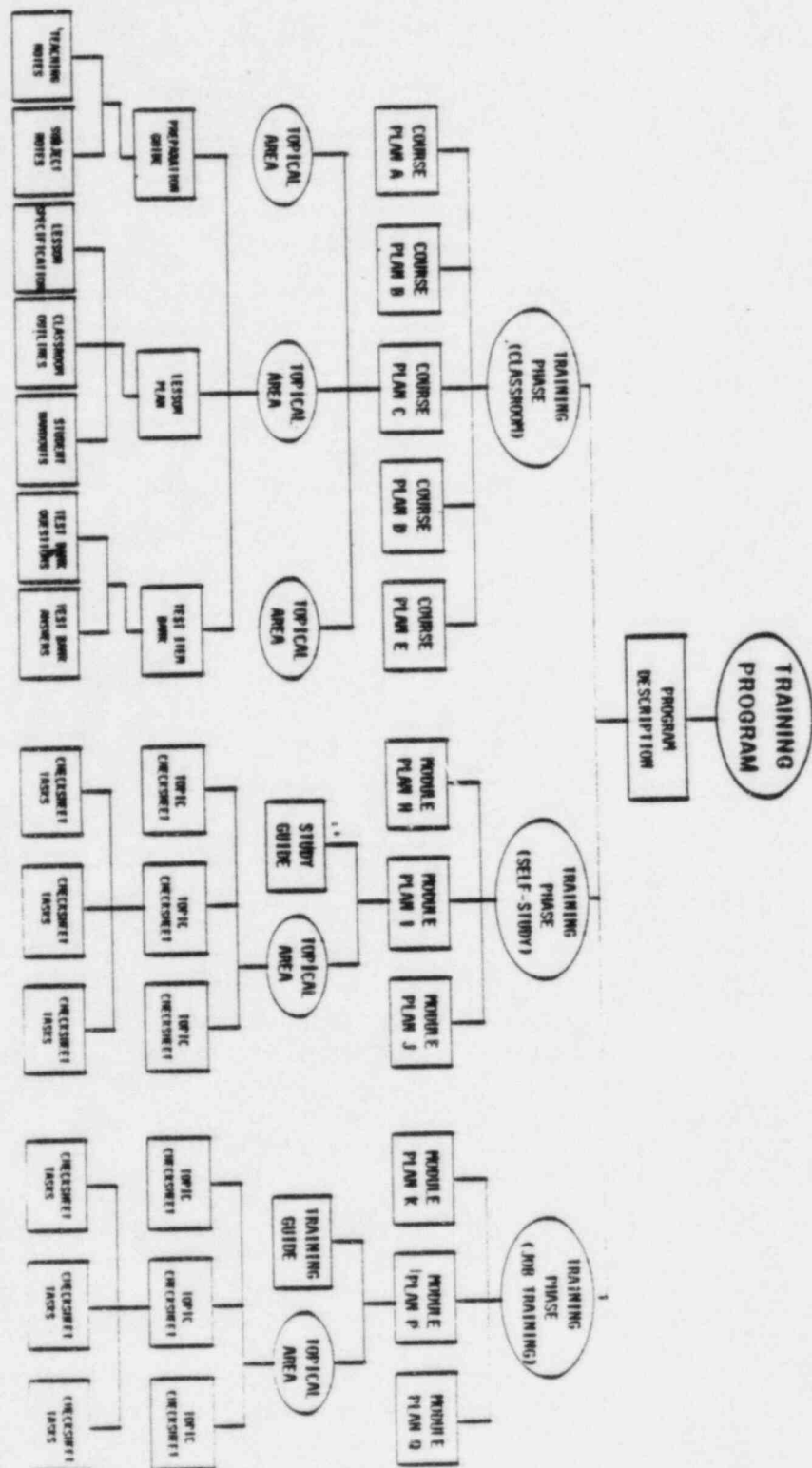


Figure 1.1 Structure of Training Programs and Associated Documentation

1.3 Development of Required Documentation

1.3.1 Responsibilities and Authorities

2→ The Nuclear Training Superintendent, under the Manager,
+ Nuclear Operations, is responsible for developing all Training Programs offered by the Training Division and associated documentation in accordance with TDP.5, Development and Implementation of Training Programs and Materials.

1.3.2 Sources

The primary source in developing training programs, or their components, should be job performance requirements for the particular group of trainees. These requirements should be based on:

- . Job analysis for the group to be trained;
- . Consultations with Division Superintendents in accordance with TDP.11;
- . An analysis of the tasks the trainee is to perform.

Documents that should be consulted in the development of training programs include:

- . INPO accreditation criteria governing the form and structure of training programs;
- . INPO training guidelines for the particular group of trainees;
- 2→ . INPO task analyses for the particular group of trainees
+ and the type of plant and equipment (Rancho Seco task analysis, when complete);
- . NRC Regulations;
- . Textbooks, manuals, system descriptions, plant procedures, technical specifications, and other plant specific documentation;
- . Information about industry events.

Other categories of information relevant to the development of training programs include:

- . Information about plant-specific experiences and requirements;

1.3.2 (Continued)

- . Analyses of entry-level skills and knowledge of trainees;
- . Site-specific circumstances and constraints arising from shift schedules, the availability of training staff and facilities, etc.

SECTION 2. PROGRAM DESCRIPTION

2.1 Purpose and Scope

A training program is defined as the total set of activities designed to provide training for a given group of employees. A training program normally consists of a number of courses and modules structured in such a way as to facilitate the achievement of program goals. For example, the training program for reactor operator candidates consists of classroom courses, self-study modules, and job training modules.

A Program Description shall be developed and maintained for each training program offered by the Training Division. The Program Description should present an overview of the program, goals of the program and the ways in which these goals are to be achieved. The elements to be included in a Program Description are presented schematically in Figure 2.1 and are discussed individually in the next section.

The purpose of the Program Description is to:

- provide a concise and readily available account, for plant management and external agencies, of the training provided for each group of trainees;

- act as a source document for those involved in making decisions concerning the objectives, content, etc., for each of the component courses and modules in the program;

- indicate the place of each component course or module in the overall training program, for the benefit of those responsible for implementing that component of the program.

2.2 Contents

2.2.1 Cover Sheet

Each Program Description should have a cover sheet as in Figure 2.2 containing the following identifying information.

- . Name of program;
- . Document name;
- . An identification number. A nine digit identification number is used to identify each program and constituent part of the program. Appendix A of this document details the program numbering system;
- . Revision Number and Date.
- . Approval signatures and date blocks.

<u>INTRODUCTION</u>	. Purpose of the Program
<u>GOALS</u>	. Statement of Goals
<u>STRUCTURE</u>	. Components and their descriptions . Sequence and duration . List of courses and modules
<u>PROGRAM DESCRIPTION</u>	
<u>ENTRY CRITERIA</u>	. Relevant regulations . Utility Requirements . Method of Exceptions
<u>EVALUATION</u>	. Methods and components . Criterion Levels . Follow-up Decisions

Figure 2.1 Elements of a Program Description

2.2.2 Introduction

2+ The introduction to each program should state that the program is established as directed by the Nuclear Operations Training Program (AP.700) and that it is conducted in accordance with the current Training Division Procedures (TDP's) which are listed in TDP.1.

Additionally, the introduction should contain a short statement of what the program is designed to do.

2.2.3 Statement of Goals

2-- The Program Description should contain a statement of program goals. The goals are the desired outcomes of the training program stated in terms of job-related behaviors. The goals of the program should be justifiable in terms of job requirements for the particular group of employees as identified by job-task analyses, relevant regulations, or by other acceptable means. Goals should refer to tasks performed by the job category for which the training is designed. They may refer specifically to the job analysis for the particular job category. Goals should not be stated in terms of the intended instructional process.

Program goals will normally be quite general statements. A typical program could have 5-10 goal statements. The following examples illustrate the form and level of generality of program goals:

- . Perform all routine manipulations, evolutions and operations required of a licensed operator;
- . Recognize degraded core conditions and take steps necessary to mitigate their consequences.

2.2.4 Structure of Program

A training program will normally consist of a number of components. These may be courses intended for classroom delivery or modules designed for self-study or job training. The Program Description should list the program components and indicate briefly the nature and scope of each. The duration of each component should be indicated, as well as their time relationship within the program. The structure will normally be presented with the aid of:

- . a structure diagram similar to Figure 1.1 showing the principal components of the program, and;

(program name)	<u>LICENSED OPERATOR TRAINING PROGRAM</u>	
(document name)	<u>PROGRAM DESCRIPTION</u>	
(document 9 digit no.)	<u>00 21 Z 00 00</u>	
(revision no.)	REVISION 0	12/06/83

(originator)	Instructor
(reviewed by)	Training Supervisor
(concurrence)	Group Supervisor
(approved)	Training Superintendent

Figure 2.2 Sample Cover Sheet for Program Description

2.2.4 (Continued)

- . a sequence diagram, showing the time relationship of the various components similar to Figure 2.3;
- . a course and module listing showing the name and nine digit number and spare or unused numbers.

The intended contribution of each component to program goals and its relationship to other components, should be discussed.

2.2.5 Entry Criteria

The Program Description should set out the criteria for admission to the training program. INPO guidelines, relevant regulations, utility policies, or other sources of entry criteria should be cited.

Criteria for entry to a program, or for exemption from any part of it may include items such as:

- . educational attainment;
- . job experience;
- . level of attainment in previous training program;
- . results of aptitude testing.

These items will be documented in accordance with TDP.8.

2.2.6 Evaluation Strategy

The strategy for evaluating trainee performance should be described. This may include a brief statement about the methods used to evaluate trainees's performance in each component of the program, as well as the form of any final evaluation.

The criteria to be used in deciding trainees' final grade in the program should be discussed. Other ways in which the various measures are used in making decisions about a student's status may also be presented. For example, in the operator training program satisfactory completion of a given set of systems task sheets may be a condition for promotion to auxiliary operator; or, an average of less than 80 percent in the annual requalification examination for reactor operators may lead to the suspension of the operator from active duty until he has completed an accelerated retraining program.

PROGRAM NAME

	Course A Name	Course B	Review	Module X Name	Module Y Name	Review	Final Exam
Week	1	2	3	4			

Figure 2.3 Sample for Program Sequencing

SECTION 3. COURSE PLAN

3.1 Purpose and Scope

A course is defined as a component of a training program designed for classroom delivery. A Course Plan should be developed and maintained for each course offered by the training division. The Course Plan should provide an overview of the course and its objectives.

The elements to be included in a Course Plan are presented schematically in Figure 3.1 and are discussed individually in the next section.

The purpose of the Course Plan is to:

- . provide a concise and readily available record of the instruction provided for the benefit of plant administrators and external agencies;
- . act as a source document in the subsequent development of Lesson Plans and Preparation Guide;
- . communicate the scope and intentions of the course to instructors to assist them in providing instruction consistent with desired outcomes.

3.2 Contents

3.2.1 Cover Sheet

Each Course Plan should have a cover sheet set out as in Figure 3.2. The cover sheets should include the following identifying information:

- . Name of program;
- . Title of course;
- . An identification number. Appendix A of this document details the number system;
- . Revision number and date.
- . Signature and date blocks.

2--

3.2.2 Introduction

A basic statement of the purpose of the course and its role in the program.

<u>INTRODUCTION</u>	. Purpose of the course
<u>OBJECTIVES</u>	. Listing and reference to program goals
<u>PREREQUISITES</u>	. Prerequisites for a course within the program
<u>COURSE PLAN</u>	
<u>CONTENT AND STRUCTURE</u>	. Content descriptions . List of Lessons and topics
<u>METHODS AND RESOURCES</u>	. Instructional methods . Course materials and equipment
<u>EVALUATION</u>	. Formative evaluation . Final evaluation . Criteria

Figure 3.1 The Elements of a Course Plan

SACRAMENTO MUNICIPAL UTILITY DISTRICT
RANCHO SECO NUCLEAR GENERATING STATION

(program name) LICENSED OPERATOR TRAINING PROGRAM
(course plan) MATHEMATICS COURSE PLAN
(course 9 digit no.) 00 21 A 00 00
(revision no.) REVISION 0

(originator) _____
Instructor

(reviewed by) _____
Training Supervisor

(concurrence) _____
Group Supervisor

(approved) _____
Training Superintendent

Figure 3.2 Sample Cover Sheet for Course Plan

3.2.3 Objectives

The Course Plan should include a list of objectives for the entire course. The objectives should be derived from the program goals but should be more specific in intent. They may refer to the outcomes of instruction to be evaluated at the end of the course, but in all cases, should be directly related to job performance. The course objectives should be more inclusive than individual lesson objectives and should emphasize terminal, rather than enabling, behaviors.

The following are examples of possible course objectives:

- . Describe and explain the principle of operation of the major types of radiation counters in use at the plant;
- 2+ . Explain the purpose and design bases for each system studied in the course and its relation to other plant systems.

Each objective in the course plan shall be referenced to the goals of the associated program description by the following method:

- . Following each objective, place the number of the referenced objective(s) or goal(s) e.g.
 - 1. Demonstrate ability to.....(3,4,5)

3.2.4 Prerequisites

A statement of courses or modules that must be completed to provide background information necessary for the completion of the course.

NOTE:

Exceptions to the course prerequisites shall be made in accordance with TRAINEE EVALUATION FOR PLACEMENT OR CHANGE OF STATUS (TDP.8).

3.2.5 Content and Structure

Should describe how the subject of the course is divided into its component part (topics) and how the topics are presented in the classroom, i.e. separated into 1 or more 50 minute classroom segments. Additionally it should provide for a listing of topics, their 9 digit numbers and lesson durations as an attachment to the course plan.

3.2.6 Methods and Resources

A brief description of the range of instructional methods appropriate to the subject matter of the course should be provided. Major audio-visual equipment and other recommended resources should be listed if appropriate. This should include a list of appropriate classroom and laboratory facilities or plant facilities which are necessary.

3.2.7 Evaluation

The principal methods to be used in evaluating trainees taking the course should be described. These should include formative methods, used during the course to evaluate trainee progress, and methods used in determining whether trainees have been successful in completing the course. For example, quizzes may be used to provide feedback to both instructors and trainees about their progress. Course grades may be determined by weighted combinations of quizzes, tests, and examination scores.

SECTION 4. LESSON DOCUMENTATION

4.1 Purpose and Scope

2-- A course of instruction can normally be broken down into a number of topics. Lessons are portions of instruction used for teaching each of the topics. The number and extent of the topics in a course, and thus of the associated lessons, are determined by the logic of the subject matter of the course and may be expected to vary considerably. For
2-- example, within a course on plant systems, each system will constitute a topic. The lessons in which the various systems are taught will not be
2-- of the same length since systems vary in complexity. In order to maintain trainee attention, lessons are broken into instructional periods of approximately 50 minutes each with 10-minute breaks between them.

Comprehensive documentation is required to assist in the preparation, delivery, and administration of instruction for each lesson in a course. This documentation is comprised of the following:

- . Lesson Plan;
- . Preparation Guide;
- . Test Item Bank;

2-- The overall purpose of the Lesson Documentation is to:

- . provide a record of the instruction provided within each lesson;
- . provide a comprehensive resource for the instructor in the
2-- preparation, delivery, and evaluation of instruction; assist in the administration of training programs by specifying resources and facilities that are required;
- . provide training materials to assist trainees in their personal study of the lesson topic.

The purposes are served differently by the different components of the Lesson Documentation. Each of the main components is discussed separately in the following subsections.

4.2 Lesson Plan

The Lesson Plan is defined as a document to guide the instructor in the delivery of instruction. Its component parts are:

- . cover sheet;
- . lesson specification;
- . classroom outlines;
- . student handouts.

These component parts of the lesson plan and their elements are presented schematically in Figure 4.1.

4.2.1 Cover Sheet

Each Lesson Plan should have a cover sheet as in the example shown in Figure 4.2. The cover sheet should include identifying information and information about resources required for the lesson. Specifically, the cover sheet for a Lesson Plan should consist of:

- . Name of program;
- . Name of course;
- . Name of Lesson;
- . Number of instructional periods in lesson (1 hour/period);
- . The lesson identification number. Appendix A details the numbering system;
- . Revision number and date;
- . Training equipment and facilities: classroom, workshop, A-V hardware, tapes, transparencies, student handouts, etc;
- . Instructor and student references.

4.2.2 Lesson Specification

The Lesson Specification provides basic descriptive information about the lesson. It includes an introduction and a list of lesson objectives.

4.2.2.1 Introduction

The introduction is addressed to the instructor and provides an overview of the scope of the lesson and the depth of treatment intended. The introduction may also suggest which part of the topic to emphasize or the way in which the topic may be approached in the classroom.

4.2.2.2 Objectives

Lesson objectives should be stated in the form of intended training outcomes. The outcomes should be specified in more detail than in the list of course objectives. In most cases, lesson objectives will be enabling in nature, but may be terminal in nature.

The objectives should describe tasks the trainee must be able to perform as the result of following the lesson and completing necessary exercises, etc. Each objective should commence with a behavioral term (describe, draw, compute, compare, etc.) Objectives should not refer to the instructor behavior in teaching the course (to show trainees, to familiarize trainees with...)

Conditions under which the behavior is to be exhibited may be included in the objective, when these conditions are not clearly implied or out of the norm.

COVER SHEET

- . Titles
- . Equipment and Facilities
- . References

LESSON SPECIFICATION

- . Introduction to Instructor
- . Objectives

LESSON PLANCLASSROOM OUTLINES

- . Introduction to students
- . Objectives for 50 min period
- . Presentation outline including; Key Aids and reminders, and review

TRAINEE HANDOUTS

- . Examples
- . Data Sheets
- . Supplementary Notes and Diagrams

Figure 4.1 The Elements of a Lesson Plan

SACRAMENTO MUNICIPAL UTILITY DISTRICT
RANCHO SECO NUCLEAR GENERATING STATION

(program name) LICENSED OPERATOR TRAINING PROGRAM
(course plan) MATHEMATICS COURSE
(lesson plan name) BASIC NUMBERING SYSTEMS
(lesson length) 4 HOURS
(lesson 9 digit no.) 00 21 A 01 00
(revision no. and date) REVISION 0 12/08/83

Training Equipment and Facilities:

1. Classroom
2. Transparencies
3. Overhead Projector
4. Projection Screen
5. Chalkboard

Instructor References:

1. Preparation Guide
2. Essentials of Mathematics; Pierson

Student References:

1. Student Handout
 2. General Physics Math Notes
-

Figure 4.2 Sample Cover Sheet for Lesson Plan

- 4.2.2.2 Objectives need not include an indicator of nonobservable behaviors, except in situations where a particular indicator is specifically required. For example: "To compute the value of given coefficient ..." is normally satisfactory. It is not necessary to state whether the result of the computation is to be communicated orally or in writing since the method of communication is not critical to the task.

2→ Following each lesson objective, place the number of the referenced course objective(s), e.g.

- + 1. Demonstrate the ability to..... (1,3,7)

4.2.3 Classroom Outlines

The Classroom Outlines are designed to assist in the delivery of instruction. There is one outline to correspond to each of the 50-minute periods within a lesson.

The classroom outline consists of the following elements:

- . Cover Sheet;
- . Introduction;
- . Outline;
- . Review.

4.2.3.1 Cover Sheet

Each outline should have a cover sheet as in the example shown in Figure 4.3 and include the following information:

- . Name of program, course, and lesson;
- . An identification number. Appendix A details the numbering system;
- . List of specific training materials for that period. This should include each transparency by number and name, any charts or graphs, procedural forms (ECP, etc;), models, etc;
- . List of lesson objectives which are specifically covered in that period.

4.2.3.2 Introduction

2→ The Classroom Outline is addressed to the trainee and should suggest an appropriate introduction to the instructional period. The introduction should serve to motivate trainees and should help to prepare them for effective learning.

4.2.3.2 (Continued)

The introduction to an Instructional Period will normally include the following:

2-- A brief overview of the overall lesson when more than one instructional period is required. This overview is usually provided at the beginning of the first instructional period but may be required in subsequent periods for unique circumstances. For example: Unsuitable time gap exists between instructional periods;

2-- Preview of the present lesson or period to help in orienting trainees to the topic. Such a preview may assist trainees in developing a mental framework within which to organize the new material. It may be preceded by a brief review of previously learned materials that serves as a lead in to the new topic;

2-- Communication of objectives. In addition to previewing the subject it may be desirable to communicate objectives to trainees so that they are aware of what will be expected of them following the instruction;

2-- Reason for Study. Discussion of the relevance of the topic to job performance and examples of the particular tasks to which it relates.

SACRAMENTO MUNICIPAL UTILITY DISTRICT
RANCHO SECO NUCLEAR GENERATING STATION

(program name) LICENSED OPERATOR TRAINING PROGRAM
(course name) MATHEMATICS COURSE
(lesson name) BASIC NUMBERING SYSTEMS
(period 9 digit no.) 00 21 A 01 00
(instructional period) 1 of 4
2-- (revision no. and date) REVISION 0 12/08/83

Training Materials

Objectives for this Period:

Figure 4.3 Sample Cover Sheet for an Instructional Period

2+ 4.2.3.3 Outline

The Classroom Outline should indicate very briefly how the content is to be presented. The presentation section of a Classroom Outline will normally be in a three-column format.

The first column will provide the key to the reference material in preparing the outline for teaching. Some teaching periods may be devoted to drill and practice or to problem-solving sessions. In such cases, the first column will list the exercises with each problem showing the solution or direct the instructor to the reference containing the solution.

The second column will be in outline form. This outline should consist primarily of headings and subheadings for the various teaching points taken from the subject notes (see 4.3.2). Sufficient space will be left between headings in the outline to allow each instructor to make his own additions and annotations.

The instructor will fill in the outline based on his teaching skill, depths of required coverage and personal need using the reference material of the first column. Worked numerical examples should be included as applicable.

The third column in the Presentation section is for notes and reminders. Key teaching aids for the topic should be listed and cross-references noted. Space should be left for the instructor to enter his own reminders about the instructional strategy that he intends to employ, drawing on the suggestions in the Teaching Notes (see 4.3.3) as he sees fit.

4.2.3.4 Review

Each instructional period should conclude with a brief review or summary. The review provides an opportunity for the instructor to elicit feedback concerning the extent to which lesson objectives have been achieved. The review section of each outline should draw attention to lesson objectives covered in the period, so that related trainee learning may be reinforced. The applicable objective for each review topic will be listed in the Key Aids column.

4.2.4 Trainee Hand-out

The Trainee Handouts consist of examples, notes, and figures to supplement the classroom presentation as a resource for the trainee in his personal study. These handouts normally fall into the following categories.

2→ 4.2.4.1 Objectives

The student hand-out must include all objectives for the lesson or 50 minute segment, as applicable.

+ 4.2.4.2 Examples

Completed copies of materials used as training aids, transparencies of forms or calculations. These may show computations, the use of symbols, event-response relationships or other material the trainee may need to reproduce or use as a reference.

2→ 4.2.4.3 Data Sheet

The student hand-out for a lesson may also include data sheets if appropriate. Data sheets are used to provide current, plant-specific information.

2→ 4.2.4.4 Supplementary Notes and Diagrams

The hand-outs may also include notes to supplement the information available in the basic test book. This will be necessary if:

- . text books are not available for individual trainees;
- . the text book does not cover all topics included in the course or does not deal with them adequately.

2→ The trainee hand-out will include the pertinent transparencies used in the lesson.

2→ Each student hand-out should have a cover sheet to indicate the following information.

- . Student Hand-out
- . Course Name
- . Lesson Name

2→ 4.2.4.4 (Continued)

- . 9 digit number of applicable lesson or segment
- + . Revision number and date

4.3 Preparation Guide

- 2→ The Preparation Guide is designed to assist the instructor in the
+ preparation for instruction. The Guide contains detailed subject-matter
notes, as well as a bank of teaching notes designed to assist the
instructor in effective teaching of the topic. The Preparation Guide
2→ should also contain an introduction to give general guidance to the
+ instructor in the preparation for instruction if needed. The elements
of the Preparation Guide are shown graphically in Figure 4.4.

4.3.1 Introduction

The introduction of the Preparation Guide should give any necessary instructions to the instructor concerning the overall presentation of the topic such as:

- . Special importance or relation to the Program, Course, or other topic;
- . Background knowledge or information required by instructor or trainee;
- . General or special teaching strategies;
- . Other hints or information to help ensure effective results.

4.3.2 Subject Notes

Existing texts should be used as Subject Notes for a topic as often as possible, therefore, minimizing the need for new material development.

- 2→ When feasible, such texts should be reproduced as single sided
+ copies to facilitate the insertion of teaching notes as described in Section 4.3.3.

When it is necessary to develop subject notes using verbatim sections of more than one reference book, the sections used must be clearly referenced to their base documents. Illustrations, figures, charts, examples, etc. used out of context must also be referenced.

The subject notes should consist of the following:

4.3.2 (Continued)

- . Sufficient background information of the topic to allow thorough instructor preparation;
- . Specific topic information of sufficient detail to facilitate preparation of the classroom outlines;
- . Major illustrations, diagrams charts, tables, examples, etc. necessary for preparation and presentation;
- . References to necessary or recommended material not suitable for preparation guide formatting.

NOTE:

When material designated as the Subject Notes for a topic is not suitable for preparation guide formatting; i.e., voluminous texts, multiple texts, copyrighted or otherwise unreproducible material; extra attention should be given to the teaching notes, as a separate document, to support outline development and presentation.

4.3.3 Teaching Notes

Teaching Notes should be developed to correspond to the items in the Subject Notes. Teaching notes and subject notes will normally be presented in a two-page format, with subject notes on the right and teaching notes on the left. The teaching notes should contain suggestions for an effective teaching methodology that might include:

- . suggestions about the most appropriate method to use in teaching a particular point, e.g., lecture, class discussion, demonstration, hand-on activity, etc.;
- . indications of concepts and techniques that should have been taught previously and will be needed in developing the present topic;

INTRODUCTION

- . Overview
- . Purpose

PREPARATION GUIDE

SUBJECT NOTES

- . Tech Manual
- . System Description
- . Subject Text
- . Procedures

TEACHING NOTES

- . Techniques
- . Instruction Prioritization
- . Examples
- . Analogies

Figure 4.4 Elements of a Preparation Guide

4.3.3 (Continued)

- . references to demonstration equipment that could help in presentation of the teaching point;
- . suggestions as to analogies, teaching aids, or other devices that may assist understanding;
- . indications of concepts that trainees often find difficult and suggestions about ways of overcoming the difficulties;
- . locations of additional practice exercises and suggestions for using such exercises;
- . cross-references to other sections of the course, or to other courses, having a bearing on a particular teaching point;
- . leading questions that could be used to stimulate class discussion;
- . When needed, notations indicating what material should be covered and what may be omitted or considered as background information;
- . indications as to depth of coverage required.

NOTE:

For those instances when the Subject notes are not formatted into the preparation guide the teaching notes take on added importance and should provide the following additional functions as applicable:

- . Provide clear referencing to the various subject note materials;
- . Provide guidance in the order of use of the subject note material;
- . Provide suggestions for basic classroom outline configuration;
- . Other instructions or information as needed to support outline development, instructor preparation and lesson presentation.

4.4 Test Item Bank

The test item bank, for a topical area consists of questions and their answers or keys used in developing examinations, tests, and quizzes.

The source in developing these questions are the lesson objectives contained in each lesson specification.

2-- The test item bank should indicate the applicable lesson name and number.

4.4.1 Questions

The development of the questions should be done in accordance with section 4.3 of "Principles of Instructional Design" (Volume II of Instructor Training Program)

In general, at least three questions should be developed for each objective. As many different types of questions, essay, multiple choice, short answer and problems; should be used as is practical for the objective.

4.4.2 Referencing

2-- Each item in the test item bank shall be referenced to its source objective(s).

As the relation of questions to their objective(s) is already established, the reference system need only establish the numbers(s) of the objective(s) they reference.

To facilitate question retrieval, each item in the test item bank is filed by source document number. This filing system may be physical files or electronic storage.

SECTION 5. MODULE PLAN

5.1 Purpose and Scope

Components of training programs designed to be delivered primarily on-the-job, using a simulator or by means of structured self-study are known as training modules. A Module Plan, analogous to a Course Plan, should be prepared for each such training module. The Module Plan should provide an overview of the module and its objectives. The Module Plan should also indicate the role of the instructor or supervisor in guiding or directing the trainee in his progress through the module. The contents of a Module Plan may differ slightly according to whether it refers to self-study, or job training.

The elements to be included in a typical Module Plan are indicated schematically in Figure 5.1 and are discussed in the next section. The purpose of a Module Plan is to:

- . provide a concise and readily available account of the relevant training module for administrators, external agencies, etc., as required;
- . communicate the scope and intention of the module to instructors, division superintendents, and trainees;
- . act as a source document in the preparation of study guides, checklists, or other training material associated with the module.

5.2 Contents5.2.1 Cover Sheet

Each Module Plan should have a cover sheet set out as in Figure 5.2. The cover sheet should include the following identifying information:

- . Name of program;
- 2-- . Name of module;
- . An identification number. Appendix A of this document details the numbering systems;
- . Revision number and date.
- 2-- . Approval signatures and date blocks.

<u>INTRODUCTION</u>	. Purpose the module
<u>OBJECTIVES</u>	. Listing and reference to program goals
<u>PREREQUISITES</u>	. Prerequisites for a module within the program
<u>MODULE PLAN</u>	
<u>STRUCTURE AND CONTENT</u>	. Structure . Topics or areas covered
<u>METHODS AND RESOURCES</u>	. Instructor role . Trainee role . Training materials
<u>EVALUATION</u>	. Formative evaluation . Final evaluation . Criteria

Figure 5.1 Elements of a Module Plan

SACRAMENTO MUNICIPAL UTILITY DISTRICT
RANCHO SECO NUCLEAR GENERATING STATION

(program name) LICENSED OPERATOR TRAINING PROGRAM(module name) MISCELLANEOUS MATERIALS TRAINING MODULE PLAN(module 9 digit no.) 00 21 R 00 002-- (revision no. and date) REVISION 0 12/08/83

(originator) _____
Instructor

(reviewed by) _____
Training Supervisor

(concurrence) _____
Group Supervisor

(approved) _____
Training Superintendent

Figure 5.2 Sample Cover Sheet for Module Plan

5.2.2 Introduction

2+ A brief overview of the module which describes the type of
+ training (self-study, OJT) and the reason for study.

5.2.3 Objectives

The module plan shall include a list of training objectives. The objectives should be derived from and referenced to the program goals but should be more specific. The module objectives will in turn be more general than the individual objective oriented tasks on the check-sheets. These tasks must be job-related and directly support one or more module objectives.

Examples of module plan objectives might be:

- . to carry out fire emergency procedures correctly and efficiently in the event of a fire at the plant;
- . to sketch line diagrams for applicable plant systems indicated in the individual task sheets.

Examples of check-sheet tasks might be:

- . Demonstrate proper use of CO₂ fire extinguishers;
- . Sketch a line diagram of the condensate systems.

5.2.4 Prerequisites

A statement of courses or modules that must be completed to provide background information necessary for the completion of the module.

2--

5.2.5 Structure and Content

2--

Should describe how the topics of the module are divided into its component parts (check sheets) and how the topics are addressed in the module, i.e., check sheets containing objective oriented study or performance tasks to be completed of the trainee. Additionally provisions for a listing of the topics (check sheets) should be made, including their nine digit number as an attachment to the module.

5.2.6 Methods and Resources

The method of training, whether by self-study, practical exercises, or other methods, should be described. The intended roles of instructor, supervisor, or division superintendent in guiding and monitoring training should be explained briefly. Additional information concerning these roles may be included in the associated Study Guide, Training Guide, or other Training Materials.

2→
←

Principal materials used in connection with the module should also be listed. These may include Study Guides, Check sheets and Participation Records. Reference materials needed by trainees may also be listed.

5.2.7 Evaluation

The method to be used in evaluating trainee performance should be described. This may take the form of a checklist or participation record to be signed off by the instructor or supervisor. If learning outcomes are to be measured by an examination, an indication of content and method of administration should be provided.

Criterion levels of performance should also be stated. In cases where trainees fail to meet criteria, any remedial or other action to be taken may be specified.

SECTION 6. STUDY GUIDE

6.1 Purpose and Scope

Study Guides should be developed to structure and provide guidance in the conduct of each Self-Study Module in a Training Program. These study guides may provide step-by-step instructions or general guidance in the performance of the check sheet tasks. The elements that should normally be included in a Study Guide are shown in Figure 6.1.

The Study Guides are to be used by trainees primarily for independent study. Additionally they should indicate that authoritative help and support is available to students as necessary. The Study Guides should serve the following purposes:

- guide students in carrying out specified tasks in order to satisfy the objectives established for the self-study module;
- provides the documentation of how the training is conducted in this component of the training program.

6.2 Contents

6.2.1 Cover Sheet

Each Self Study Guide should have a cover sheet as shown in Figure 6.2. A cover sheet shall include the following identifying information:

- Name of program;
- Name of study guide;
- An identification number. See Appendix A of this document for details of the numbering system;
- Revision number and date.
- Approval signature and date blocks.

6.2.2

Introduction

The introduction to the Study Guide should provide an overview of the purpose of the guide and its contents. Additionally the introduction may include module plan information necessary for the trainee to understand the scope and conduct of the module.

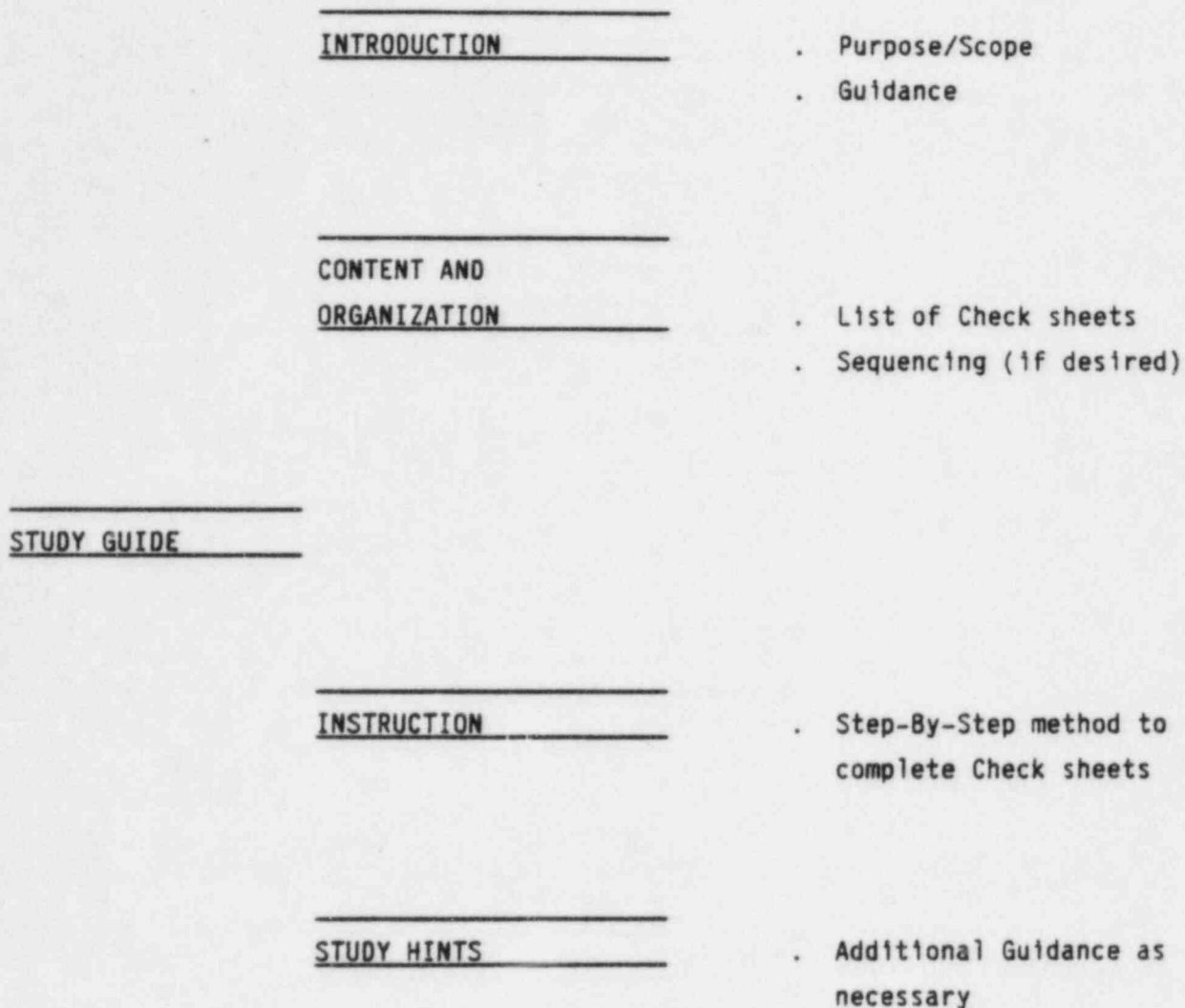


Figure 6.1 Elements of a Study Guide

6.2.3 Content and Organization

This section of the Study Guide should provide a listing of the check sheets to be completed by the trainee. The listing may be accompanied by a brief explanation of the category of the check sheets to ensure trainee understanding of module content.

Where necessary to describe suggested sequencing or other organizational aspects concerning the conduct of the module, an explanatory paragraph should follow the listing of the checksheet. This paragraph should provide any guidance or instructions not suited for the step-by-step instructions in the next section.

6.2.4 Instructions

The instructions for a self-study module should provide a step-by-step guide to the trainee for the completion of a check sheet. They should guide the trainee from the point of gathering reference material to the point of having the check sheet signed, verifying satisfactory completion of the oral check out. The steps should be clear and concise, allowing the minimum of interpretation.

6.2.5 Study Hints

This section should provide the trainee with additional instructions and guidance in the completion of the check sheets and conduct of the module as a whole. It should also give the trainee encouragement in the form of advisory statements. These statements may include but are not limited to the following areas:

- . How to study;
- . How long to study;
- . Where to seek help;
- . When to seek help;
- . How to measure readiness, etc.

SACRAMENTO MUNICIPAL UTILITY DISTRICT
RANCHO SECO NUCLEAR GENERATING STATION

(program name) LICENSED OPERATOR TRAINING PROGRAM
(study guide name) MISCELLANEOUS MATERIALS TRAINING MODULE-STUDY GUIDE
(document 9 digit no.) 00 21 R 00 00
2-- (revision no. and date) REVISION 0 12/08/83

(originator) _____
Instructor
(reviewed by) _____
Training Supervisor
(concurrence) _____
Group Supervisor
(approved) _____
Training Superintendent

Figure 6.2 Sample Cover Sheet for Study Guide

SECTION 7. TRAINING GUIDES

7.1 Purpose and Scope

Training Guides should be developed to structure and provide guidance in the conduct of job training components in a Training Program. These training guides may provide step-by-step instructions or general guidance in the performance of the check sheet tasks. Figure 7.1 shows the elements that should normally be found in a Training Guide.

In general, Training Guides should serve the following purposes:

- . guide students in fulfilling requirements for job training;
- . provides documentation of how the training is conducted.

7.2 Contents

7.2.1 Cover Sheet

Each Training Guide should have a cover sheet as shown in Figure 7.2. The cover sheet should include the following identifying information:

- . Name of program;
- . Name of module;
- . Name of training guide.
- . An identification number. Appendix A of this document details this numbering system;
- . Revision number and date;

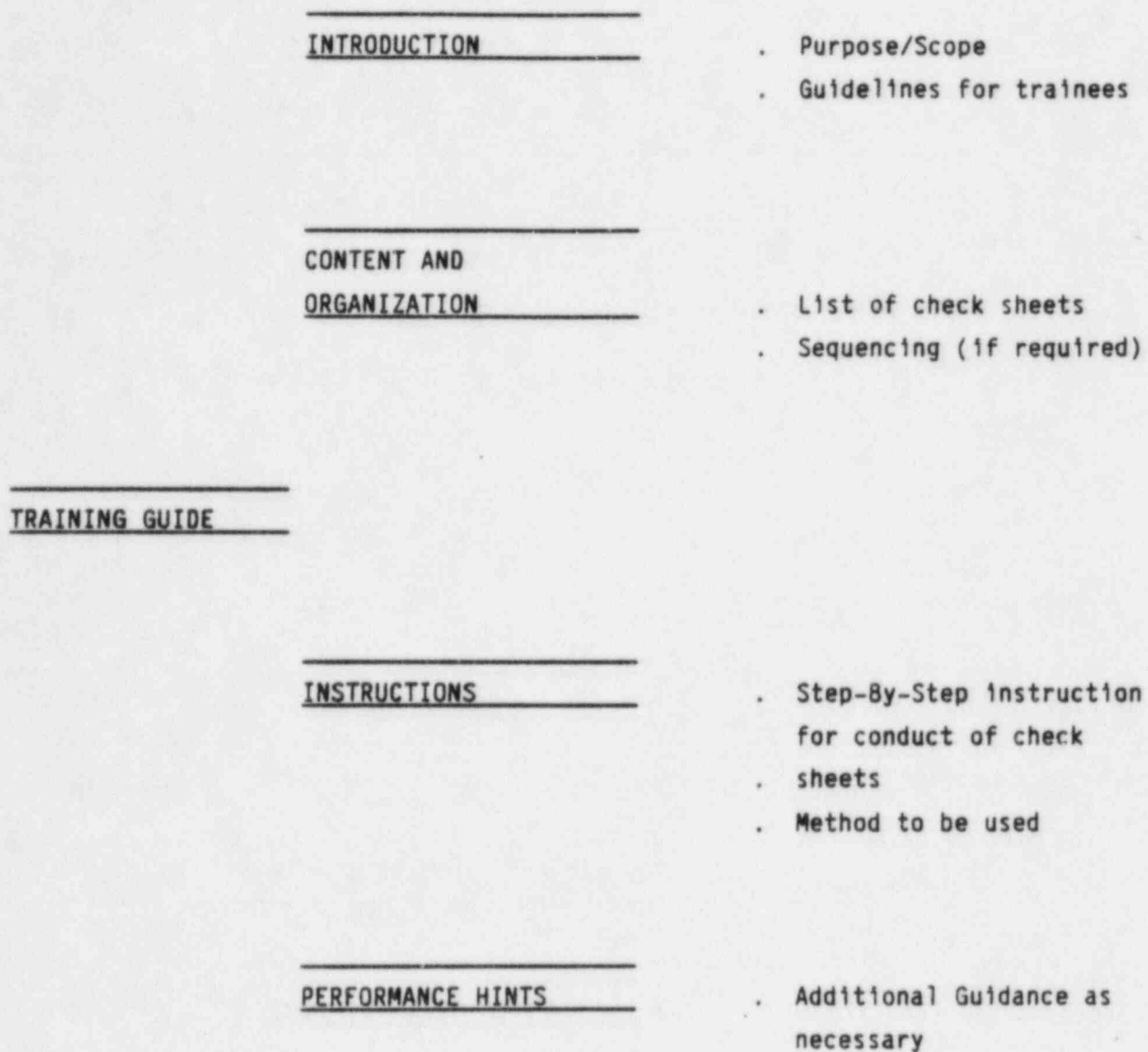


Figure 7.1 Elements of a Training Guide

SACRAMENTO MUNICIPAL UTILITY DISTRICT
RANCHO SECO NUCLEAR GENERATING STATION

(program name) LICENSED OPERATOR TRAINING PROGRAM
(training guide) ON THE JOB TRAINING MODULE - TRAINING GUIDE
(document 9 digit no.) 00 21 V 00 00
2-- (revision no. and date) REVISION 0 12/08/83

(originator) _____
Instructor
(reviewed by) _____
Training Supervisor
(concurrence) _____
Group Supervisor
(approved) _____
Training Superintendent

Figure 7.2 Sample Cover Sheet for Training Guide

7.2.2 Introduction

The introduction to the Training Guide should provide an overview of the purpose of the guide and its contents. Additionally the introduction may include module plan information necessary for the trainee to understand the scope and the conduct of the module.

7.2.3 Content and Organization

This section of the Training Guide should provide a listing of the check sheets to be completed by the trainee.

The listing may be accompanied by a brief explanation of the category of the check sheets to ensure trainee understanding of module content.

When necessary to describe suggested sequencing or other organizational aspects concerning the conduct of the module, an explanatory paragraph should follow the listing of the check sheets. This paragraph should provide guidance or instructions not suited for the step-by-step instructions in the next section.

7.2.4 Instructions

The instructions for a job training module should provide a step-by-step guide to the trainee for the completion of a check sheet. They should guide the trainee from the point of identifying the task to the point of having the check sheet signed verifying satisfactory completion of the task or check sheet as applicable. The steps should be clear and concise, allowing a minimum of interpretation.

7.2.5 Performance Hints

This section should provide the trainee with additional instructions and guidance in the completion of the tasks and check sheets and the conduct of the module as a whole. It should also give the trainee encouragement in the form of advising statements. These statements may include but are not limited to the following areas.

- . How to obtain instruction;
- . The difference between instruction and evaluation;
- . Where to seek help;
- . When to seek help;
- . How to measure readiness, etc.

APPENDIX A

LIST OF TRAINING PROGRAMS OFFERED AT
RANCHO SECO WITH THEIR NUMBERS

2+ 0021 Licensed Operator
0022 Senior Reactor Operator
0023 Non-Licensed Operator
0024 Reactor Operator Requalification
SA21 Shift Technical Advisor
EC21 Instrument and Control Technician (Computer)
EI21 Instrument and Control Technician
EM21 Electrical Maintenance
ET21 Electrical Technician
MB21 Building Maintenance Mechanic
MM21 Plant Mechanic
MT21 Tool Repairer
MW21 Material Handler
CR21 Chemistry and Radiation Assistant
ST21 Technical Instructor
+ ST22 General Employee Training

-Example
00 21 A 01 03

Operations Division

Lesson Segments or
Check sheet tasks

2+ Licensed Operator
+ Training Program

Lesson-Topics (classroom,
self-study or on-job-training)

Course or Module

Division Codes

2+ CR Chem Rad Group
*E() Electrical Maintenance Division
*M() Mechanical Maintenance Division
OD Operations Division
*S() Site support/Technical Groups

+ * Second letter of the division code indicates the group within a division
as indicated in the List of Training Program.

Note: . Each Group or Division can have up to 99 training programs;
. Each program can have up to 25 course/modules;
. Each course or module can have up to 99 lesson-topics;
. Each Lesson-Topics can have up to 99 Lesson Segments;
. Program numbers 01 - 20 are reserved for common base training
required for more than one division or group;
. Z is used as a space holder.

(LESSON NAME)

PROGRAM: _____

COURSE: _____

TOPIC: _____

LENGTH: _____ (Hours)

USE BLACK INK

[illegible]

(Lesson Number)

TRAINING
(Rev #)

USE BLACK INK

[illegible]