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ABSTRACT

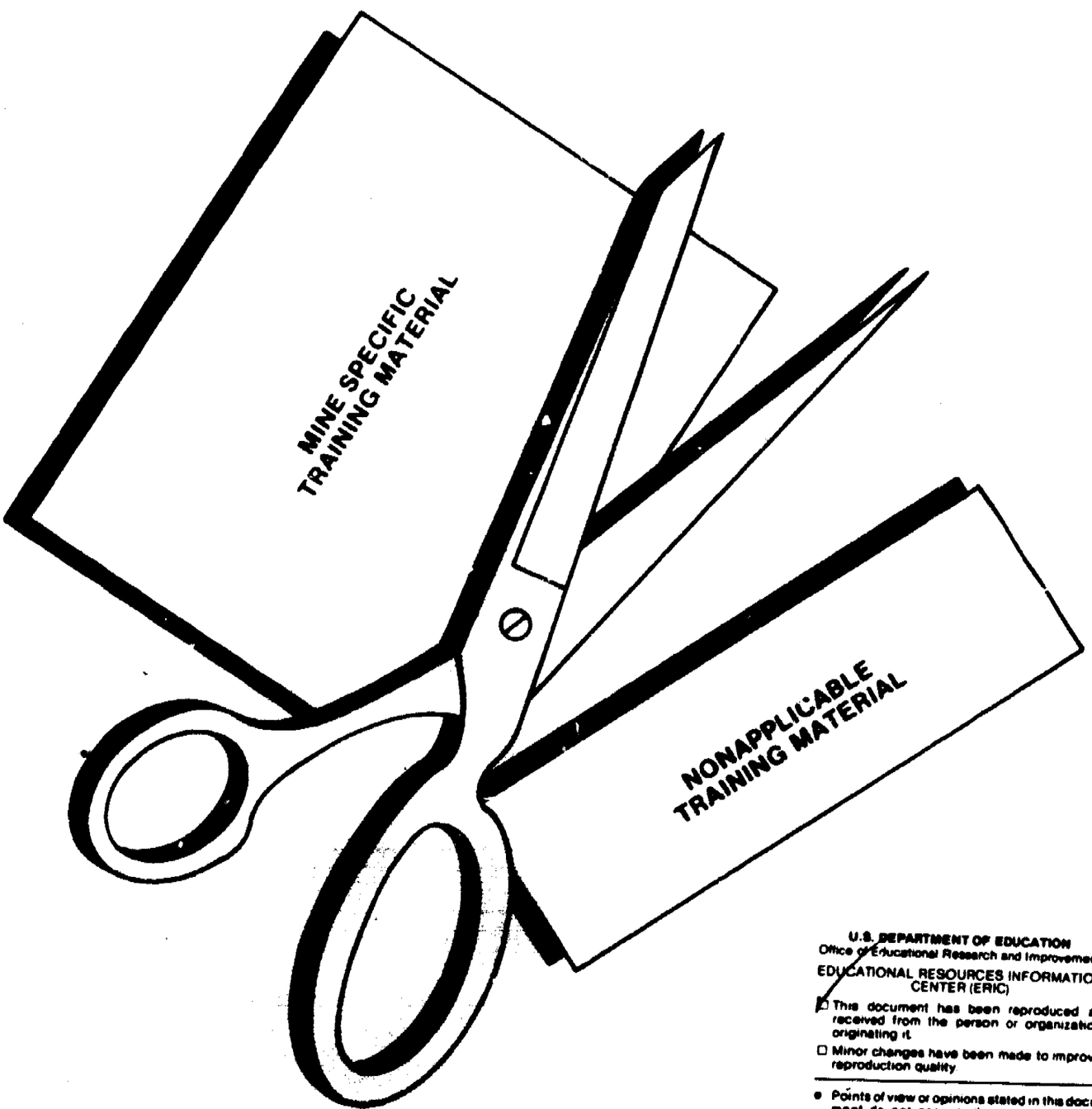
This booklet was developed to give trainers the information required to convert general material into a specific course on mine safety. Such a course would cover specific company procedures, conditions and hazards at the mine, accident avoidance information, and emergency procedures. The booklet contains seven sections and two appendices. Following the first section, which explains the purpose of the booklet, the guide provides a rationale for tailoring materials to a specific audience and suggests preliminary steps for tailoring materials. The tailoring process is explored in the fourth section, which is illustrated with a flowchart. Section V presents a step-by-step process for tailoring the Mine Safety and Health Administration (MSHA) Part 48 General Training Material module. It is followed by a section on keeping up to date and a one-page summary. Appendixes include information on constructing a questionnaire and checklists for tailoring materials. (KC)

How To Tailor Off-The-Shelf Training Materials

U.S. Department of Labor
Mine Safety and Health Administration
National Mine Health and Safety Academy
Beckley, West Virginia

Reprinted 1990

MSHA Guide



How To Tailor Off-The-Shelf Training Materials

U.S. Department of Labor
Elizabeth Dole
Secretary

Mine Safety and Health Administration
William J. Tattersall
Assistant Secretary

Reprinted 1990

MSHA Guide

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CONTENTS

INTRODUCTION

Many training programs are currently in use to meet federal and state training requirements. **The majority of these programs are general in nature, and are written for a specific topic rather than a specific mine.**

You are **not** required by law to use any of these off-the-shelf programs for your health and safety training. To meet the needs of your mine, you may wish to pick and choose materials from several different programs or sources and develop your own program. **This provides flexibility in structuring a training program.**

As the instructor, you are a key element in the success or failure of the training program. The amount of time and effort you put into the preparation and teaching of the material will significantly determine the quality of your program.

As stated earlier, most training materials provide you with the general information necessary to teach miners the basics of on-the-job safety and health. The purpose of this booklet is to give you the steps and information required to convert this general material into a specific course on what miners should know about your mine to work safely: specific company procedures, conditions and hazards at your mine, information to help avoid accidents, and emergency procedures.

Making training useful, interesting, and effective requires not only a conscientious instructor, but a commitment as well. Adequate time is needed to develop a training program specific to your operation. Company support is needed in providing an adequate place to conduct the training and in scheduling the miners to take the class at reasonable hours. By making this commitment to effective training, your company can help ensure a reduction in both injuries and equipment damage, and in the long run -- increased productivity.

WHY TAILOR?

It is your responsibility as the instructor to make sure that the material you cover is relevant, useful, and interesting to the class. This is where tailoring comes in. By relating the training material to the miners' jobs, you can increase the likelihood that they will listen to you and recognize the need for safe working habits.

If you say to a class, "We're going to cover some information which is important to your health and safety on the job," and then proceed to talk about a topic which has nothing to do with their jobs, you jeopardized not only the credibility of that training class, but of any future classes, as well.

This is why tailoring is needed. Miners **must** be convinced that the material you are covering is essential and will be of benefit to their own personal health and safety and skills development.

Additionally, if your mine does not have track haulage, for example, but you cover the material relating to track haulage anyway, you are not using your training time wisely. The time available for the purpose of training is limited. You must be careful to take the full advantage of this time by covering only that information which relates to the operation of your mine.

PREPARING FOR TAILORING

There are certain preliminary steps that you should take before you actually begin to tailor your training material. Several questions should be answered before the tailoring process starts:

- Who will do the tailoring?
- How long will it take?
- What materials are needed?

Ideally, the training material is tailored and taught by a company employee. A person who has been with a particular operation is more likely to know specific company procedures as well as what equipment is used, individual miner's responsibilities, and so forth. When a company person does the tailoring, not only will the procedure take less time, but the final product should be more appropriate, thorough, and accurate.

Initially, up to three weeks should be allowed for tailoring by someone already familiar with the operation. This should provide enough time to review the training materials; acquire violation and accident reports, and other information specific to the mine; make changes in the material where needed; gather training aids; and so on. If the instructor maintains current information files, the preparation time for future classes will be cut considerably. It is essential to the success of the training program, however, that the instructor devote a sufficient amount of time to preparing for the classes.

In some situations, it may not be practical to have the training material tailored by a company employee. In this case, an outside person or agency will be called upon to do the tailoring and training. The quality of the training does not need to suffer because of this. It simply means that more time will be necessary to obtain needed information specific to that mine. Since an outside person will not have immediate access to mine personnel and files, much of the information will have to be obtained through the use of questionnaires, interviews, and telephone calls. Obviously, this person will need the cooperation of company personnel. They must answer his or her questions as thoroughly as possible, including any important topic or point that they feel has been overlooked. In most cases, however, mine personnel will be more familiar with the operation than any outside person or agency.

Assuming that you are the person who is to do the tailoring, and you have been given enough time to complete the process, what do you do first?

Before you actually sit down and start tailoring, it is recommended that you have at hand all information and materials that you will need.

A couple of large 3-ring binders will help in keeping the material together. These will allow you to add or delete pages without tearing books apart, and prevent pages from being lost. Paper, scissors, and tape or glue will be invaluable to you when you start revising. In many places, there will be sufficient space for you to add your own notes in the margins. If you need additional space, write the information on a separate piece of paper and add it to the material at the apropriate place.

You will need to gather some preliminary information and materials. This may include, but is not limited to, the roof control, ventilation, and emergency evacuation plans, or the ground control and escape and evacuation plans, as well as the accident and violation data for your mine.

A method of organizing the accident data should be used to avoid having to wade through excessive paper work. The "Accident Information Sheet" shown on page 5 can be very helpful. By using this chart, or one similar, you will be able to see where problem areas are in terms of individual miners and tasks, types of accidents, causes of accidents, and so forth. This will give you a good idea of what areas or topics need to be stressed the most. Review the entries on the sample sheet to see what kind of information will be helpful to you. (A blank copy of the Accident Information Sheet for your use can be found in Appendix B.)

A similiar type of chart can be used for your violation information. By using a chart like the one found on page 6, you can quickly spot some potential problem areas. The sample sheet shows that three out of six violations have to do with roof control. If this were the violation data for your mine, you would know quickly that emphasis was needed on roof control training. By having some form of information chart which lists the general subject of the citation, the section in the state and federal regulations that was violated, and a basic description of the problem, you will eliminate the need to constantly refer back to the laws and dig through company files.

ACCIDENT INFORMATION SHEET

Date	Regular Job Classification	Job at Time of Accident	Accident Type	Details of Accident
11-2	shuttle car oper.	roof bolter	machinery	caught finger between bolt & boom of bolter, regular bolter out sick, s/c operator had not completed task training.
11-16	mechanic	mechanic	hand tools	smashed thumb with hammer while talking to miner operator
11-17	gen'l laborer	gen'l labor.	handling materials	strained back unloading supplies; didn't use correct lifting procedures.
11-21	section boss	sect. boss	roof fall	small piece of slate broke off, hitting him on shoulder; was making gas check; top was supported.

TOTALS (per accident type):

HANDLING MATERIALS .....
HAULAGE .....
MACHINERY .....
SLIPS and FALLS .....
HAND TOOLS .....
ROOF FALLS .....
STEPPING or KNEELING on OBJECTS .....
ELECTRICITY .....
FALL of FACE or RIB .....
FALLING or SLIPPING OBJECTS .....
OTHERS .....

VIOLATION SHEET

DATE	SUBJECT OF VIOLATION	STATE/FEDERAL REGULATION	DESCRIPTION
11-6	roof control	75.202 30CFR	loose sandstone top
11-6	clean up	75.400 30CFR	loose coal & float dust on floor (MAIN BELT)
11-26	roof control	75.200 "	intersection more than 64' wide
11-26	permissibility	75.605 "	s/c trailing cable not properly insulated
11-26	clean up	75.400 "	coal dust & oil build up on equipment
12-28	ROOF CONTROL	75.200 30CFR	intersection more than 64' wide

When recording violations for use in your training classes, do not waste time by discussing violations over which the miners have no control. If your mine has been written up six times for submitting the Roof Control Plan late, this suggests that a problem exists. But it is an administrative problem. Your concern is with violations involving the health and safety of the miners that they can possibly control. Violations for faulty cables, excessive dust and spillage, inadequate ventilation, and so on are the kinds of violations that you should cover.

Later in this booklet is a section titled "Keeping up-to-date." You will find suggestions on maintaining information files which will considerably cut down preparation time for future classes.

THE TAILORING PROCESS

Once you have completed the preliminary preparations, you are ready to begin the actual tailoring process. This is a multiple-step process in which you begin with the general off-the-shelf training material and end up with a tailored program that best meets the needs of a specific operation.

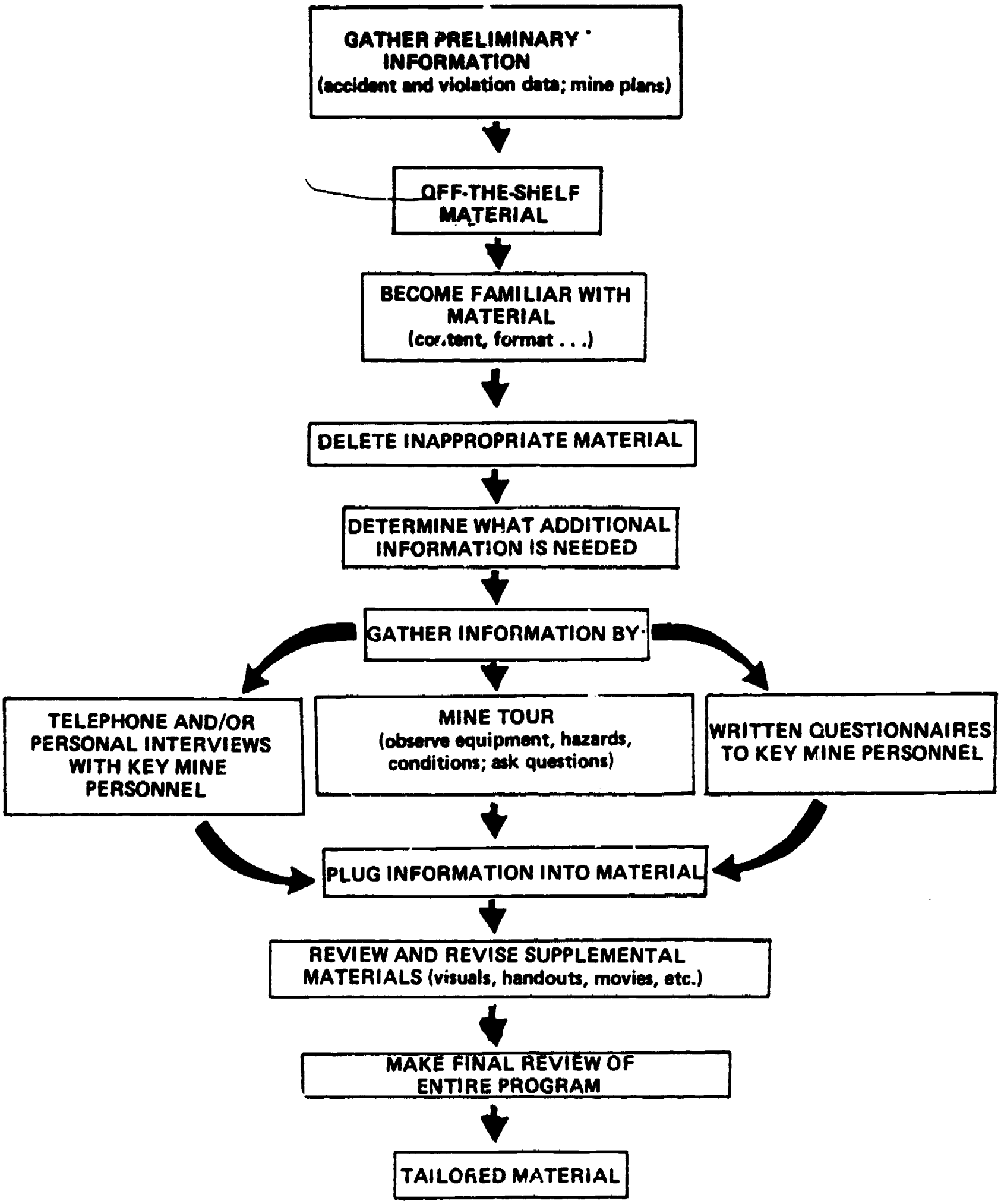
We have outlined this process in the form of a flow chart that you can use while you tailor your program. You can also refer to it as we discuss the various steps in more detail. (See chart on following page.)

Once the basic information has been gathered, you must become familiar with the material that is to be tailored. Concentrate on its content and format, and think about how you will make any necesary changes. Study the table of contents or outline. This will tell you exactly what is covered. If the table of contents or outline is too general in nature, you will have to skim through the text to get a better idea of what is covered. Look for areas that do not pertain to your operation. For example, suppose there is a section on resin-grouted roof bolts and your operation only uses conventional bolts. You would not spend time covering that section.

After reviewing the material, delete the material on topics you will not be covering. How you actually delete the material is a matter of personal preference. In many cases, you can put an "X" through the material you do not want to cover. It may be possible to remove entire pages, but first make sure there is no important information on the back. You may consider actually cutting out sections that do not apply and duplicating the page. Again, however, you must make sure that you do not cut out important material that may be on the back of the page.

The next step is to determine what specific information is needed and where the material should be modified. Go through the text, looking for suggestions to the instructor. These may be in the form of "Instructor notes," "Tips to the trainer," or any similar heading, and might be found as footnotes, separate sections, notes within the body of the text, or running parallel to the text. Regardless of how or where they are listed, pay close attention to

THE TAILORING PROCESS



them. They tell you what information you need, suggest teaching aids to use, and guide you in class discussions. They can be a valuable tool in helping to make your job easier, quicker, and more thorough.

Part of your training material may come from books written in the standard chapter format with no suggestions to the instructor at all. In this case, it is up to you to carefully read the text and look for places where inserting additional information may benefit the training program.

In addition to the basic information that was discussed in "Preparing for Tailoring (see page 3), you will need to obtain specific details concerning your mine's policies, procedures, equipment and supplies, and responsibilities of each miner, to name a few. This will usually involve making up a list of questions which should be answered by the people best qualified to do so - the mine personnel. The mine owner/operator, superintendent, safety director, and/or foremen are all good resource people. They are the ones who will be most familiar with the company procedures and policies, and the day-to-day operation of the mine. These questions should cover the hazards associated with specific equipment, hazards peculiar to that mine or sections of that mine, the location of first aid and firefighting equipment, emergency telephone numbers, and so on. Be certain that your questions are clear and that the answers provide you with the information needed.

Being familiar with the physical layout of the mine is an important part of tailoring. It is much easier to tell the miners where the first aid kits are located, for example, if you have seen them yourself. First-hand knowledge of roof conditions, dust problems, and so forth will help make any class discussion more meaningful and interesting.

If you work at the mine, familiarity should present no problem. Otherwise, you will need to arrange for at least one comprehensive personal tour of the mine.

You will need to make a list of things to look for while on your tour. First consider the very specific types of details. Note the location of such items as first aid kits, stretchers, paging phones, switches, disconnects, nipping stations, and fire extinguishers.

In addition to the specifics, you will need to make observations on the general condition of the mine. If it is an underground mine, look at the top and ribs. Are there horsebacks? Scaly sections? Have there been rib rolls? If so, to what extent? If it is a surface mine, how does the highwall look? Does there seem to be a traffic problem? All of these are questions that should be answered. If the answers are not obvious, ask the people around you.

If you did not obtain all the information you needed on your visit, you may have to use telephone interviews or written questionnaires to key mine personnel to obtain additional information.

Remember that a person who receives a questionnaire must take the time to sit down and answer it. Many of the mine personnel have little spare time,

so it will be to your advantage to construct a questionnaire that can be filled out quickly. You may also find the questionnaire useful in information gathering while making your own tour.

When making up the questionnaire, be sure that it is clear - you will not be there to explain any questions or directions. Use multiple choice, yes or no, and fill in the blank questions as much as possible. Also, keep the questions short and to the point. Whenever possible, consider using charts and checklists. A lot of information can be obtained on one page by carefully designing a good chart.

Before you actually write the questionnaire, you should know basically what information is needed. By making a rough outline first, you can organize your questions into a logical sequence and reduce the chance of omitting questions.

Samples of questions, an outline, and an equipment chart can be found in Appendix A. These are not intended to be complete, but to guide you in making up your own questionnaire.

You will have to allow time for the questionnaire to travel through the mail, be completed, and returned to you. After determining how much time this should take, wait a week or so and follow up your questionnaire with a brief letter or phone call, reminding the person how important it is for you to get the information as soon as possible.

At this point, you should have all the additional information you will need. This includes the roof control, ventilation, and emergency evacuation plans, or ground control and escape and evacuation plans, violation and accident data, questions answered by the mine personnel, and your notes from the tour.

It is now time to plug the information into the appropriate areas of the program. As we said earlier, how you decide to physically make the changes depends on your personal preference. Insert the information where needed. Make the changes in a logical order. This will help ensure that you have covered all the material without omitting any changes. Make sure that your notes are clear, to be of value when you are teaching.

At this point, most of your work is done. The majority of training programs, however, are composed of more than just a written text. Depending on the particular program, it may include visuals (in the form of handouts, or transparencies), quizzes, slide-tape programs, films, a glossary of terms, and/or study guides for the miners. These, too, should be tailored. The preliminary work for this has already been done. By this time you have determined what information is and is not to be included. Now you must make sure that these supplemental materials are applicable and are consistent with the changes you have already made.

Make sure that the equipment shown in any of the visuals is the type used at your mine. Quiz questions should be modified to test only the material you are to cover. Slide-tape programs and films should be reviewed to make sure

their contents are relevant to the operation of your mine. The glossary should be checked to see if any unfamiliar terms should be added or irrelevant terms deleted. If your program has study guides for the miners, make sure they are consistent with the material covered in the rest of the training program. It is always a good idea to go back to "square one" and make a final review of the entire program. Be sure that all irrelevant material has been deleted and that revisions have been made wherever they are appropriate.

By now you have a fairly good idea of how the tailoring process works. In the next section we will go through the tailoring of an MSHA-published Part 48 training module, using specific examples. If you are using a different training content, you should find the examples helpful in tailoring that material. **The training content of all MSHA modules must be tailored to meet the specific needs of each mine, e.g. coal, salt, limestone, etc.**

TAILORING THE MSHA-PUBLISHED PART 48 GENERAL TRAINING MATERIAL

Now that you have an idea of how to tailor training material, let's go through the process using an MSHA published training guide as an example.

Before you actually start to tailor, you should sit down with the material and go through it in order to get a good idea of how the module is structured.

THE PARTS OF THE MODULE

Let's look at how a module (unit) of the Part 48 training program is set up. If you want more details on these modules, see the Instructor's Manual for Health and Safety Training and Retraining of Miners (MSHA 0001).

The introductory pages

At the beginning of the module, you will find information designed to introduce you to the contents of the module. This includes a short statement telling you what is included in the module, and a list of training objectives (goals) which specify exactly what the miner is supposed to learn.

Under the heading "Required Materials," you will find a suggested list of materials you may need to teach each module. Since each module is a self-contained unit, in many cases you may not need anything except copies of handouts, pencils, and paper for the miners.

The materials listed under "Optional Materials" give you an idea of some other sources of general information on the same subject. You may also want to show training films or use other materials to supplement your own presentation.

Under "Suggested Materials" you will find such visual aids as overhead projectors, materials for making transparencies, and blackboards listed. It is not absolutely necessary to have these items to teach the module, but they do make a presentation more complete and interesting. Keep in mind that you can add as many other materials as you need to make the best presentation possible.

The final part of the introduction - the outline - is provided to give you an idea of how the module is organized. This outline can be used as a guide when you prepare and deliver your lecture or demonstration.

Lecture and instructor notes

The lecture section is presented in a two-column format, with the suggested lecture on the right side and the instructor notes on the left. The instructor notes work together with the suggested lecture to help you give a smooth, effective presentation and to keep the miners involved in the learning process. In fact, the lecture is set up so that it is more of a two-way discussion with the miners than a traditional "I-lecture-you-listen" situation.

Suggested lecture

The suggested lecture contains material which includes the objectives stated at the beginning of the module. This material is provided to give you an idea of how you might satisfy these objectives. It is not meant to be presented word-for-word.

As you look over the lecture material, keep in mind that it is very general in scope. This is the main part you will be tailoring to fit your mine and apply to the miners who work there.

Instructor note headings

You will find instructor notes preceded by one of four titles: Objective, Evaluation, Presentation, and Reference. Here is a brief discussion of each:

Objective. This restates a training goal found at the beginning of each module. The objectives indicate what the material you are presenting is designed to do.

Evaluation. This tells you to ask the miners questions or have them perform demonstrations so you can find out how much they have learned from the material just covered or to think ahead about what you will be discussing next.

Presentation. This indicates that you are to present something to the miners. You may be asked to distribute a handout or a self-check to the miners, you may show them an illustration, or demonstrate a procedure. In some cases, the note will give you a suggestion about material to add to the lecture, where to place emphasis, or suggest ways to adapt or create material to fit your mine.

Reference. This tells you where you can look up a point of law that is covered in the lecture. You may want to refer to the law in order to add some additional details to the lecture.

Progress check

In many of the modules after the lecture you will find a list of general questions covering all the material contained in the lecture called a "Progress check." This check is designed to help you find out how much the miners have

learned. It is not a test, and should not be graded, but you can use it as a learning tool. You will know how well you are doing as well as the progress the miners are making.

Glossary

Since some of the terms you bring up in the lecture may be unfamiliar to the miners, the modules provide you with a glossary. Here you will find many of the mining terms used in the lecture, along with their definitions.

Visuals and self-checks

At the end of each module you will find illustrations, handouts, self-checks, and other visual materials that can be used to supplement the lecture.

TAILORING SPECIFICS

Now that you have familiarized yourself with the format and parts of a module, let us look at some specific tailoring examples that will show you the steps you should take in modifying them for your class.

Let's say you are going to teach the Part 48 Annual Refresher Training to a shift of underground miners. Select and review the module so that you will be familiar with its content, particularly looking for sections that you can delete.

For example, take the Transportation and Communication module (MSHA 0124). The first page tells you the objectives you should accomplish in your training. (Figure 1)

Course objectives

The main objective of this module is to assure that the miner recognizes the importance of transportation and communication in the mine, and can identify hazards associated with these systems.

Supportive objectives:

1. **Recognize the importance of check-in and check-out systems.**
2. **Identify the correct procedures required when using the mine mantrip system and potential hazards inherent to the system.**
3. **Recognize the health and safety aspects (safe procedures and hazards) of the main transportation systems in the mine.**
4. **Identify potential hazards related to moving equipment, and safe work procedures to be followed when using that equipment.**
5. **State the importance of communication and directional systems used in the mine.**

Fig.1

On page 2 of the module you will find a list of materials you should get before teaching the course. The method you choose to present the visuals will determine which of the "Suggested" materials are needed.

Be sure to consider the "Optional" materials listed. They can provide both additional information and variety to your presentation. (Figure 2)

Course materials

Required:

Handouts from the module

Pencil and paper, which you must provide, for each miner

Suggested:

Overhead projector

Material for preparing transparencies

Blackboard or flip chart

Title 30, Code of Federal Regulations (30 CFR)

Optional:

The Mine Safety and Health Administration (MSHA) can provide you with the following materials:

A training module (MSHA 0107), Transportation and communication, for inexperienced underground miners

Films:

(No. 834) "Dangers Along Haulageways"

(No. 836) "Conveyor Belts – Be Careful"

(No. 839) "Haulage Safety in Low-Coal Mines"

Fig. 2

By skimming the Course Outline (Figure 3), you should be able to get an idea of what material does not apply to your mine. For example, if your mine does not use conveyor belts, it is unlikely that you will cover belts in your class, so you can delete section "C. Conveyor belts" under "IV. Haulage."

IV. Haulage

A. Track haulage

(PART OF OUTLINE OMITTED)

B. Off-track haulage

1. Accidents
   a. Causes
   b. Federal regulations
   c. Unsafe acts
2. Safe procedures for operating equipment
   a. Environment checks
   b. Equipment checks
   c. Tramming
      1. Check curtains
      2. Haulageways

C. Conveyor belts

1. Accidents and causes
2. Preventing accidents
   a. Protective devices
   b. Federal regulations
   c. Safe procedures for working on and around the belt

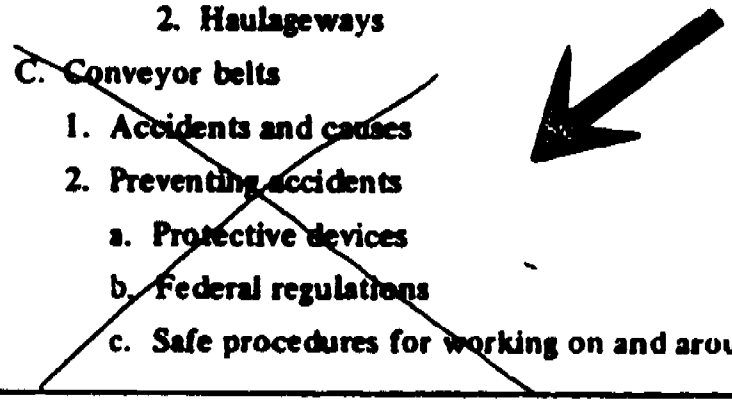


Fig. 3

But just to make sure, review that section of the lecture along with the rest of the module to ensure that it does not apply to your mine. If you delete this section by removing the pages, make sure you are not removing lecture on the back of certain pages that does apply to your mine. One other note: File these deleted pages for future use. If your mine should get conveyor belts, you would want to cover this section in your instruction.

The next step is to review the module to find out what specific information you need to get. As you collect the information for a module, it is a good idea to put it down on some sort of a "fact sheet." Then, as you go through to make changes in the module, you need only to refer to your fact sheets to find the specific information required.

This is especially helpful since the same facts may be used more than once in a module and in more than one module. The fact sheet cuts down the time you would need to look for a specific piece of information to put in a module. It is also convenient when you update your information files.

Staying with the Transportation and Communication module, let's start reviewing the lecture and instructor notes (Figures 4 and 5). After a brief introduction, the first thing you will be talking about is your mine's check-in and check-out system. The lecture generally describes what this system is and why it is used. Then, a presentation note appears:

Presentation: *You may wish to point out to the miners where the record is kept at your mine.*

If some of the miners are new to your mine, describe the heck-in, check-out system used at your mine. If possible, show miners a photograph of this, or the actual checkboard or other record-keeping device used at your mine.

From this note you can see that you will have to find out where the check-in/-out record is kept at your mine, and if necessary, the procedure that is followed for checking in and out. Let's say your mine uses a checkboard located in the mine office. This is the information you will want to plug into this section of the lecture.

Proceeding on, the module states:

Fig. 4

On your lamp belt, you have an identification check (or tag) that is made of a rust-resistant metal.

1

Reference: *The reference for the following law is* 30 CFR, *section 75.1715.*

By law, this tag has a number on it that's the same as the number on a record kept by the mine operator.

Presentation: *If some of the miners are new to your mine, and don't have an I.D. tag, tell them when and where to get one. Also tell them what information is on the tag (name, social security number, or whatever else is used at your mine).*

2

Fig. 5

The first lecture paragraph (arrow 1) concerns the miners' ID tags being made of metal. For your tailoring, you may want to describe the tag in more detail or show an actual tag. Arrow 2 points to another note. Here, the information requested is clear. You should know this information in order to give a detailed explanation of the tag, particularly to those new miners in your class.

Skipping to the section on Personnel transportation (Figure 6), you see other areas needing specific information. Arrow 1 points to a note requiring you to find out what type of personnel transport or mantrip is used at your mine. Arrow 2, in the lecture, indicates where this information would go.

Personnel transportation

Objective 2: Identify the correct procedures required when using the mine mantrip system and potential hazards inherent to the system.

1

Presentation: Be specific about what means of transportation the miners use at your mine.

2

Once you've checked into the mine, you may board a mantrip or conveyor belt to travel to the working section.

Like automobiles, trains, and other means of surface transportation, mine transportation involves hazards.

Hazards, as you know, are situations or conditions that can lead to accidents.

Let's talk about some of the hazards associated with these forms of mine transportation.

Fig. 6

Figure 7 shows another example of the type of information you should get. This note requires details about accidents for off-track haulage. We have already discussed how to get this information and recording it on the Accident Information Sheet. In this case, you would need examples of this type of accident, along with the details and causes for each. With this information, you will be able to emphasize those safety rules that follow in the lecture in order to alert the miners to specific hazards or trouble areas your mine has experienced with off-track haulage.

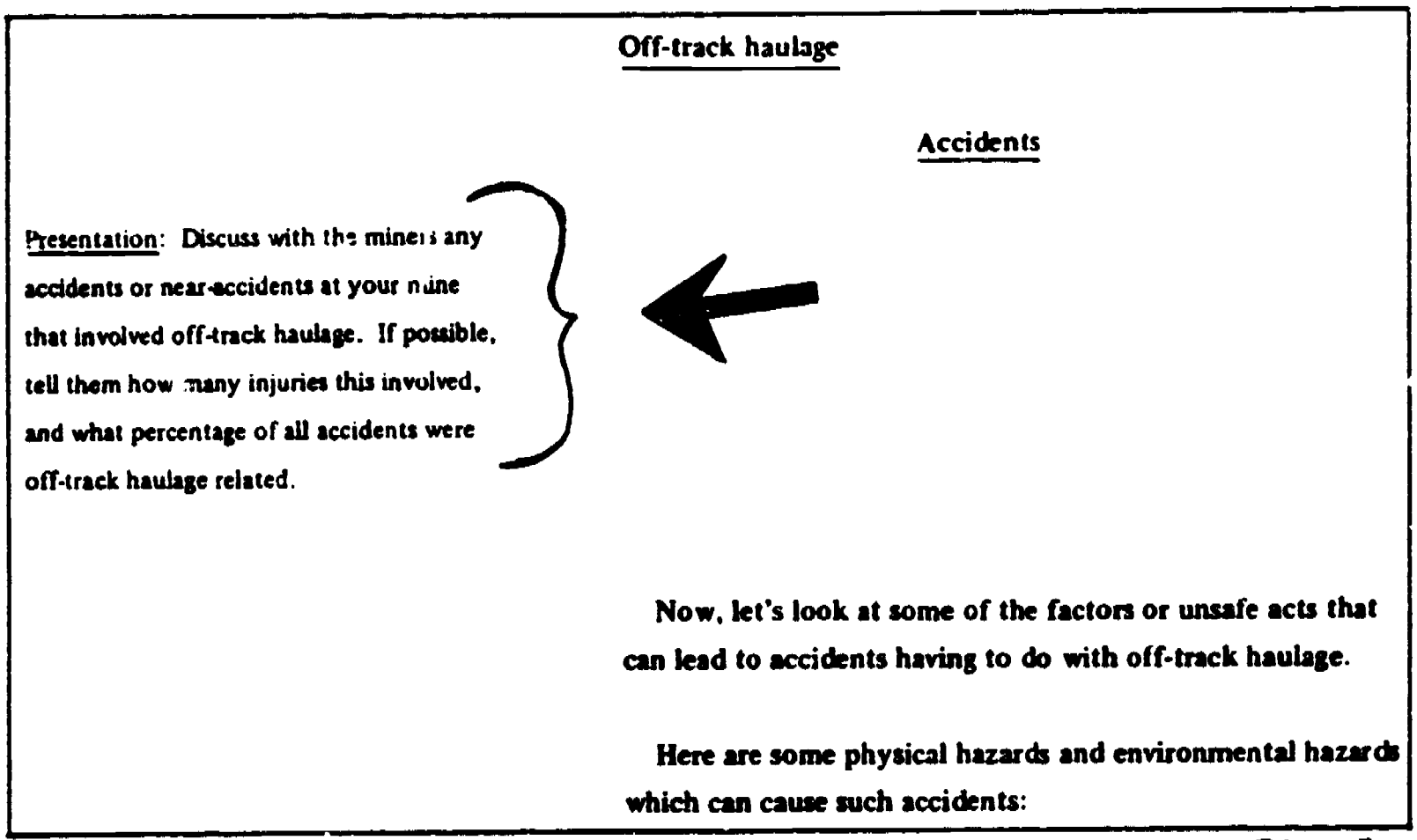


Fig. 7

Let's look at a few more areas in the module requiring specific information. Figure 8 covers Federal regulations designed to reduce off-track haulage accidents. The note requires you to have a list of accidents or near-accidents and/or violations of regulations dealing with off-track haulage so the miners will understand that safe haulage procedures can reduce accidents and violations. Here you can refer to your Accident and Violation sheets to collect the information needed.

Several places in the lecture section will call for some research on your part. In Figure 9, you will have to see if your mine has older equipment without fire control devices. If it does not, you can delete this portion of the lecture. If it does, you should find out what the vehicle is (by brand name and type) so the miners know that its fire control system is different than that of newer vehicles in the mine.

Federal regulations

In order to help eliminate these hazards and reduce accidents, you should be familiar with some of the Federal regulations that apply to off-track haulage.

Let's take a look at some of them now.

Presentation: Using a list of accidents, near-accidents, and/or violations involving track haulage at your mine, select Federal regulations dealing with these particular problems, and discuss them. Also discuss any laws having to do with any accidents the miners have suggested.

Fig. 8

If you have an older vehicle that is not equipped with fire-resistant fluids or fire suppression devices, it must be equipped with a fire extinguisher which is in good condition.

So before you start the vehicle, make sure it is properly equipped. Remember: There is a possibility of fire the second you start the vehicle.

Before starting the vehicle, make sure its controls are not obstructed by dirt, lumps of coal, or other materials. If the controls aren't clean, the vehicle might not move once you start it.

Fig. 9

Figure 10 shows a lecture section in which three major haulageway hazards are listed. One may be more hazardous at your mine than the others and should be emphasized with examples and stressed more in the lecture. It is up to you to find out if one hazard presents more problems than the others and provide specific details of that hazard in your presentation.

Haulageways

Another place you should be especially careful when you're tramming equipment is near a haulageway.

Here are three major hazards you might encounter near a haulageway:

1. Bottom irregularities, such as ruts, holes, or bumps
2. Debris that could cause an operator to lose control of the vehicle (for example, timbers, roof bolts, wood blocks, tools, rocks, and so forth)
3. Wet and muddy conditions which could cause your vehicle to slide.

If you find that one or more of these unsafe conditions exists near a haulageway, either have them corrected or be extremely careful when you tram equipment near the haulageway.

Fig. 10

By now you should have a reasonable idea of how to find those places in the module which call for specific information. Naturally, modules dealing with topics other than transportation will require different kinds of information. You will find, however, that in all the modules, the clues to what information is required and where it should go are similar to these examples.

Once you have collected the necessary information, you can plug it into the module. In addition to putting information in, you may find yourself deleting sections which are not needed.

Incorporating Specific Information

To begin with, your primary concern is to incorporate into your presentation the specific information you have gathered. After you have inserted information required by an instructor's note into the text you will not need that note any longer, so just "X" it out or otherwise delete it.

Let's stay with the Transportation module and take another look at an example we used earlier (Figure 11). The arrows point out places where more specific information is needed. Arrow 1 points to a reference that your ID tags are made "of a rust-resistant metal." You know that the tags at your mine are made of brass. By crossing out the general statement "a rust-resistant metal," and replacing it with the word "brass," you have tailored that paragraph to your mine.

Arrow 2 is pointing to an instructor's note that tells you to supply specific information about your ID tags. By writing this information into the lecture, you have eliminated the need for this note, so delete it.

On your lamp belt, you have an identification check (or tag) that is made ~~of a rust-resistant metal.~~ brass.

1

Reference: *The reference for the following law is* 30 CFR, *section 75.1715.*

By law, this tag has a number on it that's the same as the number on a record kept by the mine operator.

~~Presentation: *If some of the miners are new to your mine, and don't have an I.D. tag, tell them when and where to get one. Also tell them what information is on the tag (name, social security number, or whatever else is used at your mine).*~~

2

For you new miners who don't have a tag yet, stop in the mine office before your shift and get one. Your last name, first initial, and social security number will be on your tag.

Fig. 11

Suppose you have checked your Accident Information Sheet and found that most track haulage accidents at your mine happen because miners get on or off moving cars. You will want to emphasize point #2 in Figure 12. By making a few short notes to the left of the lecture (arrow 1) you have done what the instructor's note requires (arrow 2), so delete it.

Here is a list of unsafe acts commonly encountered around track haulage:

Presentation: As you discuss these unsafe acts, be sure and emphasize the ones that have created problems at your mine.

If possible, make an overhead transparency of this list and project it, or write the list out on a blackboard or flip chart.

1

*Major cause of track accidents here. Last year, 6 men injured because of this.

1. Riding in an unsafe position—this includes:
   a. Riding in a car loaded with coal or supplies
   b. Riding on the front bumper
   c. Riding on the lead car of a pushed trip
   d. Standing while operating a locomotive

*2. Getting on or off moving equipment

3. Running ahead of a moving trip

4. Not seeking refuge in a shelter hole

Fig. 12

What if you have never had a problem or accident related to track haulage? In this case, do what you can to promote a good thing. Briefly go over the possible hazards and safety rules anyway and keep the miners aware of potential problems. You might start out by saying, "Although our mine has never had an injury related to track haulage, keep these hazards and rules in mind so the record stays clean and you don't become the first injury."

This situation may crop up many times while you are tailoring. The notes may require you to give examples of possible accidents or violations that could

occur at your mine even though your mine has never had an accident or violation of that type. It may ask you to describe certain hazardous conditions in the mine that do not exist at your operation. What do you do? If it concerns a practice, procedure, potential hazard, or machine at your mine, briefly go over the safety rules or explanacions of hazards. Review the lecture material with the miners so they will be aware that potential hazards exist and practice safe working habits. It is a good idea to mark this area in the module itself so you can quickly find and change it should conditions change or an accident occurs in the future.

Let's say that your mine uses junction switches as a part of its directional system. As pointed out in Figure 13, you will want to expand the lecture by describing the switches, how they work, and anything else about them the miners should know.

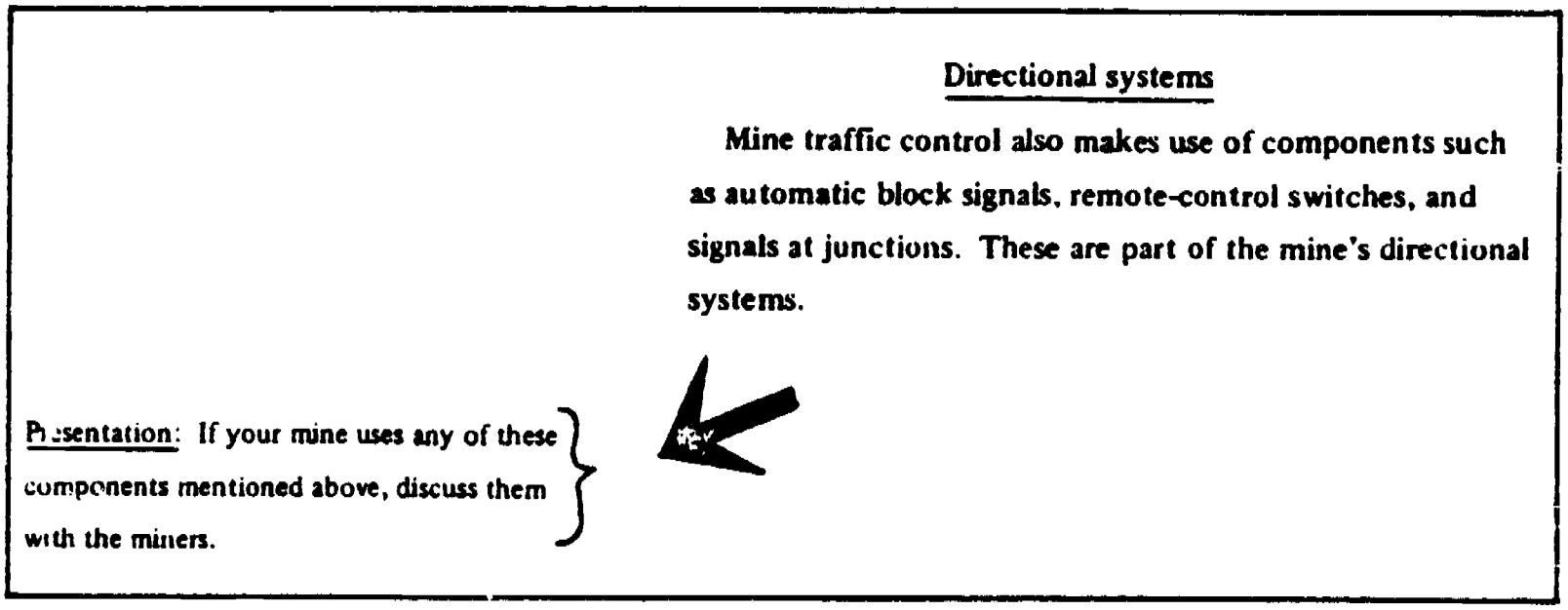


Fig. 13

Instructor notes under the heading of Evaluation" must also be tailored, particularly those notes that ask the miners to answer questions about material you have just covered. If you have discussed information that is specific to the operation of your mine, the questions you ask should test the miners' knowledge and understanding of that specific information.

As you go through the module, it is a good idea to write down any stories, examples, or personal experiences that relate to the particular topic being covered, especially if it concerns accident prevention. Hearing about an accident from someone who actually witnessed it will often make a more-lasting impression than hearing a lot of statistics.

You may want to add notes for demonstrations to supplement your presentation. Remember, you are going to talk, not read, to your class. Do not worry too much about how neat the pages look. Just be sure you can understand your notes.

After you have finished tailoring the suggested lecture or demonstration and the instructor notes, you are ready to tailor the self-checks, handouts, visuals, and other supplementary materials. The procedures that you follow when tailoring these materials are similar to those used in tailoring the lecture and instructor notes.

Self-checks may have to be rewritten. (Self-checks, remember, are short, written quizzes given to the miners who must write down their answers.) For example, a self-check may include a statement such as, "List some hazards associated with conveyor belts." If we stay with the original example of your mine, you know that your mine does not use conveyor belts. Delete this item from the self-check.

In addition to deleting questions, you will probably want to add your own questions to cover the specific information already tailored into the lecture. Do not forget to have the correct answers handy when you do this.

Another type of self-check may have a picture such as in Figure 14. Suppose this mantrip is not the same kind used at your mine. Yours does not have as high a canopy, and has more rows of seats. To tailor this, you should modify the drawing so the mantrip is the same type used at your mine. Use some "white-out" and make the necessary changes or have the picture redrawn to show your mantrip. (Caution: If you are making an overhead transparency, you will have to use a duplicate of the drawing to make the transparency.)

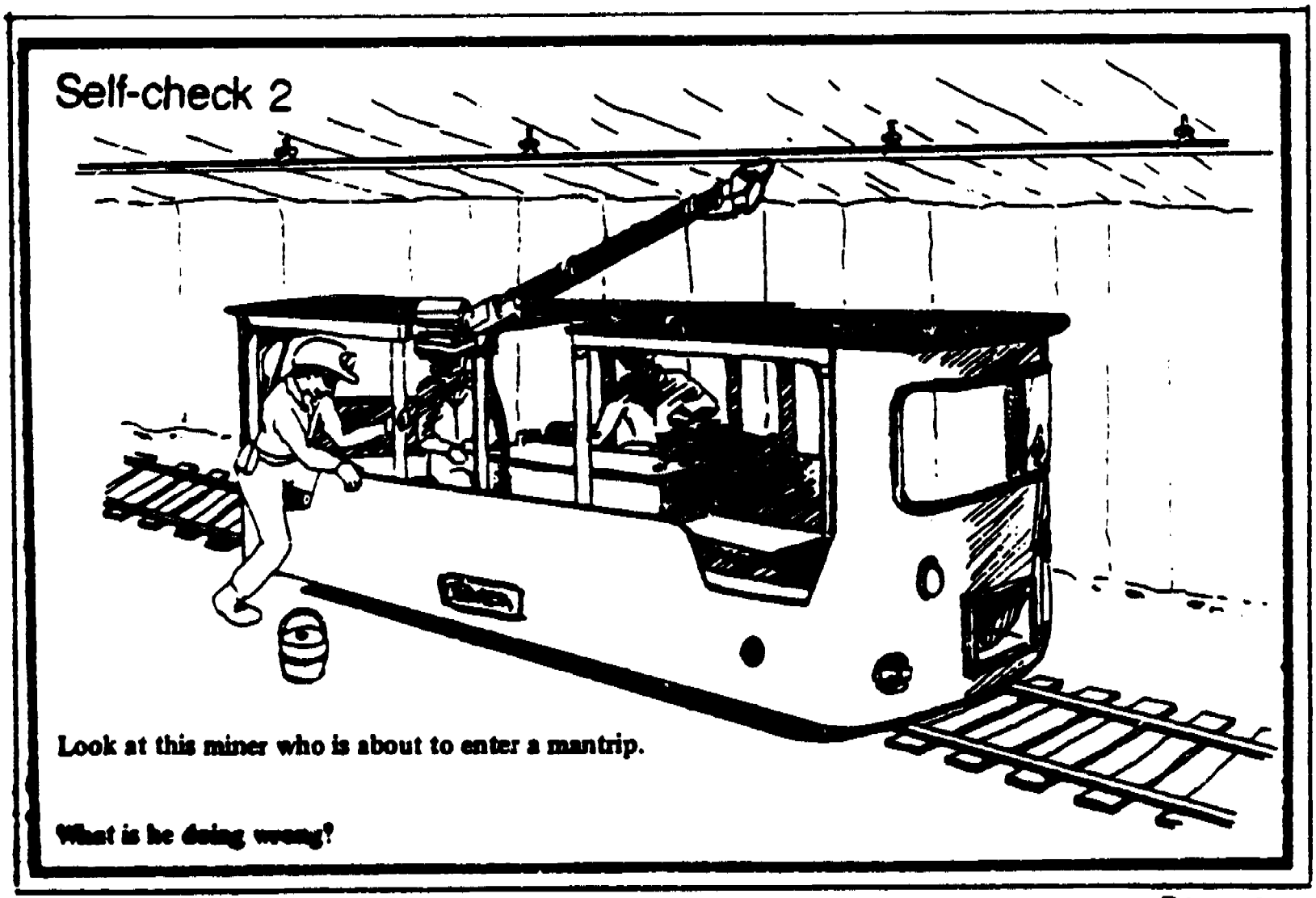


Fig. 14

After tailoring a section of a module, it is a good idea to tailor the evaluations and visuals for that section. Doing so will help the tailoring process proceed in an organized manner.

In tailoring evaluations, the key point is to test the miner's knowledge by rewriting or adding questions or modifying drawings on the tailored material - the specifics you have added as well as the material you have kept from the original module.

Visuals must also be tailored. If a visual of a shuttle car is given, but it's not the type of car used at your mine, you do not necessarily have to redraw the picture. You can substitute a photograph, sketch, or even a magazine advertisement of the car to show it. For smaller equipment, such as a fire extinguisher, you can use the same methods just mentioned, but it is best to have an actual unit with you.

Some visuals will have to be revised, especially lists of procedures or statistics. Again, make them consistent with the tailored material you have kept.

Once you have finished tailoring an entire module, go back over it to make sure you haven't missed something and that it is neat enough to teach from.

There is one type of module that deserves some extra attention and that is the experienced miner module with little or no written lecture. In place of the lecture an outline is given with instructor notes to guide you. There are several modules of this type. The reason for not providing a written lecture is because these modules deal with topics on an experienced miner level that are so mine-specific, no general lecture could be written. They cover topics like roof and rib control, emergency evacuation, and others.

This type of module requires the most tailoring because you will have to supply the majority of the information. There are instructor notes to direct you on what should be covered, but you must provide almost all of the content.

Let's use as an example the experienced miner Roof and Rib Control module (MSHA 0126). The introductory pages, visuals, and evaluations are tailored the same way as the other modules.

The lecture section, however, is different (figure 15). You can see that the lecture here is simply the two points that can be covered (arrow 1). Arrow 2 shows the instructor note with the tailoring instructions: You discuss the type or types of temporary roof supports used in your mine. The module does not leave you totaly without help. There are visuals, self-checks, evaluations, and additional general notes to guide your discussion. You, however, must fill in the details on the type or types of support you use, specific mine safety rules and procedures, and other necessary information.

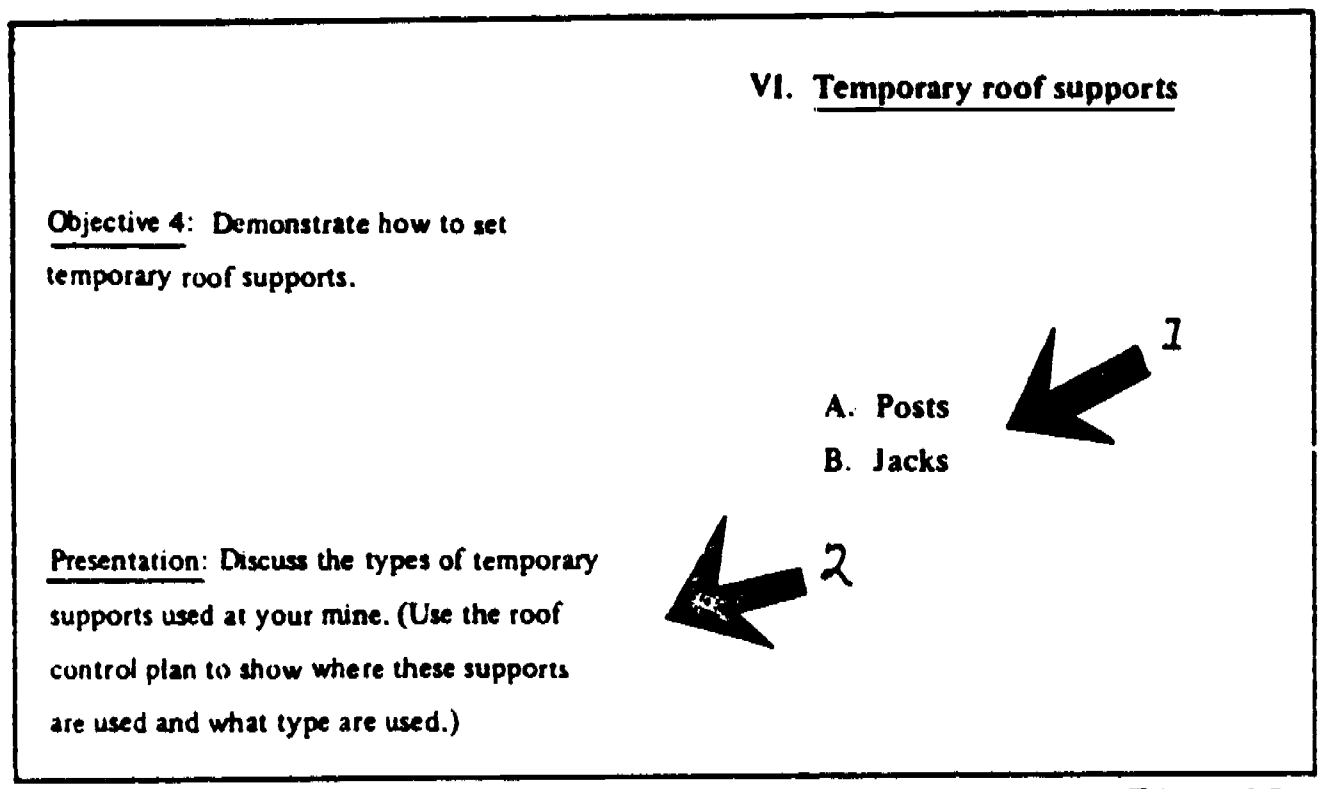


Fig. 15

When tailoring the module by adding specific information, you can rewrite particular sections of the lecture, put notes next to the lecture, or even tape in information from other training programs. The point is to put the information in so you will be sure to cover it in class. If you have the use of a secretary, you may even be able to have the module retyped after it is tailored. (A clean copy is easier to teach from.)

The examples that have been given in this section should provide you with a fairly good idea of how to tailor all general health and safety training materials. The principles apply to other training materials as well. The key is to gather enough detailed information on the conditions and operation of your mine so that as you come upon insructor notes and general lecture sections, you need only to refer to your fact sheets for each module. You will then be able to delete what does not apply, fill in or rewrite the appropriate sections and evaluations, and modify or substitute the visuals.

KEEPING UP-TO-DATE

Keeping your training program current and up-to-date is as important as the initial tailoring effort.

Your operation will probably change as time goes on. New equipment may be purchased; existing hazards may be eliminated; new hazards may be encountered; procedures and work rules may be changed.

It is your responsibility to keep up with these changes. Doing so will not only make future sessions as useful as possible, but interesting, as well.

Setting up organized files at the very beginning can prove to be invaluable to you in the future. Use whatever method or system works best for you. One recommended idea is to use a 3-ring binder. This will allow you to keep all information collected in one place. Divide it into as many sections as you need and add your information into the appropriate section.

You may prefer to use a file folder system instead of the 3-ring binder. This, too, can be very effective, as long as you keep it organized. Consider using a separate folder for each type of information you collect. Remember, your main purpose in setting up a filing system is to be able to locate what you want in the shortest amount of time, regardless of whether you are going to actually tailor material for an upcoming training session, or to update your files.

The types of information that you will want to keep track of are:

Equipment and machinery - Make note of equipment or machinery that is no longer in use. Examine new purchases for changes in safe operating procedures, and potential problems or hazards associated with its use. Keep a file of job safety analyses and on the job training procedures.

Maps and plans - Have copies of the current mine maps and most recently approved plans. This might include ventilation, roof control, ground control, and evacuation plans. Also note changes in the location of power centers, phones, first aid kits, and any other important facility or items.

Accidents - Accident reports can be gotten from the office. Use the Accident Information Sheet discussed earlier (or one similar) to keep a current listing of accidents and their causes.

Violations - Copies of violations are kept on file in the mine office. Use the Violation Sheet discussed earlier (or one similar) to maintain a complete listing of violations.

General conditions - Keep track of new hazards as they develop. This might include such things as water problems, perhaps the result of cutting into old works; traffic hazards caused by icy conditions; weak highwalls due to a change in the rock strata, and others.

You may want to organize your files according to the type of information gathered. If you are using a 3-ring binder, you should divide it into sections - one each for equipment and machinery, maps and plans, and so on. Separate file folders will accomplish the same purpose.

An alternative to this is to file the information according to the module in which it will be included. This will require one section or folder for each module. If you decide to use this system, however, remember that some information, especially that dealing with accidents and violations, is used in more than one module.

Once again, the main purpose in setting up a filing system is to be able to locate what you want in the shortest amount of time.

You should set up a periodic schedule, perhaps once a month, to update your files. Most of the information can be gathered from records in the mine office, the mine superintendent, and the safety director. The State Department of Mines and MSHA should be able to provide you with information concerning violations, as well as accident statistics, if you need it. By keeping your files current, you will greatly reduce the amount of work to be done when tailoring for your next training session.

SUMMARY

The goal of any trainer should be to develop a training program that will influence miners' work habits and decrease accidents, injuries, property damage, and downtime. This is not an easy task to accomplish.

Often you will be burdened with a lack of time and resources. Your workload may be very heavy and you may be faced with adverse working conditions. What can you do to make the most of your training?

Tailoring is not the entire answer to effective training, but it is a major step in that direction. Another very important aspect of successful training lies in your presentation. While this booklet is not designed to "train the trainer," there are a few basic points you should keep in mind.

Variety can add a lot to your sessions. There are few things more boring than being lectured to or read to for hours. Keep the class active. Introduce a new topic or problem by asking the miners what they already know about it. Discuss their answers. You may find yourself learning a lot from the class, if they know that you're interested in what they have to say.

Audio-visual aids can be very effective - if you use them correctly. When using an overhead projector, spend some time on your transparencies. A transparency that cannot be read is worse than no transparency at all.

Films, video, and slide-tape programs deserve special attention, too. Review them periodically to make sure they are not outdated. An important point to remember when showing a film or slide-tape is to be sure that everyone can both see and hear it.

You will have two scheduling considerations. When holding your training sessions, be sure to schedule breaks. It is a good idea to have a ten minute break every hour. This gives everyone a chance to stretch their legs and refill their coffee cups.

The second scheduling consideration may be more complicated. It involves the actual scheduling of your training sessions. While the actual scheduling decisions may not be yours to make, as the instructor, you are in the best position to make these suggestions to management.

This brings us to the conclusion and a very important point: even the best training program will be severely limited without the complete backing of the company. You must show enthusiasm for your program, present your training needs in a reasonable manner, and point out the potential benefits to management. Your efforts combined with company support can change training for compliance to training for results.

APPENDICES

Appendix A
CONSTRUCTING A QUESTIONNAIRE

QUESTIONNAIRE OUTLINE

FIRST AID

1. What supplies are included in first aid kits
2. Type(s) of stretchers used
3. Other available emergency equipment
4. Location of first aid kits, stretchers, other equipment
5. Procedure to report injury
6. How to get medical help
7. Specific company first aid rules or procedures

SELF-RESCUERS

1. Type used
2. Where are they stored
3. Who tests for airtightness
4. Procedure to check self-rescuer or get a new one

RESPIRATORY DEVICES

1. Type(s) used
2. Specific dust and/or fume hazards at mine
3. When they are required to be worn
4. Where they are stored
5. Procedure for getting one
6. Where filters are stored
7. Maintenance procedures

HEALTH

1. Whether or not dust is a problem
2. Procedures used to control dust
3. Type(s) of hazards caused by dust
4. Who is responsible for taking dust samples
5. Whether or not noise is a problem
6. Procedures used to control noise
7. Type(s) of hazards caused by noise
8. What ear protection is available
9. Procedures for getting ear protection devices
10. Procedures to follow if miner feels there is a health hazard
11. Other health hazards (toxic materials, etc.) and methods used to control them

BARRICADING

1. Past emergencies or existing problem areas where chances for emergency are greater
2. Procedures for alerting miners to an emergency (alarm systems, location of phones, specific company policies)
3. Escapeway system: primary, secondary, any other way out of mine; escapeway marking system
4. Procedure for reporting in after escape
5. Firefighting equipment; loction, use, drills, specific fire procedures, etc.
6. Evacuation drills
7. Emergency assembly and transport procedures
8. Barricading: where supplies are stored, when to barricade, what type of barricade to build, how to construct barricade
9. Equipment to take behind barricade
10. Mine rescue system: location of closest teams, how to contact them and other assistance, rescue drills, rescue signals, other specific procedures
11. Copy of mine's emergency plan

ROOF AND RIB

1. Any serious roof and/or rib problems
2. Specific hazards, hazardous areas
3. Unique or unusual rock formations or faults that cause problems
4. Specific signs that problem exists (bent props, heavy wetness, etc.)
5. Inspection and testing: by whom, when, methods and tools used
6. Types of temporary and permanent supports
7. Scaling: when, by whom
8. Procedures to follow if hazard is present: whom to inform, what to do
9. Copy of mine's roof control plan

VENTILATION

1. Any serious ventilation problems
2. Specific hazards, hazardous areas
3. Procedures and corrective action taken for ventilation problems
4. Unusual ventilation setups or controls
5. Ventilation controls: installation, monitoring, maintenance
6. Location of materials for ventilation control
7. Types of controls used (fans, overcasts, etc.)
8. Copy of mine's methane and dust control plan

ELECTRICAL

1. Types of electrical machines and equipment used
2. Circuit breaker/overload system
3. Ground monitoring devices
4. Reporting electrical hazards and maintenance needs
5. Machine safety controls (panic bars, brakes, methane monitors, deadman controls, etc.)
6. Specific electrical problems or hazards
7. Splices: types used, who does splicing, where supplies are stored, procedures
8. Who is responsible for keeping electrical equipment clean
9. Lock-out/tag-out procedure, type of tag used, type of lock used
10. Procedure to energize/de-energize equipment
11. Locations of switches and disconnects
12. Procedures to follow in electrical emergency
13. Procedure for handling gas cylinders; who does it
14. Batteries: locations, hazards, procedure for recharging, etc.
15. Power centers: locations, procedures for moving
16. Cable protection; handling procedures
17. Protective clothing issued; where to get it
18. Protective guards available (mats, etc.); where stored

TRANSPORTATION AND COMMUNICATION

1. Check-in/check-out system: location of check board, type of tag used, information on tag, etc.
2. Personnel transport: type(s) used, where to board, correct procedures to board, hazards, problems areas/previous accidents
3. Haulage: type(s), equipment used, most common accidents, pre-operational inspections, maintenance, warning devices, report hazards to whom, who services machines, etc.
4. Traffic procedures; locations of shelter holes, adverse haulage conditions (low roof, mud, etc.)
5. Loading procedures and hazards
6. Ventilation control obstructions
7. Clean-up: haulageways, equipment
8. Belt crossovers - locations
9. Specific equipment hazards and safety procedures
10. Mine communication system: number of phones, locations, how they work, etc.
11. Haulage signals, traffic rules, dispatcher, directional systems, markings, etc.

MINE GASES

1. Oxygen deficiency: who tests for it, what equipment is used
2. Procedure followed if oxygen deficiency occurs
3. Reporting procedure if oxygen deficiency is suspected
4. Specific areas or problems with oxygen deficiency
5. Methane: who tests for it, what equipment is used
6. Procedure followed if methane is detected
7. Specific areas or problems with methane
8. Specific oxygen deficiency and methane evacuation procedures
9. Operating procedures for oxygen deficiency and methane testing devices
10. Other gas or toxic substance hazards: locations, procedures (working, testing, evacuation)
11. Procedures to be followed if other gas or toxic substance hazard is suspected: what to do, report to whom

EXPLOSIVES

1. Blasting procedures: when and where blasting usually occurs, warning signal, evacuation, etc.
2. Procedure followed in case of misfire or other unexpected event
3. Type of permissible explosive used
4. Type of detonators/blasting caps used
5. Procedure for shunting leg wires
6. Type of blasting unit used
7. Type of stemming used; packing procedure
8. Type of galvanometer and how it is used
9. Hazards from toxic fumes
10. Storage and transportation of blasting materials

ACCIDENT PREVENTION

1. Accident rates or totals for the following categories: handling materials, haulage, machinery, slip/falls, hand tools, roof falls, stepping/tripping on objects, electricity, face/rib falls, others
2. Some details of accidents from each of the above categories (injuries, reasons they occured, etc.)
3. Specific types of problems at the mine; mine conditions that can lead to accidents or hazards for each category (where appropriate)
4. Specific company safety rules or unwritten procedures to be followed
5. Occupation having the most accidents at the mine

SAMPLE QUESTIONS

1. Which of the following types of haulage does your mine use? (circle yes or no)

   -- Track . . . . . Yes No
   -- Self-propelled rubber-tired . . . . . Yes No
   -- Conveyor belts. . . . . Yes No

2. How are miners transported into and out of the mine?_____
   _____

3. Please describe your mine's check-in/out system:

   -- Where is the checkboard located?_____
   -- What are the ID tags made of?_____
   -- What information is on each tag?_____

4. Regarding first aid equipment:

   -- Where, specifically, are first aid kits located?_____
   _____
   -- What type(s) of stretchers do you have?_____
   _____
   -- Where, specifically, are stretchers located?_____
   _____

5. What is the name and phone number of the hospital/doctor you notify in the event of a medical emergency?_____
   _____

6. Who is responsible for the following tasks? (Example: electrician, miner, foreman, other - please specify)

   -- testing self-rescuers_____
   -- maintenance of respirators_____
   -- taking dust samples_____
   -- taking noise surveys_____
   -- pre-operational inspection of machinery_____
   -- cleaning machinery_____
   -- splicing_____
   -- handling/transporting gas cylinders_____

7. What action should be taken in the following situations?

-- There has been an injury, and medical help is needed._____
_____

-- A miner's self-rescuer is damaged and he or she needs a new one._____
_____

-- A miner discovers an electrical hazard._____
_____

-- A power center must be moved._____
_____

8. Is methane a problem at your mine? Yes No

9. Do you have any significant ventilation problems at your mine? Yes No
If yes, please describe:_____
_____

10. Do you have any unusual ventilation set-ups or controls? Yes No
If yes, please describe:_____
_____

11. Do you have any significant roof and/or rib problems? Yes No
If yes, please describe:_____
_____
_____

12. Where, specifically, are miners to assemble in case of emergency?_____
_____

13. How, and by whom, are explosives transported?
_____
_____

14. Please describe your mine's communication system: (number and location of phones, how they operate, etc.)_____
_____
_____

15. Please describe your traffic rules, directional systems, markings, etc._____
_____
_____

Appendix B
CHECKLISTS FOR TAILORING

ACCIDENT INFORMATION SHEET

Date	Regular Job Classification	Job at Time of Accident	Accident Type	Details of Accident

TOTALS (per accident type):

HANDLING MATERIALS .....
HAULAGE .....
MACHINERY .....
SLIPS and FALLS .....
HAND TOOLS .....
ROOF FALLS .....
STEPPING or KNEELING on OBJECTS .....
ELECTRICITY .....
FALL of FACE or RIB .....
FALLING or SLIPPING OBJECTS .....
OTHERS .....

VIOLATION SHEET

DATE	SUBJECT OF VIOLATION	STATE/FEDERAL REGULATION	DESCRIPTION

EQUIPMENT CHART - UNDERGROUND

NAME	MODEL	NUMBER USED	POWERED (diesel, hydr., battery, or cable)	METHANE MONITOR	PANIC BAR	DEADMAN CONTROL	BRAKES	CABS/ CANOPY	H_2O SPRAY
Coal Drill									
Bolter									
Shuttle Car									
Loader									
Cutting Machine									
Continuous Miner									
Scoop									
Mantrip									
Haulage Motor									

EQUIPMENT CHART - SURFACE

	MODEL	NUMBER USED	ROPS	FOPS	SEAT BELTS	Reversing Alarms, Lights	Handrails, Steps, Guards, Insulated Mats/Work Platforms	POWERED (diesel, battery, cable, etc.)	Parking and/or Emergency Brakes	Emergency Steering	Grounding Plates or Devices	Fire Extinguisher and Safety Equipment (flares, etc.)
BULLDOZER												
FRONTEND LOADER												
DRAGLINE												
SHOVEL												
DRILL												
TRUCK												
AERIAL TRAMWAY												
LOCOMOTIVE												
TRACTOR												
FORKLIFT												