Instructor Training Workshop – Part 48

U.S. Department of Labor
Mine Safety and Health Administration
National Mine Health and Safety Academy

Instruction Guide Series
IG 24a

2001
Revised 2015

Visit the Mine Safety and Health Administration
Web site at www.msha.gov

TABLE OF CONTENTS

INTRODUCTION

Rationale:

Federal law requires miners to be trained and retrained to enable them to perform their jobs safely and in a healthful manner. Further, 30 CFR Part 48 requires that persons who provide training and retraining be approved to do so. Mining companies are responsible for the training of their personnel. Inexperienced or new miners are required to receive 24 hours (surface) or 40 hours (underground) training before they begin working. This training is a combination of classroom and on-the-job performance. In addition, experienced miners are required to receive 8 hours of annual refresher training to keep them aware of good safety practices at their operation.

Goals:

This Instructor Training Workshop has been developed to assist instructors and potential instructors with the following goals:

- To become knowledgeable in the requirements of 30 CFR, Part 48
- To become effective classroom trainers

This workshop is not designed to provide subject matter expertise in the various mining topics.

Objectives:

Given a training request, the mine trainer will be able to develop a course following a systematic model.

Given a developed course, the mine trainer will be able to teach that course using one or more learner-centered instructional techniques.

Criterion Test Items:

1. Using the topics given in 30 CFR Part 48, select a topic and develop a lesson plan for a 15-minute instructional segment.

2. Using the lesson plan developed in item 1, teach a 15-minute instructional segment. The presentation will be videotaped for playback and individual review.

Outline:

Day 1

A. Introduction and Overview
B. Becoming an Approved MSHA Instructor
C. Part 48 Requirements
D. Developing Objectives and Evaluation Methods

Day 2

A. Principles of Adult Learning
B. Outlining Training Content and Developing Lesson Plans
C. Determining Instructional Methods
D. Developing and Using Training Aids

Day 3

A. Student Presentations
B. Feedback

CHAPTER 1
BECOMING AN APPROVED MSHA INSTRUCTOR

To become approved as an MSHA instructor, you must satisfactorily demonstrate that you have knowledge in the subject areas you will be teaching and also the ability to teach. The District Manager of the district which has inspection jurisdiction over your company or the mines in the area where you contract your services has the approval authority for MSHA instructors. Your application will be reviewed by the Educational Field and Small Mine Services (EFSMS) representative in your area and forwarded to the District Manager for approval.

The National Mine Health and Safety Academy does not approve MSHA instructors. We only provide the instructor training course, which the EFSMS representative will accept as proof that you have the ability to teach. The course is also provided by some state grant organizations and by EFSMS training specialists. Contact your EFSMS representative for information on other instructor courses.

There is no official form for you to use when applying to become an approved instructor. Three sample forms which can be used are found beginning on page 33. The information can also be submitted on plain paper. You may want to contact the appropriate EFSMS representative and request a copy of the application form being used in that district. Regardless of the format in which you submit the information, it is important that you completely describe your mining and training experience.

COAL MINE SAFETY AND HEALTH
DISTRICT OFFICES

District 2 - Mt. Pleasant, Pennsylvania
Bituminous coal mining regions in Pennsylvania

District 3 - Morgantown, West Virginia
Maryland, Ohio, and Northern West Virginia

District 4 - Mount Hope, West Virginia
Southern West Virginia to include these counties: Boone, Braxton, Clay, Fayette, Greenbrier, Kanawha, Monroe, Nicholas, Pocahontas, Putnam, Raleigh, Summers, and Webster

District 5 - Norton, Virginia
Virginia

District 6 - Pikeville, Kentucky
Eastern Kentucky

District 7 - Barbourville, Kentucky
Central Kentucky, North Carolina, South Carolina, and Tennessee

District 8 - Vincennes, Indiana
Illinois, Indiana, Iowa, Michigan, Minnesota, Northern Missouri, and Wisconsin

District 9 - Denver, Colorado
All states west of the Mississippi River, except for Minnesota, Iowa, and Northern Missouri

District 10 - Madisonville, Kentucky
Western Kentucky

District 11 - Birmingham, Alabama
Alabama, Georgia, Florida, Mississippi, Puerto Rico, and the Virgin Islands

District 12 - Beaver, West Virginia
Southern West Virginia to include these counties: Cabell, Lincoln, Logan, McDowell, Mercer, Mingo, Wayne, and Wyoming

COAL MINE SAFETY AND HEALTH
DISTRICT OFFICES

Office of the Administrator
CMSH
1100 Wilson Blvd.
Arlington, VA 22209-3939
(202) 693-9502

MSHA - District 2
319 Paintersville Road
Hunker, PA 15639
(724) 925-5150

MSHA - District 3
5012 Mountaineer Mall
Morgantown, WV 26501
(304) 291-4277

MSHA - District 4
100 Bluestone Road
Mt. Hope, WV 25880
(304) 877-3900

MSHA - District 5
PO Box 560
Norton, VA 24273
(276) 679-0230

MSHA - District 6
100 Fae Ramsey Lane
Pikeville, KY 41501-3211
(606) 432-0943

MSHA - District 7
3837 S. U.S. Highway 25E
Barbourville, KY 40906
(606) 546-5123

MSHA - District 8
2300 Willow Street, Suite 200
Vincennes, IN 47591
(812) 882-7617

MSHA - District 9
PO Box 25367, DFC
Denver, CO 80225-0367
(303) 231-5463

MSHA - District 10
100 YMCA Drive
Madisonville, KY 42431-9019
(270) 821-4180

MSHA - District 11
135 Gemini Circle, Suite 213
Birmingham, AL 35209
(205) 290-7300

MSHA - District 12
1301 Airport Road
Beaver, WV 15813
(304) 253-5237

METAL/NONMETAL MINE SAFETY AND HEALTH DISTRICT OFFICES

Northeastern District - Warrendale, PA

Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New York, New Jersey, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia

North Central District - Duluth, MN

Illinois, Indiana, Iowa, Michigan, Minnesota, Wisconsin

Rocky Mountain District - Denver CO

Arizona, Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, Wyoming, and in the state of Idaho for the counties of Clark, Fremont, Jefferson, Madison, Teton, Bingham, Bonneville, Caribou, Bannock, Power, Bear Lake, Franklin, and Oneida

Southeastern District - Birmingham, AL

Alabama, Florida, Georgia, Kentucky, North Carolina, Puerto Rico, South Carolina, Tennessee, Virginia, Virgin Islands, and Mississippi for the counties of Alcorn, Benton, Calhoun, Chickasaw, Choctaw, Clarke, Clay, George, Greene, Grenada, Itawamba, Jasper, Kemper, Lafayette, Lauderdale, Lee, Lowndes, Marshall, Monroe, Montgomery, Neshoba, Newton, Noxubee, Oktibbeha, Pontotoc, Prentiss, Tippah, Tishomingo, Union, Webster, Winston, and Yalobusha

South Central District - Dallas, TX

Arkansas, Louisiana, Missouri, New Mexico, Oklahoma, Texas, and Mississippi for the counties of Adams, Amite, Attala, Bolivar, Carroll, Claiborne, Coahoma, Copiah, Covington, DeSoto, Forrest, Franklin, Hancock, Harrison, Hinds, Holmes, Humphreys, Issaquena, Jackson, Jefferson, Jefferson Davis, Jones, Lamar, Lawrence, Leake, Leflore, Lincoln, Madison, Marion, Panola, Pearl River, Perry, Pike, Quitman, Rankin, Scott, Sharkey, Simpson, Smith, Stone, Sunflower, Tallahatchie, Tate, Tunica, Walthall, Warren, Washington, Wayne, Wilkinson, and Yazoo

Western District - Vacaville, CA

Alaska, California, Hawaii, Idaho not to include the counties of Clark, Fremont, Jefferson, Madison, Teton, Bingham, Bonneville, Caribou, Bannock, Power, Bear Lake, Franklin, and Oneida; Nevada, Oregon, Mohave County, Arizona, Washington County Utah, and State of Washington

METAL/NONMETAL MINE SAFETY AND HEALTH
DISTRICT OFFICES

Office of the Administrator
M/NMSH
1100 Wilson Blvd.
Arlington, VA 22209-3939
(202) 693-9603

MSHA - NE District
100 Thorn Hill Road, Suite 100
Warrendale, PA 15086
(724) 772-2334

MSHA - SE District
1030 London Drive, Suite 400
Birmingham, AL 35209
(205) 290-7296

MSHA - NC District
Fed. Bldg., U.S. Courthouse
515 W. 1st St., Room 333
Duluth, MN 55802-1302
(218) 720-5448

MSHA - SC District
1100 Commerce Street, Room 462
Dallas, TX 75242-0499
(214) 767-8401

MSHA - Rocky Mountain District
P.O. Box 25367, DFC
Denver, CO 80225-0367
(303) 231-5465

MSHA - Western District
991 Nut Tree Road
Vacaville, CA 95687
(707) 447-9844

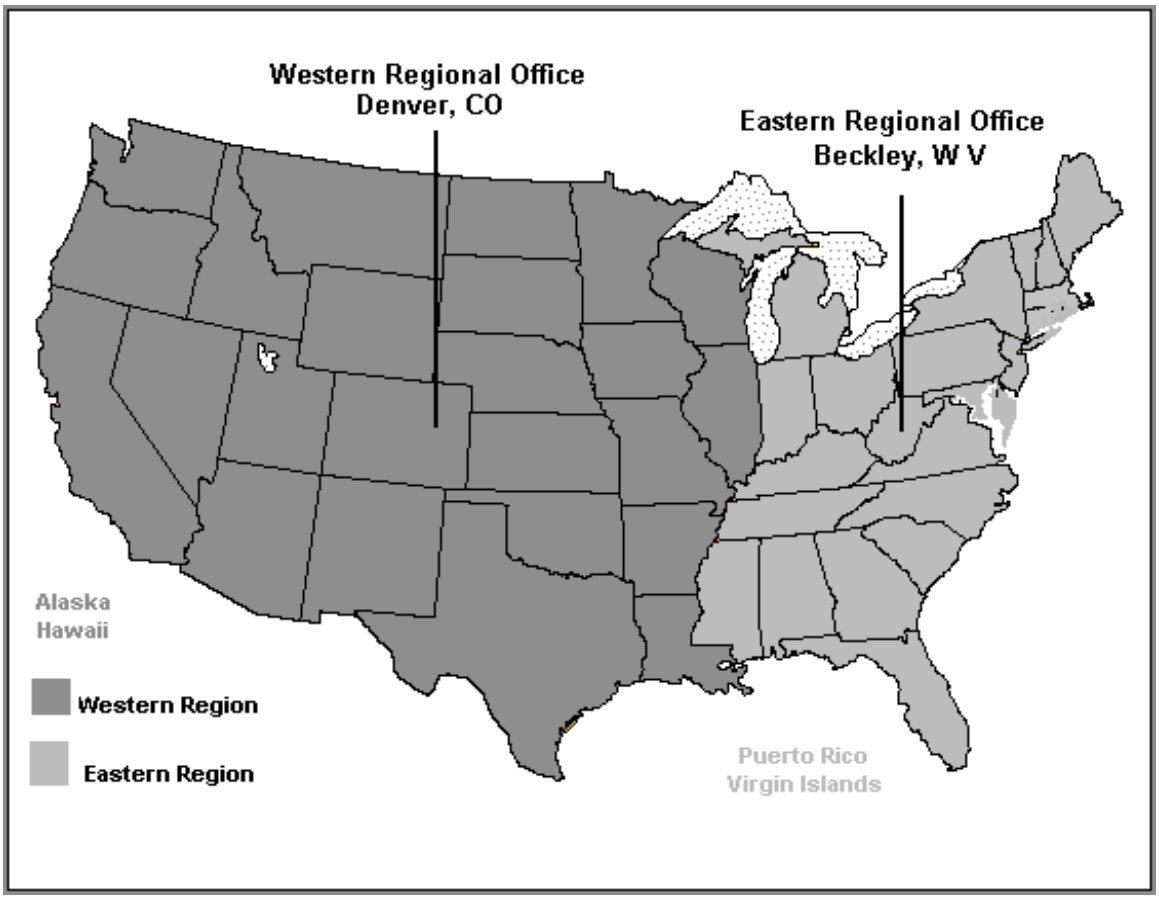
Educational Field and Small Mine Services Contacts

EDUCATIONAL FIELD AND SMALL MINE SERVICES
REGIONAL OFFICES

Eastern Regional Manager
Educational Field and Small Mine Services
1301 Airport Road
Beaver, West Virginia 25813-9426
Phone: 1-800-678-6746

or

Western Regional Manager
Educational Field and Small Mine Services
PO Box 25367
Denver, Colorado 80225-0367
Phone: 1-800-579-2647



Educational Field and Small Mine Services (EFSMS) Contacts

If you wish to receive help or guidance relating to Part 48 training, please check the list below and contact the EFSMS office in the state where your mining operation is located.

ALABAMA

BIRMINGHAM			
Contact: **Address:** **Phone:** **E-Mail:**	Alan Coburn 1030 London Drive, Suite 400 Birmingham, AL 35211 (205) 290-7294 coburn.alan@dol.gov	**Contact:** **Address:** **Phone:** **E-Mail:**	Terry Lingenfelter 1030 London Drive, Suite 400 Birmingham, AL 35211 (205) 290-7294 lingenfelter.terry@dol.gov

ARIZONA

MESA			
Contact: **Address:** **Phone:** **E-Mail:**	Larry Palacios 63 East Main Street, Suite 402 Mesa, AZ 85201 (480) 649-5452 Palacios.Hilario@dol.gov		

ARKANSAS

LITTLE ROCK			
Contact: **Address:** **Phone:** **E-Mail:**	Brent Shelby 700 West Capitol St., Rm. 2420 Little Rock, AR 72201 (501) 324-5394 shelby.paul@dol.gov		

CALIFORNIA

SAN BERNARDINO			
Contact: **Address:** **Phone:** **E-Mail:**	Ralph Chavez 720 E. Carnegie Drive San Bernardino, CA 92408 (909) 890-1987 chavez.ralph@dol.gov	**Contact:** **Address:** **Phone:** **E-Mail:**	Janet Ames 720 E. Carnegie Drive San Bernardino, CA 92408 (909) 890-1987 ames.janet@dol.gov

VACAVILLE			
Contact: **Address:** **Phone:** **E-Mail:**	Norman Zeman 991 Nut Tree Road Vacaville, CA 95687-6699 (707) 447-8421 zeman.norman@dol.gov		

COLORADO

DENVER		DENVER	
Contact: **Address:** **Phone:** **E-Mail:** **Contact:** **Address:** **Phone:** **E-Mail:**	William Schroeder P.O. Box 25367, DFC Denver, CO 80225-0367 (303) 231-5939 schroeder.william@dol.gov Todd Schuller P.O. Box 25367, DFC Denver, CO 80225-0367 (303) 231-5485 schuller.todd@dol.gov	**Contact:** **Address:** **Phone:** **E-Mail:**	Sara Nicholas P.O. Box 25367, DFC Denver, CO 80225-0367 (303) 231-5663 nicholas.sara@dol.gov

FLORIDA

BARTOW			
Contact: **Address:** **Phone:** **E-Mail:**	Norberto Ortiz 1662 Park Avenue Bartow, FL 33830-3139 (863) 533-5390 ortiz.norberto@dol.gov	**Contact:** **Address:** **Phone:** **E-Mail:**	John Reed 1662 Park Avenue Bartow, FL 33830-3139 (863) 533-5390 reed.john.d@dol.gov

GEORGIA

MACON			
Contact: **Address:** **Phone:** **E-Mail:**	Brett Calzaretta 1645 Forest Hill Road, Suite 100 Macon, GA 31210 (478) 471-0549 calzaretta.brett@dol.gov		

IDAHO

BOISE			
Contact: **Address:** **Phone:** **E-Mail:**	John Kathmann 300 E. Mallard Drive, Suite 150 Boise, ID 83706-6646 (208) 334-1847 kathman.john@dol.gov		

ILLINOIS

LITCHFIELD		PERU	
Contact: **Address:** **Phone:** **E-Mail:**	Dave Brown 423 S. Mian Street Hillsboro, IL 62049 (217) 324-4545 brown.dave@dol.gov	**Contact:** **Address:** **Phone:** **E-Mail:**	Michael Jackley 2200 Marquette Road, Ste. 110 Peru, IL 61354 (815) 223-0697 jackley.michael@dol.gov

INDIANA

VINCENNES		INDIANAPOLIS	
Contact: **Address:** **Phone:** **E-Mail:**	Denzil Hughes 2300 Willow Street, Suite 200 Vincennes, IN 47591 (812) 883-7617 hughes.denzil@dol.gov	**Contact:** **Address:** **Phone:** **E-Mail:**	VACANT 4400 S. High School Road Indianapolis, IN 46241 (317) 821-0358

IOWA

FORT DODGE	
Contact:	Bryce Hopp
Address:	1615 Central Avenue Fort Dodge, IA 50501
Phone:	(515) 955-5383
E-Mail:	hopp.bryce@dol.gov

KANSAS

TOPEKA	
Contact:	Walter Pitney
Address:	444 S.E. Quincy, Box 38 Topeka, KS 66683
Phone:	(785) 295-2636
E-Mail:	pitney.walter@dol.gov

KENTUCKY

BARBOURVILLE	
Contact:	Alice Blanton
Address:	3837 U.S. Highway 25E Barbourville, KY 40906
Phone:	(606) 546-5123
E-Mail:	blanton.alice@dol.gov

HAZARD	
Contact:	Debbie Combs
Address:	145 Reynolds Lane Hazard, KY 41701
Phone:	(606) 439-2396
E-Mail:	combs.deborah@dol.gov

LEXINGTON	
Contact:	Michael Pruitt
Address:	152 W. Zandale Drive, Suite 102 Lexington, KY 40503
Phone:	(859) 276-1384
E-Mail:	pruitt.michael@dol.gov

MADISONVILLE	
Contact:	Joseph Fritz
Address:	100 YMCA Drive Madisonville, KY 42431-9019
Phone:	(270) 821-4180 ext. 255
E-Mail:	fritz.joe@dol.gov

PIKEVILLE	
Contact:	VACANT
Address:	100 Fae Ramsey Lane Pikeville, KY 41501
Phone:	(606) 432-0943

LOUISIANA

DENHAM SPRINGS			
Contact: **Address:** **Phone:** **E-Mail:**	Jeffrey Devall 1992 Florida Blvd, SW, Suite A Denham Springs, LA 70726 (225) 664-0393 devall.jeffrey@dol.gov		

MICHIGAN

LANSING			
Contact: **Address:** **Phone:** **E-Mail:**	Cynthia Butcher 315 W. Allegan Street, Rm. 230 Denham Springs, LA 70726 (517) 377-1751 butcher.cynthia@dol.gov		

MINNESOTA

DULUTH			
Contact: **Address:** **Phone:** **E-Mail:**	Amy Sandelin Federal Building, U.S. Court-house 515 W. 1st Street, Rm #333 Duluth, MN 55802-1302 (218) 740-0086 sandelin.amy@dol.gov	**Contact:** **Address:** **Phone:** **E-Mail:**	Scott Waybright Federal Bldg., U.S. Courthouse 515 W. 1st Street, Rm #333 Duluth, MN 55802-1302 (218) 720-5448 waybright.scott@dol.gov

MISSOURI

ROLLA			
Contact: **Address:** **Phone:** **E-Mail:**	Stephen Brill 1404 Independence Road Rolla, MO 65401 (573) 364-0879 brill.stephen@dol.gov		

MONTANA

HELENA			
Contact: **Address:** **Phone:** **E-Mail:**	Philip Dahl 10 West 15th Street, Suite 2100 Helena, MT 59626 (406) 441-1180 dahl.phillip@dol.gov		

NEVADA

ELKO		HENDERSON	
Contact: **Address:** **Phone:** **E-Mail:**	Joe Rhoades 567 W. Silver St., Suite 401 Elko, NV 89801 (775) 738-2456 rhoades.joseph@dol.gov	**Contact:** **Address:** **Phone:** **E-Mail:**	David Sinquefield 150 N. Stephanie St., Suite 151 Henderson, NV 89074 (702) 558-4391 sinquefield.david@dol.gov

NEW HAMPSHIRE

MANCHESTER			
Contact: **Address:** **Phone:** **E-Mail:**	Denis Rickey 1000 Elm Street, Suite 10 Manchester, NH 03101 (603) 666-7691 rickey.denis@dol.gov		

NEW MEXICO

ALBUQUERQUE			
Contact: **Address:** **Phone:** **E-Mail:**	Elsa Montoya 2 Park Central Tower 300 San Mateo Blvd., Suite 407 Albuquerque, NM 87108 (505) 266-6182 montoya.elsa@dol.gov	**Contact:** **Address:** **Phone:** **E-Mail:**	Paul R. Johnson 2 Park Central Tower 300 San Mateo Blvd., Suite 407 Albuquerque, NM 87108 (505) 254-2537 johnson.paul@dol.gov

NEW YORK

ALBANY			
Contact: **Address:** **Phone:** **E-Mail:**	Blane Shrewsberry 2 Computer Drive West, Suite 102 Albany, NY 12205 (518) 489-0780 shrewsberry.blane@dol.gov		

NORTH CAROLINA

SANFORD			
Contact: **Address:** **Phone:** **E-Mail:**	Ricky Boggs 255 Commercial Court Sanford, NC 27330 (919) 774-8113 boggs.ricky@dol.gov		

OHIO

HEBRON		ST. CLAIRSVILLE	
Contact: **Address:** **Phone:** **E-Mail:**	Paul Cook 96 Integrity Drive, Suite F Hebron, OH 43025 (740) 928-0479 cook.paul@dol.gov	**Contact:** **Address:** **Phone:** **E-Mail:**	Jeff Hoblick 50985 National Road St. Clairsville, OH 43950 (740) 695-2297 hoblick.jeffrey@dol.gov

OKLAHOMA

McALESTER		NORMAN	
Contact: **Address:** **Phone:** **E-Mail:**	Thomas Turner 509 South #rd Street McAlester, OK 74501 (918) 423-5966 turner.thomas@dol.gov	**Contact:** **Address:** **Phone:** **E-Mail:**	VACANT West Oaks Bldg C, Suite 1450 2227 West Lindsey Street Norman, OK 73069-4053

OREGON

ALBANY			
Contact: **Address:** **Phone:** **E-Mail:**	Heather Smith Delphi Building 321 1st Ave. E., Suite 1A Albany, OR 97321 (541) 924-8495 smith.heather@dol.gov	**Contact:** **Address:** **Phone:** **E-Mail:**	Evan Church Delphi Building 321 1st Ave. E., Suite 1A Albany, OR 97321 (541) 924-8495 church.evan@dol.gov

PENNSYLVANIA

FRACKVILLE			
Contact: **Address:** **Phone:** **E-Mail:**	Jake Chamberlain 426 Schuylkill Mall Frackville, PA 17931 (570) 874-8980 chamberlain.kennith@dol.gov	**Contact:** **Address:** **Phone:** **E-Mail:**	Gregory Mehalchick 426 Schuylkill Mall Frackville, PA 17931 (570) 874-8980 mehalchick.gregory@dol.gov
KITTANNING			
Contact: **Address:** **Phone:** **E-Mail:**	Rick Swartz 245 Butler Road, Suite 7 Kittanning, PA 16201 (724) 548-5611 swartz.rick@dol.gov		

SOUTH DAKOTA

RAPID CITY			
Contact: **Address:** **Phone:** **E-Mail:**	Edward Edwards West Park Plaza 2455 West Chicago Street Rapid City, SD 57702 (605) 348-2076 edwards.edward@dol.gov		

TENNESSEE

JACKSBORO			
Contact: **Address:** **Phone:** **E-Mail:**	Randall Dye 136 Mountain Perkins Lane Suite 1 Jacksboro, TN 37757 (423) 562-8484 dye.randall@dol.gov		

TEXAS

DALLAS		SAN ANTONIO	
Contact: **Address:** **Phone:** **E-Mail:**	Mark Lipe 1100 Commerce Street, Room 452 Dallas, TX 75242-0499 (214) 767-8423 lipe.mark@dol.gov	**Contact:** **Address:** **Phone:** **E-Mail:**	Willie Gill 17319 San Pedro Avenue Suite 110 San Antonio, TX 78232 (210) 403-5943 gill.willie@dol.gov

UTAH

PRICE		SALT LAKE CITY	
Contact: **Address:** **Phone:** **E-Mail:**	Kent Norton 45 E. 1375 South Price, UT 84501-3035 (435) 637-3051 ext. 121 norton.kent@dol.gov	**Contact:** **Address:** **Phone:** **E-Mail:**	Fred Sanchez 125 South State St., Room 8220 Salt Lake City, UT 84138 (801) 524-3450 sanchez.fredrick@dol.gov

VIRGINIA

NORTON		STAUNTON	
Contact: **Address:** **Phone:** **E-Mail:**	Fred Martin P.O. Box 560 Wise County Plaza, 1st Floor Norton, VA 24273 (276) 679-0230 martin.fred@dol.gov	**Contact:** **Address:** **Phone:** **E-Mail:**	VACANT 148 Parkersburg Turnpike Staunton, VA 24401 (540) 887-9682

WASHINGTON

KENT			
Contact: **Address:** **Phone:** **E-Mail:**	Dean Brooks 6811 South 204th St., Suite 180 Kent, WA 98032 (253) 395-9585 brooks.dean.C@dol.gov		

WEST VIRGINIA

BEAVER		BRIDGEPORT	
Contact: **Address:** **Phone:** **E-Mail:**	Bobbie Pauley 1301 Airport Road Beaver, WV 25813 (304) 256-3337 pauley.bobbie@dol.gov	**Contact:** **Address:** **Phone:** **E-Mail:**	James Young 105 Platinum Drive, Suite B Bridgeport, WV 26330 (304) 842-4239 young.james@dol.gov
LOGAN		**MORGANTOWN**	
Contact: **Address:** **Phone:** **E-Mail:**	Bruce Linville 100 Chalet Village Drive Logan, WV 25601 (304) 752-5315 linville.bruce@dol.gov	**Contact:** **Address:** **Phone:** **E-Mail:**	Scott Chiccarello 604 Cheat Road Morgantown, WV 26508 (304) 225-6854 chicarello.scott@dol.gov
PRINCETON		**SUMMERSVILLE**	
Contact: **Address:** **Phone:** **E-Mail:**	VACANT 110 Gott Road Princeton, WV 24740 (304) 425-8161	**Contact:** **Address:** **Phone:** **E-Mail:**	Mike Browning 818 Arbuckle Road, Suite 100 Summersville, WV 26651 (304) 872-4001 browning.mike@dol.gov

WYOMING

GILLETTE			
Contact: **Address:** **Phone:** **E-Mail:**	Kathy Cattles 620 N. Hwy 14-16, Unit S Gillette, WY 82716 (307) 682-1142 cattles.kathy@dol.gov		

State Grants Contacts

State Grants Contacts

The 1977 Mine Act authorizes MSHA to grant money to the states to provide health and safety training and other services to miners and mine operators. Participating states have developed programs designed to address mine health and safety issues that exist within their state.

State grantees can help you develop your Part 48 Training Plan and can provide the miners at your site with the training required by the provisions of Part 48. Most of this assistance and training is free-of-charge or available at minimal cost to you.

If you wish to receive help in developing a training plan or to schedule training sessions, please check the list below and contact the grant program office in the state where your mining operation is located.

ALABAMA

Mr. Ken Russell
Bevill State Community College
101 State Street, Box 800
Sumiton, AL 35148
Phone: (205) 648-3271, ext. 5225
E-Mail: KRussell@bscc.edu

ALASKA

Mr. William Beiber
University of Alaska - Anchorage
162 College Road
Soldotna, AK 99669
Phone: (907) 262-2788
E-Mail: whbeiber01@alaska.edu

ARIZONA

Ms. Laurie Swartzbaugh
Arizona State Mine Inspector's Office
1700 West Washington, Suite 403
Phoenix, AZ 85007-2805
Phone: (602) 542-5971
E-Mail: lswartzbaugh@asmi.az.gov

ARKANSAS

Ms. Susan Weaver
Arkansas Department of Labor
10421 West Markham
Little Rock, AR 72205
Phone: (501) 682-4520
E-Mail: Susan.G.Weaver@arkansas.gov

CALIFORNIA

Mr. Steve Hart
California Dept. of Industrial Relations
1367 East Lassen Ave, Suite B-4
Chico, CA 95973
Phone: (909) 888-3942
E-Mail: SHart@DIR.CA.GOV

COLORADO

Mr. Bill York-Feirn
Mine Safety and Training
1313 Sherman Street, Room 215
Denver, CO 80203
Phone: (303) 866-3650
E-Mail: bill.york-feirn@state.co.us

CONNECTICUT

Dr. Jacob Kovel
Central Connecticut State University
1615 Stanley Street
New Britain, CT 06050
Phone: (860) 832-0192
E-Mail: KovelJ@ccsu.edu

DELAWARE

Dr. Joseph P. Flick
The Pennsylvania State University
213 Research West Building
University Park, PA 16802
Phone: (204) 865-7474
E-Mail: jpfl@psu.edu

FLORIDA

Ms. Karen M. Miller
Tallahassee Community College
75 College Drive, Suite 140
Havana, FL 32333
Phone: (850) 201-7009
E-Mail: MillerKa@tcc.fl.edu

GEORGIA

Mr. Gary Haynes
Oconee Fall Line Technical College
1189 Deepstep Road
Sandersville, GA 31082
Phone: (478) 553-2457
E-Mail: ghaynes@oftc.edu

IDAHO

Mr. Reed Lewis
University of Idaho
Morrill Hall
Moscow, ID 83844-3014
Phone: (208) 885-7472
E-Mail: reedl@uidaho.edu

ILLINOIS

Mr. Jim Hafliger
Office of Mines and Minerals
1 Natural Resources Way, First Floor
Springfield, IL 62702-1271
Phone: (217) 782-6791
E-Mail: jim.hafliger@illinois.gov

INDIANA

Mr. Greg Gibson
Vincennes University
Gibson Center
1800 South US 41
Ft. Branch, IN 46748
Phone: (812) 888-5032
E-Mail: ggibson@vinu.edu

IOWA

Mr. Donald Doucette
Eastern Iowa Community College District
306 West River Drive
Davenport, IA 52801-1221
Phone: (515) 281-3671
E-Mail: ddoucette@eicc.edu

KANSAS

Mr. Ken Dobrinski
Kansas Small Mine Safety Program
1300 North Plum
Hutchinson, KS 67501-5894
Phone: (620) 665-4991
E-Mail: Dobrinskik@hutchcc.edu

KENTUCKY

Mr. Frank Reed
Safety Analysis, Training and Certifcation
P.O. Box 2244
Frankfort, KY 40602-2244
Phone: (502) 573-0140
E-Mail: Franklin.Reed@ky.gov

LOUISIANA

Mr. Jeffrey Hodges
Northshore Technical College
P.O. Box 1300
Greensburg, LA 70441
Phone: (800) 827-9750, ext. 2221
E-Mail: JeffreyHodges@Northshorecollege.edu

MAINE

Mr. Michael A. LaPlante
Occupational Safety and Health Program
Hallowell Annex, Station #45
Augusta, ME 04333-0045
Phone: (207) 623-7921
E-Mail: Michael.A.LaPlante@Maine.gov

MARYLAND

Ms. Karen L. Brandt
MD Center for Environmental Training
P.O. Box 910, 8730 Mitchell Road
La Plata, MD 20646
Phone: (301) 934-7504
E-Mail: KBrandt@mcet.org

MASSACHUSETTS

Mr. Michael Flanagan
Department of Labor Standards
Safety and Health Programs
Mobile Phone: (617) 626-6958
Web: ww.mass.gov/dols

MICHIGAN

Mr. Murray Gillis
Department of Mining Engineering
Michigan Technological University
1400 Townsend Drive, Room 418
Houghton, MI 49931-1295
Phone: (906) 487-1820
E-Mail: jmgillis@mtu.edu

MINNESOTA

Mr. Don Beckering
MN State College and University
30 7th Street East, Ste. 350
St. Paul, MN 55101-7804
Phone: (651) 201-1790
E-Mail: don.beckering@csu.mnscu.edu

MISSISSIPPI

Mr. James Matheny
Department of Environmental Quality
515 E. Amite Street, P.O. Box 2249
Jackson, MS 39225
Phone: (601) 961-5527
E-Mail: JamesMatheny@deq.state.ms.us

MISSOURI

Mr. Les Thomas
Dept. of Labor and Industrial Relations
3315 W. Truman Blvd., Suite 205
Jefferson City, MO 65102-0449
Phone: (573) 751-3403
E-Mail: Les.Thomas@labor.mo.gov

MONTANA

Mr. Bryan Page
Department of Labor and Industry
1327 Lockey Avenue, P.O. Box 1728
Helena, MT 59624-1728
Phone: (406) 444-6401
E-Mail: BPage@mt.gov

NAVAJO NATION

Mr. Akhtar Zaman
Navajo Nation, Minerals Department
P.O. Box 1910
Window Rock, AZ 86515
Phone: (928) 871-6587
E-Mail: akhtarz@yahoo.com

NEBRASKA

Mr. Mick Anderson
University of Nebraska at Kearney
Nebraska Safety Center, West
905 W. 25th Street
Kearney, NE 68849-4550
Phone: (308) 440-9393
E-Mail: andersonm@unk.edu

NEVADA

Mr. Jeff Bixler
Mine Safety and Training Section
400 West King Street, Suite 210
Carson City, NV 89703
Phone: (775) 684-7085
E-Mail: jbixler@business.nv.gov

NEW HAMPSHIRE

Ms. Jackie Heuser
NH Dept. of Resources
172 Pembroke Road
Concord, NH 03301
Phone: (603) 271-7275
E-Mail: Jacqueline.Heuser@dred.nh.gov

NEW JERSEY

Mr. Mark Wadiak
New Jersey Department of Labor
P.O. Box 386
Trenton, NJ 08625-0953
Phone: (609) 984-0785
E-Mail: Wadiak.Mark@dol.gov

NEW MEXICO

Mr. Terence Foreback
NM Bureau of Mine Safety
801 Leroy Place
Socorro, NM 87801
Phone: (575) 835-5460
E-Mail: tforeback@admin.nmt.edu

NEW YORK

Ms. Eileen Franko
New York Department of Labor
Building 12, State Office Campus, Rm 522
Albany, NY 12240
Phone: (518) 457-3518
E-Mail: eileen.franko@labor.ny.gov

NORTH CAROLINA

Mr. William Gerringer
North Carolina Department of Labor
1101 Mail Service Center
Raleigh, NC 27699-1101
Phone: (919) 807-2790
E-Mail: Willliam.Gerringer@labor.nc.gov

NORTH DAKOTA

Mr. Chuck Clairmont
North Dakota Safety Council
1640 Burnt Boat Drive
Bismarck, ND 58503
Phone: (701) 223-6372
E-Mail: cclairmont@ndsc.org

OHIO

Mr. Craig Corder
Division of Mineral Resources Mgmt.
2045 Morse Road, Bldg. H-3
Columbus, OH 43229-6693
Phone: (740) 942-9150
E-Mail: craig.corder@dnr.state.oh.us

OKLAHOMA

Mr. Aaron Farris
c/o EOSC - Baker Hall
1301 West Main
Wilburton, OK 74578
Phone: (918) 465-1872
E-Mail: AFarris@eosc.edu

OREGON

Mr. Ed Sinner
Eastern Oregon University
One University Boulevard
La Grande, OR 97850
Phone: (541) 962-3005
E-Mail: esinner@eou.edu

PENNSYLVANIA

Mr. Jeffrey Stanchek
Bureau of Deep Mine Safety
100 New Salem Road, Room 167
Uniontown, PA 15401
Phone: (724) 439-7302
E-Mail: jstanchek@state.pa.us

PUERTO RICO

RHODE ISLAND

Dr. Jacob Kovel
Central Connecticut State University
1615 Stanley Street
New Britain, CT 06050
Phone: (860) 832-0192
E-Mail: kovelj@ccsu.edu

SOUTH CAROLONA

Mr. Clif Jester
Technical College of the Low Country
P.O. Box 1228, 921 Ribaut Road
Beaufort, SC 29901
Phone: (843) 540-1865
E-Mail: CJester@TCL.edu

SOUTH DAKOTA

Dr. Charles Kliche
SD School of Mines and Technology
501 E. St. Joseph Street
Rapid City, SD 57701
Phone: (605) 394-2344
E-Mail: CharlesKliche@sdsmt.edu

TENNESSEE

Mr. Oscar Frederick
Dept. of Labor & Workforce
Dev.
P.O. Box 124
Caryville, TN 37714
Phone: (423) 566-9709
E-Mail: Oscar.Frederick@TN.gov

TEXAS

Ms. Amanda Sanchez
University of Texas at Austin
P.O. Box 7518
Austin, TX 78713-7518
Phone: (512) 232-1952
E-Mail: amandasanchez@austin.utexas.edu

UTAH

Mr. Dale Evans
USU Eastern
451 East 400 North
Price, UT 84501
Phone: (435) 613-5500
E-Mail: dale.evans@usu.edu

VERMONT

Mr. Richard J. Wobby, Jr.
Associated General Contractors of VT
1 Graves Street, P.O. Box 750
Montpelier, VT 05601-0750
Phone: (802) 223-2374
E-Mail: rjw@agcvt.org

VIRGINIA

Mr. Carroll Green
DMME, Division of Mineral Mining
P.O. Drawer 900
Big Stone Gap, VA 24219
Phone: (276) 523-8232
E-Mail: Carroll.Green@dmme.virginia.gov

WASHINGTON

Dr. Donald Richter
Eastern Washington University
Mine Safety and Health Program
319G CEB
Cheney, WA 99004-2493
Phone: (509) 359-2880
E-Mail: drichter@ewu.edu

WEST VIRGINIA

Mr. Eugene White
West Virginia Office of Miners' Health, Safety and Training
1615 Washington East
Charleston, WV 25311-2126
Phone: (304) 558-1425
E-Mail: Eugene.E.White@wv.gov

WISCONSIN

Mr. Robin Zentner
Dept. of Safety and Professional Services
1400 East Washington Avenue
P.O. Box 2658
Madison, WI 53701
Phone: (608) 261-2503
E-Mail: Robin.Zentner@wisconsin.gov

WYOMING

Mr. Gary Wolfe
State Grant Program, Gillette College
300 West Sinclair
Gillette, WY 82718
Phone: (307) 686-0254, ext. 1685
E-Mail: gwolfe@wyoming.com

Sample Applications

(Sample #1)

APPLICATION FOR APPROVED INSTRUCTORS
30 CFR, Parts 48.3(h)(2), 48.23(h)(2), and 49.8(d)

NAME:	SSN:
EMPLOYER:	MINE ID:
STREET:	PHONE NO.
CITY, STATE, ZIP:	

CERTIFICATION OF MINING EXPERIENCE

Years, Underground Coal

Years, Underground Metal

Years, Underground Nonmetal

Years, Surface Coal

Years, Surface Metal

Years, Surface Nonmetal

MINING EXPERIENCE		
Job Title; Classification	Years	Details

(Sample # 1 Continued)

CERTIFICATION OF INSTRUCTIONAL EXPERIENCE

Years, Safety Meetings

Years, Job (task) Training

Years, High School

Years, College, University

Years, VoTech

Years, Mining Training School

Years, Other, specify:

INSTRUCTIONAL EXPERIENCE		
Mining Subjects Taught	Years	Other Subjects Taught

TRAINING RECEIVED	
Date	Mining Related Subjects Only (Indicate if MSHA)

(Sample #2)

MSHA INSTRUCTOR APPROVAL APPLICATION

Employer:	Name:
Mine ID:	SSN:
Your Job Title:	Home Phone:
Work Phone:	Address:
List any MSHA or state qualifications or certifications you have.	List any degrees you have that are related to teaching Part 48 courses.

MINING EXPERIENCE

Total Experience Underground Total Experience Surface

TITLE/POSITION, CLASSIFICATION, ETC.	FROM TO	EMPLOYER

TEACHING EXPERIENCE

LIST TEACHING EXPERIENCES	YEARS/FREQUENCY	LOCATION

I certify that the information contained in this application is true and accurate.

Signature _____ Date_____

(Sample # 3)

APPLICATION FOR MSHA INSTRUCTOR APPROVAL BASED ON QUALIFICATION AND EXPERIENCE

Title 30 CFR contains six programs of miner training which require MSHA-approved instructors. Please check the box(s) next to the program areas for which you request approval.

	48.5	New Miner Training	Underground
	48.6	Experienced Miner Training	Underground
	48.8	Annual Refresher Training	Underground
	48.25	New Miner Training	Surface
	48.26	Experienced Miner Training	Surface
	48.28	Annual Refresher Training	Surface

APPLICANTS MUST PROVIDE WRITTEN EVIDENCE OF QUALIFICATION AND EXPERIENCE RELATIVE TO EACH OF THE COURSES FOR WHICH APPROVAL IS REQUESTED. 48.3(h)(2) and 48.23(h)(2).

Please provide the following information for each course:

- mining experiences which demonstrate subject matter knowledge in this course
- teaching experiences which demonstrate teaching skills necessary to teach this course
- courses/classes you have completed which demonstrate subject matter knowledge in this course

Respond to:

- all courses for approval to teach all of Part 48
- (u) designated courses, for approval to teach Part 48 underground courses only
- (s) designated courses, for approval to teach Part 48 surface courses only
- (x)(xu) designated courses, for approval to teach experienced underground miner courses only
- (x)(xs) designated courses, for approval to teach experienced surface miner courses only

(Information provided may only be used by MSHA for the purpose of determining if the applicant's background/experience demonstrates knowledge and skill in subject areas for which applicant requests instructor approval.)

(Sample # 3 Continued)

(u) (s) (x) TRANSPORTATION AND COMMUNICATION	
Mining Experience	
Training You Gave	
Courses You Completed	

(u) (s) (x) INTRODUCTION TO THE WORK ENVIRONMENT	
Mining Experience	
Training You Gave	
Courses You Completed	

(u) (s) (x) HAZARD RECOGNITION	
Mining Experience	
Training You Gave	
Courses You Completed	

(u) (s) (x) MANDATORY HEALTH AND SAFETY STANDARDS	
Mining Experience	
Training You Gave	
Courses You Completed	

(x) AUTHORITY AND RESPONSIBILITY OF SUPERVISORS	
Mining Experience	
Training You Gave	
Courses You Completed	

(Sample # 3 Continued)

(u) (xu) MINE MAP; ESCAPEWAY; EMERGENCY EVACUATION	
Mining Experience	
Training You Gave	
Courses You Completed	

(u) (xu) ROOF CONTROL PLANS	
Mining Experience	
Training You Gave	
Courses You Completed	

(u) (xu) VENTILATION PLANS	
Mining Experience	
Training You Gave	
Courses You Completed	

(u) (s) (xu) SELF-RESCUE AND RESPIRATORY DEVICES	
Mining Experience	
Training You Gave	
Courses You Completed	

(s) (xs) GROUND CONTROL PLANS	
Mining Experience	
Training You Gave	
Courses You Completed	

(xs) ESCAPE AND EMERGENCY EVACUATION	
Mining Experience	
Training You Gave	
Courses You Completed	

(u) (s) STATUTORY RIGHTS OF MINERS	
Mining Experience	
Training You Gave	
Courses You Completed	

(u) (s) HEALTH	
Mining Experience	
Training You Gave	
Courses You Completed	

(u) CLEANUP AND ROCKDUSTING	
Mining Experience	
Training You Gave	
Courses You Completed	

(u) (s) ELECTRICAL HAZARDS	
Mining Experience	
Training You Gave	
Courses You Completed	

(Sample # 3 Continued)

(u) (s) FIRST AID	
Mining Experience	
Training You Gave	
Courses You Completed	

(u) MINE GASES	
Mining Experience	
Training You Gave	
Courses You Completed	

(u) BARRICADING	
Mining Experience	
Training You Gave	
Courses You Completed	

(u) (s) PREVENTION OF ACCIDENTS	
Mining Experience	
Training You Gave	
Courses You Completed	

(u) (s) EXPLOSIVES	
Mining Experience	
Training You Gave	
Courses You Completed	

(Sample # 3 Continued)

(u) (s) HEALTH AND SAFETY ASPECTS OF TASKS TO WHICH THE NEW MINER MAY BE ASSIGNED	
Mining Experience	
Training You Gave	
Courses You Completed	

CHAPTER 2
PART 48 TRAINING REQUIREMENTS

2-1 At the end of this training lesson, you will be able to identify the necessary training required by 30 CFR Part 48 for miners working in the mining industry.

NOTE: This section is intended for general information only. For a more specific interpretation of Part 48 requirements, contact your Educational Field and Small Mine Services (EFSMS) Specialist.

Section 115 of the Federal Mine Safety and Health Act of 1977 (the Act) requires each mine operator to have a health and safety training program for miners. Each training program must be submitted to and approved by the Secretary of Labor (MSHA District Manager). The training programs are intended to ensure that miners will be effectively trained in matters affecting their health and safety, with the ultimate goal of reducing the frequency and severity of injuries in the Nation's mines.

The Act requires that new underground miners without previous mining experience receive no less than 40 hours of training, 8 hours of which must be mine specific. New surface miners having no experience must receive a minimum 24 hours of training if they are to work at a surface mine or on the surface of an underground mine.

In addition to the new miner training, the Act requires a minimum of 8 hours "annual refresher training" each year for miners working in the industry. This is to ensure that critical skills are maintained, basic health and safety knowledge is reviewed, and any new applicable health and safety issues are discussed.

Task training was also addressed by the Act. It states that "any miner who is reassigned to a new task in which he or she has no previous work experience shall receive training...in the health and safety aspects specific to that task prior to performing that task."

Part 48 applies to both coal and metal and nonmetal mines. Each operator is responsible for compliance with all applicable provisions of Part 48. Therefore, operators should be prepared to provide all mine training as necessary.

Part 48 is divided into two subparts: Subpart A, training requirements for underground miners, both coal and metal and nonmetal; and Subpart B, training requirements for surface miners and miners working at the surface of an underground mine. Both subparts are very similar and generally follow the same outline. For example, Subpart A, Section 48.2, and Subpart B, Section 48.22, both involve definitions. Likewise, Subpart A, Section 48.4, and Subpart B, Section 48.24, both discuss cooperative training programs. Therefore, when discussing the different sections of Part 48, both subparts (A&B) will be addressed at the same time.

Scope 48.1 / 48.21

Part 48 requires mine operators, and in some cases contractors, to submit to the applicable MSHA District, for approval, a training plan under which miners are provided training. The training required by these plans must be provided to miners before they begin work at a mine, or before they receive new work tasks or assignments. Accordingly, when a miner is hired, transferred to a new work location, or is recalled, the miner must be given the training specified by Part 48.

Definitions 48.2 / 48.22

The determination of whether an individual is classified as a 48.2(a)(1)/48.22(a)(1) “miner” for purposes of comprehensive training or as a 48.2(a)(2)/48.22(a)(2) “miner” for purposes of hazard training must be made on a case-by-case basis. A specific job title does not necessarily determine how the individual is defined; neither does the fact that the worker is physically present on mine property. A determination must be made as to the kind and extent of mining hazard exposure.

(a)(1) Miners are individuals engaged in the extraction or production process, or regularly exposed to mine hazards, or contracted by the operator and regularly exposed to mine hazards. They must receive comprehensive training. This includes contractor employees if they are involved in the mining process.

Regularly exposed means either or both:

- Frequent exposure, that is, exposure to hazards at the mine on a frequent rather than consecutive day basis (a pattern of recurring exposure); or
- Extended exposure of 5 consecutive workdays.

Excluded from the above definition are the following:

> Shaft and slope workers, workers engaged in construction activities ancillary to shaft and slope sinking, and workers engaged in the construction of major additions to an existing mine which requires the mine to cease operations (This is for only underground operations).

(a)(2) Miners are individuals not engaged in the extraction and production process, not regularly exposed to mine hazards, or inconsequentially exposed to mine hazards. They must receive the appropriate Section 48.11/48.31, **hazard training**.

Experienced Miner (Effective after Feb. 3, 1999) is a person meeting one of the following:

1. A miner who has completed MSHA-approved new miner training and who has had at least 12 months of mining experience;
2. A supervisor who is certified under an MSHA-approved State certification program and who is employed as a supervisor on October 6, 1998; or
3. An experienced miner on February 3, 1999.

Training Plans 48.3 / 48.23

Training plans are to be submitted for approval to the appropriate MSHA District. The plan shall contain provisions for training new miners, newly-employed experienced miners, new task training, annual refresher training, and hazard training.

Each operator's plan should also contain:

1. The company name, mine name, and MSHA ID of the mine.
2. The name and position of the person responsible for health and safety training at the mine.
3. A list of MSHA-approved instructors with whom the operator proposes to make arrangements to teach the courses, and the courses each instructor is qualified to teach.
4. The location where the training will be given.
5. A description of the teaching methods and the course materials which are to be used in training.
6. The approximate number of miners employed at the mine and the maximum number who will attend each session of training.
7. A schedule of annual training.
8. A list of work tasks and methods by which task training will be accomplished.

MSHA-Approved Training Instructors must conduct all training under Section 48.6/48.26(e), except new task training and hazard training. Instructors are approved by MSHA based on the individual's mining experience and knowledge and through one of the following ways:

1. Instructor may take an instructor training course approved by MSHA.
2. Instructor can be approved by MSHA based on written evidence of qualifications and teaching experience.
3. Instructor may be designated by MSHA as approved instructor to teach specific courses based on performance while teaching classes monitored by MSHA.

Instructors may have their approval revoked by MSHA for good cause including not teaching a course at least once every 24 months.

The mine operator shall post on the mine bulletin board, and provide to the miners' representative, a copy of the training plan plus any approved revisions and decisions which concern the training plan at the mine and which are issued by the District Manager.

Cooperative Training Programs 48.4 / 48.24

A mine operator may conduct his or her own training program, or may participate in training programs conducted by MSHA, or may participate in MSHA-approved training programs conducted by other sources. The operator should ensure that the training program has been approved by the District and that the instructors conducting the training are MSHA-approved instructors.

Training of New Miners 48.5 / 48.25

Underground: New miners are to receive a minimum of 40 hours of training prior to the assignment of work duties. Of this 40 hours, 8 hours must be given at the mine site. Some states (example WV - 80 hours) have training requirements in addition to those required by 30 CFR.

Surface Mining and Surface Areas of Underground Mines: New miners are to receive a minimum of 24 hours of training preferably prior to the assignment of work duties. However, at the discretion of the District Manager, new miners may receive a portion of this training after assignment to work duties, provided a minimum of 8 hours of training is given prior to assignment of work. This initial 8 hours must include as a minimum the following topics:

1. Introduction to work environment
2. Hazard recognition
3. Health and safety aspects of the task assigned

Following the completion of this initial 8 hours of training, new surface miners must receive the remainder of the required 24 hours of training within 60 days.

Courses required: New miner training programs for underground and surface shall include the following.

Underground:

1. Instruction in the statutory rights of miners and their representatives under the Act; authority and responsibility of supervisors
2. Self-rescue and respiratory devices
3. Entering and leaving the mine; transportation; communications
4. Introduction to the work environment
5. Mine map; escapeways; emergency evacuation; barricading
6. Roof or ground control and ventilation plans

7. Health
8. Cleanup; rock dusting
9. Hazard recognition
10. Electrical hazards
11. First aid
12. Mine gases
13. Health and safety aspects of the tasks to which the new miner will be assigned
14. Such other courses as may be required by the District Manager

Surface:

1. Instruction in the statutory rights of miners and their representatives under the Act; authority and responsibility of supervisors
2. Self-rescue and respiratory devices
3. Transportation controls and communication systems
4. Introduction to work environment
5. Escape and emergency evacuation plans; firewarning and firefighting
6. Ground control; working in areas of highwalls, water hazards, pits and spoil banks; illumination and night work
7. Health
8. Hazard recognition
9. Electrical hazards
10. First aid
11. Explosives
12. Health and safety aspects of the tasks to which the new miner will be assigned
13. Such other courses as may be required by the District Manager

A newly employed miner who has less than 12 months of experience but did receive new miner training within the last 36 months will only be required to take experienced miner training. If more than 36 months pass before the miner acquires the necessary 12 months of experience, then the miner will be required to repeat new miner training.

Training of Experienced Miners 48.6 / 48.26 (Effective after Feb. 3, 1999)

Experienced miner training applies to miners who are:

1. Newly employed experienced miners;
2. Transferred to the mine from another mine location as experienced miners;
3. Experienced underground miners transferred from the surface to the underground or experienced surface miners transferred from the underground to surface; and
4. Returning to the mine after an absence of more than 12 months.

No minimum time requirement for experienced miner training is required. It should be geared to the hazards of the task and the individuals involved. However, an experienced miner returning to mining following an absence of 5 years or more must receive at least 8 hours of training before duties are assigned.

Courses of instruction for experienced miners include:

Underground:

1. Introduction to work environment
2. Mandatory health and safety standards
3. Authority and responsibility of supervisors and miners' representatives
4. Entering and leaving the mine; transportation; communications
5. Mine map; escapeways; emergency evacuation; barricading
6. Roof or ground control and ventilation plans
7. Hazard recognition
8. Prevention of accidents
9. Emergency medical procedures
10. Health
11. Health and safety aspects of the tasks to which the experienced miner is assigned
12. Self-rescue and respiratory devices
13. Such other courses as may be required by the District Manager

Surface:

1. Introduction to work environment
2. Mandatory health and safety standards
3. Authority and responsibility of supervisors and miners' representatives
4. Transportation controls and communication systems
5. Escape and emergency evacuation plans; firewarning and firefighting
6. Ground controls; working in areas of highwalls, water hazards, pits, and spoil banks; illumination and night work
7. Hazard recognition
8. Prevention of accidents
9. Emergency medical procedures
10. Health
11. Health and safety aspects of the tasks to which the experienced miner is assigned
12. Such other courses as may be required by the District Manager

Any miner returning to the same mine following an absence of 12 months or less must be trained on any major changes to the mine environment that have occurred during the miner's absence which could adversely affect the miners health or safety. This training does not have to be conducted by an MSHA-approved instructor and does not need to be recorded. The miner must complete annual refresher training if he missed it during his absence.

Task Training 48.7 / 48.27

When establishing Section 115 of the Mine Act, Congress also addressed employee task training. The intent was to ensure that the mine operator provided experienced miners with adequate training whenever they were assigned new tasks. Generally, miners assigned to new work tasks as mobile equipment operators, drilling machine operators, haulage and conveyor systems operators, roof and ground control machine operators, and those in blasting operations shall not perform those new work tasks until properly trained. This section does not apply to new miners since their initial training (40 hours or 24 hours) covers the health and safety aspects of the task they will be first assigned. The training program shall include the following:

1. Health and safety aspects and safe operating procedures for work tasks, equipment, and machinery
2. Supervised practice during nonproduction
3. Supervised operation during production
4. New or modified machines and equipment
5. Such other courses as may be required by the District Manager

Annual Refresher Training 48.8 / 48.28

Each miner, including supervisors, will receive as a minimum at least 8 hours of refresher training each year. The program will include the following subjects:

1. Mandatory health and safety standards
2. Transportation controls and communications systems
3. Barricading (underground)
4. Escape and emergency evacuation plans (surface); firewarning and firefighting (surface)
5. Roof or ground control and ventilation plans (underground); ground control (surface); working in areas of highwalls, water hazards, pits, and spoil banks (surface); illumination and night work (surface)
6. First aid
7. Electrical hazards
8. Prevention of accidents
9. Self-rescue and respiratory devices
10. Health
11. Explosives
12. Mine gases (underground)
13 Such other courses as may be required by the District Manager

Where annual refresher training is conducted periodically, such sessions shall not be less than 30 minutes of actual instruction time and the miners shall be notified that the session is part of their annual refresher training.

Records of Training 48.9 / 48.29

All training given as required by Part 48 shall be recorded on the standard MSHA Form 5000-23. The trainee must sign the training form after completion of the training verifying that the training was received. A copy of the form will be given the trainee for his or her records. The mine operator will keep the original on file at the mine property and make available if an inspector requests to review the training records. The training records will also be made available to the miners, miners' representative, and State inspectors if requested. If a miner leaves the operation, he or she shall be entitled to a copy of their training records.

Operators are required to keep training records for a minimum of 2 years after the training has been completed or for 60 days after termination of employment. **False certification that training was given shall be punishable under Section 110(a) and (f) of the Act.**

Compensation for Training 48.10 / 48.30

Training will be conducted during normal work hours and miners will be compensated for the time spent in training. The rate of pay will correspond to the rate of pay the employees would have received had they been performing their normal work tasks. The purpose of both the statute and the regulations is to ensure that miners are not financially penalized when they receive training. This includes additional costs incurred by the miners if training is not conducted at the mine site, for example, mileage, meals and even lodging.

Operators are permitted to require that applicants for employment and laid-off persons obtain necessary training initially on their own time and at their own expense.

5000-23 FORM

Instructions for Completing a Mine Safety and Health Administration Certificate of Training Form (5000-23)

All Part 48 training must be properly recorded on a Mine Safety and Health Administration (MSHA) Form 5000-23 (training certificate), or on an MSHA-approved alternate form. For additional policy information on the 5000-23 form, you may refer to the MSHA Program Policy Manual. To review the applicable policy, please use this link.

The current MSHA Form 5000-23 has an expiration date of January 31, 2018; however, previously issued forms with an earlier expiration date may still be used. The printed version comes with four copies. Listed below are notations, which appear on the bottom right-hand side of the form, showing the intended use of each copy.

Copy 1 (white) - Employer's Personnel Record
Copy 2 (pink) - Employee's Record Copy
Copy 3 (yellow) - Employee's Separation Copy
Copy 4 (green) - Record Keeping

The following is a description of how to complete each item of the 5000-23.

ITEM	DESCRIPTION
Serial Number (for operator's use)	This is an optional field which may be used to help track employees by an identification number. There is no Federal requirement to use this field.
Item 1. Print Full Name of Person Trained (first, middle, last)	Enter the person's name who has received the training.
Item 2. Check Type of Approved Training Received	There are five boxes for the five types of training required. Check the appropriate box(s) to indicate what training was given. When New Task is checked, additional space is provided to record 1-8 task training events. This space is used to identify each task and to allow for the initials of the instructor(s) and the student (miner), as needed.
Item 3. Check Type of Operation and Related Industry	(1) Mark the box for the appropriate commodity: coal, metal or nonmetal. (2) Mark the box for the appropriate location: surface or underground. (3) Mark the appropriate box if the training is for construction or shaft and slope work. When completed the box should identify the type of mining, location and if construction or shaft and slope activities are involved.

Item 4. Date Training Requirements Completed	Depending on whether the training is complete or partial will determine how this item is completed. Only entering a date indicates that the training marked in item 2 is completed. Placing a check in the box to the right of the date entry indicates that the training for the program(s) marked in item 2 is not complete. The appropriate boxes in item 5 must then be checked to indicate what subjects were completed. The following are some examples of partially completed training: (1) training for new miners given away from the mine site (which will then require site specific training at the mine site); (2) utilizing the 8 and 16 hours in 60-day provision for newly employed inexperienced surface miners; and (3) providing partially completed annual refresher training.
Item 5. Check Subjects Completed (use only for partially completed training)	This is generally used for conducting annual refresher training in increments throughout an annual refresher cycle; or for newly employed inexperienced miner training which does not cover mine specific courses that are required to be covered at the mine site.
Item 6. Signature of Person Responsible for Training	Upon completion of an MSHA-approved training program, such as experienced miner, task, or annual refresher training, you must record and certify on the 5000-23 form that the miner has received the specified training. The person signing the form in item 6 is representing that the miner has received the indicated training. Anyone falsifying the 5000-23 form is criminally liable under section 110(a) and (f) of the Federal Mine Safety and Health Act. Generally, the person signing the form is the mine operator or a person acting on behalf of the operator. For example, a company safety official, a trainer employed or contracted by the operator, or a cooperative instructor (such as a state grantee).

Item 7. Mine Name, ID, & Location of Training (if institution, give name & address)	List the mine name, mine ID and location where training was conducted. If the training was conducted by a cooperative instructor or state grantee and a class participant is not employed at a particular mine, fill in the cooperative instructor's name or state name and address.
Item 8. Date and Signature of Person Trained	The person trained has the option of signing and dating the form, acknowledging that the training indicated on the form was received. A copy of the 5000-23 form must be given to the miner upon completion of each MSHA-approved training program, such as experienced miner, task, or annual refresher training.

Hazard Training 48.11 / 48.31

Hazard training requirements of Part 48 are intended for individuals on mine property for one reason or another but who are **not** directly engaged in the extraction or production process, and are **not** regularly or continuously exposed to mine hazards.

Examples of individuals that fall into this category, also called (a)(2) miners, are equipment manufacturers, manufacturers' field representatives, sales representatives, delivery personnel, short-term maintenance workers, contract workers for the government collecting information, and customers.

Hazard training should be designed and administered to address the hazards these individuals will likely encounter while on the mine site. In addition, hazard training shall include the following topics:

1. Hazard recognition and avoidance
2. Emergency and evacuation procedures
3. Health and safety standards, safety rules, and safe working procedures
4. Self-rescue and respiratory devices
5. Such other courses as may be required by the District Manager

Hazard training is required each year and must be recorded. The operator may use the standard MSHA Form 5000-23 for this purpose or may:

- have the person receiving the verbal hazard training sign a log sheet indicating that hazard training has been received.
- have the person receiving the written hazard training sign the written instructions.

If the individuals subject to hazard training travel underground, they must be accompanied at all times by an experienced miner.

Labor, management, or government officials visiting the mine site need not be given hazard training but must be accompanied by an experienced miner and be provided with appropriate safety equipment and self-rescuer.

Authorized representatives of the Secretary (inspectors) are not subject to Part 48 training or required to be accompanied when carrying out their duties.

Other short-term visitors (one day or less) and students on field trips need not be given hazard training. However, they should be accompanied by an experienced miner and be provided with appropriate safety equipment.

The chart on the following page summarizes the training which must be given to the various classifications of miners.

PART 48 TRAINING CHART

	TRAINING AREAS	NEW MINER TRAINING		EXPERIENCED MINER TRAINING		ANNUAL REFRESHER TRAINING		HAZARD TRAINING		TASK TRAINING	
	(U)NDERGROUND (S)URFACE	(u)	(S)	(U)	(S)	(U)	(S)	(U)	(S)	(U)	(S)
	REQUIRED HOURS	40 hrs	24 hrs			8 hrs	8 hrs				
1	Statutory Rights of Miners	✓	✓								
2	Authority and Responsibility of Supervisors	✓	✓	✓	✓						
3	Self-Rescue and Respiratory Devices	✓	✓	✓		✓	✓	✓	✓		
4	Entering and Leaving the Mine	✓		✓							
5	Transportation Systems and Controls	✓	✓	✓	✓	✓	✓				
6	Communication Systems	✓	✓	✓	✓	✓					
7	Introduction to the Work Environment	✓	✓	✓	✓						
8	Mine Map and Escapeways	✓		✓							
9	Escape and Emergency Evacuation Plans	✓	✓	✓	✓		✓	✓	✓		
10	Firewarning and Firefighting		✓		✓		✓				
11	Barricading	✓		✓		✓					
12	Roof/Ground Control and Ventilation Plans	✓		✓		✓					
13	Ground Control (highwalls)		✓		✓		✓				
14	Water Hazards, Pits and Spoil Banks		✓		✓		✓				
15	Illumination and Night Work		✓								
16	Health	✓	✓	✓	✓	✓	✓				
17	Cleanup and Rock Dusting	✓									
18	Hazard Recognition and Avoidance	✓	✓	✓	✓			✓	✓		
19	Electrical Hazards	✓	✓			✓	✓				
20	First Aid	✓	✓			✓	✓				
21	Explosives		✓			✓	✓				
22	Mine Gases	✓				✓					
23	Health and Safety Aspects of the Task	✓	✓	✓	✓					✓	✓
24	Mandatory Health and Safety Standards			✓	✓	✓	✓	✓	✓		
25	Emergency Medical Procedures			✓	✓						
26	Prevention of Accidents					✓	✓				
27	Safety Rules and Safe Working Procedures			✓	✓			✓	✓		
28	Supervised Practice During Non-Production									✓	✓
29	Supervised Operation During Production									✓	✓
30	New or Modified Machines and Equip. Training									✓	✓
31	Other Training Required by the District	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

CHAPTER 3
PRINCIPLES OF ADULT LEARNING

3-1 At the end of this lesson, the participant will be able to describe how following principles of adult learning when developing and conducting training will result in more effective training.

Much research has been conducted in the area of learning in general, and adult learning in particular. Some of the results of this research have obvious implications for instructors of adults, but others are a bit more obscure.

One of the obvious conclusions shown by research is that adults are not just “big children” nor can they be treated as such in the training situation. Adults differ from children in several major ways:

Children	Adults
Have shorter attention span	Have longer attention span
Rely on others to decide what is important	Decide for themselves what is important
Accept information being presented at face value	Need to “weigh” information given against what they already know
Have little or no “life experiences” upon which to draw	Have many “life experiences” upon which to draw

However, just knowing these differences does not always help an instructor to design the course for adult learners. For instance, many instructors take advantage of an adult’s longer attention span (and their ability to outwardly control their discomfort) to make them sit for longer periods of time, listening to the instructor “teach.” In this case, the “obvious” implication runs counter to other good principles of adult learning.

The biggest problem of most instructors of adults is that they model their behavior after instructors they have had in the past, rather than develop a style which is more suited to adults. In most instances, this means the dominant teaching technique used is lecture. Unfortunately, the classic lecture is probably the poorest method to accomplish learning.

What then does produce the most effective learning situation for adults? The following are some general guidelines in developing and conducting training.

Principles of Adult Learning

From a variety of sources, there emerges a body of fairly reliable knowledge about adult learning. The principles listed below lend themselves to three basic divisions:

- Things we know about adult learning and their motivation.
- Things we know about designing curriculum for adults.
- Things we know about working with adults in the classroom.

Motivation to Learn

Adults learn best when they feel a need to learn. Most adults are motivated to learn when they see an immediate and direct application of the knowledge or skill. Adults can't be threatened, coerced, or tricked into learning something new. Adults can be ordered into a classroom and into a seat, but they cannot be forced to learn. Though trainers are often faced with adults who have been sent to training, there are some insights to be gathered from the research on adults who seek structured learning experiences on their own.

- Although adults have been found to engage in learning for a variety of reasons -- job advancement, pleasure -- the love of learning is not its own reward. Adults who are motivated to seek a learning experience do so primarily because they have a use for the knowledge or skill sought.
- Increasing or maintaining one's sense of self-esteem and pleasure are strong secondary motivators for engaging in learning experiences.

Curriculum Design

Instructors, not learners, are responsible for making the material applicable to the "life" or "work" world of trainees. Instruction should relate to the trainees' goals. The instructor should focus on "real world" problems when designing curriculum. The following principles should also be considered during curriculum development.

- Adults learn best by being actively involved. The more passive the training, the more ineffective it tends to be. Instructors should provide instructional activities which require the trainee to use more than one "sense" (i.e., listening). Instructors should structure their courses around learner activities rather than teacher activities.
- Adults need to be able to integrate new ideas with what they already know if they are going to keep--and use--the new information. Instructors must integrate the new knowledge to be learned with the previous knowledge of the trainees by providing "bridging" opportunities.
- Information that conflicts sharply with what is already held to be true, and thus forces a reevaluation of the old material, is integrated more slowly. Instructors should anticipate when such a conflict could occur, and present the material slowly to allow time for trainee reevaluation and integration. Instructors should allow debate and challenge of ideas.
- Information that has little "conceptual overlap" with what is already known is acquired slowly.

- The curriculum designer must know whether the concepts and ideas will be in concert or in conflict with the learner and organizational values.
- Programs need to be designed to accept viewpoints from people in different life stages and with different value "sets."
- Regardless of media, straightforward "how-to" is the preferred content orientation. As many as 80% of the polled adults in one study cited the need for applications and how-to information as the primary motivation for undertaking a learning project.

In the Classroom

Adults prefer an informal learning environment. Most adults are motivated by a desire to maintain or build their image as a self-respecting, responsible grownup, not as an immature, dependent child. Instructors should carefully avoid causing adult trainees to lose face when they make errors or try new behaviors in front of peers.

- The learning environment must be physically and psychologically comfortable. Instructors should use a classroom arrangement more suited for discussion.
- Adults have expectations, and it is critical to take time up front to clarify and articulate all expectations before getting into content. Both trainees and the instructor/facilitator need to state their expectations. When they are at odds, the problem should be acknowledged and a resolution negotiated.
- Adults report that long lectures, periods of sitting, and the absence of practice opportunities are high on the irritation scale. Instructors should create an informal, participatory atmosphere in the classroom.
- Adults bring a great deal of life experience into the classroom, an invaluable asset to be acknowledged, tapped, and used. Almost invariably, the sum of the trainees' knowledge far exceeds that of the instructor. Adults can learn well -- and much --- from dialogue with peers. Instructors should draw out trainees' experience by using discussion methods, rather than by using lecture. This allows trainees to learn from their peers as well as from the instructor.
- The key to the instructor role is control. The instructor must balance the presentation of new material, debate and discussion, sharing of relevant trainee experience, and the clock. Ironically, we seem best able to establish control when we risk giving it up. When we shelve our egos and stifle the tendency to be threatened by challenge to our plans and methods, we gain the kind of facilitative control we seem to need to affect adult learning.
- The instructor has to protect minority opinions, keep disagreements civil and unheated, make connections between various opinions and ideas, and keep reminding the group of the variety of potential solutions to the problems.

Characteristics of a Good Instructor

- Knowledge of subject and keep up on any changes
- Knowledge of teaching techniques
- Positive personality - show enthusiasm and sincerity
- Good leadership - can develop proper attitudes, appreciation and character traits in students
- Positive attitude which creates a desire to learn

How Can You as an Instructor Improve Yourself?

- Know what makes a good instructor.
- Observe other instructors or speakers.
- Analyze your own characteristics - build upon your strengths and correct your weaknesses.
- Concentrate on specific techniques and work out a systematic plan for their improvement.
- Seek the help of others to evaluate the instruction.

Profit by Mistakes - Don'ts

- Don't bluff - if you don't know the answer, admit it, find the correct answer, and give it to the class.
- Don't use profanity or obscenity.
- Don't use sarcasm or ridicule.
- Don't talk down to the class.
- Don't lose patience.

Speech Techniques

- Get the attention of the class and have opening remarks well in mind.
- Look at and talk to the students.
- Speak in a tone so all can hear.
- Be alert! Look alert!
- Remember - your body talks, maintain a good posture and neat appearance.
- Avoid distracting mannerisms: leaning on lectern - constant pacing back and forth - counting change in pockets - waving pointer or pencil.
- Choose words properly and be sure you're understood.
- Make a silent pause, avoid the "er-r-r," "ah" or "uh-h-h."

CHAPTER 4
DEVELOPING OBJECTIVES AND EVALUATION METHODS

CHAPTER OBJECTIVES

4-1 The participant will be able to write an appropriately stated objective from the guide lines given in this material.

4-2 Given a written objective, the participant will be able to write a test item to match the objective.

Developing Objectives

“If you don’t know where you’re going, it doesn’t matter which road you take.”

This statement relates to designing good classroom training programs. Before any work is done in designing the course and developing the materials, the trainer must define the objectives of the course.

Well-written objectives are the foundation of good training. Objectives are very useful tools for letting both the instructor and trainee know what is expected as a result of the training. They keep the instructor focused on what is important when developing and conducting training. They provide the trainee with a clear understanding of the performance required at the end of the training.

There are two steps to follow in developing objectives:

- Clarify the tasks to be performed after training. This may have already been done in the task analysis.
- Develop appropriately stated objectives based on those tasks.

It is important that the objectives for the training come as close as possible to the actual behavior the trainee will be expected to perform back on the job.

A well-written objective contains three components:

- Statement of task. This states what action the trainee should be able to do.
- Condition(s) under which the task is to be performed. This defines the important condition(s) under which the action is going to occur. The conditions answer one or both of these questions, “What are the givens?” or “What are the restrictions?”
- Standard(s) of performance that is required. This states how well the trainee must perform the action for it to be acceptable.

What an Objective Should Do

- Help the instructor to plan his or her instruction in an organized way that accomplishes the goal.
- Help the student know what he or she needs to achieve to reach the goal.
- Provide a means of evaluating student achievement relative to the goal.

Specifying the Task

The performance statement should be written from the trainee's point of view. It should state what the trainee will do, not what the instructor will accomplish.

When writing the performance statement, it is important to use "action" verbs, or words that describe observable behavior. The following gives examples of appropriate and inappropriate words to use.

Appropriate Words for Writing Objectives			Inappropriate Words
Information	**Mental Skill**	**Physical Skill**	
State Name Recite Describe List Relate Tell Write Express	Demonstrate Discriminate Classify Generate (a solution) Apply (a rule) Solve Prove Analyze Evaluate	Operate Repair Adjust Manipulate Handle Manufacture Calibrate Remove Replace Construct	Accept Be aware of Remember Recall Be familiar with Consider Value Appreciate Comprehend Understand Know Believe

Specifying the Conditions

When writing the condition statement of the objective, specify what the trainee will be given. Conditions include:

Job Aids:	*Given a maintenance checklist*...
Equipment:	*Given a front-end loader...*
Technical References	*Given an Inspection Manual...*
Special Tools:	*Given an electric drill...*

Environmental Conditions:	*Given a highwall 48' in height...*
Special Instruction:	*Given the company Safety Procedural Manual...*
Signals, Symbol:	*Given a piece of equipment on which combustible material has accumulated*
Problem Situations or Contingencies:	*Given a case study...*

Specifying the Standard

When writing the standard for the objective, specify the outcome and how well it will be done. The measure of how well the task will be done can be based on several different things:

Referring to a standard operating procedure	*Given a 20 pound block placed on the floor, lift and place the block on a table according to the lifting procedures discussed in class.*
Implying the standard of no error	*Given the voltage and resistance of a wire, determine its current.* Adding "perform without error" would not increase the requirement for accuracy
Specifying minimum acceptable level of performance	*Shown a series of slides depicting hazardous situations, the student will identify at least 8 of the hazards.*
Specifying time requirements	*Upon hearing the warning sound for a blast, the miner will evacuate the blast area within three minutes.*
Specifying qualitative requirements	*Given a maladjusted carburetor and the necessary tools, the trainee will adjust the carburetor to idle at its smoothest point.*

Exercise: Recognizing the Parts of Objectives

Select the performance statement, standard, and conditions in the following objective statements.

1. Using a resusci-Anne in a classroom setting, the student will demonstrate the one-person CPR method as learned in the American Heart Association CPR class.

2. The student will list two hazards that miners are subject to when operating a disconnect switch.

Performance Statement:

1.

2.

Conditions:

1.

2.

Standard:

1.

2.

Exercise: Recognizing Properly Written Objectives

Indicate with a ✓ those statements that are properly written as objectives.

1. Participants will appreciate the importance of front-end loaders at a mining operation.

2. The use of hearing protection in mining.

3. Participants will list two methods of giving artificial respiration according to the First Aid Manual.

4. In a classroom setting, participants will demonstrate two methods of giving CPR as established by the American Heart Association.

5. Participants will be introduced to dust sampling.

6. Given the opportunity in a hospital emergency room, participants will demonstrate the mouth-to-mouth method of artificial respiration according to MSHA standards.

7. Participants will develop a deep understanding of accident prevention.

8. Participants will list five common hand tools used in maintenance operations according to company policy.

9. The participant will know five steps in first aid.

10. Participants will understand the importance of job safety analysis as described in the MSHA Safety Manual, Job Safety Analysis.

11. Mining hazard analysis.

12. Without the use of notes or other references, the participants will list on paper three ways to prevent haulage accidents as discussed in a class on prevention of haulage accidents.

13. Upon viewing a video vignette of a mining situation, participants will identify at least three safety hazards depicted in the video.

14. Given a checklist, the miner will conduct a pre-operation check of the haul truck and report any deficiencies. This will be done according to the standards in the Operating Procedures Manual.

15. Participants will appreciate the role of the safety inspector in a mine.

16. Participants will apply a pressure bandage on wounds of the ear as explained in the First Aid Manual and demonstrated by the instructor.

17. Participants will explain how to use a monitoring device.

18. Introduction to AC-DC theory for mine safety and health inspectors with at least 10 years inspection experience.

19. Participants will relate examples of mine accidents from personal experience.

20. Participants will list two safe uses of explosives according to the *Dupont Blaster's Guide.*

Exercise: Writing Objectives

In the space below, write an objective for a unit of instruction in new miner training. Be sure you include the task, condition, and standard.

Evaluation Methods

Evaluation, if properly done, is an integral part of the teaching-learning process. Evaluations aid instructors by letting them know where to concentrate their efforts. Evaluations also aid the trainees by motivating, checking retention and transfer to learning, and facilitating self-understanding.

An evaluation which is designed as an instructional tool should be relatively easy. It should emphasize and reinforce what the trainees already know, as well as let them see where their weaknesses are. Evaluations contain practice items. These practice items may be samples of actual questions that may appear on a later test, or they may be lower-level questions to help the trainees prepare for higher-level application questions.

Mastery Type Evaluations, on the other hand, are used to determine when trainees have achieved sufficient competence in a particular area. Mastery evaluation items should closely match the course objectives. For example:

Objective:	*Given a suspected shock victim, the trainee will demonstrate the procedure for caring for him/her according to the guideline in the First Aid Manual.*
Instructional Evaluation Item:	*List the steps in caring for a patient in shock.*
Mastery Evaluation Item:	*Using your assigned partner as a suspected shock victim, demonstrate the correct procedure for caring for him/her.*

A well-written objective makes evaluation methods easy. All the instructor needs to do is ask the trainee to perform the behavior asked for in the objective. Remember, the objective of the training and evaluation is not to differentiate among employees to show who knows the most, but to ensure that all trainees reach at least a minimum level of competence.

Exercise: Match Game (Criterial Evaluation)

If the evaluation item directly matches the objective, mark with a ✓.

If the evaluation item approximately matches the objective, but not perfectly, mark with an **A**.

If the evaluation item does not match the objective, mark with an **X**.

1. Objective: *Students will raise and properly block a front-end loader bucket.*

   Evaluation Item: *Describe the method of blocking a front-end loader bucket.*

2. Objective: Students will name four steps in mouth-to-mouth resuscitation from memory.

   Evaluation Item: *Recite the four steps in mouth-to-mouth resuscitation*.

3. Objective: *Students will perform mouth-to-mouth resuscitation, in an emergency, to restore normal breathing.*

   Evaluation Item: *Demonstrate mouth-to-mouth resuscitation on the provided mannequin.*

4. Objective: *Students will use a front-end loader to scale down a highwall.*

   Evaluation Item: *Describe how to scale down a highwall using a front-end loader.*

5. Objective: *Students will use the respirator properly in a dusty work environment.*

   Evaluation Item: *Enter the simulated dusty work environment and put on the provided respirator.*

6. Objective*: Students will be able to recognize ventilation problems in a welding booth.*

   Evaluation Item: *Ventilate the welding booth in the shop.*

Exercise: Writing Evaluation Items

Write an evaluation item to match the objective written for the exercise on page 66.

CHAPTER 5
OUTLINING THE TRAINING CONTENT AND DEVELOPING LESSON PLANS

CHAPTER OBJECTIVES

5-1 At the end of this lesson, the trainee will be able to outline the content of an instructional unit for miner training.

5-2 At the end of this lesson, the trainee will be able to develop a lesson plan to be used for miner training.

The training content is everything that the trainee must learn in order to achieve the objective for the lesson. Outlining the content serves three purposes:

- It enables the instructors to sort through all the material available on a subject and identify that which is necessary.
- It allows the instructors to organize and sequence the material so that it is more easily followed by the instructor and learned by the trainee.
- It serves as a process for checking to ensure that the training includes everything that learners need to know.

There are three steps involved in outlining the training content:

- List the actions the trainees must take to accomplish the objective.
- Identify the knowledge required so that the trainee can take those actions.
- Sequence the training content according to an appropriate order for training.

List Actions

Learning is most effective when the training content is broken down into small steps. The smaller the steps, the more easily they can be learned. Breaking down the content into small steps also helps the instructor to ensure that no steps are left out.

To develop a list of actions, it is sometimes helpful to visualize the trainee performing the tasks on the job, including the tasks that involve mental actions.

Example

Objective: *At the end of this lesson, the trainee will demonstrate two of the three accepted methods for controlling arterial bleeding.*

Action(s): *Recognize arterial bleeding*
Identify accepted control methods
Demonstrate accepted control methods

Identify Knowledge Requirements

Outlining the content includes both what the trainee must do and the information they must know to enable them to do. As the instructor lists each action, he/she should consider what information will be required to perform it.

Example

Recognize arterial bleeding.	*Facts associated with types of bleeding*
	Rules for distinguishing types of bleeding
Identify accepted control methods.	*Facts associated with the three accepted methods*
Demonstrate accepted control methods.	*Procedures to follow for the three accepted methods*

Sequence the Training

Once all actions and knowledge requirements have been identified, they can then be sequenced in the order they should be presented in training. As a general rule, knowledge requirements precede the related actions.

Example

Objective: At the end of this lesson, the trainee will demonstrate two of the three accepted methods for controlling arterial bleeding.

Training Content Sequence:

1. Facts associated with types of bleeding (knowledge)
2. Rules for distinguishing types of bleeding (knowledge)
3. Recognize arterial bleeding (action)
4. Facts associated with the three accepted methods (knowledge)
5. Identify accepted control methods (action)
6. Procedures to follow for the three accepted methods (knowledge)
7. Demonstrate accepted control methods (action)

Exercise: Outlining Training Content

On the following two pages:

1. List the actions for the objective written for the exercise on page 66.

2. List the knowledge requirements for each of the actions written in the first exercise.

Training Content Outline

Learning Objective

At the end of the lesson, the trainee will:

Actions

Knowledge Requirements

Training Content Outline

Sequenced Training Content

Lesson Plans

A lesson plan serves two purposes. Primarily it serves as a guide for the instructor to follow when presenting the course. Secondarily, it is an administrative document showing the organization of the course content, use of facilities and audiovisual equipment, allotment of time, and instructor activities.

Lesson plans usually include, but are not limited to the following items:

- Title. The title identifies the lesson. It should be descriptive and concise.
- Instructor goals and objectives. State reason(s) for teaching the unit. Objectives limit your subject matter. They are used as a guide in preparing presentation.
- Instructional methods to be used.
- Time to be allotted.
- Training aids and student materials. List all training aids and equipment to be used. Also, list handouts and other instructional materials needed. This composite list will enable you to determine quickly all the items that you need to assemble before teaching the class.
- References. List all texts, instruction books, and other materials needed to prepare for the lesson.
- Outline of content to be covered and the specific activities to be used to teach each concept. This information comprises the bulk of the lesson plan.

Developing the Content Outline and Instructional Activities

The content outline is normally divided into three parts: introduction, body, and summary. It follows the advice given for all instructors and speakers: Tell them what you are going to tell them; tell them; and then tell them again what you told them!

The **introduction** normally needs only to be brief to stimulate interest and relate to objectives. Introductions serve the following purposes:

- Develop trainee interest.
- Direct trainee thinking along desired lines.
- Establish scope of lesson by stating objectives.
- Create personal interest by stating benefits of lesson to trainees.
- Explain what method(s) will be used.
- Inform trainees as to what will be expected of them by the end of the session.

The **body** contains most of the actual content of the presentation. It consists of the sequenced training outline of the subject matter to be taught. For each concept listed on the outline, you should make notes as to instructional activity to be used. More information on specific instructional material will be covered in the next chapter. If you do not determine the instructional activities during the planning stage, all you will be able to do in class is lecture!

Since you want to appeal to as many senses as possible, always first think in terms of what activity students can do to learn the material. For example:

- Have students practice CPR on a Resusci-Anne.
- Divide students into groups of 3-4 persons and have them identify the hazards depicted in the photos.
- Have students play Jeopardy.
- Have students role play a given part in a mine emergency scenario.

Secondarily, think of what activity you can provide. For example:

- Show chart #1.
- Show transparency #14.
- Show the video on ...
- Write key concepts on blackboard.
- Demonstrate the safety belt and line.
- Tell the joke about...
- Tell the story about the miner who...
- Ask the following questions to promote discussion...

The **summary** is a repeat of the “must know” subject matter. Ensure that students take with them all “must know” subject matter, either through notes or handouts.

There are as many lesson plan formats as there are instructors. The one that is shown on the next pages is an example of one that has proven to be useful to some instructors.

COURSE LESSON PLAN

Lesson: **Total Time:**

Objectives:

Methods:

Training Aids:

References:

LESSON OUTLINE	INSTRUCTOR ACTIVITIES

CHAPTER 6
DETERMINING THE INSTRUCTIONAL METHODS AND PREPARING EFFECTIVE PRESENTATIONS

CHAPTER OBJECTIVE

6-1 At the end of this lesson, the trainee will be able to match appropriate learner-centered instructional methods with the training content.

New Miner vs. Experienced Miner Training

Instructors who are developing training for both new miners and annual refresher training must keep in mind the differences between the two groups. The type of instructional techniques used must be different for the two groups.

New Miner Training	Annual Refresher Training
Trainees lack specific job skills	Trainees have proficient job skills
Trainees lack knowledge of safe job procedures	Trainees usually have knowledge of safe job procedures, but fail to follow them on occasion
Trainees unable to recognize hazardous situations or conditions	Trainees often not observant of hazardous situations or conditions
Primary goals of the training are to teach job skills and safe mining practices	Primary goals of the training are to change trainee attitudes which lead to unsafe behavior, and to “refresh” old skills and knowledge
Trainees often young, without much work experience	Trainees often older than the instructor, and possessing much more work experience

Learner-Centered vs. Instructor-Centered Instruction

A concept to bear in mind when determining which instructional techniques to use is that it does not matter what the instructor does, but what the trainee does that is critical to learning.

Many mine trainers think that “teaching” and “covering material” are synonymous terms. They often get so caught up in the subject matter that they try to cover more material than the trainee can possibly absorb in the time allotted. Thinking of teaching as covering materials leads instructors to rely on lecture as the primary teaching technique.

Lecture is one of the least effective methods of teaching in any type of course. It is most appropriately used when the trainee does not know much about the information to be taught. In annual refresher training, this is rarely the case.

There are several factors which drive instructors to lecture:

- it is the easiest method when course preparation time is limited;
- it is the least risky method when the instructor is not totally familiar with the subject content;
- it is the most easily managed method when the class size is large; and
- since most instructors imitate techniques they have seen used and since lecture is the most commonly used technique, it is the only method that some instructors know how to use.

Lecture becomes more inappropriate when the instructor is primarily trying to change attitudes rather than impart skill or knowledge. Lecture frequently causes trainees to become more hardened in their inappropriate attitude.

The most effective way to change trainee attitudes is to provide learning activities which cause them to interact with each other and the concepts to be learned in such a way that they become aware of their inappropriate attitudes without losing face. Small group instructional techniques are usually much more effective when trying to change attitudes.

An operating definition for small group instruction is 2 to 6 people. Small group instruction produces several outcomes not characteristic of large group or individual instruction.

- Small group instruction leads to conformity of learning and behavior.
- Small group instruction leads to cohesiveness of group.
- Group thought is generally more accurate than individual thought.
- Groups are generally riskier than individuals.
- Groups are generally more creative than individuals.

There are many types of small group instructional activities that can be used effectively for training miners: discussion groups, buzz groups, demonstration-performance, case studies, simulations, games, and role playing. These are discussed more fully in the following pages.

Discussion Groups

Discussion is one type of small group activity which is very useful when the instructor wants to guide the participants toward a predetermined objective. Discussion is also described as a conference or seminar method. In this method, the members of the groups, with the instructor as the leader, participate in an exchange of ideas and information.

Discussion allows the trainees to contribute what they know about a subject, which is usually considerable in annual refresher training. This participation keeps them more alert during the training. Since ideas are also coming from their peers, they are able to compare their thoughts against others in a similar situation. It is this comparison which is more likely to result in a shift in attitudes. Most persons are influenced by group thought.

During discussion, the instructor is still able to control the learning which takes place. The instructor is responsible for redirecting the discussion when it digresses from the topic, and for correcting any misinformation.

The key to conducting a successful discussion group is to ask questions.

Why ask questions

ASK means: an instructor will teach more Attitudes, Skills and Knowledge by asking, than by telling or showing.

Below are some specific reasons why instructors should ask questions.

- To open a discussion - to arouse interest and curiosity.
- To keep interest alive.
- To get trainees to think.
- To get trainees involved - especially timid participants.
- To balance the discussion - take the floor away from an over participator.
- To develop the topic - bring out additional information or issues.
- To channel the thinking - get participants headed in a particular direction.
- To get discussion back on target.
- To see how well the participants understand the material.
- To determine group acceptance.
- To get action.

Types of questions

Questions can be categorized in several different ways:

- Overhead Question - One directed toward the entire group. Any one person or several people may answer. Its primary purpose is to stimulate discussion.
- Direct Question - one which is asked to a specific person.
- Rhetorical Question - one addressed to the entire group, with no answer expected. This type of question is usually used to stimulate thinking, often at the beginning of a session.

Advantages of discussion groups are:

- they stimulate thinking,
- they are interesting and informative, and
- the informality is conducive to learning and retention.

The disadvantages are:

- discussion groups are time consuming,
- the instructor must be a skillful questioner,
- the instructor must be able to subtly control the group,
- the instructor must have a good subject background, and
- one or two people can dominate the discussion.

Discussion can be used very effectively to resolve problems after a lecture or to discuss key ideas after a film or demonstration.

Buzz Groups

Buzz groups are small discussion groups (usually 3 to 6 individuals) which are formed to work out easy problems. Usually the groups work without the instructor.

Advantages of buzz groups are:

- the informal setting facilitates learning,
- everyone has a chance to participate, and
- they are excellent for greater in-depth discussion.

The disadvantages are:

- they are time consuming,
- they are not good for introducing new material, and
- one or two people can dominate.

Procedures for facilitating buzz groups include:

- Break larger group into small groups (3 to 6 individuals)
- Assign subject/objective
- Assign a time limit
- Assign a recorder and a leader to report
- Watch each group work, and be available for assistance
- Have leaders report the conclusions of their groups
- Discuss the conclusions

Demonstration-Performance

The demonstration-performance method combines the showing of an operation or procedure with actual practice by the individual.

Advantages of demonstration-performance are:

- it appeals to all senses,
- it provides actual practice,
- it stimulates interest,
- it maintains attention, and
- it allows the instructor to spot and remedy incorrect techniques.

Disadvantages include:

- instructor must break activity into several steps and present it in logical order,
- the instructor must be totally familiar with the steps,
- the individual practice is time consuming,
- advance arrangements must be made for equipment,
- it is not practical for large groups,
- equipment may not be easily moved, and
- it may be difficult to get audience to equipment site.

Case Studies

In a case study approach, a real life situation or “case” is presented to a group. The case consists of the details of a problem and a solution or decision is called for. Presenting a problem situation or case study to participants allows them to apply new knowledge to specific situations.

Advantages are that case studies:

- lend reality to an indirect experience,
- help learners see others' points of view,
- help people acquire elementary decision-making skills,
- indirectly help people gain insight into their own interaction pattern,
- pool the insight of group members,
- bridge the gap between theory and practice,
- show that few problems have easy answers, and
- discourage "causal over-simplification."

Disadvantages are:

- they are time consuming, and
- the instructor must develop a pertinent case in advance.

Procedures for developing case studies include:

- Develop a case that is realistic or relevant to trainees' jobs.
- Give the individuals time to discuss case or work on the problem.
- Call for a decision and give definite instructions as to what is to be done.
- Supply a solution. Do not leave it open-ended.

Case study variations include:

- Classical Case - consists of a comprehensive written record or evidence which influences a situation. The group is asked to find causes/recommendations.
- The Unfinished Story - consists of a few details of a situation. The group is asked, "Now what should be done?"
- Critical Incident - confronts the group with a situation at the "explosion" point. The group is asked, "Now it has happened, what do you do?"
- Informational Case - shows the group a picture of a situation. The group is asked, "What do you see?"
- "Ex Post Facto" Case - gives the group both the problem case and the decision. The group is asked, "Did he/she act wisely?"
- Baited Case - deliberately withholds significant parts of the case or deliberately includes insignificant parts. The group is asked to look for a solution.
- Interview Case - gives just an incident to the group. The instructor is used as a source person to be interviewed. The group is asked to search for the facts, weigh them in view of circumstances, and decide on action.

Simulations

Simulations are model systems. For training purposes, an instructor can simulate any system: the human body, a mine environment, a ventilation system, etc. When using this technique, the instructor should introduce some kink in the system and let the participants resolve the problem.

Advantages are:

- simulations foster creativity;
- they have a good impact on all three domains of learning: attitude, skill, and knowledge; and
- experiential learning makes greater impact.

Disadvantages are:

- the cost of equipment, and
- the time required.

Games

Games have become a popular teaching technique in recent years. Although games have been primarily used in management training, they are applicable in many other courses. Games are especially useful in courses which require participants to develop decision-making ability, and in courses which teach sets of rules.

Advantages include:

- the motivation level is high,
- competition makes trainees active,
- it gives participants feedback,
- provides practice, and
- it helps with the decision-making process.

Disadvantages include:

- some games require coaching as well as instruction,
- they require extensive planning and development,
- elaborate equipment may be necessary, and
- they are time consuming.

Guidelines for Developing and Using Games:

- Games should not be used to teach new material. They are effective when reviewing material with which trainees are already familiar.
- Games should take no more than 1 to 1 ½ hours out of an 8 to 16 hour training session. Too much game playing is just as bad as too much of any other technique.
- The goal of the game is to maximize learning. Progress in the game should be based primarily on knowledge of the subject material, not just luck or skill at gaming.
- An element of chance should be built into every game. Trainees need to have a way to "save face" if they lose the game.
- The game should be as participatory as possible. Every trainee should be thinking about every question asked, even if not required to answer it.
- The game should be structured very simply for first-time players. As trainees become more adept at game playing, the rules can become more complex.
- The rules of play should be adapted so that they suit the teaching style of the instructor as well as the material to be covered.
- It is best to have groups of 4 to 6 players to answer questions. If the group is too large, some trainees let others do all the work. But if the group is too small, the atmosphere may become too threatening to some trainees.
- Games have to be changed periodically in order to remain effective. Changing a game means rewriting the questions, changing the subject area covered, or changing the format of the game.
- Games can be used as an icebreaker activity in the beginning of a training session.
- Games can be used as an assessment tool in the beginning of a training session. However, it may be frustrating for trainees if they don't know the answers to many questions.
- Games can be used as a review tool at the end of a training session.
- Games can be used during a training session to keep participants alert and involved. After lunch is a good time since that is a time when many trainees fall asleep.
- Short, individualized games can have value as filler exercises. For example, if a test is being given, persons who finish early can be given a game to keep them occupied and quiet while others complete the test.

Role Playing

Role play involves acting out by individuals, without script or rehearsal, or job techniques needed in particular situations. In role play, the instructor does not determine the outcome in advance. The instructor may explain to each participant how he/she feels in the role, and the participant acts out these feelings.

Advantages of role play are that it allows trainees to:

- practice in dealing with people in particular situations,
- demonstrate abilities, and
- see how others do it.

Disadvantages are:

- role play is time consuming,
- the instructor must be prepared to handle emotional situations,
- the atmosphere must be friendly, and
- some individuals may “ham it up.”

Procedures for using role play include:

- Select a situation that will be meaningful to the group.
- Ask individuals to volunteer.
- Give each player instructions.
- Prepare the observers for what is about to happen and what they should watch for.
- Stop the role playing when real feelings begin to develop among the players or when the situation is resolved.
- Allow the individuals to critique their behavior first, then let the group.
- Discuss the role play in a positive way, asking such questions as: What did you like? How can it be improved?
- Encourage the group to relate the role play to their job.

Criteria for Selecting a Particular Technique

There are three general criteria that instructors should consider when they are selecting methods for training. They are shown below.

Criteria	Explanation
The Learning Objective	Will the method most effectively lead the learner toward the accomplishment of the learning objective?
The Trainee	Does the method take into account the group size, experience levels, and other special characteristics of the group?
The Practical Requirements	Is the method feasible given the physical environment, time (both preparation and classroom), materials, and any cost limitations?

Preparing Effective Presentations

A quality of an effective instructor is knowledge of the subject matter. An instructor can acquire the necessary knowledge in the following basic ways: formal schooling, self-study, and experience. An instructor who knows the subject will not be effective unless his or her message is relevant and concise. Everything an instructor says or does should ultimately help the student attain the objectives. Training time is so valuable that the instructor cannot afford to waste it by giving nonessential information even though it may be in the same general area as the objective.

Well-developed materials are a definite asset, but they are not the complete story. Many students have failed to attain objectives because they had the experience of listening to instructors who not only failed to keep their interest, but whose entire manner was an open invitation to slumber. Student interest must be aroused and maintained although it is often difficult to do so. The difficulty will vary with the subject matter, time of day, situation, and the instructor's manner. Any instructor who desires to be able to hold the attention of students can be trained to do so.

Tips for Effective Presentations:

- Give your listeners signals to help them follow your ideas.
  Example: "Let's look at the causes of the problem...," as an introduction to a new topic.
- Don't start off on the wrong foot. It is unprofessional to start with an apology, except as good manners require, for example, for lateness. Don't start with an irrelevant joke or story.
- Be alert to your audience. Watch the body language of the group.
- Maintain eye contact with the trainees. You do not need to look at each individual in the group (although that is preferred) as long as you look at each section of trainees.
- Vary the speed at which you talk. Although we are told to vary the tone of our voices, it is a difficult thing to do. A better rule to follow is to vary your speed.
- Make sure that everyone in the room can hear. The basic rule here is to make your voice loud enough so that you can be heard by the persons in the last row.
- Use natural gestures. Avoid making gestures to be used in your talk. Do what comes naturally; for example, move toward the group when you want to get them to answer or ask questions.
- Avoid putting your hands near your face. Putting your hands near your mouth may have psychological implications. Often, people who lack confidence in what they are saying display this body language. The speaker's insecurity can spill over to the audience where they begin to lose confidence in the speaker.
- Use pauses effectively. People generally need time to think. When you make a particularly important point in your presentation, you should pause. This will feel awkward at first as ten seconds of silence can feel like ten minutes. However, there are times when those ten seconds are essential.

- Talk from notes rather than from a script. Speaking from notes tends to appear more spontaneous and natural than reading a script. Be sure your notes are easy to follow.
- Eliminate bad habits. Psychologists have found that we fall into bad habits because we are not aware we are doing them. A technique that can help one overcome a bad habit is to force oneself into a five-minute inundation. What will happen is that the next time you start the bad habit in front of a group, you will immediately become aware of what you are doing, and stop the behavior.
- Never memorize your presentation. Use your note cards for reference. The ideas are the same and choice of words will be free and natural.
- Keep your conclusion short. Your conclusion should consist of one or two carefully thought-out sentences.
  - Summarize the main points briefly.
  - Reemphasize the reasons why the subject is important.
  - Suggest something the listeners can do to put the ideas presented into action.
  - Avoid an abrupt ending. Don't just walk away without a clear indication that you have finished.
- Practice. Do this regularly.

Some ways to ensure the training material is meaningful to the trainees:

- Understand the subject yourself -- you cannot make it meaningful for the trainees unless you understand it.
- Pretest trainees' existing knowledge by asking them questions about their previous experience, etc.
- Provide background information. Train from the known to the unknown, relate the new material to something they already know -- make sure they know "Part A" before going to "Part B."
- Break the training session up into stages and present in a logical sequence.
- Explain technical terms. Define the word for the trainees by using it in a meaningful context. Be aware that the trainees will be making a mental picture out of your words; consequently, it is essential they give the same meaning to the words as you do.
- Teach at the trainees' level. Determine the trainees' present level of knowledge and skills and their ability to understand, then teach them at their level, not yours. It's better to oversimplify than to be too complicated.

Do's and Don'ts for the New Trainer

DO

- Maintain eye contact.
- Be aware of audience cues.
- Pay attention to such physical factors as room temperature, outside noise, etc.
- Start on time.
- Give complete directions when giving assignments.

- Allow enough time to develop skills.
- Check supplies and audiovisual equipment.
- Establish program objectives from the beginning.

DON'T

- Be afraid to ask questions.
- Be afraid of silence.
- Rely on technical jargon.
- Talk down to participants.
- Openly criticize yourself or others.
- Include too many people for group exercises.
- Hesitate to say, "I don't know."
- Expect to reach the skill or attitude level of learning from a lecture.

A Checklist for the Final Step of Preparation

Prepare yourself

- Look your best
- Review your teaching notes
- Arrive early to take care of details

Arrange props

- Put up charts and screen
- Arrange other visual aids
- Check machine equipment
- Arrange handout material in order

Check the room

- Select a room removed from outside noise
- Arrange the seating
- Check lights and ventilation
- See that ash trays are provided (if you are allowing smoking in class)
- Remove trash
- Clean Chalkboard

Check needed supplies

- Registration cards
- Attendance list
- Pencil, paper, folders
- Chalk and erasers
- Any other types of visual aids needed

CHAPTER 7
DEVELOPING AND USING TRAINING AIDS

CHAPTER OBJECTIVE

7-1 At the end of this lesson, the trainee will be able to develop and use training aids appropriately.

Training aids are media (materials), both visual and written, that support the training methods chosen. Training aids are not intended to do the training for the instructor, although they are often used this way inappropriately.

Too often the trainer considers the lecture the only communication method available. While there is no denying that this method is effective for many training tasks, the trainer has a much wider variety of channels open to him or her. There are many channels of learning. No single avenue should be excluded if it will aid in the teaching of a lesson.

Criteria Used for Selecting Training Media (Aids)

The following are criteria for selecting training aids:

- The group's and instructor's background abilities and motivation.
- Course objectives are the key to all instruction and must be considered in selecting media.
- The location of the classroom will indicate the various constraints of time, travel and physical environment.
- Media which are beyond your control to schedule must be checked for availability.

Always judge the medium on the basis of its ability to economically and effectively solve your training task. The training content should determine the media selection. Don't solve the problem by working the available media around the training task.

Training aids serve a variety of purposes. Some of the general purposes are:

- Focus attention on topic by having learners visually review the material.
- Increase interest in the topic by presenting material that is visually appealing.
- Improve learner retention by involving more than one sense (e.g., hearing and seeing) when presenting the material.

Some general guidelines the instructor should consider when using any instructional aid are:

Needed	Use an aid if: • it will help the trainees understand the point • words might evoke different images for different people • a high level of retention is desired
Ready to Use	Have aids set up and tested Have aids in correct order with all materials needed
Out of Sight When Not in Use	Make aids as inconspicuous as possible except when being used
Audible/Visible	Make certain all trainees can see and hear the aids
Time to Absorb	Tell the trainees the significance of the aid and give them time to absorb it
Proper Presentation of Aid	Talk to the trainees, not the aid; do not read the aid, and present it smoothly

Each type of training aid has enough unique considerations that each should be dealt with separately. The most common training aids are:

- Videos or DVDs
- Computer presentations
- Flip charts
- Handouts

Videos and DVDs

Videos or DVDs have particular advantages in training. They stimulate trainees' interest, motivate them to try new things, illustrate behaviors, and add professionalism to the training. Normally instructors will not be developing new videotapes or DVDs because of the costs involved, but there are many videos available commercially or from MSHA.

Using a video or DVD will require a video or DVD player and monitor or a multimedia projector and screen. The instructor should always ensure that all equipment is in good working order before the trainees arrive.

After selecting the video or DVD for the training, the instructor should develop a plan for increasing its impact on trainee learning and for smoothly integrating it into the program. The best model is to follow the old public speaking adage: first tell them what you are going to tell them, then tell them, and finally tell them what you have told them.

Prepare. Preparing means readying the equipment and readying the trainee. The instructor should insert the video or DVD into the player during a break prior to the showing. These should prepare the trainee to watch the video or film by telling them the major point they should focus on and retain, and should also tell trainees what they will be asked to do after the viewing.

View. Once the video or DVD has begun, it usually is necessary to adjust the sound and light levels. It is not always necessary to show a video or DVD in its entirety. The instructor may want to show only those portions which are most pertinent. Also, it is not always necessary to show a video or DVD without interruption. It is often of value to stop at predetermined points to discuss what has just occurred.

Summarize. After trainees have viewed the video or DVD, it is useful to summarize the major points that were presented, discuss other points that were not covered, or discuss ways in which the concepts covered in the video or film can be applied.

Reasons to Use Video or DVD:

- Provides an effective way to communicate new ideas or model positive behavior.
- Gives a consistent message to many people in a decentralized organization, to different groups of people in one location, or to successive attendees to a session given over several dates.
- Relieves the trainer of repetitive tasks, providing time to prepare new programs, tailor topics to specific groups, respond to questions and facilitate discussion.
- Reinforces the overall quality of the training programs as well as the organization's commitment to training. In the process, video elicits corresponding levels of commitment and involvement from participants.
- Saves time -- it communicates a message quickly and clearly.
- Allows you to bring experts and nationally acclaimed speakers into your training room. Everyone gets the benefits of hearing, seeing, and learning from these professionals without incurring the expense of off-site travel and meeting space, or the costs of scheduling appearances by one or more speakers on-site.
- Offers an alternative approach to learning, allowing your training to reflect the reality that different people learn in different ways.

Times to Show a Video or DVD:

- To kick off a session--it gets everyone relaxed and in a positive frame of mind.
- To close a session--it motivates everyone to leave with an upbeat "can do" attitude.
- Just before lunch--it helps generate informal discussions among participants.
- At "big" meetings--it builds enthusiasm and sets a positive tone for company-wide meetings.

...ONE BAD TIME... After lunch--a darkened room after any meal may produce snores rather than a lively discussion. Save the video or DVD for a few minutes.

Computer Presentations

PowerPoint is one example of a complete presentation graphics software package. It gives you everything you need to produce a professional looking presentation--text handling, outlining, drawing, graphing, clip art, and so on. It also offers speaker support and aids to help you create effective presentations. PowerPoint makes you, the presenter, an independent producer of your own high-quality presentations. You can use materials that you have created in other Microsoft products, such as Microsoft Word and Microsoft Excel, in PowerPoint.

Here's what you can make using PowerPoint:

- **Presentations.** A PowerPoint presentation is a collection of your slides, handouts, speaker's notes, and your outline, all in one file. As you create slides, you're creating a presentation--you're designing how your presentation should look and giving it a format that carries through from beginning to end.
- **Slides.** Slides are the individual "pages" of your presentation. Slides can have titles, text, graphs, drawn objects, shapes, clip art, drawn art, photographs, and visuals created with other applications. You can print slides as black-and-white or color overhead transparencies or have 35 mm slides made.
- **Handouts.** To support your presentation, you have the option of providing handouts for your audience. Handouts consist of smaller, printed versions of your slides--either two, three, or six slides per page. If you want, you can print additional information such as your company name, the date, and the page number on each page.
- **Speaker's Notes.** You can create and print speaker's notes. You'll see a small image of the slide on each notes page, along with any notes you type on the notes pages.
- **Outlines.** As you're working on a presentation, you have the option of working with your presentation in outline form. In the outline, your titles and main text appear, but not your art or the text typed with the Text tool. You can print your outline too.

Whether you need quick overheads for a briefing, or slides for a training session, PowerPoint has it all. Prompts, tips, and cue cards help you learn the product quickly; wizards, templates, and auto layouts help you get right to work; and a complete set of easy-to-use tools ensures you have everything you need to get your point across and share information with others.

Principles for Effective Visuals:

- The visual must be capable of being understood quickly, accurately, and effortlessly.
- The visual is intended to reinforce the message. The rule for the maximum amount of printed material is six lines. If the message exceeds six lines, consider breaking the visual into two or three slides.
- Choose your lettering for its readability. Printing is ordinarily much easier to read than cursive. Underlining should be used sparingly. Letters should be one inch high for every 25 feet of viewing distance. Primer typewriters, frequently found in elementary schools, are a little large but certainly acceptable. There are font sizes available on many computers that allow for larger than average size letters.
- The boldness of the letters is as important as their size. Boldness includes the line width, density, and sharpness. For maximum legibility, the width of the lines used to make letters should be about 15 percent of the letter height. It is as bad to have the lines too thick as too thin. The density of the print determines the contrast on the screen.
- The organization of the message is also important to the understanding of the visual as a whole. We ordinarily look first at the upper left area of printed material. This is probably the best place to start the message.
- The best test of the readability of the visual is to simply try it out in the training area where it will be used.

Overhead Transparencies

Once used extensively because of its flexibility, overheads are rarely used today because more trainers are using PowerPoint presentations.

35 mm Slides

Slide presentations, once popular because 35 mm cameras, projectors, and color film were readily available and easy to work with, have virtually been eliminated with the development of digital cameras and PowerPoint.

Flip Charts

A flip chart consists of a pad of blank paper attached to an easel. Notes are recorded on the chart with a felt tip marker. The information can be prepared ahead or recorded during the training. Prerecording information saves training time and ensures neatness. Recording during the training allows the instructor to respond to the immediate learning situation.

Regardless of whether flip charts are prepared ahead or during the training, there are certain guidelines to follow to make them more readable and appealing.

- Make letters at least 1½ inches high.
- Leave two inches or more between lines.
- Use the top of the pad.
- Use as few words as possible.
- Highlight key words by using: color, shapes, graphics, boxing, underlining, or pictures.
- Check readability by going to various parts of the room.
- Leave a blank page between each prerecorded page so that the writing on the next chart does not show through and distract trainees.

Advantages of Flip Charts:

- The trainer can control the presentation of material.
- Material for the flip chart can be prepared in advance or on the spot as is the case with a chalkboard.
- The flip chart is highly portable.
- A variety of shapes, colors, and devices can be used with the flip chart.
- The flip chart can be used to answer spontaneous questions from students.

Limitations of Flip Charts:

- It's difficult to see beyond 15 feet.
- They are not usually good for groups of students exceeding 20.
- Pages are occasionally difficult to flip.

Below are some additional tips that are useful when using flip charts as a training aid:

- Lightly write memory joggers in pencil in the margins of the prerecorded charts, and use as presentation notes.
- Tab prerecorded charts to eliminate searching for them when needed.
- Cover prerecorded errors with paste-on labels, then write correct information on labels.
- When recording trainee input, record key words quickly.
- When recording trainee input, check to ensure their ideas are being reflected accurately.
- When recording trainee input, alternate color when listing group's ideas.
- When planning to compare and contrast data, use two flip charts.
- If the material should be displayed for a period of time, hang the pages on the wall.

Handouts

Handouts are written materials prepared in advance and distributed to trainees during the training. The information covered in the handout can be used during the training and/or retained for use after the training.

Handouts are important training aids to consider, particularly if the instructor wants to:

- Have trainees use the information at a later time.
- Allow trainees to absorb information at their own pace.
- Eliminate the need for trainees to memorize or take extensive notes.

Some additional notes regarding handouts:

- Vary your handouts. Use some outline handouts that require the trainees to fill in information. This will stimulate interest and hold attention.
- Don't overdo the volume of handouts.
- Leave a lot of white space on each page.

The first step in developing a handout is to decide on the format to use. One frequently used format is paragraph form. It can be useful, but it is visually less appealing than other formats. More visually appealing are:

- Charts
- Check Lists
- Work Sheets

Visit the Department of Labor
Web site at www.dol.gov