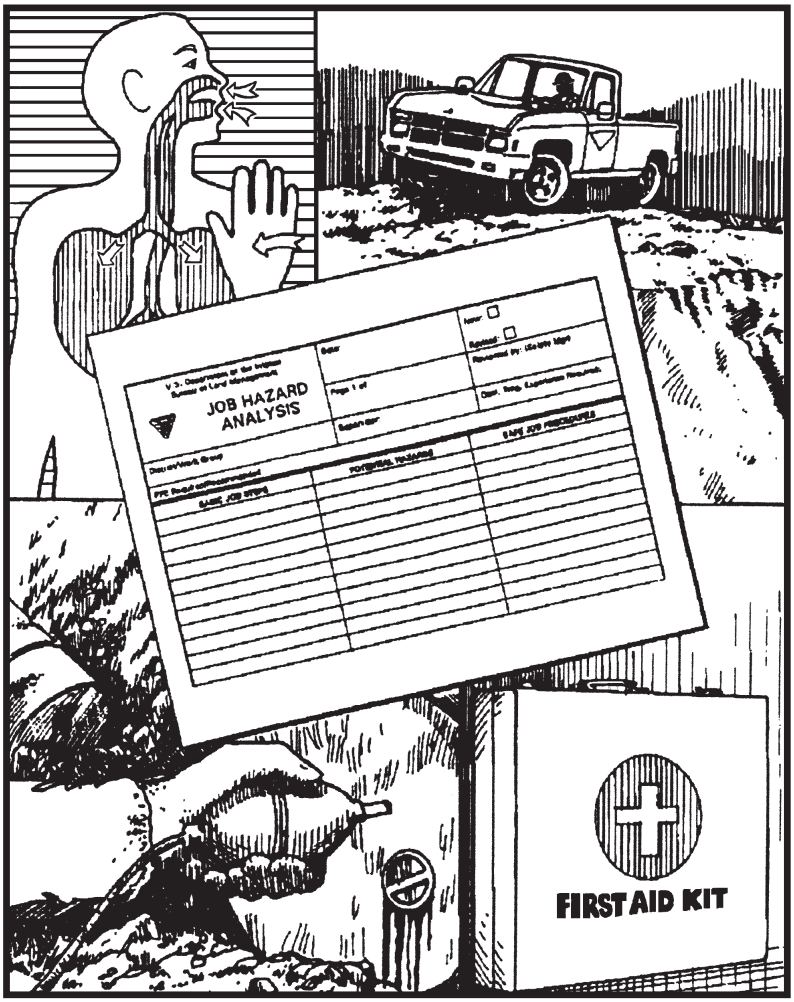
Safety and Health for Field Operations



BLM Manual Handbook 1112-2

U.S. Department of the Interior
Bureau of Land Management

Form 1221-2
(June 1969)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MANUAL TRANSMITTAL SHEET

Release
1-1657
Date
1/15/98

Subject

H-1112-2 - SAFETY AND HEALTH FOR FIELD OPERATIONS

1. Explanation of Material Transmitted: This release transmits a revised Manual Handbook that encompasses Safety and Health for Field Operations. This Manual Handbook complements BLM Manual Handbook H-1112-1 - Safety and Health Management. This Manual Handbook lays the groundwork for incorporating occupational safety and health into the planning of all BLM work projects and tasks.

2. Reports Required: None

3. Material Superseded: The Manual pages superseded by this release are listed under "REMOVE" below. No other directives are superseded.

4. Filing Instructions: File as directed below.

REMOVE:	INSERT:
All of H-1112-2 (Rel. 1-1618)	H-1112-2
(Total: 115 Sheets)	(Total: 139 Sheets)

Pat Shea

Director

INTRODUCTION

This Manual Handbook was developed to complement BLM Manual Handbook H-1112-1. This Handbook lays the groundwork for incorporating occupational safety and health into the planning of all BLM work projects and tasks. This Handbook will assist supervisors in providing a safe and healthful workplace for BLM employees and volunteers. It will provide employees information on safe work practices, identification of hazards, and reporting of unsafe working conditions.

This Handbook is a tool that supports the supervisor's and manager's responsibility to promote positive safety and health attitudes among employees, and integrates safe procedures standards into all BLM activities. Supervisors are responsible for recognizing and rewarding employees for outstanding performance in the area of occupational safety and health.

Every BLM supervisor, employee, and volunteer is responsible for following safe work practices and procedures, identifying and reporting unsafe conditions. The purpose of this Handbook is to provide assistance in carrying out those responsibilities.

All BLM employees and volunteers are responsible for familiarizing themselves with this Handbook and for utilizing safe work practices and procedures during performance of duties. For the purposes of this Handbook, BLM volunteers are considered to be employees.

Note: Volunteers are prohibited from participating in certain activities, as defined in BLM Manual 1114.

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TOPIC 1 - JOB HAZARD ANALYSIS

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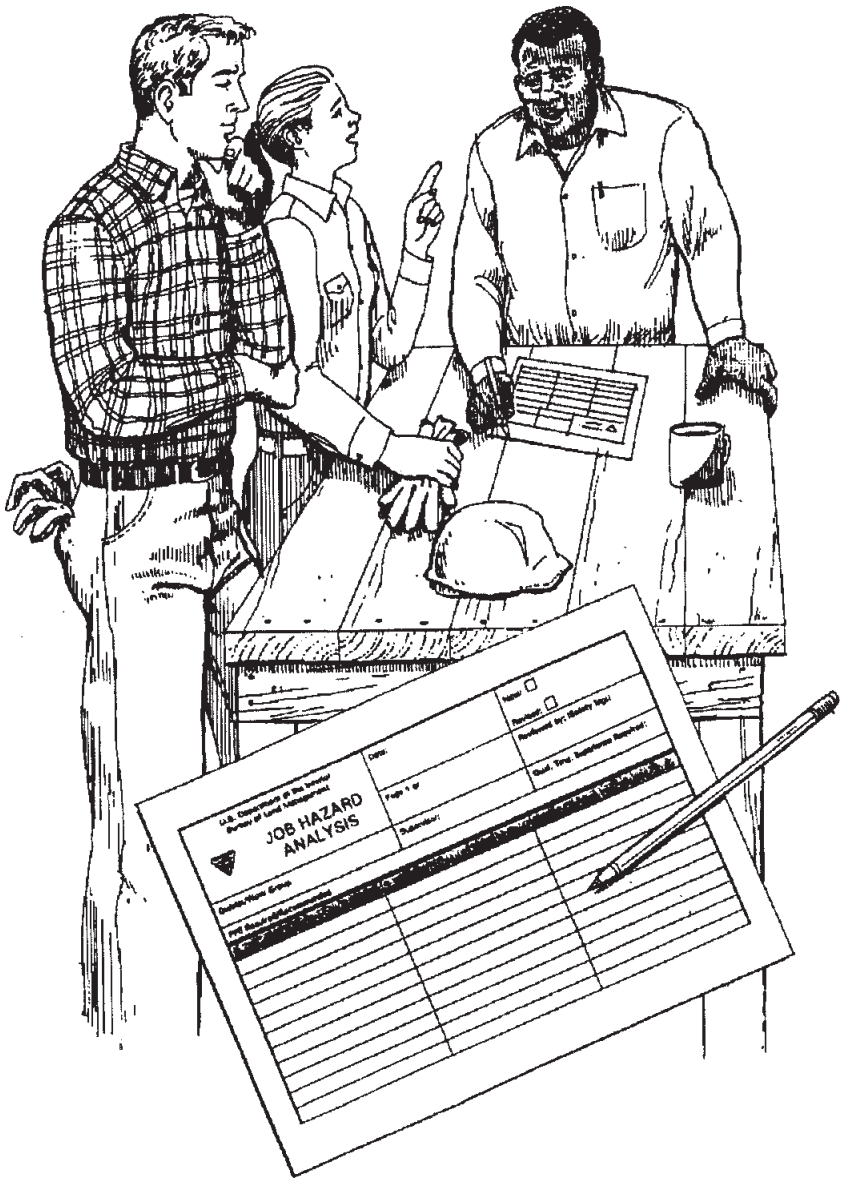
TOPIC 26 - ACCIDENT/INCIDENT INVESTIGATIONS

TOPIC 27 - CONFINED SPACE



TOPIC 1

JOB HAZARD ANALYSIS

1.1 **References.** 485 DM Safety & Health Handbook Chapter 14.

1.2 **Procedures.** Job Hazard Analysis (JHA) procedures include identification of tasks, potential hazards, and safe job practices/procedures. Employees and supervisors should work together in the development of the JHA to assure that all characteristics of the job are addressed and that the safest and most efficient means of performing a job will be utilized. A JHA is **required** to be completed for:

A. Jobs or work practices that have potential hazard;

B New, nonroutine, or hazardous tasks to be performed where potential hazards exist;

C. Jobs that may require employee use of out-of-the-ordinary personal protective equipment (PPE).

D. Changes in equipment, work environment, conditions, practices, policies, or materials.

1.3 **Responsibility.** Supervisors shall discuss the job hazards with employees prior to beginning new projects or upon changing work sites, identify any hazards not noted on the JHA and discuss ways to reduce these hazards including the use of protective equipment. Supervisors and appropriate line managers shall ensure that established JHAs are reviewed and signed prior to any nonroutine task, or at the beginning of the field season or fire season.

A. **Conducting a Job Hazard Analysis.** In order to develop a JHA, the job to be evaluated is broken down into basic steps by the supervisor and the employee assigned to perform the job. They identify hazards and safe job procedures. BLM Form 1112-3, Job Hazard Analysis is used for the preparation of JHAs (see Illustration 1-1).

Illustration 1-1

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
JOB HAZARD ANALYSIS

Date | ☐ New ☐ Revised

Page of | Reviewed by: *(Safety Manager)*

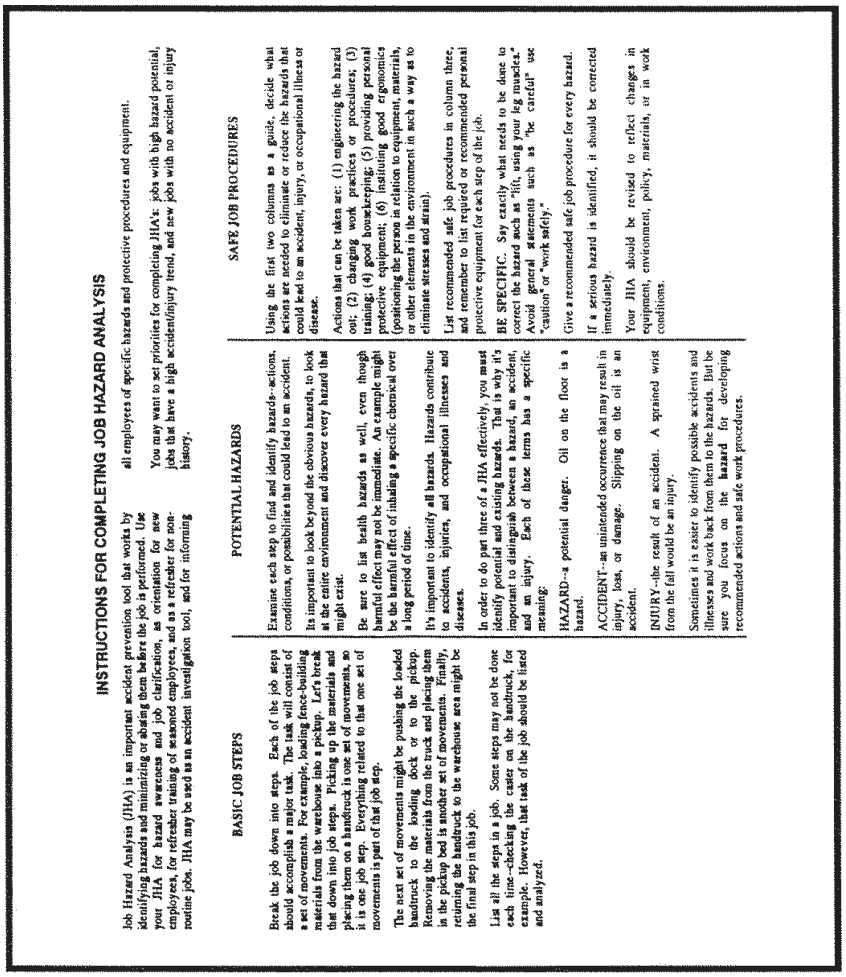
District/Work Group | Supervisor | Qualifications, training, and experience required

Personal Protective Equipment required/recommended

BASIC JOB STEPS	POTENTIAL HAZARDS	SAFE JOB PROCEDURES

(Instructions on reverse)

Form 1112-3 (March 1993)



INSTRUCTIONS FOR COMPLETING JOB HAZARD ANALYSIS

Job Hazard Analysis (JHA) is an important accident prevention tool that works by identifying hazards and minimizing or abating them before the job is performed. Use your JHA for hazard awareness and job clarification, as orientation for new employees, for refresher training of seasoned employees, and as a refresher for non-routine jobs. JHA may be used as an accident investigation tool, and for informing all employees of specific hazards and protective procedures and equipment.

You may want to set priorities for completing JHA's: jobs with high hazard potential, jobs that have a high accident/injury trend, and new jobs with no accident or injury history.

BASIC JOB STEPS	POTENTIAL HAZARDS	SAFE JOB PROCEDURES
Break the job down into steps. Each of the job steps should accomplish a major task. The task will consist of a set of movements. For example, loading fence-building materials from the warehouse into a pickup. Let's break that down into job steps. Picking up the materials and placing them on a handtruck is one set of movements, so it is one job step. Everything related to that one set of movements is part of that job step. The next set of movements might be pushing the loaded handtruck to the loading dock or to the pickup. Removing the materials from the truck and placing them in the pickup bed is another set of movements. Finally, returning the handtruck to the warehouse area might be the final step in this job. List all the steps in a job. Some steps may not be done each time--checking the caster on the handtruck, for example. However, that task of the job should be listed and analyzed.	Examine each step to find and identify hazards--actions, conditions, or possibilities that could lead to an accident. It's important to look beyond the obvious hazards, to look at the entire environment and discover every hazard that might exist. Be sure to list health hazards as well, even though harmful effect may not be immediate. An example might be the harmful effect of inhaling a specific chemical over a long period of time. It's important to identify all hazards. Hazards contribute to accidents, injuries, and occupational illnesses and diseases. In order to do part three of a JHA effectively, you must identify potential and existing hazards. That is why it's important to distinguish between a hazard, an accident, and an injury. Each of these terms has a specific meaning: HAZARD--a potential danger. Oil on the floor is a hazard. ACCIDENT--an unintended occurrence that may result in injury, loss, or damage. Slipping on the oil is an accident. INJURY--the result of an accident. A sprained wrist from the fall would be an injury. Sometimes it is easier to identify possible accidents and illnesses and work back from them to the hazards. But be sure you focus on the hazard for developing recommended actions and safe work procedures.	Using the first two columns as a guide, decide what actions are needed to eliminate or reduce the hazards that could lead to an accident, injury, or occupational illness or disease. Actions that can be taken are: (1) engineering the hazard out; (2) changing work practices or procedures; (3) training; (4) good housekeeping; (5) providing personal protective equipment; (6) instituting good ergonomics (positioning the person in relation to equipment, materials, or other elements in the environment in such a way as to eliminate stresses and strain). List recommended safe job procedures in column three, and remember to list required or recommended personal protective equipment for each step of the job. BE SPECIFIC. Say exactly what needs to be done to correct the hazard such as "fit, using your leg muscles." Avoid general statements such as "Be careful" use "caution" or "work safely." Give a recommended safe job procedure for every hazard. If a serious hazard is identified, it should be corrected immediately. Your JHA should be revised to reflect changes in equipment, environment, policy, materials, or in work conditions.

1. **Identification of Tasks.** Each step of a job should identify a major task and briefly describe each in the order in which it is performed. Three or four words may be sufficient to describe each job step. Avoid steps that are too detailed. They will make the JHA unnecessarily long and trivial. For example, sanding and painting a picnic table are major tasks to be listed; opening a paint can is not considered a major task and would not be included on the JHA. Most jobs can be separated into 12 to 15 basic steps.

2. **Potential Hazards.** Each step is examined to identify potential hazards. Hazards may be associated with work practices, procedures, equipment, materials, or environment. Questions to be considered to help identify specific hazards include: Could the worker come in contact with; be struck by; strike against; be caught in, under, between; slip, trip, or fall; or suffer from overexertion?

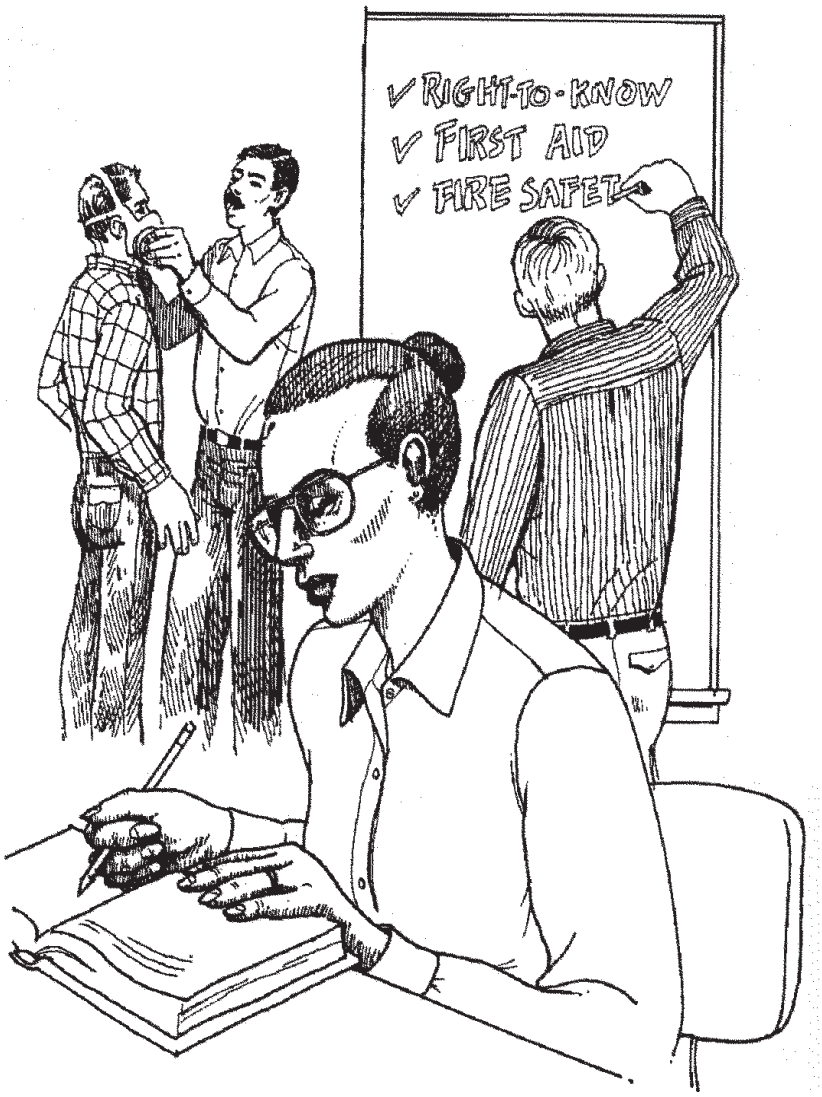
3. **Safe Job Procedures.** Safe job procedures to reduce or abate the hazards are identified. The use of general terms such as *be careful*, *use caution*, or *work safely* should be avoided. Safe job procedures will normally fall into one of the categories listed below:

    a. Environmental change.
    b. Reduction in the frequency task is performed.
    c. Personal protective equipment changes.
    d. Job procedures/work practices.
    e. Safe behaviors.

B. **Job Hazard Analysis Review.** A JHA review by the local safety manager is done to ensure that BLM policy and OSHA standards are integrated into the JHA, and that the PPE required is properly selected and meets the appropriate ANSI standard. The safety manager will sign the JHAs after review and return the original to the supervisor.

C. **Job Hazard Analysis Reevaluation.** Estalished JHAs should be reevaluated periodically, at least every 3 years, to assure that they reflect the latest, safest, and most efficient way toperform the task. New equipment, tools, methods, and changes in safety standards should require modifications in JHAs.

D. **Job Hazard Analysis Recordkeeping**. Supervisors are responsible for maintaining JHA records within their work group.



TOPIC 2

TRAINING

2.1 **References.**

A. 29 CFR 1960 Subpart H.

B. Occupational Health and Safety Act of 1970.

C. DM 485 Chapter 13.1.

D. BLM Manual 1112-1 Chapter 10.

2.2 **Procedures.** Supervisors are responsible for establishing when, where, and how to do each job safely. They are to ensure the proper use and care of personal protective equipment (PPE) and Bureau property. Supervisors shall ensure that their employees receive the training necessary to safely perform job tasks. The supervisor may obtain assistance for developing and conducting safety training from qualified and experienced employees, District safety personnel, safety managers, private industry, OSHA, Environmental Protection Agency (EPA), etc. However, it is the supervisor's responsibility to ensure the quality and timeliness of the safety training.

A. **General Training.** It is imperative that all Bureau employees be provided safety training prior to assignment and throughout the course of their employment.

B. **Mandatory Training Requirements.** There are numerous jobs throughout the Bureau that require training and/or certification prior to performing certain tasks. Supervisors are advised to check with appropriate safety personnel if an area is not covered. **Mandatory training must be documented.**

C. The following table summarizes mandatory and optional training requirements based upon tasks assigned and do not apply to everyone. Consult with the local safety manager or training officer for specific requirements.

Mandatory Safety Training Dependent on Position or Job Hazard Analysis (JHA)

Position/Task	Authority		Frequency
Safety Training for Managers	29 CFR	1960.54	Once
Safety Training for Supervisors	29 CFR	1960.55	Once
Safety Training for Collateral Duty Safety Personnel	29 CFR	1960.58	Once— within 90 days
Safety Training for Safety Specialists	29 CFR	1960.56	Yearly
Safety Orientation	BLM Manual		Once—All employees H-1112-1 Chapter 10
State Safety Committee Training	29 CFR	1960.58	Once
HazCom (Employee Right-to-Know)	29 CFR	1910.1200	Once—unless job change or new chemical added (all employees)
Job Hazard Analysis	485 DM BLM Handbook H-1112-2	Chapter 14 Topic 1	Once—recurrent review as Job Hazards change
Bloodborne Pathogen Level I	29 CFR	1910.1030	Once
Forklift Safety	29 CFR	1910.178	Once—or as determined by JHA

Mandatory Safety Training Dependent on Position or Job Hazard Analysis (JHA)

Position/Task	Authority	Frequency
Respiratory Protection	29 CFR 1910.134	Once—as determined by JHA
First Responder Awareness Level (HazMat)	29 CFR 1910.120(a)	Once—all employees
First Aid/CPR	BLM Manual H-1112-1 Chapter 10 26 CFR 1910.151	Every 2 years for CPR Every 3 years for First Aid — as determined by JHA
Fire Extinguisher	29 CFR 1910.157	Once
Evacuation/Fire Drill	29 CFR 1910.38	Once—yearly
Hearing Conservation	29 CFR 1910.95	Once—as determined by JHA
Hazardous Waste Operations and Emergency Response (HAZWOPER)	29 CFR 1910.120	40 hours initial 8 hours refresher yearly—as determined by JHA
Welding	29 CFR 1910.252	Once—as determined by JHA
Sign and Tag Recognition	29 CFR 1910.145	Once—as determined by JHA

Mandatory Safety Training Dependent on Position or Job Hazard Analysis (JHA)

Position/Task	Authority		Frequency
Lockout/Tagout	29 CFR	1910.147	Once—as determined by JHA
Confined Spaces	29 CFR	1926.21	Each space—as determined by JHA
OSHA PPE Standard	29 CFR	1910.132	Once—as determined by JHA
Personal Protective Measures	29 CFR	1926.21	
Power Operated Handtools	29 CFR	1926.302	Once—as determined by JHA
Woodworking Tools	29 CFR	1926.304	Once—as determined by JHA
Gas Welding	29 CFR	1926.350	Once—as determined by JHA
Arc Welding	29 CFR	1926.354	Once—as determined by JHA
Commercial Driver's License (CDL)	49 CFR	383-395	5 years—as determined by JHA
Fall Protection	29 CFR	1926.500	As determined by JHA
-Towers	29 CFR	1910.29	
-Telecommunication	29 CFR	1910.268	

Mandatory Safety Training Dependent on Position or Job Hazard Analysis (JHA)

Position/Task	Authority		Frequency
Blaster's Certification and Training	BLM Manual H-1112-1	Chapter 22	24 hours initial trng, CDL pre-req, 8 hrs yearly refresher
Firearms Safety (Proficiency Test) Firearms Training	BLM Manual H-1112-1 H-1112-2	Chapter 25 Topic 17	Yearly—As identified in H-112-2 and determined by JHA
ATV Operation	BLM Manual H-1112-1	Chapter 13	Once—as determined by JHA
Watercraft Operation	485 DM 22 BLM Handbook H-1112-2	Topic 14	Initial training 24 hrs. Refresher 8 hrs. every 5 years—as per JHA
Snowmobile Operation	BLM Manual H-1112-1	Chapter 13	Once—as determined by JHA
Wildland Firefighting	BLM Manual 9215 Referencing National Wildfire Coordinating Group's PMS 310-1 Wildland Fire Qualification Subsystem Guide		As determined by position requirements

Mandatory Safety Training Dependent on Position or Job Hazard Analysis (JHA)

Position/Task	Authority	Frequency
Base Fire Training	BLM Manual H-1112-1 Chapter 15	Once—as determined by JHA
Aviation Safety Training	352-DM-2.5 BLM Handbook H-1112-2 Topic 6	Group A—Initial and recurrent every 3 years Group B-Optional—Passenger briefing required each flight
Mine Inspection Safety Procedures	BLM Manual 3809.36	As determined by JHA
Oil and Gas Inspection Safety Procedures	BLM Manual 3110	As determined by JHA
Anhydrous Ammonia	29 CFR 1910.111	As determined by JHA
Asbestos	29 CFR 1910.1001	As determined by JHA
Lead	29 CFR 1910.1025	As determined by JHA
Winch Operation	Optional	As determined by JHA
Chain Saw Certification	Optional	As determined by JHA
Hazard Tree Evaluation	Optional	As determined by JHA

Mandatory Safety Training Dependent on Position or Job Hazard Analysis (JHA)

Position/Task	Authority	Frequency
Safe Lifting Techniques	Optional	As determined by JHA
Arctic-Subarctic Survival	Optional	As determined by JHA
Swiftwater Rescue	Optional	As determined by JHA
Emergency Trauma Training(ETT)	Optional	As determined by JHA
Emergency Medical Training(EMT)	Optional	As determined by JHA
Wilderness Trauma Care	Optional	As determined by JHA
Submerged Aircraft Rescue	Optional	As determined by JHA
Dangerous Animal Encounters	Optional	As determined by JHA
Ergonomics	Optional	As determined by JHA
Horse Safety	Optional	As determined by JHA
Desert Survival	Optional	As determined by JHA
Epinephrine(Bee Stings)	Optional	As determined by JHA

TOPIC 3
FIELD WORK

3.1 **References.** 29 CFR 1910.142 Temporary Labor Camps.

3.2 **Procedures.** Bureau activities sometimes require employees to travel and work alone in remote and hazardous areas. At least two employees should be assigned to work in remote or hazardous areas, and always with dependable established communications. Assessing field hazards is a continual process. The Job Hazard Analysis (JHA) process will assist both supervisors and employees in minimizing or eliminating those hazards. Safety orientation is mandatory for employees involved in field activities.

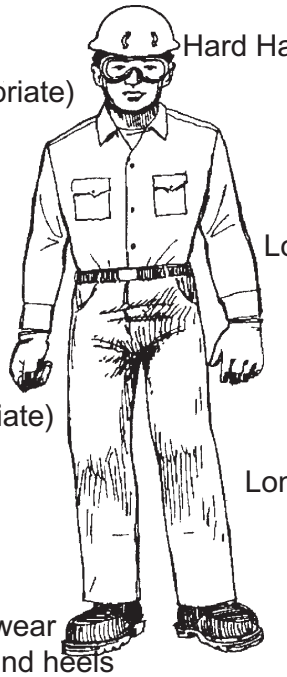
A. **Check-Out/Check-In System.** The Bureau's check-out/check-in system requires maintaining a written record containing the itinerary, name of employee, work area, estimated time of return, and miscella neous information such as other crew members, etc. In the event an employee does not return or contact the office at the prearranged designated times, search and rescue procedures shall be initiated. All field camps must have established communications to request assistance.

3.3 **Field Attire.** Safe field attire will be determined by management, JHA, or as required by specific activity. For general working conditions, the recommended attire is: 6- to 8-inch protective footwear with nonslip soles and heels, long trousers, and long-sleeved shirt (see Illustration 3-1).

3.4 **Foot Travel.** Always notify other workers of intended route and destination and work within a proximity to them that would permit a quick response to call for assistance.

A. Avoid travel, resting, or camping in snag or high windfall areas when windy weather or lightning may endanger life and property.

Illustration 3-1



B. Avoid using rotten or loose-barked logs as foot logs over creeks or gullies. Have secure footing at all times. Rocky slopes, especially slide rock and steep country, can be treacherous. Have one hand free to protect against falls or obstructions. Carry hand tools on lower side when walking along contours or slopes.

C. Always be on guard against injury from falling trees, snags, limbs, rolling logs, or rocks. Don’t run blindly from a falling rock, log, or tree. Determine its falling direction, get out of its path, and alert others.

D. Guard against twigs or branches striking face and protect coworkers from similar whiplashes.

E. When possible, detour around hazardous areas such as rock slides, lava flows, rim rock, sand dunes, steep or undercut river banks, quicksand, dense brush, deep gullies, canyons, bear dens, hornet nests, poison ivy or poison oak, etc.

3.5 **Vehicle Travel.** In case of a disabled or stuck vehicle, remain with the vehicle. The vehicle can be more easily seen from the air than a person alone and it also provides shelter from the sun or the cold. If lost and without radio contact, sweep the horizon during the daytime with the light beam of a signal mirror. This beam is visible over a great distance and might be seen by someone. Flash vehicle headlights (3 rapid flashes) at night, especially if aircraft can be heard.

3.6 **Winter Travel.** Prior to winter travel, follow office check-out/check-in procedures for personnel and winter survival equipment. To minimize the hazards associated with winter driving, both the vehicle and the driver must be prepared in advance. Always drive at a speed that matches visibility, traffic, and road conditions.

A. To see and be seen by others requires the driver to clean all snow and ice from the **entire** vehicle—hood, roof, trunk, lights, and windows. Snow left on any of these areas increases the possibility that visibility will be affected when the vehicle is in motion.

B. Follow manufacturers' recommendations when equipping vehicles with studded tires or chains.

C. Snow tires are recommended, but chains provide the best starting and stopping performance in severe snow and on icy surfaces. Radial tires are not snow tires unless they have a snow-tread configuration and are marked "M&S" for "mud and snow."

D. If your vehicle breaks down and you are stranded, it is best to stay with your vehicle. You should only run your heat for 10 minutes every hour or so to conserve fuel. Make sure the exhaust pipe is clear of snow. Open a window every once in a while to let in fresh air.

3.7 **Desert and Arid Areas.** Never go into the desert without first informing someone as to your destina tion, your route, and when you will return (check-out/ check-in). Stick to your plan.

A. Carry at least 1 gallon of water per person per day of your trip. Plastic jugs are handy and portable.

B. Be sure your vehicle is in good condition.

C. Keep an eye on the sky. Flash floods may occur any time you are downslope from “thunderheads”, even though it may not rain where you are.

D. If your vehicle breaks down, stay near it. Your emer gency supplies are with the vehicle. (See 4.3.C. and E)

E. If water is limited—keep your mouth shut and breathe through the nose to reduce water loss and drying of mucous membranes. Do not talk, do not eat, do not smoke, do not drink alcohol, do not take salt.

F. Do not sit or lie directly on the ground. It may be 30 degrees or more hotter than the air.

G. Although nights can be very cold and proper attire should be considered for this, clothing for the desert should be lightweight, light colored, and cover the whole body. Have appropriate eyewear as protec- tion from sun glare.

3.8 **Mineral Examination and Mine Safety Practices.** Before going underground, all employees **must** have completed the Mine Safety and Health Administration (MSHA) “Mine Safety Equipment and Survival Training.” This assures that personnel recognize hazards and informs them of approved survival gear and how it is used in the event of an emergency. Inexperienced employees must not enter underground mine workings or deep open cuts unless accompanied by a qualified mining engineer or geologist.

A. **References.** 29 CFR 1910.151, 29 CFR 1910 Subpart I, Federal Mine Safety and Health Act.

B. **Mine Safety.** BLM personnel must be aware of their personal safety at all times during inspections, even though they may be accompanied by the operator or a representative of the operator. Inexperienced personnel must not be taken underground until fully informed of the associated dangers. Experienced BLM personnel should keep a watchful eye over their colleagues until they have gained confidence and knowledge of proper behavior and procedures. BLM personnel must be familiar with the use and maintenance of safety equipment. In addition to hard hats, steel-toe shoes, and safety glasses, BLM personnel should use a mine belt, ear plugs, and both types of self-rescuers, as appropriate, for inspections of underground mines. The BLM employee should know the areas of active mining and reclamation, blasting, and other activities onsite that may involve equipment that could pose a danger to an individual. Care must be taken at all times around any mechanized equipment operating in the vicinity of the inspection.

1. In underground mine situations, BLM personnel must have training in the use of self-rescuers and be aware of the following dangers:

   a. **Gas and dust conditions** and emergency mine escape procedures. The atmosphere in old or idle mines must be tested prior to entry to determine if it is oxygen-deficient or methane-contaminated.

   b. **Unstable roof and rib conditions** - BLM personnel must not enter any section of the mine that has not yet been properly supported. **Entry into areas marked "Danger" is expressly prohibited except by MSHA**

personnel or those company personnel authorized by the operator to correct the hazard.

c. **If a mine uses electrical equipment** such as electric locomotives, be aware of high voltage cables.

d. **Keep limbs and clothing away from conveyer belts, drive wheels, idlers, and other operating equipment** and their haulage routes. Be familiar with hazards and proce dures associated with blasting, and obtain a blaster's certification if responsible for inspecting mines that regularly use explosives.

2. When inspecting surface facilities, BLM personnel should be accompanied by a company official whenever possible. Adhere to "No Smoking" signs posted by the operator. These facilities, which include mills and processing plants, present the following dangers:

a. **An abundance of machinery with moving parts** capable of snagging clothing or a careless hand. Loose fitting clothes, long hair that isn't secured, and rings and necklaces are potentially dangerous around any operating equipment. Shirttails should be tucked in, hair confined under the hard hat, and rings and jewelry removed.

b. **Chemicals and fuel.** BLM personnel must be aware of storage areas, obey company rules regarding same, and know emergency procedures to be taken if accidentally exposed to or put into contact with these substances. Extreme care must be taken in the vicinity of any storage facilities for hazardous substances (e.g., holding ponds at cyanide operations).

3. Personnel responsible for inspection of exploration activities should receive training in the use of 4-wheel- drive vehicles, since exploration involves a great deal of off-road driving.

3.9 **Remote Camp Safety and Sanitation.** Reference 29 CFR 1910.141-142. All sites used for camps must be adequately drained. They shall not be subject to periodic flooding, nor located within 200 feet of swamps, pools, sink holes, or other surface collections of water, unless mosquitos can be controlled on such still water surfaces. The camp must be located so the drainage from and through the camp will not endanger any domestic or public water supply. All sites must be graded, ditched, and rendered free from depressions in which water may become a nuisance. All sites must be adequate in size to prevent overcrowding of necessary structures. The principal camp area where food is prepared and served and where sleeping quarters are located must be at least 500 feet from any area in which livestock are kept.

A. **Gray Water.** Gray water disposal pits shall be constructed to permit leaching within 24 hours. If leaching does not occur because of water table, a series of shallow small canals shall be constructed for evaporation and leaching. Gray water disposal area will be located at least 50 feet down gradient from water source.

B. **Potable Water.** Transported potable water must be obtained from a treated source, or chlorinated, if obtained from a nontreated source, and kept pure and free from contamination through proper handling and storage procedures. Request the advice of local health departments, prior to the use of any surface water such as lakes, springs, rivers, and streams. Canteens, if not in use, must be emptied, disinfected, and dried.

C. **Toilet Facilities.** Approved toilet facilities adequate for the capacity of the camp must be provided and

must be located 200 feet or more from any water source. A description of toilet facilities requirements is stated in 29 CFR 1910.142(d).

D. **Kitchen Tents.** Keep kitchen tents clean and tidy and keep foodstuffs away from cleaning supplies. Two fire extinguishers should be present and ready.

1. Store foodstuffs in rodent and pest-proof containers.

2. Ensure pots and pans are clean and inverted for dust and germ control. Silverware should be clean and covered.

3. Freezer temperature should be set at zero or below; refrigerators should be set at 45 degrees.

E. **Propane Tanks and Generators.** Propane tanks will be properly anchored. Generators should be placed downwind with plywood noise control. Electrical panel boxes are to be protected from the weather. Propane tank and other fuel storage shall be at least 50 feet away from camp and properly posted with “No Smoking” signs.

3.10 **Camp Aviation Procedures.** When established, a camp fueling site must have the proper fuel containment. Both fuel bladders and barrelled fuel must be kept in secondary containment (diked) in case of a fuel spill. The daily fuel log must be kept current. “No Smoking” signs must be posted and visible at any approach to the site. (No smoking is allowed within 50 feet of fueling site). Fuel source must be grounded and bonded through machinery (filters, pumps, etc.) and then to aircraft. The site must be located a minimum of 100 feet from personnel quarters and must be kept tidy with no loose articles allowed in area that might be blown into helicopter rotors or aircraft propellers.

A. Wind sock shall be installed in accordance with OAS Heliport Specifications.

B. The fuel tank pump will be equipped with a remote switch.

3.11 **Lightning Storms.** Lightning seeks the easiest route (not necessarily the shortest) between positive and negative regions within a cloud or between positive charges on the ground and negative charges in the cloud. The human body offers a path of least resistance. The hazard of lightning occurs in two ways, either as a direct hit or as a ground current.

A. **General Guidelines During Lightning Storms.**

1. Seek shelter inside a building.

2. Select fiberglass or plastic hard hats rather than those of metal construction.

3. Don't work on fences, electrical lines, pipelines, or structural steel fabrication.

4. Don't use metal objects like fishing rods, soil augers, well- logging equipment, etc., that are in contact with the ground.

5. Automobiles provide a safe shelter because the metal body creates a pathway for the lightning around the body. Avoid contact with metal objects in the car where your body could become a pathway.

6. Lightning tends to strike the highest electrically conductive object in the area—peaks, ridges, towers, trees, isolated sheds (especially with metal roof or siding), wire fences, etc. Seek lower elevation as in valleys or canyons.

7. Avoid streams and lakes. If in a low area, be cautious of flash floods and sloughing off of earthen or rock materials from above.

8. Sit on some insulating material if possible, such as coiled rope, a wooden pack board, a folded sleeping bag, a wool shirt, etc.

9. A crouched position, sitting on your feet with the knees drawn up and feet close together, seems best to minimize the distance spanned by your contact points. Avoid any position with a hand, shoulder, or head touching a surface.

3.12 **Horse Travel.** Only experienced personnel should ride, handle, saddle, or pack horses. A demonstrated ability to ride on all types of terrain, handle, saddle, and pack horses is required. See Topic 15 for special instructions for wild horse operations. Use of personally owned horse and equipment must be authorized (see BLM Manual 1113, Horse Use Authorization).

A. **Inexperience with Horses.** Inexperienced personnel who must use horse transportation must at all times be supervised by experienced personnel and be provided with specific step-by-step instructions during each phase of activity. Inexperienced personnel must not engage in any nontransportation horse activity (wrangling, roundup, etc.). Inexperienced personnel should consider the following guidelines:

1. Speak to animals upon approach. Avoid quick movements and coming up to them from the rear.

2. Lead animals around gently after saddling. Check cinch for tightness before mounting or packing, and frequently when riding.

3. Never wrap reins or lead rope around hand.

4. Avoid carrying too much gear and equipment on a saddle horse. Balance the weight on both sides.

5. Avoid excess lead rope to prevent entanglement.

6. When tying an animal, avoid slack that might entangle person or animal. Never tie to a barbed wire or woven wire fence.

7. When tying an animal, use a halter.

8. Tie animals to objects that they can't walk completely around. Take special precautions with animals that might panic easily.

B. **Tips for Riding a Horse.** Personnel should consider the following suggestions:

1. Don't wear shoes or boots that may hang up in the stirrup.

2. Wear snug-fitting clothing.

3. Use chaps or tapaderas when riding in brush.

4. Never beat or abuse an animal.

5. Always mount and dismount from the left side, keeping near rein tight. On slopes, mount from the upper side. Never wrap rein around saddle horn.

6. Don't gouge horse with spur or heel or surprise animal with erratic actions.

7. Dismount horse when lightning is near or overhead. A clap of thunder might stampede an unpredictable animal.

8. Avoid running a horse on pavement, frozen ground, or up and down hills.

9. Never shoot a firearm while on horseback.

10. Don't force an animal into impossible situations. Get off and lead the horse across areas where there is poor footing or clearance.

11. Picket or hobble animals only when necessary, but be aware of hazards such as mud holes, obstructions, other animals, etc.

3.13 **Potentially Violent Personal Encounters.** Employees need to be aware of the potential for personal violence directed against them while they are in the field and be alert to the warning signs during personal encounters with individuals. Employees need to plan ahead and request permission in advance from landowners to ensure that they are not trespassing on private lands. If advance permission is not obtained from the landowner, an employee needs to find another way around the property or must wait until permission is granted. Employees need to be aware of potential criminal activity. (e.g., illegal dumping on public lands, clandestine drug labs, marijuana cultivation, etc.) in remote areas of public lands and be prepared to leave the area immediately if necessary as persons engaged in such criminal activity can be hostile and violent if discovered. If an employee meets a member of the public who is hostile, the employee should be polite and nonthreatening, and leave the area as soon as possible and report the incident to their supervisor and law enforcement authorities if appropriate.

The vast majority of public land users are courteous and friendly, and want to use public lands properly and legally. Most employees' contacts with them will be friendly and educational to both parties. However, employees should be aware of the fact that there are exceptions to this rule, and should cultivate a situational awareness when they are out in the field. If an employee feels at all uneasy or uncertain about a situation in the field, they should not be embarrassed to leave the area. The job can always be completed with help at a later time. Employee safety and health are always primary considerations on the job.

TOPIC 4

MOTOR VEHICLE AND EQUIPMENT SAFETY

4.1 **References.**

A. 370 DM Appendix A.

B. 485 DM Chapter 16.

C. 5 CFR 930 Subpart A Motor Vehicle Operators.

D. 49 CFR 383-395 Commercial Drivers License (CDL).

E. 29 CFR 1926.601 Motor Vehicles.

F. BLM Manual 9210.5.

4.2 **Procedures.** When an employee's duties require operation of a motor vehicle for official business, whether BLM-owned, GSA Fleet, commercially leased, or privately owned, the employee will be required to submit a Form DI-131 (Application for U.S. Government Motor Vehicle Operator's Identification Card) and Form OF-345 (Physical Fitness Inquiry for Motor Vehicle Operators) or equivalent form, to obtain driving authorization. The employee must hold a valid state driver's license in order to obtain and retain the authorization. Authorization to drive on official business must be renewed at the time the state driver's license is renewed or a minimum of every 4 years.

A. **Driving Limitations.**

1. **Maximum Driving Time Restriction.** Employees will not exceed 8 hours of driving time (behind the wheel) during a 16-hour duty period. Breaks of 15 minutes are recommended every 2 hours when driving continuously.

2. **Rest Requirement.** At least 8 consecutive hours of rest, without duty, are required prior to each duty period requiring driving.

3. **Other Limitations.** Management/employees may place further limitations on the above hours of duty and/or driving time due to safety factors, i.e., fatigue, weather, illness. Supervisor should be notified of changes and delays.

4. **Fire Emergency Driving.** Refer to BLM Manual 9210.5.

B. **Types of Operators.**

1. **Operators of Sedans and Light Trucks.** The 5 CFR 930 requires the employee to have a valid state drivers License in his or her possession at all times while driving on official business. An incidental operator is any employee who is required to operate a motor vehicle in order to properly carry out his/her assigned duties but whose principal duties are not operating a motor vehicle and his/her position is not classified as a motor vehicle operator.

2. **Full-Time Operators.** Employees operating any motor vehicle with a GVWR of 26,000 pounds or more (BLM policy also includes fire pumpers of 15,000 GVWR), towing a vehicle 10,000 pounds GVWR or more, hauling hazardous material requiring the vehicle to be placarded, or transporting 16 or more persons, including the driver, must possess a valid Commercial Drivers License (CDL) with all applicable endorsements. Employee shall be at least 21 years of age and will comply with the necessary health monitoring requirements for a CDL. Authorization must be noted in the personnel file on Form DI-131 or equivalent.

3. **Operators of Specialized Equipment.** Authorization to operate specialized equipment, e.g., 4x4 vehicles, dump trucks, front-end loaders, dozers, forklifts, backhoes, tracksters, skid-steer

equipment, snowmobiles, all terrain vehicles (ATV), boats, etc., must be noted in the personnel file or maintained following local recordkeeping procedures.

C. **Supervisory Responsibility.** Supervisors are responsible for ensuring that employees can satisfactorily operate the vehicle/equipment for which they are authorized. Supervisors have the authority to restrict or terminate authorizations of poor or unsafe drivers. Supervisors are responsible for educating the employee regarding BLM/Government policy on:

1. Mandatory seat belt use.

2. Alcohol/drugs prohibition.

3. Vehicle misuse.

4. Official passengers.

5. Accident reports.

D. **Poor Drivers/Unsafe Drivers.** A driver whose known deficiencies make his/her driving unsafe will not drive on official business until deficiencies are remedied, or his/her driving must be restricted to compensate for limiting factors. Any driver who has a poor accident record, is careless, uses poor judgment at the wheel, or has numerous driving violations may have their driving privileges suspended or revoked even though they possess a valid state drivers license.

E. **Drivers Training.** All drivers whose job duties require the use of a motor vehicle will receive initial defensive driver training within 3 months of entering on duty and refresher driver training every 3 years thereafter.

4.3 **Equipment.** Government-owned or Government-leased vehicles will be maintained in good mechanical condition.

A. **Defective Vehicle.** Vehicle defects identified by the operator or during safety inspections shall be immediately reported to the supervisor and fleet manager. Defective vehicles shall be removed from service until repaired.

B. **Disabled Vehicle.** Only authorized emergency repairs may be made to a government vehicle by the operator. If necessary, have it towed. (Refer to the vehicle book).

C. **Vehicle Inspections.** Monthly vehicle inspections shall be performed and documented by the vehicle operator or designated person. The inspection shall include checking vehicle lights (brake, tail, backup), mirrors, wipers, washers, defroster, gauges, brakes, fluids, and belts. Operators will ensure emergency equipment (first aid kit, reflectors, jack/lug wrench) is in the vehicle.

D. **Seat Belts.** Seat belts must be available and used in Bureau motor vehicles. (Reference Executive Order 13043, April 16, 1997).

1. Without exception, seat belts must be worn at all times by motor vehicle operators and passengers, regardless of the distance to be travelled or the time involved. If any employee fails to fasten his/her seat belt while riding in a vehicle on official business, he/she is subject to disciplinary action as determined by local management. (Reference 370 DM Appendix A).

2. All heavy, self-propelled equipment fitted with rollover protective structures must have a seat belt for the operator. Seat belt use by the operator is mandatory.

E. **Safety/Survival Equipment.** Every field vehicle shall be equipped with warning flags or reflectors, a tool kit, and a first aid kit. Additional emergency equipment may be carried in each vehicle as determined by local need.

F. **Fire Extinguishers.** Approved fire extinguishers are required in buses, ambulances, fire engines, fire trucks, heavy motorized mobile equipment, special use vehicles, and as required by Department of Transportation (e.g., hauling of hazardous materials, such as gasoline, explosives, chemicals, etc.)(49 CFR 393.95). Fire extinguishers (ABC type) are not required in other vehicles, except by order of the State Director. If installed, they must always be properly maintained and inspected annually.

G. **Accident Reporting Kit.** All Bureau-owned or operated motor vehicles including off-road vehicles and special use equipment will carry a packet containing all accident report forms and other information needed by the driver in case of an accident or other emergency. These packets will be General Services Administration (GSA) or BLM Motor Vehicle Accident Reporting Kits.

Sf-91	Operator's Report of Motor Vehicle Accident
SF-94	Statement of Witness
DI-134	Report of Accident/Incident, or similar
CA-1	Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation (in case of injury)

4.4 **Vehicle Servicing and Repairs.** Maintain and operate vehicles as recommended by the manufacturer. Comply with GSA and BLM requirements on use, care, maintenance, and inspections contained in the looseleaf vehicle book in each vehicle. In case of accident, be familiar with "WHAT TO DO IN CASE OF ACCIDENT" material. Additionally all drivers should:

A. Maintain records of all repairs and inspections.

B. When the tread depth of any tire on the front steering wheels of any vehicle exceeding 10,000 GVWR falls below 4/32 inch, the tire will be replaced.

C. Keep interior and exterior of vehicle clean at all times and free of trash and loose items.

D. Have maintenance done by a qualified mechanic. **Always** check items repaired before driving vehicle away from repair shop.

E. Comply with local laws on studded tire use.

F. Emergency equipment and tools carried inside of vehicles shall be secured.

G. Securely anchor weight ballasts in pickup trucks, if needed. Do not use rocks or boulders.

H. If vehicles or equipment to be used or transported are equipped with hydraulic lifts, ensure that they are secured in place with safety locks or other devices to prevent accidental lowering.

I. Before adjusting the chassis of a dump truck with the dump box in an elevated position, secure body with props to prevent accidental lowering.

J. Use only approved-type safety cans for storage and transportation of gasoline and other flammable liquids. Approved metal cans carried in a pickup bed with a plastic liner can become highly charged with static electricity. Grounding is to be done by placing the safety can on the ground or by using grounding devices.

4.5 **Trailers Less Than 10,000 lbs GVW.** All drivers towing trailers must be properly qualified and authorized.

A. Vehicles towing trailers must comply with local, State, and Interstate Commerce Commission (ICC) regulations concerning size and weight of towing vehicle. Towing vehicles must have sufficient heavy brakes, and be heavy enough to ensure complete braking control in stopping and holding trailer.

B. All trailers shall be equipped with suitable warning devices (i.e., reflective triangles) for use in emergency situations.

C. All trailers shall be equipped with standard workable trailer lights and stoplights.

D. All horse and similar trailers shall be equipped with trailer jacks or loading gear.

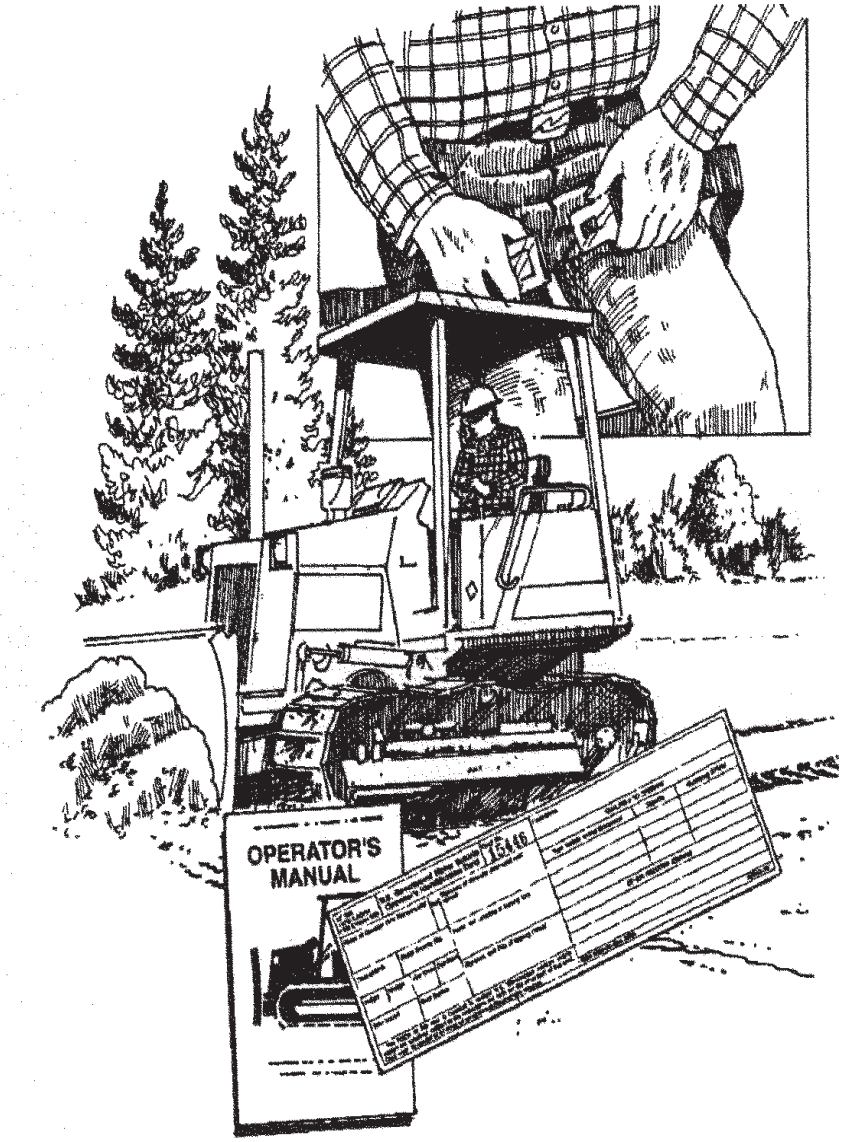
E. Use of a safety chain is mandatory.

F. Trailers, having 1,500 pounds gross trailer weight and over must be equipped with brakes adequate to stop and hold the trailer.

G. Electric breakaway switch to automatically apply trailer brakes is required.

4.6 **Off-Road Vehicles.** Operation of off-road vehicles (ORVs), such as all-terrain vehicles (ATVs), snowmobiles, and motorcycles, will require training in safe operating procedures and appropriate protective equipment (e.g., helmets, gloves, goggles, boots, etc.). Documentation of training will be maintained at BLM offices. Specific authorization for operation of ORVs is required. Where required by State law, operators must have a special State endorsement to operate off-road vehicles.

A. The use of three-wheeled
ATVs by BLM employees for Government business is prohibited.



TOPIC 5

HEAVY EQUIPMENT

5.1 References

A. OSHA Standards.

1926.600	Equipment.
1926.602	Material Handling Equipment.
1926.604	Site Clearing.
1926.1000	Rollover Protective Structures (ROPS) for Materia Handling Equipment.
1926.1001	Minimum Performance Criteria for Rollover Protective Structures for Designated Scrapers, Loaders, Dozers, Graders, and Crawler Tractors.
1926.1002	Protective Frame (ROPS) Test Procedures and Performance Requirements for Wheel-Type Agricultural and Industrial Tractors Used in Construction.
1926.1003	Overhead Protection for Operators of Agricultural and Industrial Tractors.
1928.51	Rollover Protective Structures, Agriculture.
1928.57	Guarding of Farm Field Equipment.

5.2 Procedures

A. **Heavy Equipment Operators.** Bureau operators of Government-owned or leased heavy equipment must have a valid state drivers license and Bureau authorization. Prior to authorization, operators must study and comprehend the operator's manuals for equipment they will be authorized to operate. Prior to operating specialized equipment (e.g., dozer, loader, grader, etc.), proper training will be completed and documented on the OF-346.

B. **Hazardous Conditions.** Under hazardous conditions or in hazardous locations (i.e., weather

conditions or environmental features that increase risk), radio contact should be maintained with operators. When contact cannot be maintained, operators should be accompanied by another employee.

C. **Compliance with Applicable Regulations.** Load weight, width, height limits, and other requirements for transporting equipment and materials shall be observed. Loads shall be secured and flagged as required.

D. **Job Hazard Analysis.** Prior to operating equipment and performing job tasks, a Job Hazard Analysis (JHA) will be completed as required by BLM Manual Section H-1112-1, Chapter 11. The JHA will be completed jointly by supervisor and employees and reviewed by the safety manager.

E. **Personal Protective Equipment and Other Safety Equipment**. Personal protective equipment (PPE) will be provided and used in accordance to OSHA requirements and BLM Manual Section H-1112-1, Chapter 14. Rollover Protective Structures (ROPS) and Falling Object Protective Structures (FOPS) will be installed on equipment as required by the OSHA standards previously referenced. Seat belts will be installed and used on all equipment equipped with ROPS or FOPS. Backup alarms will be installed on all bi-directional heavy equipment such as rollers, compactors, loaders, track-mounted excavators, dump trucks, bulldozers, etc. The alarms will be maintained and operable at all times, and will be audible above the background noise at the work site.

F. **Timber Operations.** Tractors/crawlers used in fire suppression work, brushing, or pioneering will be equipped with a logging package (e.g., sweeps, side screens, additional uprights, rollover protection, etc). Work area should be assessed for hazards, such as dangerous snags, green trees, trees uprooted while piling brush, blowdown, etc.

5.3 **Other Machinery - General.** Investigate and correct hazards before moving machines into operating positions. Locate and operate machines where there is no danger of blasts, cave-ins, etc. Don't move machines into blasting area until instructed to do so by foreman or blaster in charge.

A. **Basic Safety Rules.**

1. Provide heavy-equipment operator with an observer when needed to assure safety or to assist with work.

2. When changing operators, ensure that person in charge discusses plan of work, existing hazards, hand signals, etc., with new operator and crew.

3. Don't stand directly in front or in back of a self-propelled machine while it is being started.

4. Don't go under or around equipment without notifying operator. Look out for hazards.

5. Never get on or off moving equipment.

6. Rope off area of swing to provide ample clearance for a person between any solid material and tail swing of a dragline, shovel, or crane.

7. Stop all engines before refueling. When filling gasoline tank, keep funnel or container in contact with tank to prevent static spark. Never fill tank over a hot engine. Provide grounding as appropriate.

8. Always leave machines with moveable parts that are lowered by gravity, such as shovels, buckets, and skip loaders, resting on the ground.

9. Don't operate internal combustion engines indoors, except with proper ventilation.

10. Have a qualified person inspect machinery or equipment, including that under contract, when it's received or repaired. Be sure it's in safe operating condition before turning it over to the operator.

11. Have operators continually inspect their machines for safe operating conditions. Promptly notify supervisors when repairs are needed. Shut down defective machinery until repairs are made.

12. All gears, sprockets, shafts, augers, drivebelts or chains, pulleys, drums, gears, fans, or other hazardous moving parts must have guards. Replace guards after any repairs are completed.

13. Install operating platforms surfaced with nonskid materials on footwalks, ladders, steps, handholds, guardrails, and toeboards before operating machine.

14. Provide suitable protection for the operator against falling objects, swinging loads, and similar hazards.

15. Use safety glass in shields, cabs, or enclosures on machines.

16. Post signalman at dangerous or congested points near crews, blind areas, camp, etc.

17. Check route of travel for hazards such as insufficient overhead and side clearance, bridges, high-tension lines, etc.

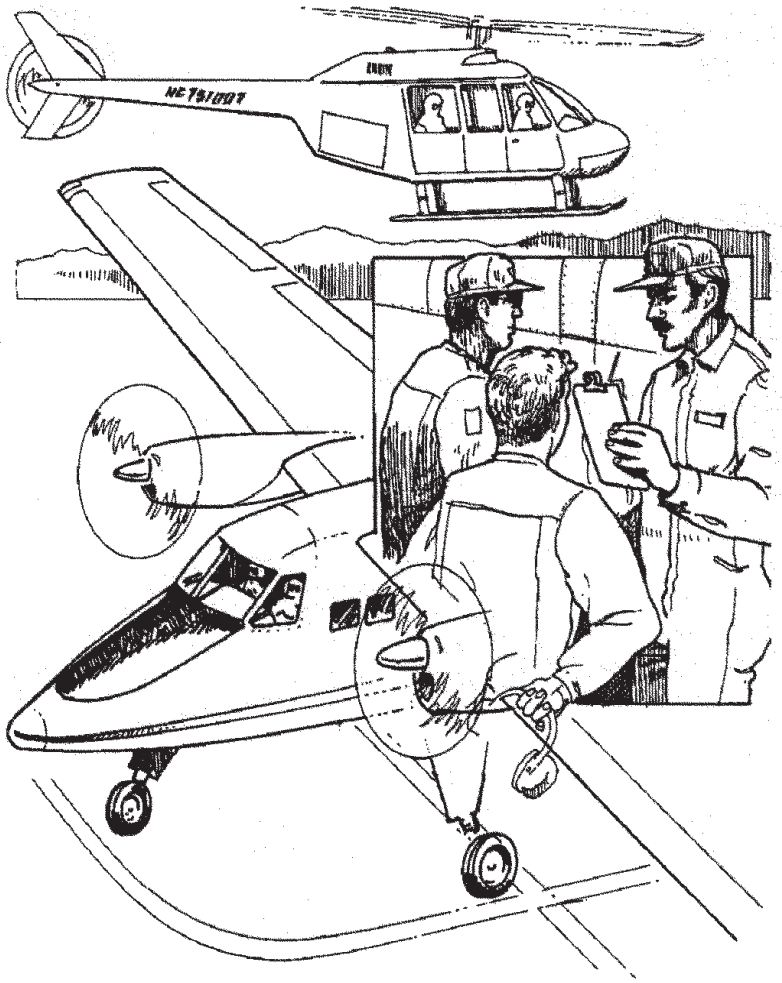
B. **Battery Servicing.** Remember to exercise caution; recharging batteries generate explosive hydrogen gas. Acid can cause severe burns. Always use appropriate PPE (e.g., face shield, gloves, etc.). An eye wash station must be provided within 25 feet. “No Smoking” signs shall be posted.

1. Use battery chargers in well-ventilated areas free of sources of ignition.

2. Shut off battery charger before batteries are connected, disconnected, or tested. Place a sign stating the procedures on or near the battery charger. Prior to charging battery, cap vents must be checked to assure function.

3. In preparing electrolyte solutions, pour acid slowly into the water. Never pour water into the acid.

4. Keep battery acid away from skin, clothing, or metal.



TOPIC 6
AVIATION SAFETY

6.1 **References.** The Office of Aircraft Services (OAS) is responsible for Departmentwide functions related to aircraft services and facilities. OAS has adopted the Federal Aviation Regulations as minimum standards to conduct aviation activities within the Department.

A. Federal Aviation Regulations.

B. 112 DM 12 OAS Manual Organization.

C. 350 - 353 DM Aviation Management.

D. OAS Operational Procedures Memoranda.

E. BLM Manual 9400 - 9430 Aviation Management.

F. 485 DM Aviation Safety.

6.2 **Procedures.** The pilot in command is responsible for the safe operation of the aircraft and the safety of passengers while on board. Pilots have the complete authority to postpone, change, or cancel flights when they believe existing or impending conditions make them unsafe. Passengers/Chief-Of-Party can terminate a flight when they feel it is not being conducted safely. The responsibility for preventing accidents rests upon each individual, whether in the air or on the ground. The Federal Aviation Administration (FAA), OAS, operator, pilot, ground crew, aviation personnel, and **passengers** all have a part in making the flight a safe, pleasant, and efficient trip. All special use flights, as defined in 351 DM 1.7, must be approved by the designated manager as defined in the BLM 1203 Delegation of Authority Manual or State Aviation Operation Plan.

A. **Pre-Flight.** Flight Plans are required on all flights. The pilot normally performs this function. However,

the individual in charge (Chief-Of-Party) must assure that flight plans are filed appropriately with the FAA or BLM (Form 9400-1A)(Reference 351 DM 1.4).

1. Pilots utilized by Bureau employees must be carded by OAS/Forest Service for the type of aircraft they are operating. The card must be carried at all times and shall be available to Bureau employees for review prior to any flight.

2. All pilots/aircraft utilized by Bureau employees will be approved by OAS/Forest Service prior to use. Upon request by Bureau employees, the approval cards will be made available for review.

3. During project work, wear or have available clothing suitable for survival in the worst terrain you will be flying over.

4. BLM employees are prohibited from riding in vendor single engine aircraft in Instrument Flight Rules (IFR) conditions and at night. Procedures for Government-operated nighttime or IFR single engine flights can be found in 351 DM 1.3 B and E.

5. Transportation of hazardous materials or waste is strictly controlled by DOI regulations in any aircraft (Reference 351 DM 1.6B). Check with the Aviation Specialist (AS) before attempting to transport questionable hazardous materials or waste.

6. All flights will be flight followed. Flight following procedures will be established prior to flight. A copy of the flight plan will be left with a unit on the ground.

7. As a minimum, Chief-Of-Party responsibilities are to:

a. Brief pilot on purpose, destination, and safety hazards of flight using Form 9400-1A.

b. Check the pilot's card.

c. Check the aircraft's card.

d. Ensure pilot presents a safety briefing.

e. Ensure flight following.

8. Determine if the mission is necessary. The "Go-No-Go" decision is very important. Employee safety is the primary concern when planning aviation activities.

B. **In-Flight.**

1. All cargo or baggage carried into the cabin of the aircraft must be firmly secured by seat belts, rope, or cargo net, and shall not obstruct access to any exit. Any deviation from this must be approved by the pilot or Chief-of-Party.

2. All occupants shall wear seat belts and shoulder harnesses where installed during all phases of flight unless otherwise authorized by the pilot (Reference 351 DM 1.1G).

3. Should the aircraft be forced down in an emergency, personnel should stay with the aircraft. People are much easier to find while with the craft than out on their own.

4. Always inquire about weather conditions before and during the flight. Severe weather should always be avoided. The "Go-No-Go" decision is the most important you will make.

5. The pilot or qualified flight crew member or flight attendant shall brief all passengers on the

following: 1) seat belts; 2) smoking; 3) operation of cabin doors and exits; 4) placement of seat backs; 5) location and operation of Emergency Locator Transmitter; 6) survival equipment; 7) location of fire extinguishers; 8) ditching procedures and flotation devices when over water; 9) flights requiring supplemental oxygen; 10) appropriate first aid kit for the number of passengers on-board; 11) loading and boarding of passengers. Briefing must be given by the pilot or flight attendant each time a new passenger boards the aircraft.

C. **Post-Flight**. Chief-of-Party shall ensure that the flight plan is closed out with the BLM and FAA. The pilot will normally do this, but passengers are also responsible to let the proper authorities know of their arrival.

6.3 **Aviation Safety Training Requirements.** The 352 DM 2.5 prescribes minimum aviation safety education and training for BLM employees engaged in aviation activities. The Bureau must evaluate their individual programs to identify unique training needs.

A. **Minimum Training Requirements.**

1. **Employees - Target Group A.** Employees who participate in special use flights or function as flight crew members.

a. **Training.** Basic helicopter and/or fixed wing safety (approximately 4 hours every 3 years). It includes: 1) safety around the aircraft; 2) aircraft capabilities and limitations; 3) personal protective equipment (PPE) and aviation life support equipment; 4) Aviation Mishap Information System (AMIS); 5) aircraft accident analysis.

b. **Personal Protective Equipment.**

1) All crew members and passengers shall wear the following appropriate PPE for all helicopter flights and fixed wing flights when tasks will occur below 500 feet:

a) Aviator's protective helmet (SPH-4 or SPH-5).

b) Fire-resistant clothing (Nomex).

c) Leather boots.

d) All leather or leather and Nomex gloves.

2) Nylon, Dacron, or polyester (synthetic or other materials with low temperature melting characteristics) garments or undergarments should not be worn beneath the authorized flight clothing. Wear cotton or wool under Nomex.

3) The only authorized exceptions to PPE requirements are found in 351 DM 1.7E(3), such as hardhats with chinstraps for transporting fire crews.

2. **Employees - Target Group B.** All other employees who utilize aircraft and are not included in Target Group A will receive a passengers' briefing that will include:

a. Entry and exit procedures.

b. Seatbelt/shoulder harness operation.

c. Location of Emergency Locator Transmitter (ELT) and survival equipment.

d. Use of PPE and aviation life support equipment, if appropriate (flight below 500 feet).

6.4 **Helicopter Operations.** All air operations are subject to the procedures outlined in 6.2 of this section. Helicopters utilized in BLM operations are subject to the standards outlined in 351 DM 1.7 Special Use.

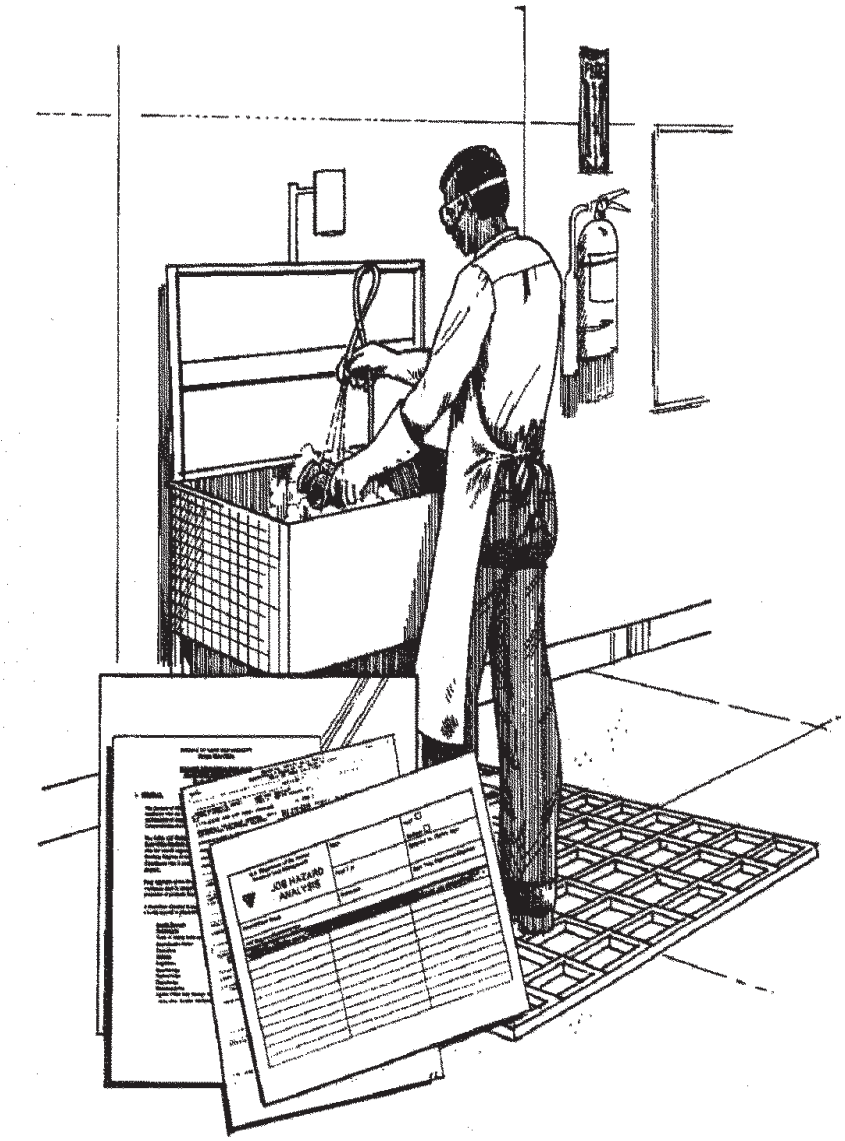
A. **General Safety Precautions.** Always approach and depart helicopters with caution. Keep below and away from the rotor blades. Stay in full view of the pilot at all times and approach from the front or side in crouching stance. Do not go near the tail rotor. When entering or exiting a helicopter, do so only under the direction of the pilot. In mountainous terrain, enter from the downhill side avoiding the rotor blades. Assign specific crew responsibility to ensure any cargo transported in the external racks is secured. Ensure all apparel and miscellaneous gear is secured to keep it from flying up into the main rotor. If hardhats are worn, they must be equipped with chinstraps and secured. If equipment is taken aboard the craft, always keep it parallel to the ground or assure the item(s) will not reach the main rotor blades. Do not put items under occupied passenger seats.

6.5 **Accident/Incident Procedures**. Notify the appropriate aviation safety manager, aviation manager, and OAS whenever a flight irregularity occurs, or an aviation mishap involves property damage or injury. Use the OAS/USFS Aviation Safety Hotline number, 1-888-464-7427.

A. **Aircraft Accident**. An accident is defined as an unplanned event that does substantial damage or causes serious injury or death when associated with the operation of the aircraft. Form SAFECOM(OAS-34/FS5700-14) is to be completed and submitted in accordance with 352 DM 6.6A. Form DI-134, **Report of Accident/Incident shall be completed and submitted. The narrative description and corrective action portions of the DI-134 form (Blocks 24 & 25) should be left blank for aircraft**

accidents and only the words "Aircraft Mishap" should be entered.

B. **Aircraft Incident**. An incident is an unplanned event that results in the deviation from standard operating procedures, with the potential of resulting in personal injury and/or property damage. Form SAFECOM (OAS-34/FS5700-14) is a DOI system of reporting any observed condition or act that affects, or may affect, the safe operation of DOI, contractor, charter, rental aircraft, associated equipment, or facilities. The forms listed can be obtained through OAS or the Aviation Specialist.



TOPIC 7

OCCUPATIONAL HEALTH HAZARDS/INDUSTRIAL HYGIENE

7.1 **References.**

A. Executive Order 12196.

B. 370 DM 792.7 Medical Surveillance Program.

C. 485 DM 17 Occupational Health (Industrial Hygiene) Program.

D. 29 CFR 1910.20 Employee Exposure and Medical Records.

E. 29 CFR 1910.95 Occupational Noise Exposure.

F. 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response.

G. 29 CFR 1910.134 Respiratory Protection.

H. 29 CFR 1910.1000 Air Contaminants.

I. 29 CFR 1910.1200 Hazard Communication.

J. 29 CFR 1910 Subpart H Hazardous Materials.

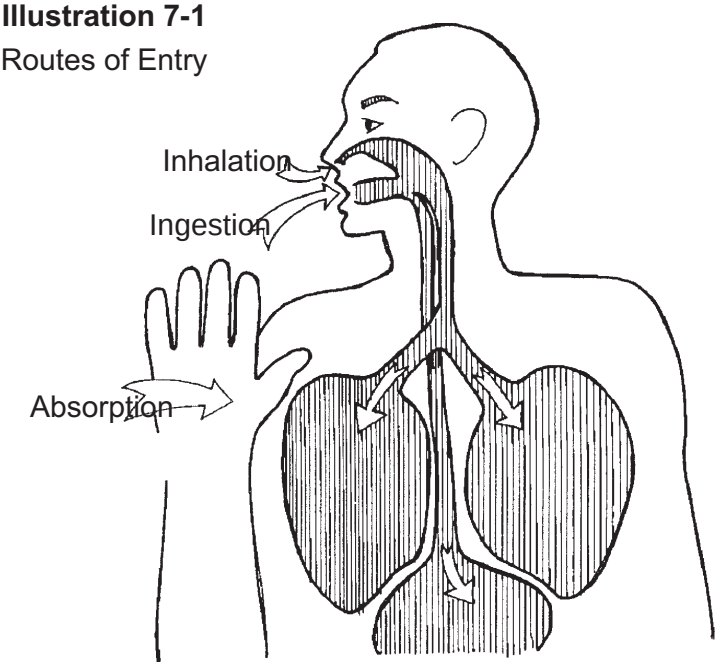
K. 29 CFR 1960 Subpart C Standards.

7.2 **Procedures.** Because of the potential for exposing employees and volunteers to unhealthful, noisy, and ergonomically incorrect work environments, it is imperative that safety managers assist in designing workplace settings that inhibit such conditions. It is also important to ensure that designs and conditions are planned and prepared in a manner that assures the safety and health of the visiting public. Employee exposure and medical records will be maintained in accordance with 29 CFR 1910.20.

A. **Health Hazards.** Health hazards may exist in a wide spectrum of chemical forms including: mist, liquid, vapor, gas, dust, and fumes.

B. **Routes of Entry.** Employees may be exposed to health hazards in the following ways: skin absorption, inhalation (air contaminants), injection, and ingestion through poor hygiene practices (see Illustration 7-1).

Illustration 7-1
Routes of Entry



C. **Standards of Exposure.** To safeguard workers against health hazards, there are specific standards and exposure limits for each type of exposure. The limits sometimes have very strict boundaries between what is safe and unsafe. The safety manager or industrial hygienist should be consulted concerning standards of exposure.

D. **Reducing or Eliminating Employee Exposure.** Once an industrial hygiene evaluation has been conducted and a hazardous exposure has been identified, immediate action must be taken to reduce the exposure as outlined below.

1. **Engineering Controls.** The most effective and inexpensive engineering controls are designed into the facility or process before construction. For existing construction, personal protective equipment (PPE) will be required as an interim measure until engineering controls are implemented.

   a. **Ventilation Controls.**

      1) Local exhaust ventilation installed in an enclosure, or as close as possible to the point of contaminant generation, is much more effective and provides better protection than general or building ventilation.

      2) Ventilation systems frequently are ineffective if adequate make-up air is not provided. Temper (heat) make-up air before it is introduced into the workplace in winter.

      3) For information regarding lab safety, refer to 29 CFR 1910.1450, Occupational Exposure to Hazardous Chemicals in Laboratories, or consult the safety manager.

      4) Many well-designed systems fail to protect employees because maintenance is minimal or nonexistent after installation. Regularly scheduled maintenance of environmental control systems must be provided to ensure continued employee health protection.

2. **Work Methods as Controls.** Safe work practice, proper equipment, and good housekeeping will minimize unnecessary exposure to spilled substances. A housekeeping program must be established at each facility to clean up any spills

of nontoxic substances promptly, and for regular cleanup and maintenance.

a. **Vacuum Cleaning.** Vacuum cleaning is the most efficient method of collecting settled dust particles without causing appreciable re-entrainment into the workplace air. Blowing the settled dust particles with an air hose should never be done.

b. **Wet Methods.** When vacuum cleaning equipment is not available, wet methods such as using water and/or other wetting agents to remove dust particles on floors may be done to minimize airborne dust caused by sweeping.

c. **Cleaning Up Liquid Spills.** Contact the Hazardous Materials Program Coordinator in the event of a chemical or toxic spill.

3. **Administrative Controls.** Administrative controls assist in reducing employee exposure. Time exposure limitation is achieved by rotating jobs or by reducing work periods. At best, administrative controls should only be used for brief periods until engineering corrections can be implemented.

4. **Personal Protective Equipment.** Some operations are not amenable to engineering controls so PPE may be the only practical way to limit employee exposure. PPE may also be used for brief periods during repair of engineering controls and/or to ensure greater personal protection. It is essential that PPE be fitted to the individual employee and that the employee be carefully trained in the use and limitations of the equipment.

5. **Substitution/Isolation.** Eliminate or minimize, to the extent possible, hazardous materials,

equipment, or processes by replacing all or part of the hazardous elements. Carefully investigate all substitutions to ensure that new hazards are not introduced. Hazardous processes may be isolated or enclosed to eliminate employee contact.

7.3 **Respiratory Protection Program.** This program applies to all BLM personnel whose duties require wearing respiratory protective equipment. It is intended to prevent exposure to airborne contaminants greater than permissible exposure limits (PEL) established by OSHA standards. In the absence of OSHA standards, use guidelines established by agencies such as the National Institute for Occupational Safety and Health (NIOSH), the American Conference of Governmental Industrial Hygienists (ACGIH), and the Environmental Protection Agency (EPA). Respiratory protection must not be considered a substitute for installing engineering controls to reduce hazardous conditions. When engineering controls are not possible or feasible, in case of an emergency, or when working with carcinogens, these respiratory protection measures must be implemented.

A. **General Requirements.** Assign respirators only to workers who have been determined by a physician to be physically able to perform the work and use the equipment. The physician should determine which health and physical conditions are limiting. The respirator user's medical status should be reviewed annually by a physician.

1. Personnel in charge of operating activities must route all requests for the requisition of respirators through the safety manager for approval to ensure that the proper equipment is properly matched to the level of hazard. Acquisition of the equipment is the responsibility of the operating activity.

B. **Classification and Description of Respiratory Protective Devices.** Respiratory protective devices

generally fall into two categories: air purifying and atmosphere supplying.

1. Air-purifying respirators remove contaminants from the atmosphere. This type of respirator cannot be used in oxygen-deficient atmospheres. Half-mask respiratory devices cover the nose, mouth, and chin, and do not afford protection against eye irritation from exposure to airborne contaminants. Full facepiece devices cover a larger facial area, including the eyes.

2. Air supplying devices are used in oxygen-deficient atmospheres, defined as less than 19.5 percent oxygen.

C. **Respirator Training.** Training for both supervisors and workers must be conducted by qualified personnel. Training must be documented and maintained by the local field office. Minimum training includes the following:

1. Instructions on the nature of the hazards (whether acute, chronic, or both) and a description of what may happen if the respirator is not used.

2. A discussion of the respirator's capabilities and limitations, including recognition of the end of the service life of cartridges/canisters or filters (e.g., tasting or smelling of contaminants), manufacturers' expiration date, or increased breathing resistance.

3. Classroom and field training to recognize and cope with emergency situations.

4. Instructions on cleaning and maintaining a respirator.

D. **Training Records.** Local records of respirator training, facepiece fit, and leak testing must be kept

for at least the duration of employment of the user or as specified by specific contaminant exposure.

E. **Facepiece Fit and Leak Testing.** Each respirator wearer must receive fitting instructions, including demonstrations and practice on how the respirator is to be worn, how to adjust it, and how to determine whether it fits properly.

1. Before initial use, each respirator must be properly fitted, leakage tests performed, and the facepiece seal tested.

2. Good facepiece-to-face seals cannot normally be obtained when the wearer has a beard, long sideburns, or a skull cap that projects under the facepiece. Facial deformities, such as scars, deep skin creases, prominent cheekbones, severe acne, and the lack of teeth or dentures can prevent a respirator from sealing properly. Individuals with any of these conditions should be precluded from using any respiratory protection devices.

3. Sealing tests for routine donning of respirators, which consist of both positive and negative pressure tests, must be performed each time the respirator is worn.

4. **Warning properties.** Odor as well as eye and respiratory irritation should alert the wearer that the respiratory protection is malfunctioning or inadequate. This may be the result of improper facepiece fitting, old/inappropriate cartridges or canisters, etc. The worker should leave the hazardous area and rectify the problem. The worker must notify the supervisor if the condition persists. It should be noted that some chemicals and substances have no warning properties.

F. **Maintenance and Cleaning.** When respirators are issued to individuals, the responsibility for primary maintenance and cleaning of the respirator rests with the user. Equipment must be properly maintained, in accordance with manufacturers' specifications, to retain its original effectiveness.

7.4 **Hearing Conservation Program.** BLM's hearing conservation program must comply with 29 CFR 1910.95 and address the points identified in the following:

A. **General Requirements.** Implement hearing conservation programs at workplaces where noise exposures for an 8-hour time-weighted average (TWA) are 85 decibels measured on the A scale (dBA) or higher. The exposed employees must be provided with, and required to use, hearing protectors. Workplaces where exposure to noise equals or exceeds an 8-hour TWA of 85 dBA (permissible exposure during an 8-hour shift) must be identified and employees' hearing tested annually.

1. Warning signs indicating high noise levels and the requirement that hearing protectors must be worn shall be posted in work areas or on equipment where the noise level is 85 dBA or higher.

2. Audiometric test results will be maintained in the employee's medical folder as required by 29 CFR 1910.95.

3. No employee will be exposed to the following noise levels without protection in excess of 115 dBA for 1/4 hour or in excess of 85 dBA 8-hour TWA.

4. Employees or their representatives will be provided noise measurements upon request. Audiogram results will be provided to tested employees.

B. **Identification of Exposed Employees.** A roster will be maintained at the local level of employees at risk

to noise hazardous situations and revised as necessary. These employees must be included in all aspects of the hearing conservation program.

C. **Hearing-Protection Devices.** Supervisors shall provide and replace as necessary a variety of hearing-protection devices (HPD) for all employees in a designated high noise area. Hearing protection is provided at 85 dBA and mandatory at 90 dBA.

1. Each employee will use and maintain the HPD as originally intended. Reusable insert type HPDs should be disposed of or cleaned after each use and stored in a sanitary location.

2. Supervisors will evaluate the HPD for effectiveness in the particular environment in which it will be used.

3. Employees shall be trained in the selection, use, and maintenance of HPDs and shall be respon sible for using them in designated high noise areas.

7.5 **Hazard Communication Program.** The Hazard Communication Program (Employee Right-to-Know) encompasses handling and storage of hazardous materials (products) in the workplace. The Hazard Communication Program does not apply to hazardous waste, tobacco or tobacco products, wood or wood products, articles (as defined in 29 CFR 1910.1200(c)), food, drugs, cosmetics, alcoholic beverages, or products/ substances used in the workplace in the same manner as household use.

A. **Manufacturers' Instructions.** Manufacturers' instructions for safe handling and storage should be followed.

B. **Hazard Determination.** The manufacturer, supplier, or employer must evaluate chemicals to determine

the hazards. Normally, this evaluation is done by the manufacturer and provided via a Material Safety Data Sheet (MSDS).

C. **Material Safety Data Sheet.** The MSDSs are to be available at the point of use. Consult the product MSDS for information regarding:

Physical and chemical characteristics (flashpoint, vapor pressure)
Physical hazards (fire, explosion, reactivity)
Health hazards
Primary routes of entry
Permissible Exposure Limit (PEL) or Threshold Limit Value (TLV)
Carcinogenicity
Safe handling procedures
Control measures (engineering controls, work practices, PPE
Emergency and first aid procedures

D. **Employee Training.** Supervisors shall ensure that employees using hazardous materials have been trained as mandated in 29 CFR 1910.1200 Hazard Communication Standard.

E. **Hazard Communication Plan (HazCom Plan).** Each facility is required to have a written HazCom Plan. That plan includes information on:

Site Specific Policy
Nonroutine Tasks
Employee Information
Informing Contractor Employees
Inventory of Hazardous Materials
Waste Minimization

1. **Waste Minimization.** It is essential that BLM employees, supervisors, and managers include waste minimization practices into procurement, use, and disposal of hazardous substances.

a. Waste minimization should be promoted by:

- Substituting less hazardous products when feasible;

- Reducing to a minimum the number and variety of products used;

- Purchasing only the amount absolutely needed;

- Controlling product storage and handling practices to reduce damage and loss;

- Separating incompatible products during handling and storage and ensuring storage facilities are properly built, located, and equipped;

- Planning work projects in a manner that prevents the acquisition of excess products and materials.

F. **Labeling.** All products must be properly labeled to include:

Contents
Appropriate Warning
Name and Address of Manufacturer
Cross-check with MSDS

Note: Pesticides are excepted from the HazCom labeling requirements.

G. **Storage/Handling of Hazardous Materials.** Storage/handling of flammable and combustibles shall be in compliance with 29 CFR 1910.106. This is outlined under Topic 11, Materials Handling and Storage.

7.6 **Hazardous Materials Management.** The BLM is required to comply with all Federal environmental and safety laws and regulations governing storage, handling,

and use of hazardous materials, and governing disposal of hazardous waste. BLM must also comply with State hazardous materials laws and regulations, as required.

A. **Hazardous Materials in the Field.** Any employee may encounter hazardous materials situations in the field. Hazardous materials or waste may be found on public lands in a variety of forms, e.g., clandestine drug lab waste, mining wastes, midnight dumping, and transportation accidents. BLM employees who may encounter such situations in the field must be trained as mandated by OSHA 1910.120(q), First Responder Awareness Level, to recognize, retreat, and report any discovery.

1. **Clandestine Drug Lab Waste.** This waste material is often the result of illegal manufacturing of the drug commonly known as “methamphetamine” or “crank.” The waste may look like household garbage at first glance. Drug lab waste can be identified by the presence of gallon plastic jugs, large plastic bags, 5-gallon buckets, and various laboratory equipment (beakers and tubes). Drug lab waste may contain any number of chemical combinations and should be considered dangerous. Employees shall retreat from the area immediately, and report to the program manager, i.e., Supervisor, HazMat, Law Enforcement Ranger, or Special Agent. Do not examine, investigate, touch, smell, or taste such waste for any reason.

2. **Midnight Dumping.** A midnight dumping on public lands may be recognized by the presence of barrels or other containers, discoloration of land, plants, or water, and the presence of dead vegetation or animals. Upon discovery of midnight dumping waste, retreat from the area immediately and report to the program manager, i.e., Supervisor, HazMat, Law Enforcement Ranger, or Special Agent. When discovering a midnight dumping site, remember that **self-protection is your primary responsibility**.

3. **Transportation Accidents.** Truck, rail, or pipeline accidents on public lands may result in danger to life, property, or resources. When encountering such an accident, take steps to protect yourself by retreating from the area and reporting to the District Hazardous Materials Coordinator.

7.7 **Hantavirus.** Hantavirus is a respiratory disease caused by a virus carried by the deer mouse and other rodents, such as squirrels, rats, and chipmunks. Humans acquire the infection after exposure to rodent excreta, especially after it dries and becomes airborne, and is directly introduced into broken skin, eyes, nose, mouth, or possibly ingested with contaminated food or water. Employees who enter gas meter houses, work in the renovation of old buildings, or clean up existing areas that may have rodent excreta may be at risk of the disease. All rodents shall be treated as if they carry the virus.

A. **General Precautions.** Avoid direct contact with rodents (live or dead), their droppings, urine, saliva, nests, or other items that may be contaminated by them. Do not feed mice, chipmunks, or other rodents. Preventive measures should be taken to eliminate rodents from buildings by reducing the availability of food sources, nesting sites, and access routes into a building.

B. **Elimination of Rodents Inside Buildings and Reducing Rodent Access.** Rodent infestation can be determined by direct observation of animals, from the presence of feces, and from evidence that rodents have been gnawing at food. If rodent infestation is detected inside a building, rodent abatement measures should be undertaken.

1. Prior to any cleanup, ventilate closed buildings or areas inside buildings by opening doors and windows for at least 30 minutes. Use an exhaust fan or cross ventilation if possible. Leave the area until airing-out period is completed.

2. Seal, screen, or otherwise cover all openings into the building that have a diameter of 1/4 inch or greater because rodents can enter through holes this small. Pay special attention to openings where pipes and wires enter the building. It is best to plug holes with sheet metal or metal screening material.

3. Trap rodents using spring-loaded traps. Traps should be placed on a newspaper, along suspected paths like baseboards or near the corner of a room. Do not use live traps.

4. Rodenticide should only be considered for rapid knockdown of heavy rodent infestations and elimination of rodents in areas of known hantavirus.

C. **Cleanup of Rodent-Contaminated Areas.** Areas with evidence of rodent activity should be thoroughly cleaned to reduce the likelihood of exposure to Hantavirus-infected materials. Cleanup procedures must limit the potential for aerolization of dirt or dust from potentially contaminated surfaces and household goods.

1. Employees involved in a cleanup should wear rubber or plastic gloves when handling rodents, nests, or cleaning infested areas. In heavily rodent-infested areas, workers should wear coveralls, rubber boots or disposable shoe covers, and protective goggles. When removing rodent nests, rodents from traps, and cleaning up infested areas, workers should wear a half-face air-purifying respirator or Powered Air Purifying Respirator (PAPR) equipped with High Efficiency Particulate Air (HEPA) filters. Respirator use practices should be in accord with a respirator program and should be supervised by a knowledgeable person.

2. Spray dead rodents, rodent nests, excreta, and foods or other items that have been tainted by rodents with a general purpose household disinfectant or a prepared disinfectant bleach solution using 3 tablespoons or capfuls of household bleach in 1 gallon of water. Soak the contaminated items thoroughly and place in a plastic bag. When cleanup is complete (or when the bag is full), seal the bag, then place it into a second plastic bag and seal. Dispose of the bagged materials by burying in a 2- to 3-foot-deep hole. If burying is not possible, contact the local or state health department about other appropriate disposal methods.

3. After the above items have been removed, disinfect all floors, countertops, cabinets, and other durable surfaces with a solution of water, detergent, and disinfectant. Do not sweep with a broom or vacuum until the area has been soaked with disinfectant. Launder contaminated bedding and clothing with hot water and detergent.

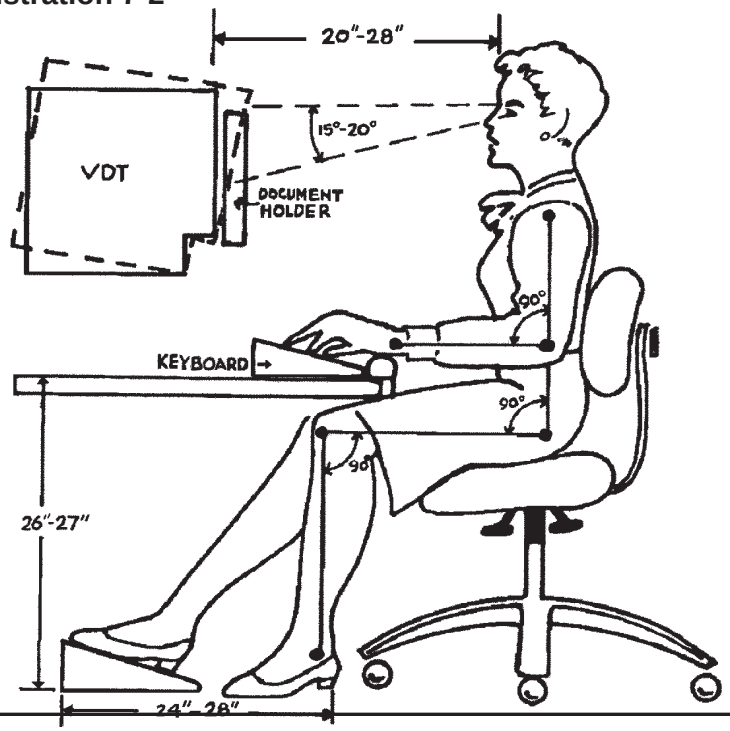
4. After cleanup is completed and when removing gloves, wash gloved hands in a disinfectant and then in soap and water. Thoroughly wash hands with soap and water after removing the gloves. **Do not reuse rubber or plastic gloves**. They should be disposed of in the plastic bags containing the rodent carcasses, nests, and/or feces.

D. **Symptoms of Hantavirus.** Early treatment is crucial. Symptoms may appear 1 to 6 weeks (usually 2 to 3) after contact and include fever, nausea, headache, muscle aches, cough, and increasing acute respiratory trouble. Seek prompt medical attention if you suspect you have been exposed to hantavirus.

7.8 **Ergonomics.** Ergonomics is the study of the relationship between the worker and the work environment. It recognizes that work methods, equipment, facilities, and tool design all influence the worker's fatigue, motivation, productivity, and the likelihood of sustaining an occupational injury or illness.

A. **Principles of Ergonomics.** The objective of ergonomics is to adapt the job and workplace to the worker by designing tasks, workstations (see Illustration 7-2), controls, displays, safety devices, tools, lighting, and equipment to fit the worker. Some jobs expose workers to excessive vibration and noise, eye strain, heavy lifting, and repetitive motion. Also, workplace temperature extremes may aggravate or increase ergonomic stress.

Illustration 7-2



B. **Types of Injuries.** Pulled or strained muscles, ligaments, tendons, and disks are the most common back problems. The majority of workplace back

disorders result from chronic or long-term injury to the back rather than from one specific incident. Back disorders are frequently caused by excessive or repetitive twisting, bending and reaching; carrying, moving, or lifting loads that are too heavy or bulky; staying in one position for too long; poor physical condition; and poor posture.

Cumulative trauma disorders (CTDs) are disorders of the musculo-skeletal and nervous systems that are caused or made worse by repetitive motions or prolonged activities. Other risk factors for cumulative trauma and back disorders include:

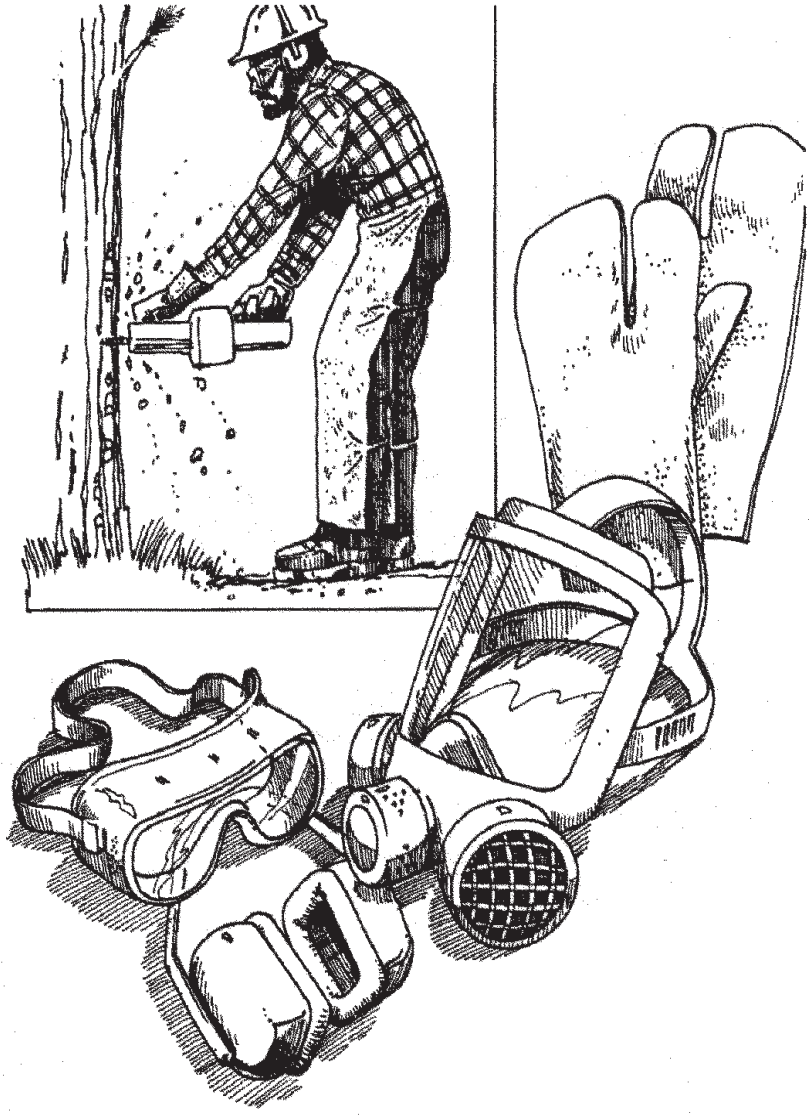
1. Forceful exertions, usually with the hands.
2. Pinch grips.
3. Prolonged static postures, either sitting or standing.
4. Awkward postures of the upper body, including reaching above the shoulders or behind the back.
5. Excessive bending or twisting of the wrist.
6. Continued elevation of the elbow.
7. Inappropriate or inadequate hand tools.
8. Restrictive workstations and inadequate clearances.
9. Vibration from power tools.
10. Improper seating or support.
11. Poor body mechanics.
12. Lifting heavy objects or objects of abnormal sizes.

The combined effect of several risk factors often results in the onset of CTDs.

C. **Hazard Prevention and Control:** Ergonomic hazards are prevented primarily by the effective design of a job or jobsite and the tools or equipment used in that job. Based on information obtained in the work site analysis, procedures can be established to correct or control ergonomic hazards using the following methods:

1. **Engineering Controls.** Workstations should be designed to accommodate the full range of required movements of the workers who are actually using them to perform the job. Attention should be given to prolonged or sustained exertion of a body part, proper work activity height, the reach at which tasks are performed, and the force requirements. Other factors to look at include hard or sharp edges, contact with thermally conducting work surfaces, proper seating, work piece orientation, lighting, and layout of the workstation.

2. **Work Practice Controls.** Key elements include instruction in proper work techniques, employee training and conditioning, regular monitoring, feedback, adjustments, modification, and maintenance. For example, after employees are trained in a particular work activity, such as proper lifting, workers should be monitored to ensure that they continue to use proper techniques. Improper practices should be corrected to prevent injury.



TOPIC 8

PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT

8.1 **References**.

A. OSHA Standards. Subpart I Personal Protective Equipment.

29 CFR 1910.132 General Requirements.
29 CFR 1910.133 Eye and Face Protection.
29 CFR 1910.134 Respiratory Protection.
29 CFR 1910.135 Occupational Head Protection.
29 CFR 1910.136 Occupational Foot Protection.
29 CFR 1910.137 Electrical Protective Devices.
29 CFR 1910.252 Welding.
29 CFR 1910.1030 Bloodborne Pathogens.

B. 29 CFR 1926 Subpart E Personal Protective and Life Saving Equipment.

C. BLM Manuals 9200, 9210.5, 9430.

D. 370 DM Appendix A.

8.2 **Procedures**. Field offices shall assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE). Refer to 1910.132 General Requirements for guidance.

A. **Using the Job Hazard Analysis to Determine Appropriate Personal Protective Equipment**. The Job Hazard Analysis (JHA) process is used to identify hazards in a job task (see Topic 1). The JHAs are reviewed by the local safety manager to assure PPE meets appropriate standards (ANSI, NIOSH, MSHA).

B. **Mandatory Use of Personal Protective Equipment**. When specific PPE is found necessary and is purchased, it is mandatory for the employee to use such equipment. Should an employee fail to do so, it is the supervisor's responsibility to take the necessary steps to assure compliance, including appropriate disciplinary action within the guidelines of DM 370.

8.3 **Eye and Face Protection.** Protective eye and face shields shall be required where there is a reasonable probability of injury that can be prevented by use of such equipment. Eye protection shall meet ANSI 287.1.

A. **Goggles and Glasses.** Use goggles, safety glasses, face shields, or welder helmets when subjected to:

1. Small flying particles when cutting, drilling, scaling, and grinding metals; cutting, chipping, or dressing stone and brick; woodworking; overhead pruning; brushing; and machine plating;

2. Flying objects when hand drilling, chipping, caulking, riveting, quarrying, rock cutting and crushing, or when using a cyclone seeder or brush cutter;

3. Concentrations of cement or other dust, or dust and sand when sandblasting;

4. Hot metal when handling babbitt or pouring lead joints, or shaping metal on an anvil;

5. Gases, fumes, and liquids when handling acids and caustics such as sulfuric or muriatic acids, ammonia or creosote;

6. Injurious radiant energy and flying hot particles;

7. Grinding Wheels. Wear goggles, glasses, or face shields at all times when using grinders or buffer wheels;

8. Welding. Appropriate eye protection shall be worn. Refer to 29 CFR 1910.252(e)(2) when purchasing eye protection;

9. In field situations where eye injury hazards such as brush, twigs, and limbs exist.

B. **Care of Goggles.**

1. Keep goggles in protective containers.

2. Wipe the lenses frequently with a clean cloth or soft tissue.

3. Keep goggle frames, including side screens, free from dust and grit.

4. Change headband frequently, keeping the webbing flat.

5. Treat lenses to prevent fogging when necessary, or use goggles ventilated around the lenses.

6. Replace goggles when they become scratched, pitted, or otherwise damaged in a way that inhibits visibility.

8.4 **Head Protection.** Protective head gear shall be required where there is a reasonable probability of injury, which could be prevented by use of such equipment. Refer to 29 CFR 1910.135. Head protection shall meet ANSI 289.1 standards.

A. **Hard Hats.** Hard hats must be worn when working in all construction activities, working in confined spaces, or engaged in active fire suppression work. Hard hats must be worn if there is danger from falling or flying objects or in timber areas due to danger of loose bark, limbs, or weak tops falling.

B. **Nonconductive Hard Hats.** Wear electrically insulated hard hats, if working near electrical conductors.

C. **Proper Fit and Care.** Adjust headband and hammock to fit snugly, with an air space of 1/2 inch or more between the head and top of crown of hat. Wear hard hat evenly centered to protect head

properly. Clean and sterilize headband and hammock regularly. Integrity of head protection is essential. Thus, head protection shall be replaced when it becomes dented or damaged (some paints weaken integrity).

8.5 **Respirators.** Use of respirators shall be required where there is a reasonable probability of injury that could be prevented by use of such equipment. Respirators shall provide adequate protection against the particular hazard for which it was designed and must be approved by the National Institute for Occupational Safety and Health (NIOSH) and Mine Safety and Health Administration (MSHA). Refer to Topic 7 of this Handbook.

8.6 **Hand Protection.** Use of hand protection shall be required where there is a reasonable probability of injury that could be prevented by use of such equipment. Appropriate hand protection will be provided for the task. It is especially important when working with chemicals to ensure that the appropriate glove is selected for the chemical being used.

8.7 **Safety Belts, Ropes, and Nets.** Use safety belts, ropes, and nets to protect employees on unguarded above-ground surfaces over excavations, moving machinery, swift or deep waters, on steep slopes, or if subject to falls.

A. **Inspection of Safety Belts.** Inspect safety belts for worn, dry, hard leather; pliability; worn or broken stitching; cuts; cracks; loose rivets; worn buckles, snaps, rollers, tongues, D-rings, etc. Check safety ropes and nets frequently for broken fibers. Twist the strands back to check. Never weaken safety belts or straps by punching extra holes in them.

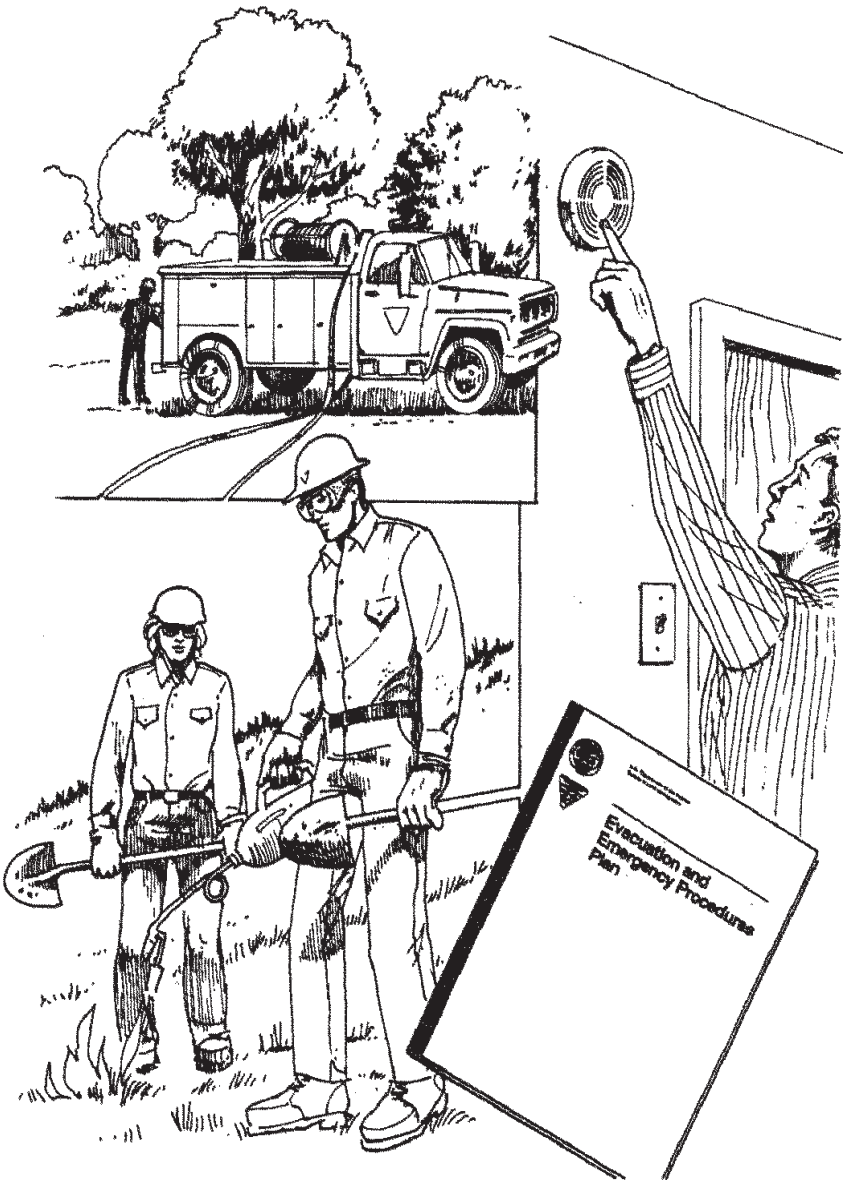
8.8 **Out-of-the-Ordinary Personal Protective Equipment.** The selection of appropriate out-of-the-ordinary PPE (e.g., safety boots, prescription eyewear, etc.) must be made in consultation with local safety managers/coordinators.

A. **Procedures for Purchase.** Use the following procedures to document the need for out-of-the-ordinary PPE, secure approvals, and initiate procurement:

1. Requests for PPE are initiated by the employee or his/her supervisor.

2. The supervisor and the employee(s) shall work together to develop a JHA that identifies job hazards and proper abatement procedures. PPE will sometimes be part of this hazard abatement. The JHA will be reviewed by the safety manager or specialist to ensure compliance with OSHA standards, BLM policy, and ensure that PPE meets appropriate standards.

3. The supervisor is responsible for providing the servicing procurement office with the signed requisition and a copy of the JHA for acquisition. Where credit cards are used, the JHA will be necessary.



TOPIC 9

FIRE SAFETY

9.1 **References.**

A. 29 CFR 1910.35-39 Means of Egress.

B. 29 CFR 1910.157-165 Portable Fire Suppression Equipment.

C. 29 CFR 1926.150-155 Fire Protection and Prevention.

D. National Fire Codes.

E. Uniform Building Codes.

F. National Fire Protection Association (NFPA) 101 Life Safety Code.

G. 485 DM Chapter 19.

H. BLM Manual 9210 and 9214.

I. Standards for Fire Operations, Bureau of Land Management.

9.2 **Procedures.** The responsible Bureau official must assure that buildings and facilities are inspected annually by qualified safety inspectors.

A. **Detection Devices.** All Bureau facilities used to house employees and their families on a year-round basis must be equipped with approved smoke detection devices. Trailers and other facilities used as sleeping quarters by field crews must be similarly equipped.

B. **Fire Extinguishers.** Place approved and appropriate fire extinguishers inside of repair shops, storage areas, or near oil or gas dispensers, and other potential hazard areas. Fire extinguishers need to be placed near doors or other areas that have quick accessibility and in a position that does not endanger personnel when a fire emergency arises.

C. **Exits.** Every building designed for human occupancy must be provided with exits sufficient to permit the prompt escape of occupants in case of emergency.

1. One and two family dwellings are to have a second means of escape in accordance with NFPA 101 21-2.

2. Exits and the way of approach and travel from exits must be maintained so that they are unobstructed and are accessible at all times. Widths of aisles and corridors will be in compliance with NFPA 101.

3. All exits must discharge directly to the street or other open space that gives safe access to a public way.

4. Exits must be marked by readily visible, or suitably illuminated exit signs. Specifications for color and size of exit signs can be found in 29 CFR 1910.37.

9.3 **Emergency Procedures and Evacuation Plans.** Every BLM business occupancy for employees, volunteers, or other personnel that is leased or BLM-owned must have an Emergency Procedures and Evacuation Plan that is current and posted on site.

A. The plan shall address emergency and evacuation procedures for fire and other emergencies such as bomb threats, chemical spills, earthquakes, sabotage/ecotage, public demonstrations, and civil disobedience. The plan shall be updated annually. The plan shall include:

1. Building evacuation routes.

2. Procedures to account for evacuated employees.

3. Special duties (rescue, medical, physically challenged assistance) and names of designated personnel.

4. Proper reporting procedures.

5. Names and job titles of emergency procedures personnel.

9.4 **Personal Safety for Fire Emergencies.** The Federal Hotel and Motel Safety Act of 1990 prohibits employees from staying at non-sprinkler-equipped hotels with more than three floors. Although hotels and motels will have smoke detectors and sprinkler systems, self protection is essential.

A. Become familiar with emergency exits, evacuation routes, fire extinguishers, fire alarms, emergency telephone numbers, first aid supply locations, etc.

B. Do not use elevators during fire emergencies.

C. Look over your room. What is outside the window? Can you open the window? Could you jump if necessary? Is there a smoke detector and does it appear to be operational?

D. If there is a fire or you suspect a fire, before opening the door, feel the door and knob with your hand. If hot, do not open the door. Close vents and cover cracks around doors keeping smoke out of the room.

E. Create the habit of placing your room key and a flashlight in a consistent place where you can grab them on your way out of the room. Always take the key with you. You should close the door behind you to keep smoke and heat out of the room, but you may find conditions in the hall to be unbearable and need to return. The key is vital.

9.5 **Vehicle Fires.** The inherent danger from vehicle fires is from explosions, burns, and asphyxiation. Immediate response is key to your survival. Getting away from the fire is in your best interest. A frequent cause of vehicle fires has been due to ignition of dry grass by hot parts of vehicle exhaust systems, i.e., catalytic converters. If there is time, the following actions can be taken:

A. Turn off ignition.

B. Exit the vehicle and use a fire extinguisher, if available. Use sand, dirt, blanket, or coat to smother flames if no extinguisher is available. Remember that water may be used but petroleum fires react violently to water if not applied correctly.

C. Remember that smoke from vehicle fires may emit noxious and/or fatal emissions from fabrics, petroleum, rubber, and plastics. Avoid these emissions or minimize them when possible.

9.6 **Prescribed/Wildland Fire Safety.** Detailed safety policies for prescribed/wildland fires are located in BLM Manual 9210 and 9214. Additional information is available in BLM Standards for Fire Operations Chapter 4. The following are general safety procedures. BLM employees shall be trained, qualified, and carded to participate in prescribed/wildland fire activities.

A. **Wildfire Hazards.** The wildland fire environment has hazards not normally found in a typical work environment including: lightning, fire-weakened timber (standing or down), rolling materials, entrapment by running fires, smoke, aerially delivered fire suppressants, heat exposure, dehydration, and many others. When these hazards are present there are two options: not to enter the environment or to adhere to safe procedure.

B. **18 Situations That Shout, "Watch Out".**

18 SITUATIONS THAT SHOUT, "WATCH OUT"

Fire not scouted and sized up.

In country not seen in daylight.

Safety zones and escape routes not identified.

Unfamiliar with weather and local factors influencing fire behavior.

Uninformed on strategy, tactics, and hazards.

Instructions and assignments not clear.

No communication link with crew members or supervisor.

Constructing line without safe anchor line.

Building fireline downhill with fire below.

Attempting frontal assault on fire.

Unburned fuel between you and fire.

Cannot see main fire, not in contact with someone who can.

On a hillside where rolling material can ignite fuel below.

Weather becoming hotter and drier.

Wind increases and/or changes direction.

Getting frequent spot fires across line.

Terrain and fuels make escape to safety zones difficult.

Taking nap near fireline.

C. **10 Standard Firefighting Orders.**

10 STANDARD FIREFIGHTING ORDERS

Fight fire aggressively, but provide for safety first.

Initiate all action based on current and expected fire behavior.

Recognize current weather conditions and obtain forecasts.

Ensure instructions are given and understood.

Obtain current information on fire status.

Remain in communication with crew members, your supervisor, and adjoining forces.

Determine safety zones and escape routes.

Establish lookouts in potentially hazardous situations.

Retain control at all times.

Stay alert, keep calm, think clearly, act decisively.

D. **Safe Fireline Procedures.** The wildland fire environment has many hazards as stated above, but four basic hazards exist: lightning, fire-weakened timber (standing and down), rolling rocks, and entrapment by running fires. When these hazards exist, two options exist: a) not to enter the environment, or b) adhere to safe procedures. The key to these safe procedures is “LCES.”

1. LCES stands for “lookout(s), communication(s), escape route(s), and safety zone(s).” These are the same items stressed in the FIRE ORDERS

and “Watchout Situations.” They should be viewed from a “systems” point of view, all interconnected and interdependent. Each should be evaluated independently, but also as a system. For example, the best safety zone is of no value if your escape route does not offer timely access when needed.

2. A key concept - the LCES system is identified to **each firefighter prior** to when it must be used. The nature of wildfire suppression dictates continuous evaluation of LCES, and when necessary, reestablishment of LCES as time and fire growth progress.

E. **Advise Employees.** Brief all employees concerning area hazards and safe work practices before they start to work. Maintain close supervision and communication at all times.

F. **Fire Shelter.** Wildland fire personnel must carry a fire shelter and know how to use it. Employees participating in prescribed fire activities will carry fire shelters during ignition and holding.

G. **Additional Information.** Refer to BLM Standards for Fire Operations Chapter 4.

TOPIC 10

FIELD INJURY PREVENTION AND FIRST AID

10.1 **References.**

A. American Red Cross.

B. 29 CFR 1910.151 Medical Services and First Aid.

C. 29 CFR 1910.1030 Bloodborne Pathogens.

10.2 **Procedures.** All employees whose work assignment in the field places them beyond reasonable accessibility to a medical facility in terms of time and distance (15 minutes and/or 10 miles) must be trained to render first aid or be accompanied by someone who has a valid certificate in first aid and CPR.

A. **Camp Safety.** First aid kits should be available in two central areas (e.g., kitchen, shop area, recreation tent, project leaders tent, etc.). Kits should be large enough to accommodate the number of people in the crew.

B. **Preventive Inoculations.** Preventive inoculations may be obtained for Rocky Mountain Spotted Fever, certain insect stings, poison oak and ivy, Hepatitis B, or other diseases. Hepatitis A Virus is excreted or shed in feces. Direct contact with an infected person's feces or indirect fecal contamination of food, the water supply, raw shellfish, hands, and utensils may result in sufficient amounts of virus entering the mouth to cause infection (formerly called infectious hepatitis). Hepatitis B Virus (HBV) is spread through sexual contact, blood transfusions, contaminated needles, contact with body fluids, or from mother-to-child at birth (formerly called serum hepatitis).

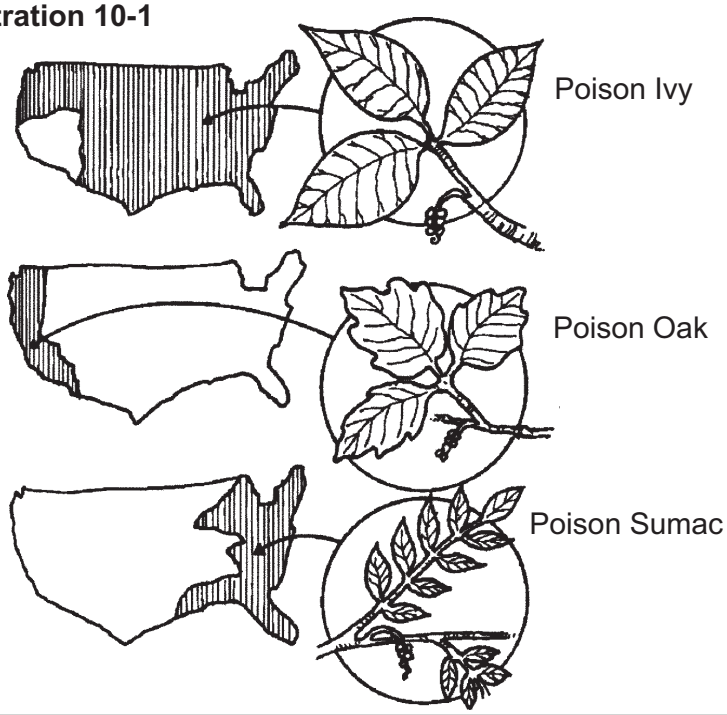
1. Inoculations may be obtained at Bureau expense.

2. Inoculations may be administered only if it can be clearly shown that conditions warrant preventive inoculations, that the inoculations are necessary

to protect employee health, and if the official duties of the employees expose them to contact by poison or disease.

10.3 **Poisonous Plants.** Instruct all employees subject to exposure to poison sumac, oak, and ivy on how to identify them (see Illustration 10-1). Take extra precautions with persons known to be highly sensitive to poison sumac, oak, and ivy. If practical, do not assign allergic people work in areas where exposure could occur.

Illustration 10-1



A. **Learn to Identify Poisonous Plants.**

1. Wear proper field attire. Since dried poison oak resin on clothing can cause a rash if it touches the skin, wash clothing at regular intervals, daily if you are very sensitive.

2. The palms of the hands rarely are affected, but poison oak resin can be transferred from the

hands to other parts of the body. It can be removed by rinsing with water. Wash hands **before** urinating. Be careful about wiping sweat from the face and around the eyes with your hands.

3. **DO NOT** use unidentified leaves as emergency toilet paper in the field.

4. Tools can also be contaminated with the resin. This can be removed by rinsing with water.

5. **DO NOT** attempt to desensitize yourself by eating the leaves. This can cause severe lesions in the mouth, around the rectum, and has been reported to cause kidney damage in some patients.

6. **DO NOT** stand in the smoke of fires made of brush; it may contain unburned particles of poison oak.

7. **DO NOT** use a leaf mulcher in areas with poison oak unless your legs and arms are covered and you are wearing a face shield.

10.4 **Poisonous Insects (Arthropod Stings and Bites).** Instruct employees assigned to areas of heavy arthropod (ticks, chiggers, spiders, scorpions, bees, wasps, yellowjackets) infestation to:

1. Wear proper field attire as defined in Topic 3. Additional protective clothing or equipment for specific activities will be determined by the Job Hazard Analysis (JHA) process and by management.

2. Secure trousers by tucking pant legs into socks to prevent insects from going up pant legs.

A. **Bee Stings.** Hair sprays, hair tonics, sun lotions, other perfumed toiletries, and suede or leather odors attract these insects and should be avoided.

Bright colors and bright metal objects (e.g., jewelry, belt buckles, etc.), also attract bees.

1. Swatting or running appears to aggravate stinging insects. Shield your face with your arms and move slowly out of a danger zone, or lie face down on the ground if under attack. **DO NOT** poke at bee or wasp nests.

B. **First Aid for Bee Stings.** The following applies also to stings from bumblebees, hornets, and wasps. Of these, the honey bee has a barbed stinger that could be left in the skin. The venom sac of the honey bee stinger may be attached and continue to inject venom for some time after the bee has left. The stinger only penetrates into the skin for a very small distance. It should be removed promptly. To avoid squeezing, which would inject more venom, it should be removed by scraping the skin surface with a knife blade or a fingernail.

1. Single stings from any of these insects rarely require medical attention. There may be an immediate sharp pain followed by some redness and swelling. The application of cool water will reduce the intensity and duration of the swelling.

2. Moderate to severe medical emergencies may result from singular or multiple bites. Tolerance to bee stings may vary by individual. If a reaction occurs, the victim should be transported for medical care.

3. Some individuals have become sensitized to these stings and react with a widespread rash, asthmatic breathing, tissue swelling, a fall in blood pressure, and sometimes become unconscious. This is known as anaphylactic shock. Such employees should carry an appropriate prescription and inform supervisors and coworkers of its location and use. This can be an

extreme medical emergency and such individuals should work only within an area providing fairly rapid transport to a medical facility. These individuals should be advised also to wear a Medic-Alert tag or similar device containing information about their sensitivity and emergency phone numbers.

C. **Ticks.** When working in areas infested with ticks:

1. Tuck your pant legs into your socks.

2. Tuck your shirt into your pants.

3. Use a tick repellent on your clothes.

4. Do a body check at the end of each work day, paying particular attention to armpits, navel, behind the ears, and the groin area.

5. At night, place clothing where ticks, spiders, or scorpions cannot get in them. Arrange bedding so insects cannot crawl into it during the day and night.

6. **Tick Removal.** The sooner ticks are removed, the better.

   a. Tweezers work best at removing ticks. If fingers are used, shield them with a piece of paper.

   b. Grasp the tick as close to the skin surface as possible and pull outward with a steady even pressure. **DO NOT** jerk or twist as this may cause the head of the tick to break off in the skin.

   c. Take care not to squeeze, crush, or puncture the body of the tick as this may cause the injection of fluids from the tick to enter the wound.

d. After removing the tick, disinfect the area with alcohol or soap and water. You may want to keep the tick in a small jar for later identification in case you become sick (Lyme Disease).

e. Folklore methods of tick removal: painting the tick with vaseline, fingernail polish, alcohol, or applying a hot match head **DO NOT WORK**.

7. **Lyme Disease.** Ticks carrying Lyme Disease can be found in many parts of the United States. The carriers are deer ticks and can be identified by their small size and color (black and reddish-brown).

a. Ticks must be attached to the skin for 12 to 24 hours in order to transmit the spirochete that causes Lyme Disease, so prompt removal is a safeguard against disease.

b. **Symptoms of Lyme Disease.** Lyme Disease can cause severe health problems if left untreated. Prompt and accurate diagnosis is essential. Symptoms usually develop within a few days to a few weeks after the bite of an infected tick. Symptoms include: headache, stiff neck, fever, muscle ache, flu-like symptoms, and general malaise. In approximately 70 percent of Lyme Disease cases, a “bull’s eye” rash or lesion is exhibited. If these symptoms occur following tick exposure, seek medical attention.

10.5 **Poisonous Snakes.** Snakes tend to be temperature sensitive. At cool to cold temperatures, they are slow and lethargic; at hot temperatures, they are quick, but also uncomfortable and seek cool shelter. On a cool morning, the snake may be sunning on a warm ledge; in the heat of the day, it might be under a rock or brush where it is cool. Be aware, also, of these other characteristics:

Snakes have excellent camouflage, so train your eye to see the correct shapes and colorations.

Don't underestimate the speed and agility of a snake. Rattlesnakes can strike over a distance of about one-half their length and can strike faster than you can jump. Give them a wide margin.

Wear clothing and appropriate boots. Be careful when walking in back country, especially if ground is obscured by foliage. Walk on clear paths as much as possible. Don't step over a large log without looking on the other side first.

Watch where you are putting your feet and hands at all times. Don't pick up rocks or other objects that might conceal a snake. Use a tool to turn the rock over first.

A. **First Aid for Snake Bites.** If medical help can be secured within 1 hour, no first aid measures are necessary.

1. Keep still; avoid panic.

2. Get away from the snake.

3. Apply constricting band, 2-inches wide, above the bite.

4. Immobilize extremity.

5. Do not give aspirin.

6. Remember that not all strikes by rattlesnakes deposit venom. If there is an absence of pain and swelling shortly after the strike, it was probably a "dry bite." In such a case, extraordinary measures are not indicated. "Dry bites" occur about 20 to 25 percent of the time.

10.6 **Cold Injuries.** Hypothermia and frostbite are the two most common types of cold injuries. Frostbite is local cooling. Most commonly affected are the ears, nose, hands, and feet. When a part of the body is exposed to intensely cold air or liquid, blood flow to that particular part is limited by the constriction of blood vessels. When this happens tissues do not receive enough warmth to prevent freezing. Ice crystals can form in the skin. There are three degrees of frostbite.

A. **Types of External Cold Injuries (Frostbite).**

1. **Frostnip** is the first stage of frostbite, brought about by direct contact with a cold object or exposure of a body part to cold air. Wind chill and water chill also can be major factors. This condition is not serious. Frostnip develops slowly, and often a person is not aware of the condition until someone calls attention to it. The affected part blanches, or becomes discolored/pale. As the cooling process continues, numbness replaces any sensation of cold or discomfort.

   a. **Treatment.** A person afflicted with frostnip usually cares for the problem by gently warming the part, holding it in their bare hand, blowing warm air on it, or if fingertips are involved, holding them in the armpits. If for some reason a person is unable to do this for themselves, another person can take the same steps. Transfer a person to a medical facility if it appears the person has suffered more than a mild case of frostnip.

2. **Superficial Frostbite** is commonly called "frostbite." The skin and lower layers of skin become involved. If frostnip goes untreated, it becomes superficial frostbite. The affected part becomes discolored/pale. It will feel frozen to your gentle touch. However, when the skin is

gently pressed, it will feel soft and pliable beneath the frozen area.

a. **Treatment**. Superficial frostbite treatment includes providing dry coverage and gentle handling of the affected part. If transportation to a hospital is delayed, then apply steady warmth by submerging the body part in warm water. The skin turns purple during thawing and can be painful. The person should receive follow-up medical care.

3. **Deep Frostbite** is where the skin, the lower layers, and the deeper structures of the body are affected. Muscles, bones, deep blood vessels, and organ membranes can become frozen. The affected part becomes a mottled or blotchy blue or gray. The tissue feels frozen to the touch, without the underlying resilience that is characteristic of superficial frostbite.

a. **Treatment.** The emergency care for deep frostbite is for the person to be transported for immediate hospital care. Dry clothing over frostbite will help prevent further injury. The frostbitten part should not be rubbed. Do not apply ointment or cover frostbitten parts with snow. If the tissue is frozen, keep it frozen until care can be initiated. Also, never initiate thawing procedures if there is any danger of refreezing—keeping the tissue frozen is less dangerous than submitting it to refreezing. If blisters appear, do not open them.

B. **Types of Internal Cold Injuries (Hypothermia).** Hypothermia is caused by exposure to cold. It is a condition that occurs when inner body temperature drops to a subnormal level. It impairs a person's ability to think and act rationally and can cause death. It is accelerated by wet or damp clothing, wind, exhaustion, or sudden contact with cold water.

1. **Detection of Hypothermia.** Watch for symptoms of hypothermia in yourself and others whenever outdoors. The following are symptoms of hypothermia:

   a. Uncontrollable spells of shivering or continuous shivering over a long period of time.

   b. Slurred or slow speech, incoherent and vague statements.

   c. Memory lapses.

   d. Fumbling hands, frequent stumbling, lurching gait.

   e. Drowsiness.

   f. Exhaustion, inability to get up after a rest.

2. **Treatment.** Move the victim of hypothermia to shelter and warmth as quickly as possible. If shelter is not readily available, immediately build a fire to warm the person. Prevent further heat loss.

   a. Handle the person with care and prevent them from walking around.

   b. If the person is only mildly impaired, give warm drinks (do not give alcohol) and get them into dry clothes and a warm sleeping bag.

   c. If the person is semiconscious or worse, try to keep them awake. Get the person stripped from their clothing and put them in a sleeping bag with another person, also stripped, allowing the body heat to warm the victim.

   d. Transport the person to the nearest medical facility. Transport them gently and keep them lying down, as still as possible.

e. Do not ever assume that a person suffering from severe hypothermia is dead, even though they appear to be. There may be no detect able heartbeat, breathing, or any other sign of life. CPR can be given enroute to a hospital.

3. **Prevention.** The best defense against hypothermia is to avoid exposure. Recognize hypothermia-producing weather and dress for it. Choose clothing that will keep the body dry and warm. Check weather conditions and be familiar with the area before trips. Prepare and pack a survival kit to be carried by each person.

10.7 **Heat-Related Injuries.** The body's chemical activities take place in a limited temperature range. They cannot occur with the efficiency needed for life if the body temperature is too high or too low. Heat is generated as a result of the constant chemical processes within the body. A certain amount of this heat is required to maintain normal body temperature. Any heat that is not needed for temperature maintenance must be lost from the body or hyperthermia, an abnormally high body temperature, will be created. If allowed to go unchecked, this will lead to death.

A. **Heat Cramps** are severe muscle cramps, usually in the legs or abdomen, brought about by dehydration and exhaustion and sometimes accompanied by dizziness and periods of faintness.

1. **Treatment.** Move person to a nearby cool place. Give person water to drink, or half-strength commercial electrolyte fluids. Massage the "cramped" muscle to help ease the person's discomfort.

B. **Heat Exhaustion** displays rapid and shallow breathing, weak pulse, cold and clammy skin, heavy perspiration, total body weakness, and dizziness that sometimes leads to unconsciousness.

1. **Treatment.** Move the person to a nearby cool place. Keep the person at rest. Remove enough clothing to cool the person without chilling him (watch for shivering). Fan the person's skin. Give the person salted water or half-strength commercial electrolyte fluids. Do not try to give fluids to an unconscious person. This person needs to be treated at a medical facility.

C. **Heat Stroke** starts out with deep breaths, then shallow breathing; rapid, strong pulse, then rapid weak pulse; dry, hot skin; may have loss of consciousness; seizures or muscular twitching may be seen.

1. **Treatment.** Cool the person in any manner rapidly. Move the patient out of the sun or away from the heat source. Remove the person's clothing and wrap him in wet towels and sheets. Pour cold water over these wrappings. Body heat must be lowered rapidly or brain cells will die.

a. If cold packs or ice bags are available, wrap them and place under patient's armpits, behind each knee, on the groin, on each wrist and ankle, and on each side of the person's neck.

b. Transport to a hospital as soon as possible. Should transport be delayed, immerse the person up to the face in a tub or container of cool (not cold) water. Constantly watch the person so they do not drown. This is a life-threatening, heat-related emergency. CPR may need to be given.

2. **Prevention.** Reduce activity level immediately and seek a cooler environment. Stay in the shade. Keep food (especially proteins) intake to

a minimum if sufficient water is not available since protein increases metabolic heat production and water loss.

a. Keep clothing on, including shirt and hat. Clothing slows the evaporation rate of perspiration and prolongs the cooling effect, in addition to giving protection from the sun.

b. Drink water to prevent dehydration.

c. Do not sit or lie on the hot ground. It can be up to 30 degrees hotter on the ground than just 1 foot above the ground. To avoid skin burns, avoid sitting on metal surfaces unless material is placed between skin and place of contact.

d. If foot travel is unavoidable, walk only at night and rest often.

10.8 **Lightning Strike Injuries.** The passage of electricity through the body can either burn tissues or only cause muscle spasms or contractions. Vital nerve centers may be blocked causing the heart or breathing to stop. Immediate revival should be attempted using appropriate artificial respiration and cardiac massage (CPR) techniques. Be assured, however, that a lightning shock victim can be touched without any risk of shock to you.

10.9 **Altitude Related Problems (above 8,000 feet).** Most difficulties at high altitude are a direct result of the lowered concentration of oxygen in the atmosphere. High-altitude pulmonary edema (excessive fluid in the lungs) usually occurs in the unacclimatized individual who rapidly ascends to an altitude that exceeds 8,000 feet, particularly if heavy exertion is involved. Symptoms include shortness of breath, coughing up white phlegm, weakness, easy fatigue, rapid heart rate (greater than 90 to 100 beats per minute at a rest), nausea, vomiting, headache, insomnia, and acidic taste in mouth.

A. The definitive treatments are descent to a lower altitude at which there were previously no symptoms and the administration of oxygen, if available, by mask at 10 liters per minute. Do not take sleeping pills, alcohol, or smoke cigarettes. Stop strenuous activity.

10.10 **Bloodborne Pathogens.** BLM must comply with OSHA standard 29 CFR 1910.1030. This standard establishes exposure determination, exposure control plan, engineering controls and safe work practices, personal protective equipment (PPE), housekeeping, training requirements, Hepatitis B vaccinations, and post-incident exposure requirements for employees with occupational exposure to blood and other fluids.

A. **Scope.** This standard covers all employees who could, as the result of performing their job duties, be reasonably expected to come in contact with blood, or any body fluid visibly contaminated with blood, and **all** body fluids in situations where it is difficult or impossibleto differentiate between body fluids.

B. **Exposure Determination.** BLM shall identify those employees and job classifications with occupational exposure to bloodborne pathogens, without regard to use of PPE.

C. **Exposure Control Plan.** Where employees are identified as having occupational exposure, a written Exposure Control Plan shall be established to eliminate or minimize employee exposure. The plan shall include:

1. **Housekeeping and Work Practice Controls.** The employer shall provide antiseptic hand cleaner and/or towelettes, as well as paper towels, where handwashing facilities are not available. Equipment that may be contaminated with blood or other potentially infectious material shall be decontaminated. The contaminated equipment must be labeled. Procedures must be

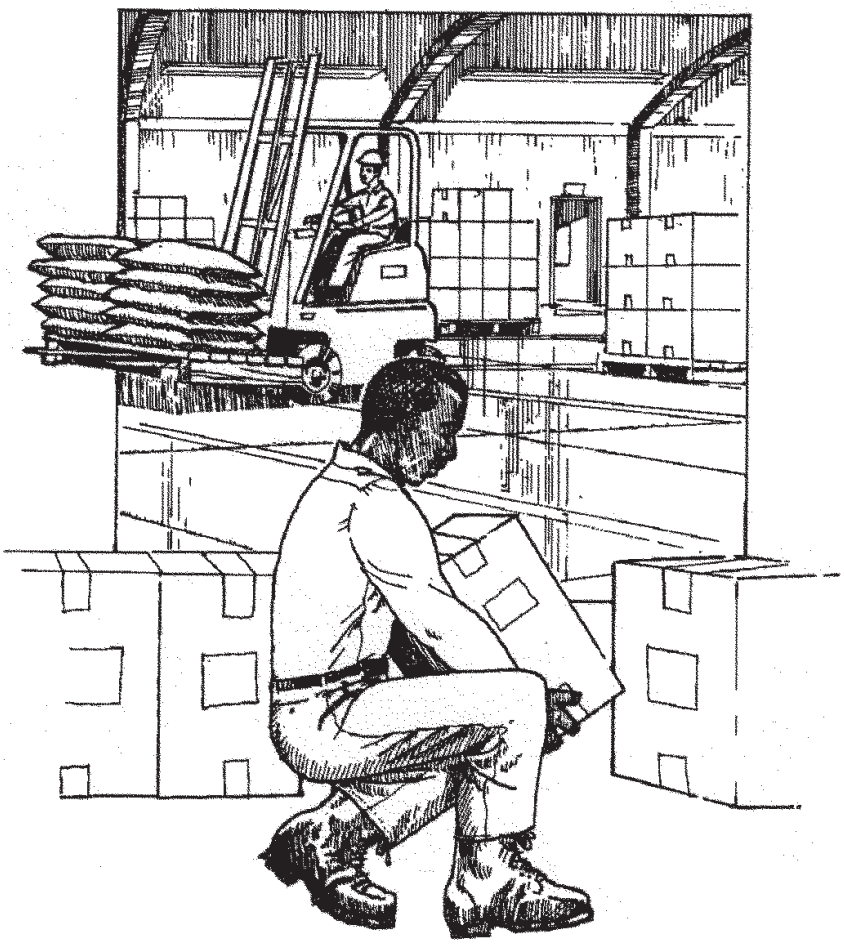
developed for handling sharps (e.g., needles, glass, etc.), prohibition of eating, drinking, smoking, etc., in work areas.

2. **Personal Protective Equipment.** The employer shall provide at no cost to the employee, appropriate PPE (e.g., gloves, CPR face shields, bag type resuscitators, etc.). The employee shall use the protective equipment when deemed necessary. Disposable masks, gloves, etc. shall not be washed or decontaminated for reuse.

3. **Training.** Training must be provided for all employees whose job puts them at risk for an occupational exposure. Training must be provided initially, upon assignment, and cover the major elements of the bloodborne pathogens regulation.

4. **Hepatitis B Vaccination.** This vaccination shall be made available to all employees, at no cost, who have the potential for occupational exposure to blood or other potentially infectious material. The vaccine should be administered within 10 working days of assignment. Employees **must** sign a declination form if they choose not to be vaccinated. The employee may later opt to receive the vaccine at no cost.

D. **Post-Exposure Incident Evaluation.** This evaluation will address medical evaluation for exposed employees and incident evaluation to ensure corrective measures are taken and source testing is conducted.



TOPIC 11

MATERIALS HANDLING AND STORAGE

11.1 **References.**

A. **OSHA Standards.**

29 CFR 1910.132 Personal Protective Equipment.
29 CFR 1910.176 Handling Materials - General.
29 CFR 1926.250 Materials Handling, Storage, Use and Disposal.
29 CFR 1926.550 Cranes and Derricks, Helicopter, Hoists, Conveyors, etc.

29 CFR 1926.602 Material Handling Equipment.
29 CFR 1926.953 Materials Handling.
29 CFR 1926.1000 ROPS, Protective Frames, Enclosures, etc., on Vehicles.

11.2 **Procedures.** Observe established procedures and precautions when lifting, carrying, or otherwise handling heavy loads. Remember that weight, shape, and size of object determine limits of safe handling. Don't overexert. If help is needed, get it. Use required personal protective equipment (PPE).

A. **Lifting Heavy Loads.**

1. Inspect ground or floor area immediately around object.

2. Inspect route of travel for clearance and tripping hazards.

3. Examine object to determine safest way to handle. Check for snags, burrs, splinters, greasy surfaces, etc.

4. Wear protective gloves and safety shoes.

B. **Lifting in a Proper Manner.**

1. Make a trial lift to be sure load can be handled safely.

2. Stand close to object, with feet solid and slightly apart.

3. Assume a crouching position close to load. Bend legs at knee.

4. Keep back as straight as possible without arching. Leg and arm muscles should do the work.

5. Secure a firm grip on object. Lift by straightening legs.

6. To shift the load to shoulder height or higher, bend knees. Rest object on a bench or ledge. Shift hands and boost.

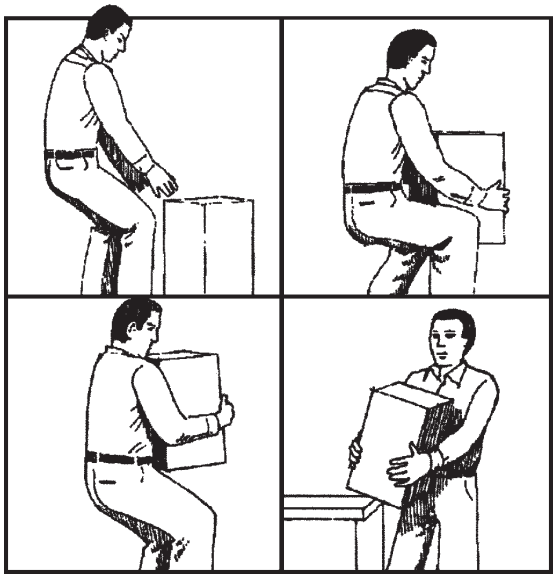
7. Don't twist. Shift feet to turn body.

8. Make allowances for fatiguing effects of stairs and ramps.

9. Use precautions to avoid bruising or crushing hands and arms in narrow passageways.

10. Lower object in same manner in which it was raised in reverse order. Take necessary precautions to keep fingers clear when placing object.

Illustration 11-1



C. **When Two or More Persons Lift.**

1. Select persons of similar size and strength.

2. Station one person at rear to give predetermined signals or orders.

3. Carry long objects such as ladders, pipes, and lumber on shoulders on same side. Walk in step.

4. Handle packaged articles in boxes by grasping them at opposite top and bottom corners. Grasp sacked material by opposite corners.

5. Upending full drums is a two-person job. When rolling a drum, push hands on center of the barrel. Snub drums with safety ropes or other tackle on inclines or skids.

6. Provide help for handling odd-shaped objects if combination of irregularities and weight makes them hazardous for one person.

D. **Equipment.**

1. Provide a wide range of tools, fixtures, jigs, hooks, crowbars, cribbing, rollers, blocks and tackle, slings, jacks, chain hoists, hand trucks, dollies, etc., for safe handling of materials and equipment.

2. Provide appropriate hand protection.

3. Inspect all tools and equipment frequently to assure safe operating conditions.

4. Use bolted-down tool boxes to carry loose tools in vehicles. Fasten other materials securely so they don't shift, strike occupants in case of a vehicle accident, or drop out of vehicles.

11.3 **Powered Industrial Trucks and Tractors (Forklifts, etc.).** Each operator is responsible for the safe and careful handling of the equipment. Operators shall be qualified and authorized to operate such equipment and the authorization shall be noted on individual training records. Equipment and operators shall be in compliance with OSHA 1910.178 and ANSI B56.1-1969.

A. **Minimum Forklift Operation Requirements.**

1. Falling Object Protective Structures (FOPS).

2. Backup alarm.

3. Capacity decal.

4. No passenger on lift.

5. No passengers on pallets.

6. Initial training and documentation.

B. **Basic Safety Rules for Operating Forklifts.**

1. Before operating, check brakes, steering, horn, gas, oil, and water levels. Irregularities should be reported to supervisor.

2. Do not exceed the truck's rated capacity or the floor load limits. Take a good look at the load before picking it up. Consider its weight and balance. If load appears unsafe, split load or use other equipment.

3. Pick up load squarely and do not make quick or jerky starts and stops.

4. Never "butt" the loads with the forks or the rear end of a truck.

5. Always face the direction the truck is moving and maintain clear vision of the way ahead.

6. Keep arms and legs inside truck. Do not put them between the mast's uprights nor outside the running lines of the truck.

7. Passengers are prohibited on forklifts and forklift loads.

8. If following other trucks, maintain safe distance.

9. On wet or slippery floors, slow down. Use low gear when descending ramps.

10. Be sure the wheels of highway trucks and trailers at loading docks are chocked.

11. Make certain that bridge plates into trucks are wide enough, strong, and secured.

12. Don't cut corners. Before passing a doorway or turning a blind corner, slow down and sound horn.

13. When entering main aisles, intersections, or roadways, come to a full stop; look and sound horn.

14. Watch out for pedestrians.

15. Carry the loads of high-lift trucks 6 inches off the floor and tilted backward for better stability.

16. Always travel forward up ramps and in reverse down ramps.

17. When unloaded, keep the forks of high-lift trucks near the floor when traveling to prevent damage or injury.

18. Be careful in elevating loads. Watch out for overhead and wall obstructions, fire extinguishers, sprinklers, pipes, electrical conduits, switches, etc.

19. Use extreme caution in high tiering.

20. Do not use the fork of a high-lift truck as a personnel elevator, unless a safety platform is attached to the forks.

21. Lower loads slowly and stop gently. Never lift or lower when truck is in motion.

22. Park safely, without obstructing aisles. Before leaving a gas or diesel truck, turn off the engine.

23. Stop the engine when refueling.

24. Lock the truck or remove control handle when not in service.

25. Observe fire prevention rules. Equip industrial trucks with a fire extinguisher, and ensure that drivers know how to operate it.

26. Use gas, diesel, or propane-fueled equipment in well-ventilated areas.

27. Forklift battery management:

    (a) Always wear the proper PPE when changing the battery.

    (b) Be aware of the nearest eyewash or shower station.

(c) Shut off the engine.

(d) Do not smoke or have an open flame in the battery changing area.

(e) Make sure the brake is set on the forklift before changing the battery.

(f) Make sure the battery lifting device is secure before lifting it.

(g) Stand clear when moving the battery.

(h) Make sure that the ventilation system is working properly before charging a battery.

(i) Always add battery acid to water—never add water to battery acid.

(j) If charging the battery on the forklift, uncover the battery compartment to prevent the build-up of heat and hydrogen gas.

(k) Make sure that metal objects do not come in contact with the terminals on the battery.

(l) Make sure the charger is off before connecting it to the battery.

(m) Make sure the vent caps are not plugged.

(n) Ensure charger is properly connected to battery before plugging into electrical outlet.

11.4 **Storage Yards.** Use a level, well-drained wareyard for storing materials, vehicles, equipment, etc. Storage yard should be fenced in with an 8-foot high, vandal-proof fence.

A. Provide adequate roadways and walkways for safe movement of personnel, trucks, lifts, and cranes, etc.

B. Keep storage yards free of surplus material and obsolete equipment that clutter the area.

C. Provide and maintain approved types of fire extinguishers in storage yards.

D. Provide 5- to 8-foot corridors both inside and outside of perimeter fence to facilitate fire control and reduce rodents and snakes.

E. Keep storage area free of vegetation, debris, and rubbish.

F. Use cribbing to prevent direct contact with the ground. Dunnage may stop bottom ventilation.

G. Use tarpaulins to protect materials subject to weather and sun damage.

H. Arrange heavy pieces and palletized material in a manner that will allow for mechanical handling.

I. Block or nest round objects to prevent roll. If drums and kegs are piled on end, use planks between layers.

J. Stack piles of lumber. Make the height of the pile no greater than the width.

K. Use cross binding and stepback methods when storing bagged material and masonry products.

L. Store reinforcing steel and small-diameter pipe on racks. Make permanent separations to prevent pulling from the pile.

M. Provide loading docks and hand trucks for moving heavy and bulky items.

N. Label all barrels as to their contents and properly dispose of unneeded barrels.

O. Sign flammable storage areas as “No Smoking” areas.

P. Ensure that surface of storage yard is protected from contamination by stored liquid materials.

11.5 **Warehouse Storage.** Store materials at safe distances from heating devices such as stoves, steam pipes, heating ducts, and radiators. Store materials in separate areas, according to the degree of hazard. **DO NOT** defeat the effectiveness of fire sprinklers by placing stored materials within the restricted distances (18 inch clear space) established by NFPA.

A. Provide adequate aisle space for handling heavy or bulky bounded, stacked, or racked materials. Plainly define aisles and passageways. Keep them free of obstacles and other materials.

B. Plan storage to permit safe lifting and handling and prevent toppling. Don’t load storage bins beyond safe capacity.

C. Keep tops of storage bins, racks, and cabinets free of material.

D. Provide racks designed to hold stock of pipes and bars.

E. Don’t allow stored materials to exceed safe floor loads. Keep floors clean and in good repair.

F. Keep areas around warehouses and other buildings free of dry grass, vegetation, and debris. Take adequate fire prevention measures to prevent loss or damage of stored materials.

G. Provide metal containers with tight-fitting covers for disposing of waste packing materials and rubbish. Never permit large amounts of waste material to accumulate in warehouse.

H. Provide adequate illumination for storage and warehouse operations. (See 29 CFR 1926.56.)

I. Store compressed gas cylinders in cool, dry, well-ventilated places. Close valves tightly. Keep protective caps in place. Place cylinders upright and fasten securely. Store cylinders compatibly. (For example, oxygen and acetylene must be stored separately.) Separate full and empty cylinders. See Illustration 11-2 for more information on compressed gas cylinders.

J. Store corrosive and toxic liquids in a cool, dry, well-ventilated, isolated place, with concrete floors treated to reduce solubility.

K. Segregate flammable materials or supplies from other items. Store flammable liquids, paints, oils, etc., in approved containers equipped with tightfitting closures. Use metal storage cabinets and safety containers for even small quantities of flammable liquids.

L. Provide good ventilation in buildings where flammable liquids are stored. Where mechanical ventilation, heating, lighting, or exhaust systems are necessary, install them in accordance with electrical and fire code requirements.

M. Prohibit smoking in areas in which flammable liquids are stored or handled. Post “No Smoking” signs in these areas. Be sure this rule is strictly observed. Don’t store empty drums that have contained low flash point products (e.g., gasoline, acetone, alcohol, etc.) inside buildings.

11.6 **Storage and Handling of Hazardous Materials.**

A. **OSHA Standards.**

29 CFR Subpart H	Hazardous Materials.
29 CFR 1910.101	Compressed Gases (General Requirements).

Illustration 11-2

THE SLEEPING GIANT

I AM A HIGH PRESSURE, COMPRESSED GAS CYLINDER

I stand 57 inches tall.

I am 9 inches in diameter.

I weigh in at 155 pounds when filled.

I am pressurized at 2,200 pounds per square inch (psi).

I have a wall thickness of about .25 inch.

I wear a regulator and hose when at work.

I wear a label to identify the gas I'm holding. My color is not the answer.

I transform miscellaneous stacks of material into glistening ships and many other things — when properly used.

I may transform glistening ships and many other things into miscellaneous stacks of material — when allowed to unleash my fury unchecked.

I can be ruthless and deadly in the hands of the careless or uninformed.

I am too frequently left standing alone on my small base without other visible means of support — my cap removed and lost by an unthinking workman.

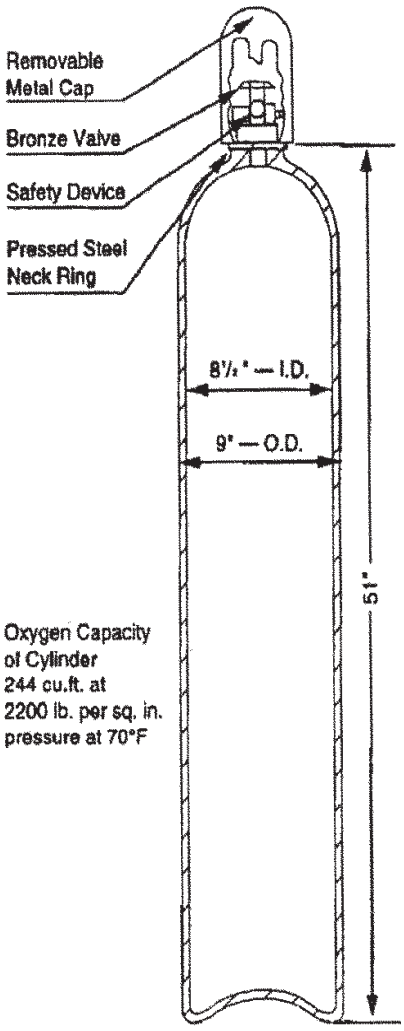
I am ready to be toppled over — when my naked valve can be damaged or even snapped off — and all of my power unleashed through an opening no larger than a lead pencil.

I am proud of my capabilities — here are a few of them:

— I have on rare occasions been known to jetaway — faster than any dragster.
— I might smash my way through brick walls.
— I might even fly through the air.
— I may spin, ricochet, crash and slash through any thing in my path.

You can be my master only under these terms:

— Full or empty — see to it that my cap is on, straight and snug.
— Never — repeat — never leave me standing alone. Secure me so that I cannot fall.



29 CFR 1910.102	Acetylene.
29 CFR 1910.103	Hydrogen.
29 CFR 1910.104	Oxygen.
29 CFR 1910.105	Nitrous Oxide.
29 CFR 1910.106	Flammable and Combustible Liquids.
29 CFR 1910.107	Spray Finishing Using Flammable and Combustible Liquids.
29 CFR 1910.108	Dip Tanks Containing Flammable or Combustible Liquids.
29 CFR 1910.109	Explosives and Blasting Agents.
29 CFR 1910.110	Storage and Handling of Liquefied Petroleum Gases.
29 CFR 1910.111	Storage and Handling of Anhydrous Ammonia.

B. **Flammable and Combustible Liquids.** Flammable liquids are those that give off flammable or explosive vapors at or below 100°F (37.8C).

1. Flammable liquids (Class I) have a flashpoint below 100°F, such as:

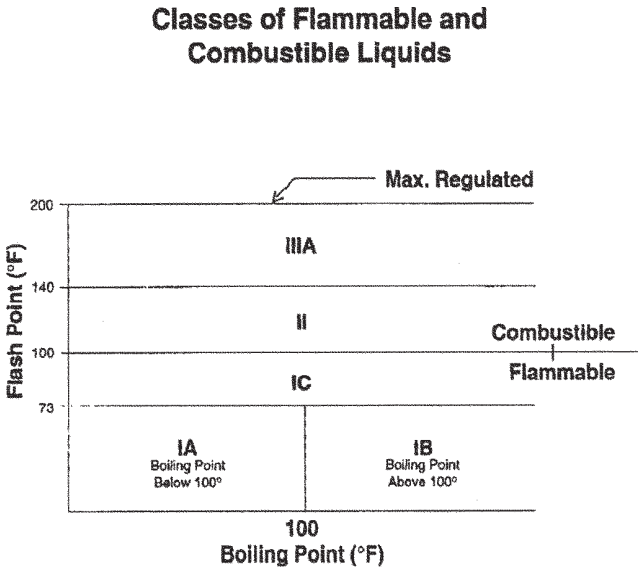
Gasoline	49
Acetone	0
Lacquer	0 to 80
Shellac	40
Ether	45
Alcohol	52 to 91
Varnish	80 or less
Turpentine	95

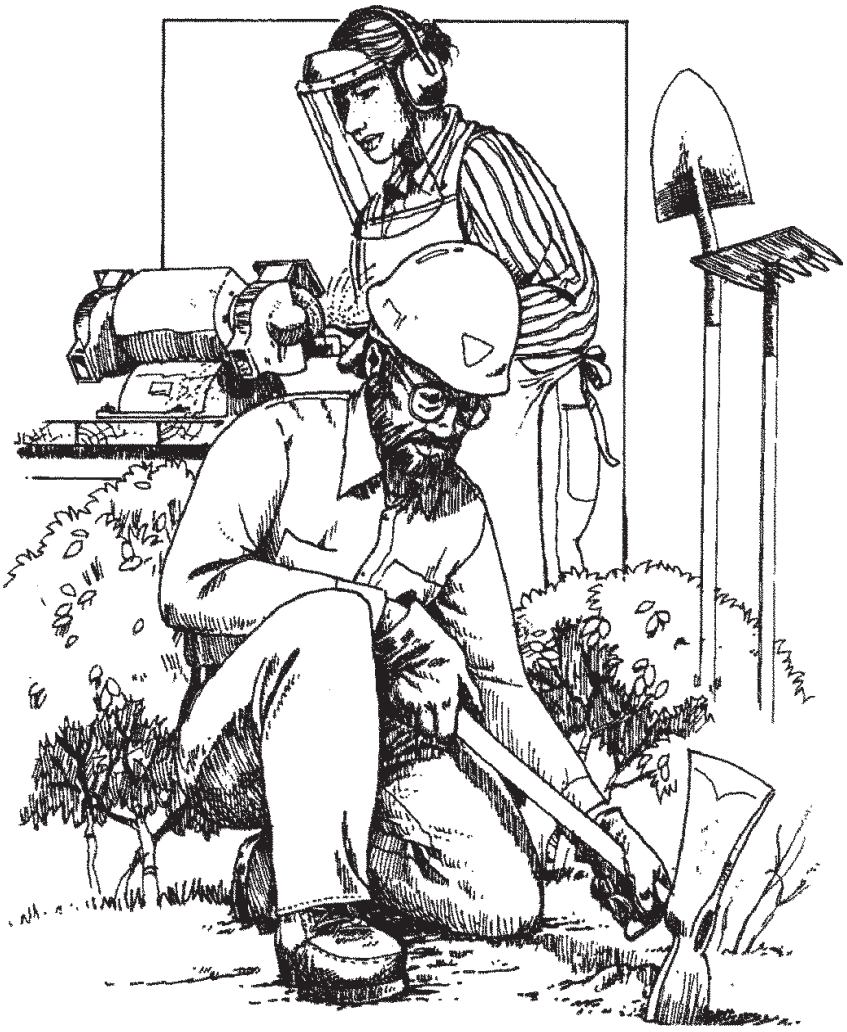
2. Combustible liquids (Class II) that have flashpoints above 100°F and below 200°F include:

Diesel Fuel	100
Kerosene	150+
Stoddard Solvent	100+
Penetrating Oil	100+

3. Class III Liquids are those combustible liquids with flashpoints at or above 140°F, such as creosote oil, which is 165°F. See Illustration 11-3.

Illustration 11-3





TOPIC 12
MACHINES AND TOOLS

12.1 **References.**

29 CFR 1910.211 Definitions.
29 CFR 1910.212 General Requirements.
29 CFR 1910.213 Woodworking Machinery Requirements.
29 CFR 1910.215 Abrasive Wheel Machinery.
29 CFR 1910.219 Mechanical Power-Transmission Apparatus.
29 CFR 1910.241 Definitions.
29 CFR 1910.242 Hand and Portable Powered Tools Equipment - General.
29 CFR 1910.243 Guarding of Portable Power Tools.
29 CFR 1910.244 Other Portable Tools and Equipment.
29 CFR 1910.252 Welding, Cutting, and Brazing.
29 CFR 1926.300 General Requirements.
29 CFR 1926.301 Hand Tools.
29 CFR 1926.302 Power-Operated Hand Tools.
29 CFR 1926.303 Abrasive Wheels and Tools.
29 CFR 1926.304 Woodworking Tools.
29 CFR 1926.305 Jacks.
29 CFR 1926.350 Gas Welding and Cutting.
29 CFR 1926.351 Arc Welding and Cutting.
29 CFR 1926.352 Fire Prevention.
29 CFR 1926.353 Ventilation and Protection.
29 CFR 1910.268 Telecommunications.

12.2 **Procedures.** Machines and tools shall be properly maintained, operated, stored, and inspected.

12.3 **Portable Hand Tools.**

A. **Chopping Tools (Axe, Pulaski, Hoedad, etc.).**

1. Use the right tool for the job. Keep it well sharpened with a splinter-free handle and a tight head.

2. Treat the ends of axe handles and other swinging tools to prevent slippage. Inspect wedges for tightness.

3. When swinging an axe or similar tool, place feet firmly and shoulder-width apart. Grip handle near the end. Make sure there is ample clearance from objects and persons near the swing arc. Always chop away from feet, legs, and body. Guard against loss of grip or control of tool if a glancing blow is struck against the target object.

4. Sheath all chopping tools when not in use. Never leave an axe or similar tool in normal path of movement or sticking in a tree or stump.

5. Observe safe spacing between crew members carrying sharp or pointed tools. Travel on foot in single file. Sheath tools and hand carry on the downhill side, but do not carry on shoulder. Keep other hand free. If tripping, slipping, or falling, throw the tool to the downhill side. Use both hands to regain balance or break fall.

6. Be watchful of the force released by cutting a sapling that is being held in a bowed position by adjacent trees or brush.

7. Maintain 15-foot intervals between workers using tools.

8. Allow overhead clearance when using a brush cutting tool. Use the proper hand hold. Keep body well braced and balanced. Make each stroke productive.

B. **Chipping Tools.** Protect eyes from flying particles. Use screens to protect other persons from flying chips. Use tool holders when holding chisels or drills.

C. **Wrenches.** Place the wrench on the nut so that pull on the handle tends to force the jaws further onto the nut. Make sure you have a good footing before applying force to the wrench. Pull—don't push—the wrench when turning the nuts.

D. **Screwdrivers.** Never use a screwdriver as a chisel. Don't carry a screwdriver loose in pockets. Use a screwdriver with an insulated handle and shaft for all electrical work.

E. **Hammers.** Select hammers with secure heads that are of suitable type, weight, and have a proper handle length for the job to be done. Allow sufficient working space.

F. **Picks.** Use picks with handles that are free from splinters and securely fastened to the head. When swinging a pick, make sure that you have overhead and side clearance.

G. **Files.** Fit files with substantial handles and guards. Never use a file as a pry. Keep files clean to reduce slipping. Protect hands with proper gloves when filing sharp objects.

H. **Handsaws.** Keep handsaws properly sharpened. Use the thumb to guide the handsaw in starting a cut. Use teeth guards when carrying a crosscut or rip saw.

I. **Air Tools.**

1. Wear specified personal protective equipment (PPE) when operating air tools, e.g., ear plugs, protective shoes, respirator, gloves, etc.

2. Do not use air tools unless the replaceable bit or jack set is retained by a fixture on the tool. Inspect retainers daily for cracks.

3. Air hose couplings must have safety chains to prevent whipping loose if coupling fails.

4. Place line oilers so that oil cannot drain back into the air tank.

5. Release pressure before connections are broken; do not kink hose.

6. Make sure no one is in line of air flow. Never aim an air hose at anyone.

7. If the tool becomes detached from air hose under pressure, turn air off at the base control valve before air is turned on. Keep it closed until hammer is ready to use.

8. Never use pressurized air to blow dust or chips from hair or clothing.

J. **Chainsaws.** Follow manufacturers' operating and safety instructions. Training and PPE are required for chainsaw operators. Required PPE for chainsaw operators are chaps, ear, eye, face, head, foot, and hand protection. Other required equipment includes wedges and a single bit axe.

1. Stop and place the blade vertically before carrying a saw. The chain must be guarded. Carry saw on downhill side with blade to rear. Secure saw when transporting it in a vehicle.

2. Stop the engine and cool for about 5 minutes before refueling. Fill the fuel tank on bare ground. Wipe spilled fuel off the engine. Start saw at least 10 feet away from refueling area. Do not smoke while fueling or while saw is running.

3. Safe chainsaw starting techniques will be established and followed, always keeping the saw away from the body. Keep coworkers away from chainsaw starting and operation.

4. Stop engine for cleaning, adjustments, or repair.

5. Fuel tanks shall be purged prior to storage.

12.4 **Portable Electric Tools.**

A. Inspect and test all power tools regularly and maintain in good condition. Establish a definite schedule for inspection, testing, maintenance, and repairs. All electric tools must be three-wire grounded, and fault-interrupter protected, or double insulated.

B. Regularly test and maintain three-wire ground systems supplying electric power tools.

C. Use only electric cords and plugs in good condition. Make sure tool cords do not become tripping hazards. Protect tool cords against insulation damage during use. Unplug tools when not in use.

D. Do not operate power tools without training and authorization.

E. Do not operate portable electric tools where flammable vapors or gases are present or in wet areas.

F. All portable electric circular saws must have automatic guards that completely cover the cutting edges when saw is not in use. Do not use cracked, bent, dull, or damaged blades.

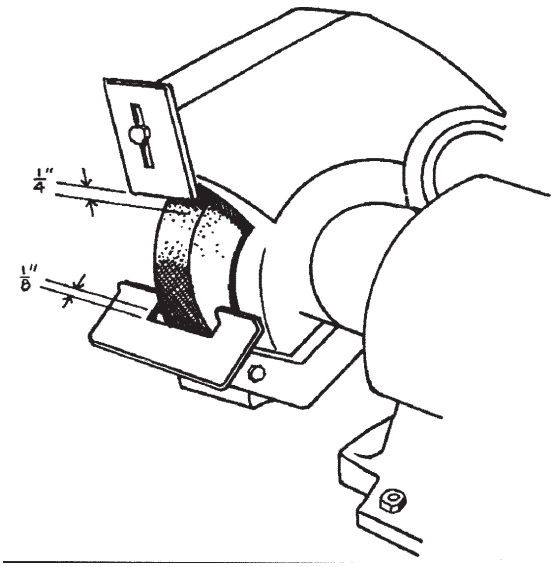
G. Drill-chuck wrenches must be eject type. Unplug the tool when changing bits or accessories. Anchor any material being drilled.

H. Keep portable grinder guards in place. Tool rest must be 1/8 inch away from stone and tongue guard 1/4 inch away (see Illustration 12-1).

I. Inspect motor-driven grinding stones at least weekly for cracks. Discard defective stones.

J. Keep stones free from oil and properly dressed.

Illustration 12-1



12.5 **Radio Equipment.** AC powered radio equipment cabinets must be locked, and keys must be available only to radio technicians or personnel specially in structed and authorized.

A. Never use any radio or extend any antenna on a portable set if a lightning storm is within 1 mile.

B. Do not use radio transmitter within 300 feet of any electric blasting or any area where electric detonators are handled or stored.

C. Provide whip antennas with safety knobs, closed loops, or other protective devices to prevent injury when not extended.

D. Only those qualified and trained may climb high structures. Wear appropriate PPE (e.g., safety belt, harness, etc.) when climbing high structures. Do not work on energized antennas.

12.6 **Fixed Machines.**

A. **Woodworking and Metalworking.** Only qualified and authorized personnel may operate shop equipment. Personnel must not wear loose clothing, ties, jewelry, or have loose hair that may catch in moving machinery. Required PPE must be used.

1. Machines will be located to ensure adequate space for movement of the operator and handling of stock. Safety zones must be marked around each machine. Machine switches must be within immediate reach of the operator.

2. Floor and work areas must be kept free of sawdust, scrap, and excess material.

3. Machines designed for a fixed location shall be anchored.

4. Machines must be shut down and locked in accordance with lockout/tagout requirements before repairs are made by authorized and experienced persons only.

5. Machines that are operating must be attended at all times.

6. No machines may be operated unless required guards are in place and functional.

12.7 **Compressors.** All tanks must be in compliance with the American Society of Mechanical Engineers (ASME) standard and conform with State laws.

A. Make thorough monthly inspections for leaks and signs of corrosion on surfaces. Replace any worn parts and remove corrosion.

B. Don’t replace the brass fusible plug with an ordinary pipe plug.

C. Clean or replace air filters as needed.

D. Assure that all pressure tanks or lines have safety valves, air-pressure gauges, and a drain cock at the lowest point on the tank that is opened at least monthly to drain the condensation.

12.8 **Welding and Cutting.** Allow only qualified welders, mechanics, machinists, or specially qualified personnel to use welding equipment.

A. Welders shall wear appropriate PPE.

B. Confine welding activities to well-ventilated areas and away from flammable and combustible materials.

C. Keep sparks and flames away from cylinders and hose lines. All flammable or explosive material in the areas of welding operations must be removed.

D. Keep the correct type of fire extinguishing equipment easily accessible at all times during welding operation.

E. Before cutting into tanks or drums, determine the present or previous contents. Drain, steam clean, and thor oughly dry if they held oil, gasoline, or other highly flammable fluids. Fill with water up to point to be welded. Leave an opening for steam generated during welding to escape.

F. Use a respirator or point of operation exhaust ventilation when welding on metals coated with paint containing lead or zinc or when welding brass because fumes from this are toxic. Adequate exhaust systems must be provided to assure removal of injurious fumes and gases. If respirator is used, ensure that it is appropriately matched to the toxicity types and levels being generated, as well as meeting all respiratory requirements in 7.3.

G. Inspect hose lines and/or power cables frequently. Replace or repair damaged items.

H. Curtains or screens must be used around all welding locations.

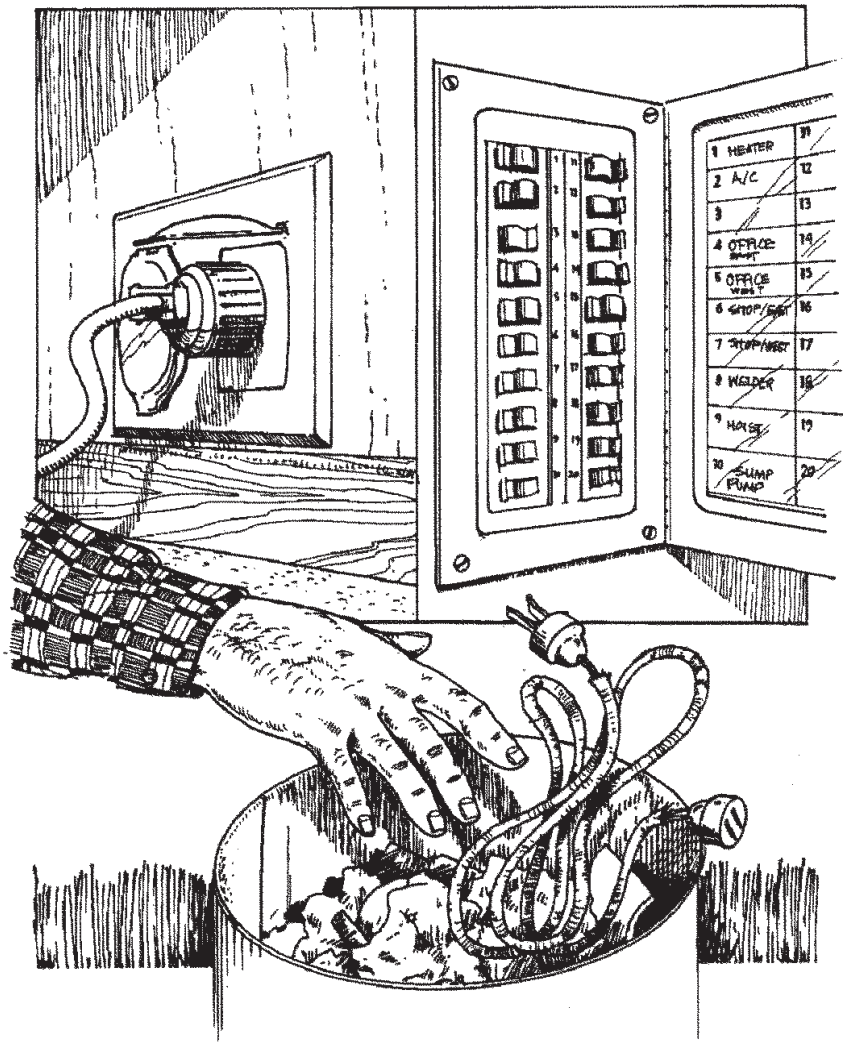
12.9 **Spray Painting.** Where spray painting operations are regularly performed indoors, painting must be done in specially constructed, isolated, fire-resistant areas with approved electrical equipment. All motors, fixtures, switches, and electrical devices must be explosion-proof. All sources of ignition must be eliminated and spray booths are to be fitted with sprinkler heads in accordance with NFPA requirements.

A. Only qualified and authorized personnel may operate painting equipment.

B. Painting areas must have adequate ventilation to remove flammable and toxic substances. Respirators must be worn when spray painting.

C. Smoking is expressly prohibited. Fire extinguisher of the correct type and size must be available.

D. All paint with a flammable warning label must be stored and mixed in an approved flammable liquid storage cabinet or flammable storage shed.



TOPIC 13

ELECTRICAL SYSTEMS AND EQUIPMENT

13.1 **References.**

A. The National Electric Code.

B. National Fire Protection Association (NFPA 70).

C. OSHA Standards. Subpart S - Electrical.

29 CFR 1910.147 Control of Hazardous Energy (Lockout/Tagout).
29 CFR 1910.211 Definitions.
29 CFR 1910.212 General Requirements.
29 CFR 1910.213 Woodworking Machinery Requirements.
29 CFR 1910.215 Abrasive Wheel Machinery.
29 CFR 1910.219 Mechanical Power-Transmission Apparatus.
29 CFR 1910.241 Definitions.
29 CFR 1910.242 Hand and Portable Powered Tools Equipment - General.
29 CFR 1910.243 Guarding of Portable Power Tools.
29 CFR 1910.244 Other Portable Tools and Equipment.
29 CFR 1910.252 Welding, Cutting, and Brazing.
29 CFR 1910.334 Use of Equipment

13.2 **Procedures.** Only trained and qualified personnel are to operate electrical devices in accordance with manufacturers' instructions applicable to the device. Supervisors are to ensure that all equipment (devices) identified as not meeting specifications contained in 29 CFR 1910 and the National Electric Code are properly tagged and removed from use.

13.3 **Inspections of Electrical Equipment.** Inspections of portable electrical devices shall be conducted prior to use, to include: inspection of the service cord and plug; inspection of the case for cracks, corrosion, and loose or missing parts; inspection of on/off switches and "dead man" switches; inspection of guards over blades and rotating/reciprocating parts; and inspection of electrical filter assemblies.

13.4 **Other Electrical Appliances and Equipment.** Electrical appliances and equipment are defined as coffee pots, computer systems, fans, radios, clocks, typewriters, and other equipment not normally moved from one location to another. Only equipment listed by Underwriters Laboratories (UL) or other recognized certifying authority are allowed in the work space and shall be used only for their intended purpose. They shall be energized only through approved electrical outlets and power poles installed in accordance with the National Electric Code. **Use of extension cords (flexible cords) for permanent installation of appliances and equipment, except as provided by the manufacturer as service cords, is prohibited.** Use of electric space heaters is prohibited unless such heaters are equipped with tip-over safety switches and thermostat heat controls, and their use is authorized.

A. If using extension cords in a temporary situation (not to exceed 90 days per Uniform Building Code of authority having jurisdiction), observe these safe practices:

1. Disconnect by pulling the plug, not the cord.

2. Replace when worn, frayed, or brittle. Don't splice, kink, allow to overheat, or come in contact with chemicals.

3. Use cord to operate one appliance only. Don't use cords in lieu of fixed wiring, and do not run through openings, attach to building surface, or conceal in walls, ceilings, and floors.

4. Protect from physical damage, keep them from being run over by wheeled equipment, etc.

5. Extension cords shall be used only as allowed in 1910.305(g).

6. It is a good management practice to test extension cords for proper wiring, impedance, and plug tension.

13.5 **Electrical Work at BLM Facilities.** All work, repair, or maintenance will be performed only by a licensed electrician.

13.6 **Electrical Safety.** (See 29 CFR 1910.301-399) Use only UL listed wire and apparatus and only as intended.

A. Ensure that breaker-box switches always indicate on the index the room, office number(s), and area or item where they control the electricity. Other markings indicating voltage, current, or wattage are required.

B. Treat all loose wires hanging from buildings or poles as “hot,” unless certain they are not connected to a live source of electricity.

C. Exercise caution when installing or using fixed power equipment or portable power tools in hazardous or damp locations. Be careful when using household appliances in kitchens, bathrooms, or basements, because of the proximity to ground sources such as water pipes.

D. Branch circuit receptacles should be tested periodically (annually) to ensure proper connection, low impedance, and tension.

E. Deenergize switch before removing or replacing cartridge-type fuses.

F. Don’t overload circuits. Where excessive use of appliances results in frequent fuse failure, redistribute plug-in appliances or install additional circuits. Don’t change fuses to higher rating than wire size permits and do not use an alternate item as a fuse replacement.

13.7 **Electrical Equipment.** Keep electrical test equipment and hand tools in good repair. Restrict them to proper use.

A. Use only nonconducting ladders for electrical work. Keep ladders clean and free from dirt.

13.8 **Power Lines.** Treat all power lines as dangerous. Notify power company in advance concerning work on or near power lines or installations. Have the electrical utility perform work for which they are responsible, i.e., tree trimming or other maintenance activities.

13.9 **Lockout/Tagout**. This policy establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done. It ensures that the machine or equipment is stopped, isolated from all potentially hazardous energy sources, and locked out before employees perform any servicing or maintenance, where the unexpected energization or startup of the machine, or release of stored energy, could cause injury. Servicing shall be done by authorized employees or contractors and these procedures followed at all times. All employees, upon observing a machine or piece of equipment that is locked out for servicing or maintenance, shall not attempt to start, energize, or use that machine or equipment.

This policy does not apply to cord and plug connected electric equipment where unexpected energization of the equipment is controlled by unplugging the equipment and under the exclusive control of the person performing the service or maintenance.

A. Sequence of Lockout System Procedure.

1. Notify all affected employees that a lockout system is going to be utilized and the reason for this step. The authorized employee will know the type and magnitude of energy that the machine or equipment utilizes and will understand the hazards.

2. If the machine or equipment is operating, shut it down by the normal stopping procedure (e.g., depress stop button, open toggle switch, etc.).

3. Operate the switch, valve, or other energy isolation device(s) so that the equipment is isolated from its energy source(s). Stored energy (such as that in springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleed down, etc.

4. Lockout the energy isolating devices with assigned individual locks with attached identification tags.

5. After assuring that no personnel are exposed, and as a check to ensure that the energy sources are disconnected, operate the push button or other operating controls to make certain the equipment will not operate.

6. The equipment is now locked out.

B. Restoring Equipment to Normal Operation.

1. After the servicing and/or maintenance is complete and equipment is ready for production, check the area around the machines or equipment to ensure that components are operational.

2. Check the work area to ensure that all employees have safely been positioned or removed from the area. Remove the lockout devices and tags then reenergize the machine or equipment.

C. Multiple Lockout Procedures.

1. If more than one individual is required to lock out equipment, each will place his/her own personal lockout device and identification tag on the energy isolating device(s). When an energy isolating device cannot accept multiple locks, a multiple lockout device (hasp) must be used that

allows the use of multiple locks to secure it. Each employee will use his/her own lock to secure the multiple lockout device complete with their identification tag.

2. When work is completed and each person no longer needs to maintain his lockout protection, that person will remove his/her lock and tag from the multiple lockout device. This is the **only** procedure to be used for multiple lockout.

D. Shift or Personnel Change.

1. If a machine or piece of equipment must be locked out beyond the end of one shift, the supervisor of the shift going off duty must place his/her lock and tag on the machinery. Then all other employees who had locked the machine out may remove their locks and tags. The next shift maintenance supervisor will then place his lock and tag on the machine. When all employees, who may be working on the machinery the next shift, have placed their locks and tags on the machine, the supervisor of the present shift may then remove his lock.

2. If a machine will be locked out for several shifts and no work will be done during that time, then a supervisor's lock must be left on the machine. In this case the importance of the **identification tag** is paramount.

E. Outside Contractors.

1. When outside service personnel are engaged in service or maintenance activities that require energy control procedures, management and the outside contractor shall inform each other of their respective lockout procedures.

2. BLM Management shall ensure that all employ ees understand and comply with the restrictions and prohibitions of the outside contractors' lockout procedures.

F. Glossary.

Affected Employee - An employee who performs the duty of his or her job in an area in which the energy control procedure is implemented and servicing or maintenance operations are performed. An affected employee does not perform servicing or maintenance on machines or equipment and is not responsible for implementing the energy control procedure. An affected employee becomes an "authorized" employee whenever he or she performs servicing or maintenance functions on machines or equipment that must be locked out.

Authorized Employee - An employee who performs servicing or maintenance on machines and equipment. Lockout and tagout is used by these employees for their own protection.

Capable of being locked out - An energy isolating device is considered capable of being locked out if it meets one of the following requirements: (1) It is designed with a hasp to which a lock can be attached; (2) It is designed with any other integral part through which a lock can be affixed; (3) It has a locking mechanism built into it; or (4) It can be locked without dismantling, rebuilding, or replacing the energy isolating device or permanently altering its energy control capability.

Energized - Machines and equipment are energized when (1) they are connected to an energy source, or (2) they contain residual or stored energy.

Energy-Isolating device - Any mechanical device that physically prevents the transmission or release

of energy. These include, but are not limited to, manually operated electrical circuit breakers, disconnect switches, line valves, and blocks.

Energy source - Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Energy control procedure - A written document that contains those items of information an authorized employee needs to know in order to safely control hazardous energy during servicing or maintenance of machines or equipment.

Examples - Some common examples of machinery to be locked and tagged out while being worked on are table and reciprocal saws, drill presses, hydraulic lifts, grinders and cutters, presses and electric motors.

TOPIC 14

WATERCRAFT OPERATIONS AND WATER SAFETY

14.1 **References.** All BLM-owned or leased watercraft and operators must meet the requirements established by the U.S. Coast Guard (See 46 CFR 24, 25, 26; 33 CFR Subchapter C, D, F, and S; 41 CFR 114-38.55, 485 DM 22).

14.2 **Motorized Watercraft Procedures.** Only BLM employees who have successfully passed the DOI Motorboat Operator Certification Course (MOCC) are authorized to operate BLM watercraft under 65 feet and under 300 tons. Certification will be for a period of 5 years. Prior to being recertified, operators will complete an 8-hour refresher course. The MOCC requires a minimum of 24 hours training in the following mandatory subject areas:

Agency Watercraft Policies
Required Safety Equipment
Motorboats and Motorboat Maintenance
Trailers and Trailer Maintenance
Navigation Aids/Rules of the Road
Emergency Operations
Fire Suppression
Motorboat Orientation/Marlinspike
Motorboat At-Speed and Low-Speed Maneuvering
Alongside Maneuvering
Trailering
Towing/Anchoring

Training will be conducted by DOI Certified Motorboat Operator Instructors.

A. **Motorized Watercraft Under 26 Feet in Length (Class A and I Boats).**

1. Will be equipped with the appropriate marine fire extinguishers (Type B1 or B2, dry chemical). Fire extinguishers must be USCG approved, including bracket, and properly mounted.

2. Will carry spare gasoline, in correlation to the length of the trip, in an approved safety can. When refueling, always shut off engine. If fuel can is not fixed to craft, remove can to dock or shore and refuel. Do not refuel in boat.

3. Except in emergencies, have only experienced operators make surf landings.

4. Equip craft with appropriate materials to respond to emergency situations. Craft that are used in areas where a reliable source of aid is more than 2 hours away should carry a full complement of Rull patching materials regardless of construction material.

5. Standard safety equipment will include the following:

   a. Adequate first aid kit.

   b. Reach pole.

   c. Type IV personal flotation device (PFD) (mounted) with at least 60 feet of line attached.

B. **Motorized Watercraft Over 26 Feet in Length (Class II and III Boats).**

1. Safety regulations will be posted as required by the U.S. Coast Guard.

2. Assign only employees with valid licenses (6-pack, if over 300 tons) for the class of craft and type of water being navigated as powered watercraft operators.

3. Instructions for starting and operating main and auxiliary engines, anchor gear, radio, and other equipment will be prepared and conspicuously posted, so that in emergencies, someone other than the marine engineer can move the craft.

4. Personnel who regularly travel on boats must know how to start and operate the main and auxiliary engines, other equipment, gear, and radio, etc., in case of emergency.

5. Standard safety equipment must include:

   a. Items identified in 14.2A.5 and the following.

   b. Sufficient lifeboat capacity for all passengers. Lifeboats equipped with oars, survival equipment, and where required, outboard motors.

   c. Readily accessible life preservers for all persons aboard in clearly marked locations. Sufficient lifejackets or vests for each rowboat or lifeboat.

   d. One USCG-approved lifering (Type IV throwable) on each side of pilothouse with at least 60 feet of buoyant line attached.

   e. Sufficient line or chain and proper anchor.

   f. Appropriate size and type of fire extinguishers (Type B1, B2, or B3) rated for the length of watercraft being operated. Extinguishers must be of marine type and USCG approved, including proper mounting of extinguisher and bracket.

14.3 **Nonmotorized Watercraft.**

A. All operators of nonmotorized craft (e.g., canoes, rafts, kayaks, rowboats/jonboats, etc.) must complete a basic training course appropriate to the watercraft they will be operating and appropriate for the class of water on which they will be boating. Acceptable courses must include both lecture and on-the-water sessions (practical). As a minimum, the following topics must be covered: terminology, basic boat types, safety equipment, emergency procedures (self and assisted rescue), boating techniques, and water classification. Courses that are offered by other entities that meet our standards may be accepted as satisfying this requirement (e.g.,

State requirements for meeting outfitting and guiding licenses-California, Idaho, etc.). The field office safety officer, in conjunction with the nonmotorized boating lead, must approve whether the type of course taken meets our standards.

14.4 **Standards for Emergency Procured (Reserved).**

14.5 **Operations Aboard All Watercraft.**

A. Operators must be qualified to handle the size, type, and class of watercraft they are operating.

B. On motorized craft, the anchor is to be attached to the bow, not the stern. Exercise care in releasing and raising the anchor. Ensure anchor line and anchor type are adequate and use extreme caution in tidal influence areas. On nonmotorized craft, the anchor may be attached to the stern if it is designed as such.

C. Personnel at the bow are the principal lookouts for submerged obstructions that can damage or capsize the craft. Mid-ship personnel should keep movements to a minimum.

D. All transportation at night should be kept to a minimum. Appropriate navigational lighting is mandatory for all craft. Use of other lighting at night should be kept to a minimum so as to protect night vision.

E. Avoid traveling in high winds and rough water, or if a storm threatens. If caught in a storm, ensure that PFD (lifejacket) is properly secure, keep the bow to the sea or open water, and reduce speed. Beware of broaching. If in a canoe, lower the center of gravity by kneeling on the bottom.

F. Do not travel in a metal craft during a lightning storm. Upon sighting an approaching storm, proceed to the

closest shore and beach the craft. If unavoidably caught in a metal craft on open water during a lightning storm, insulate yourself from metal surfaces by sitting on nonconductive material. Do not handle metal oars, tools, motors, or fishing equipment.

14.6 **Loading and Unloading from Watercraft.**

A. Cargo should not exceed the rated capacity of the watercraft. Always maintain a safe margin below the danger point and consider weather and other adverse conditions that might be encountered. Post the maximum safe load limit on each craft under 26 feet in length.

B. When transporting cargo, balance the load evenly between port and starboard. Secure cargo so that it will not shift when the craft is in motion. Where possible, load and unload from the side rather than over an end.

C. Do not stack cargo too high above gunnels, this could affect the boat's center of gravity.

D. When possible, enter or leave the craft from the side rather than the ends, and always step in the center of the craft. Steady yourself while moving in a canoe or kayak by placing one hand on each gunnel.

E. Do not stand up, change places, or make sudden moves in a craft. Go to shore if necessary to change places, repair motor, or reposition cargo.

14.7 **Personal Protection.**

A. All watercraft operators must be able to swim and know how to perform self rescue. Personnel who routinely travel by watercraft, or work over or near water should be able to swim.

B. Unless modified by means of a Job Hazard Analysis (JHA) and approved by the line manager, all personnel must wear an appropriate PFD in all BLM watercraft under 26 feet in length (Class A and I). Personnel who are on or work on exposed decks of watercraft larger than 26 feet (Class II and III) must wear appropriate PFDs. The wearing of PFD by other crew members or passengers is up to the discretion of the boat operator/captain.

C. Avoid traveling in small craft in heavy tidal currents.

D. The watercraft operator is responsible for safety practices onboard BLM watercraft.

E. Never wear hipboots or loose waders when working from boats in swift water or water over 3 feet deep. If use of waders is necessary, they should be made of neoprene and should fit snugly. If made of other material, have a belt secured around the outside of the waders and fitted firmly around waist.

F. Personnel operating in cold water conditions should wear additional personal protective equipment (PPE) appropriate to the job and conditions (i.e., wet suits, dry suits, or Type III/V Anti-Exposure Coveralls/ Worksuits [USCG approved]).

G. Remain seated while in craft. Horseplay is prohibited in the craft.

H. If by chance you find yourself in the water in Arctic or sub-Arctic environments, keep all outer clothing on your body. Hang onto boat, oar, or anything that is floating nearby until help comes. Initiate “Heat/ Huddle” techniques to reduce loss of body heat.

I. When working in, over, or near water where danger exists, a JHA shall be completed.

14.8 **Emergencies.**

A. **Personnel assigned to watercraft must be trained in emergency procedures.**

B. Do not attempt to swim to shore from an overturned craft. Hang onto the craft until it drifts, or can be paddled to shore, or until help arrives. Maintain extra caution in moving water conditions (Class II+ rivers).

C. First aid gear (waterproof) and survival gear appropriate for the environment should always be included in the watercraft.

D. When involved in an overturned or sinking craft, surviving the incident is often dependent upon what you carry on your person. Equip your own PFD, if one is assigned, with personal survival items that you can use in emergencies.

E. Learn how to use personal clothing as a flotation device, should you find yourself in the water without a PFD. This procedure requires that you discard your heavy outer clothing and shoes.

F. Plan your trip, and regardless of its length, let someone know your itinerary and when you will be back.

14.9 **Safety of Watercraft and Equipment.**

A. All BLM watercraft must be maintained in first-class condition. All BLM watercraft will be inspected annually and documented accordingly.

B. All motorized and nonmotorized boats, rafts, or other craft owned or used by BLM employees will be operated and maintained with safety as the prime consideration.

C. For rubberized boats or lifeboats, inspect all seams, surfaces, fabric condition, valves, and ability to hold air under operating pressure before each use.

D. Metal and plastic craft should have skid proof paint applied to the **deck** of the craft to avoid slipping. The outer surface of tubes on rubber/PVC/hypalon rafts should be of nonskid/slick type coating.

E. Keep oars and oarlocks in good condition. Spare oars, oarlocks, or paddles should be carried on long trips.

F. Check with local residents when operating in unfamiliar rivers and lakes for weather conditions or water conditions that may be unique to that area.

G. Get reliable weather reports if area is subject to storms.

14.10 **Ground Safety.**

A. **Fording Streams.**

1. As a guiding principle, never ford a water crossing if a satisfactory above-water crossing is nearby. If necessary to ford a stream, the following procedures are recommended:

a. Using a stick or pole, place it on the upstream side at a slight angle. The force of the water will help hold the pole down.

b. Work the pole ahead to test for deep holes, then wade up to the pole.

c. Work in teams of two or more and within sight of one another.

d. Avoid crossing streams on logs if possible (wade). If necessary, cross by straddling rather than by walking on the log.

e. Secure chest waders around the chest with quick-release belt or rope to prevent filling or loss of buoyancy.

f. If depth, velocity, or stream bottom makes continued wading too hazardous, back out of the stream using the wading pole to brace yourself. Turning around exposes a broader body surface to the current and increases chances of falling.

g. If carrying backpacks, use quick-release harnesses or slip off the upstream shoulder strap so that pack can be discarded in emergency.

h. Use international orange or yellow lifelines securely anchored on the bank for hazardous crossings.

i. The best traction on slippery rocks is obtained by wearing tractionized soles. Felt and nylon soles, or bonded carpeting soles work well.

14.11 **Swimming.**

A. If swimming is allowed, designate a person, qualified in water safety, to supervise the activity. Have a lookout observing the swimmers all the time. Use a buddy system—**no one** shall enter the water alone.

B. The swimming area must be equipped with strategically placed lifesaving equipment, such as reaching poles, lines, and ring buoys, or Type III throwable PFD.

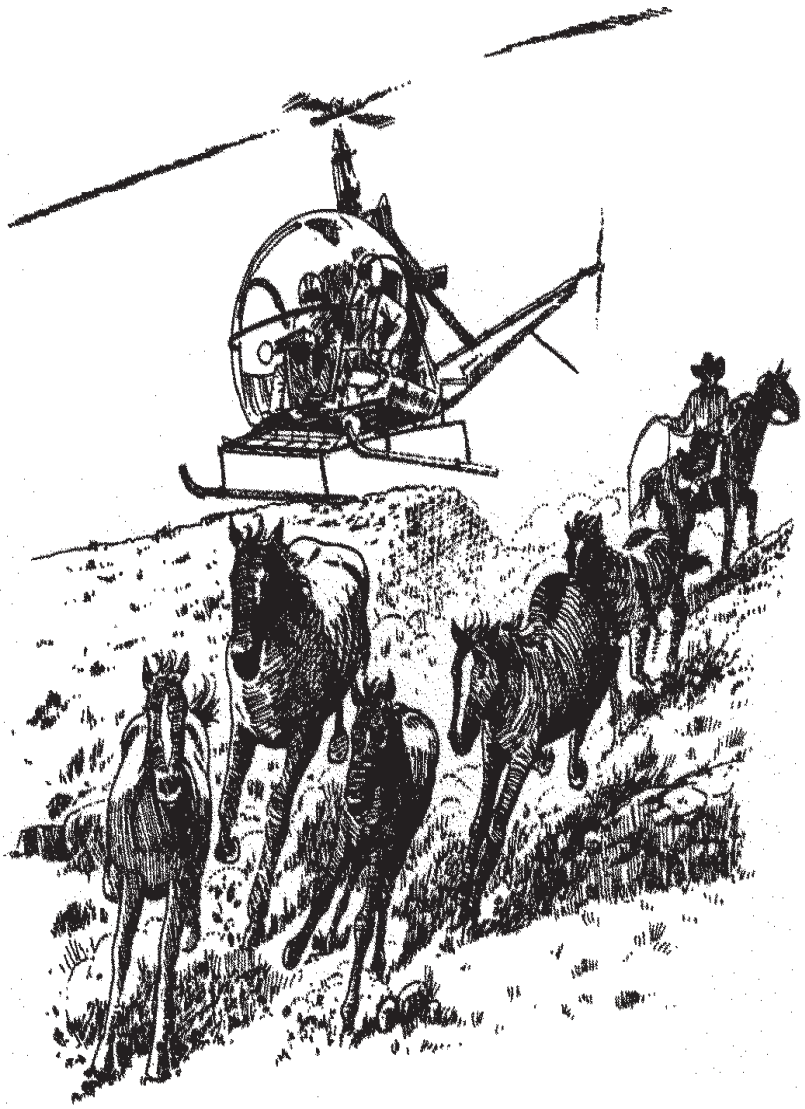
C. Inspect swimming areas for treacherous currents, deep holes, or other hazards. Keep them free of debris and rocks.

D. Swimmers should wait an hour after meals before swimming.

E. Do not swim if overheated.

F. Never dive into unfamiliar water.

G. Do not swim in stock watering holes, or in tanks with vertical walls.



TOPIC 15

WILD HORSE AND BURRO

15.1 **References.**

A. BLM Manual H-4750-1 Wild Horse and Burro Preparation Handbook.

B. 350 DM Aviation Management.

15.2 **Procedures.**

A. **Gathering by Horseback.**

1. Only experienced wranglers shall participate in roundups where saddle horses are used. Only one trainee shall be permitted to participate in a roundup.

2. Wranglers shall only ride horses they are familiar with, knowing the animal's habits, limitations, personality, and mannerisms.

3. All saddle horses shall be properly shod. Their shoes shall be reset when necessary.

4. All saddle horses shall be 3 years old or over, gentle, and have the ability to perform the needed tasks.

5. Saddle and other tack must be in good condition. They should be checked for worn leather and/or hardware.

6. Each wrangler shall have a radio available for emergency communication at all times during the gather.

7. Appropriate field attire and personal protective equipment (PPE) will be used in this operation as indicated in a job hazard analysis (JHA).

B. **Gathering by Helicopter.**

1. Contract helicopters and pilots used in gathering animals must meet the requirements established by the Department of the Interior, Office of Aircraft Services (OAS) (351 DM 1.7 “Special Use”).

2. Personnel on special use flights (Recon etc.) are required to wear PPE, which includes fire-resistant flight suit and gloves, flight helmet, and leather boots. The helicopter shall be equipped with the required first aid and survival kits.

3. Radio communication between the helicopter and the ground crew (wranglers) shall be maintained while the helicopter is airborne.

4. Radio communication shall be maintained between the helicopter or ground crew and the local dispatch at all times.

C. **Wild Horse/Burro Handling and Care.**

1. Individuals working with these animals shall be trained, experienced, and mentally alert.

2. Trucks and trailers used to transport wild horses or burros must be equipped with nonslip flooring and be free of any projections that may injure an animal.

3. Door or gate latches, and catches must be in good working condition and in a good state of repair.

4. Do not overload trucks or trailers. Animals may go down and need room to regain their footing. Animals shall be checked periodically along the travel route.

5. Loading and unloading shall be done in an orderly manner and involve only those employees necessary.

6. Feed and water shall be available to animals upon arrival at a holding facility or for any animal left at a trap for any length of time.

7. During the preparation of horses or burros, anyone not performing a specific duty shall leave the working area.

8. Unauthorized persons shall be kept clear of the facility or working area unless specific permission is obtained by the office in charge.

9. Follow Bloodborne Pathogens Standard (29 CFR 1910.1030) regarding proper disposal of sharps used to medicate animals.

TOPIC 16
EXPLOSIVES

16.1 **References.**

A. 29 CFR 1926.901 Blaster Qualifications.

B. 29 CFR 1910.109 Explosives and Blasting Agents.

C. 29 CFR 1926 Subpart U Blasting and Use of Explosives.

D. Dupont's Blaster Handbook.

E. Fireline Explosives Guides.

F. 49 CFR 383-392 Commercial Drivers License.

G. Guide for Using, Storing, and Transporting Explosives and Blasting Materials (USFS, #TEO2L14, April 1992).

16.2 **Procedures.** The use, storage, and transportation of blasting agents are regulated by OSHA, the Department of Transportation (DOT), and the Bureau of Alcohol, Tobacco and Firearms (ATF). Compliance with these regulations is mandatory. When explosives are found or reported on public lands, notify the BLM hazardous materials coordinator and safety manager. They will report the finding to the proper authorities.

A. **Local Requirements.** Local requirements for transportation and storage vary considerably. Some municipalities have special requirements for transporting and storing explosives. A universal requirement is that special warning signs shall be posted near all blasting sites. The blaster or blast operations inspector will ensure compliance.

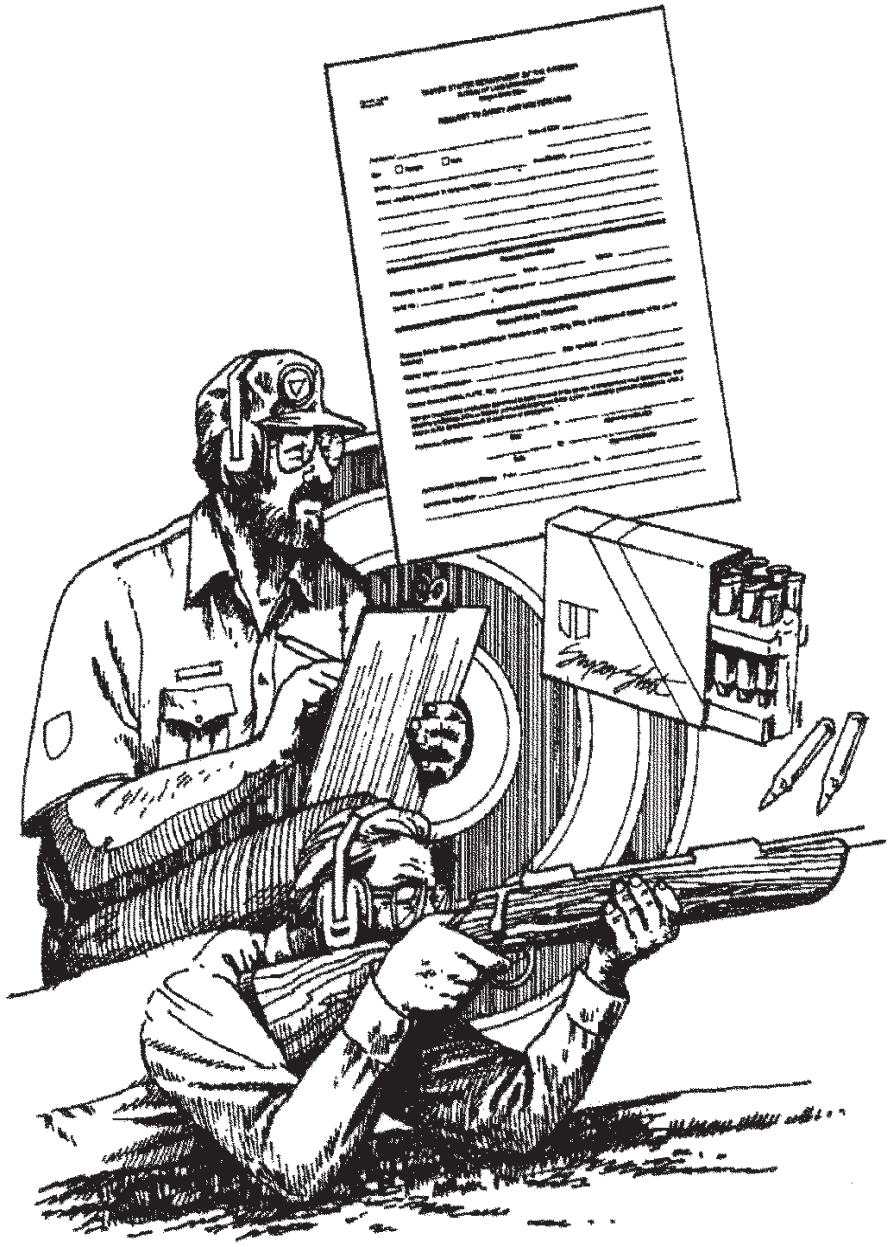
B. **Blaster Qualifications.** Blaster qualifications are noted in 29 CFR 1926.901 and Dupont's Blaster Handbook.

C. **Options to BLM's Blasting Needs**. Blasting needs of the Bureau are accomplished in a combination of the following ways:

1. Private contractors.
2. Certified BLM blasters.
3. Contract blasting by other Government agencies.

D. **Bureau Blaster Certification.** See BLM Manual H-1112-1, Chapter 22 for Bureau Blaster Certification Requirements.

16.3 **Wildfire Fireline Explosives**. All offices shall comply with safety requirements as specified in the "Fireline Blaster's Guidebook, PMDS No. 460 and NFES No. 2093" published by the National Wildfire Coordinating Group.



TOPIC 17

FIREARMS SAFETY

17.1 **References**

A. BLM Manual 9261.23H.

B. State and Local Laws.

17.2 **Procedures.** State Directors may authorize non-law enforcement personnel to carry firearms when functions or circumstances related to their official duties necessitate such permission. Use of firearms by BLM personnel, while on official business, will be limited to those individuals who have been authorized by the State Director and have successfully completed a firearms safety course. Authorizations will be in writing and training documented. See Illustration 17-1 for an example of a request to carry and use firearms and training documentation.

A. **Expiration of Firearms Authorization.** The authorization to carry a firearm shall expire:

1. At the end of the calendar year; or

2. Upon completion of the project; or

3. If there is a change of duty station, status, or transfer; or

4. Upon failure to demonstrate shooting proficiency as required; or

5. If rescinded for any other reason.

B. **Shooting Proficiency of Seasonal or Part Time Non-Law Enforcement Employees, or Full Time Employees That Have Occasional Need to Carry Firearms.** Seasonal or part time non-law enforcement employees, or full time employees that have only an occasional need to carry firearms, are required to demonstrate proficiency once at the

commencement of each term of employment period or the beginning of each field period requiring the use of firearms.

17.3 **Equipment.** The Bureau will only issue 12-gauge pump shotguns and solid slug ammunition for animal protection. Employees wishing to use their personal firearms must meet the minimum caliber and power requirements (30-06 or equivalent for rifles; 44 magnum or greater for sidearms), and complete the course of fire and a safety check of these firearms by an approved instructor. No reloads allowed.

17.4 **Firearms Certification for Non-Law Enforcement Personnel.** Only those non-law enforcement persons who are competent and qualified marksmen and have completed a firearms training program may be authorized to use or carry firearms. Such a course must consist of at least 4 hours of classroom time culminating in a prescribed shooting regimen at a firing range. The instructor administering the firing range component will be a certified Federal Law Enforcement Training Center graduate, Federal Bureau of Investigation officer, or a National Rifle Association Instructor.

A. **Contents of Classroom Component of Firearms Training Course.** A firearms training course, classroom component, shall consist of the following subject matters.

1. Basic firearms safety review.

2. Legal and moral aspects of firearms use.

3. Animal behavior (optional).

B. **Shooting Proficiency Component.** This portion of the Firearms Training Course will take place on the firing range under the control of an authorized instructor. The target for animal protection will be 8 1/2" by 11" in size and will be placed a distance of

15 yards from the firing line. Proficiency will require that 70 percent of the shots be on the target and that all sequences of shots be fired within the allowable time of 25 seconds. Each sequence will be done twice. Proficiency will also require the shooter to demonstrate proper safe handling of the firearm(s).

1. **Pump and semi-automatic shotguns:** two sequences of fire consisting of magazine capacity for the shotgun, plus one (i.e., Remington 870, 4 rounds in magazine, plus 1)

    a. The shooter will start with a full magazine and empty chamber. The weapon will have the action closed and the safety on.

    b. On the command to fire, the shooter will be required to fire the rounds in the magazine, then reload and fire one additional round. Upon completion, the shooter will open the action and ensure the safety is on. The time limit will be 25 seconds. Repeat.

2. **Double-barrel shotguns:** two sequences of fire consisting of 4 rounds per sequence.

    a. Shooter will start with the shotgun fully loaded and the safety on.

    b. On the command to fire, the shooter will be required to fire the two rounds of ammunition in the firearm, then load and fire two additional rounds. Upon completion, the shooter will open the action and ensure the safety is on. The time limit will be 25 seconds. Repeat.

3. **Rifles**: two sequences of fire consisting of magazine capacity for the rifle, plus one round (i.e., a bolt action rifle with magazine capacity of three rounds. The course will be four rounds for each sequence).

a. The shooter will start with the magazine fully loaded. The action will be closed on an empty chamber and the safety on.

b. On command to fire, the shooter will fire the rounds in the magazine, then reload and fire one additional round. Upon completion, the shooter will open the action and ensure the safety is on. The time limit will be 25 seconds. Repeat.

4. **Handguns**: two sequences of fire, each consisting of cylinder/magazine capacity for the handgun.

a. The shooter will start with a fully loaded handgun.

b. On the command to fire, the shooter will fire all rounds contained in the cylinder/magazine. Upon completion, the shooter will open the cylinder/slide and ensure the handgun is unloaded. The time limit will be 25 seconds. Repeat.

17.5 **Use of Firearms.** Bureau employees must observe all Federal, State, and local laws in regard to the licensing, use, transportation, etc., of firearms and ammunition. Bureau employees are prohibited at all times from using Government-owned vehicles or equipment for the express or incidental purpose of hunting, shooting, or transporting of game, hunters, firearms, or ammunition. Violators are subject to disciplinary action and/or prosecution under the law.

A. **Firearms in Camp.** The use of firearms is prohibited in camp areas or during working hours by non-law enforcement personnel except when required for safety of personnel or if in the best interest of the Bureau.

B. **Taking Game in Defense of Life or Property.** As a job requirement, firearms may be carried in work areas and used if necessary for the protection of work parties from dangerous animals. The necessity of taking game animals must not be brought about by harassment or provocation of the animal or the unreasonable invasion of the animal's habitat.

C. If Bureau employees are specifically requested by local officials to carry firearms to help curb an epidemic of rabid animals; for reduction of undesirable, crippled, or infected animals; or other authorized reasons such as cone harvesting, the appropriate caliber and purpose must be expressed in the letter of authorization.

1. Game animals taken may become property of the state. Different parts of the animal may have to be provided to the state for administrative reasons. This may have to be done in required timeframes. Bureau personnel should check local regulations prior to carrying a firearm.

17.6 **Firearms and Ammunition Storage.** All firearms, when not in active use, shall be stored in a secure place, out of sight, under lock and key. Firearms will be unloaded prior to storage.

Illustration 17-1

Form OR-1112-18
(October 1991)

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Oregon State Office

REQUEST TO CARRY AND USE FIREARMS

Full Name: _____ Date of Birth: _____

Sex: ☐ Female ☐ Male _____

District: _____ Area/Division: _____

Duties requiring employee to carry/use firearms: _____

_____

_____

_____

_____

Firearms Information

Firearm(s) to be used: Caliber: _____ Make: _____ Model: _____

Serial No.: _____ Registered owner: _____

Employee Safety Requirements

Firearms Safety Course Attended (minimum 4 hours in safety, handling, firing, and legal/moral aspects of the use of firearms):

Course Name: _____ Date Attended: _____

Certifying Official/Instructor: _____

Course Sponsor (NRA, FLETC, FBI): _____

Non-law enforcement employees authorized to carry firearms in the course of employment must demonstrate their shooting proficiency (70% or better); permanent employees twice a year; seasonal or part-time employees once a year or at the commencement of each term of employment.

Proficiency Certification: _____ by _____
Date Approved Instructor

_____ by _____
Date Approved Instructor

Authorization Required (Dates): From _____ To _____

Location(s) Required: _____

_____

Illustration 17-1 (cont)

Employee Criminal History Waiver

I authorize the Oregon State Office Law Enforcement Staff to use the above information to run a warrants check on me.

_____ _____
Employee Signature Date

Recommended: _____ _____
Supervisor Date

Recommended: _____ _____
Area Manager/Div. Chief Date

Concur: _____ _____
Safety Manager Date

Concur: _____ _____
District Manager Date

For State Office Use Only

Wants/Warrants Check: Satisfactory_____ Unsatisfactory_____ Date _____
Comments: _____

Firearm appropriate for task: Satisfactory_____ Unsatisfactory_____ Date _____
Comments: _____

_____
Law Enforcement Staff

Employee Training: Satisfactory_____ Unsatisfactory_____ Date _____

Shooting Proficiency: Satisfactory_____ Unsatisfactory_____ Date _____

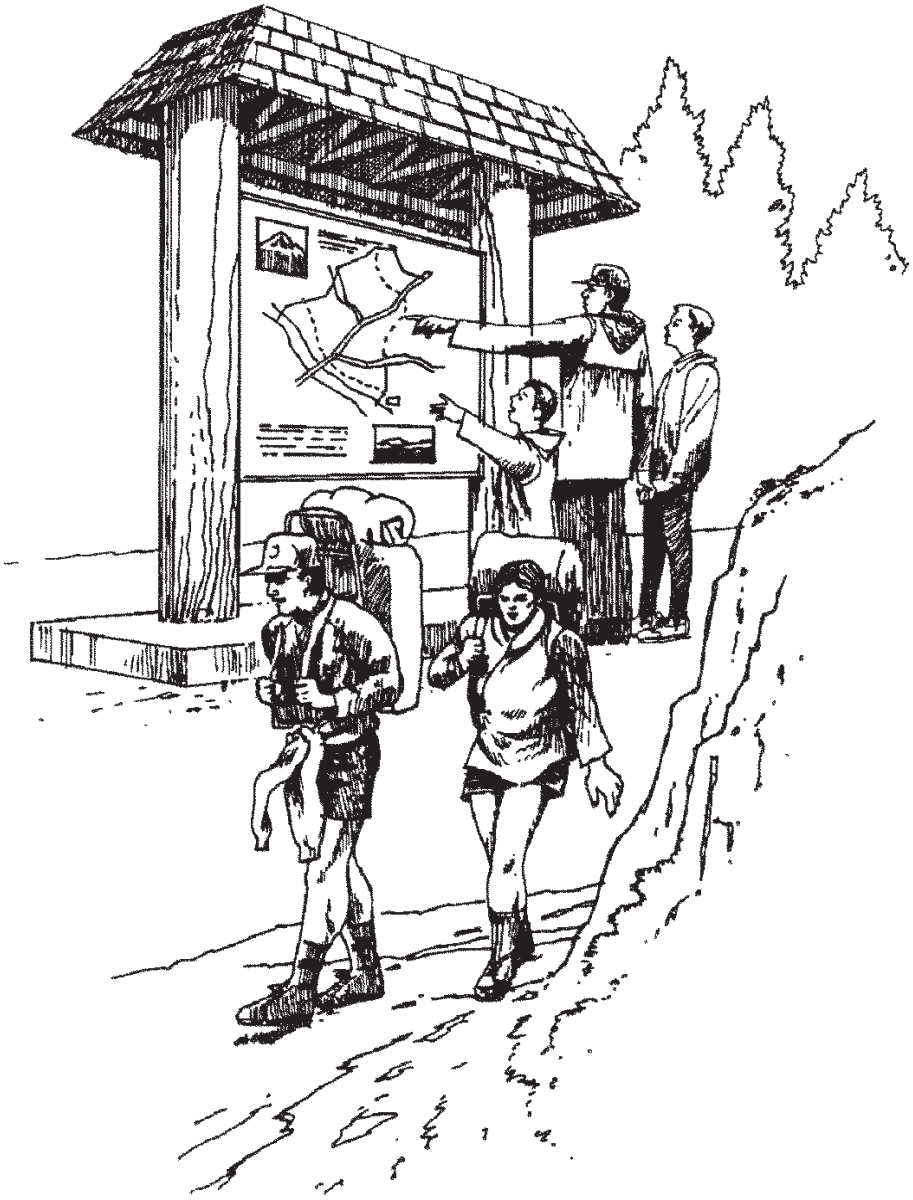
_____
State Safety Manager

Privacy Act Statement

Section 552a(k)(5) of Title 5 of the U.S. Code authorizes collection of this information. The primary use of the records is to identify employees having security clearance and their degree of security clearance. Disclosures outside the Department of the Interior may be made, (1) to the U.S. Department of Justice related to litigation or anticipated litigation, (2) of information indicating a violation or potential violation of a statute, regulation, rule, order or license, to appropriate Federal, State, local, or foreign agencies responsible for investigating or prosecuting the violation or for enforcing or implementing the statute, rule, regulation, order, or license, (3) from the record of an individual in response to an inquiry from a Congressional office made at the request of that individual, (4) to a Federal agency which has requested information relevant or necessary to its hiring or retention of an employee, or issuance of a security clearance, license, contract, grant, or other benefit, (5) to Federal, State, or local agencies where necessary to obtain information relevant to the hiring or retention of an employee, or the issuance of a security clearance, contract, license, grant, or other benefit.

Where the employee identification number is your Social Security Number, collection of this information is authorized by Executive Order 9397. Furnishing the information on this form, including your Social Security Number, is voluntary, but failure to do so may result in disapproval of this request.

If your agency uses the information furnished on this form for purposes other than these indicated above, it may provide you with an additional statement reflecting those purposes.



TOPIC 18

VISITING PUBLIC SAFETY AND HEALTH

18.1 **References**.

A. BLM Manual 8360.

B. 485 DM Chapter 23.1.

C. 43 U.S.C. 1457.

18.2 **Procedures**. Established BLM visitor sites and facilities shall be managed to provide reasonable safeguards against known hazards and still provide a quality outdoor recreation experience for all visitors. BLM sites and facilities shall be designed for maximum accessibility and maintained to minimize the risk of injury or illness to all visitors.

18.3 **Inspections**. BLM-developed recreation sites, camp grounds, and facilities shall be inspected periodically, but no less than annually, for compliance with policies, standards, and codes to help ensure the safety and health of the visiting public. Safety and health inspections shall be conducted by qualified inspectors.

18.4 **Accident Reporting**. All known visitor accident/incidents on public lands, which could reasonably result in tort claim action, must be reported on Form DI-134, or similar, Report of Accident/Incident. Known accidents/incidents involving visitors on the public lands shall be subject to the same reporting and investigation requirements as those involving BLM employees and volunteers.

18.5 **Coordination with Other BLM Programs**. The Visitor Safety Program shall be coordinated with the Occupational Safety and Health, Law Enforcement, Volunteer, Recreation, Engineering, and Hazardous Materials Programs. Law Enforcement is responsible for ensuring compliance with visitor use and conduct regulations, including the requirement for seatbelt use by the driver and all occupants of motor vehicles equipped with safety belts. The Recreation, Volunteer, and Engineering

Programs are responsible for managing and maintaining established BLM visitor sites and facilities, pursuant to policies, standards, and codes. The Hazardous Materials Program is responsible for identifying and eliminating hazardous waste sites on the public lands that may pose safety or health dangers to the visiting public.

18.6 **Coordination with Outside Agencies**. The Occupational Safety and Health Program shall coordinate visitor safety and health activities with recognized national safety and health organizations. Coordination with Federal, State, and local law enforcement agencies, search and rescue, and emergency medical service providers is the responsibility of the Law Enforcement Program.

TOPIC 19

SEARCH AND RESCUE

19.1 **References**.

A. 43 U.S.C; 1742.

B. Federal Land Policy Management Act (FLPMA) Section 312.

C. BLM Manual 8361 Emergency Services.

19.2 **Procedures**. BLM employees may provide emergency assistance to persons whose lives or safety are in danger on or adjacent to public lands. **Such assistance must be fully coordinated with local agencies who have the primary responsibility for emergency assistance.** Bureau personnel do not replace existing search and rescue (SAR) organizations, but merely supplement those already in existence. Where SAR needs exist, Bureau managers may assist local authorities as deemed necessary.

A. **Coordination with Other Organizations**. Bureau personnel must, to the maximum extent feasible, cooperate and coordinate with local, State, and other Federal agencies within their areas of responsibility. Examples of areas of cooperation include interagency radio communications, shared patrol responsibilities, cooperative search and rescue planning and implementation, cooperation with local law enforcement agencies, and cooperative management agreements.

B. **Skills and Training to Participate in Search and Rescue**. Bureau employees who will be providing rescue services need to have appropriate skills acquired through training (e.g., climbing, diving, water vessel, etc.). Bureau ground personnel who participate in SAR should maintain a Standard First Aid certificate. Personnel who participate in SAR should be in good physical condition commensurate with environmental conditions.

19.3 **Search and Rescue Assistance**. **Local and State authorities have the primary responsibility for**

locating persons lost on public lands. Bureau personnel are authorized to assist them in searching for persons lost on or near the public lands. The extent of such assistance depends upon local agency capabilities, BLM training and equipment, and the nature of the emergency.

A. **BLM's Involvement in SAR**. Appropriate search involvement may include:

1. Monitoring a search effort and completing required reports.

2. Providing local agencies with information regarding topography, visitor use areas, water sources, mine shafts, structures, etc.

3. Supplying maps, vehicles, radios, search equipment, or aircraft.

4. Utilizing employees to manage or participate in searches.

B. **Response to Search Requests**. Whenever a request for a search is received, BLM employees must relay the nature of the situation to local authorities through the affected manager.

1. When encountering a search situation on public lands, BLM employees may take charge of the situation when no local authorities are present on the scene.

2. Whenever local authorities are on the scene of a search incident on or near public lands, Bureau managers may offer available BLM assistance.

19.4 **Specialized Search and Rescues.**

A. **Search Procedures for Lost, Overdue, or Missing Employees.**

1. Determine whether a search needs to be implemented for the employee or employees. This can be done by:

   a. Attempting contact with the missing individual(s) by radio or phone.

   b. Checking with supervisor and coworkers as to their whereabouts.

   c. Checking the compound, parking lots, and surrounding area for the missing person's private and work vehicles.

   d. Contacting by phone the family and/or friends of the missing individuals for information as to their whereabouts.

   e. Dispatching a BLM employee to the employee's residence and/or contacting the local law enforcement office to request they do so.

2. If contact with the missing employee cannot be made, then:

   a. Notify the appropriate manager.

   b. Notify the appropriate primary search and rescue agency.

   c. Notify the appropriate Logistics Center and/or Dispatch Center.

3. Once it has been determined that there is a lost, overdue, or missing employee or employees, it is necessary to gather additional information.

   a. WHO?

      1. Names.

      2. Number of persons missing.

3. Descriptions of person(s): gender, nationality, height, weight, hair color, eye color, attire.

b. WHAT?

1. Missing person's travel plan and proposed schedule.

2. Mode of transportation.

3. Person's work assignment.

4. Type of communications equipment missing person(s) took on assignment.

c. WHEN?

1. Time persons were last seen or contacted.

2. Time persons were to complete work assignment.

3. Time persons were to return to base.

d. WHERE?

1. Determine the person's planned destination.

2. Determine the person's departure point.

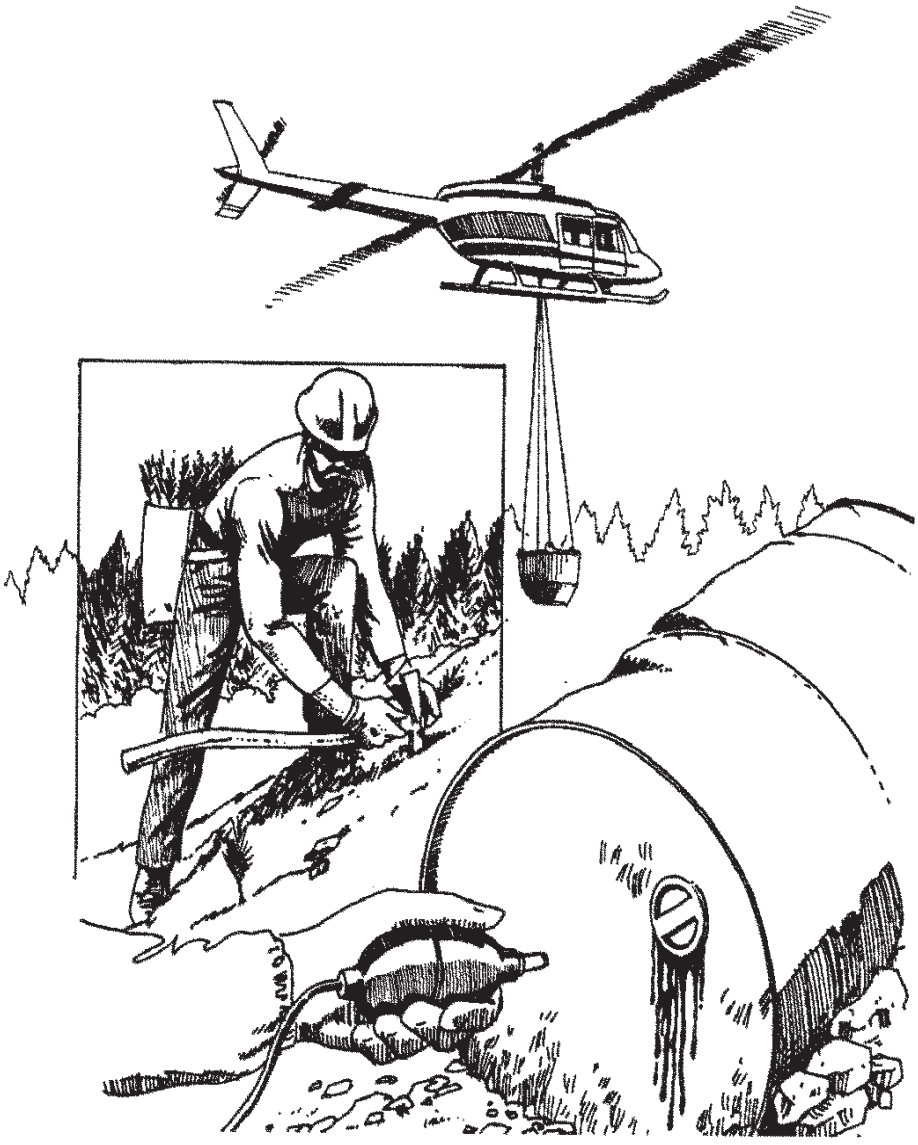
3. Determine travel routes and any stops.

4. Once appropriate information has been gathered, provide the information to the primary search and rescue coordinator.

19.5 **Planning**. Districts, Resource Areas, and other detached facilities will write Search and Rescue Plans or Emergency Action Plans that include search procedures for lost, overdue, or missing employees. The purpose of

the plans are to expedite emergency actions by various individuals to determine status, **effective** rescue, facilitate medical treatment, and handle security measures involved in a successful search and survival mission.

19.6 **Search and Rescue Equipment**. BLM Manual 8361 describes emergency equipment.



TOPIC 20

CONTRACTOR SAFETY AND HEALTH

20.1 **References**.

A. Federal Acquisition Standards (FAR) 48 CFR, Chapter 1.

B. Department of the Interior Acquisition Regulations (DIAR).

C. BLM Manual 1510 Procurement.

20.2 **Procedures**.

A. The Contracting Officer (CO) is responsible for, but may delegate these responsibilities to, the Contracting Officer's Representative (COR):

1. **Advise of Potential Hazards**. BLM will provide information regarding hazardous substances to contractor employees as required by OSHA 29 CFR 1910.1200 Hazard Communication Standard. The CO shall advise the contractor of all potential unsafe or unhealthful working conditions that have been determined to exist or have the potential to occur on the job site.

2. **Provide Material Safety Data Sheets (MSDS)**. Provide Material Safety Data Sheets (MSDS) to the contractor for all hazardous materials provided by the Bureau for use by the contractor. If the contractor is to acquire, control, and use hazardous materials, the contractor is required to acquire MSDS for the hazardous products used.

B. The Contracting Officer's Representative (COR) is responsible to:

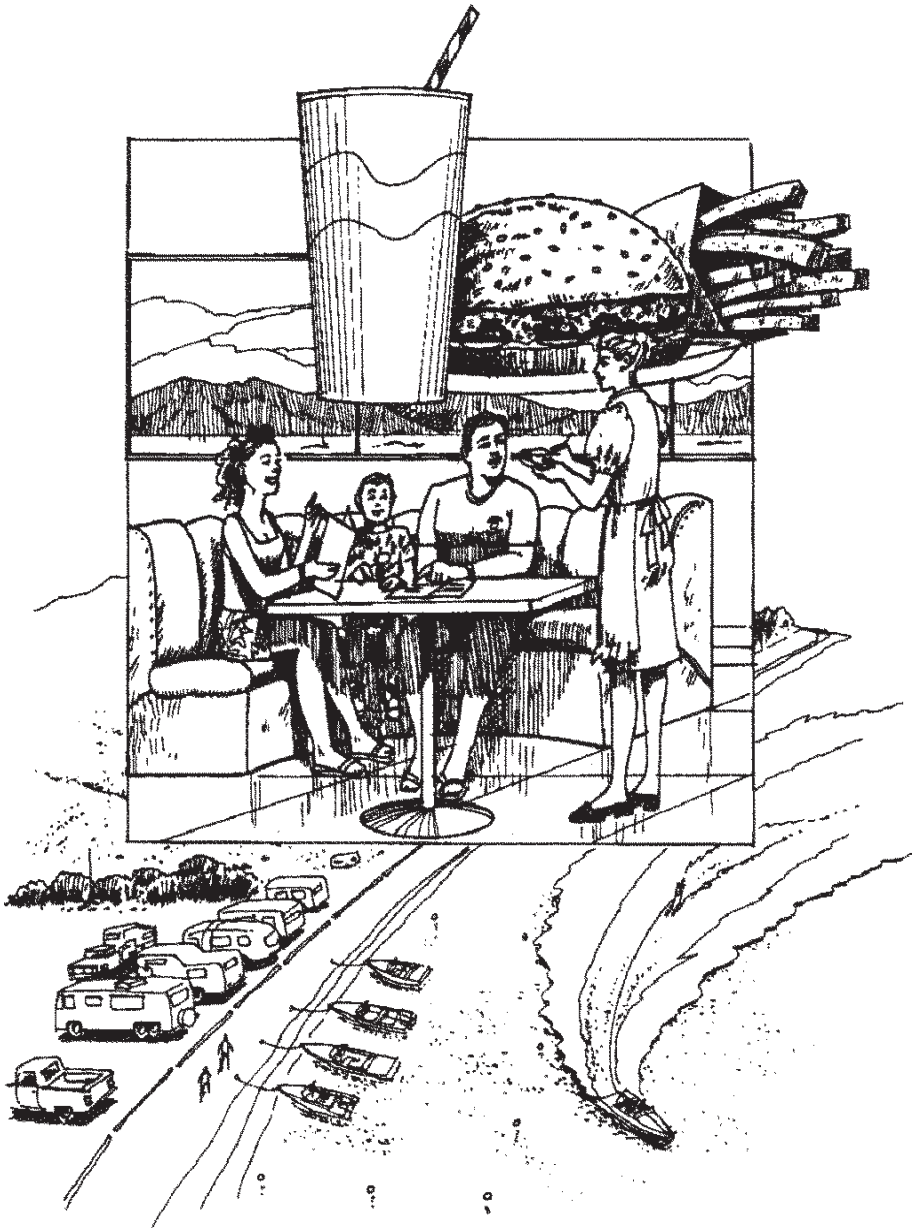
1. **Inspect Work Site**. The COR shall inspect the work site or have a Project Inspector do so at reasonable intervals to ensure that the contractor and their employees are complying with safety and health standards applicable to the work being performed.

20.3 **Contracts**. All contracts shall have Occupational Safety and Health clauses wherein the contractor is required to comply with all applicable safety and health standards as directed by Federal and/or State OSHA. The clause shall advise the contractor that failure to comply with safety and health standards shall result in a stop order being issued. All costs related to a stop order for failure to comply with safety and health standards will be borne by the contractor.

20.4 **Records**.

A. All safety and health deficiencies noted during inspections will be recorded and maintained in the project contract files. Actions taken by the CO, COR, or Project Inspector to obtain compliance by the contractor shall be recorded and will be considered as limiting factors in future contract awards.

B. Accidents will be reported to the COR, reported on Form DI-134, or similar, Report of Accident/Incident, and entered into the Safety Management Information System.



TOPIC 21

CONCESSIONAIRE SAFETY AND HEALTH

21.1 **References**.

A. 29 CFR 1910 OSHA General Industry Standards.

B. 29 CFR 1926, OSHA Construction Standards.

C. 29 CFR 1910.1200 Hazard Communication.

D. BLM Manual 8390 Recreation Concession Leases and Vendor Permits.

E. 43 CFR 2920.7 Terms and Conditions.

21.2 **Procedures**. Any BLM office establishing contracts with concessionaires will include applicable safety and health requirements for protecting concession employees, the public, and Bureau personnel.

A. **Concessionaires' Safety Program**. The degree, scope, and complexity of the concessionaires' Safety Program will be determined by the products handled, the extent of equipment operations, and the amount of visitor services provided. Any program regardless of size should address the following concerns:

1. Procedures to identify and correct safety deficiencies.

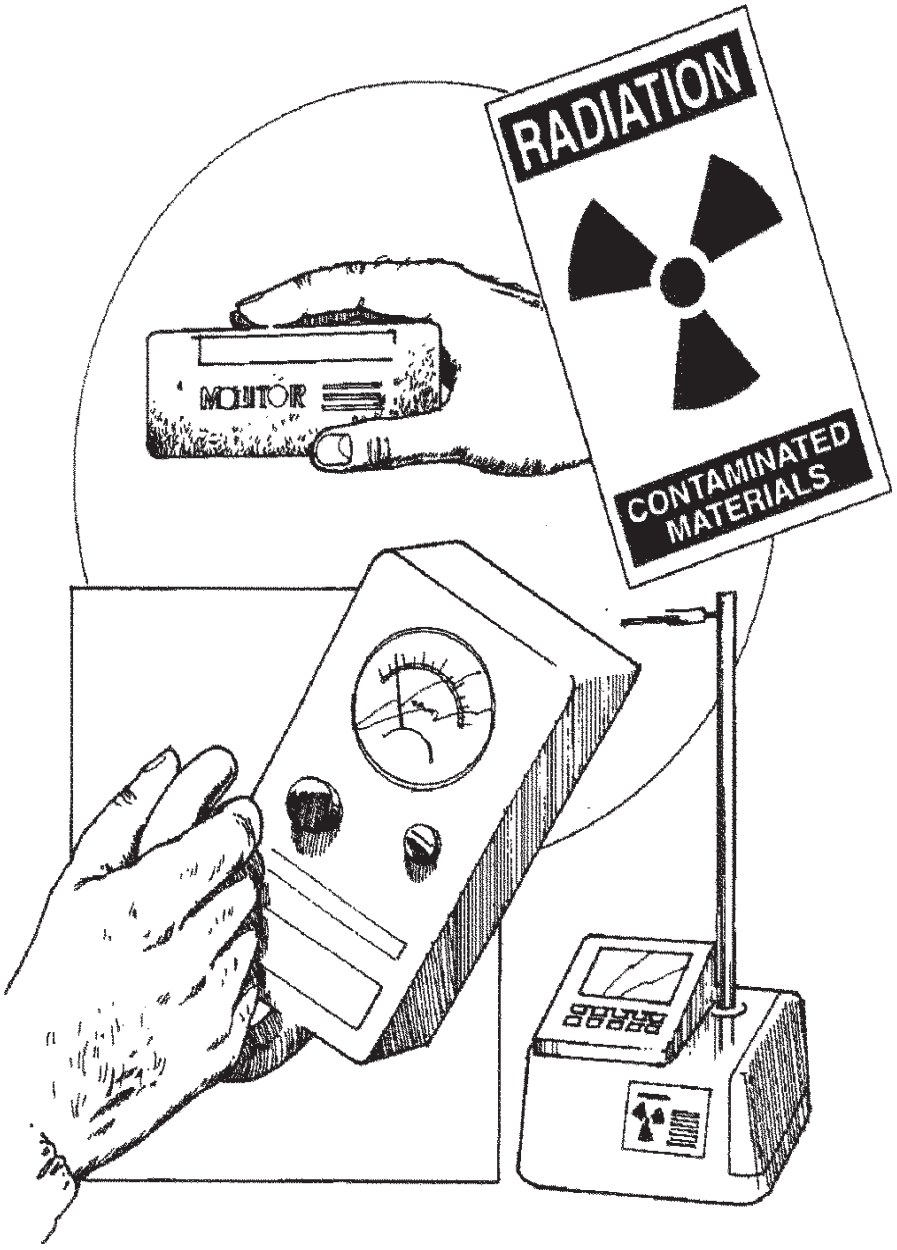
2. Steps to ensure that safety awareness, hazard recognition, and accident prevention are being communicated to all affected groups.

3. Steps to ensure compliance with the Hazard Communication Standard.

4. Specific hazards directly associated with a particular concessionaire are identified in the Safety and Health Program.

5. Accident/incident and emergency procedures to be established and posted.

B. **Review of Concessionaires' Safety Program**. Offices, as appropriate, will monitor training, conduct and review safety inspections, and review safety promotion efforts conducted by concessionaires for the safety of their employees and the public.



TOPIC 22

RADIATION SAFETY

22.1 **References.**

A. 10 CFR 19 Notices, Instructions and Reports to Workers; Inspections and Investigations.

B. 10 CFR 20 Standards for Protection Against Radiation.

C. 10 CFR 21 Reporting of Defects and Noncompliance.

D. 10 CFR 30 Rules of General Applicability to Domestic Licensing of Byproduct Material.

E. 10 CFR 71 Packaging and Transportation of Radioactive Material.

F. 10 CFR 150 Exemptions and Continued Regulatory Authority in Cooperating States.

G. 10 CFR 170 Fees for Facilities, Materials.

H. 29 CFR 1910.96-97 Ionizing/Non-Ionizing Radiation.

I. 49 CFR 170-178 D.O.T. Regulations.

22.2 **Procedures**. When Bureau employees are assigned to work in or near areas where they are potentially exposed to radioactive material, whether it be contained in sealed devices or emitted from other sources, a Radiation Safety Program must be established.

A. **Contents of a Radiation Safety Program**.

1. Radiation Safety Officer.

2. Handling and Storage Procedures.

3. Transportation.

4. Security.

5. Personnel Monitoring and Recordkeeping.

6. Records and Reports.

7. Response to Incidents.

8. Emergency Procedures.

9. Leak Testing.

10. Maintenance and Maintenance Records.

B. **Nuclear Devices**. In the event that Bureau operations will be utilizing nuclear devices for any given task (i.e., nuclear soils densimeter gauges), the following is required:

1. A license from the Nuclear Regulatory Commission (NRC). The agreements made in the application for the license must be followed.

2. All users of the gauges must receive initial training in a portable gauge manufacturer's course or in an alternative training program for gauge users. This training is to be certified. No one is to operate a nuclear gauge without the required training.

3. Whenever a gauge is transported, shipping papers must be maintained in the transport vehicle within the reach of the driver. The required shipping papers consist of:

   a. Bill of lading filled out in accordance with 49 CFR 172.200-204.

   b. Type "A" Package Certificate that was provided by the gauge manufacturer.

4. The gauge must be controlled by constant surveillance when not in storage and must be

secured from damage or theft while at temporary job sites. Whenever the gauge is transported in a vehicle, it must be locked in the trunk of a car, locked in a van, or secured by lock and chain while in an open bed truck.

5. All operators must be monitored for radiation by personnel monitoring equipment (i.e., film badges). This equipment must be read by a qualified laboratory employee.

6. Leak tests must be performed on the gauges at 6-month intervals or at intervals approved by NRC.

7. The gauges must be accounted for periodically. Inventories are to be conducted at not more than 6-month intervals. Records must be kept of these inventories for 3 years.

TOPIC 23

FORESTRY

23.1 **References**. None.

23.2 **Procedures**. All employees working in forested areas must have and use appropriate personal protective equipment (PPE), as determined by the job hazard analysis (JHA).

A. **Field Attire**. Recommended proper field attire consists of hard hats, long pants, long-sleeved shirt, and appropriate footwear (6- to 8-inch leather lace up boots with nonslip soles and heels). Where overhead hazards exist, hardhats are mandatory.

23.3 **Environmental Conditions**.

A. **Weather**. Work must be terminated during electrical storms and periods of high winds or during other weather conditions that constitute a hazard to employees.

B. **Widowmakers**. Employees working in forested areas where dead, broken, or rotted limbs and tops are suspended overhead in the timber canopy should give wide berth to such widowmakers and exercise added precaution in breezy and windy conditions.

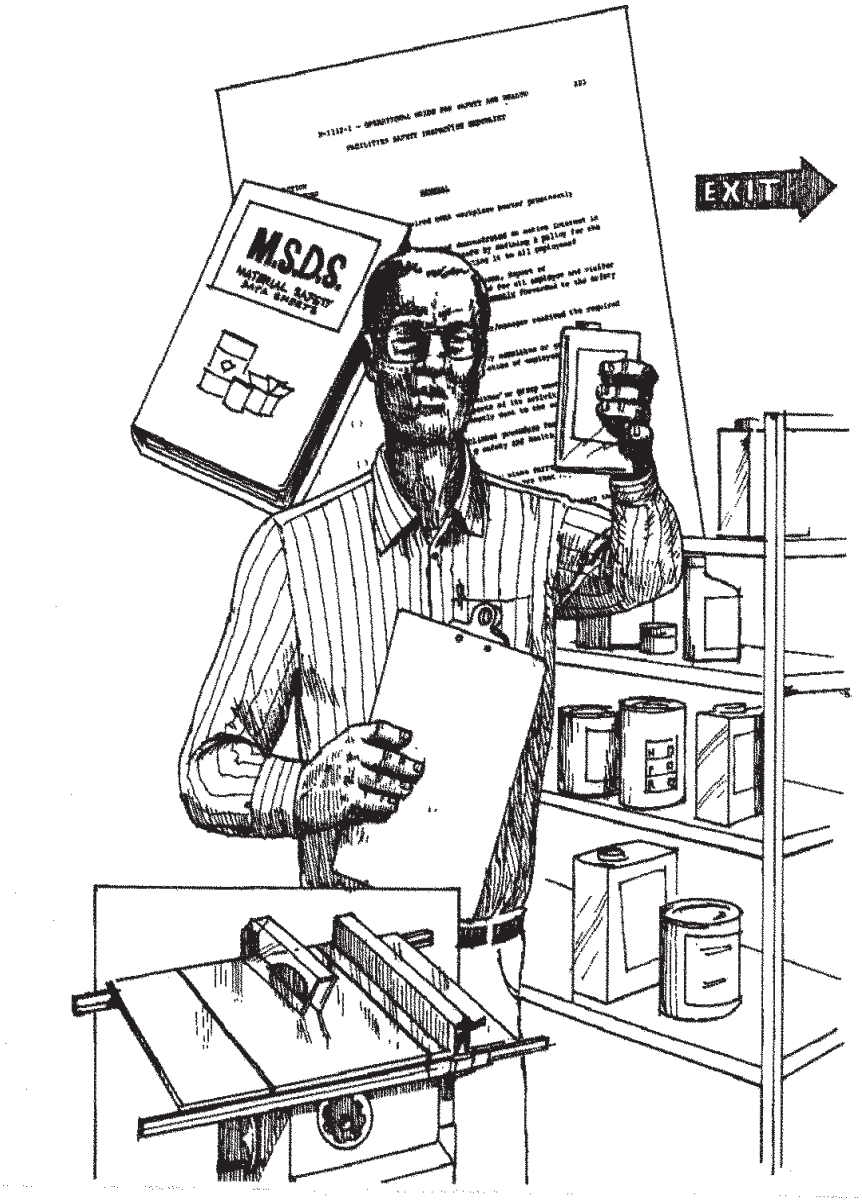
C. **Steep Terrain**. Employees working on steep terrain shall wear proper boots to protect themselves from slips, trips, and falls. Hand tools will always be carried on the downhill side.

D. **Poison Oak and Ivy**. Employees shall be trained in the identification of such plants and shall avoid them whenever possible.

E. **Bees, Snakes, etc.** Employees shall be made aware of the pests that may be encountered when working in the woods, including identification, avoidance, and first aid techniques.

F. **Climbing**. Environmental hazards must be considered prior to climbing. Climbing should be suspended during the following conditions:

1. Winds or wind gusts exceeding 25 mph.
2. Rain.
3. Darkness or poor visibility.
4. Lightning storms.
5. Temperatures below 40•F or above 95•F.
6. Snow or ice on tree limbs.
7. Tree in close proximity to power line.



TOPIC 24

INSPECTIONS AND ABATEMENTS

24.1 **References**.

A. 29 CFR 1960 Subpart D Inspection and Abatement.

B. 29 CFR 1960 Subpart H Training.

C. 485 DM Chapter 6.

24.2 **Procedures**.

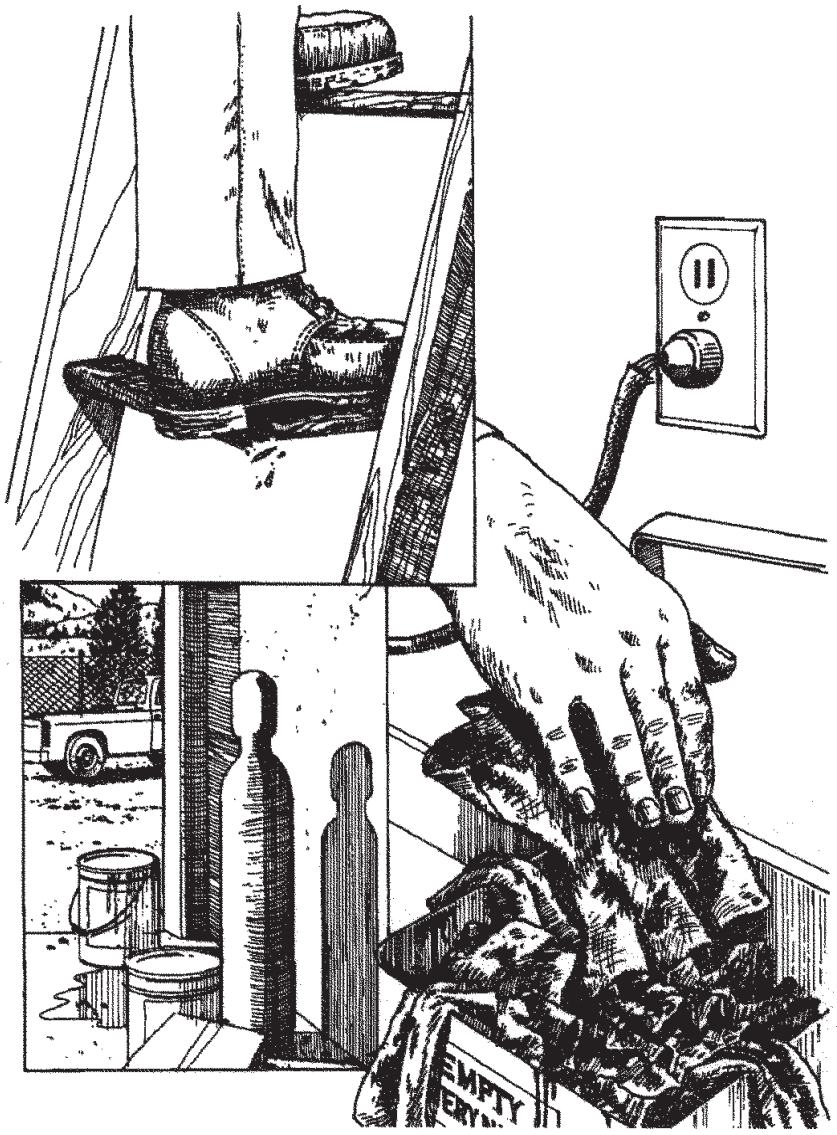
A. **Routine Inspections**. The routine inspection of all operations, workplaces, and facilities is a continuous part of every supervisor's responsibility.

24.3 **Formal Inspections**. Procedures for conducting formal inspections can be found in BLM Handbook H-1112-1, Chapter 5.

A. **Annual Inspections**. Formal annual inspections of workplaces and facilities shall be conducted by personnel sufficiently trained to recognize unsafe or unhealthful working conditions and occupational hazards. Annual inspections should be scheduled with management at the facility to be inspected.

24.4 **Inspection Checklists**. Inspection checklists are an excellent tool for conducting routine inspections. While checklists are helpful, they are not all-encompassing. Hazards identified that are not included on checklists should be added as appropriate. Appendix 1 contains a sample inspection checklist.

24.5 **Supervisor Responsibility**. Supervisors are responsible for corrective actions on a continuing basis. Those corrective actions that cannot be implemented immediately by the supervisor will be referred to a higher level of management for corrective action.



TOPIC 25

EMPLOYEE REPORTS OF UNSAFE/UNHEALTHFUL WORKING CONDITIONS

25.1 **References**.

A. 29 CFR 1960.26-28 Inspection and Abatement.

B. 485 DM Chapter 8.

C. Public Law 91-596, Section 8 (f)(1).

D. 29 CFR 1960.46 Agency Responsibility.

E. 29 CFR 1960.8(a) General Duty Clause.

25.2 **Procedures**. Employees are responsible for identifying potentially hazardous conditions and correcting them when they have the ability and knowledge to do so. Employees may utilize BLM Form 1112-4, Report of Unsafe or Unhealthful Working Condition (See Illustration 25-1), to report such conditions.

A. **Supervisor Responsibilities**. Supervisors are the key to ensuring that follow-up is made on employee reports of unsafe conditions. This responsibility cannot be delegated to the safety manager/ coordinator or to the employee. Supervisors to whom reports are made are responsible for investigating employee reports and implementing controls to protect employees from the hazard. Such controls may be to:

1. Discontinue the operation or process until corrective action is completed.

2. Remove all employees from the hazardous condition, operation, or process.

3. Place barriers and sign the hazardous area to prevent employee entry until corrective actions are completed.

4. Provide employees with appropriate clothing or personal protective equipment (PPE) or tools to allow them to continue the task safely.

5. Advise employees concerning corrective actions completed or planned.

6. Forward the report to the safety manager or higher authority if he/she does not have the expertise, authority, or resources to accomplish corrective action.

7. Follow up to ensure corrective actions have been taken.

B. **Safety Manager Responsibilities.** The safety manager is responsible for providing technical assistance to supervisors and managers for proper identification of hazards and appropriate corrective actions.

C. **Management Responsibilities**. Management officials are responsible for implementing and supporting the reporting process by:

1. Training employees in proper reporting of unsafe or unhealthful working conditions.

2. Providing supervisors the resources to ensure that employees are protected from the potential hazard(s) reported.

3. Ensuring that no employee is subjected to restraint, interference, coercion, discrimination, or reprisal by virtue of their submitting a report either orally or formally within the organization or to higher levels of authority.

25.3 **Employee Rights**. The employee has the right to decline a task because of a reasonable belief that there is an imminent risk of death or serious injury and there is insufficient time for hazard reporting and abatement actions. See 29 CFR 1960.46. Employees have the right to make reports and to remain anonymous without fear of reprisal.

25.4 **Reports to OSHA.** Employees may also submit formal complaints alleging workplace hazards directly to the Department of Labor (OSHA); however, the Secretary of Labor encourages employees to use the Bureau in-house hazard reporting procedure as the most expeditious means to achieve abatement. Such complaints may serve as the basis for investigations or inspections by OSHA officials, and such actions should not be contemplated by employees until in-house efforts prove to be ineffective.

25.5 **Workplace Violence.** Bureau offices shall implement a **zero tolerance** policy for workplace violence. The policy shall be disseminated to all employees. Procedures for reporting workplace violence shall be established, and employees will be notified on the proper reporting procedure. Employees should receive training on prevention of workplace violence and proper reporting procedures. Employees who have potential exposure to conflict in the performance of duties shall receive training in conflict resolution or equivalent.

Illustration 25-1

Form 1112-4
(March 1993)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EMPLOYEE REPORT OF UNSAFE OR UNHEALTHFUL WORKING CONDITION

This form is provided for the assistance of an employee and is not intended to constitute the only method by which a report may be submitted.

SECTION A: Information	Safety Office Log No.

1. The Undersigned *(check one)* ☐ Employee ☐ Representative of Employee believes that a violation of an occupational safety of health standard has occurred which has resulted in a safety or health hazard.
2. Office/Facility and Location
3. Location of alleged violation *(Building or Work Site. Include Address)*
4. Government Supervisor at site of alleged violation — 4a. Supervisor's telephone *(include area code)*
5. Briefly describe the hazard. Include the approximate number of employees exposed to or threatened by such hazard
6. List by number and/or name the particular safety or health standard(s) alleged to be violated

7. Do you believe that this hazard immediately threatens death or physical harm?	☐ Yes ☐ No
8. To your knowledge, has this alleged violation been the subject of any union/management grievance?	☐ Yes ☐ No
9. To your knowledge, has this alleged violation been called to the attention of or discussed with the government supervisor or other management official?	☐ Yes ☐ No

10. If the answer to item 7 or 8 is "Yes", describe the efforts made to management to eliminate the hazard
11. Additional Remarks/Comments

SECTION B: Certification	**The person reporting must complete the section below**	
12. Name *(type or print)*	13. Signature	14. Date
15. Home Address	16. Home Telephone *(include area code)*	17. Work Telephone *(include area code)*
	18. May your name be revealed? ☐ Yes ☐ No	

19. If Representative of Employee, enter your position, organization and authority to act

(See reverse side for instructions and appeal rights)

Illustration 25-1 (cont)

REPORTING INSTRUCTIONS

1. You are encouraged to report unsafe or unhealthful work practices or conditions whenever detected in the Bureau of Land Management. Any condition, whether you consider it to be a minor infraction or an imminent danger **must** be reported. Reporting such conditions to your immediate supervisor will usually achieve the most expedient results leading to corrective action. Such reports should be made orally and the supervisor is required to promptly investigate the condition and take appropriate corrective action. Supervisors are then required to inform the reporting employee of all actions taken. **In the interest of expediency and prompt elimination of the condition that you wish to report, you are strongly urged to work within the chain of command and report directly to your supervisor.**

2. In the event that you fear adverse action or reprisal associated with reporting unsafe or unhealthful conditions, you are authorized to report directly to to the Safety Manager or the State/Center Director through the use of this form. Under such conditions you are not required to report to any other person. Further, you have the right to remain anonymous and you may so indicate on this form. Response to persons who wish to remain anonymous will be made by posting corrective actions taken on bulletin boards at or near the location where the hazardous conditions existed or exists, or by letter to the person's home address unless the person reporting indicates in Block 11 *(Additional Remarks/Comments)* that he/she does not wish to have correspondence mailed to the home address.

3. Reports of unsafe and unhealthful conditions submitted by use of this form will be responded to in writing by the State/Center Safety Manager within 15 calendar days after receipt. The response will provide details of interim or completed corrective action or will advise that the condition reported is not considered hazardous and that no action will be taken.

APPEAL RIGHTS

You have the right under law to be provided a safe and healthful work environment. In the event that you disagree with the response made by the Safety Manager or with the corrective actions taken, you have the right to discuss the matter with the Safety Manager to initiate negotiations for changes or improvements. You have the right to appeal to the State/Center Director if the matter cannot be resolved to your satisfaction through the efforts of the Safety Office. If you are dissatisfied with the State/Center Director's response or have not received a response within 20 working days, you may appeal to higher levels of authority. The sequence of appeals shall be through the Director, Bureau of Land Management; the Secretary, Department of the Interior, the final appeal shall be to the Office of Federal Agency Safety Programs, U.S. Department of Labor, Washington, D.C. 20210. Your appeal **must** be made in writing and **must** describe in detail the entire previous processing of your report of unsafe or unhealthful working conditions and actions that were taken in response. Further, you **must** set forth in writing your objections thereto.

TOPIC 26

ACCIDENT/INCIDENT INVESTIGATIONS

26.1 **References/Required Forms.**

A. H-1112-1 BLM Manual, Chapter 7 Accident/Incident Investigations.
B. Appendix 1 of H-1112-1 BLM Manual Handbook.
C. Federal Personnel Manual 930.
D. CA-1, Federal Employees Notice of Traumatic Injury.
E. CA-2, Notice of Occupational Disease and Claim for Compensation.
F. CA-16, Request for Examination and/or Treatment.
G. OWCP 1500A Uniform Health Insurance Claim Form.
H. DI-134, or similar, Report of Accident/Incident.
I. SF-91, Operator's Report of Motor Vehicle Accident.
J. SF-94, Statement of Witness.
K. Form 1112-5, What To Do in Case of an Injury Envelope.

26.2 **Procedures**. For the employee's protection, he/she must prepare a Form CA-1, Federal Employees Notice of Traumatic Injury or Form CA-2, Notice of Occupational Disease and Claim for Compensation, and forward to their immediate supervisor for all on-the-job injuries or illnesses. The CA-1 must be completed within 2 working days after the incident. The exception to this would be in a remote working condition where notification cannot be done within the established timeframe. Under those circumstances, a maximum of 10 working days is applicable. Both forms are to be completed by the employee and supervisor or the designated Workers' Compensation Specialist prior to medical treatment, but is not necessary under critical situations in which the reports can be completed after evacuation or medical attention has been administered. A Form DI-134, or similar, Report of Accident/Incident must also be completed by the supervisor within 72 hours.

A. **Obtaining Medical Treatment**. The CA-16, Request for Examination and/or Treatment, authorizes medical treatment of the injured employee at BLM expense. This form should accompany the employee to the medical facility unless the situation

is determined critical and time cannot be allowed for the completion of the form. When possible, supervisors are encouraged to accompany injured employees to the medical facility to assure assistance is given to the employee. The supervisor is responsible to inform the physician (within 24 hours) of light-duty alternatives.

B. **OWCP 1500A, Uniform Health Insurance Claim Form**. OWCP 1500A form is a standard billing form and is the responsibility of the medical provider, not the employee. The attending health care personnel will submit the completed form to OWCP for payment. Most health care agencies have the OWCP 1500A form or its equivalent.

C. **Agency Provided Medical Care**. If the employee's injuries are treated via agency provided medical care (APMC), a DI-134, or similar form, must be completed. **The immediate incident supervisor/BLM employee, the home unit supervisor, will ensure that Form DI-134, Report of Accident/Incident accompanies every Form CA-1 or CA-2 back to the home unit compensation specialist.**

D. **Form DI-134, Report of Accident/Incident**. Form DI-134, Report of Accident/Incident, is the official source document for reporting all accidents or incidents. The DI-134 is to be completed **by the supervisor** and submitted within 72 hours after the incident. The exception to this would be personnel working in remote locations where reports cannot be submitted within that timeframe. In that situation, 10 working days are allowed. The DI-134 form should not be held for more information. The form must be completed with the information known and, if necessary, a DI-134C, Supplementary Accident/Incident Report, will be used to add, delete, or correct information previously reported on Form DI-134. The DI-134 is the source document for the automated Safety Management Information System

(SMIS). SMIS supports OSHA reporting require ments and the BLM's need for collecting, assimilat- ing, and analyzing accidents, illness, and injury data.

E. **Supervisor's Investigation**. Following treatment of the injured employee, the supervisor must initiate investigations of all accidents/incidents, either personally or through a trained accident investigator. The accident investigation will include compiling facts that led up to the incident, actions or inactions culminating in the incident, and post-incident actions that relate to the incident.

F. **Requested Forms and Timeframes**. BLM forms required for injury accidents are as follows:

Accident Forms Required For Injury Accident

FORM	INITIATOR	RECIPIENT
CA-1 (Employee notice of injury)	Injured employee within 48 hours of occurrence	Immediate supervisor Employee Medical File OWCP
DI-134 (Accident/ Incident Report, or similar form	Supervisor within 72 hours	Local Safety Manager
CA-16 (Request for examination and/ or treatment)	Supervisor CA-16 to accompany employee to attending physician	Attending physician District or State Office OWCP

G. **Critical Incident Management/Serious Accident/ Fatality.** See BLM Manual Handbook H-1112-1 Appendix 2 for the accident investigation guide. See Agency Administrator's Guide to Critical Incident Management, a publication of the National Wildfire Coordinating Group, for guidelines on assisting employees involved in serious accidents/incidents.

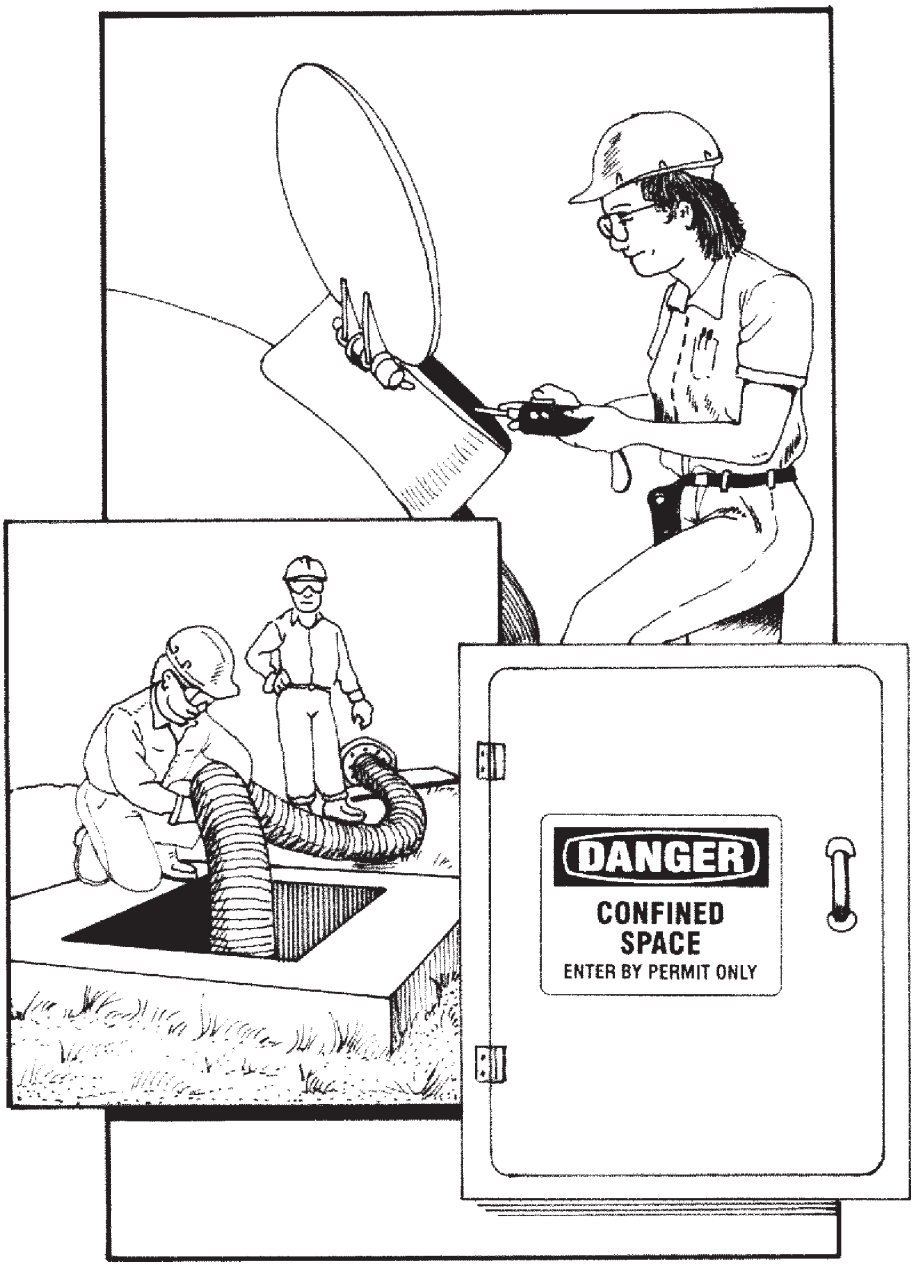
26.3 **Motor Vehicle Accidents**. All motor vehicle accidents involving Government-owned, leased, or privately owned vehicles (being used for official business) must be reported to the employee's supervisor immediately. If a private citizen and/or property is involved, anticipate and plan from the beginning that a tort claim may be filed. The information required includes the names and addresses of the private sector persons involved, vehicle license numbers, driver's license information, insurance policy references, police reports, pictures, if possible, of the accident site and damaged property, and newspaper articles. When involved in an accident, employees should refrain from discussing the incident with private parties.

A. **Required Forms**. BLM forms required for motor vehicle accidents are as follows:

Accident Forms Required For Motor Vehicle Accident

FORM	INITIATOR	RECIPIENT
SF-91 (GSA vehicles only)	Operator (at the accident scene)	Local Safety Manager
SF-94	Witness (if any)	Local Safety Manager
DI-134, or similar form	Supervisor within 72 hours	Local Safety Manager

26.4 **Visitor Accidents**. All known visitor accident/incidents on public lands that could reasonably result in tort claim action must be reported on a DI-134, or similar form.



TOPIC 27

CONFINED SPACE

27.1 **References**.

A. 29 CFR 1910.146 Confined Space
B. Federal Cave Resources Protection Act 1988
C. 43 CFR Part 37 Cave Management Regulations
D. BLM Policy on Confined Space Entry
E. BLM Cave Safety Standards

27.2 **Procedures.** The BLM has established procedures and policy for identifying permit-required confined space and associated hazards and controlling such hazards to allow safe entry. Management has established cave safety standards and mine entry requirements, within the Confined Space Entry Policy, for BLM employees. These standards consist of safety guidelines, job hazard analyses (JHAs), and search and rescue (SAR) procedures. Employees will have appropriate training prior to entry of such spaces.

27.3 **Program Elements for Confined Space Entry**.

A. Identification of Confined Spaces.

B. Hazard Identification/Risk Assessment.

C. Hazard Control.

D. Permit-System.

E. Employee Information and Training.

F. Site Control.

G. Authorized and Unauthorized Entry.

H. Equipment.

I. Rescue.

J. Protection from Internal Hazards.

K. Duty to Other Employees.

27.4 **Caving**. Cave management responsibilities include consideration for employee and public health and safety while in a cave. A safety orientation based on the following guidelines and JHAs is required for BLM employees who enter caves as a part of their duties. Refer to BLM Cave Safety Standards.

A. Program Elements

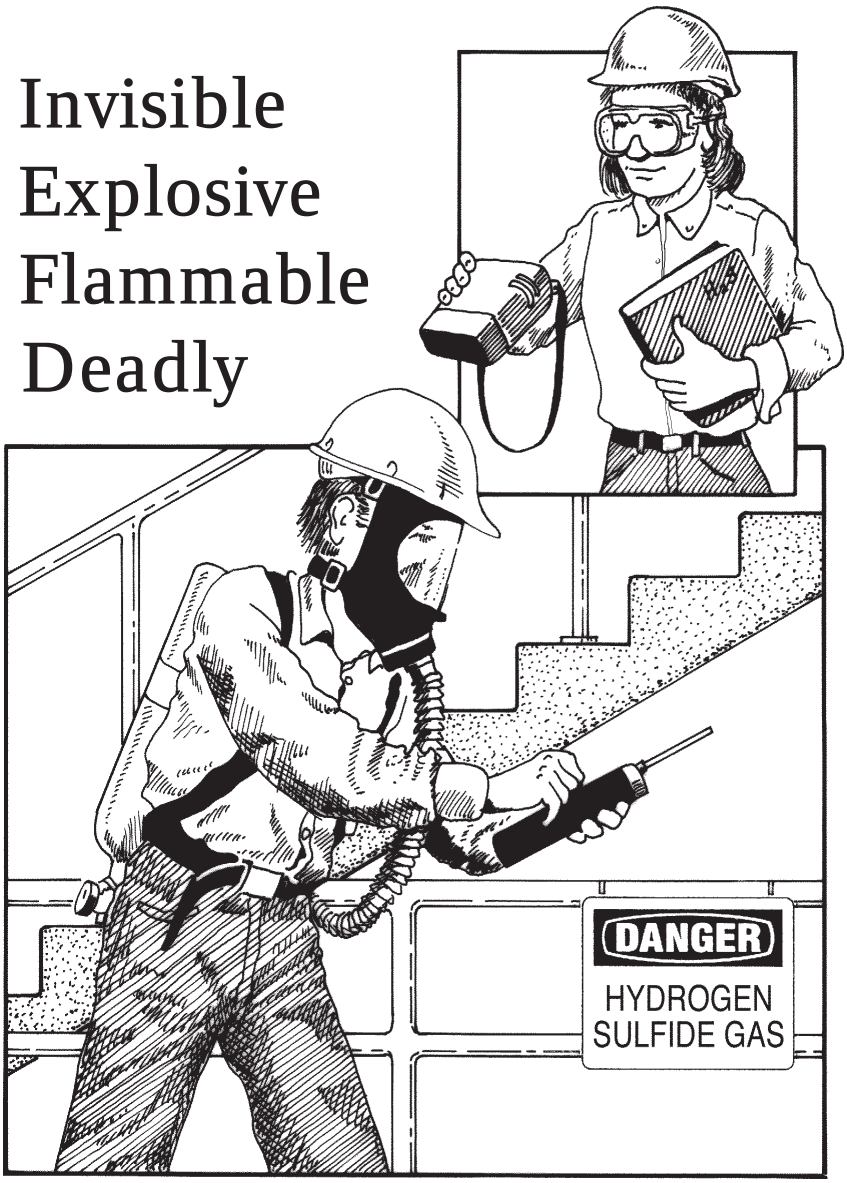
1. Cave Safety Standards.

2. Job Hazard Analyses.

3. Search and Rescue Procedures/Pre-Planning

27.5 **Inactive/Abandoned Mines.** Confined space entry requirements within the BLM have been expanded to include entry into inactive/abandoned mines. Due to the high potential of exposure to hazardous conditions when entering mines, and within the mine itself, it is recommended that the entry requirements outlined under the Confined Space Policy be followed to ensure the safety of those employees required to enter mines to perform their duties. Pre-evaluation for hazards shall be done until it is determined that no hazardous conditions exist. Continuous monitoring for hazards (i.e., lower explosive limits, oxygen deficiency, toxic gases) is still recommended when in the mine. Use the JHA evaluation process for all entry situations.

Invisible
Explosive
Flammable
Deadly



TOPIC 28

HYDROGEN SULFIDE (H_2S) PROTECTION

28.1 **References**.

A. American National Standard for Respiratory Protection, Respirator Use, Physical Qualifications for Personnel, ANSI Z88.6-1984.

B. Accepted Practices for Hydrogen Sulfide (H_2S) Safety Training Programs, ANSI Z390.1-1995.

C. Respiratory Protection, ANSI Z88.2-1992.

D. 29 CFR 1910.134 Respiratory Protection.

28.2 **Procedures**. H_2S is a highly toxic, colorless, heavier than air, and highly flammable gas. Employees who work in an H_2S environment must follow standard safety practices to protect themselves against potential H_2S hazards and exposure. Safe work practices include the required use and maintenance of personal protective equipment (PPE), safety training for working in an H_2S environment, and following established safety procedures.

A. **Buddy System Procedure**. Ambient air H_2S concentration of 100 ppm or greater is considered Immediately Dangerous to Life and Health (IDLH) and requires that buddy system procedures be implemented. The buddy or safety backup must be an individual trained in H_2S safety. The safety backup is responsible for maintaining contact with the Petroleum Engineering Technician (PET) during an inspection and ensuring a safe rescue in the event the PET is overcome by H_2S.

1. The safety backup will:

a. Be in a safe zone (always upwind or cross wind).

b. Establish radio contact with the office and advise them that PET is entering IDLH

conditions and the expected duration of inspection. Office will be contacted upon completion of inspection.

c. Maintain visual contact with PET at all times.

d. Be wearing a working monitor.

e. Be wearing a self-contained breathing apparatus (SCBA) and be ready to mask-up immediately if PET goes down.

f. Be physically capable of moving PET to a safe zone. If rescue is necessary, safety backup will assess the situation to determine that it is safe to attempt rescue, inform the office, mask-up and check SCBA, shut off source of H_2S, if possible, and proceed with rescue.

B. **Tank Gauging Inspections**. If the H_2S concentration is known to be 20 ppm or greater, the PET will:

a. Verify that monitor is working.

b. Don SCBA and mask-up prior to ascending stairs.

c. Stand upwind from hatch when opening it, allowing tank vapor pressure to equalize.

d. If tank vapor pressure does not equalize within 30 seconds, and if monitor reading at shirt pocket level does not reach or exceed 100 ppm, leave hatch open, get down from the tank, and perform other tasks. Resume tank gauging procedure after 10 to 15 minutes if tank vapor pressure has equalized. If vapor pressure does not equalize and monitor reaches or exceeds 100 ppm, close hatch and leave area until buddy system can be implemented.

C. **Meter Calibration Inspections**. When witnessing a gas meter calibration inside a meter house, and the H_2S concentration is known to be 20 ppm or greater, the PET will:

   a. Verify that monitor is working.

   b. Open meter house door and ventilate the area for 3 to 5 minutes.

   c. Don SCBA and mask-up prior to entering meter house.

   d. If the ambient air H_2S concentration is less than 20 ppm, the mask can be taken off. The SCBA, work unit, or escape pack must be used when performing inspections inside meter houses.

   e. The PET must mask up prior to witnessing the orifice plate inspection.

   f. If the ambient air H_2S levels reach or exceed 100 ppm at any time, the PET is to leave the area and initiate the buddy system before reentering building.

D. **Entering Buildings and Enclosed Structures**. The PET must follow the safety procedures described for meter calibration inspections prior to entering a building when H_2S concentrations are 20 ppm or greater.

E. **Drilling Operations**. The PET must have an H_2S monitor and escape pack ready for immediate use when performing drilling inspections.

F. **Plugging and Abandonment, and All Other Oil and Gas Operations**. The PET must use an H_2S monitor, and if H_2S levels register greater than 20 ppm, the PET must leave the area, don an SCBA, and mask-up prior to continuing work.

G. **Surface Compliance Inspections**. Surface Compliance Specialists working in an H_2S environment of 20 ppm or greater must follow the same safety guidelines established for PETs.

H. **All Other Field Activities or Inspections**. No person shall work at a site with known H_2S concentrations without appropriate H_2S training and personal protective equipment (PPE). Visiting personnel must have an escape pack and be trained in its use. They must also be accompanied by a BLM employee who has received appropriate H_2S training.

28.3 **Personal Protective Equipment**. Employees assigned PPE will be responsible for using and maintaining equipment according to the manufacturer's specifications and policy requirements.

A. **H_2S Monitors**: H_2S monitors are used to monitor levels in the air in ppm and to alert employees when H_2S concentrations reach hazardous levels.

B. **Self-Contained Breathing Apparatus**:

1. **Type and Usage.**

a. **30-minute (rescue) Pack.** 30-minute pack will be rated and approved by NIOSH/MSHA as a 30-minute self-contained breathing apparatus (SCBA) with a pressure demand Type C supplied-air respirator. It is used for rescue and to accomplish tasks of short duration.

b. **Work unit.** Respirator is to be rated and approved by NIOSH/MSHA as a combination 5-minute SCBA for escape and pressure demand Type C supplied-air respirator for work. This unit is designed to be attached to a breathing air supply hose from a large tank for longer periods of work.

c. **Escape Pack.** A 5-minute lightweight, self-contained air supply pack with a bag-type cover to enclose head area. This is a one-piece unit designed to be used for escape only and is not to be used for any other purpose.

2. **Maintenance**. All equipment must be inspected to ensure equipment is in good working order before and after use. Equipment must also be cleaned after use. Fit tests are performed, using a nontoxic test agent, to ensure that employees are assigned a proper fitting respirator. Fit checks must be performed every time a respirator is to be used to enter an H_2S environment. All SCBAs shall be inspected before and after each use and at least monthly. Any equipment that does not pass a fit check will be replaced or repaired. On an annual basis, supervisors will inspect all breathing air equipment and report to management on the condition of this equipment.

28.4 **Training.** PETs, Safety Backups, Surface Compliance Specialists, and all other field personnel must receive training on the safety practices and procedures for working in an H_2S environment.

28.5 **Medical Evaluation.** Employees should not be as signed to tasks requiring use of respirators unless it has been determined by a physician that they are physically able to perform the work and use the equipment. The physician should determine which health and physical conditions are limiting. The respirator user's medical status should be reviewed annually by a physician.

APPENDIX

FACILITIES SAFETY INSPECTION CHECKLIST

OK	ACTION NEEDED	

GENERAL

( )	( )	1. Is the required OSHA workplace poster prominently displayed?
( )	( )	2. Has the Office Head demonstrated an active interest in safety and health matters by defining a policy for the workplace and communicating it to all employees?
( )	( )	3. Are the required DI-134 forms, Report of Accident/Incident, prepared for all employee and visitor accidents/incidents and **promptly** forwarded to the safety manager?
( )	( )	4. Has the Safety Coordinator/Manager received the required training?
( )	( )	5. Is there an active Safety Committee or group that allows and encourages participation of employees in safety and health activities?
( )	( )	6. Does the Safety Committee or group meet regularly and prepare written reports of its activities? Are copies of the minutes promptly sent to the Safety Manager?
( )	( )	7. Is there an established procedure for handling employee concerns regarding safety and health issues without fear of reprisal?
( )	( )	8. Are workplace emergency plans current? Do they cover all types of natural disasters that might be anticipated to affect the workplace?
( )	( )	9. Are emergency telephone numbers posted where they can be easily seen in the event of an emergency?

( ) ( ) 10. Are the workplace emergency plans readily available for quick reference during working hours?

( ) ( ) 11. Are the workplace emergency plans readily available for quick reference before and after working hours and on weekends? Are appropriate after hours telephone numbers included in the emergency plans?

( ) ( ) 12. Does the workplace emergency plan list the name and extension of employees currently certified in CPR and First Aid?

( ) ( ) 13. Have copies of the current emergency workplace plans been sent to the safety manager?

( ) ( ) 14. Have all employees that drive either a Government vehicle or a private or rental vehicle on Government business attended a Defensive Driving Course within the last 3 years? Has the training been documented? Are employees notified of the need for required Defensive Driving refresher training at least 6 months before their Defensive Driving Certificate expires? Do the employees have valid State driver licenses?

( ) ( ) 15. Have all aircraft users had a minimum of 8 hours of aviation safety training within the last 3 years? Has the training been documented?

( ) ( ) 16. Have all employees that operate all terrain vehicles or other large or unique vehicles been properly trained in the operation of such vehicles? Has the training been documented? When appropriate, do the employees have a valid State driver license to operate such vehicles?

( ) ( ) 17. Have appropriate employees been trained in CPR and First Aid? Has the training been documented? Are employees notified of available refresher training before their CPR and/or First Aid certificates expire?

( ) ( ) 18. Has other appropriate safety and health training been provided for appropriate employees? Has such training been documented?

ELECTRICAL WIRING, FIXTURES, AND CONTROLS
29 CFR 1910.301

( ) ( ) 1. Are fuses and circuit breakers the right type and size for the load on each circuit?

( ) ( ) 2. Are all fuses free of “jumping” with pennies or metal strips?

( ) ( ) 3. Are all switches properly identified to show their purpose?

( ) ( ) 4. Do switches or circuit breakers show evidence of overheating?

( ) ( ) 5. Are switches mounted in clean, tightly closed metal boxes?

( ) ( ) 6. Are all outlets covered by face plates?

( ) ( ) 7. Are all plugs safe to use?

( ) ( ) 8. Are metallic cable and conduit systems properly grounded?

( ) ( ) 9. Are outlets tested for proper grounding?

( ) ( ) 10. Are ground-fault circuit interrupter outlets provided in restrooms or at other locations within 6 feet of a water source?

( ) ( ) 11. Are portable electric tools and appliances grounded or double insulated?

( ) ( ) 12. Is any cord **temporarily** placed in a walkway covered by a runner?

( ) ( ) 13. Are all electrical cords 3-pronged and free from fraying or other defects?

( ) ( ) 14. Are all telephone cords and any **temporary** extension cords secured under desks or alongside baseboards?

( ) ( ) 15. Do all electrical installations in hazardous (classified) locations, due to the possible presence of flammable vapors, liquids or gasses, or combustible dusts or fibers, meet the OSHA requirements of 29 CFR 1910.307 for such locations?

( ) ( ) 16. Are electric motors clean and kept free of excessive grease and oil?

( ) ( ) 17. Are electric motors properly maintained and provided with adequate over-current protection?

( ) ( ) 18. Are portable lights equipped with proper guards?

( ) ( ) 19. Are all lamps kept free of combustible material?

EXITS AND ACCESS
29 CFR 1910.35

( ) ( ) 1. Are all exits visible and unobstructed?

( ) ( ) 2. Are all exits marked with a readily visible sign that is properly illuminated?

( ) ( ) 3. Are there sufficient exits to ensure prompt escape in cases of emergency?

( ) ( ) 4. Are adequate controls established and posted for areas requiring limited occupancy?

( ) ( ) 5. Is the exterior egress from the emergency exit to designated safe areas smooth, solid, and substantially level?

( ) ( ) 6. Are special precautions taken to provide employees with adequate exits during construction and rehabilitation work?

( ) ( ) 7. Are latches or other fastening devices on exit doors provided with a panic bar for easy exit?

FIRE PROTECTION
29 CFR 1910.155

( ) ( ) 1. Are portable fire extinguishers provided in adequate number and type? (Total travel distance does not exceed 75 feet for a Class A fire or 50 feet for a Class B fire).

( ) ( ) 2. Are fire extinguishers serviced annually and such service properly noted on the inspection tag?

( ) ( ) 3. Are fire extinguishers mounted in readily accessible locations?

( ) ( ) 4. Are fire extinguisher locations marked with a readily visible sign?

( ) ( ) 5. Are fire extinguishers inspected monthly for general condition and operability? Is the monthly inspection recorded on a tag attached to the extinguisher?

( ) ( ) 6. Is the fire alarm system tested at least once a year?

( ) ( ) 7. Are evacuation drills conducted at least once a year?

( ) ( ) 8. Are employees periodically instructed in use of extinguishers and fire protection procedures?

( ) ( ) 9. Is the Emergency Evacuation plan current and posted throughout the building?

( ) ( ) 10. Are any interior stand pipes and valves inspected regularly?

( ) ( ) 11. Are fire doors and shutters in good operating condition? Are fusible links in place, unobstructed, and protected from obstruction?

( ) ( ) 12. Is the local fire department well acquainted with the facilities and any specific hazards?

HOUSEKEEPING AND GENERAL WORK ENVIRONMENT
29 CFR 1910.141

( ) ( ) 1. Are halls, passageways, storerooms, and service rooms kept in a clean, orderly, and sanitary condition?

( ) ( ) 2. Is the general work area free from clutter and excess accumulation of paper or other debris?

( ) ( ) 3. Are food products not kept in the same refrigerator as batteries, film, chemicals, or other non-food products?

( ) ( ) 4. Are rubbish and litter disposed of daily?

( ) ( ) 5. Are there tripping hazards in halls, walkways, or work areas?

( ) ( ) 6. Are carpets well secured to the floor and free of worn or frayed seams?

( ) ( ) 7. Is smoking permitted in designated "SMOKING" areas only?

( ) ( ) 8. Are "NO SMOKING" signs prominently posted for areas containing combustibles and flammables?

( ) ( ) 9. Do toilet facilities meet the requirements of applicable sanitary codes?

( ) ( ) 10. Are adequate washing facilities provided?

( ) ( ) 11. Are all areas of the facility adequately illuminated?

( ) ( ) 12. Are the building ventilation systems regularly checked for their performance and balanced when necessary?

( ) ( ) 13. Are stairways in good condition with standard risers provided for every flight having four or more risers? Are non-slip treads provided?

( ) ( ) 14. Have weeds or other combustible material been removed from within 20 feet of any building?

( ) ( ) 15. Are portable ladders adequate for their purpose, in good condition, and provided with secure footing?

( ) ( ) 16. Are fixed ladders adequate, in good condition, and equipped with side rails or cages or special climbing devices, if required?

( ) ( ) 17. Are all areas below 7 feet in height free from nails, hooks, screws, and any other sharp protruding object.

MEDICAL AND FIRST AID
29 CFR 1910.151

( ) ( ) 1. If a hospital or medical clinic is not located near your facility, are one or more employees trained in first aid?

( ) ( ) 2. Are the first aid supplies adequate for the type of potential injuries in the workplace?

( ) ( ) 3. Are there quick water flush facilities available where employees are exposed to corrosive materials?

MACHINES AND EQUIPMENT
29 CFR 1910.212

( ) ( ) 1. Are all machines or operations that expose operators or other employees to rotating parts, pinch points, flying chips, particles, or sparks adequately guarded?

( ) ( ) 2. Are mechanical power transmission belts and pinch points guarded?

( ) ( ) 3. Are hand tools and other equipment regularly inspected for safe condition?

( ) ( ) 4. Whenever compressed air is used for cleaning, is the pressure reduced to 30 psi or less?

( ) ( ) 5. Are power saws and similar equipment provided with safety guards?

( ) ( ) 6. Are grinding wheel tool rests set to within 1/8- inch or less of the wheel?

( ) ( ) 7. Are grinding wheels worn or cracked?

( ) ( ) 8. Is all machinery and equipment kept clean and properly maintained?

( ) ( ) 9. Are power saws and similar equipment provided with proper safety guards?

( ) ( ) 10. Are radial arm saws equipped with an automatic return?

( ) ( ) 11. Are table saws equipped with anti-kickback devices?

( ) ( ) 12. Are eye guards and other protective equipment located near the machine area?

COMPRESSED GASES
29 CFR 1910.101

( ) ( ) 1. Are compressed gas cylinders examined regularly for obvious signs of defects, deep rusting, or leakage?

( ) ( ) 2. Are compressed gas cylinders securely fastened at all times and capped at all times when not in actual use?

( ) ( ) 3. Are compressed gas cylinders only moved with an appropriate dolly?

( ) ( ) 4. Are compressed gas cylinders segregated so that full, empty, oxidizers, and flammable gases are stored separately?

FLAMMABLE LIQUIDS
29 CFR 1910.106

( ) ( ) 1. Are approved safety cans or other acceptable containers used for handling and dispensing flammable liquids?

( ) ( ) 2. Are contents of safety cans or other acceptable containers clearly marked in large letters on the outside of the container?

( ) ( ) 3. Are all flammable liquids that are kept inside buildings stored in proper storage containers and placed in approved flammable storage cabinets?

( ) ( ) 4. Is storage of flammable materials at the work area limited to only a one day's supply and all excess materials returned to the flammable storage cabinet at the end of the work day?

( ) ( ) 5. Are flammable storage sheds provided with adequate ventilation?

( ) ( ) 6. Is properly designed electrical wiring and equipment installed in flammable storage sheds?

( ) ( ) 7. Do flammable storage sheds have a clear aisle at least 3-feet wide?

( ) ( ) 8. Is there at least one portable fire extinguisher located outside, but not more that 10 feet from, the door opening of the flammable storage shed?

( ) ( ) 9. Are containers of over 30-gallon capacity not stacked?

( ) ( ) 10. Are “NO SMOKING” signs posted and smoking regulations strictly enforced in areas used for storage of flammable liquids?

WELDING, CUTTING, AND BRAZING

29 CFR 1910.251

( ) ( ) 1. Are only authorized, trained personnel permitted to perform welding, cutting, or brazing operations?

( ) ( ) 2. Have operators been provided a copy of operating instructions and directed to follow them?

( ) ( ) 3. Are welding gas cylinders stored so they are not subjected to damage?

( ) ( ) 4. Are valve protection caps in place on all cylinders not connected for use?

( ) ( ) 5. Are all combustible materials located near the operator covered with protective shields or otherwise protected?

( ) ( ) 6. Is a fire extinguisher provided at the welding site?

( ) ( ) 7. Do operators have the proper protective clothing and equipment?

PERSONAL PROTECTIVE EQUIPMENT

29 CFR 1910.132

( ) ( ) 1. Are hard hats provided and worn where any danger of falling objects exists?

( ) ( ) 2. Are protective goggles or glasses provided and worn where there is any danger of flying particles or splashing of corrosive materials?

( ) ( ) 3. Are protective gloves, aprons, shields, or other equipment provided for protection from sharp, hot, cold, or corrosive materials?

( ) ( ) 4. Are approved respirators provided for regular or emergency use where needed?

( ) ( ) 5. Is all protective equipment maintained in a sanitary condition and readily available for use?

( ) ( ) 6. Is special equipment available for electrical workers?

( ) ( ) 7. Are noise protection devices available?

HAZARD COMMUNICATION

29 CFR 1910.1200

( ) ( ) 1. Is a written Hazard Communication Plan on file?

( ) ( ) 2. Have all hazardous materials been inventoried and the inventory made available to all employees?

( ) ( ) 3. Have employees been trained in the use of hazardous materials that they might use or come in contact with?

( ) ( ) 4. Are all hazardous material containers properly labeled?

( ) ( ) 5. Are Material Safety Data Sheets (MSDS) available for all hazardous materials?

( ) ( ) 6. Are all containers of hazardous materials properly stored?

( ) ( ) 7. Is storage of hazardous materials at the work area limited to a 1-day supply with all excess quantities returned to the storage area at the end of the work day?