

ROCKY MOUNTAIN BIOLOGICAL LABORATORY

HEALTH AND SAFETY MANUAL

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GOTHIC, COLORADO
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I. INTRODUCTION

A. PURPOSE

The purpose of this manual is to provide guidance to help maintain a safe environment for Lab workers and users and to offer guidelines on how best to deal with safety issues should they occur. Many of the requirements are established by law and may at first appear excessive or inapplicable to RMBL operations at Gothic. It maybe helpful to remember, first that providing a safe work place and complying with the law is obligatory and second, that maintaining the health and safety of everyone at the Lab whether visitors, users, employees or staff is already an established priority in Lab operations.

The real world is too complex to allow safety in every situation to be successfully reduced to any finite number of rote procedures. Indeed, the complexities of the regulations that have been promulgated to improve safety demonstrate the challenges involved. Please be alert for potential hazards, try to use imagination and consider what may happen if something unexpected interferes with the activity you are planning. Seek training and advice when considering the use of unfamiliar equipment, even when it may not be strictly required. No matter how lengthy and detailed, a manual can not be a substitute for thoughtful and careful action, training and proper equipment. It is expected that both Lab users and employees will be familiar with the contents of this manual and will be conversant with those portions of the manual that relate specifically to activities in which they will be engaged. The manual has been arranged starting with general information that all users and employees, especially as residents of Gothic need to be aware of. The manual continues with the further inclusion of more specific safety information related to particular activities and the use of particular types of materials and or equipment.

Take time to review and become familiar with safety requirements pertinent to the work or task in which you will be involved. Please ask your supervisor or person in responsible authority such as your instructor about special hazards and the availability of safety equipment and procedures designed to mitigate possible hazards. You are the best hope for insuring safe operations. Before you undertake a new or unfamiliar task consider the possible consequences of the unexpected, an accident, a slip, a fall, a spill. What if “it” spills, do you know the characteristics of the substance and safe containment and clean up methods that will prevent a hazard to yourself and others? Are you wearing appropriate protection, have you protected your eyes, your skin, should you be wearing a respirator? First aid supplies, eyewashes, showers, spill containment kits and fire extinguishers are available and are distributed around the RMBL campus. Find out where nearby emergency supplies and equipment are located.

Failure to act safely, utilize required safety equipment and follow proper procedures can not only put you at risk but can also present danger to other members of the Lab community. You are expected to act in compliance with the specific requirements included in this manual. Disciplinary action may result from failure to comply with safety requirements and can result in termination of privileges at the Lab.

B. REGULATORY AUTHORITY

Throughout this RMBL Safety Manual, regulatory authority comes from the “Occupational Safety and Health Act of 1970” (www.osha.gov) as described below:

Public Law 91-596, 84 STAT. 1590, 91st Congress, S.2193, December 29, 1970, as amended through January 1, 2004.

An Act

To assure safe and healthful working conditions for working men and women; by authorizing enforcement of the standards developed under the Act; by assisting and encouraging the States in their efforts to assure safe and healthful working conditions; by providing for research, information, education, and training in the field of occupational safety and health; and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Occupational Safety and Health Act of 1970."

The general duty clause from this act states:

29 USC 654 SEC. 5. Duties

(a) Each employer —

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;

(2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

(www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=OSHACT&p_id=3359)

29 CFR 1926

1926.21(b)(3)

Employees required to handle or use poisons, caustics, and other harmful substances shall be instructed regarding the safe handling and use, and be made aware of the potential hazards, personal hygiene, and personal protective measures required.

1926.21(b)(4)

In job site areas where harmful plants or animals are present, employees who may be exposed shall be instructed regarding the potential hazards, and how to avoid injury, and the first aid procedures to be used in the event of injury.

1926.21(b)(5)

Employees required to handle or use flammable liquids, gases, or toxic materials shall be instructed in the safe handling and use of these materials and made aware of the specific requirements contained in Subparts D, F, and other applicable subparts of this part.

II. GENERAL OPERATIONS

A. EMERGENCY PLANNING, PHONES, FIRST AID KITS ETC.

Emergency: Call '911' for most rapid assistance on the telephone. Also alert the closest staff member: Operations Manager, Director, or Physical Plant Supervisor. Housing for staff and “on call” schedule is listed in the Dining Hall and outside the main (Weese) office.

Phones locations: Main Weese Office, Shop, Dining Hall, Old Savoy Cabin, and Pay phones at Johnson Lab. (see **Appendix A, Map of Gothic**)

Who to contact: Operations Manager, Director, Physical Plant Supervisor, or other RMBL staff member.

First Aid Kit locations: Main Weese Office, Shop, and Dining Hall. Portable First Aid kits are also located in RMBL vehicles (Subaru, Van, Pickup truck). Note that First Aid kits are required for chain saw operation. (NOTE: See additional first aid information under “General Operations – Hiking”) Unless you have been trained in administering the epipen, nitroglycerine or albuterol inhaler, located within the First Aid Kits, seek help from a qualified person. That might be a certified WFR or a Physician.

First Responder Certification: A list of RMBL staff that are trained and certified as a “Wilderness First Responder” (WFR) is located in the Dining Hall and outside the main (Weese) office. The WFR program and certification is coordinated by the Wilderness Medicine Institute (WMI). In an emergency situation at RMBL the very first response should always be to call 911 or delegate a reliable person to do so.

Physicians Program: A list of Physicians visiting RMBL and their schedules is located in the Dining Hall and outside the main (Weese) office. However, at this time the Lab is unable to offer our Volunteer Physician’s Program or practice medicine at Gothic. For routine medical matters: The Crested Butte Medical Center (970-349-0321, located at the Ore Bucket Center) has offered reduced rate office visits for Gothic residents. Ask for details in the Admin office. The Elk Avenue Medical Center (970-349-1046, 405 Elk Ave.) accepts walk-ins. Gunnison Valley Hospital can be reached at 970-641-1456.

In case of an emergency go to the nearest phone and dial 911.

Radios: RMBL owns several two-way radios in Gothic, and these are used routinely by the Work Crew and by Research Teams in the field. Please ask for details about radios in the Admin office.

Sign-Out Sheet: If you are hiking near Gothic, please fill out your name, destination and schedule on the Hiker/Camper Sheet in the Dining Hall before you go. Don’t forget to sign-in when you get back. This list is checked every evening. A search party may be sent out if you are not back by the time you have indicated.

After Hours Issues: If you have a problem that needs urgent attention, check the cabin information posted in the Dining Hall or in front of the Administrative Office to find out how to contact (where to find) either the Operations Manager, Physical Plant Supervisor, or the Executive Director.

B. FIRE INFORMATION, EXIT AND ESCAPE ROUTES

There are fire extinguishers and smoke alarms in every building at RMBL, and escape ladders on all second floors. When you arrive, familiarize yourself with the location of this emergency equipment and identify exit routes. In the event that safety items are missing promptly initiate a work order so that replacement can be made. In case of fire, the highest priority is to leave the building immediately, and try to raise an alarm to insure that all occupants get out immediately and safely. A good strategy would be to find the nearest car and honk its horn. There are portable air horns in red fire boxes at Enders Dining Hall, at the Weese Office and at the Maintenance Shop. Call 911. If it can be done safely turn off the electrical service to the affected building if you can locate it.

Fire extinguishers: Immediate response with a fire extinguisher may prevent a larger fire. The fire extinguishers at RMBL are ABC extinguishers suitable for fires of all types.

Stove Fires: If you do not know how to build a fire properly in your Gothic cabin's wood stove, please ask the work crew for a demonstration. Your first fire should be small in case of a problem in the stove or stovepipe. Do not use anything but paper and kindling to start fires.

The self-service wood pile is in front of the Shop. Please beware of nails, which are common in the scrap wood. Make sure your fire is out before leaving your cabin. Do not remove the battery from your smoke alarm; instead learn to make a fire that does not set it off. Also, never burn coal in RMBL stoves. There are stacks of winter wood next to Gates, Rogers-Boggs, Forest Queen, and Avery cabins. **Please do not use this wood**, it is for the winter caretakers.

Smoking: Smoking is not allowed inside any building at RMBL. Please extinguish your smoking materials thoroughly and dispose of them in proper containers. Be aware that smoking bans exist during high fire danger periods.

C. SAFE WORK PRACTICES

Note: For Hand Tool, Power Tool and Machine Operation Safety, see the Maintenance and Facility Section...

Standard Safe Work Practices/Conditions:

- All worksites should be kept clean and orderly.
- Work areas should be properly illuminated.
- The work area's ventilation system should be appropriate for the work being performed.
- Spilled materials or liquids must be cleaned up immediately.
- The top step of ordinary stepladders should not be used as a step.

- Tools and equipment used by employees at their work station should be in good condition.
- Broken or damaged tools/equipment should be repaired or replaced as necessary.
- Report all unsafe conditions to the supervisor or safety coordinator.
- Report all work related accidents, injuries and illnesses to the supervisor or safety coordinator.
- In the event of an accident, call the supervisor.
- Fire extinguishes shall be kept clear at all times.
- No smoking is allowed in RMBL buildings or vehicles.

Lifting heavy objects:

Lift with the leg muscles, not the back. Do not bend over and lift with the back. Don't turn or twist the back while lifting, and make sure your footing is secure. Use a cart or dolly or other equipment to move heavy objects. Get assistance or help, two (or more) people are sometimes better than one.

Working on a roof, cleaning chimneys:

For work that involves ladders or climbing please see Fall Protection in the Maintenance and Construction portion of this manual.

Working in close or confined spaces:

For work that will be done in close quarters including crawl spaces, excavations, subterranean vaults or tanks please consult the section Confined Spaces in the Maintenance and Construction portion of this manual

Working alone:

When working alone and/or in remote areas please use the Sign out/ Sign in sheet located in the Dining Hall. Also consider using the RMBL's two-way radios, inquire at the Main Weese Office.

D. REPETITIVE MOTION DISORDERS

Repetitive Motion Disorders and Injuries Overview:

Repetitive motion injuries are among the most common injuries in the United States. All of these disorders are made worse by the repetitive actions of daily living. Repetitive motion injuries make up over 50% of all athletic-related injuries seen by doctors and result in huge losses in terms of cost to the workforce. Simple everyday actions, such as typing, throwing a ball, scrubbing a floor, or jogging, can lead to this condition.

What are Repetitive Motion Disorders or Injuries?

Repetitive motion disorders (RMDs) are a family of muscular conditions that result from repeated motions performed in the course of normal work or daily activities. RMDs include carpal tunnel syndrome, bursitis, tendonitis, epicondylitis, ganglion cyst, tenosynovitis, and trigger finger. RMDs are caused by too many uninterrupted repetitions of an activity or motion, unnatural or awkward motions such as twisting the arm or wrist, overexertion, incorrect posture, or muscle fatigue. RMDs occur most commonly in the hands, wrists, elbows, and shoulders, but can also happen in the neck, back, hips, knees, feet, legs, and ankles. The disorders are characterized by pain, tingling, numbness, visible swelling or redness of the

affected area, and the loss of flexibility and strength. For some individuals, there may be no visible sign of injury, although they may find it hard to perform easy tasks. Over time, RMDs can cause temporary or permanent damage to the soft tissues in the body, such as the muscles, nerves, tendons, and ligaments, and compression of nerves or tissue. Generally, RMDs affect individuals who perform repetitive tasks such as assembly line work, meatpacking, sewing, playing musical instruments, and computer work. The disorders may also affect individuals who engage in activities such as carpentry, gardening, and tennis.

Is there any treatment?

Treatment for RMDs usually includes reducing or stopping the motions that cause symptoms. Options include taking breaks to give the affected area time to rest, and adopting stretching and relaxation exercises. Applying ice to the affected area and using medications such as pain relievers, cortisone, and anti-inflammatory drugs can reduce pain and swelling. Splints may be able to relieve pressure on the muscles and nerves. Physical therapy may relieve the soreness and pain in the muscles and joints. In rare cases, surgery may be required to relieve symptoms and prevent permanent damage. Some employers have developed ergonomic programs to help workers adjust their pace of work and arrange office equipment to minimize problems.

Prevention:

The prevention of RMDs may include:

1. Do adequate warm-up and cool-down maneuvers.
2. Avoid activity that makes your injury flare up. This will speed healing.
3. Practice range-of-motion exercises. These are important to ensure minimal decrease in function.
4. Use splints or bands to decrease the strain on a tendon that occurs with sporting activities, such as tennis and golf. These devices may be bought over-the-counter or obtained from your doctor.

Please notify your supervisor if you notice any Repetitive Motion Disorders, or wrist or hand numbness or soreness.

E. OPERATION OF RMBL OWNED VEHICLES

1. Use of RMBL Motor Vehicles. Use of the RMBL motor vehicles is restricted to business use unless personal use is specifically authorized by the Operations Manager or Director.

(a) Requirements. (i) Employees must obtain permission from the RMBL to operate the RMBL motor vehicles. (ii) Employees shall act legally and safely, and properly operate the RMBL motor vehicles. (iii) Any employee operating a RMBL motor vehicle must have a valid Driver's License. (iv) Any employee who intends to operate a RMBL motor vehicle shall undergo a Driver's License check with the State of Colorado made by the RMBL's insurance company annually to ensure that a valid state driver's license is in effect. If, during the annual driver's license review, or at any time during the year, an employee is determined to not possess a valid driver's license and auto insurance, it may be grounds for disciplinary action, including dismissal as determined by the RMBL Executive Director. (v) Any employee operating or riding in a RMBL motor vehicle is required to use seat belts.

(b) Personal Use. Employees must obtain permission from the RMBL to operate the RMBL

motor vehicles for personal use.

(c) Liability. The RMBL shall not be liable for any damages or injury resulting from any employee's negligent, unlawful, unsafe, improper, abusive, and/or personal use of the RMBL motor vehicles. Any repair to the RMBL motor vehicles resulting from employees negligent, unlawful, unsafe, improper, abusive, and/or personal use of the RMBL motor vehicle may be charged back to the employee causing the repairs to be necessitated.

(d) Accidents. If an employee is involved in an accident while operating a RMBL motor vehicle, he/she must take the following actions:

1. Take appropriate action to render aid to any injured persons and initiate contact with police to report the accident.

2. Obtain the name and address of the other driver and the driver's insurance company and policy number. If requested you may provide this information to the other driver.

3. Obtain the license plate number of the other vehicle, description of the vehicle, description of damage, names and address of other passengers or witnesses; and

4. Notify the RMBL office of the accident immediately. The Insurance Center in Gunnison handles all of the Lab's insurance (phone: 641-6611). Our agent is Greg Geer and Nancy Reif manages our driver database.

2. Operation of Vehicles & Equipment. At no time will an employee operate a RMBL vehicle, a private vehicle used for RMBL business, or any type of equipment, if the employee is or may reasonably be suspected of being impaired by drugs and/or alcohol.

SAFE OPERATION OF VEHICLES AT RMBL

1. Speed Limit, Parking, and Walking/Bicycling

(a) Please drive in Gothic only when absolutely necessary to minimize dust and reduce wear and tear on our side roads. The speed limit of 15 miles per hour within Gothic must be strictly observed. The speed limit along the main road to Gothic is 20 miles per hour. Parking is allowed only in designated lots. Walking and bicycling should occur only on established pathways.

(b) Parking is not permitted in front of cabins or dorms, although you may load and unload as needed. People parking in front of their cabin "illegally" will be issued one warning; after this warning there is a fine of \$25 per incident. In 2009, there is a parking fee of \$3.00/day and a maximum fee of \$180 for the summer which applies to vehicles at RMBL. This fee does not apply for occasional evening parking to attend seminar programs.

(c) Exceptions to the request not to park in front of your cabin may be granted for health reasons if requested of the Director or because your cabin is far from a parking lot and access involves an inordinately steep climb (Mt. Emmons Cabin). All others are asked to use the designated parking areas at the Dining Hall, Shop, and Barclay Classroom lots.

F. HANTAVIRUS AND PLAGUE

Hantavirus: There is some concern about whether hantavirus exists at the RMBL. We have no evidence that it does, but have provided the means of taking precautions for everyone who wishes to do so. Since hantavirus is an airborne viral disease that is at least 50% fatal if

contracted, prevention is a much saner strategy than the alternative.

If you have problems with mice in your cabin please take additional house-keeping measures to insure that all food is stored where mice cannot get into it and all food scraps, crumbs and garbage are cleaned up on a daily basis so as not to provide a food source. Metal or glass containers are preferred for mouse-proof storage, over cardboard or plastic. Please do not leave food behind when you depart from Gothic. Mouse traps are available in Gothic, please contact the Work Crew.

Hantavirus Cleaning and Preventative Measures: Hantavirus is an airborne viral disease and its primary host is the deer mouse which is common in Gothic; but all rodents, including chipmunks and squirrels, can be infectious. The nearest known incidence of hantavirus was in Gunnison. There is no evidence that any of our local rodents actually carry the virus, but we would like to provide you with the information and means to take precautions, just to minimize the possibility of contagion. There is additional information available from the Center for Disease Control (CDC) on the World Wide Web at:
<http://www.cdc.gov/ncidod/diseases/hanta/hps/noframes/generalinfoindex.htm>.

The virus is usually transmitted as an aerosol. It is passed to humans through infected rodent urine, saliva, or droppings. Infection can also come from touching one's mouth or nose after handling contaminated materials, inhaling airborne dust from infected feces, or from being bitten by an infected rodent.

Symptoms of hantavirus usually appear within two weeks of infection, but can appear as early as three days to as late as six weeks after infection. They include most symptoms of flu: chills, muscle aches, fever of more than 100 degrees, a dry cough, headache, nausea and vomiting. An additional symptom is difficulty breathing, which eventually results in pulmonary edema and possibly death. If you become ill with these symptoms, please contact the Operations Manager immediately so you can be taken to the hospital. There is no "cure" for hantavirus. At present, the only treatment is basically supportive, and is best provided in a hospital's intensive care unit.

You can prevent contracting the virus by taking precautions in your living and working spaces. Obviously we cannot remove all of the deer mice from the Gothic area. But we can try to minimize the number of them in our cabins and labs. If you must keep food in your cabin, please be sure it is in mouse proof containers, preferably made of metal or glass. Mice will be looking for food and for bedding material. Do not store garbage in your cabin.

When cleaning your cabin, if mouse droppings are apparent, do not sweep with a broom. Use a mop, a mop bucket, and ammonia solution (1:10 dilution of bleach or ammonia). The only known way as of now to clean without risking contracting the virus is to use either bleach or ammonia and a wet mop. Sweeping raises the aerosol particles into the air, where they can remain suspended for a long time. If the area you are trying to clean in your cabin is free of mouse droppings feel free to use a broom. The cabins are cleaned with ammonia when they are first opened.

If you suspect you have a mouse, please use a mouse trap. Bait the traps with small amounts of peanut butter--pieces no larger than the size of a pea, the object is to attract mice to the smell of the bait trapped in the rolled tube on the bait pedal of the trap, not to provide a surplus of food that can be consumed from a sprung trap. Place the traps perpendicular to the baseboard or wall surface, with the end of the trap containing the bait closest to the baseboard or wall. Place traps in areas where rodents might be entering the structure. (*Note:* Spring-loaded traps can be painful and dangerous if they snap on fingers; they should be handled with caution.) Keep children away from areas where traps are placed. Continue trapping for at least one additional week after the last rodent is caught. As a precaution against reinfestation, it's a good idea to keep several baited, spring-loaded traps inside the house at all times in locations where rodents are most likely to be found. Examine the traps regularly.

To dispose of traps or trapped animals, wear rubber, latex, vinyl or nitrile gloves. Spray the dead rodent with a disinfectant or chlorine solution. After soaking the rodent thoroughly, either take it out of the trap by lifting the spring-loaded metal bar and letting the animal fall into a plastic bag and seal the bag. Then place the bagged rodent into a *second* plastic bag and seal it. There is a blue box in the brown freezer in the Willey Lab supply room (downstairs, north side) where you should put your dead mice (Rosemary Smith will use the rodents for burying beetle experiments). Please don't dispose of them any other way. Save the trap for further use.

At RMBL there is a kit in the cleaning shed next to the phones in Johnson Lab especially for cleaning mouse nests and accumulated feces. Please ask for assistance if needed. Full face respirators with HEPA filters can be checked out of the cleaning shed. These provide complete protection from breathing in the virus when used properly. If you find a mouse nest, be sure to use one of these respirators while removing it. Spray the nest thoroughly with ammonia solution, and then carefully stuff it into doubled plastic bags while wearing your plastic gloves. Tie the bags tightly, place in a third bag, and dispose of in a garbage dumpster.

If you have any questions or concerns, please see the Operations Manager. Remember that as of now we have no reason to believe we are being exposed to hantavirus, but it is much wiser to take precautions before they become essential.

Plague:

What is the plague? Plague is an infectious disease caused by the bacterium *Yersinia pestis*. Plague normally appears in three forms in man; bubonic, primary septicemic, and pneumonic.

How is the disease transmitted?

Yersinia pestis is normally a zoonotic disease of rodents (rats, mice, ground squirrels) and their fleas, which can pass the bacteria to various animals and to people. Other important sources include the handling of tissues of infected animals, especially rodents and rabbits, but also carnivores; and rarely airborne droplets from human patients or household cats with plague pharyngitis or pneumonia; or careless manipulation of laboratory cultures. The means of transmission will determine the form the disease takes.

If you work with animals, it is essential you are aware of the plague that may be carried by fleas on the animals. Detailed information is available from the World Wide Web at:

<http://www.cdc.gov/ncidod/dvbid/plague/>

Learn what the common symptoms of plague are and contact a doctor immediately if you experience symptoms.

G. WILDLIFE

Because Gothic is in a remote, wild area with wilderness in the backyard, seeing wildlife is common. Deer, foxes, porcupines, marmots, and other such mammals are regularly seen. While none of these animals normally pose a threat to humans, any wild animal can be potentially dangerous and should be avoided. To avoid abnormal behavior and to prevent potential human-animal interactions, do not feed wildlife, and dispose of trash in one of the 3 dumpsters in Gothic. These are located at the Dining Hall, Shop, and Johnson Lab, and make sure the dumpster lid is secured properly with the lock/ latch mechanism. Please contact the Main Office or staff member if you have questions about how to secure the dumpster lid.

Tips on Wildlife Safety

1. Keep your distance. Animals like having their own space and can become aggressive when they are cornered. These are living creatures that have a will of their own, plus the possibility of disease or injury can make an animal very unpredictable.
2. Do not touch. These are wild animals with minds of their own. They might look cute but they also have teeth.
3. Do not feed. Most human food is not healthy for wild animals to digest. Also feeding them causes them to become dependent on us for food rather than hunting or foraging for themselves.
4. Do not throw things at wildlife or harass them.

Bears and Mountain Lions:

Bears are sometimes seen in Gothic and are attracted by food and trash. Bears are primarily nocturnal, so be aware when walking around Gothic at night. If you encounter a bear slowly walk away and notify RMBL staff.

Mountain lions are shy creatures and are rarely seen. However, they have been seen in Gothic. Should you have an encounter with a mountain lion, DO NOT turn and run away. Give the animal its space, shout or yell at it, this will likely cause it to move along on its way. Be sure to contact RMBL staff if you have an encounter or spot a mountain lion in or near Gothic.

H. HIKING AND FIELDWORK

Hiking: There are hiking and mountaineering books, guides and maps available in the library, dining hall and office, as well as backcountry safety awareness information. Please familiarize yourself with safety procedures and routes before you head out. There is also a Hiker's Sign-Out sheet posted in the dining hall; all hikers should record their outings prior to departure and sign-in again upon return. This is a safety system that is only effective if used consistently, so please do use this sheet.

Hiking Safely: RMBL encourages everyone to enjoy the scenic wilderness that surrounds us. However, we all must take steps to prevent accidents from happening when in the backcountry. At this elevation, topography and weather change suddenly, making preparedness and awareness essential. It is common to begin a hike on a beautiful, quiet, morning and find yourself in a violent thunderstorm within a few hours. While it is beyond the scope of this document to prepare you for all backcountry emergencies, we hope to provide you with basic information that will help prevent accidents while you are in the wilderness. Please read the backcountry safety books located in the Admin Office and Library for more information.

Accident Prevention:

1. Know Your Limits

Give yourself a few days to adjust to the altitude after arriving at the RMBL. If you like to hike, start by taking small hikes. Get a sense of how your body handles the new terrain and altitude. If you ease into more vigorous hikes, you will develop a sense of your limits. Know how any personal health conditions such as asthma and diabetes will affect you under strenuous physical conditions. As you hike, be aware of how tired you are, whether you're cold, and what the weather is doing. Always turn around if the signs are bad. Accidents usually happen for one of the following two reasons: a) people feel pressure to continue (from themselves or because they are in a group); or b) people think they can "beat" the oncoming storm or darkness. Pay attention to your hiking partners. Never leave anyone in your group alone. Small groups of hikers can be too few in numbers to respond effectively to back country emergencies, consider this when planning a trip. In the event of an emergency how many people will be needed? If someone stays in the back country with an injured person will there still be at least two people remaining to go out for help?

2. Plan Your Trip

Learn how to read topographical maps and take a map with you. Before attempting a hiking trip, compare the proposed distance and elevation gain and loss with other hikes you've taken in order to assess whether you can safely achieve your goal. Consult more experienced hikers at the RMBL about your proposed route to see if it is feasible and safe. Estimate how long the trip will take, and leave early enough to get back well before dark (if you don't have gear to spend the night). While hiking, keep track of how far you have come and remember that you have to walk back the same distance you have come. Know the weather forecast and take the right clothing and protection (see trip list). When hiking, always carry a map. Learn the "landmark" peaks of the valley to keep you oriented while hiking.

3. Don't Go Alone

If you are alone and get lost or hurt, it could be hours, even days before help arrives. Always hike with at least one other person. However, large groups of more than 6 people aren't ideal. This is because groups tend to fragment and leave people behind. Also, because of the great danger of falling rocks, moving across steep slopes and snowfields in large groups is dangerous and time consuming. Find a hiking partner or small group of people that move at your pace and share your level of risk avoidance. Small groups of hikers can also be too few in numbers to respond effectively to back-country emergencies, consider this when planning a trip. Imagine one injured person, a minimum of one person to stay with them and at least two people to go for help. If the injuries are extensive it may require more than one person to

provide adequate care.

Always do TWO things before you leave Gothic:

1. Use Sign-Out Sheet in the Dining Hall

Sign-out on the Hiker/Camper Sheet in the Dining Hall before you go. Don't forget to sign-in when you get back. A search party may be sent out if you are not back by the time you have indicated. The list is checked every evening.

2. Tell someone at the RMBL (roommates, friends, etc.) where you are going, what route you plan to take, and when you plan to be back. Make sure you stick to your route so that you can be found if something happens. When you return, remember to tell them.

If Someone Gets Hurt:

There is no substitute for knowledge and training in first aid. All members of the RMBL community are encouraged to seek training and learn how to deal effectively with back country emergencies. The following information is very general and should not be considered sufficient knowledge to enable optimum response in the event of an emergency.

Please note the following resources and books which cover first aid and injuries much more completely than covered in this document:

1. "The Outward Bound Wilderness First-Aid Handbook," by Jeffrey Isaac, P.A.-C, 1998, Lyons Press, New York, New York.
2. "Wilderness Medical Associates Field Guide," by Jim Morrissey, EMT-P, WEMT, 2000, Wilderness Medical Associates, Inc., Bryant Pond, Maine.
3. "Wilderness Survival," by Susanne Swedo, 1998, Falcon Publishing, Inc, Helena, Montana.
4. "Wilderness First Aid, Emergency Care for Remote Locations," Howard D Backer, M.D., published by the National Safety Council and Wilderness Medical Society, Jones and Bartlett Publishers, Sudbury, Massachusetts. (available in the Weese Office.)

Additional information about wilderness emergency response and about available courses is available on the World Wide Web at: <http://www.nols.edu/wmi/>

What do you do if you or someone you are hiking with gets sick or hurt? Try to stabilize the injury or sickness the best you can (see first aid kit list). Get the person dry, warm, and hydrated. Determine whether the person needs immediate medical help. In these situations, get help by any means possible. If the person is not in a life-threatening situation but cannot walk home, get them to a safe location and go for help. If you are by yourself and cannot walk, use your whistle or signal mirror and wait for help.

How to Treat Injuries:

Take a deep breathe, calm yourself, ask yourself if the situation is an emergency. Broken bones may be emergencies if a femur, rib, pelvis, cranium or vertebrae breaks. It also can be an emergency if the break is cutting off circulation to any part of the body. In these cases, send for help as soon as possible. It is always preferable to have someone stay with an injured party. It is also much safer to send at least two people out for help so that they can support each other

in travel over difficult terrain. (Remember, “don’t go alone,” and “never leave one of your party behind.”) Small groups of hikers can be too few in numbers to respond effectively to back country emergencies, consider this when planning a trip. Where possible, see if the person can walk out or whether you need to get help to carry the person out. Be aware that it is likely to be at least 10 or 12 hours before help can reach a remote location and it can take much longer. Consider how to support the injured party during the time require for rescue.

Falling: If a person falls a considerable distance, internal bleeding, concussion, broken bones, and spinal cord injuries are all possible and life-threatening. Try to determine how seriously the person is injured and make a well thought-out decision about who should stay with the injured party and who should go for help.

Altitude Sickness:

Some people experience nausea, fatigue, dizziness, insomnia and/or headache when they first get to the RMBL’s 9,500ft. The best way to combat altitude sickness is to take it easy for a few days and drink lots of water. You should avoid drinking caffeine, alcohol and sugary drinks during these first few days. If you get headaches, you can take aspirin or ibuprofen. Remember to drink lots of water even after the altitude sickness wears off since an increased rate of respiration continues to cause more rapid loss of water during breathing.

Altitude sickness can obviously be induced and exacerbated by climbing to altitudes above RMBL. The following symptoms are signs of life-threatening altitude sickness. If you experience any of them, you must descend in elevation immediately and seek medical help. They are: persistent headache (that isn’t relieved by pain killers), persistent vomiting, altered mental status or coughing up fluid from your lungs. Fluid in the lungs is also a symptom of possible Hantavirus infection. So in either case, you should see a doctor.

Hypothermia:

Hypothermia is when your body temperature drops below 96 degrees F. Usually hypothermia develops slowly after letting your body be a little cold for a long time. In fact, most of us have been at least moderately hypothermic at some point in our lives. If unrecognized and untreated, however, hypothermia can kill you. It’s easy to get hypothermic when it’s a little cold, rainy, and windy. (This describes the weather at the RMBL about half the summer). The first signs of hypothermia are shivering, slurred speech, mental fogginess, and lethargy. You won’t necessarily feel cold, especially if you are already tired. The danger of hypothermia is one of the greatest arguments for hiking with someone else. If your hiking buddy is slowing down, getting grumpy, and is wet, then you have to recognize the signs and treat the problem. First, have them take off wet clothes, put on dry clothes and get protected from rain and wind. Second, give them food (sugars and carbohydrates are best) and plenty of water. This gives them the quick energy they need to produce their own heat. Third, keep them active and moving so that they start to warm up. Continue to give them more food after they start warming up. (This is when proteins and fats are best for sustained energy). If they don’t start to recover, it may help to build a fire or share your heat. The best way to share your heat is to snuggle with them in a sleeping bag. Never give a hypothermic person alcohol. This will only cause them to lose more heat. It is important to always carry dry clothes in a plastic bag. Cotton clothes are the worst for losing heat when you’re wet. Try to take wool or polypropylene clothes.

Crossing Rivers:

During spring snowmelt and summer thunderstorms, the rivers and streams around RMBL can become very swollen. Many trails crisscross rivers, requiring hikers to wade through icy, deep water (i.e. Copper Creek Trail). People have been swept away at these crossings so don't attempt to cross unless you are sure you will be safe. If you decide to cross, remember that the safest place might be upstream or downstream from where the trail crosses. Look for hazards floating down the stream (large rocks, logs, debris) and cross upstream of them. The rocks at the bottom of the stream are often slippery and sharp. You might want to carry sandals and find a stout walking stick to help you balance. If you are in a group, sometimes forming a chain by holding hands can help you keep your balance. Loosen all backpack straps so that if you fall in the water, you're pack won't drag you down. Always cross streams by moving diagonally across, with the current. If you fall in, keep your feet downstream, your bottom down, and use your hands and feet to propel you to the shore. If you get wet, it is best to turn around or change into your dry clothes.

Rocks:

The Elk Mountains are termed "red, rotten, and rugged". The rock here is not the smooth, hard granite of Yosemite! Most of the rock crumbles easily (note the huge scree fields below every peak) and is in constant movement. You will often hear rock falls when you are hiking. The greatest danger is from letting rocks loose on hikers below you. To avoid this, always look to see who might be crossing the slope below you. The person above is responsible for the people below. Step carefully and avoid dislodging rocks. If the slope is really steep, have people cross in a line diagonally, then form a bunch and cross back, or go one at a time, with the group waiting to the side in a safe spot. This keeps everyone out of the way of falling rocks. If you do dislodge a rock, no matter what size, yell ROCK as loud as you can.

If you hear someone yell ROCK do not look up! Turn to the side and put your pack between you and any falling rocks. To keep your footing, use your hands and feet on steep slopes. A good rule is to keep three points of contact, and test every rock (jiggle it a little before you put your full weight on it). Move slowly and carefully. Remember that it is always harder to climb down than up. Don't climb up a rock or cliff that you can't climb down!

Snow:

Hiking up or across steep snow slopes requires special equipment (ice axes and crampons). Do not attempt steep slopes without the proper equipment. If the slope is not steep, you can kick steps with your boots and proceed slowly and carefully. To get down snow slopes, it is possible to "glissade" or slide. Before starting to "glissade" make absolutely sure that you can stop before hitting the rocks at the bottom of the snow field. Watch for icy patches, exposed rocks, and other glissaders.

Water Purification and Food Poisoning:

It is not safe to drink water directly from any stream or lake around the RMBL. Eating and melting snow to drink is also unsafe. If you go on an overnight trip and are counting on getting water from streams, make sure you will have access to a perennial water source. You can treat the water by filtering it, boiling it, or using iodine tablets. Make sure you have practiced using

your filter or iodine tablets before you get in the field. Be aware that some people are allergic to iodine.

Food poisoning occurs when you consume foods that have been contaminated by bacteria. You can die within hours of getting food poisoning. The best way to avoid it is not to take any perishables such as dairy products and meats on hiking trips. Dehydrated foods, nuts, energy bars, and fruits are all good items to take.

Allergic Reactions:

Allergies to foods and insect bites can result in anaphylactic shock, which can result in suffocation. While in the backcountry, don't consume any food or drink that you haven't tried before (especially nuts, as many people are allergic to them). If you are allergic to insect bites, you should carry epinephrine and know how to administer it to yourself. An antihistamine like Benadryl will also help in cases of allergic reactions.

List of Items to Take on a Hike (regardless of weather or length of outing):

- Dry, warm clothes, extra socks, warm hat
- Two garbage bags (to keep you and your stuff dry if it rains)
- Rain gear for upper and lower body
- Gaiters and Mittens for snow
- Plenty of food
- Plenty of water (at least 2.5 liters/day)
- First Aid Kit (see below)
- Sunscreen, sun hat, and sunglasses
- Watch
- Matches in water proof container like film canister (for emergency fires)
- Map of where you are going (and compass if you know how to use it)
- Comfortable hiking shoes and thick hiking socks
- Blister treatment like Molefoam
- Flashlight with extra batteries (in case you are delayed and get back after dark)
- Pocket knife
- Insect repellent
- Toilet paper and baggie to pack it out
- Sandals (for river crossings)
- Tell someone your plan and route and sign out/in on the Hikers Sheet in the Dining Hall.

List of Minimum Items for a First Aid Kit:

- Ace bandage – to support sprains or construct splints
- Duct tape, strong string, or rope - to secure splints
- Iodine ointment for cleaning wounds
- Band-Aids
- Sterile gauze dressing, for large wounds
- Adhesive tape, to attach dressing
- Antibiotic cream, like Neosporin
- Pain killer/ anti-inflammatory (i.e. ibuprofen)
- Antihistamine (i.e. Benadryl)

- Signal mirror or whistle - in case you get hurt or lost
- Candy or Sugar packets (for quick energy)

Sources for above first aid information:

1. "The Outward Bound Wilderness First-Aid Handbook," by Jeffrey Isaac, P.A.-C, 1998, Lyons Press, New York, New York.
2. "Wilderness Medical Associates Field Guide," by Jim Morrissey, EMT-P, WEMT, 2000, Wilderness Medical Associates, Inc., Bryant Pond, Maine.
3. "Wilderness Survival," by Susanne Swedo, 1998, Falcon Publishing, Inc, Helena, Montana.

Additional information is available on the World Wide Web at: <http://www.nols.edu/wmi/>

I. LIGHTNING

Intense afternoon lightning storms are very common during July and August. During periods when storms are frequent, it's a good idea to plan hiking trips so that you are back before 2:00 pm. (This may mean starting before 6:00 am). While hiking, keep an eye on the sky and look for thunder heads. Watch how quickly they are moving and estimate when they may reach you. If you are on a ridge, mountain, open slope or open basin and you hear thunder, get off the ridge and move quickly to a lower location or into the trees. If you are in a group, spread out as much as possible from each other (so that you are not all struck). Take off anything metallic above the waist. The best place to wait out a lightning storm is in a small clearing in the forest. Do not stand under a tree or boulder or lean up against a tree. If you are stuck high on a ridge or mountain, squat on the slope a distance at least twice your height down from the top and don't place both hands and feet on the ground at the same time. If you do you could provide a path for the lightning that passes through your heart.

Theoretically, there is a safe zone if you are at a 45-degree angle from the top of the tallest tree near you. Put your pack or something insulating on the ground and squat on it, making sure that your feet and hands don't touch the ground at the same time. Caves and rock crevices are not safe hiding places from lightning.

If you or someone in your group gets hit by lightning, their chances for survival are good. If their heart stops, it will probably start again on its own, but the person may need CPR to begin breathing again. It is common for lightning victims to need breathing support for lengthy periods after they initially begin breathing. Treat burns as you would an open wound. Keep the person warm, as they are likely to go into hypothermia. Always evacuate a person that has been hit by lightning as problems can develop later. Send a team for help, and if possible, start walking the person out. Don't let the person fall asleep as paralysis commonly sets in after sleep.

III. DINING HALL OPERATIONS

A. DINING HALL SAFETY:

The RMBL Dining Hall is a licensed retail food establishment, undergoing annual inspections and certification by the State of Colorado Department of Public Health and Environment. The Dining Hall complies with the Colorado Retail Food Establishment Rules and Regulations, 6 CCR 1010-2, Authority Sections 25-4-1604, 25-5-420, 25-1.5-104(1)(g) and 25-1-108(1)(c)(1), Colorado Revised Statute. Reference:

<http://www.cdphe.state.co.us/regulations/consumer/101002RetailFood.pdf>

1. Dining Hall Eaters:

Do not enter the kitchen area without permission of the Dining Hall Director. Be aware that serving trays may be very hot and contain warming fires underneath.

2. Allergies:

Please notify the Dining Hall Director or Operations Manager of any known food allergies or sensitive reactions, so that meals and food can be planned accordingly.

3. Dining Hall Staff Safety Precautions:

Kitchen work is usually considered a relatively safe occupation, however the following precautions should be taken to avoid injuries in the workplace:

-Preventing Cuts – Keep knives sharp, use a cutting board, be aware of others around you, cut away from yourself and others, use knives only for cutting (not other jobs such as opening cans), don't try to catch a falling knife, don't put knives under water or anyplace where they can't be seen, store knives in a safe place such as a knife rack, carry knives carefully and properly. Sweep up broken glass, don't pick up by hand. Discard cracked or chipped glasses or plates.

-Preventing Burns – Always assume a pot handle is hot; use dry pads or towels to handle hot pans, as wet ones will create steam and can burn you; keep pot/pan handles away from open flame or burners; don't fill pans so full that they are likely to spill; get help when moving heavy containers of hot food; open lids away from you to let steam escape safely; make sure gas is vented before lighting pilots or burners, and strike matches before turning on the gas; wear sturdy shoes with closed toes; when placing food in hot fat let them fall away from you so that fat will not splash on you; keep liquids away from deep fryer; warn people when you are walking behind them with hot food or pans.

-Preventing Fires – Know where fire extinguishers are located and how to use them; use the right kind of extinguisher; keep a supply of salt or baking soda handy to put out fires on range tops; keep hoods and other equipment free from grease buildup; don't leave hot fat unattended on the range; keep exits and doors free from obstacles.

Preventing Injuries from Machines and Equipment – Do not use any kitchen equipment or appliance unless you understand its operation; use all guards and safety devices on equipment; keep slicing machine set at zero (blade closed) when not in use; unplug electric equipment before cleaning or disassembling; make sure switch is off before plugging in equipment; do not touch or handle electric equipment if your hands are wet or you are standing in water; wear

proper fitting clothing and tuck in apron strings to avoid getting caught in machinery; use equipment only for the purpose intended.

Preventing Falls – Clean up spills immediately; keep aisles and stairs clear and unobstructed; walk don't run in the kitchen; use a safe ladder to reach high shelves or to clean high equipment.

Preventing Strains and Injuries from Lifting – see section under IIE. Safe practices and Lifting

B. KITCHEN EQUIPMENT:

The following appliances and equipment are located in the Dining Hall kitchen, and all staff and users should have a working knowledge of this equipment and safety precautions that are required for each appliance.

Robot Coupe Model R2N Food processor:

Globe Mixer:

Metro Hot Box or Heated Cabinet C175 Series

Bunn Coffee Maker model VPS

Excalibur Conveyor Toaster model 420

Waring Commercial Blender

Presto Pressure Cooker

Panasonic Commercial Microwave Oven model NE-1467

Berkel Model 808 Slicer

Beckett Ice Machine model CM250

Delfield 6000 Series Cooler

True Freezer model T72F

Glenco Cooler, Model HH-351562-A

GE Chest Freezer

Kidde Hood Fire Suppression System Model WHDR-400S

Owner's operating manuals and supporting documents are located in the Dining Hall files for the above equipment.

IV. FACILITY MAINTENANCE AND CONSTRUCTION

A. SAFETY EQUIPMENT AND PERSONAL PROTECTION EQUIPMENT

Personal Protective Equipment (PPE) Introduction:

- Goggles or face shields must be worn where there is any danger of flying particles or corrosive materials.
- Safety glasses are required to be worn at all times in areas where there is risk of eye injuries such as punctures, abrasions, contusions or burns.
- Protective gloves, aprons, shields or other means must be worn to guard against cuts, corrosive liquids and chemicals.
- Hard hats must be worn where danger of falling objects exists.
- Foot protection is required where there is risk of foot injuries from hot, corrosive, poisonous substances, falling objects, crushing or penetrating actions.
- All protective equipment must be maintained in a sanitary condition and ready for use.
- Eye wash facilities and a quick drench shower must be available and maintained within a work area where employees are exposed to injurious corrosive materials.
- Hearing protection must be worn when sound levels exceed those of the Cal/OSHA noise standard.
- Adequate work procedures, protective clothing and equipment must be used when cleaning up spilled toxic or otherwise hazardous materials or liquids.

This section addresses hazard assessment, training, and:

1. Eye and face protection
2. Foot protection
3. Hand protection
4. Head protection
5. Respiratory protection
6. Hearing protection

Employees will be provided personal protective equipment (PPE) items and will use them whenever doing so will reduce the likelihood of an injury and/or illness. PPE is not a substitute for engineering or administrative controls, or good work practices, but should be used in conjunction with these controls.

Responsibilities

Supervisors have the primary responsibility for implementation of the PPE Program in their work area. This includes:

1. Conducting a hazard assessment in their work area.
2. Determining what type of PPE is required.
3. Ordering the necessary equipment.
4. Ensuring the employees are trained on the proper use, care and cleaning of PPE.
5. Ensuring the employees are wearing the PPE.
6. Seeking assistance if required to evaluate hazards.
7. Maintaining records on hazard assessments.

8. Replacing defective or damaged equipment immediately.

Employees have the primary responsibility for wearing and cleaning the assigned PPE in accordance with the training received.

Researchers or supervisors have the primary responsibility for insuring that PPE is available for employees.

Hazard Assessment and PPE Selection

Supervisors will conduct a walk-through survey of each work area to identify potential hazards. Each survey will be documented using the Hazard Assessment Form (**Appendix B**). The hazard assessment should be dated and signed as the written certification and maintained for inspection and training.

Protective Devices

All PPE will be appropriate for the work to be performed and maintained in a clean condition. Equipment must meet American National Standards Institute (ANSI) standards. Gloves must be selected based on style, size and performance characteristics of the glove in relation to the hazards encountered.

Training

Employees who wear PPE shall be trained in the following:

1. Which PPE is necessary
2. When PPE is necessary
3. How to properly adjust and wear their PPE
4. The limitations of the PPE
5. The proper care, decontamination and maintenance of PPE
6. The proper disposal of the PPE

Training will be provided prior to the employee working in an area requiring the use of PPE.

Additional training is needed when:

1. Changes in the employee's job duties require different PPE.
2. Changes in the style or type of PPE used renders the previous training obsolete.
3. An event has occurred which indicates the affected employee has not retained the training on the proper use of the PPE.
4. The employee is observed incorrectly using the assigned PPE.

A training certificate will be kept for each employee. The certificate will contain the name of the employee trained, date of training and identify the PPE covered in the training. **Appendix C** contains a certification form. These certificates should be kept in the employee's training file.

1. Eye and Face Protection

Employees must use appropriate eye or face protection when exposed to hazards from flying particles, liquid chemicals, acids or caustics, chemical gases or vapors, or injurious light radiation. Eyewear shall comply with ANSI Z87.1 as indicated by labels on the PPE. When

there is a hazard from flying objects, side protectors meeting ANSI standards must be used.

Those employees wearing prescription glasses need to wear approved safety glasses that incorporate the prescription into the glasses or wear goggles over the prescription glasses.

Visitors, contractors, or others passing through an identified eye hazard area need to wear appropriate eyewear also. An ample supply of visitor safety glasses should be available for use.

2. Occupational Foot Protection

Employees working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole shall wear protective footwear. All safety footwear shall comply with ANSI Z41_1991.

3. Hand Protection

Employees must use appropriate hand protection when exposed to hazards from skin absorption of harmful substances, severe cuts or lacerations, abrasions, punctures, chemical burns, or temperature extremes. A careful evaluation of the hazard must be made due to the enormous variety of gloves on the market. Glove selection will be based on performance characteristics of the gloves, conditions, duration of use, and hazards present. One type of glove will not work in all situations. No glove will protect the wearer from all hazards. Even if a glove will protect the wearer, it will not last forever and must be changed regularly, as chemicals eventually permeate all glove materials.

In selecting gloves for use against chemicals, the exact chemicals encountered need to be determined. Labels and MSDSs can provide this information. Recommended glove types are often listed in the section for PPE on the MSDS. A manufacturer's glove selection guide or compatibility chart must be consulted when selecting gloves.

Latex gloves should be avoided due to the possibility of latex allergies. Studies have revealed that 8 to 12 percent of healthcare workers regularly exposed to latex are sensitized. The National Institute for Occupational Safety and Health (NIOSH) recommends the selection of products that reduce the risk of allergic reactions. For general laboratory use, disposable nitrile gloves are an excellent latex substitute. In addition to reducing the risk of sensitization, nitrile gloves offer superior chemical resistance over latex to many chemical substances.

Once gloves are removed, hands should be washed thoroughly. Gloves should not be worn out of the lab or when shared lab equipment is handled.

4. Head Protection

All employees must wear a hard hat when there is a danger from impact and/or penetration from falling objects in any work location. Where there is a possibility of hitting the head on protruding objects or pipes, a bump hat may be worn.

5. Respiratory Protection

Under construction.

6. Hearing Protection

The Occupational Safety and Health Administration (OSHA) has promulgated regulations limiting employee exposure to noise. Any employee exposed to noise greater than 85dBA shall be provided with hearing protection, regardless of duration.

It is the responsibility of the various Division Directors to identify potential areas of concern in their units. Supervisors will determine which work areas require participation in the hearing conservation program.

Once a particular job is identified as having high noise levels, the Division concerned shall inform personnel that a baseline audiogram and participation in a training program is required for all future appointments to this position.

It shall be the responsibility of the Division concerned to provide a choice of hearing protection devices to those employees requiring them and to insure that they are being worn.

Please note that the cost of hearing protection device costs shall be the responsibility of the department employing the worker.

Selection of Hearing Protectors:

Hearing protection must be worn by all employees who are exposed to noise above 85dBA. The hearing protector should reduce the noise level below an 8-hr TWA of 85 dBA. All hearing protectors are assigned a noise reduction rating (NRR) which can be found on the individual package or box the hearing protectors came in.

In a case where the hearing protector does not offer enough protection, earmuffs and plugs can be worn together.

Remember, hearing protectors must be worn properly to provide maximum protection.

Cleaning and Maintenance:

It is the employee's responsibility to ensure their PPE is clean and properly maintained. Cleaning is particularly important for eye and face protection where dirty or fogged lenses could impair vision. PPE should be inspected, cleaned and maintained at regular intervals as instructed by the supervisor.

It is also important to ensure that contaminated PPE, which cannot be decontaminated, is disposed of in a manner that protects employees from exposure to hazards.

References: The hearing protection section above was adapted from Univ. of Florida, <http://www.ehs.ufl.edu/General/hearpol.htm>

Safety equipment and PPE information was adapted from Univ. of Florida, http://www.ehs.ufl.edu/Lab/CHP/CHPAppE_ppe.htm

B. HAZARDOUS ENERGY CONTROL POLICY

Regulatory Authority:

http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926#1926_Subpart_E
(29 CFR 1910.147)

Objective:

This policy is intended to prevent injury to employees from the unexpected energizing, start up, or release of stored energy during servicing or maintenance of machines or systems.

Policy:

Only authorized employees are permitted to isolate hazardous energy in machines or systems. Authorized employees must understand the types, magnitude, and hazards of energy presented by the equipment they are authorized to lock out.

Specific written lock out procedures must be developed for each type of machine or system. Work cannot proceed until a specific procedure is developed.

Lockout the energy isolating devices with assigned individual lock(s). Tags may be used only with the written permission of EH&S when there is no feasible way to lock the machine or system. A specific procedure must be developed where tags are used with an additional disabling step taken in addition to the tag.

Only the employee who applied a lock should remove it. When the employee is not available the supervisor may remove the lock. The supervisor must notify the employee immediately upon returning to work that his or her lock was removed.

Locks must remain in place where shutdowns span shift changes and weekends.

This policy does not apply to work on cord and plug connected electric equipment for which the hazard of unexpected energizing or start up is controlled by the unplugging of the equipment from the energy source and by the plug is under the exclusive control of the employee performing the servicing or maintenance.

This policy does not cover minor tool changes and adjustments, and other minor servicing activities, which take place during normal operations, if they are routine, repetitive, and integral to the use of the equipment provided the work is performed using alternative measures which provide effective protection.

Normal and routine servicing or maintenance is covered by this policy if an employee is required to remove or bypass a guard or other safety device; or to place any part of his or her body into an area on a machine or piece of equipment where a danger exists during machine operation.

This policy does not cover hot tap operations involving transmission and distribution systems for substances such as gas, steam, water or petroleum products when they are performed on pressurized pipelines, provided that the supervisor demonstrates that continuity of service is essential; shutdown of the system is impractical; and specific procedures providing proven

protection for employees are approved in writing by EH&S.

Responsibilities:

It is the responsibility of the maintenance department and laboratory principal investigators to implement this policy through the development of the necessary specific written procedures, training of staff, purchase of equipment, and modification to machines and systems where necessary.

Supervisors:

It is the responsibility of the supervisor to maintain specific written lock out procedures for each type of machine or system, and to assure that the necessary equipment is provided and that hazardous energy control procedures are consistently and correctly implemented.

The supervisor should identify authorized employees and ensure they are adequately experienced and trained to identify potential hazards and apply appropriate means to secure those hazards.

Authorized Employees:

It is the responsibility of authorized employees to verify that they possess adequate training and experience to understand the types, magnitude, and hazards of energy presented by the equipment they are authorized to lock out.

Authorized employees are responsible for the implementation of the specific written lock out procedures developed for each type of machine or system

RMBL employees must place locks on systems shut down by contractors when RMBL employees will also work on this equipment.

Procedures:

Comply with the specific written lock out procedures developed for the type of machine or system. Work cannot proceed until a specific procedure is developed.

The authorized employee or supervisor must notify people affected by the shutdown that a loss of service will occur, and provide the expected start and duration of the project and a description of all the systems affected. Sufficient lead time should be provided to allow affected areas to prepare for shutdown.

Where necessary authorized employees may exchange their assigned locks/tags or keys with other authorized employees. Authorized employees assuming control of lockout of equipment must be fully briefed in the scope and stage of the work by those being relieved.

Training shall be provided for employees authorized to develop written procedures and apply locks or tags.

Training shall also be provided to personnel that may encounter locked/tagged out equipment through the course of their work.

Retraining will occur when new or revised control methods and procedures are implemented.

C. WORK BY LICENSED PROFESSIONALS

As a matter of policy all work for which the State of Colorado requires a license shall be performed only by or under the supervision of a professional in possession of such a license. All Electrical work at the Rocky Mountain Biological Laboratory shall be performed by or under the direction and with the supervision of an electrician licensed to perform such work within the State of Colorado.

D. CHAIN SAW SAFETY

Regulatory Authority:

29 CFR 1910.266

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9862

Appendix A, Standards for required FA kit

- Standard Number: 1910.266 App A

- Title: First_aid Kits (Mandatory).

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9863

How to operate a chain saw safely:

Power Point Presentation: <http://edis.ifas.ufl.edu/AE186>

Includes a useful outline of topics for the presentation.

<http://www.flagsafe.ufl.edu/publications.html>

E. SHOP/ POWER TOOL SAFETY¹

Regulatory Authority:

29 CFR 1926 Subpart I _ Tools _ Hand and Power

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10688

- * 1926.300 _ General requirements.
- * 1926.301 _ Hand tools.
- * 1926.302 _ Power_operated hand tools.
- * 1926.303 _ Abrasive wheels and tools.
- * 1926.304 _ Woodworking tools.

General Safety Rules:

¹ Adapted from the University of Florida,
<http://www.ehs.ufl.edu/General/Shop/shophome.htm>

1. Employees or users shall not turn on, use, repair, or operate any machine, tool, vehicle, crane, electricity, gas, steam, air, acid, caustic or other dangerous material or equipment unless authorized by a supervisor.
2. Safety guards and devices required for safe operation shall be used. Removal or non_use will not be authorized.
3. Approved personal protective equipment (PPE) shall be worn when the exposure indicates the need for it, i.e., head and ear protection, face and eye protection, respiratory equipment, safety belts, protective footwear, etc. (See Section "Personal Protective Equipment" for more details).
4. Only tools, equipment, and machinery that is properly maintained and adjusted may be used.
5. RMBL-provided tools may not be modified unless authorized by a supervisor.
6. Floors must be kept free of debris or substance that might constitute a tripping or slipping hazard. Employees responsible for any such spill shall clean it up immediately.
7. Horseplay, running and practical jokes are prohibited in buildings because of potential slipping, tripping and collision hazards.

Clothing & Safe Dress:

1. Employees will wear clothing appropriate to their work assignments. Clothing will be in reasonably good condition and clean.
2. Supervisors are responsible for ensuring that employees are informed as to the requirements for wearing apparel that is suitable for the type of work to be performed and the hazards involved.
3. For those working with machinery or in other hazardous operations, clothing should be well fitted, with no loose or flowing appendages. Sleeves, if full length, should be buttoned at the wrist. The practice of working without a shirt is not approved.
4. Unless working conditions dictate otherwise, employees must wear shoes while at work. Shoes should be well-fitted with good soles and heels and of a style that completely covers the foot. Open-toe shoes, or lightweight shoes of the canvas "sneaker" type may not be safe. Safety shoes or safety toe caps are recommended in foot-hazardous work. Because of sanitation and liability, persons with bare feet should not be allowed within campus buildings.
5. Employees with long hair who work around moving machinery must wear adequate hair covering to preclude the possibility of entanglement.
6. Jewelry such as rings, pendants, necklaces, earrings, watches shall not be worn when they constitute a hazard, i.e. working around moving machinery, electrical or electronics equipment, etc.

Hand Tool Safety:

1. Employees must be trained in proper saw use and safety before working unsupervised.
2. Safety training to be provided for employees who will utilize pneumatically driven nailers and staplers prior to initial assignment to operate tools and refresher if unsafe behavior detected or operator involved in an incident.
3. Employees are not to block off or remove any guard or safety device.
4. Employees must disconnect pneumatic tools from air supplies when not in use.
5. Employees are not to operate a pneumatic tool within 10 feet of another worker.
6. Check jacks periodically to assure they are in good operating condition.
7. Tool cutting edges are to be kept sharp so the tool will move smoothly without binding or

skipping.

8. Tools are to be stored in a dry, secure location.

9. Only authorized and trained personnel are permitted to use welding, cutting or brazing equipment.

Machine Safety:

1. Employees who operate power actuated tools are to be trained in their use.

2. Do not operate machines with damaged or worn parts.

3. Keep floor surfaces in work area clean and dry.

4. No food or drinks are allowed in the vicinity of the machines.

5. Dust collectors and powered exhausts are to be used on grinders which are used in operations that produce large amounts of dust.

6. Compressors are to be operated and lubricated in accordance with manufacturer's recommendations.

7. Safety devices on compressed air systems are to be checked frequently.

F. COMPRESSED AIR SAFETY:

General safety requirements for compressed air follow. The following precautions pertain to the use of compressed air in machine shops:

1. All pipes, hoses, and fittings must have a rating of the maximum pressure of the compressor. Compressed air pipelines should be identified (psi) as to maximum working pressure.

2. Air supply shutoff valves should be located (as near as possible) at the point of operation.

3. Air hoses should be kept free of grease and oil to reduce the possibility of deterioration.

4. Hoses should not be strung across floors or aisles where they are liable to cause personnel to trip and fall. When possible, air supply hoses should be suspended overhead, or otherwise located to afford efficient access and protection against damage.

5. Hose ends must be secured to prevent whipping if an accidental cut or break occurs.

6. Pneumatic impact tools, such as riveting guns, should never be pointed at a person.

7. Before a pneumatic tool is disconnected (unless it has quick disconnect plugs), the air supply must be turned off at the control valve and the tool bled.

8. Compressed air must not be used under any circumstances to clean dirt and dust from clothing or off a person's skin. Shop air used for cleaning should be regulated to 15 psi unless equipped with diffuser nozzles to provide lesser pressure.

9. Goggles, face shields or other eye protection must be worn by personnel using compressed air for cleaning equipment.

10. Static electricity can be generated through the use of pneumatic tools. This type of equipment must be grounded or bonded if it is used where fuel, flammable vapors or explosive atmospheres are present.

Safety Requirements for Operating & Maintaining Compressed Air Machinery:

All components of compressed air systems should be inspected regularly by qualified and trained employees. Maintenance superintendents should check with state and/or insurance companies to determine if they require their own inspection of this equipment. Operators need to be aware of the following:

The maximum allowable working pressures of air receivers should never be exceeded except when being tested. Only hydrostatically tested and approved tanks shall be used as air receivers.

1. Air tanks and receivers should be equipped with inspection openings, and tanks over 36 inches in diameter should have a manhole. pipelug openings should be provided on tanks with volumes of less than five cubic feet.
2. The intake and exhaust pipes of small tanks, similar to those used in garages, should be made removable for interior inspections.
3. No tank or receiver should be altered or modified by unauthorized persons.
4. Air receivers should be fitted with a drain cock that is located at the bottom Of the receiver.
5. Receivers should be drained frequently to prevent accumulation of liquid inside the unit. Receivers having automatic drain systems are exempt from this Requirement.
6. Air tanks should be located so that the entire outside surfaces can be easily inspected. Air tanks should not be buried or placed where they cannot be seen for frequent inspection.
7. Each air receiver shall be equipped with at least one pressure gauge and an ASME safety valve of the proper design.
8. A safety (spring loaded) release valve shall be installed to prevent the receiver from exceeding the maximum allowable working pressure.
9. Only qualified personnel should be permitted to repair air tanks, and all work must be done according to established safety standards.

Air Distribution Lines:

1. Air lines should be made of high quality materials, fitted with secure connections.
2. Only standard fittings should be used on air lines.
3. Operators should avoid bending or kinking air hoses.
4. Air hoses should not be placed where they will create tripping hazards.
5. Hoses should be checked to make sure they are properly connected to pipe outlets before use.
6. Air lines should be inspected frequently for defects, and any defective equipment repaired or replaced immediately.
7. Compressed air lines should be identified as to maximum working pressures (psi), by tagging or marking pipeline outlets.

Pressure regulation devices:

1. Only qualified personnel should be allowed to repair or adjust pressure regulating equipment.
2. Valves, gauges and other regulating devices should be installed on compressor equipment in such a way that cannot be made inoperative.
3. Air tank safety valves should be set no less than 15 psi or 10 percent (whichever is greater) above the operating pressure of the compressor but never higher than the maximum allowable working pressure of the air receiver.
4. Air lines between the compressor and receiver should usually not be equipped with stop valves. Where stop valves are necessary and authorized, ASME safety valves should be installed between the stop valves and the compressor.
5. The Safety valves should be set to blow at pressures slightly above those necessary to pop

the receiver safety valves.

6. Blowoff valves should be located on the equipment and shielded so sudden blowoffs will not cause personnel injuries or equipment damage.

7. Cast iron seat or disk safety valves should be ASME approved and stamped for intended service application.

8. If the design of a safety or a relief valve is such that liquid can collect on the discharge side of the disk, the valve should be equipped with a drain at the lowest point where liquid can collect.

9. Safety valves exposed to freezing temperatures should be located so water cannot collect in the valves. Frozen valves must be thawed and drained before operating the compressor.

Air Compressor Operation:

1. Air compressor equipment should be operated only by authorized and trained personnel.

2. The air intake should be from a clean, outside, fresh air source. Screens or filters can be used to clean the air.

3. Air compressors should never be operated at speeds faster than the manufacturer's recommendation.

4. Equipment should not become overheated.

5. Moving parts, such as compressor flywheels, pulleys, and belts that could be hazardous should be effectively guarded.

Compressed Air Equipment Maintenance:

1. Only authorized and trained personnel should service and maintain air compressor equipment.

2. Exposed, non current-carrying, metal parts of compressor should be effectively grounded.

3. High flash point lubricants should not be used on compressors because of its high operating temperatures that could cause a fire or explosion.

4. Equipment should not be over lubricated.

5. Gasoline or diesel fuel powered compressors shall not be used indoors.

6. Equipment placed outside but near buildings should have the exhausts directed away from doors, windows and fresh air intakes.

7. Soapy water or lye solutions can be used to clean compressor parts of carbon deposits, but kerosene or other flammable substances should not be used. Frequent cleaning is necessary to keep compressors in good working condition.

8. The air systems should be completely purged after each cleaning.

9. During maintenance work, the switches of electrically operated compressors should be **locked open and tagged** to prevent accidental starting.

10. . Portable electric compressors should be disconnected from the power supply before performing maintenance.

G. HOT WORK SAFETY:

Regulatory Authority: OSHA 29CFR 1910.252_254

Scope and Application:

This program is designed to prevent injury and loss of property from fire or explosion as a result of hot work in all RMBL spaces and activities. It covers: welding, brazing, soldering,

heat treating, grinding, powder-actuated tools, hot riveting and all other similar applications producing a spark, flame, or heat.

This program does not cover use of: candles, laboratory activities, pyrotechnics or special effects, cooking equipment, electric soldering irons or torch-applied roofing (See NFPA 241). All hot work performed by outside contractors shall be in conformance with NFPA 51B at a minimum.

Hot work operations in confined spaces require additional safeguards, see CONFINED SPACES section. Hot work on and near building systems and piping may require additional safeguards

Definitions:

Competent Hot Work Supervisor (CHWS): the CHWS shall have successfully completed competent person training and examination to be considered competent. For outside contractors the hot work supervisor shall be identified and the name provided to the Physical Plant Supervisor. The CHWS cannot be the hot work operator. Failure to properly adhere to RMBL Hot Work Procedures shall result in suspension of competent person authority and possible disciplinary action.

Designated Area: Permanent location designed for or approved by a CHWS for hot work operations to be performed regularly.

Hot Work: Any work involving welding, brazing, soldering, heat treating, grinding, powder-actuated tools, hot riveting and all other similar applications producing a spark, flame, or heat, or similar operations that is capable of initiating fires or explosions.

Hot Work Permit: A document issued by the CHWS for the purpose of authorizing a specified activity.

Hot Work Operator: An individual designated by RMBL to perform hot work under the authorization of a CHWS.

Welding and Allied Processes: Those processes such as arc welding, oxy_fuel gas welding, open_flame soldering, brazing, thermal spraying, oxygen cutting, and arc cutting.

Competent Hot Work Supervisor (CHWS) Responsibilities:

The CHWS is responsible for the safe operations of hot work activity under their supervision. These duties include:

1. Establish permissible areas for hot work.
2. Ensure that only approved apparatus, such as torches, manifolds, regulators and pressure reducing valves, are used.
3. Ensure that all individuals involved in the hot work operations are familiar with RMBL Hot Work requirements.
4. Ensure that all individuals involved in the hot work operations are trained in the safe operation of their equipment and the safe use of the process. These individuals must have an

awareness of the risks involved and understand the emergency procedures in the event of a fire.

5. Determine site-specific flammable materials, hazardous processes, or other potential fire hazards present or likely to be present in the work location.
6. Ensure combustibles are protected from ignition by the following means:
7. Move the work to a location free from combustibles.
8. If the work cannot be moved, ensure the combustibles are moved to a safe distance or have the combustibles properly shielded against ignition.
9. Ensure hot work is scheduled such that operations that could expose flammables or combustibles to ignition do not occur during hot work operations.
10. If any of these conditions cannot be met, then hot work must not be performed.
11. Determine that fire protection and extinguishing equipment are properly located and readily available.
12. Ensure sufficient local exhaust ventilation is provided to prevent accumulation of any smoke and fume.
13. Ensure that a fire watch is posted at the site when:
14. Hot work is performed in a location where other than a minor fire might develop, or where the following conditions exist.
15. Combustible materials in building construction or contents are closer than 35 ft to the point of hot work.
16. Combustible materials are more than 35 ft away but are easily ignited by sparks.
17. Wall or floor openings are within 35 feet and expose combustible materials in adjacent areas. This includes combustible materials concealed in walls or floors.
18. Combustible materials are adjacent to the opposite side of partitions, walls, ceilings, or roofs and are likely to be ignited.
19. Where a fire watch is not required, the CHWS shall make a final inspection 1/2 hour after the completion of hot work operations to detect and extinguish possible smoldering fires.

Hot Work Operator (HWO) Responsibilities:

The hot work operator shall handle the equipment safely and perform work so as not to endanger lives and property. Specific duties include:

1. No hot work shall be conducted without specific written authorization from the CHWS via completion of the Hot Work Permit.
2. The operator must cease hot work operations if unsafe conditions develop.
3. The operator must notify the CHWS for reassessment of the situation in the event of suspected unsafe conditions or concerns expressed by affected persons.

Fire Watch Responsibilities:

The fire watch is an individual posted in specific circumstances, as described above. The function of the fire watch is to observe the hot work and monitor conditions to ensure that a fire or explosion does not occur as a result of the work performed. The fire watch is authorized to stop any unsafe operation or activity. Specific duties and responsibilities include:

1. Watch for fires, smoldering material or other signs of combustion.
2. Be aware of the inherent hazards of the work site and of the hot work.
3. Ensure that safe conditions are maintained during hot work operations and stop the hot work operations if unsafe conditions develop.
4. Have fire-extinguishing equipment readily available and be trained in its use.

5. Extinguish fires when the fires are obviously within the capacity of the equipment available. If the fire is beyond the capacity of the equipment, sound the alarm immediately.
6. Be familiar with the facilities and procedures for sounding an alarm in the event of a fire.
7. Be familiar with operations in order to detect and extinguish smoldering fires.
8. More than one fire watch shall be required if combustible materials that could be ignited by the hot work operation cannot be directly observed by a single fire watch (e.g. in adjacent rooms where hot work is done on a common wall).

Hot Work Operational Requirements:

Hot work is allowed only in areas that are or have been made fire safe. Hot work may only be performed in either designated areas or permit required areas.

A designated area is a specific area designed or approved for such work, such as a maintenance shop or a detached outside location that is of noncombustible or fire-resistive construction, essentially free of combustible and flammable contents, and suitably segregated from adjacent areas.

A permit required area is an area made fire safe by removing or protecting combustibles from ignition sources.

Hot work is not allowed:

1. In sprinklered buildings if the fire protection system is impaired.
2. In the presence of explosive atmospheres or potentially explosive atmospheres (e.g. on drums previously containing solvents).
3. In explosive atmospheres that can develop in areas with an accumulation of combustible dusts (e.g. grain silos).

Hot Work Permit:

Before hot work operations begin in a non-designated location, a completed hot work permit prepared by the CHWS is required. (See Appendix I). Based on local conditions, the CHWS must determine the length of the period, not to exceed 24 hours, for which the hot work permit is valid.

The following conditions must be confirmed by the CHWS before permitting the hot work to commence:

1. Equipment to be used (e.g. welding equipment, shields, personal protective equipment, fire extinguishers) must be in satisfactory operating condition and in good repair.
2. The floor must be swept clean for a radius of 35 ft if combustible materials, such as paper or wood shavings are on the floor,
3. Combustible floors (except wood on concrete) must be kept wet or be covered with damp sand (note: where floors have been wet down, personnel operating arc welding or cutting equipment shall be protected from possible shock), or be protected by noncombustible or fire retardant shields.
4. All combustible materials must be moved at least 35 ft away from the hot work operation. If relocation is impractical, combustibles must be protected with fire retardant covers, shields or curtains. Edges of covers at the floor must be tight to prevent sparks from going under them,

including where several covers overlap when protecting a large pile.

5. Openings or cracks in walls, floors, or ducts within 35 ft of the site must be tightly covered with fire-retardant or noncombustible material to prevent the passage of sparks to adjacent areas.

6. If hot work is done near walls, partitions, ceilings, or roofs of combustible construction, fire-retardant shields or guards must be provided to prevent ignition.

7. If hot work is to be done on a wall, partition, ceiling, or roof, precautions shall be taken to prevent ignition of combustibles on the other side by relocating combustibles. If it is impractical to relocate combustibles, a fire watch on the opposite side from the work must be posted.

8. Hot work must not be attempted on a partition, wall, ceiling, or roof that has a combustible covering or insulation, or on walls or partitions of combustible sandwich-type panel construction.

9. Hot work that is performed on pipes or other metal that is in contact with combustible walls, partitions, ceilings, roofs, or other combustibles must not be undertaken if the work is close enough to cause ignition by conduction.

10. Fully charged and operable fire extinguishers that are appropriate for the type of possible fire shall be available immediately at the work area. These extinguishers should be supplied by the group performing the hot work. The fire extinguishers normally located in a building are not considered to fulfill this requirement.

11. If hot work is done in proximity to a sprinkler head, a wet rag shall be laid over the head and then removed at the conclusion of the welding or cutting operation. During hot work, special precautions shall be taken to avoid accidental operation of automatic fire detection or suppression systems (for example, special extinguishing systems or sprinklers).

12. Nearby personnel must be suitably protected against heat, sparks, and slag.

Work Closeout:

1. A fire watch shall be maintained for at least 30 minutes after completion of hot work operations in order to detect and extinguish smoldering fires.

2. The CHWS shall inspect the job site 30 minutes following completion of hot work and close out the permit with the time and date of the final check.

3. The completed Hot Work Permit shall be retained for 6 months following completion of the project.

H. FALL PROTECTION, WORKING ON ROOFS, LADDERS²

Regulatory Authority:

http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926#1926_Subpart_E

29 CFR 1926 Subpart E _ Personal Protective and Life Saving Equipment

- * 1926.104 _ Safety belts, lifelines, and lanyards.
- * 1926.105 _ Safety nets.

29 CFR 1926 Subpart M _ Fall Protection

- * 1926.500 _ Scope, application, and definitions applicable to this subpart.
- * 1926.501 _ Duty to have fall protection.
- * 1926.502 _ Fall protection systems criteria and practices.
- * 1926.503 _ Training requirements.
- * 1926 Subpart M App A _ Determining Roof Widths _ Non_mandatory Guidelines for Complying with 1926.501(b)(10)
- * 1926 Subpart M App B _ Guardrail Systems _ Non_Mandatory Guidelines for Complying with 1926.502(b)
- * 1926 Subpart M App C _ Personal Fall Arrest Systems _ Non_Mandatory Guidelines for Complying with 1926.502(d)
- * 1926 Subpart M App D _ Positioning Device Systems _ Non_Mandatory Guidelines for Complying with 1926.502(e)
- * 1926 Subpart M App E _ Sample Fall Protection Plan _ Non_Mandatory Guidelines for Complying with 1926.502(k)

29 CFR 1926 Subpart X _ Ladders

http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926#1926_Subpart_X

- * 1926.1050 _ Scope, application, and definitions applicable to this subpart.
- * 1926.1051 _ General requirements.
- * 1926.1052 _ Stairways.
- * 1926.1053 _ Ladders.

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10839

Working on a roof, cleaning chimneys:

For work that involves working on a roof or climbing please refer to the sections above and referenced website.

Ladder Safety:

- Use proper ladder for the job you are doing.
- Report unsafe ladders to your supervisor.
- Face rungs when climbing a ladder, and use both hands.
- Do not use a ladder without safety feet.
- No more than one person is allowed on a ladder at one time.

² Adapted from University of Florida, <http://www.ehs.ufl.edu/General/fallprot.htm>

- Do not splice short ladders together.
- Do not use ladders with broken or missing steps or rungs.
- Do not place ladders on boxes or other unstable bases to gain height.
- Do not place a ladder in front of a door unless the door is guarded, locked or blocked open.
- Do not place a ladder against a window.
- Always extend ladders 3 feet above roof when climbing to the roof of a building.
- Ladders shall be placed so that the side rails have secure footing.
- Tops of the ordinary types of step ladders shall not be used as steps.
- Do not climb higher than the third rung from the top on straight ladders, or the second tread from the top of step ladders.

I. WORK IN CONFINED SPACES

Regulatory Authority:

29 CFR 1926.21(b)(6)(i)

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10607

All employees required to enter into confined or enclosed spaces shall be instructed as to the nature of the hazards involved, the necessary precautions to be taken, and in the use of protective and emergency equipment required. The employer shall comply with any specific regulations that apply to work in dangerous or potentially dangerous areas.

J. PROPANE AND GAS

Under construction

K. ELECTRICITY

Only certified electricians should be working on the electrical and wiring systems in Gothic.

Electrical outlets in older cabins should not be used for heat-generating devices, such as heaters, electric blankets, irons, etc.

V. RESEARCH OPERATIONS

A. LABORATORY AND CHEMICAL SAFETY

Regulatory Authority:

29 CFR, 1450-1910 – Occupational Exposure to Hazardous Chemicals in Laboratories
http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10106

29 CFR 1450-1910 Appendix A

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10107

From "Prudent Practices" for Handling Hazardous Chemicals in Laboratories" (referred to below as "Prudent Practices"), which was published in 1981 by the National Research Council and is available from the National Academy Press, 2101 Constitution Ave., NW,. Washington DC 20418.

Chemical Safety:

The RMBL is a Conditionally Exempt Small Quantity Generator or CESQG due to the small amount of chemicals we store. The Lab doesn't require an EPA permit but does need to dispose of chemicals properly by a company approved by the state. (Reference: EPA document Introduction to Generators (40 CFR Part 262)).

The Lab asks that Principal Investigators/Researchers maintain current chemical inventories as part of the information required in the Chemical Safety Binders we provide, and that chemicals be properly labeled with their contents. The binder includes a list of chemicals stored/used in the lab, the MSDS sheets associated with those chemicals, and safety and training information.

Researchers are asked to update their chemical list and their MSDS sheets when they arrive at the beginning of the summer and make sure all individuals in their labs are trained on safety procedures. It is the responsibility of the researcher to keep up the needed MSDS sheets, not RMBL staff.

Storing Chemicals:

Chemicals stored in the Johnson Lab multi-user room are sorted into acids and bases. The acid and base cabinets are located under the south wall tables in the multi-user room. If you would like to begin storing your chemicals (or chemicals in addition to those currently stored) in the multi-user room, please contact the Operations Manager (admin@rmbll.org). This will ensure that the proper updates are made to the Chemical Safety binder and that the OM is aware of the change.

Mercury Thermometers:

RMBL asks that researchers upgrade any mercury thermometer(s) to non-mercury types. When making this upgrade, if researchers can *safely* return your mercury thermometer(s) to your home institutions please do so as these institutions are often better equipped to absorb disposal costs.

Questions: If you have any questions or comments concerning your chemical use or storage please don't hesitate to contact the Operations Manager (admin@rmbll.org).

Edit and utilize safety manual from OSU, a WORD document either as a stand alone companion or as an additional section in this manual. URL:
<http://ehs.okstate.edu/HAZMAT/labman.htm>

Develop "Spill Kits"?

Appendix A: Map of Gothic

Under construction

Appendix B: Personal Protective Equipment Hazard Assessment:

Dept:	Area:	Job Classification/Task:
HAZARDS (Circle)	Describe Specific Hazards	Identify Type of PPE Required for the Hazards
Eye Hazard Impact Penetration Dust Chemical Heat Bioaerosols Projectiles		
Head Hazard Burn Electric Shock Impact Penetration Overhead loads Overhead beams		
Foot/Hand Hazard Burn Chemical Impact Electrical Sharp Objects Wet condition Construction		
Other Safety Hazards Falls Hearing/Noise Heat Electrical Lockout Respiratory Clothing		

I, _____, conducted the above evaluation of the identified
 (PRINTED NAME)

work area on _____
 (DATE)

 (SIGNATURE)

Appendix C: Personal Protective Equipment Training Certification

_____, has received and demonstrated

Printed Name of Employee

understanding of the PPE training given by _____.

Name of Trainer

Signature of Trainer

Date

The following personal protective equipment are available and have been assigned for use	
Check applicable boxes:	Identify specific assigned PPE:
<input type="checkbox"/> Eye and Face Protection	
<input type="checkbox"/> Head Protection	
<input type="checkbox"/> Foot Protection	
<input type="checkbox"/> Hand Protection	
<input type="checkbox"/> Respiratory Protection	
<input type="checkbox"/> Hearing Protection	
<input type="checkbox"/> Other Protection	

Employee Signature

Date