

Mauna Kea Observatories Support Services

SAFETY PLAN

August 3, 2011

1.0 Introduction

Mauna Kea is a very remote location. Emergency medical response time is twenty minutes with an additional forty-five minute ambulance ride to the nearest hospital. Environmental hazards include altitude sickness, sunburn, snow blindness, severe weather and steep winding roads.

Mauna Kea Observatories Support Services (MKSS) places a high value on the safety of its employees. This Safety Plan has been created to help maintain a safe, healthful workplace for employees, volunteers and visitors. This program also requires management and staff to identify and eliminate hazards that may develop during our work process.

It is the basic safety policy of MKSS that no task is so important that someone must violate a safety rule or take a risk of injury or illness in order to get the job done.

Employees are required to comply with all MKSS Safety rules and are encouraged to actively participate in identifying ways to make MKSS a safer place to work.

MKSS Managers (which include the Chief Ranger) are responsible for the safety of their employees and will serve as the Safety Coordinator for their department. Daily duties will include checking the workplace for unsafe conditions, watching staff for unsafe actions and taking prompt action to eliminate any hazards.

Management will devote the resources necessary to form a safety committee composed of management and selected employees. We will identify and correct hazards and plan for foreseeable emergencies. Employees and Managers will be given the proper training, and take disciplinary action for violations of MKSS policies.

Safety is a team effort – Let us all work together to keep this a safe and healthy workplace.

Stewart Hunter
MKSS General Manager

1.1 Safety Plan Responsibilities

Eliminating Workplace Hazards

MKSS is committed to eliminating or controlling workplace hazards that could cause injury or illness to our employees. We will meet the requirements of federal, state and county safety standards where there are specific rules about a hazard or potential hazard in our workplace. Whenever possible, we will eliminate employee exposure to hazards. Where it is not possible to eliminate these hazards, we will write work rules that effectively prevent employee exposure. When these methods of control are not possible, or are not fully effective, employees will use personal protective equipment (PPE) such as safety glasses, hearing protection, foot protection, etc.

Management Responsibilities

- Ensure that sufficient employee time, supervisor support, and funds are budgeted to carry out the safety program.
- Evaluate management approach each year to ensure responsibilities as described in this program are being properly implemented.
- Ensure that incidents are fully investigated and corrective action taken to prevent the hazardous conditions or behaviors from happening again.
- Ensure injuries and illnesses are reported.
- Set a good example by following established safety rules and attending required training.
- Report unsafe practices or conditions to the supervisor of the area where the hazard was observed.

Employee Responsibilities

- Follow safety rules described in this program, HIOSH safety standards and training.
- Report unsafe conditions or actions to your supervisor promptly.
- Report all injuries to your supervisor promptly regardless of how minor.
- Report all near-miss incidents to your supervisor promptly.
- Always use personal protective equipment (PPE) where it is required.
- Do not remove any safety device or safeguard provided for employee protection.
- Encourage co-workers to use safe work practices on the job.
- Make suggestions about changes you believe will improve employee safety.
- Report any unsafe conditions to your Department Safety Coordinator using the Notice of Safety Violation in the appendix.

Employee Safety Meetings

MKSS employees are required to attend a quarterly safety meeting. Each MKSS Department Manager (Safety Coordinator) will ensure these meetings are held and will maintain a documentation of the minutes using the MKSS Safety Meeting form in Appendix 1. These meetings will be intended to:

- Help identify safety problems,
- Develop solutions,
- Review incident reports,
- Provide training and
- Evaluate the effectiveness of the MKSS Safety Plan.

Meeting minutes will be kept on file for two years.

1.2 Safety Rules

Basic Safety Rules

The following basic safety rules have been established to help make MKSS a safe and efficient place to work. These rules are in addition to safety rules that must be followed when doing particular jobs or operating certain equipment.

- Never do anything that is unsafe in order to get the job done. If a job is unsafe, report it to your supervisor. We will find a safer way to do that job.
- Do not remove or disable any safety device! Keep guards in place at all times on operating machinery.
- Never operate a piece of equipment unless you have been trained and are authorized.
- Use your personal protective equipment whenever it is required.
- Obey all safety warning signs.
- Working under the influence of alcohol or illegal drugs or using them at work is prohibited.
- Do not bring firearms or explosives to work.
- Smoking is only permitted outside buildings, or in designated areas.
- Horseplay, running and fighting are prohibited
- Good housekeeping helps prevent injuries: clean up spills immediately; replace all tools and supplies after use; and do not allow scraps to accumulate where they will become a hazard.

Altitude Safety

The summit of Mauna Kea is an elevation of 13,796 feet (4,200 meters). Atmospheric pressure is 40% less than at sea level. Sunburn and eye damage are possible as there is less atmospheric protection from the sun. Less oxygen is available and acute mountain sickness is possible. Symptoms include: headaches, drowsiness, nausea, shortness of breath, and poor judgment.

To reduce the possibility of altitude sickness, spend ½ hour at Hale Pohaku prior to traveling to the summit. Also:

- Drink plenty of water to avoid dehydration.
- Wear sun block and sunglasses.
- Work slowly and deliberately; your brain doesn't work as fast on the summit.

High altitudes can cause the life threatening conditions of pulmonary edema (fluid in the lungs) and cerebral edema (fluid on the brain). Descend to a lower elevation if any of the symptoms below appear:

- Severe headaches
- Vomiting
- Breathing difficulties
- Coughing
- Blue lips or fingernails
- Disorientation
- Extreme drowsiness (that may lead to a coma).

Additionally, children under 16, pregnant women and people with respiratory, heart or severe overweight conditions are advised not to go higher than the Visitor Information Station.

Scuba divers must wait at least 24 hours after their last dive before traveling to the summit.

Driving Safety

Driving safety procedures and requirements are contained in the MKSS Motor Vehicle Safety Policy.

Electrical Safety

- Only the MKSS Utilities Manager and those designated in writing by the Utilities Manager are qualified and permitted to work on unprotected energized electrical systems.
- Do not tamper with electrical wiring and equipment unless qualified to do so. All electrical wiring and equipment must be considered energized until lockout/tagout procedures are implemented.
- Inspect electrical equipment, power tools, and extension cords for damage prior to use. Do not use defective electrical equipment, remove from service.
- Extension cords must be:
 1. Equipped with third-wire grounding.
 2. Covered, elevated, or protected from damage when passing through work areas.
 3. Not fastened with staples, hung from nails, or suspended with wire.
- Electrical power tools and equipment must be effectively grounded or double-insulated UL approved.
- Operate and maintain electric power tools and equipment according to manufacturers' instructions.
- Maintain safe clearance distances between overhead power lines and any electrical conducting material unless the power lines have been de-energized and grounded, or where insulating barriers have been installed to prevent physical contact. Maintain at least 10 feet from overhead power lines for voltages of 50 kV or less, and 10 feet plus ½ inch for every 1 kV over 50 kV.
- Temporary lights shall not be suspended by their electric cord unless designed for suspension. Lights shall be protected from accidental contact or breakage.
- Protect all electrical equipment, tools, switches, and outlets from environmental elements.

Portable Generator Hazards

- Portable generators are useful when temporary or remote electric power is needed, but they also can be hazardous. The primary hazards to avoid when using a generator are carbon monoxide (CO) poisoning from the toxic engine exhaust, electric shock or electrocution, and fire.
- **NEVER** use a generator in enclosed or partially enclosed spaces. Generators can produce high levels of CO very quickly. When you use a portable generator, remember that you cannot smell or see CO. Even if you can't smell exhaust fumes, you may still be exposed to CO.
- If you start to feel sick, dizzy, or weak while using a generator, get to fresh air **RIGHT AWAY. DO NOT DELAY**. The CO from generators can rapidly lead to incapacitation and death.
- If you experience serious symptoms, get medical attention immediately. Inform project staff that CO poisoning is suspected. If you experienced symptoms while indoors have someone call the fire department to determine when it is safe to re-enter the building.
- **NEVER** use a generator indoors
- Follow the instructions that come with your generator. Locate the unit outdoors and away from doors, windows, and vents that could allow CO to come indoors.
- Keep the generator dry and do not use in rain or wet conditions. To protect from moisture, operate it on a dry surface under an open, canopy-like structure. Dry your hands if wet before touching the generator.
- Plug appliances directly into the generator. Or, use a heavy duty, outdoor-rated extension cord that is rated (in watts or amps) at least equal to the sum of the connected appliance loads. Check that the entire cord is free of cuts or tears and that the plug has all three prongs, especially a grounding pin.
- Most generators come with Ground Fault Circuit Interrupters (GFCI). Test the GFCIs daily to determine whether they are working
- Use grounding rod for prolonged operations.

Fire Hazards

- **NEVER** store fuel near the generator or near any sources of ignition.

- Before refueling the generator, turn it off and let it cool down. Gasoline spilled on hot engine parts could ignite.

Fall Protection Activities

- MKSS personnel exposed to fall hazards must use authorized fall protection equipment. The Utilities Manager is charged with ensuring any MKSS employee exposed to a fall hazard of 6 feet or more receive appropriate training and are given proper fall protection equipment.
- All components of the personal fall protection system must be inspected for proper working condition prior to each use.

Fire Prevention

Fire extinguishers shall be provided so that the travel distance from any work area to the nearest extinguisher is less than 150 feet. When 5 gallons or more of a flammable or combustible liquid is being used, an extinguisher must be within 75 feet. Extinguishers must:

- Be maintained in a fully charged and operable condition,
- Be visually inspected each month, and
- Undergo a maintenance check each year.
- The area in front of extinguishers must be kept clear.
- Post "Exit" signs over exiting doors, and post "Fire Extinguisher" signs over extinguisher locations.
- Combustible materials stored outside should be at least 10 feet from any building.
- Solvent waste and oily rags must be kept in a fire resistant, covered container until removed from the site.
- Flammable/combustible liquids must be kept in approved containers, and must be stored in an approved storage cabinet.

Forklift Operations

- Forklifts may be required for materials movement during project activities. Forklifts present the potential for damage to equipment, materials and personnel by impaling or striking personnel or materials with the forklift tines. Additionally, forklifts may tip if they are incorrectly loaded, driven at excessive speeds or operated with the forks too high.
- The following rules apply whenever a forklift is used:
- A rated lifting capacity must be posted in a location readily visible to the operator.
- A forklift must not be used to elevate employees unless a platform with guardrails, a back guard, and a kill switch is provided on the vehicle. When guardrails are not possible, fall protection equipment is required.
- Only trained and authorized drivers will operate forklifts.
- Stunt driving and horseplay are prohibited.
- Employees must not ride on the forks.
- Employees must never be permitted under the forks (unless forks are blocked).
- The driver must inspect the forklift once a shift and document this inspection.
- The operator must look in the direction of travel and must not move the vehicle until all persons are clear of the vehicle.
- Forks must be carried as low as possible.
- The operator must lower the forks, shut off the engine, and set the brakes (or block the wheels) before leaving the forklift operator's position unless maintenance or safety inspections require the forklift to be running.
- Trucks must be blocked and have brakes set when forklifts are driven onto their beds.
- Extreme care must be taken when tilting elevated loads.
- Every forklift must have operable brakes capable of safely stopping it when fully loaded.
- Forklifts must have parking brakes and an operable horn.
- When the operator is exposed to possible falling objects, industrial trucks must be equipped with overhead protection (canopy).

Hand and Power Tools

- Tools shall be inspected prior to use and damaged tools will be tagged and removed from service.
- Hand tools will be used for their intended use and operated in accordance with manufacturer instructions and design limitations;
- Maintain all hand and power tools in a safe condition.
- Use PPE (such as gloves, safety glasses, earplugs, and face shields) when exposed to a hazard from a tool.
- Do not carry or lower a power tool by its cord or hose.
- Portable power tools will be Underwriters Laboratories (UL) listed and have a three-wire grounded plug or be double insulated.
- Disconnect tools from energy sources when they are not in use, before servicing and cleaning them, and when changing accessories (such as blades, bits, and cutters).
- Safety guards on tools must remain installed while the tool is in use and must be promptly replaced after repair or maintenance has been performed.
- Store tools properly in a place where they will not be damaged or come in contact with hazardous materials.
- If a cordless tool is connected to its recharge unit, both pieces of equipment must conform strictly with electrical standards and manufacturer's specifications.
- Tools used in an explosive environment must be rated for work in that environment (that is, intrinsically safe, spark-proof, etc.).
- When using a knife or blade tool, stroke or cut away from the body with a smooth motion. Be careful not to use excessive force that could damage the tool, the material being cut, or unprotected hands.
- Working with manual and pistol-grip hand tools may involve highly repetitive movement, extended elevation, constrained postures, and/or awkward positioning of body members (for example, hand, wrist, arm, shoulder, neck, etc.). Consider alternative tool designs, improved posture, the selection of appropriate materials, changing work organization, and sequencing to prevent muscular, skeletal, repetitive motion, and cumulative trauma stressors.

Hazardous Materials:

- Material Data Safety Sheets (MSDS) are required for all potentially harmful substances handled in the workplace under the Hazard Communication regulation. Follow the instructions on the label and in the corresponding Material Safety Data Sheet for each chemical product used in your workplace.
- Use personal protective clothing or equipment such as neoprene gloves, rubber boots, shoe covers, rubber aprons, and protective eyewear, when using chemicals labeled "Corrosive", "Caustic", or "Poisonous."
- Do not use protective clothing or equipment that has split seams, pinholes, cuts, tears, or other signs of visible damage.
- Each time you use your gloves, wash your gloves before removing them using cold tap water and normal hand washing motion. Always wash your hands after removing the gloves.

Heavy Equipment (Earthmoving and Excavating Machinery)

- MKSS authorizes only those employees qualified by training or previous experience to operate material handling equipment. The MKSS Utilities Manager is responsible to ensure only properly qualified personnel use MKSS material handling equipment. The MKSS Utilities Manager will maintain the list of qualified personnel.
- The MKSS Utilities Manager will ensure all required documentation for MKSS heavy equipment is maintained and kept up to date.
- Equipment must be checked at the beginning of each use to ensure the equipment is in safe operating condition and free of apparent damage. The check should include: service brakes, parking brakes, emergency brakes, tires, horn, back-up alarm, steering mechanism, coupling

devices, seat belts and operating controls. All defects shall be corrected before the equipment is placed in service. Documentation of this inspection must be maintained onsite at all times.

- Equipment must be on a stable foundation such as solid ground or cribbing; outriggers are to be fully extended.
- Equipment must not be used to lift personnel; loads must not be lifted over the heads of personnel.
- Equipment, or parts thereof, which are suspended must be substantially blocked or cribbed to prevent shifting before personnel are permitted to work under or between them. All controls shall be in a neutral position, with the motors stopped and brakes set.
- Equipment which is operating in reverse must have a reverse signal alarm distinguishable from the surrounding noise or a signal person when the operators view is obstructed.
- When equipment is used near energized power lines, the closest part of the equipment must be at least 10' from the power lines < 50 kV. Provide an additional 4' for every 10 kV over 50 kV. A person must be designated to observe clearances and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means. All overhead power lines must be considered to be an energized until the electrical utility authorities indicate that it is not an energized line and it has been visibly grounded.
- Underground utility lines must be located before excavation begins; refer to Section 2.2.8 "Procedures for locating buried utilities".
- Operators loading/unloading from vehicles are responsible for seeing that vehicle drivers are in the vehicle cab or in a safe area.
- The parking brake shall be set whenever equipment is parked, wheels must be chocked when parked on inclines.
- When not in operation, the blade/bucket must be blocked or grounded; the master clutch must be disengaged when the operator leaves the cab. When equipment is unattended, power must be shut off, brakes set, blades/buckets landed and shift lever in neutral.

Housekeeping:

- Do not place material such as boxes or trash in walkways and passageways.
- Mop up water around drinking fountains, drink dispensing machines and ice machines.
- Do not store or leave items on stairways.
- Straighten or remove rugs and mats that do not lie flat on the floor.
- Use caution signs or cones to barricade slippery areas such as freshly mopped floors.
- Use mats with beveled edges in areas that are prone to spilled water or grease.

Kitchen Safety:

General Kitchen Safety Rules

- Do not remove safety guards provided on the equipment. When a safety guard is removed for the purpose of making repairs or cleaning, replace the guard before the equipment is put into operation.
- Do not place heated pots or pans in a position such that the handles are protruding over the edge of range, table or counter.
- Do not fill pots, pans, buckets or cookers more than 3/4 full.
- When adding ingredients to hot liquids, add small portions at a time to prevent splashing.
- Use the release valve to release pressure before opening pressurized steam kettles or pressure cookers.
- Transport hot liquids in closed containers.
- Use carts for moving large hot items such as coffee urns, containers of hot water or containers of hot food.
- Use the cart wheel locking lever to prevent movement while removing items from carts.
- Turn off circuit breakers and tag out kitchen cooking equipment when cleaning the equipment.

Automatic Coffee Maker, Coffee Urn, Coffee Grinders

- Turn the power switch of the equipment to "off" when it is not being used.

- When cleaning coffee urns with hot water, be sure you have a solid footing and a firm grip on the urn.
- When brewing coffee, wait until brewing is completed before disposing of grounds and filter.

Broiler and Grooved Griddles

- Ensure the grease drip pan is emptied at the end of each shift or when full.

Fryers

- Always use protective gloves, an apron, and face shield when filtering of shortening.
- Never try to filter shortening until it has cooled.
- Never over fill a fryer; only fill to the appropriate level mark.
- All cooked food items should be removed from the fryer basket with tongs. You should never attempt to use your bare hands.

Grills

- Wear heat resistant gloves when cleaning grills.
- Never touch the grill surface; it may actually be hot when it appears to be cool.
- Pay particular attention when working on the back and corners, these areas are prone to slips and splashes.

Safe Handling and Use of Kitchen Equipment

Knives and other Sharp Instruments

- When handling knife blades and other cutting tools, direct sharp points and edges away from you.
- Cut in the direction away from your body when using knives.
- Store knives in knife blocks or in sheaths after use.
- Do not use knives with dull blades.
- Do not use honing steels that do not have disc guards.
- Do not attempt to catch a falling knife.
- Use knives for the operation for which they are named.
- When opening cartons, use safety box cutters.
- Do not use knives with broken or loose handles.
- Do not use knives as screwdrivers, pry bars, can openers or ice picks.
- Do not leave knives in sinks full of water.
- Do not pick up knives by their blades.
- Carry knives with their tips pointed towards the floor.
- Do not carry knives, scissors or other sharp tools in pockets or aprons unless they are first placed in their sheaths or holders.
- Follow this procedure before picking up any bags that have sharp objects protruding from them:
Grab the top of the bag above the tie-off with two hands and hold the bag away from your body.

Microwave Ovens

- Do not operate a microwave oven if it has a bent door, broken hinges or latches, or cracking in its seals.
- Use hot pads or oven mittens when removing items from the microwave.

Mixers

- Do not put your hands inside the mixing bowl while the mixing bowl and mixer are in operation.

Ovens

- Use oven mittens when removing hot food from the oven.
- Clear a space on the table for placing hot food, before removing the food from the oven.
- Wear eye protection, rubber gloves and apron when using an oven cleaner.

Slicers

- Always keep your eyes on your work while you are using a slicer.
- Do not place your hand on top of the blade guard while you are operating the slicer.
- Replace the guards after cleaning or making any adjustments to the slicer.
- Turn the power switch of the slicer to “off” and unplug it when it is not being used.
- Wear a wire mesh glove when cleaning the exposed edge of the slicer blade.
- Always set the slicer width adjustment to “0” when it is not in use.

Ladders and Step Ladders:

- Read and follow the manufacturer’s instructions label affixed to the ladder if you are unsure how to use the ladder.
- Ladders have weight limits – usually listed on an attached label. Do not use a ladder if you exceed the recommended weight limit.
- Do not use ladders that have loose rungs, cracked or split side rails, missing rubber foot pads, or are otherwise visibly damaged
- Keep ladder rungs clean and free of grease. Remove buildup of material such as dirt or mud.
- Do not place ladders in a passageway or doorway without posting warning signs or cones that detour pedestrian traffic away from the ladder. Lock the doorway that you are blocking and post the sign “Detour.”
- Allow only one person on the ladder at a time.
- Face the ladder when climbing up or down.
- Maintain a three-point contact by keeping both hands and one foot or both feet and one hand on the ladder at all times when climbing up or down.
- Do not stand on the top two rungs of any ladder.
- Do not stand on a ladder that wobbles, or that leans to the left or right.
- Do not place ladders on barrels, boxes, loose bricks, pails, concrete blocks or other unstable bases.

Lifting Procedures:

- Plan the move before lifting; remove obstructions from your chosen pathway.
- Test the weight of the load before lifting by pushing the load along its resting surface.
- If the load is too heavy or bulky, use lifting and carrying aids such as hand trucks, dollies, pallet jacks and carts, or get assistance from a co-worker.
- If assistance is required to perform a lift, coordinate and communicate your movements with those of your co-workers.
- Position your feet 6 to 12 inches apart with one foot slightly in front of the others.
- Face the load.
- Bend at the knees, not at the back.
- Keep your back straight.
- Get a firm grip on the object with your hands and fingers. Use handles when present.
- Never lift anything if your hands are greasy or wet.
- Wear protective gloves when lifting objects with sharp corners or jagged edges.
- Hold objects as close to your body as possible.
- Perform lifting movements smoothly and gradually; do not jerk the load.
- If you must change direction while lifting or carrying the load, pivot your feet and turn your entire body. Do not twist at the waist.
- Set down objects in the same manner as you picked them up, except in reverse.
- Do not lift an object from the floor to a level above your waist in one motion. Set the load down on a table or bench and then adjust your grip before lifting it higher.
- Slide materials to the end of the tailgate before attempting to lift them off of a pick-up truck. Do not lift over the walls or tailgate of the truck bed.

Machine Guarding

- Ensure that all machine guards are in place to prevent contact with drive lines, belts, chains, pinch points or any other sources of mechanical injury.
- Unplugging jammed equipment will only be performed when equipment has been shut down, all sources of energy have been isolated and equipment has been locked/tagged and tested.
- Maintenance and repair of equipment that results in the removal of guards or would otherwise put anyone at risk requires lockout of that equipment prior to work.

Maintenance Personnel

- Replace the guards before starting machines or appliances, after making adjustments or repairs.
- Do not remove, alter or bypass any safety guards or devices when operating any machine or appliance.
- Read and obey safety warnings posted on or near any machine or appliance.
- All electrical equipment should be properly locked and tagged out before any service is attempted.
- All electric hand tools should be inspected for defects before and after each time that they are used.
- Only properly trained and qualified employees should attempt to repair malfunctioning equipment.
- All hand tools should only be used for the jobs that they were intended for. Improper usage could cause injury or damage the machinery

Noise

- Unprotected exposure to excessive noise levels may lead to gradual and permanent hearing loss. The louder the noise and the longer a person is exposed to the noise, the greater are the chances of a hearing loss. A hearing loss can be permanent or temporary. After certain noise exposures, a person may experience a temporary threshold shift (hearing loss) that results in the inability to hear certain sounds. The ability to hear will usually return. However, repeated or intense noise exposure can prevent this recovery, resulting in permanent hearing loss.
- Each employee is responsible for the following tasks:
- Wearing hearing protection when required (when noise exceeds 85 dBA).
- Completing noise training and audiometric testing (as required)
- Hearing protection will be worn when operating heavy equipment and when working in close proximity to high noise sources.

Welding/cutting with Compressed Gas Cylinders

- Wear appropriate personal protective equipment.
- Remove or combustible materials in the immediate hot work area.
- Station fire watch with fire extinguisher.
- Valve caps must be in place when cylinders are transported, moved, or stored.
- Cylinder valves must be closed when cylinders are not being used and when cylinders are being moved.
- Cylinders must be secured in an upright position at all times.
- Cylinders must be positioned to avoid being struck or knock over; coming in contact with electrical circuits or extreme heat sources; and shielded from welding and cutting operations.
- Cylinders must be secured on cradle/basket/pallet when hoisted; no hoisting by choker slings.

Lockout/Tagout Activities

When MKSS or other personnel are affected by the unexpected operation of equipment they must follow the MKSS logout/tagout procedures contained in the appendix. Training may also be required on any site-specific lockout procedures.

1.3 Training

Training is an essential part of the plan to provide a safe work place at MKSS. MKSS Management will be responsible for coordinating appropriate training and verifying that each employee has received an initial orientation of the MKSS Safety Plan including any training needed to do the job safely and that the employee file documents the training using the form in the appendix.

Below are basic MKSS Health and Safety Training Requirements. Additional training may be required for specific jobs and will also be documented using the MKSS Personal Safety Training form in the appendix.

<u>Course</u>	<u>Attendance</u>	<u>Training Material Used</u>
Safety Orientation	All personnel	MKSS Safety Plan
Safe Lifting (20 lbs or more)	All personnel	MKSS Safety Plan
Hazard Communication Program	All personnel	MKSS Safety Plan
Fire extinguisher safety	All personnel	MKSS Safety Plan Appendix
Driver Safety	All drivers	MKSS Motor Vehicle Safety Plan
High Altitude Dangers	All personnel	MKSS Safety Plan
Lockout/Tagout	All personnel	MKSS Safety Plan Appendix

1.4 Safety Committee

The MKSS Safety Committee will meet at quarterly and consist of the following personnel:

- MKSS General Manager
- MKSS Administrative Manager
- MKSS Utilities Manager
- MKSS Food & Lodging Manager
- MKSS Visitor Information Station Manager
- OMKM Chief Ranger
- One additional representative from Utilities, Food & Lodging, Visitor Information Station, and the Rangers.

The purpose is to bring workers and management together on a regular basis in a cooperative effort to promote workplace safety. Members should remain on the Committee for a minimum of one year. The Chairperson will rotate among the MKSS Department Managers and will be responsible to plan the meeting agenda with input from all committee members. Committee members are responsible for canvassing their department for agenda items. Minutes will be taken for each meeting, posted on the MKSS website for all members and maintained by the MKSS Administrative Manager. The meeting form in the appendix should be used for minutes.

The Safety Committee has many functions. Here is a list of responsibilities often assigned to the Safety Committee. Some responsibilities are also performed by managers:

- Follow-up on employee suggestions
- Conduct inspections and monitor safe behavior
- Conduct Training Sessions
- Review incidents and losses

Safety Meetings/Training

MKSS Managers will update staff on any changes in procedures, new equipment, and general safety issues.

1.5 Hazard Communication Program

It is the policy of MKSS to provide personnel with chemical hazard information and training for the hazardous chemicals they may work with or be exposed to. By providing this information and training, MKSS personnel will be able to better protect themselves and others from chemical hazards.

This program introduces a set of procedures designed to minimize the risk of chemical exposure and keep us in compliance with the State of Hawaii Division of Occupational Safety and Health (HIOSH) Hazard Communication Standard (HazCom). In keeping with this program, the health of the worker is a primary concern.

MKSS Department Managers will perform the following:

- Complete an inventory of all hazardous chemicals located in their department using the Hazard Communication Form in the appendix. Update the inventory if new hazardous chemicals are obtained. Verify the inventory yearly.
- Maintain a binder of Material Safety Data Sheets (MSDS's) for potentially harmful substances handled in the workplace. Use the Hazard Communication form as the inventory sheet and as the first page of this binder.
- Ensure containers are properly labeled with the identity of the chemical and with hazard warnings, and stored properly.
- Give personnel HAZCOM training for all hazardous products. Use the Hazard Communication form to document the training.
- Store all materials properly, giving consideration to compatibility, quantity limits, secondary containment, fire prevention, and environmental conditions.

Hazardous Chemicals

Hazardous chemicals are defined as any chemical that presents a physical or health hazard. Chemicals presenting physical hazards include flammable and combustible liquids & gasses, compressed gases, explosives, organic peroxides, oxidizers, pyrophorics, unstable (reactive) chemicals, and water-reactive chemicals. Chemicals presenting health hazard include carcinogens, toxins, irritants, corrosives, sensitizers, reproductive toxins, and chemicals that have been shown through scientific evidence to cause adverse health effects to target organs such as the liver, kidneys, central nervous system, blood, lungs, skin, eyes, or mucous membrane.

Exemptions

Products that are exempt from hazard communication include: hazardous waste, tobacco products, wood products and food, drugs and cosmetics intended for personal consumption or use.

Material Safety Data Sheets (MSDS's)

MSDS's are prepared by the manufacturer, distributor or importer of products containing hazardous substances and provide detailed information about a product as listed below:

- Chemical composition
- Physical characteristics
- Fire, explosion and reactivity hazards
- Health hazards and exposure symptoms
- Emergency first aid procedures.
- Protective equipment recommendations
- Handling and storage precautions
- Cleanup and disposal procedures

Labeling

Labels are intended to be an immediate warning and a reminder of the information provided by the MSDS and training program. The labels should be read before the chemicals are handled. If the

precautions specified by the label are unfamiliar, employees should consult their supervisor or the MSDS.

All containers of hazardous substances must be labeled to provide HazCom information. The manufacturer, distributor or importer is responsible for labeling their products prior to shipment to their customers. The label on original containers must provide the following information:

- Identity of the hazardous substance(s)
- Appropriate hazard warning(s)
- Name and address of manufacturer

Correct labeling will be verified upon receipt of any chemical material. MKSS Safety Coordinators are responsible to ensure hazardous substances in their area are correctly labeled.

Secondary Container Labeling

Hazardous substances transferred from their original containers to secondary containers must have labels. The labels on secondary containers must include the identity of the hazardous substance(s) and appropriate warnings. For example:

- Apply an extra copy of the manufacturer's label to the secondary container.
- Take a blank label and fill in the appropriate information.
- Using an indelible marker, write the appropriate information on the container.

Hazard Communication Training

Employees must be informed of the requirements of hazard communication as well as the location of the written hazard communication program, hazardous chemical product inventories, and Material Safety Data Sheets (MSDS's). MKSS Safety Coordinators will provide all personnel with hazard communication training (using the outline in the MKSS Safety Plan). The following is an outline of the training that must be provided to each employee and volunteer:

- Purpose of the Hazard Communication Program including the right to information.
- An explanation and location of MSDS's sheets.
- How to read labels and use the information they contain.
- Chemical hazards in the work area.
- Detection of chemical hazards.
- Types of hazards.
- Labeling requirements.
- How to obtain hazard information.
- Measures employees can take to protect themselves and minimize exposure.
- Emergency first aid procedures.

Subcontractor Management

The Department Safety Coordinator shall verify that each subcontractor is maintaining an up-to-date inventory list or register of hazardous materials and corresponding MSDS's.

Relevant Regulatory Requirements

United States

Occupational Safety and Health Administration

- 29 CFR 1910.1200, Hazard Communication (General Industry)
- HIOSH (Chapter 202 & 203)
- IARC (International Agency for Research on Cancer)

1.6 Safety Coordinator Toolkit

Introduction

As a Department Safety Coordinator, you are the hazard communication coordinator for your facility. This toolkit was developed to inform and assist you in meeting the responsibilities of the hazard communication coordinator. The Safety Coordinator must be familiar with the MKSS written hazard communication program.

Responsibilities

Complete hazardous chemical inventory and verify product labeling

An inventory of all hazardous chemicals in the workplace must be compiled and kept current. The Department Safety Coordinator shall update the chemical inventory when new products are introduced into the workplace or when there are changes to existing ones.

Since each department will differ in the amount of hazardous substances coming into the workplace, the Department Safety Coordinator must use his/her own judgment on how often the chemical inventory must be updated. However, the chemical inventory must be reviewed for accuracy and completeness every year at a minimum.

Process:

- Inspect your facility or project for hazardous substances, including all storage areas. Verify items against your inventory list. Make changes to correct any discrepancies.
- During the inventory, verify that each product container is provided with a legible label that has the identity of the product and appropriate hazardous warnings.

Maintain material safety data sheets

MSDS will be maintained in the department Safety Binder and made accessible to all personnel. MKSS personnel and subcontractors must also be informed of the location of appropriate MSDS for hazardous substances to which they are exposed. MSDS's shall be in English (although copies in other languages may be kept as well), and contain at least the following information:

- Identity used on the label
- Physical and chemical characteristics, such as vapor pressure, flash point
- Physical hazards, including the potential for fire, explosion, and reactivity
- Health hazards, including signs and symptoms of exposure and any medical conditions that are generally recognized as being aggravated by exposure to the chemical
- Primary route(s) of entry (inhalation, ingestion, absorption, injection)
- Occupational Safety and Health Administration (OSHA) permissible exposure limit,
- American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit value, and any other exposure limit used or recommended by the chemical manufacturer or employer preparing the MSDS's, where available
- Whether the hazardous chemical is listed as a carcinogen or potential carcinogen
- Precautions for safe handling and use, including appropriate hygienic practices, protective measures during repair and maintenance of contaminated equipment, and procedures for cleanup of spills and leaks
- Control measures, such as appropriate engineering controls, work practices, or personal protective equipment (PPE)
- Emergency and first aid procedures
- Date of preparation or the last change to the MSDS
- Name, address, and telephone number of the chemical manufacturer or other responsible party preparing or distributing the MSDS who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary

Provide Training

MKSS employees assigned with tasks that can involve exposure to hazardous substances shall be provided with training on the hazards. This training shall occur prior to exposure. The Department Safety Coordinator is responsible for identifying employees and providing training on those products.

When MKSS is responsible for safety, affected subcontractors shall also be provided with this training. Subcontractors may provide this training for products they own or use.

Create a facility hazard communication file

A hazard communication file must be created for each department and shall include the following items:

1. Copy of MKSS's written hazard communication program.
2. Copy of the most current Chemical Inventory Form.
3. Copies of Chemical Training Forms.
4. MSDS must be kept in the facility or project hazard communication file or in a separate MSDS binder. MSDS's must be made accessible to all employees and their location known.

2.0 Emergency Response Planning

2.1 Pre-Emergency Planning

MKSS will perform the applicable pre-emergency planning and coordinates emergency response with MKSS Employees and local emergency-service providers as appropriate.

- Review the Mauna Kea Emergency Procedures.
- If staying at Hale Pohaku, review the Hale Pohaku Fire Safety Plan located in each room
- The Mauna Kea Rangers have two satellite phones for emergency communications.
- Emergency telephone numbers are posted throughout Hale Pohaku on the Mauna Kea Emergency Phone Number list.
- Review evacuation areas and routes. Should evacuation of the main dining facility, utilities shop or dorms be required, the assembly area is the Visitor Information Station. If the Visitor Information Station or construction camp & cabins are evacuated, the assembly area is the main dining facility at Hale Pohaku. If all the mid-level facilities at Hale Pohaku are to be evacuated, the assembly area will be the MKSS warehouse & office in Hilo. Should the road off the summit be blocked and evacuation of Hale Pohaku is required, evacuation to the summit should be considered.
- MKSS Department Managers will ensure “Exit” signs are posted above exit doors, “Fire Extinguisher” signs are posted above locations of extinguishers. Keep areas near exits and extinguishers clear.
- MKSS Department Managers will review onsite operations, and personnel availability in relation to emergency response procedures.
- MKSS Department Managers will inventory and check emergency equipment and supplies.
- MKSS Department Managers will ensure all personnel are familiar with MKSS emergency procedures.

2.2 Incident Response

- In fires, explosions, or chemical releases, actions to be taken include the following:
- Shut down operations and evacuate the immediate work area.
- Notify appropriate response personnel – refer to the Mauna Kea Emergency Procedures.
- Assess the need for site evacuation, and evacuate the site as warranted.

2.3 Emergency Medical Treatment

The procedures listed below may also be applied to non-emergency incidents. MKSS employee injuries and illnesses (including overexposure to contaminants) must be reported to Management. If there is doubt about whether medical treatment is necessary, or if the injured person is reluctant to accept medical treatment, contact EMS. During non-emergencies, follow these procedures as appropriate.

- Notify appropriate EMS (If you are not sure contact EMS. If the situation turns out not to require EMS, they can be cancelled.) – Refer to the Mauna Kea Emergency Procedures.
- The Mauna Kea Rangers will assist during a medical emergency until EMS arrives.
- Prevent further injury.
- Initiate first aid and CPR where feasible & qualified.
- Notify supervisor.
- Make certain that the injured person is treated by EMS or a medical facility.
- When contacting the EMS, give your name, telephone number, the name of the injured person, the extent of the injury or exposure, and location injured person.
- Report incident to the MKSS Administrative Manager

2.4 Evacuation

Should evacuation be required, the following assembly areas will be used:

- Should evacuation of the main dining facility or dorms be required, the assembly area is the Visitor Information Station. If the Visitor Information Station or construction camp & cabins are evacuated, the assembly area is the main dining facility at Hale Pohaku. If the entire mid-level facilities at Hale Pohaku are evacuated, the assembly area will be the MKSS warehouse & office in Hilo. If the Hale Pohaku mid-level facilities are to be evacuated and the Mauna Kea Summit Access road below Hale Pohaku is blocked, evacuation up to the summit should be considered.
- Two people will remain nearby after the site has been evacuated (if safe) to assist local responders and advise them of the nature and location of the incident.
- Designate one person to account for personnel in the onsite assembly area.
- A designated person will account for personnel at alternate assembly area(s).
- The appropriate MKSS Department Manager will ensure the incident is critiqued and a written report is kept on file for future reference.

2.5 Incident Notification and Reporting

Upon any incident (accident, injury, near miss, death, crime, act of terrorism, spill or release of hazardous materials, etc.), immediately notify the MKSS Department Manager. The Department Manager will inform the MKSS General Manager.

- The MKSS Department Manager and anyone involved in the incident are responsible to ensure the appropriate report form is correctly completed and faxed or emailed to the MKSS Administrative Manager in 18 hours. The General Manager is responsible to review the report forms and forward them within 6 hours.
- For a work related injury or illness, the following four forms apply:
 - UH Form 79. (Used only for volunteers or UH employees, not for RCUH). To get this form, go to the following link: <http://hilo.hawaii.edu/uhh/ehso/> On the right side, select Accident/Injury Report.
 - RCUH Form D-25, Supervisor's Report of Industrial Injury and form and the RCUH Form D-26, Employee/Claimant Consent Form. These are available at the following link under RCUH policy 3.930: http://www.rcuh.com/WebHelp/RCUH.htm#About_Human_Resources.htm
 - MKSS Preliminary Incident Report Form. This form is contained in the appendix of this plan.

3.0 Biological Hazards and Controls

Flu and Cold Prevention

To prevent the transmission of flu and colds:

- Wash your hands with soap and water, especially after you cough or sneeze.
- Cover your nose and mouth with a tissue when you cough or sneeze.
- Avoid touching your eyes, nose or mouth.
- If you feel sick, stay home and limit your contact with others.
- Avoid close contact with anyone who appears sick.

Bees, Scorpions, Centipedes, Spiders and Other Stinging/Biting Insects

Bee and other stinging insects may be encountered almost anywhere and may present a serious hazard, particularly to people who are allergic. Watch for and avoid nests. Keep exposed skin to a minimum. Carry a kit if you have had allergic reactions in the past, and inform your supervisor and/or a co-worker. If a stinger is present, scrape it off, being careful not to squeeze. Wash and disinfect the wound, cover it, and apply ice. Watch for allergic reaction; seek medical attention if a reaction develops.

Scorpions

Scorpions may be encountered in Hawaii. They range in size from one and one-half to three inches long, and have eight legs, a pair of large pincers near the mouth; and a tail that possesses a stinger. Scorpions generally will not sting unless they are threatened. If you come in contact with one, brush it off, don't slap it. Its sting feels like a hot needle and there is often regional numbness and tingling. The injured area may be hypersensitive to touch, pressure, heat and cold. First aid should include cleaning the site with soap and water, applying a cool compress, elevating the affected limb to approximately heart level and taking aspirin or acetaminophen as needed for minor discomfort. If you are stung, call the local poison information line.

Centipedes

Centipedes may be encountered in Hawaii and are often found underground or in rock piles. They usually come out at night to actively hunt their prey. They are capable of fast movement when exposed. Centipedes have an elongated, segmented body with each segment bearing a pair of legs. The number of legs varies between 20 and more than 100. They range in size, growing up to 9 inches long. The venom delivery apparatus is a pair of modified front legs just behind the mouth. Bites usually occur after accidental contact, as centipedes are generally not aggressive to humans. It seems that there is a relationship between the size of the centipede and the amount of pain suffering caused—the larger the centipede, the more painful the symptoms after a bite. Symptoms of centipede bites include burning pain, redness, and swelling in the area of the bite, as well as possible lymph node swelling. Symptoms usually last less than 48 hours. Severe allergic reactions or contact with exotic specimens may require more treatment. First aid should include cleaning the site with soap and water, applying a cool compress, elevating the affected limb to approximately heart level and taking aspirin or acetaminophen as needed for minor discomfort. Place ice (wrapped in a washcloth or other suitable covering) on the site of the bite for 10 minutes and then off for 10 minutes. Repeat this process. If the patient has circulatory problems, decrease the time to prevent possible damage to the skin. If you are bitten, call the local poison information line.

Spiders

There are many spiders in Hawaii, but only a few cause problems. The brown recluse spider is native to the United States. A related species, the brown violin spider is found in Hawaii. Though rarely aggressive, they will bite when pressed against the skin, such as when tangled within clothes, towels and bedding. Funnel web spiders have also been found in Hawaii. Although most spider bites are minor, with little hazard other than infection at the bite site, a small number will produce lesions or other symptoms. Seek medical treatment if you experience symptoms more serious than minor swelling and localized pain.

Allergic Reactions to Bites and Stings

Allergic reactions vary. They can be mild or serious. They can be confined to a small area of the body or may affect the entire body. Most occur within seconds or minutes after exposure to the allergen, but some can occur after several hours. In very rare cases, reactions develop after 24 hours. Anaphylaxis is a sudden and severe allergic reaction that occurs within minutes of exposure, PROGRESSES RAPIDLY and can lead to anaphylactic shock and death within 15 minutes if medical intervention is not obtained.

Mosquito Bites, West Nile Virus, and Dengue Fever

Due to the recent detection of the West Nile Virus in the Southeastern United States and Dengue Fever in Hawaii (see Section 2.3.5 below), it is recommended that **preventative measures** be taken to reduce the probability of being bitten by mosquitoes whenever possible. Mosquitoes are believed to be the primary source for exposure to the West Nile Virus as well as several other types of encephalitis. Dengue fever virus is transmitted to people as a result of being bitten by infected *Aedes* mosquitoes. The following guidelines should be followed to reduce the risk of these concerns for working in areas where mosquitoes are prevalent.

- Mosquitoes are most active at dawn, dusk, and in the early evening and anytime during the day when indoors or in shady areas.
- Wear long-sleeved shirts and long pants whenever you are outdoors.
- Spray clothing with repellents containing permethrin or DEET since mosquitoes may bite through thin clothing.
- Apply insect repellent sparingly to exposed skin. An effective repellent will contain 35% DEET (N, N-diethyl-meta-toluamide). DEET in high concentrations (greater than 35%) provides no additional protection.
- Repellents may irritate the eyes and mouth, so avoid applying repellent to the hands.
- Whenever you use an insecticide or insect repellent, be sure to read and follow the manufacturer's DIRECTIONS FOR USE, as printed on the product.
- Note: Vitamin B and "ultrasonic" devices are NOT effective in preventing mosquito bites.

Symptoms of Exposure to the West Nile Virus

Most infections are mild, and symptoms include fever, headache, and body aches, occasionally with skin rash and swollen lymph glands. More severe infection may be marked by headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis, and, rarely, death. The West Nile Virus incubation period is from 3-15 days. If you have any questions or need to report any suspicious symptoms, contact a supervisor.

Dengue Fever

According to the Centers for Disease Control, Dengue Fever is primarily a viral infection transmitted by mosquito bites. The mosquitoes are most active during the day, especially around dawn and dusk, and are frequently found in and around human habitations. Symptoms may include sudden onset of fever, painful headaches, vomiting, eye, joint, and muscle pain, and rash. Occasionally symptoms may include blood clotting problems including dengue hemorrhagic fever characterized by abnormal bleeding and very low blood pressure (shock). Symptoms usually start 5 to 6 days after being bitten by infected *Aedes* mosquitoes, but onset can range from 2 to 15 days. Since there is no vaccine or specific treatment, prevention is important. To reduce mosquito bites, workers should wear clothes that cover most of the body. Workers should also take insect repellent with them to use on any exposed areas of skin. The most effective repellent is DEET (N, N-diethyl meta-toluamide). Avoid applying high-concentration DEET (greater than 35 percent) products to the skin and refrain from applying repellent to portions of the hands that are likely to come in contact with the eyes and mouth. Rarely toxic reactions or other problems have developed after contact with DEET.

If there are any questions or a need to report any suspicious symptoms, contact your supervisor.

4.0 Activity Hazard Analysis (AHA)

An Activity Hazard Analysis (AHA) defines the activity being performed, the hazards posed and control measures required to perform the work safely. Workers are briefed on the AHA before doing the work and their input is solicited to further identify the hazards posed and control measures required.

An Activity Hazard Analysis will be prepared for all field activities performed by MKSS personnel using the AHA form below. The AHA shall identify the work tasks required to perform each activity, along with potential H&S hazards and recommended control measures for each work task. In addition, a listing of the equipment to be used to perform the activity, inspection requirements and training requirements for the safe operation of the equipment listed must be identified.

ACTIVITY HAZARD ANALYSIS

Activity:	Date:
	Project:
Description of the work:	Department Manager:
	Review for latest use: Before the job is performed.

Work Activity Sequence (Identify the principal steps involved and the sequence of work activities)	Potential Health and Safety Hazards (Analyze each principal step for potential hazards)	Hazard Controls (Develop specific controls for each potential hazard)
Equipment to be used (List equipment to be used in the work activity)	Inspection Requirements (List inspection requirements for the work activity)	Training Requirements (List training requirements including hazard communication)

5.0 Appendix

Appendix 1: MKSS Notice of Safety Violation

Appendix 2: MKSS Safety Meeting Form

Appendix 3: MKSS Lockout/Tagout Procedures

Appendix 4: MKSS Personal Training Safety Form

Appendix 5: MKSS Hazard Communication Form

Appendix 6: MKSS Preliminary Incident Report Form

Appendix 7: MKSS Fire Extinguisher Training

MKSS Notice of Safety Violation

REPORT PREPARED BY:

Name:	Title:	Signature:	Date:

VIOLATION

Description: _____ _____ _____ _____ _____	Date: _____
--	----------------

Name:	Title:	Signature:	Date:

** Corrective action is to be taken immediately. Note below the action taken, sign and return to Management.**

CORRECTIVE ACTION

Description: _____ _____ _____ _____ _____	Date of Corrective Actions: _____
--	---

Name:	Title:	Signature:	Date:

MKSS Safety Meeting

Department _____

Date of Meeting _____ Time _____

ATTENDANCE

OLD BUSINESS

NEW BUSINESS

INCIDENTS/ACCIDENTS

RECOMENDATIONS

OTHER SAFETY ACTIVITIES

MKSS LOCKOUT/TAGOUT PROCEDURES

Lockout/Tagout refers to shutting down a piece of equipment and applying a lock and a tag at the point where the device is disabled to prevent the accidental start up, power up, pressurization, use or movement of the equipment. A standardized tag with the date, time and name of the person who installed the lock must be attached at the point of the lock.

Purpose:

To prevent injuries to personnel or damage to equipment caused by someone starting up the equipment while it is being serviced or otherwise not available for use.

Typical type of equipment:

Electrical & mechanical.

Policy:

Whenever MKSS staff works on equipment, the equipment needs to be separated from it's power source and the disconnect must be made secure with a lockout/tagout device. A box of lockout/tagout supplies is located and maintained in the Utilities office.

Locks/Tags:

Locks and tags can only be removed by the person they were installed them.

Keys:

Duplicate keys **MUST** not be made. Only one key is available for each lock, and that key should remain with the person who installed the lock until it is removed.

Tags:

Only the standardized tags supplied in the lockout/tagout box are to be used. A tag must be attached to any lock when it is installed. The tag must be filled out with the name of the person installing the lock, the date, and the time.

Identification of equipment and tagout location:

This policy does not currently list every piece of equipment that must be locked out, but examples would be the electrical power to a circuit being worked on, the valve supplying hot water to a system being worked on, the electrical power to the fuel pump of equipment being worked on, etc. One of the first duties for staff is to make a list of those pieces of equipment that should be locked out, and to identify the location where a lock can effectively be installed.

LOCKOUT SEQUENCE:

- I. Notify all affected employees that servicing or maintenance is required on a machine or piece of equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.
- II. Authorized employees shall refer to the equipment manuals to identify the type and magnitude of the energy that the machine or equipment utilizes, shall understand the hazards of the energy, and shall know the methods to control the energy.
- III. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop button, open switch, close valve, etc.).
- IV. Operate any switches, valves, or other energy isolation devices so that the equipment is effectively isolated from any energy source. All stored energy from springs, rotating flywheels, elevated machinery members, hydraulic systems, air, gas, steam or water pressure, or any other energy source must

be dissipated or restrained by repositioning, blocking, bleeding, or otherwise to prevent the release of the energy.

- V. Using the appropriate locks and tags, lock the equipment and attach a clearly labeled tag completed in detail.
- VI. After ensuring that no personnel are exposed, test all switches and operation controls to confirm that the equipment cannot be either accidentally or deliberately operated. Test for the absence of energy sources. Make sure equipment, instruments, or meters used to test for the absence of energy, are working properly by testing them on a known source. After testing, make sure all controls are in the "neutral" or "off" position before continuing.

RESTORATION:

- I. After all servicing operations are complete, verify that no one is exposed to the start-up of equipment. Check to see that all tools have been removed, and the guards have been reinstalled.
- II. Notify all affected employees of the ending of the lockout, and the impending start-up of the affected equipment.
- III. Remove locks and tags.
- IV. Start-up equipment, if necessary.
- V. Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

MKSS PRELIMINARY INCIDENT REPORT FORM

Date:	Location:	
Employee involved	Employee No:	
Date of incident	Time:	a.m. p.m.
Date reported	Personal Injury? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Environmental incident <input type="checkbox"/> Yes <input type="checkbox"/> No	Property Damage? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Kind and extent of injury/damage		
Description of incident		
Where incident occurred		
Work being performed		
Witnesses		
Unsafe condition or act causing incident		
	YES	NO
Was there equipment malfunction?		
Unsafe Condition?		
Unsafe Act?		
If injury, did employee see physician?		
Photos taken?		
Person completing report:		

Fire Extinguisher Safety Training and Tips



When used properly, a portable fire extinguisher can save lives and property by putting out a small fire or controlling it until the fire department arrives. Portable extinguishers, intended for the home, are not designed to fight large or spreading fires. However, even against small fires, they are useful only under certain conditions:

- The operator must know how to use the extinguisher. There is no time to read directions during an emergency.
- The extinguisher must be within easy reach and in working order, fully charged.
- When stored in vehicles, fire extinguishers should be secured in a manner to prevent accidental discharge.
- Some models are unsuitable for use on grease or electrical fires.

Select Your Extinguisher

- Choose your extinguisher carefully. A fire extinguisher should bear the seal of an independent testing laboratory. It should also be labeled as to the type of fire it is intended to extinguish.
- The extinguisher must be large enough to put out the fire. Most portable extinguishers discharge completely in as few as eight seconds.
- **Classes of fires:** There are three basic classes of fires. All fire extinguishers are labeled with standard symbols for the classes of fires they can put out. A red slash through any of the symbols tells you the extinguisher cannot be used on that class fire. A missing symbol tells you only that the extinguisher has not been tested for use on a given class of fire.
- **Class A:** Ordinary combustibles such as wood, cloth, paper, rubber, and many plastics.
- **Class B:** Flammable liquids such as gasoline, oil, grease, tar, oil-based paint, lacquer, and flammable gas.
- **Class C:** Energized electrical equipment including wiring, fuse boxes, circuit breakers, machinery, and appliances.
- Many household fire extinguishers are "multipurpose" A-B-C models, labeled for use on all three classes of fire. If you are ever faced with a Class A fire, and you don't have an extinguisher with an "A" symbol, don't hesitate to use one with the "B:C" symbols.
- **Warning:** It is dangerous to use water or an extinguisher labeled only for Class A fires on a grease or electrical fire.
- **Extinguisher sizes:** Portable extinguishers are also rated for the size of fire they can handle. This

rating is a number from 1 to 40 for Class A fires and 1 to 640 for Class B fires. The rating will appear on the label. The larger the number, the larger the fire extinguisher can put out. Higher-rated models are often heavier. Make sure you can hold and operate the extinguishers are rated 1A or 2A and/or 5B, 10B, or 20B. The "C" just indicates that you can use it on electrical fires.

Installation, Maintenance and Use

- Extinguishers should be installed in plain view above the reach of children near an escape route and away from stoves and heating appliances.
- Extinguishers require routine care. Read your operator's manual and ask your dealer how your extinguisher should be inspected and serviced. Rechargeable models must be serviced after every use. Disposable fire extinguishers can be used only once; they must be replaced after one use. Following manufacturer's instructions, check the pressure in your extinguishers once a month.
- **Remember The Pass Word**
- Stand 6 to 8 feet away from the fire and follow the four-step PASS procedure. If the fire does not begin to go out immediately, leave the area at once. Always be sure the fire department inspects the fire site.
- **PULL the pin out:** This unlocks the operating lever and allows you to discharge the extinguisher. Some extinguishers have other devices that prevent inadvertent operation.
- **AIM low:** Point the extinguisher nozzle (or hose) at the base of the fire.
- **SQUEEZE the lever below the handle:** This discharges the extinguishing agent. Releasing the lever will stop the discharge. Some extinguishers have a button that you press.
- **SWEEP from side to side:** Moving carefully toward the fire, keep the extinguisher aimed at the base of the fire and sweep back and forth until the flames appear to be out. Watch the fire area. If the fire re-ignites, repeat the process.
- **Should You Fight The Fire?**
- Before you begin to fight a fire:
 - Make sure everyone has left, or is leaving, the building.
 - Make sure the fire department has been notified by dialing 911.
 - Make sure the fire is confined to a small area and that it is not spreading beyond the immediate area.
 - Make sure you have an unobstructed escape route to which the fire will not spread.

Make sure that you have read the instructions and that you know how to use the extinguisher.