

U.S. Department of Agriculture Forest Service		1. WORK PROJECT/ACTIVITY Volunteer Trail Maintenance and Construction	2. LOCATION R2, San Juan National Forest,	3. UNIT(S) Dolores Ranger District
JOB HAZARD ANALYSIS (JHA) References-FSH 6709.11 and 12		4. NAME OF ANALYST Chris Bouton	5. JOB TITLE Trails, Wilderness and Dispersed Recreation	6. DATE PREPARED 02/22/2018
7. TASKS/PROCEDURES		8. HAZARDS	9. ABATEMENT ACTIONS Engineering Controls * Substitution * Administrative Controls * PPE	
Trail Work	Use of hand digging tools during trail maintenance and construction activities.	Cuts Sprains and Strains Falls Impact Injuries Flying Debris Splinters	<ul style="list-style-type: none"> • Ensure the area is clear of overhead and upslope hazards prior starting work. • Ensure that crew members are never working above one another paying close attention to switchback trail areas. • Sheath or tape cutting tools when not in use. • Maintain a 10' space between individual workers swinging tools. • Ensure adequate overhead clearance when preparing to use swinging / cutting tools. • Keep tools sharp. Sharp tools require less force (strain) and are less likely to glance off of work surfaces. • Keep tool handles in good condition (immediately flag and remove from service tools with loose heads and cracked or splintered handles). • With swinging tools always position your body such that glancing blows will not come in contact with your feet or legs. • With swinging tools use the weight of the tool to accomplish the work not just applied force. • Always wear sturdy leather boots, hard had, eye protection, long sleeve shirts and gloves when using hand tools. 	
	Rock Work	Impact injuries to hands and Feet Sprains and Strains from lifting Impact injuries from falling or shifting rock	<ul style="list-style-type: none"> • When harvesting rock ensure that the area below is clear of people. Post lookouts on the trail if necessary to ensure the safety of the public. • Only handle rocks that you can comfortably manage. Get help for lager rocks. Never handle rocks that are at or near the near the limit of what you can lift. • Always "test lift" (slightly move) a load to judge its weight before actually lifting • Stand close to the object with feet in a stable position and lift with your legs by straightening the legs. • Never twist the upper body while lifting. • Get help for heavy loads. • When placing rock never mix hands and tools i.e. Never hold up a rock with a pick or pry bar while manipulating the rock or something near it with your hands. • Evaluate the project and determine if using a mechanical advantage system would be a safer way to complete the work. (<i>Cabling and Rigging is covered under a separate JHA</i>) • Always wear sturdy leather boots, hard had, eye protection, long sleeve shirts and gloves when using hand tools. 	
	Field Sharpening	cuts	<ul style="list-style-type: none"> • Use fresh files. • ALWAYS wear gloves. 	
	Power tool use (drills, skill saws, and Saws-alls)	Cuts Puncture injuries	<ul style="list-style-type: none"> • Always wear sturdy leather boots, hard had, eye protection, long sleeve shirts and gloves when using power hand tools. • Ask for further training if unfamiliar with the tools use. • Always use sharp drill bits and saw blades. Discard damaged blades and bits to ensure that they will no long be used • Always position hands away from the cutting or drilling area. Use clamps to stabilize work pieces. 	

FIELD WORK	Spot / InReach Device	User error Bad Batteries	<ul style="list-style-type: none"> • Understand the uses and limitations of the device • Ensure the SPOT / InReach is properly set up with current contact information • Understand the differences between communication options and under what circumstances each should be used.
	Check in / Check out Policy	Failure to Check in or out	<ul style="list-style-type: none"> • Learn and follow the groups check in / out policy and share that plan with your FS representative. • Do not work alone while performing volunteer trail maintenance.
	Backcountry Travel Part 1	Tick Bites	<ul style="list-style-type: none"> • Treat clothing and/or skin with insect repellent. • Use caution when walking through tall grass or heavy brush, particularly off-trail. • Wear light-colored, long shirts and pants that fit snugly at the wrists, ankles, and waist. • Search the body regularly, especially hair and clothing, and remove ticks found. • Be familiar with proper first aid techniques appropriate to tick bites. • If a tick cannot be removed, seek prompt medical assistance. • If bitten, watch for signs of illness. Seek medical attention immediately upon exhibiting symptoms.
	Backcountry Travel Part 1	Bee Stings Hornet Stings Wasp Stings	<ul style="list-style-type: none"> • Be alert to hives in brush or hollow logs. Watch for swarms of lines of bees traveling one direction. • Inform supervisor of bee allergies and carry emergency medication at all times. • Avoid heavy or perfumed scents. • If attacked, shield the face and quickly leave the area. • Wear light-colored, long shirts and pants. Avoid wearing bright colors and metal objects. • Be familiar with proper first aid techniques appropriate to bee stings, including the use of Epi-pens. • If stung and having an allergic reaction, administer first aid and seek medical attention immediately.
		Mosquito Bites	<ul style="list-style-type: none"> • Wear long shirts and pants. • Use a head-net in extremely "buggy" conditions. Sleep in a tent or enclosed bivy sack. • Avoid heavy or perfumed scents. • Use insect repellent containing DEET. • Be familiar with proper first aid techniques appropriate to mosquito bites. Carry after-bite medication.
Working in areas with dead trees or during High winds	Falling Trees or Branches	<ul style="list-style-type: none"> • Always wear hardhats when working in areas with dead trees. • Always evaluate overhead hazards during any project, when taking breaks, eating lunch or choosing camping locations. • Immediately leave the area or move to a safe zone free of overhead hazards during high winds • Learn to identify hazard trees 	

Backcountry Travel Part 2	Black Bear Attacks	<ul style="list-style-type: none"> • Avoid contact with bears, especially with cubs. Watch for fresh bear signs, particularly when alone. • Make noise when traveling in bear country. Avoid surprising a bear. Talk or carry noisemakers. • Carry bear spray. USFS employees are not permitted to carry firearms, except for licensed LEO's. • Travel in numbers, when possible, in bear country. • Learn to understand black bear behavior, which can be different from brown (grizzly) bear behavior. • If encountered, stop and back away slowly. Talk in low tones and try not to intimidate the bear. • If the bear behaves aggressively, try to intimidate it by raising arms or a large object over the head. • If charged, throw rocks, branches, or other objects at the bear. Be threatening. Do not run. • If attacked, fight back. Shout loudly and try to remain standing. Protect head and neck if possible. • Keep a clean camp. Clean dishes and seal up and properly hang all food, garbage, and toiletries. • Don't keep food or toiletries, or clothing or equipment smelling of these, in a tent. • Prepare food and cook well away from sleeping areas. Avoid using campfires to cook. • Don't pack foods with strong odors. Store food in airtight containers, such as plastic bags or jars.
	Mountain Lion Attacks	<ul style="list-style-type: none"> • Avoid contact with lions. Watch for fresh lion signs, particularly when alone. • Learn to understand lion behavior. • Travel in numbers, when possible, in lion country. • If encountered, stop and back away slowly. Do not crouch, hide, or turn away. • If the lion behaves aggressively, try to intimidate it by raising arms or a large object over the head. • If charged, throw rocks, branches, or other objects at the lion. Be threatening. Do not run. • If attacked, fight back. Shout loudly and try to remain standing. Protect head and neck if possible.
	Falls, Foot Injuries, and Stress and Impact Injuries	<ul style="list-style-type: none"> • Identify and use safe travel routes. Do not exceed physical abilities or equipment design. • Use pack equipment properly. Carry weight on hips, not back. • Warm up and stretch the appropriate muscle groups before and after hitting the trail. • Test and use secure footing. Move cautiously and deliberately. Never run. • In heavy undergrowth, particularly off-trail, slow down and watch carefully. • Carry tools on the downhill side. • Know basic first aid. Completion of a basic first aid course is required. • Use footwear appropriate to the terrain and load being carried. • Know how to fall. Roll, protect the head and neck, and do not extend arms to break the fall.
	Disorientation	<ul style="list-style-type: none"> • Carry and know how to use maps and orienteering equipment. • Monitor travel on a map and note landmarks along the way. • Carry a basic survival kit and enough equipment to survive. • If lost, maintain position, call for assistance, and make camp. Don't panic, just wait patiently.
	Dehydration	<ul style="list-style-type: none"> • Drink frequently throughout the day, consuming at least one gallon per day. • Maintain blood sugar and electrolyte balances. • Drink as much as possible at meals. Drink to replace fluids throughout the evening. • Carry enough water to meet hydration needs between reliable water sources. Never run out. • Avoid beverages with caffeine and alcohol. Drink only water, a sports drink, or diluted fruit juice.

FIELD WORK	Backcountry Travel Part 3	Lightning Strikes	<ul style="list-style-type: none"> • Do not use radios or other electrical devices during an electrical storm. • Take cover but avoid the tallest objects. If no cover is available, get down on the ground. • Avoid ridge lines, hill tops, open spaces, rock outcrops, and other likely lightning targets. • Discard metal tools, backpacks with metal frames, and electrical devices during an electrical storm.
		Altitude Sickness	<ul style="list-style-type: none"> • Be familiar with the symptoms of altitude sickness. If experiencing symptoms, descend immediately. • During acclimation, take frequent breaks, don't overexert, eat carbohydrates, and drink lots of water.
		Hypothermia Hyperthermia	<ul style="list-style-type: none"> • Dress properly for altitude, weather, and climate of work area. Be prepared for worst-case weather. • Pack wet weather outerwear (waterproof). Stay dry. • Avoid cotton fabrics in cool, wet conditions. Instead, wear synthetics or wool. • Layer clothing to maintain a comfortable body temperature. Avoid getting too hot or cold. • Stay fit, drink lots of water, eat high-energy foods, get adequate rest, and take time to acclimate. • Avoid higher altitudes during cooler periods and avoid lower altitudes during warmer periods. • Always keep head and neck protected from the sun and cold. • Learn how heat and cold affect the body and how to regulate body temperature. • Be familiar with proper first aid techniques appropriate to hypothermia and hyperthermia. • In dangerous cases of hypothermia or hyperthermia, when safe, seek medical attention immediately.
		UV Exposure	<ul style="list-style-type: none"> • Cover up. Wear a hat or bandanna and long, light shirts and pants. • Use a strong sunblock, SPF 30 or better. • Wear high-quality sunglasses that filter out 100% of UV radiation. • Seek cover when exposure is not necessary. Take breaks in the shade.
		River Crossings	<ul style="list-style-type: none"> • Do not attempt to cross deep, fast water, particularly during spring snowmelt or a flood. • Use a long stick or trekking pole to probe for deep spots and aid in balance. • Cross at a 45-degree angle traveling upstream. • Do not cross barefoot. Wear river sandals, tennis shoes, or boots. Use care placing feet.
		Fatigue	<ul style="list-style-type: none"> • Take breaks, as needed, and get plenty of sleep at night. Avoid over exertion. Stick to the schedule. • Eat and drink well, particularly at high altitude. • Regulate body temperature. Avoid high heat and extreme cold. • Use extra care at the end of the day, when fatigue is most likely and trail accidents are most common.

		11. TITLE	12. DATE

JHA INSTRUCTIONS (References-FSH 6709.11 and .12)

The JHA shall identify the location of the work project or activity, the name of employee(s) involved in the process, the date(s) of acknowledgment, and the name of the appropriate line officer approving the JHA. The line officer acknowledges that employees have read and understand the contents, have received the required training, and are qualified to perform the work project or activity.

Blocks 1, 2, 3, 4, 5, and 6: Self-explanatory.

Block 7: Identify all tasks and procedures associated with the work project or activity that have potential to cause injury or illness to personnel and damage to property or material. Include emergency evacuation procedures (EEP).

Block 8: Identify all known or suspect hazards associated with each respective task/procedure listed in Block 7. For example:

- a) Research past accidents/incidents.
- b) Research the Health and Safety Code, FSH 6709.11, or other literature.
- c) Discuss the work project/activity with participants.
- d) Observe the work project/activity.
- e) A combination of the above.

Block 9: Identify appropriate actions to reduce or eliminate the hazards identified in Block 8. Abatement measures listed below are in the order of preference:

- a) Engineering Controls (the most desirable method of abatement). For example, ergonomically designed tools, equipment, and furniture.
- b) Substitution. For example, switching to high flash point, non-toxic solvents.
- c) Administrative Controls. For example, limiting exposure by reducing the work schedule; establishing appropriate procedures and practices.
- d) PPE (least desirable method of abatement). For example, using hearing protection when working with or close to portable machines (chain saws, rock drills, and portable water pumps).
- e) A combination of the above.

Block 10: The JHA must be reviewed and approved by a line officer. Attach a copy of the JHA as justification for purchase orders when procuring PPE.

Blocks 11 and 12: Self-explanatory.

EMERGENCY EVACUATION INSTRUCTIONS (Reference FSH 6709.11)

Work supervisors and crew members are responsible for developing and discussing field emergency evacuation procedures (EEP) and alternatives in the event a person(s) becomes seriously ill or injured at the worksite.

Be prepared to provide the following information:

- a) Nature of the accident or injury (avoid using victim's name).
- b) Type of assistance needed, if any (ground, air, or water evacuation).
- c) Location of accident or injury, best access route into the worksite (road name/number), identifiable ground/air landmarks.
- d) Radio frequencies.
- e) Contact person.
- f) Local hazards to ground vehicles or aviation.
- g) Weather conditions (wind speed & direction, visibility, temperature).
- h) Topography.
- i) Number of individuals to be transported.
- j) Estimated weight of individuals for air/water evacuation.

The items listed above serve only as guidelines for the development of emergency evacuation procedures.

JHA and Emergency Evacuation Procedures Acknowledgment:

We, the undersigned employees, acknowledge participation in the development of this JHA (as applicable) and accompanying emergency evacuation procedures. We have thoroughly discussed and understand the provisions of these documents:

SIGNATURE

DATE

