

<b>United States Department of Agriculture FOREST SERVICE</b>  <b>JOB HAZARD ANALYSIS (JHA)</b> References-FSH 6709.11 and .12 (Instructions on Reverse)	<b>1. WORK PROJECT/ACTIVITY</b> Duties related to Trail Maintenance		<b>2. LOCATION</b> SIERRA NATIONAL FOREST	<b>3. UNIT</b> Public Services/ Recreation
	<b>4. NAME OF ANALYST</b>		<b>5. JOB TITLE</b>	<b>6. DATE PREPARED</b> <b>05/2015</b>
<b>7. TASKS/PROCEDURES</b>	<b>8. HAZARDS</b>	<b>9. ABATEMENT ACTIONS</b> Engineering Controls * Substitution * Administrative Controls * PPE		
Field Work	Working in Remote Areas	<ul style="list-style-type: none"> <li>• Maintain visual, voice or radio contact with crew members</li> <li>• Ensure portable and vehicle radios are charged and functional.</li> <li>• Carry extra batteries as capacity is reduced in cold weather.</li> <li>• Monitor NOAA weather channel and be prepared to cease field activities if conditions deteriorate.</li> <li>• Adhere to communication procedures outlined in the Emergency Evaluation Instructions at the end of the JHA</li> <li>• Always sign out with work location and expected time of return</li> <li>• Notify front desk and supervisor if delayed. Supervisor to determine if search is to be initiated.</li> <li>• Be aware of animals and make noise in territory.</li> <li>• Do not try to sneak up on wild animals.</li> <li>• Be properly trained in the use of the SPOT device, use them in emergency situations to send GPS coordinates to Sierra dispatch and local responders (See Separate JHA for SPOT use).</li> </ul>		
	Working Alone	<ul style="list-style-type: none"> <li>• Avoid Working alone whenever possible</li> <li>• Notify Sierra dispatch and supervisor of time of departure and estimated time of arrival.</li> <li>• Always carry a portable radio and make routine radio check-ins with Sierra dispatch or crewmembers. Carry SPOT device as back-up communicator.</li> <li>• Be aware of surroundings and hazards that may cause injury.</li> <li>• Manage time and allow for adequate time to return to district.</li> </ul>		
	Field Safety	<ul style="list-style-type: none"> <li>• Be visible to the public. When applicable wear highly visible vest.</li> <li>• Have radio contact with each other and Sierra at all times.</li> <li>• Be aware of other seasonal traffic on forest roads: Berry pickers, hunters, log trucks and/or wildlife watchers.</li> <li>• Let others know of traffic conditions/hazards.</li> <li>• Never work in the timber during high winds where blow down is likely to occur.</li> </ul>		
	Long Work Hours/Fatigue	<ul style="list-style-type: none"> <li>• Take breaks as necessary</li> </ul>		

Field Work (cont)	Erosion	<ul style="list-style-type: none"> <li>• If there has been recent moisture, be extra careful when driving.</li> <li>• Roads may be slick as a result of mud.</li> <li>• Shoulders may be extra soft.</li> <li>• A lack of shrubs and grasses may cause roads to wash out, inhibiting motor travel.</li> <li>• Watch footing when walking on wet ground, particularly in fire areas.</li> </ul>
Field Work (cont)	Encounters with the Public	<ul style="list-style-type: none"> <li>• If the public becomes aggressive or physically threatening, leave the area immediately via foot or vehicle. Move a safe distance away and write down any pertinent information (including vehicle description, license number and identify if known, <i>report it immediately</i>)</li> <li>• (Public Concern) have the citizen explain the concern fully, assess the situation and take appropriate action. Do not argue, be as polite as possible.</li> <li>• If you don't know the answer to their questions, be honest, inform them that you will try and get the answer for them, take their name and contact information. Don't make something up, be a good host.</li> <li>• Maintain radio contact with Sierra at all times.</li> <li>• Travel in pairs whenever possible.</li> <li>• Be cognizant of your surroundings and anything that may appear unusual.</li> <li>• If possible, avoid areas of known conflict.</li> <li>• Wear appropriate clothing.</li> </ul>
	Snags/Green Tree Hazards	<ul style="list-style-type: none"> <li>• Be observant of surroundings (i.e. Snags that have already fallen or trees that appear to be leaning severely)</li> <li>• Do not take breaks in hazard tree areas (standing, sitting, etc)</li> <li>• Be aware of increasing winds or a forecast of increasing winds</li> <li>• Identify high-risk tree species.</li> <li>• Seek shelter in a less dangerous or protected area (i.e. clear-cut or meadow, face into wind and prepare to avoid falling material).</li> </ul>
	Overhead Branches	<ul style="list-style-type: none"> <li>• Wear proper PPE (hard hat/safety glasses/ gloves etc)</li> <li>• Maintain safe walking distance between people – at least 10 feet.</li> <li>• Be cognizant of broken tops or branches that may be lodged in live or dead limbs.</li> </ul>
	Cuts and Scrapes	<ul style="list-style-type: none"> <li>• Wear gloves and long sleeve shirts</li> </ul>
	Mushrooms	<ul style="list-style-type: none"> <li>• Do not pick mushrooms for yourself.</li> <li>• Know the regulations for picking mushrooms.</li> </ul>
Drinking Water	Illness	<ul style="list-style-type: none"> <li>• Take plenty of water with you</li> <li>• Know the location of available drinking water</li> <li>• Treat water sources (filter, boil, chemical)</li> </ul>

Base Camp and individual camp site area.	Camping Areas	<ul style="list-style-type: none"> <li>Using Back-country travel and camping techniques following leave no trace principles as a reference and FSH 6709.11 (Sec.11.2,11.22.2 #2 a-e and 18 ) "<u>mandatory compliance</u>".</li> </ul>
	Risk Assessment For Hazard Tree	<ul style="list-style-type: none"> <li>Thoroughly check and look for dead tree,missing tree tops,widowmakers,snags within your surrounding Base Camp and individual camp site area. ( DO NOT CAMP THERE )</li> </ul>
Base Camp and individual camp site area. (cont)	Camp Site	<ul style="list-style-type: none"> <li>Use safe camp site selection policy in the Health and Safety Code Handbook 6709.11. The following will be considered when determining a camp site for employees: <ul style="list-style-type: none"> <li>Snags and other overhead hazards.</li> <li>Leaning green trees in unstable or saturated soils.</li> <li>Danger from rolling rocks and slides.</li> <li>Danger of flooding.</li> <li>Known animal problems.</li> </ul> </li> </ul>
Weather Related	Harsh Weather	<ul style="list-style-type: none"> <li>Dress appropriate for current weather conditions.</li> <li>Be prepared for changing weather conditions.</li> <li>Drink plenty of fluids when perspiring.</li> <li>Watch for signs of hypothermia and/or heat exhaustion.</li> </ul>
Weather Related (cont)	Lightning Strikes	<ul style="list-style-type: none"> <li>Seek indoor shelter immediately.</li> <li>If outdoors get into a hard topped vehicle. Stay away from trees, machinery, fences and other groups of people.</li> <li>Turn off all radios and electronic equipment.</li> <li>If you feel a tingling sensation on your hair or your hair stands on end, immediately crouch and cover your head. DO NOT lie down or place hands on the ground.</li> </ul>
	Heat Stress/Hypothermia	<ul style="list-style-type: none"> <li>Wear proper clothing for the weather conditions.</li> <li>Drink plenty of fluids.</li> <li>Be physically fit.</li> <li>Carry dry spare clothing.</li> </ul>
Communications in the backcountry	Dead spots where radio contact is not possible	<ul style="list-style-type: none"> <li>Check in with Sierra several times a day giving your location.</li> <li>Take extra clam shells and batteries for your portable radio.</li> <li>Carry a SPOT device in case of emergency (see SPOT device JHA).</li> <li>If an emergency occurs in an area where there is no radio communication, have a small team (2) climb to a high point and radio for assistance. If communication is still not possible, have a crewmember go for help while other members perform first aid.</li> <li>Update responders as necessary</li> </ul>
	After Hours	<ul style="list-style-type: none"> <li>Radio Sierra to notify them and your supervisor.</li> <li>If Sierra is unavailable, radio fire desk and have them contact your supervisor.</li> </ul>

Foot Travel	Sore feet, blisters and strains	<ul style="list-style-type: none"> <li>• Wear comfortable lace-up work boots with a vibram non-skid sole</li> <li>• Wear snug fitting cotton wool socks to provide cushioning, sweat absorption, insulation and comfort.</li> <li>• Take appropriate action to protect hot spots, blisters or any other foot tenderness.</li> <li>• Use proper body positioning, firm grip, lift with legs and get assistance when needed.</li> </ul>
Foot Travel (cont)	Slips, Trips and Falls	<ul style="list-style-type: none"> <li>• Do not lean into a hill when contouring; loosens footing.</li> <li>• Plan ahead, select safe routes, and watch for changes in ground surface, slick spots or other unusual hazards.</li> <li>• Don't get in a hurry and always be sure footing is firm particularly when crossing creeks.</li> <li>• Select each stepping spot carefully and do not shift body weight until you are sure footing is solid.</li> <li>• Know how to fall. Keep flexible with knees slightly bent. Do not stick out arm to break your fall. Roll with the fall.</li> <li>• In heavy undergrowth, lift knees high to clear obstacles.</li> <li>• Avoid walking on logs, step OVER them, not ON them.</li> <li>• While walking downhill, on slippery ground or loose footing, keep your weight on your heels, take shorter strides, keep knees bent, lean slightly backwards and use as much of the inside of your feet as possible.</li> <li>• Wear appropriate clothing.</li> </ul>
	Loose Rocks/Bad Footing	<ul style="list-style-type: none"> <li>• Maintain safe walking distance between people – at least 10 feet.</li> <li>• Avoid walking up a steep slope directly under another person.</li> <li>• Avoid kicking out loose rocks.</li> <li>• Avoid stepping on blow-down.</li> <li>• Communicate with co-workers.</li> </ul>

Hand Tools & Equipment	Injury	<ul style="list-style-type: none"> <li>• Check hand tools for sound handles prior to use.</li> <li>• Replace/repair all tool handles that have splits, cracks or loose handles.</li> <li>• Always use a tool sheath when not in use.</li> <li>• Keep tools sharp</li> <li>• Learn and utilize the proper techniques for tool use and sharpening</li> <li>• Use the right tool for the job.</li> <li>• Always wear proper PPE for the tools being used (safety glasses, hard hat, gloves, saw chaps, ear protection, 8" non-skid leather boots, long sleeve shirt and jeans)</li> <li>• Carry tools on the downhill side of the trail, and sharp side down.</li> <li>• Know and utilize proper saw techniques.</li> <li>• Always carry saws sheathed.</li> <li>• Do not carry tools over the shoulder.</li> <li>• Always secure tools and never carry in same compartment as personnel.</li> <li>• Avoid glancing blows.</li> <li>• Avoid contact with sharp edges and nail end of loggers tape.</li> <li>• When shoveling, support your upper body by bracing the forearm closest to your body against your thigh as you pivot the blade sideways.</li> <li>• Maintain a safe working distance (10' minimum).</li> <li>• Always be sure what's around you and check the area often</li> <li>• For Chain saws, please refer to the JHA on chainsaws</li> </ul>
Sharpening tools using hand file	Cuts to body (hands) Metal slivers in hands	<ul style="list-style-type: none"> <li>• Always wear gloves and goggles when sharpening tools</li> <li>• Prior to filing, fit the file with a handle and knuckle guard</li> <li>• When sharpening an axe or Pulaski blade, with a stone, work the stone in small circles across and "into" the blade.</li> <li>• Follow sharpening guides carefully.</li> <li>• Never sharpen cutting edges all the way to the footplate.</li> </ul>
Sharpening Tools Using Electric Grinder	Abrasive disc flying apart	<ul style="list-style-type: none"> <li>• Inspect the disc at the beginning and periodically while using the grinder.</li> <li>• Replace when discs are torn or excessively worn.</li> <li>• Always wear the proper PPE (long sleeve shirt, safety glasses, gloves, eye and ear protection, leather gloves)</li> <li>• Always use cord connected power-operated hand tools in accordance with the manufacturer's operating, safety and maintenance instructions.</li> </ul>
	Electric Shock	<ul style="list-style-type: none"> <li>• Inspect power cord for frays, cracks and splits paying close attention to the plug.</li> <li>• Do not use if cords are not safe and serviceable.</li> <li>• Inspect the on/off switch to make sure it works properly.</li> </ul>
Painting Tool Heads	Respiratory Injury	<ul style="list-style-type: none"> <li>• Consult MSDS for paint/linseed products.</li> <li>• Wear gloves as much as possible.</li> <li>• Wear respirator when painting and ensure adequate ventilation is present.</li> </ul>

Avoiding / Treating Tick Bites	Lyme Disease/Rocky Mountain Spotted Fever	<ul style="list-style-type: none"> <li>• Spray clothing with insect repellent as a barrier.</li> <li>• Wear light colored clothing that fits tightly at the wrists, ankles, and waist.</li> <li>• Each outer garment should overlap the one above it.</li> <li>• Cover trouser legs with high socks or boots.</li> <li>• Tuck in shirt tails.</li> <li>• Search the body on a regular basis, especially hair and clothing; ticks generally do not attach for the first couple of hours.</li> <li>• If a tick becomes attached, pull it by grasping it as close as possible to the point of attachment and pull straight out with gentle pressure. Wash skin with soap and water then cleanse with rubbing alcohol. Place the tick in an empty container for later identification, if the victim should have a reaction. Record dates of exposure and removal.</li> <li>• Do not try to remove the tick by burning with a match or covering it with chemical agents.</li> <li>• If you cannot remove the tick, or the head detaches, seek proper medical help.</li> <li>• Watch for warning signs of illness: a large red spot on the bite area, fever, chills, headache, joint and muscle ache, significant fatigue, and facial paralysis are reactions that may appear within two weeks of the attack. Symptoms specific to Lyme disease include: confusion, short-term memory loss, and disorientation.</li> </ul>
Avoiding / Treating Bee Stings	Allergic reactions/stings	<ul style="list-style-type: none"> <li>• Be alert to hives in brush or in hollow logs. Watch for insects travelling in and out of one location.</li> <li>• If you or anyone you are working with is known to have allergic reactions to bee stings, tell the rest of the crew and your supervisor. Make sure you carry emergency medication with you at all times.</li> <li>• Wear long sleeve shirts and trousers; tuck in shirt. Bright colors and metal objects may attract bees.</li> <li>• If you are stung, cold compresses may bring relief.</li> <li>• If a stinger is left behind, scrape it off the skin. Do not use a tweezers as this squeezes the venom sack, worsening the injury.</li> <li>• If the victim develops hives, asthmatic breathing, tissue swelling, or a drop in blood pressure, seek medical help immediately. Give victim antihistamine, (Benadryl, chlo-amine tabs).</li> </ul>
Avoiding / Treating Mosquito Bites	Skin irritation/encephalitis	<ul style="list-style-type: none"> <li>• Wear long sleeves and trousers.</li> <li>• Avoid heavy scents.</li> <li>• Use insect repellents. If using DEET, do not apply directly to skin, apply to clothing only.</li> <li>• Carry after-bite medication to reduce skin irritation.</li> </ul>

Horse Etiquette & Stock Safety	Injury to you and/or the animal	<ul style="list-style-type: none"> <li>• Always touch and reassure the horse when moving around it and walking behind it.</li> <li>• Never move in a jerky or loud fashion around a horse.</li> <li>• Stay away from the front of the horse and do not let the horse step on your feet.</li> <li>• When tying a horse, use a short lead rope so the horse cannot step on the rope.</li> <li>• Pack a good pack, evenly balanced with no loops of rope that could hook on branches.</li> </ul>
Working in Bear Country	Encounter of a Bear	<ul style="list-style-type: none"> <li>• DO NOT RUN: When you run you may look like prey to the bear.</li> <li>• Do not threaten the bear and force it to fight back.</li> <li>• Allow the bear a way out with dignity.</li> <li>• Talk to the bear in low, soft tones and slowly back away.</li> <li>• Pretend you are not afraid.</li> <li>• The secret with bears is to avoid surprises.</li> <li>• Be aware of wind direction. If the wind is in your face the bear may not smell you.</li> <li>• Use noise makers such as a spoon tied loosely to a pan, talk loudly to your companion, whistle while you work.</li> </ul>
	Cubs	<ul style="list-style-type: none"> <li>• Avoid sows with cubs when at all possible.</li> <li>• Back away slowly but deliberately, in the direction from which you came and at a slight angle so that you are moving across her vision. Bear depth perception is poor and if you move directly backwards it may look to her like you are moving towards her.</li> <li>• Continue to avoid the area.</li> </ul>
Working in Bear Country (cont)	Bear food cache – smell or see rotted carcass	<ul style="list-style-type: none"> <li>• Backtrack immediately and quickly. Do not investigate.</li> <li>• Do not force a bear to defend it's meals from you.</li> <li>• Avoid the area.</li> </ul>
	Bears in Camp	<ul style="list-style-type: none"> <li>• Keep camp clean and organized.</li> <li>• Do not ever allow bears to get to your food.</li> <li>• Cut down on attractive odors. Think about the types of food you carry.</li> <li>• Cook away from your tent/sleep area.</li> <li>• Clean dishes after every meal, and be aware of food scrapes.</li> <li>• Keep all food out of your tent.</li> <li>• Hang food in trees well away from camp and out of reach of bears</li> <li>• Remember: black bears are good climbers so string the food between trees.</li> <li>• Double plastic wrap all food items to reduce odor.</li> </ul>
	Odors that Attract Bears	<ul style="list-style-type: none"> <li>• Food, cooking and eating utensils, grills, fire pits used for cooking, stoves, fishing tackle, ice chests/coolers, trash, wash basins, cosmetics, toiletries, beverage containers, perfumes, soaps.</li> </ul>

	Bear Repellant Spray	<ul style="list-style-type: none"> <li>• If your going to carry bear repellant spray, you must have attended a Forest approved training.</li> <li>• Crew should have a bear repellent spray safety session.</li> <li>• Know how the spray canister works: limitations, range etc.</li> <li>• Avoid spraying into the wind or breeze - it will blow back into your face.</li> <li>• Repellent spray is considered a hazardous material for transport - use an approved container for transport in aircraft.</li> </ul>
	Carrying a Firearm in Brown Bear Territory	<ul style="list-style-type: none"> <li>• SNF employees are prohibited from carrying firearms on the job, except the LEO.</li> </ul>
Mountain Lions Confrontations	Try to work within a group	<ul style="list-style-type: none"> <li>• Do not bend over, squat or bend down.</li> <li>• Carry a noise-maker and something to throw to strike a lion with if needed.</li> <li>• Be alert to your surrounding and check behind you frequently.</li> <li>• Whenever possible avoid brushy, thickly wooded areas.</li> <li>• Let someone know your exact location and time you plan to return.</li> <li>• Carry a Forest Service radio whenever possible.</li> </ul>
	If you encounter a Lion	<ul style="list-style-type: none"> <li>• If being chased, turn immediately and face the animal.</li> <li>• Do not lose eye contact and remain standing and do not run away or bend over.</li> <li>• Face the animal and stand your ground.</li> <li>• Raise your arms and look big.</li> <li>• Talk aloud and in the firm voice.</li> <li>• Prepare to use a noisemaker or shout if necessary.</li> <li>• If the lion starts to crouch or advance, make noise or throw whatever you can without losing eye contact or bending over.</li> <li>• Wait for the lion to withdraw before moving.</li> <li>• Although unusual, be alert for a second lion.</li> <li>• <b>If you are attacked, FIGHT BACK.</b></li> </ul>
Accident Documentation and Procedures	Injury	<ul style="list-style-type: none"> <li>• In cases of emergency, depending on severity and sound judgment, contact supervisor and follow the Emergency Evacuation Instructions (Reference FSH 6709.11) listed at the end of the JHA</li> <li>• Know your location, and emergency route numbers</li> <li>• Report an accident, even minor to your supervisor and the forest safety officer. A CA-1 may be required to document work related injuries.</li> <li>• Forms SF-91 and AD-112 will be required of all vehicle accidents.</li> <li>• Form OF-26 is also required if damage estimates exceed \$500.00</li> </ul>



<p>Safety Responsibilities</p>		<ul style="list-style-type: none"> <li>• Trail crewmembers will be responsible for covering, understanding and complying by this JHA and Sierra National Forest and district policies.</li> <li>• Crewmembers will receive a personal copy of this JHA along with accompanying Emergency Evacuation Instructions, Medivac and Communication Plans.</li> <li>• Each crewmember will sign the member will sign the master copy of this JHA on completion of a formal overview.</li> <li>• Pertinent updates will be added to this JHA as they arise through crew interaction and weekly tailgate safety sessions.</li> </ul>	
<p>10. LINE OFFICER SIGNATURE</p>		<p>11. TITLE</p>	<p>12. DATE</p>

Previous edition is obsolete.

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### 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) writing the JHA, the date(s) of development, and the name of the appropriate line officer approving it. The supervisor 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 appropriate 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 the preferred abatement method:

- 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 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 crewmembers 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 frequency(s).
- e. Contact person.
- f. Local hazards to ground vehicles or aviation.
- g. Weather conditions (wind speed & direction, visibility, temp).
- h. Topography.
- i. Number of person(s) to be transported
- j. Estimated weight of passengers 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 work leader and crewmembers, acknowledge participation in the development of this JHA (as applicable) and accompanying emergency evacuation procedures. We have thoroughly discussed and understand the provisions of each of these documents:

**SIGNATURE**

**DATE**

**SIGNATURE**

**DATE**

**Work Leader**