

U.S. Department of Agriculture Forest Service <b>#71</b>		1. WORK PROJECT/ACTIVITY  Trail Bridge Construction	2. LOCATION  Green Mountain and Finger Lakes National Forests	3. UNIT  All
JOB HAZARD ANALYSIS (JHA) References-FSH 6709.11 and -12 (Instructions on Reverse)		4. NAME OF ANALYST  Seth Coffey	5. JOB TITLE  Recreation Technician	6. DATE PREPARED  5/31/2018
7. TASKS/PROCEDURES (List them in the order they will occur)	8. HAZARDS What will happen and to whom under what circumstances?	9. ABATEMENT ACTIONS Engineering Controls * Substitution * Administrative Controls (state if you considered these) Training * PPE <b>Be specific – who needs to do what?</b>		
Provide training	Lack of training/orientation leads to personal injury	<ul style="list-style-type: none"> <li>Project/activity supervisor shall ensure that all workers involved in trail bridge construction and maintenance are trained/oriented on the hazards and abatement actions outlined below.</li> <li>Project/activity supervisor shall ensure that all workers be alert to and communicate unanticipated hazards not listed below.</li> <li>Repeat training whenever a new employee or volunteer begins this type of work or when site conditions or work processes change.</li> <li>The general <i>Guide to Working Safely Outdoors</i> on the GMFL (JHA#0) assesses the hazards and abatement actions for work activities to which all employees may be exposed. Personnel shall be familiar with this information.</li> </ul>		
		<p><b>Note: This Job Hazard Analysis is applicable only on bridges less than 6 feet above the surface or stream bottom below. Bridges with working surfaces that are 6 feet or more above the level below must have a site specific fall protection plan and equipment.</b></p>		
Prefabricating or cutting parts onsite.	Sawing, sanding and machining treated wood, handling of CCA treated wood: CCA is a known respiratory sensitizing agent and cancer causing agent <sup>1</sup> . Exposure to	<ol style="list-style-type: none"> <li>Avoid frequent or prolonged inhalation of sawdust from CCA treated wood.</li> <li>Dust accumulations from sawing, sanding, and machining of CCA treated wood should be controlled by an engineered dust collection system or by working outdoors.</li> </ol>		

<sup>1</sup> **Inhalation:** CCA dust is irritating to the nose, throat and lungs. Symptoms may include nasal dryness, deposits or obstructions in the nasal passages, coughing, sneezing, dryness and soreness of throat and sinuses, hoarseness, and wheezing. Prolonged or repeated inhalation of product dusts may cause respiratory irritation, recurrent bronchitis and prolonged colds. Some species of wood and product dusts may cause allergic respiratory reactions with asthma-like symptoms in sensitized individuals. Prolonged exposure to wood dust by inhalation has been reported to be associated with nasal and paranasal cancer.

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	Chromated Copper Arsenate (CCA) can cause serious immediate or long term adverse health symptoms including DNA and fertility damage.	<ol style="list-style-type: none"> <li>3. Wear personal protective equipment: dust mask, respirator, goggles, gloves, earplugs, leather boots, a long sleeve shirt and long pants.</li> <li>4. Because preservative or sawdust may accumulate on clothes, launder before reuse. Wash work clothes separately from other household clothing.</li> <li>5. Wear gloves when handling any wood.</li> <li>6. After working with treated wood and before eating, drinking, toileting and use of tobacco products, wash exposed areas thoroughly.</li> <li>7. Be alert for respiratory and dermal sensitivity to wood products.</li> <li>8. Do not use CCA treated wood where the preservative may become a component of food or animal feed (mulch, counter tops, beehives, containers for storing animal feed, etc.). Only treated wood that is visibly clean and free of surface residue should be used for patios, decks and walkways. Do not use treated wood where it may come in direct or indirect contact with drinking water except for uses involving incidental contact.</li> </ol>		
	If airborne wood dust becomes concentrated to the point that it reduces visibility to less than 5 feet, the dust could explode	<p>Do not allow wood dust to build up in enclosed areas. Work outdoors or control dust with an engineered dust collection system.</p>		

**Skin:** Product dust may cause irritation to the skin. Mechanical rubbing may increase skin irritation. Product may cause dermatitis or allergic skin reactions in sensitized individuals.

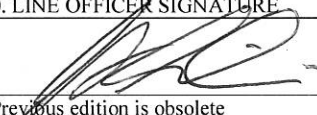
**Eyes:** Product dust may cause irritation to the eyes. Symptoms can include irritation, redness, scratching of the cornea, and tearing.

**General:** Chromium III, the naturally occurring form, has low toxicity while chromium VI is highly toxic due to strong oxidation characteristics and permeability through biological membranes. Excessive exposure to chromium VI can produce allergic skin sensitization reactions and severe nasal irritation, scarring and damage to the lungs, liver and kidney damage. Exposure to arsenic compounds results in hyperpigmentation of the skin and hyperkeratosis of the skin as well as dermatitis of both primary irritation and sensitization types. Acute inhalation has resulted in irritation of the upper respiratory tract, even leading to ulceration and perforation of the nasal septum. Symptoms of acute arsenic poisoning include burning lips, constriction of the throat, abdominal pain, severe nausea, projectile vomiting, and profuse diarrhea. Other toxic effects on the liver, blood-forming organs, central and peripheral nervous systems and cardiovascular system may appear.

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	violently if exposed ignition source.			
	Wood cutting shop tools can cause serous jagged cuts, loss of fingers or hands, or can damage your hearing permanently.	<ul style="list-style-type: none"> <li>Follow the safety guidelines in JHAs on table saws, radial arm and mitre saws if they are being used.</li> <li>Always wear safety eyewear stamped as meeting ANSI Z89.1.</li> <li>Wear good earmuff or properly inserted earplugs (plugs are inserted enough that you cannot see them when you look straight into a mirror).</li> <li>Follow the guidelines in the JHA for <b>Using Hand and Power Tools in the Field.</b></li> </ul>		
Disposal of wood and wood scraps, cleanup.	Improper disposal and cleanup of CCA treated wood can harm your health and that of other land and water species.If burned, CCA produces hazardous decomposition products including irritating and toxic vapors and gases of arsenic compounds, chromium oxides and copper compounds.	<ul style="list-style-type: none"> <li>All CCA treated sawdust and construction debris should be cleaned up and disposed of. Dispose of treated wood by ordinary trash collection.</li> <li>Do not burn in open fires or in stoves, fireplaces or residential boilers because toxic chemicals may be produced as part of the smoke and ashes. Vacuum rather than sweeping CCA sawdust unless outdoors.</li> <li>If possible, pre-fabricate bridge where all cutting done off-site in a shop.</li> </ul>		
Constructing bridge	Your fingers and knuckles can be sorely bruised or scraped if tools slip or your hands slip while turning bolts or screws.	<ul style="list-style-type: none"> <li>Use proper tools for the job and only use tools for the purpose that they were designed. Use box end or sockets instead of adjustable or open end to avoid slipping off nut.</li> <li>Wear gloves.</li> <li>Use correct wrench size, do not add pipe or cheater bar to the end of wrenches to get more leverage.</li> <li>When possible, pull wrench towards you instead of pushing away.</li> </ul>		
	Eye injuries can be very gruesome if you must perform first aid, excruciatingly painful if your eye	Wear safety glasses that are stamped as meeting ANSI Z89.1 standards especially when using hammers for driving nails, hitting any metal objects,		

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	is injured, and life changing if you lose your vision as a result of the injury.	when working with stone or cement, or at any time active construction and fabrication job sites.		
	Impulsive noise from hammering can cause permanent hearing damage.	Wear properly fitted formable earplugs or over the head muffs. See <b>“Wearing or Inserting Hearing Protective Devices”</b> below.		
Using power equipment	A variety of maladies and tragedies can befall you if injured by any of the variety of power equipment needed to build a bridge in the field.	Refer to the Power tools on construction sites JHA plus the tool-specific JHA, as needed.		
Job site management	Unprotected onlookers wandering into job sites can be injured as described throughout this JHA.	<ul style="list-style-type: none"> <li>• Work site will be flagged off and access restricted to only necessary workers who are wearing all necessary PPE. Wear proper foot wear, and encourage steel toed safety shoes.</li> <li>• Proper PPE must be worn at all times – especially careful handling metal roofing due to sharp edges and using cutting instruments (wear gloves).</li> <li>• Keep work area clean of debris and bend over all protruding nails in the structure or in debris.</li> </ul>		
General lifting, moving heavy objects, and physical exertion	Being in poor physical condition or using improper lifting technique while lifting heavy objects like rocks, logs, and other materials increases the risk of debilitating, lifelong back, joint, or muscular injuries that limit your ability to do your job or other life functions.	<ul style="list-style-type: none"> <li>• Wear boots with non-slip treads.</li> <li>• If possible, begin a physical strengthening program at least 8 weeks prior to beginning trail maintenance work. Focus especially on upper and lower back, abdominal, and wrist, arm, shoulder, knee, ankle strength. <b><i>If you or crew members have not done this, reduce output expectations to allow a period of time for physical strengthening.</i></b></li> <li>• When lifting, keep your head up, back straight, butt down and use your legs to lift.</li> <li>• When lifting, <b><i>never reach your hands below your knees to begin a lift.</i></b> Bend knees, squat (<b><i>squats are hard on knees and difficult for most</i></b></li> </ul>		

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	Moving large items can result in crushed fingers, hands, toes, and feet.	<p><i>people to do except for light loads so minimize squat lifts – use kneeling or other methods), kneel one or both knees on ground, or use other methods to lift heavy objects or make repeated lifts.</i></p> <ul style="list-style-type: none"> <li>• Keep the load close to your body.</li> <li>• As you lift or set down heavy objects, <i>lift your chin up</i> to help keep your back in its neutral strong position (to avoid rounding your lower back).</li> <li>• <i>Do not rotate torso or knees more than 15° left or right while lifting or carrying a load.</i> Take a step to make a turn.</li> <li>• Roll heavy items or use a hand truck instead of lifting them wherever possible.</li> <li>• Work slowly to prevent crushing hands and feet.</li> <li>• Wear heavy-duty gloves.</li> <li>• Have a comfortable place to sleep so that back muscles may rest.</li> <li>• Work in teams for heaviest work. <u>Know and do not exceed your personal ability.</u> When lifting as a group, first discuss strategy with the group.</li> </ul>		
	Objects falling from above can cause potentially fatal head injuries such as fractured skull, concussion, subarachnoid hemorrhage.	<ul style="list-style-type: none"> <li>• <u>Wear hardhats.</u> As a general guideline, all employees/volunteers should be provided with a new hardhat that has not been previously exposed to excessive sunlight. Wearers should never carry or wear anything inside their hardhat. A clearance must be maintained between the shell and head for the protection system to work properly. Because hardhats can be damaged, they should not be abused. Hardhats that have been subject to impact or other damage must be discarded. Hardhats should be kept free of abrasions, scrapes, and nicks and should not be dropped, thrown, or used as supports. Do not</li> </ul>		

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		sit on hardhat. Ensure that suspension system in hardhat is properly installed.		
Emergency response	Lack of emergency response plan causes delays in obtaining emergency medical treatment	<ul style="list-style-type: none"> <li>• Have a First Aid kit onsite in each vehicle.</li> <li>• At least one person on crew will be currently certified to render first aid and CPR.</li> <li>• Notify the project leader of any injury or incident and complete the necessary injuries reports.</li> <li>• Document the following information on the tailgate safety meeting form for each work location and ensure that all crew members have this information readily available:                         <ol style="list-style-type: none"> <li>1. Means of communication (radio, cell, satellite)</li> <li>2. Primary contacts (rescue squad, F.S. dispatcher, relay person)</li> <li>3. Travel routes for emergency responders</li> <li>4. Location of closest medical facilities</li> <li>5. How to contact them (phone #s)</li> </ol> </li> <li>• Keep a two-way radio or cell phone available in case of an emergency and a fully stocked crew type first aid kit on site.</li> <li>• Be able to describe crew location to emergency medical responders. Contact them prior to starting work in case directions are difficult to give to an E-911 operator.</li> <li>• All crew members should have access to a map and directions to the nearest medical facility and the location of the crew vehicle keys. Do not attempt to transport someone with serious injuries. Call emergency responder for this kind of transport.</li> </ul>		
10. LINE OFFICER SIGNATURE		11. TITLE	12. DATE	
		Forest Supervisor <b>John A. Sinclair</b>	<b>6/22/2018</b>	

Previous edition is obsolete

JHA Instructions (References-FSH 6709.11 and .12)	Emergency Evacuation Instructions (Reference FSH 6709.11)																																
<p>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.</p> <p>Blocks 1, 2, 3, 4, 5, and 6: Self-explanatory.</p> <p>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).</p> <p>Block 8: Identify all known or suspect hazards associated with each respective task/procedure listed in block 7. For example:</p> <ul style="list-style-type: none"> <li>a. Research past accidents/incidents.</li> <li>b. Research the Health and Safety Code, FSH 6709.11 or other appropriate literature.</li> <li>c. Discuss the work project/activity with participants.</li> <li>d. Observe the work project/activity.</li> <li>e. A combination of the above.</li> </ul> <p>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:</p> <ul style="list-style-type: none"> <li>a. Engineering Controls (the most desirable method of abatement). For example, ergonomically designed tools, equipment, and furniture.</li> <li>b. Substitution. For example, switching to high flash point, non-toxic solvents.</li> <li>c. Administrative Controls. For example, limiting exposure by reducing the work schedule; establishing appropriate procedures and practices.</li> <li>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).</li> <li>e. A combination of the above.</li> </ul> <p>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.</p> <p>Blocks 11 and 12: Self-explanatory.</p>	<p>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.</p> <p>Be prepared to provide the following information:</p> <ul style="list-style-type: none"> <li>a. Nature of the accident or injury (avoid using victim's name).</li> <li>b. Type of assistance needed, if any (ground, air, or water evacuation).</li> <li>c. Location of accident or injury, best access route into the worksite (road name/number), identifiable ground/air landmarks.</li> <li>d. Radio frequencies.</li> <li>e. Contact person.</li> <li>f. Local hazards to ground vehicles or aviation.</li> <li>g. Weather conditions (wind speed &amp; direction, visibility, temperature).</li> <li>h. Topography.</li> <li>i. Number of individuals to be transported.</li> <li>j. Estimated weight of individuals for air/water evacuation.</li> </ul> <p>The items listed above serve only as guidelines for the development of emergency evacuation procedures.</p> <p style="text-align: center;"><b>JHA and Emergency Evacuation Procedures Acknowledgment</b></p> <p>We, the undersigned work leader and crew members, 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:</p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="text-align: center; border: none;">SIGNATURE</th> <th style="text-align: center; border: none;">DATE</th> <th style="text-align: center; border: none;">SIGNATURE</th> <th style="text-align: center; border: none;">DATE</th> </tr> </thead> <tbody> <tr> <td style="border: none;">_____</td> <td style="border: none;">_____</td> <td style="border: none;">_____</td> <td style="border: none;">_____</td> </tr> <tr> <td style="border: none;">_____</td> <td style="border: none;">_____</td> <td style="border: none;">_____</td> <td style="border: none;">_____</td> </tr> <tr> <td style="border: none;">_____</td> <td style="border: none;">_____</td> <td style="border: none;">_____</td> <td style="border: none;">_____</td> </tr> <tr> <td style="border: none;">_____</td> <td style="border: none;">_____</td> <td style="border: none;">_____</td> <td style="border: none;">_____</td> </tr> <tr> <td style="border: none;">_____</td> <td style="border: none;">_____</td> <td style="border: none;">_____</td> <td style="border: none;">_____</td> </tr> <tr> <td style="border: none;">_____</td> <td style="border: none;">_____</td> <td style="border: none;">_____</td> <td style="border: none;">_____</td> </tr> <tr> <td style="border: none;">_____</td> <td style="border: none;">_____</td> <td style="border: none;">_____</td> <td style="border: none;">_____</td> </tr> </tbody> </table>	SIGNATURE	DATE	SIGNATURE	DATE	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
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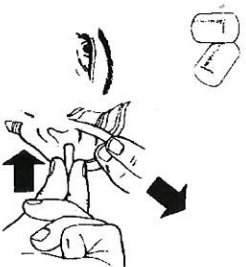




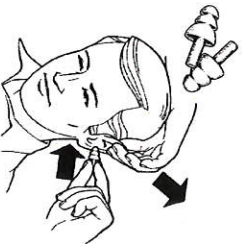
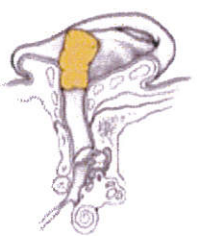
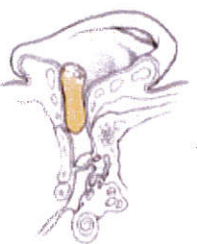
## Wearing or Inserting Hearing Protective Devices

If you will be exposed to sound levels at or exceeding the action level (85 decibels) on the job, you must wear hearing protection devices. The Forest Service must provide this Personal Protective Equipment to you.

Earplugs come in varying sizes and densities, so if an earplug is too big or too small, if they won't fit in at least  $\frac{3}{4}$  of their length or they slide in too far, or if they cause too much pressure inside your ear canal, try a different type. Do not wait until the day you need the earplugs to try them "in".



**Inserting Formable Plugs** - Slowly roll and compress foam plugs into a very thin cylinder. Fitting is easier if you reach around the head to pull the ear outward and upward during insertion. While compressed, insert plug well into the ear canal so you cannot see it while looking at yourself while looking straight on in a mirror or a co-worker cannot see the plug while looking straight at you.



**Inserting Pre-molded Plugs** - Reach around the back of your head and pull outward and upward on the ear while inserting the plug until you feel it sealing. This may seem tight at first, especially if you've never worn earplugs.



**Wearing Earmuffs** – Muffs must fully enclose the ears to seal against the head. Adjust the headband so cushions exert even pressure around the ears to get the best noise reduction. Pull hair back and out from beneath the cushions. Don't store pencils or wear caps under the cushions.