

<p>U.S. Department of Agriculture Forest Service</p> <p>JOB HAZARD ANALYSIS (JHA) References-FSH 6709.11 and -12 (Instructions on Reverse)</p>	<p>1. WORK PROJECT/ACTIVITY</p> <p>Chainsaw (Recreation)</p>	<p>2. LOCATION</p> <p>George Washington and Jefferson National Forests</p>	<p>3. UNIT</p> <p>All Units of the George Washington and Jefferson National Forests</p>
<p>JOB HAZARD ANALYSIS (JHA)</p>	<p>4. NAME(S) OF ANALYST(S)</p> <p>Jeff Cleek, Jay Collett</p>	<p>5. JOB TITLE</p> <p>Saw Program, Recreation Program</p>	<p>6. DATE PREPARED</p> <p>2024-03-20</p>
<p>Required Standards and General Notes:</p>	<p>FSM 2350 R8 Saw Program (sharepoint.com)</p>		
<p>Required Personal Protective Equipment</p>	<p>Chaps, Hardhat, Gloves, Boots, Eye Protection, Ear Protection, First Aid Kit, Radio/SPOT /a communication device</p>		
<p>Tools and Equipment</p>	<p>Saw, Chainsaw kit</p>		
<p>Available Training</p>	<p>Chainsaw Certification program, Annual Refresher, S-212 Wildland Fire Chainsaw</p>		
<p>7. TASKS/PROCEDURES</p>	<p>8. HAZARDS, POTENTIAL HAZARDS / INJURY SOURCE</p>	<p>9. ABATEMENT ACTIONS OR PROCEDURES Engineering Controls * Substitution * Administrative Controls * PPE</p>	
<p>Qualifications for Task at Hand</p>	<p>Right to say “no”</p>	<ul style="list-style-type: none"> Chainsaw Operators should not cut outside of their comfort zone, and shall not cut outside of the qualifications. Sawyers have the right to say “no” and walk away from any situation deemed unsafe. Exercise turn down protocol page 19 IRPG. 	
	<p>Injury or Death</p>	<ul style="list-style-type: none"> Employees shall not be permitted to use chainsaw, unless carded. Check and ensure all saw qualifications are up to date. Possess a current first aid and cardiopulmonary resuscitation(CPR) certification. Working alone with a chainsaw is not permitted. Emergency authorization can be permitted when two way communications are in place. 	
	<p>Cutting Outside of Capabilities</p>	<ul style="list-style-type: none"> Forest Service employees, volunteers, and partners can be carded at any level: A, B, C, or Fire 1, 2, 3. A carded sawyers shall be supervised by B carded sawyers B carded sawyers can saw unsupervised. Have appropriate tailgate safety session referencing this JHA. "A" apprentice sawyer: completion of nationally approved classroom and field training for general saw work. Bucking and limbing and basic steps in felling. Supervised by "B" or "C" level sawyer. Work may include slashing and felling in the least complex situations, certification expires at the end of 3 years. "B" intermediate sawyer: skilled and capable of performing on those task documented on the back of certification card. Not allowed to field certify sawyers, certification expires at the end of 3 years. 	

		<ul style="list-style-type: none"> • "C" advanced sawyer: handle complex sawing and felling operations, may conduct classroom and field certifications of "A" and "B" sawyers, not allowed to field certify "C" sawyers, certification expires at the end of 3 years. • "C" evaluator: handle complex sawing and felling operations may conduct classroom and field certification of all levels of sawyers, certifications expires at the end of 3 years.
Travel To/From Project Area	Transporting Saws Inside of Vehicles	<ul style="list-style-type: none"> • Do not transport a saw inside the cab of a vehicle • Turn off saw and cover bar with sheath when transporting. • Technology and Development Program Fuel Transportation website for further direction on equipment requirements for vehicles and transporting saw and fuel.
Wear Personal Protective Equipment	Cuts	<ul style="list-style-type: none"> • Wear long sleeve shirt, long pants, leather gloves, and chainsaw chaps (FS-6170-4). • Have 2" overlap on boots. • Chaps shall meet requirements of FS-6170-4 and ASTM F-1897. • Use nonleather gloves for sharpening chain.
	Hearing Loss	<ul style="list-style-type: none"> • Use ear protection/ hearing protection when operating a saw or in proximity to an operating saw.
	Eye Injury	<ul style="list-style-type: none"> • Wear Eye Protection: clear safety glasses at a minimum or mesh "bug eye" type or mesh face shield.
	Head Injury	<ul style="list-style-type: none"> • Forest Service approved hard hat. Forestry standard six point.
	Footing	<ul style="list-style-type: none"> • Minimum 8" High Leather Boots which provide ankle support and slip resistant soles
Carrying Saw	Burns	<ul style="list-style-type: none"> • Carry saw in a way to avoid coming in contact with muffler. • Do not carry hot saw on shoulder.
	Trips and Falls	<ul style="list-style-type: none"> • Use manufactured bar and chain guard or have saw properly sheathed. • Use shoulder pad. • Point bar forward when traveling downhill with saw at side. • Point bar backward when travelling uphill with saw at side. • Set saw at idle speed and activate chain break when carrying saw for short distance. • Shut saw off when carrying it for a distance greater than from tree to tree or in hazardous conditions such as slippery surfaces, heavy underbrush, and in all cases when carrying saw for more than 50 feet

Starting & Operating Saw	Improper Technique	<ul style="list-style-type: none"> ● Inspect saw prior to use. ● Always start saw with the chain break engaged. ● Start saw on the ground or where otherwise firmly supported. ● “Drop Starting” is prohibited. ● Maintain a secure grip on saw with thumb fully wrapped around grips/handles.
	Kick Back	<ul style="list-style-type: none"> ● Avoid using upper 1/3 of bar tip. ● Throttle saw up to full speed before letting chain come into contact with wood. ● In general, do not throttle down before cut has been completed.
	Injuries	<ul style="list-style-type: none"> ● Avoid cutting with power head positioned between waist and shoulders, this is considered a danger zone. ● Do not cut with power head positioned above shoulder height, including cutting tree branches with tip of bar and eliminates over supporting the object.
Fueling Saw	Spills	<ul style="list-style-type: none"> ● Select an area with bare ground for storing fuel. ● Immediately clean up spilled fuel.
	Burns	<ul style="list-style-type: none"> ● Refuel outdoors on bare ground. At least 20 feet from open flame or other sources of ignition. ● Start saw at least 10 feet from fueling area.
	Vapor Lock	<ul style="list-style-type: none"> ● Be wary of geysering from tank pressure if tank is more than ½ full. ● If saw exhibits low fuel, vapor lock characteristics, check fuel level thru opaque side of fuel tank before opening fuel cap. ● Allow saw to cool 15 minutes before opening fuel cap. ● Allow saw to cool 5 minutes before starting. ● Fuel from upwind side to reduce exposure to spilled fuel and vapors. ● To avoid possible pressurized fuel spray, assure fuel tank is pressurized and direct fuel cap in a safe direction before slowly opening to release built up fuel can pressure. ● Wear safety glasses meeting ANSi Z87.1
Felling	Safety	<ul style="list-style-type: none"> ● Unless the employee demonstrates the need there shall be no one at the stump during felling operations. OSHA 29 CFR 1910.266 (h0(1)(iv)). ● No employee shall approach a faller closer than 2 1/2 tree lengths of trees being felled until the feller acknowledges it is safe, and shall give the all clear acknowledgement after 30 seconds. No Domino felling or hung trees. Keep alert for falling debris.
	Use OHLEC Process	<ul style="list-style-type: none"> ● O – Objective ● H - Hazard ● L - Lean ● E - Escape Route ● C - Cutting Plan

Obscured Vision		<ul style="list-style-type: none"> ● Felling trees or snags is prohibited if tops and surrounding area (distance 2 1/2 times height of tree to be felled in a viewing radius of 360 degrees) are obscured by darkness, fog, smoke or other conditions. Do not allow felling, wedging , or hand pushing standing or leaning trees or snags when inadequate light impairs visual inspection of hazard and immediate work area.
Weather		<ul style="list-style-type: none"> ● Never start or continue to work during high winds, electrical storms, or in other hazardous weather. Observe 30/30 Rule (IRPG page 21). ● It is recommended but not required to have a IRPG available or in the saw kit.
Escape Route		<ul style="list-style-type: none"> ● Identify two (2) primary and secondary escape routes prior to felling tree, and area of 5' circumference around the tree will be clear of obstruction. ● Escape routes shall be at a 45 degree angle away from tree, cleared of obstructions 20'.
Lean		<ul style="list-style-type: none"> ● Determine lean prior to felling tree using equipment such as a felling axe. ● Prior to felling tree, determine bad side of tree, felling operation shall begin from bad side of tree. This can be established using a boring technique. ● Neve bore more than 1/2 way though the bad side of tree. ● Final felling will be from the good side of the tree using a bore technique if necessary. This will allow for the faller to use the designated primary escape route without having to walk behind "cross over" the tree when it is falling. ● Give a warning shout prior to operation, a warning shout when the tree is falling and an all clear when area is safe.
Spring Poles		<ul style="list-style-type: none"> ● The best way to manage spring poles are to avoid them. ● If a spring pole must be cut it should be done in a safe manner. This is achieved by releasing tension slowly at the maximum point of tension. ● Maximum tension can be determined by extending a vertical line for the base of the tree and a horizontal line from the highest point. Imagine a 45 degree angle where the two lines meet and this is the tension point. ● Spring poles can be severed from top or bottom, but must stand at a 45 degree angle to avoid being struck when tension suddenly releases.
Felling, Bucking, and Brushing in Heavily Damaged Storm Areas	Unusual Hazards During Sawing Operations in Heavily Storm Damaged Areas. Serious Potential for Injury While Attempting to Saw Outside of Skill Level.	<ul style="list-style-type: none"> ● Look up, look down and look around for hazards which may be present, and these may include: broken tops, hanging limbs, cracks or splits present in trees, and loose root wads, spring poles, or other signs of weakness. ● Take time to do a comprehensive size up. ● Discuss difficult size up situations with another Faller Class C. ● Treat all downed power lines as if they are live.

		<ul style="list-style-type: none"> ○ Do not cut any trees within ½ tree length of utility lines unless the utility companies have certified their lines are deenergized. ○ If a tree comes into contact with a utility line, keep personnel clear until the utility company certifies it is safe to proceed. Assign road guards with reflective vest on active travel routes within the cutting area. Also establish additional traffic control measures, such as: radio communication, signs, or barriers, to control traffic as needed. ● Twisted trees, trees with loose root wads and trees which have been subject to wind shake (due to prolonged high winds), periods of heavy rain, or snow represent an extremely complex felling situation. <ul style="list-style-type: none"> ○ Faller Class C shall discuss and agree on the decision to fell the tree and take time to review cutting procedures prior to felling the tree. ● Use warning shouts when felling, maintain proper work spacing as well as maintain felling and cutting areal control. ● Observer kerf, and wedge trees whenever possible or practical. ● Determine binds prior (COMPRESSION VS TENSION), so as not to position yourself between downed trees, logs or limbs when bucking unless the hazard has been mitigated.
Cutting and Brushing in/around Improvements in Heavily Damaged Areas	Injury or Death from Down Power Lines	<ul style="list-style-type: none"> ● Treat all lines as charged unless utility company has certified lines are de-energized.
	Injury or Death from Electrocutation	<ul style="list-style-type: none"> ● Do not walk near downed utility lines unless you have positive assurance from the on site utility representative that the lines are de-energized. ● When working near residential areas be aware of residents starting and operating generators, and the possibility of a generator recharging the adjacent utility line. ● Utility workers have been killed working on utility lines charged from generators. If residents are in the area of where you are working with downed utility lines, advise them DO NOT start generators until you have LEFT THE WORK AREA. If they are not cooperative DO NOT work in the area.
	Injury from Snapped Wire Fences, Explosives, or Flying Debris	<ul style="list-style-type: none"> ● Do not cut trees onto wire fences. If necessary to fall trees onto a wire fence line, cut the fence at first. Avoid cutting trees which may fall onto sheds, homes, propane tanks, or otherwise cause damage to personal property.
Heavy Equipment Use in Heavily Damaged Areas	Working Around Heavy Equipment	<ul style="list-style-type: none"> ● Ensure operators of heavy equipment are properly qualified prior to use. Walk around and familiarize individuals with equipment. Ensure that operator knows the workers are working in the area. Ensure clear instructions are given and understood. Maintain visual contact with operator (wear high vis vest). Stay clear of machine when instructed to or in doubt.

Bucking, Limbing, and Brushing	Binds	<ul style="list-style-type: none"> ● There are four types of binds: top, bottom, side and end bind. These are related directly to tension vs. compression. ● Use OHLEC process substituting binds in place of lean. ● Bucking should be from the "up hill side" of the tree. ● This will prevent injury should the log roll after being severed. ● Never buck a tree that is considered unusually dangerous, and consider overhead hazards. ● Prior to bucking consider is the bar length adequate for the tree being bucked. ● Establish good footing, swamp out the bucking area and established escape route. ● Understand bucking reaction forces. Observe kerf, use wedges when possible. ● Watch out for limbs under pressure, maintain proper spacing. ● Do not be complacent.
	Rolling Debris	<ul style="list-style-type: none"> ● While working on steep slopes, make sure to use extra caution due to logs under pressure that can move in any direction when over head weight is cut or severed. ● Anticipate rolling logs. ● Examine the area prior and take into consideration the following: percent of slope, incline, sliding debris, tension vs. compression, rocks and foreign objects in and around logs.
	People in Cutting Area, Overhead Hazards, and Fatigue	<ul style="list-style-type: none"> ● Maintain felling and cutting area control. Have crew work on same contour to avoid rolling debris. ● Mitigate root wads, rocks and other items which may dislodge. ● Look up, look down and around. ● Never reach across saw. ● Take breaks as needed.
Saw Maintenance	Improperly Maintained Equipment	<ul style="list-style-type: none"> ● Keep saw in proper working order. Recommended training Cleaning and Maintaining Chain Saws for Safety and Performance available through N.T.D.C. ● Ensure you are using proper fuel mix 50:1 ratio. Label fuel, date, who mixed it? ● Ensure spark arrestor is in working condition. ● Adequate chain catch. ● Working chain break. ● Ensure idle is adjusted correctly ● Do not modify or adjust saw parts. ● Inspect bar for wear, maintain proper tension, wear leather gloves. ● Wear gloves when sharpening saw, and use vise if available. ● Understand proper angle, raker height and filing techniques. ● Use ear protection when using air to clean saw. ● Use eye protection when using air to clean saw. ● Wear leather gloves when using air to clean saw. ● Allow adequate time at the end of shift to rehab equipment.

Evac/Medical Plan	Injury or Loss of Life	<ul style="list-style-type: none"> ● Serious injury or death can occur if PPE, or disregard for safety standards, are compromised. ● CPR and First Aid certifications are required. ● A first aid kit which meets OSHA “Forestry” standards is also required. ● Ensure prior to start of any project and allergies, or medications are known in the event of a medical emergency. Go thru JHA and document tail gate safety session as part of your routine, conduct AAR's, ensure instructions are given and thoroughly understood. ● Ensure Medical Plan Briefing is given and fully understood daily. ● Pre - identify Emergency Medevac Sites. ● Know how to use the medical equipment at hand. ● Report near misses and injuries in e-safety. Follow 8 line protocol in the event of an injury (IRPG pg 118). Similar to information above signature block on this JHA.
10. OFFICIAL SIGNATURE	11. TITLE	12. DATE

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) 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 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, 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 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:

SIGNATURE DATE

SIGNATURE DATE
