

Risk Assessment Analysis					Project Risk Assessment			Project: Crosscut Saw Operations		
Identification of Hazards and Risk Assessment								Mission Objectives:		
Subsystem	PRE-MITIGATION				Mitigation(s), Warnings and Reminders	POST-MITIGATION				
	Hazards (Loss of)	Likelihood	Severity	Risk Level		Likelihood	Severity	Risk Level	Additional Local Mitigation	Acceptable Yes/No
Emergency Preparedness	Lost, missing, or overdue employee	Remote	Catastrophic	SERIOUS	Follow unit check-in/check-out protocols. Ensure a communications and backup communications device is available and employees are trained.	Improbable	Catastrophic	MEDIUM		
	Emergency response to illness or injury	Remote	Catastrophic	SERIOUS	All work projects must have a documented emergency medical plan. Employees shall be briefed on protocols and procedures before work begins. Consider periodic scenario training / discussion to increase employee awareness. At least one employee in every work group shall be certified in First Aid / CPR. An appropriate first aid kit must be immediately available.	Improbable	Catastrophic	MEDIUM		
Training/Certification	Improper or non qualified personnel using saws	Occasional	Catastrophic	HIGH	Successful completion of a Nationally Recognized Sawyer Training Course (NRSTC) such as the MTDC Crosscut Saw Course. Certified in basic first-aid, CPR and Bloodborne Pathogen or an individual who is qualified in those skills or higher is available in project area and is not operating a saw. An uncertified crosscut saw helper needs to have specific on-site instruction in tool handling and safety prior to assisting sawyer. Cross cut operators shall be properly certified prior to operation and will adhere to any restrictions or limitations placed upon them. Crosscut operators may only exceed the restrictions or limitations placed on them if they are under the supervision of a qualified individual who is certified at a higher level of saw operation. For the purposes of training, additional individuals besides the saw operator may be allowed with a 2 1/2 times tree height radius if under supervision of a qualified instructor.	Remote	Marginal	MEDIUM		
Equipment	Injury or property damaged from improper use of equipment	Frequent	Critical	HIGH	Use PPE - gloves, hardhat except when working with stock, long sleeve shirt and long pants, cut-resistant laced boots with ankle support and non-skid soles, eye protection and first-aid kit. The PPE must be worn at all times. An Ax and adequate wedges are deemed safety equipment and must be available for all sawing operations. OPTIONAL - Lubricants such as citrus based solvent in live and dead wood. Hanging wedges, under bucking tool and increment borer.	Remote	Marginal	MEDIUM		
	Injury or property damage due to improper safety procedures and human factors.	Probable	Catastrophic	HIGH	Only one person has totally responsibility for sawing even when a second sawyer or helper is utilized. Must have a proper covering sheath for all cutting teeth. Must be sheathed when not in use. Must have good working handles. Must be sharp and in serviceable condition.	Improbable	Negligible	LOW		

Transporting	Carrying hazards	Occasional	Critical	SERIOUS	Ensure saw is sheathed when transporting for longer distances. When carrying a saw on your shoulder, keep teeth and rakers away from you. Be sure proper spacing is observed when carrying saw.	Improbable	Negligible	LOW		
	Packstock hazards	Occasional	Critical	SERIOUS	Saws must be properly sheathed with teeth pointed to the rear of animal. Crosscut should be bent in a horseshoe shape and adequately secured to the cinch on both sides. A Safety Strap across the top/middle of the saw between Decker saddle D's should be used to keep the saw from coming over to one side should it come loose. Saw should be on lead animal	Remote	Negligible	LOW		
	Vehicle hazards	Occasional	Critical	SERIOUS	Saws must be properly sheathed. Do not lay other equipment on the tools. Tools must be secured in away to keep them from coming unbound.	Improbable	Negligible	LOW		
	Aircraft	Occasional	Critical	SERIOUS	Saws must be properly sheathed. Saws will be properly secured to prevent any movement. Tools will be adequately secured to some object as to prevent them from falling through a cargo net. Saws will be bound in a way to prevent them from opening. Inform the pilot that saws will be onboard. The pilot may have their own method for transport. If the Pilot decides not to transport then their decision is final. Please refer to Interagency Aviation Guides, Helicopter Operations Guide, Aviation Transportation of Hazardous Materials Guide and Incident Repose Pocket Guide. Pilot has the final say on the transport of saws on the aircraft	Remote	Marginal	MEDIUM		
Human & Physical Factors	Lack of Communications	Occasional	Catastrophic	HIGH	Have established means of communication. For instance hand signals, audible, or radio. Communications must be clear, concise and understood by everyone. Crew members keep each other advised of potential risks.	Remote	Marginal	MEDIUM		
Environment	Unidentified Escape Routes	Occasional	Catastrophic	HIGH	All bucking, limbing and felling operations require clean escape routes with a minimum of 20 feet path before starting to cut. Choose an escape path that extends diagonally away from the expected felling line and always have an alternate retreat path to a safety zone. Where two fallers are operating a crosscut saw each must have separate escape routes if exiting the stump at the same time.	Improbable	Negligible	LOW		
	Weather and Darkness Hazards	Frequent	Catastrophic	HIGH	Do not saw during high winds, electrical storms or hazardous weather. Do not conduct felling operations if the tops or the 2 1/2 tree length safety circle is obscured by darkness, smoke, fog or any other condition.	Improbable	Negligible	LOW		



Saw Operations	Size-up	Occasional	Marginal	MEDIUM	Proper Size-up will help decrease injury. Be sure to look at tree considering species, live or dead, height, diameter, lean, soundness(decay or root rot problems), limb distribution, current and previous fire damage, split or broken top, school marm, widow makers and other hazard tree indicators. Use increment borer to determine soundness. Walk anticipated lay of tree and check for hazards. Look for obstructions and hazards in work area. Evaluate environmental conditions, i.e. steep slopes, wet ground, snow, ice, etc. Are traffic control measures needed by trails and roads? Evaluate if tree can be properly removed/felled? If not, ensure it is flagged off to a safe distance, 2 1/2 tree length radius.	Improbable	Negligible	LOW		
	Felling Hazards	Probable	Catastrophic	HIGH	Only certified crosscut sawyers at the appropriate level will conduct crosscut felling operations. <b>No employee shall approach a faller closer than 2 1/2 tree length from tree felling operations until the faller has acknowledge it is safe to do so. Follow proper felling procedure.</b> Initiate undercut at a level that ensures adequate footing and balance throughout cutting sequence. Prior to starting the back cut, survey the areas to ensure that nobody has entered the area. Give a warning, yell it out, as to the intentions of your actions (i.e. "Tree coming Down" or "Side hill") At the first sign of the tree committing to the undercut proceed to safety zone. <b>No felling operations will be conducted at night or during times the top of tree being felled is obscured.</b>	Occasional	Marginal	MEDIUM		
	Bucking & Limbing Hazards	Probable	Catastrophic	HIGH	Anticipate log tensions and compressions and plan mitigation. Continually observe kerf. Use wedges as soon as possible. Ensure escape route. Watch for tension and carefully relieve it on saplings and limbs(spring poles) with a series of small cuts to the compression side. Use caution when cutting limbs supporting logs off the ground. Avoid finishing cuts on the downhill side. Sound warning for all objects moving downhill. Do not buck logs on steep slopes with people below.	Occasional	Marginal	MEDIUM		
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