

# Chain Saw Safety Program

## POLICY

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This policy sets forth the requirements for work with chain saws by Whitworth University employees and complies with the Washington Administrative Code. All chain saw operators must be familiar with the contents of this policy and will be required to comply with the safety procedures outlined in this plan.

## RESPONSIBILITIES

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**Supervisors:** Supervisors are responsible for ensuring the safe use of chain saws. This includes supplying the necessary safety equipment that is maintained and meets current standards, ensuring that employees are trained on the policy and procedures included in this plan, assuring that safe work practices are utilized and prohibiting the use of poor or forbidden practices, and conducting hazard assessments to develop site safety plans for particular operations.

**Safety Manager:** The Safety Manager/designee will be responsible for the development and administration of the chain saw safety plan. He/she will also be responsible for addressing unsafe situations with the employee's supervisor, or in the case of an emergency, addressing the situation directly with the employee and notifying the supervisor in a timely manner following the emergency.

**Employees:** Employees are responsible for following supervisory direction, abiding by the prescribed work practices, wearing appropriate personal protective equipment described in this plan, and inspecting each tool before and after use. Employees should also report any unsafe conditions to their supervisor and the Safety Manager.

## PROCEDURES AND REQUIREMENTS

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### 1. Required Personal Protective Equipment

The following pieces of personal protective equipment are required to be worn by the operator at all times when using a chain saw:

#### Head Protection

Hardhats must be worn at all times by the operator and on-ground helpers must wear hard hats whenever overhead work is conducted. Chain saw operators should wear hardhats during felling operations or when working from a bucket truck. The hard hats must comply with ANSI standards.

### Eye and Face Protection

Logger-type mesh screens, polycarbonate face shields, safety glasses with side shields, and safety goggles are acceptable forms of eye protection for chain saw operations. Mesh screens provide adequate protection from flying debris and keep small limbs, branches, and saplings from poking the employee's eye or cutting the employee's face. Polycarbonate face shields and glasses provide adequate protection but have the disadvantage of fogging and becoming scratched.

### Leg Protection

Each employee who operates a chain saw must wear leg protection made of cut-resistant material (e.g. ballistic nylon, polyester, Kevlar, etc.) The leg protection must extend from the upper thigh down to the top of the boot and adequately cover the leg (e.g. chaps, logger pants). Underwriters Laboratories (UL) labels leg protection which meets cut resistance requirements.

### Hearing Protection

At least one form of hearing protection must always be worn by the operator when a chain saw is in use. This includes ear muffs, ear plugs and ear caps. Ear muffs are the most effective means of personal hearing protection.

### Foot Protection

At minimum, chain saw operators must wear heavy duty leather or cut resistant steel toe boots. Boots must provide adequate traction for the conditions and cover the operator's ankles.

## **2. Required Saw Components**

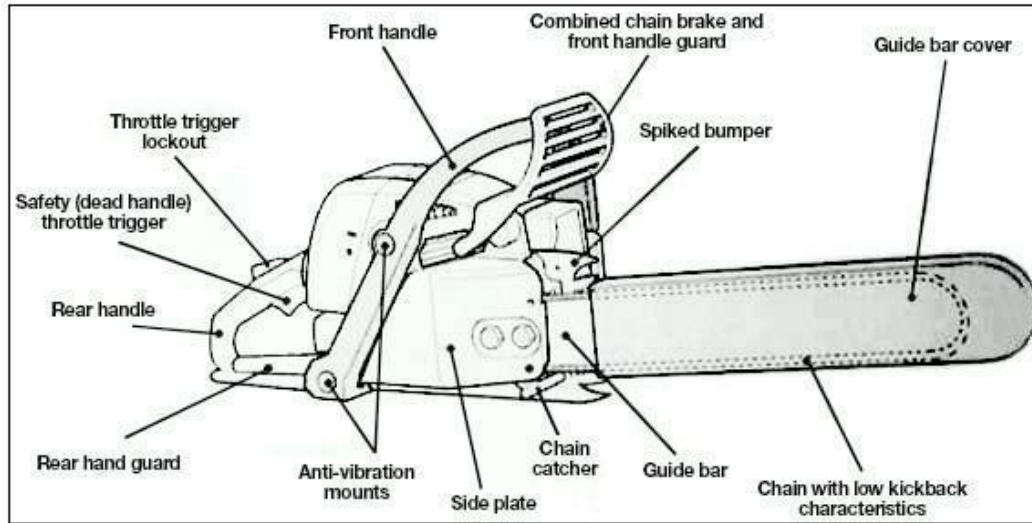
All chain saws used by Whitworth University employees or students must be equipped with the following safety components.

- Throttle safety;
- Exhaust system;
- Chain catcher;
- Hand guards; *and*
- Chain brake.

See figure 2.1

*Note:* An anti-vibration handle system is recommended to limit ergonomic stress to the operator's hands and fingers.

Figure 2.1



### 3. Working in Remote/Non-Remote Locations

If work must be performed in remote locations, at least one other employee must be present and certified in first aid. If work is being performed in non-remote areas (populated areas) employees may work unaccompanied if someone is capable of summoning first aid on their behalf.

### 4. Operating Procedures

The following operating procedures are intended to keep the operator safe and prevent injuries to others.

#### Fueling

Only fuel saws outdoors. Always shut off the engine before fueling. Fuel the saw at least 10 feet from sources of ignition and on bare earth if possible. Wipe up any spilled fuel and check for leaks especially around the cap; properly launder rags soaked with fuel and oil. The chain saw must be started at least 10 feet from the fueling area.

#### Starting Chain Saws

**Never drop start a chain saw.** This is a dangerous practice and specifically prohibited by DOSH. Always start it on the ground or on a stable surface. Review the operator's manual for specific instructions for the equipment used.

#### Transporting Chain Saws

All chain saws should be transported in a level position, with the gas cap up and the bar behind the operator. Carrying the saw with the engine running is dangerous and should be avoided. If the chain saw is carried while the saw is still running, the chain brake must always be engaged when the saw is being carried to a new location by the operator. Shut off or engage the chain brake whenever the saw is carried on hazardous terrain.

Do not carry the saw in the passenger area of a vehicle. The saw should be transported in a case but if one is not available then keep the bar in a chain guard.

## **5. Saw Maintenance**

Proper saw maintenance increases safety and productivity. Check the controls, chain tension, and all bolts and handles to ensure they are functioning properly and adjusted according to the manufacturer's instructions.

Properly sharpened teeth will cut quickly, smoothly and more safely. Wear leather gloves when sharpening the saw teeth. The saw teeth can easily inflict injury. File or grind them according to the instructions for best performance.

Check the chain tension and lubrication system for proper function. Proper chain tension helps to ensure long chain life and safer cutting. A chain that is too loose may derail and whip dangerously. A chain that is too tight will bind and wear prematurely. All chains stretch with use and frequently need checking and readjusting. Good lubrication helps prolong chain life and maintain tension adjustment. Check the oil often and refill according to instructions. Use the bar oil recommended by the manufacturer.

Always follow the manufacturer's instructions in the operator's manual when making adjustments to the chain or engine.

## **6. Personal Use**

Chain saws owned by the university are only allowed to be used by trained employees conducting university business; employees are not allowed to use chain saws for personal use.

## **7. Inter-Department Use**

Chain saws that are borrowed from other departments must be returned in the same condition in which they were taken and all damage must be reported when the chain saw is returned. This will ensure each piece of equipment continues to operate safely.

# **FELLING TREES**

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## **1. Determine the Fall Direction**

Consider the following when determining the fall direction of a tree.

- Rot or defect in the tree;
- Tree lean;
- Wind;
- Crown shape and limb weight;
- Surrounding terrain; *and*
- Other trees.

## **2. Identify All Electrical Lines in the Area**

If an electric power line is in the vicinity of the tree, don't attempt to work on the tree unless you are certain that it will not interfere with the electric line. If the tree must be removed and you suspect there will be a problem, call the power supplier, as they have the expertise to do it safely.

## **3. Clear the Area of All People and Vehicles**

Set up barricades or safety monitors to keep people out of the danger zone. Generally, people must not approach any closer than 2 tree-lengths of the trees being cut or under the branch canopy of trees being trimmed until the chain saw operator has acknowledged that it is safe to do so. Trees must be trimmed and felled in a manner that does not create a hazard to others (i.e., work areas must be assigned so that trees cannot fall into adjacent occupied areas).

## **4. Plan a Path of Retreat**

Plan a safe, unobstructed path of retreat before making a cut. The path should be at approximately a 45-degree angle away from the line of fall. Remove branches and debris that might be trip or fall hazards when retreating from a falling tree.

## **5. Planning Cuts**

Plan and make the cuts carefully. Cutting must be done uphill from or on the same level as previously felled trees. Always keep in mind where the chain will go if it breaks; never position yourself or other people in line with the chain.

## **6. Retreat**

Retreat when the tree starts to fall. Shut off the chain saw and leave by the planned escape route. Do not return to the site until the tree is down and no longer moving. If the tree should roll, let it; one person cannot stop or control a moving tree.

# **TRIMMING/LIMBING A TREE**

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## **1. Secure the Fallen Tree**

Be sure the fallen tree is stable and will not move as the work is performed. Never stand on the downhill side when removing limbs. Always plan an escape route and keep in mind that the tree trunk may roll as limbs are removed. When cutting large limbs off the trunk of the tree into convenient lengths, be sure the trunk is supported along its entire length and will not roll. Block or wedge the trunk in place, if needed. Cut downward from the top of the trunk about one-half of the diameter and then roll it over to make final cuts.

## **2. Cutting**

Examine the situation at every limb to be removed. Be certain the limb will not bind against the saw. Stored energy can cause a cut to pinch the blade and immobilize the saw. Employees should also watch for limbs that may spring out when they are cut due to the released tension. These limbs can cause injury. Larger limbs may require more than one cut to be removed safely.

Cut on the opposite side of the tree trunk whenever possible, this keeps the trunk between the operator and the saw. Employees should never make cuts with the saw between their legs and should never stand on a log and saw between their feet.

## KICKBACK

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Saw kickback is one of the primary hazards of chain saw work. Kickback occurs when the teeth on the chain catch on something as they rotate around the tip of the blade. The teeth may have enough force to cause the blade to kick back violently toward you, hence the term “kickback.” There are four primary situations that can cause kickback:

1. When the nose of the blade strikes another object.
2. Starting a bore cut improperly.
3. When the blade nose or tip catches the bottom or side of a saw cut during reinsertion.
4. When the blade becomes pinched and stops the chain.

Employees should always do the following to minimize and avoid chain saw kickbacks:

- Ensure the chain brake is in good operating condition;
- Maintain a firm and secure grip with both hands;
- Stand to the side of the cutting path of the saw whenever possible;
- Use extreme caution when re-entering a cut;
- Always know where the tip of the bar is;
- If the saw pinches in a cut, shut the chain saw off and try to remove it from the cut; *and*
- Think about where the cut piece of wood is going to fall.

## TRAINING

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Training must be provided to all employees who will operate chain saws for the university. Training records will be created and maintained by the Safety Manager in conjunction with department supervisors. The training program must be instructed by a competent person and will enable the employee to:

- Safely operate, maintain and transport chain saws;
- Safely perform work tasks;
- How to recognize, prevent and control other safety hazards that may be encountered during typical work tasks; *and*
- How to summon aid in an emergency.

## PROGRAM EVALUATION

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The chain saw safety plan will be evaluated at least annually by the Safety Manager/designee to ensure that it is effective in practice and that it complies with all applicable regulations.

## DEFINITIONS

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**Chain brake** - Chain brakes prevent movement of the saw's cutting chain by applying a steel brake band around the driven clutch drum. The chain brake can be used to secure the chain when changing position, moving between cuts or starting a cold saw. It can also be activated in during a kick back to help prevent injury.

**Chain catcher** - The chain catcher helps prevent the chain being thrown back towards the user if the chain breaks or becomes derailed.

**Competent Person:** An individual knowledgeable in chain saw safety, including the manufacturer's recommendations and instructions for the proper use, inspection, and maintenance chain saws; who is capable of identifying existing and potential hazards; and who has the authority to take prompt corrective action to eliminate those hazards.

**DOSH** - The Division of Occupational Safety and Health is part of the Department of Labor and Industries that develops safety and health rules, enforces safety and health rules, and provides training and on-site consultation for Washington state employers.

**Exhaust System** - The exhaust directs the hot and noxious gases coming from the engine away from the user. A faulty exhaust increases noise, decreases engine power, can expose the user to unsafe levels of exhaust gases, and can increase the chance that the user could accidentally touch extremely hot metal. Most models feature a spark screen which is integrated into the muffler. The spark screen prevents sparks from being discharged from the exhaust and potentially igniting sawdust.

**Remote location** – Due to the potential for severe injuries, all locations that cannot be reached by emergency services with 3-4 minutes will be considered remote for the purposes of this policy.

**Throttle safety** - The throttle safety prevents the chain from being driven if the trigger is accidentally pushed by an obstruction, such as a branch in undergrowth. It also protects the operator during when starting a chain saw.

## REFERENCES

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WAC 296-54, WAC 296-45, WAC 296-155, ASNI Z133-2012

If you have questions regarding Whitworth University's fall protection plan please contact the University's Safety Manager in the Human Resources office at 777-3236.

**Approved By:** Gerald Gemmill

**Date:** 3/10/2015