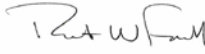


## Policy and Procedure 8-20

# Workplace Safety – Chainsaw Operations

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<b>References:</b>	NWCG PMS 901-1, Field Manager’s Course Guide <a href="http://www.nwcg.gov/pms/training/fmccg.pdf">http://www.nwcg.gov/pms/training/fmccg.pdf</a> NWCG PMS 907, Course Coordinator’s Guide <a href="http://www.nwcg.gov/pms/training/PMS907.pdf">http://www.nwcg.gov/pms/training/PMS907.pdf</a>
<b>Forms:</b>	N/A

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## PURPOSE

VDOF is committed to providing a workplace that protects employees from the hazards inherent in their jobs – chainsaws pose a substantial risk for injury to employees. The chainsaw, however, is an extremely valuable and indispensable tool in the forestry line of work. The purpose of this policy and procedure is to outline the operational procedures and training requirements that will reduce the risk of chainsaw-related accidents in the workplace.

## POLICY

It is the intent of VDOF to comply with CFR 1910.266 as it pertains to the use of chainsaws and to the NWCG standards for training of wildland fire chainsaw operators. Pursuant to these, chainsaw operation is prohibited unless an operator has successfully completed training and certification as outlined in this policy and procedure, except in emergency situations where life is threatened. Personnel must perform all related operations in accordance with the standards set forth in this policy and procedure; all applicable sections set forth in 29 CFR 1910.266, Logging Operations, and the instruction provided during NWCG S-212.

## DEFINITIONS

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**“Agency”** and **“VDOF”** means the Virginia Department of Forestry.

**“Commonwealth”** means the Commonwealth of Virginia.

**“Adjunct instructor”** means a person who is utilized to provide limited instruction in specialized knowledge and skills at the discretion of a lead instructor. They must be experienced, proficient and knowledgeable of current issues in their field of expertise.

**“Buck”** means to saw trees and limbs into shorter lengths.

**“Brushing”** means removing the brush and shrubs either during fireline construction or while clearing out a work area.

**“Agency-certified sawyer”** or **“VDOF-certified sawyer”** means an employee who has successfully completed the Agency Sawyer Training Course, S-212, Wildfire Chainsaw, and passed the associated field proficiency exam.

**“National-certified Faller 3: Basic certification”** requires the completion of the National Wildfire Coordinating Group course S-212, Wildfire Chainsaw, a passing evaluation on the associated field proficiency exam and appropriate physical fitness test. Chainsaw operator job tasks at this level should be primarily limbing, brushing and bucking; felling should only be performed in the least complex situations. Class 3-certified chainsaw operators may fell material up to eight (8) inches in diameter but are limited to falling only sound, living trees and bucking material up to 12 inches in diameter. Faller 3-certified individuals may perform tasks associated with Faller 2 level as a trainee (see definition) under the direct supervision of another operator who is fully qualified at that level.

**“National-certified Faller 2: Intermediate certification”** requires the completion of the National Wildfire Coordinating Group course S-212, Wildfire Chainsaw, completion of the NWCG faller task book for Faller 2 qualification and appropriate physical fitness test. Certified chainsaw operators at level 2 may use chainsaws for felling, limbing, brushing and bucking material under twenty four (24) inches in diameter including: green trees with some defect and green trees with a slight lean. Class 2 chainsaw operators may fall snags that do not have significant potential for material falling from above. Certified Faller 2 individuals may work independently on projects or fireline assignments within the level 2 criteria or within those restrictions placed on the certification card.

**“National-certified Faller 1: Advanced certification”** requires the completion the National Wildfire Coordinating Group course S-212, Wildfire Chainsaw, completion of the NWCG faller task book for Faller 1 qualification and appropriate physical fitness test. Class 1 chainsaw operators are considered skilled in the most complex cutting situations or felling and bucking of material more than twenty-four (24) inches in diameter.

**“Chain brake”** is a safety device, which stops the saw chain.

**“Chaps”** are personal protective equipment, which cover the legs from the waist to two inches below the boot tops.

**“Cutter (feller, bucker, faller)”** means one who fells, bucks or limbs trees. Also, the cutting link of the saw chain.

**“Cutting”** means the process of felling, bucking and limbing trees.

**“Escape route”** means a predetermined path of exit used by fallers when felling or bucking. The essential components of an escape route are selection of the desired direction and distance, prior to felling or bucking, and a well-cleared path through which to escape.

**“Kickback”** means a strong thrust of the saw back towards the faller resulting from improper use of the top corner of the guide bar’s tip.

**“Limbing”** means removing the branches from a felled or standing tree.

**“Required experience (NWCG)”** includes qualification in any prerequisite position and successful position performance through completion of the position task book. Required Experience cannot be challenged.

**“Faller”** means a person employed in limbing, bucking and falling trees

**“Saw crew”** means a multiple-person team of sawyers that have been assembled and assigned to an incident or job (i.e., wildfire, disaster clean-up detail, logging operation, etc.).

**“Sawyer supervisor”** means anybody who directly supervises the activities of a saw crew. This could include (but is not limited to) an incident commander, strike team leader, crew leader or an appointed lead sawyer.

**“Spring pole”** means a limb or sapling that is bent under a fallen tree. Usually under great amounts of pressure (tension) and is considered potentially dangerous until correctly relieved.

**“Swamper (or puller)”** means an assistant to saw operator who carries fuel and tools, also engaged to move cut material such as brush or other objects.

**“Trainee”** means an individual, approved by their agency, who is preparing to qualify for a position. Faller trainees must initiate a position task book for the level of certification they are seeking.

## PROCEDURES

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### Responsible Parties

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**Agency safety officer (ASO)** is responsible, in coordination with the director of fire and emergency response, for development of the agency chainsaw safety policy and procedures; ensuring that employee certification records are maintained; monitoring chainsaw accidents; evaluating program effectiveness and adherence to OSHA standards, and making recommendations for program modifications.

**Director of fire and emergency management** is responsible, in coordination with the ASO, for development of the agency chainsaw safety policy and procedures and has overall responsibility for administration of the chainsaw training program. This includes managing the training, evaluation and certification process for operators and instructors; ensuring that certification records are maintained in IQS; evaluating program effectiveness and adherence to NWCG standards, and ensuring that course offerings meet agency needs.

**Supervisors** are responsible for determining direct report needs for chainsaw usage/training; ensuring that direct reports receive proper training and certification prior to the operation of a chainsaw; coordinating with director of fire and emergency response on training needs; making chainsaw assignments that are within the scope of employees’ skill levels; evaluating employees’ saw operation to ensure they are using safe practices and procedures when operating a chainsaw; providing pre-work safety briefings; halting and correcting any unsafe saw operation that is observed; checking employee equipment to ensure it is being maintained in good working condition, and, where qualified, records demonstrated performance tasks for trainee position task books.

**Sawyer supervisors** are responsible for assessing sawyer abilities, qualifications and comfort levels; evaluating situational needs; making chainsaw assignments that are appropriate to individual sawyer skill and comfort levels; monitoring work assignments to ensure compliance with safety standards; providing pre-work safety briefings; stopping and correcting any unsafe sawing practices observed on the work site, and, where qualified, records demonstrated performance tasks for trainees in position task books.

**Course instructors** are responsible for the coordination and instruction of S-212; conducting the course in a safe manner; ensuring that all agency and OSHA rules are adhered to; and evaluating and confirming that students have the skills and knowledge to be certified at Faller 3 classifications.

**Chainsaw operators** are required to work safely within the scope of their approved class of certification; maintain a secure felling/cutting area and ensure that swampers, bystanders, vehicles and equipment are not exposed to the hazards of the operation; adhere to all guidelines and safety standards, and maintain saws and other equipment in good operating condition.

### Fueling and Maintenance

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- ◆ Employees who are assigned a chainsaw will read the owner’s manual for their model of saw prior to operating and reference it as needed for maintenance, operation and troubleshooting. Manuals can usually be found on the manufacturer’s website or by writing to the manufacturer. In some cases, videos with the same information are also available.

- ◆ Operators will maintain the chainsaw in good operating condition per the owner’s manual.
  - The chain will be sharp and have the proper tension.
  - The engine will be properly tuned.
  - The air filter will be kept clean.
  - Saws will be kept clean of sawdust and flammable materials. Dirt, sawdust or debris will not build up on the cooling fins or clog the exhaust port.
  - The chain brake will be installed and working properly.
- ◆ Wedges, sledges, axes, files and other accessory equipment will be kept in good operating condition.
- ◆ Saws will be fueled at least 20 feet from any open flame or other source of ignition.
- ◆ Saws will be fueled only with the proper fuel (gas and oil) mix.
- ◆ The oil reservoir should be checked for oil level each time the fuel tank is filled and topped off if necessary
- ◆ Removal, disabling or altering of the spark arrestor is prohibited

## Required Personal Protective Equipment

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Chainsaw operators will wear/use appropriate personal protective equipment when operating a chainsaw as will personnel involved in assisting operators. That equipment will include:

- ◆ Hard hat (see Policy and Procedure 8-14 Workplace Safety – Personal Protective Equipment for specs)
- ◆ Eye protection (see Policy and Procedure 8-14 Workplace Safety – Personal Protective Equipment for how to choose safety glasses, face shield, or goggles)
- ◆ Hearing protection
- ◆ Leather work gloves
- ◆ Cut-resistant leg wear (chaps, leggings, pants) with two-inch boot overlap; FSS chaps for firefighting activities
- ◆ Fire-resistant long pants for firefighting activities; seasonally-appropriate pants for non-fire activities
- ◆ Long-sleeve fire-resistant upper garment for fire-related activities; seasonally-appropriate upper garment for non-fire-related activities
- ◆ Eight-inch-minimum leather boots with non-skid sole for wildfire duties; over-the-ankle leather boots for non-fire-related tasks
- ◆ High-visibility shirt or vest when working on or near roadways in non-fire situations
- ◆ Wedges for bucking and felling
- ◆ Fire shelter (for fireline operations)

For more specific information on items listed as PPE, refer to VDOF Policy and Procedure 8-14 Workplace Safety – Personal Protective Equipment or OSHA e-tool at: <http://www.osha.gov/SLTC/etools/logging/mainpage.html>.

First-aid kits will be available at each work site where chainsaws are being operated. Kits will be those that are OSHA approved for logging operations or have the minimum contents to meet the requirement. The kit for a three-person operation will minimally include the following items:

- ◆ Gauze pads (at least 4 x 4 inches)
- ◆ Two large gauze pads (at least 8 x 10 inches)
- ◆ Box adhesive bandages (Band-Aids)
- ◆ One package gauze roller bandage at least 2 inches wide
- ◆ Two triangular bandages
- ◆ Wound-cleaning agent (i.e., sealed moistened towelettes)

- ◆ Scissors
- ◆ Tweezers
- ◆ Adhesive tape
- ◆ Latex gloves
- ◆ Antihemorrhagic Powder
- ◆ Resuscitation equipment such as resuscitation bag, airway or pocket mask

Additional first-aid kits or larger first-aid kits must be provided at work sites with additional personnel.

The contents of the kit will be maintained.

## Operations

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- ◆ A sawyer supervisor will be identified and assigned to saw crews. Sawyer supervisors shall remain on-the-ground with, and in complete charge of, the crew at all times. The selection of sawyer supervisors for sawyer crews should be based on the combination of training credentials, experience and leadership abilities, with the most qualified person appointed.
- ◆ Saws will be started at least 10 feet from fueling areas.
- ◆ Operators will have two points of contact on the saw during starting; saws will be started using either the handle-under-the-knee technique or the ground method; drop starting is prohibited. Ensure that the saw bar and chain are not touching anything.
- ◆ The chain brake will be activated when:
  - Starting the saw
  - Both hands are not on the saw
  - Taking more than two steps
- ◆ Saws will be operated using a two-handed grip; the fingers and thumb of the left hand will be firmly locked around the front handle; the right hand will firmly hold the throttle guard and throttle.
- ◆ Saws will be carried at the operator's side with the bar to the rear when walking on level ground; pointed downhill when traversing sloped ground. They will not be carried on the shoulder unless encased in a protective covering.
- ◆ Employees will not operate a chainsaw when physically or mentally fatigued – this is when most accidents happen. Employees will, therefore, cease operation when apparent signs of weariness, weakness or overall lethargy are evident. Sawyer fatigue levels should be assessed (by the sawyer him/herself and sawyer supervisor) after the sawyer has used no more than 5 consecutive tanks of fuel and per tank thereafter.
- ◆ Fallers will not partake in any sawing activity considered unusually dangerous or beyond their capability. Fallers will be particularly cautious of overhead dangers at all times and halt falling activity if tree tops are obscured by darkness, smoke, fog, ice or other dangerous conditions.
- ◆ Sawing (falling, limbing, bucking) operations will take place only during daylight unless emergency needs dictate otherwise and adequate illumination can be provided to ensure for the safety of the sawyer.
- ◆ Employees should not cut alone – operators should be within audible or visual distance from another employee.
- ◆ Operators will conduct a pre-use inspection of a saw prior to each daily use which will include checking the:
  - Throttle interlock
  - Chain catcher
  - Chain brake
  - Powerhead and handlebars for loose or damage bolts
  - Anti-vibration mounts
  - Chain tension
  - Depth gauge (raker) settings.

- Note: excessive filling increases the risk of kickback; never exceed manufacturer's recommendations for proper angle and sharpness of cutters.

## Felling, Limbing and Bucking

- ◆ Operators will fall only trees that they are qualified to cut as well as comfortable with. Sawyers will seek advice and assistance when encountering situations beyond their ability or comfort level.
- ◆ Sawyers will not cut trees, limbs, trees with limbs, or snags that are touching a power line. Employees will remain clear of the area and notify the power company; only power company personnel will cut anything that is in contact with a power line.
- ◆ Regardless of tree size only one sawyer is permitted to work per tree.
- ◆ Prior to felling any tree, sawyers will locate and clear both a primary and secondary escape route.
  - The retreat path should extend 135 degrees away from the expected felling line of the tree.
  - Brush or other obstacles which might interfere with cutting the tree or using the retreat path should be cleared
- ◆ Once the backcut has been made to a tree, the feller will immediately move a safe distance away from the tree on the retreat path.
- ◆ The saw will be shut off or the brake engaged before the feller starts his/her retreat.
- ◆ Prior to felling any tree, operators will assess the tree, the area around the tree and environmental conditions so that the feller knows how the tree will fall when the cut is complete. To do this:
  - Sound the tree using an axe to see if it is hollow.
  - Evaluate the shape, balance, lean and branch distribution of the tree.
  - Assess wind speed and direction; during periods of high or gusty winds it may be necessary to suspend felling operations.
  - Identify a spot to fall the tree.
  - Ensure that co-workers, vehicles and equipment are located out of any danger.
  - Identify hazards that could cause problems when the tree falls such as power lines, dead and loose branches, tree nesting wasps, snags, presence of decayed or other weak spots in the tree that could cause a fall in an unexpected direction.
- ◆ While cutting, operators will avoid conditions that may cause kickback.
  - Operators will pay close attention to the tip, or "kickback zone" of the bar so that does not strike an object such as a rock or debris.
- ◆ A facecut and backcut will be made at a safe height on each tree being felled. The back cut will leave sufficient hinge wood to hold the tree to the stump during most of its fall. The facecut will be properly gunned to insure falling accuracy
- ◆ All felling of hazard trees will be done while standing up.
- ◆ The chainsaw is a right handed tool; no left handed operation.
- ◆ Operators will maintain balance while cutting:
  - Operators will secure sure footing before starting to cut.
  - The saw must not be used in a position or at a distance that could cause the operator to become off-balance, to have insecure footing, or to relinquish a firm grip.
  - Operators should shift their position instead of overextending their reach or cutting to the left hand side of the body.
  - Operators will avoid reaching above shoulder height.

- ◆ Cutting will not be done directly overhead or with the powerhead above shoulder height.
- ◆ Spring poles or other trees / branches under tension will be released using a series of shallow cuts on the compression side of the bow.
- ◆ When a spring pole or other tree under stress is cut, no employee other than the feller will be closer than two tree lengths when the stress is released.
- ◆ Operators will ensure that bystanders, coworkers (swampers excluded) and other fallers remain at least two tree lengths away during the felling of a tree and at least 30 feet during bucking or limbing.
- ◆ Felling, limbing or bucking on any slope where rolling or sliding of trees or logs can be reasonably anticipated, will be done, when possible, on the uphill side of the tree or log.

## Training

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### Training Requirements

Training and agency certification will be based on the NWCG S-212 course and associated series of Agency position task books. In this system, the primary criterion for qualification is individual performance as observed by an evaluator using approved standards.

Employees, full and part-time, who operate a chainsaw on-the-job for VDOF must have documented completion of:

- ◆ Agency Sawyer Training Course (S-212), Wildfire Chainsaw
- ◆ Current first aid and CPR training

Sawyer supervisors must have a minimum of S212; a State Faller 2 credential is highly recommended.

The Agency Sawyer Training Course (S212) will provide chainsaw operators with a solid foundation for the safe use of a chainsaw in moderately complex situations. The course will also cover tactical wildland fire applications and basic saw maintenance skills. Successful completion of this course will allow the employee to use a chainsaw for felling, limbing, brushing and bucking material to 24 inches in diameter including green trees with some defect or slight lean. Saw operators may also fall snags that do not have significant potential for material falling from above. Upon completion of the appropriate physical fitness test (contact the director of fire and emergency response for more information), it will also qualify the employee as a (Virginia) State and/or National Faller 3.

Faller 2 level certifications (state and national) will be dependent upon successful completion of the corresponding Agency Faller 2 task books and appropriate physical fitness test (contact the director of fire and emergency response for more information on physical fitness requirements). The procedure for initiating a Faller 2 task book is as follows:

- ◆ Employee must contact their supervisor and request initiation of the task book
- ◆ Supervisors then contact the director of fire and emergency response who establishes a begin date record in IQS and forwards the appropriate State task book to the employee;
- ◆ Employee has three years from the IQS entry date to complete the tasks in the book. Tasks completed by the employee prior to having an established IQS record are invalid.

### Certification Records

Certification records for full-time VDOF employees without wildland firefighting responsibilities will be captured in the VLC.

Certification records for employees with wildland firefighting responsibilities will be recorded in IQS, and the employee's Faller 3 classification rating will be placed on their incident qualification card.

## Instructor Credentials

All instructors for S-212 must meet the minimum standards for wildland fire training established by the National Wildfire Coordinating Group (NWCG). A full explanation of these standards can be found in the NWCG Field Manager's [Course Guide](#) (English; PDF format). In general, to teach the S-212 course,

- ◆ Lead instructors must be certified at the Faller 2 level; have credentials as Single Resource Boss or above; should have at least 32 hours of instructor training (Facilitative Instructor, M-410 or equivalent course), and have experience in presenting all units of the course.
- ◆ Unit instructors must be certified at the Faller 2 level or above; should have at least 32 hours of instructor training (Facilitative Instructor, M-410 or equivalent course), and experience in the lesson content they are presenting;
- ◆ Adjunct Instructors may be utilized to provide limited instruction in specialized knowledge and skills at the discretion of the lead instructor. They must be experienced, proficient and knowledgeable of current issues in their field of expertise.
- ◆ Evaluators/Coaches must be certified at the Faller 2 level or above. One evaluator is needed for each saw team (comprised of not more than four students each) during the field exercises.

## AUTHORITY

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This policy and procedure is issued by the Virginia state forester.

## INTERPRETATION

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The director of human resources and agency safety officer are responsible for the interpretation of this policy and procedure.