

TO: ALL COUNTY PERSONNEL

FROM: VERDENIA C. BAKER
COUNTY ADMINISTRATOR

PREPARED BY: RISK MANAGEMENT / EMPLOYEE SAFETY/LOSS CONTROL
(ES/LC)

SUBJECT: CHAIN SAW OPERATION

PPM#: CW-O-071

ISSUE DATE
August 1, 2024

EFFECTIVE DATE
August 1, 2024

PURPOSE:

To ensure the safe operation of chain saws by authorized County Employees.

UPDATES:

Future updates to this PPM are the responsibility of the Director of Risk Management.

AUTHORITY:

- Occupational Safety and Health Administration (OSHA) 29 CFR 1910.266, as may be amended.
- American National Standards Institute (ANSI) Z.41.1, B 175.1, 1991 Section 5.12 - Chain Saw Kickback Standard, as may be amended.

DEFINITIONS:

Authorized Employee - Any County Employee trained by Employee Safety/Loss Control (ES/LC) or their approved representative to operate a chain saw while conducting County business.

Barber Chair - A leaning tree that splits as the cut is made, freeing the weight of the tree to kick violently backward, which is faster than the operator's reaction time that would allow them to move safely out of the way.

Crown Shatter – This occurs when the crown of the felled tree or a nearby tree snaps off or

shatters, hurling branches in various directions.

Entanglement - A tree that drags, snaps, or uproots other trees around it during felling.

Felled Tree - A tree that has already fallen as a result of heavy weather, fire, or other constraint. (Training parameters may be different for the person who will only be using a chain saw on felled trees.)

Kickback - An event that occurs when the front upper quadrant of the bar and chain contacts a solid object or is pinched. This occurrence causes the engine's torque to be transferred to the bar of the saw and it may kick the bar up and back towards the operator. This process is referred to as a kickback arc.

Moving Tree - A felled or storm-downed tree that moves when limbs or other restraints are removed.

Personal Protective Equipment – Commonly referred to as PPE, is equipment worn to minimize exposure to hazards that cause serious workplace injuries. Some examples of PPE include; gloves gowns, shoe covers, masks, hard hats, respirators, eye protection, face shields, and goggles.

Setback - A tree that tilts backward as the cut is made, instead of falling in the planned direction. This may clamp down and wedge the bar of the saw.

Spring Pole - A branch, sapling, or whole tree that may be bent into a bow shape by being felled or having another tree fall on it. This spring pole contains a large amount of stored energy. If cut or released, it will straighten out in a violent arc and can cause injury by a blunt strike or by causing smaller pieces to become projectiles.

Stump Jump - When the cut tree jumps, rolls, or settles in any direction upon falling, particularly if it hits other trees or lands on uneven ground.

Widow Maker - Pieces of dead branches that can be shaken loose from high in a tree by the vibration of a chain saw being used in a lower position or by the impact of driving a wedge.

POLICY:

It is the County's policy to ensure the safe operation of chain saws by only allowing authorized and trained Employees to use this equipment while following the safe operating procedures and utilizing the machinery and PPE requirements specified in this PPM.

RESPONSIBILITIES:

1. Department/Division Directors are responsible for ensuring the success of the

Chain Saw Operation in all Departments and operations under their control. They must ensure that all immediate supervisors promote the procedures set forth in this policy and ensure that training procedures are followed to ensure the safety of all Employees.

2. Supervisors will be held directly responsible and accountable for monitoring the procedures of this policy. Supervisors must ensure that all chain saw operators are trained and adhere to the safe operating procedures outlined in this policy and comply with the clothing and Personal Protective Equipment (PPE) requirements of this policy.
3. Authorized Employees who operate chain saws shall:
 - a. Adhere to the safe operating procedures outlined in this policy.
 - b. Comply with the clothing and PPE requirements of this policy.
 - c. Attend initial Chain Saw Operation training prior to performing any chain saw operations. Attend refresher training every three (3) years or as needed per changes to this policy and/or equipment changes.
4. ES/LC shall:

Provide or coordinate Chain Saw Operation training to County Employees who are qualified to operate a chain saw. This training will differ based on whether the trainee will work on trees that have already fallen or trees that are to be cut down. Initial training will be required for any employee who may be required to operate a chain saw as part of a job function or as related to an emergency weather condition. Refresher training will be provided or coordinated every three (3) years or as circumstances require.

PROCEDURES:

1. Supervisors and Employees will develop plans, by specific project, to limit potential problems in chain saw operation. Before felling a tree, carefully consider all conditions, which may affect the fall of the tree, including:
 - a. The intended direction of the fall
 - b. The natural lean of the tree
 - c. Any heavy limb structures
 - d. Tree condition, (e.g., rotted, damaged, etc.)

- e. Surrounding trees and obstacles
 - f. Wind direction and speed
 - g. Adjoining structures
 - h. Ground conditions
 - i. Overhead hazards (electric lines)
 - j. Fellow workers and general public
 - k. Stationary objects that may be impacted if the tree falls the wrong direction (e.g., parked cars)
2. Operators must review and be familiar with the operating instructions for the specific type of equipment used.
 3. Chain saw operators shall inspect the saws daily to ensure that all handles and guards are in place and tight, all controls function properly and the muffler is operating as designed.
 4. Chain saws shall never be used while working off a ladder.
 5. Operators shall follow manufacturer's instructions on operation and adjustment.
 6. When fueling, select an open area that is at least 10 feet from any open flame or source of ignition. Move at least 10 feet from the fueling spot before starting the saw and check for leakage.
 7. Operators shall stay away from the back of the tree while making cuts to prevent injury due to a barber chair.
 8. Operators shall plan and clear an escape route diagonally to the rear. To prevent a possible stump jump, use a notch that is open enough to control the tree most of the way to the ground. Never cut through the hinge. As soon as the tree begins to move, shut off the saw and move away.
 9. Operators may assist a tree's direction of fall by tying a rope or cable to the top, applying steady pressure by hand, while using a tractor or winch to prevent setback.
 10. Operators shall not cut a tree that is entangled in another tree; cut the branches first. Anticipate which trees may be struck by the felling. Plan an escape route in advance, and quickly get away from the falling tree.

11. Operators shall always protect fellow workers while utilizing equipment. When felling a tree, maintain a distance of at least two (2) tree lengths from the nearest person. If there is a person assisting in the felling of a tree, ropes shall be used to maintain the two (2) tree length. Because of this, it may be necessary to use hand signals to communicate. These signals shall be agreed upon before the cut begins.
12. Never fell a tree on another tree, as the top of the target tree may spring back and break loose causing a crown shatter.
13. Operators shall always hold the saw with both hands during operation.
14. Operators shall start the saw only on the ground with the brake engaged, no drop starting. Also, be certain that footing is clear away from any brush which might interfere, before starting to cut.
15. Operators shall not use engine fuel as a cleaning solvent.
16. Operators shall shut off the saw when carrying it a distance of 50 feet or more. If hazardous conditions such as slippery surfaces or heavy underbrush exist, the saw shall be shut off when it is carried any distance. If carrying the saw under normal conditions of 50 feet or less, the saw shall be at idle speed with the brake engaged. In all cases, the chain guard shall be over the chain and the guide bar and the chain bar shall be behind the operator.
17. Operators shall carry the saw by the handle to prevent contact with the chain or muffler.
18. Operators shall not use the saw to cut directly overhead or at a distance that would require the operator to relinquish a safe grip on the saw. Whenever a necessary cut must be made, position yourself differently, to a safe position, as to not cut directly overhead.
19. Operators will lock their front elbows and stand to the side of the kickback arc. By using a low-kickback bar, a bar, nose guard, a chain brake, proper cutting techniques, and proper chain maintenance, kickback can be prevented. Operators will never cut with the tip of the bar or let the chain in this area touch anything.
20. Operators shall be aware of the shifting or rolling of felled trees. Stay uphill from a tree on a slope. Cut branches that are not touching the ground first. Cut those that are supporting the trunk last. Anticipate how the moving tree will shift and roll as branches are cut. Remaining roots of partially uprooted trees may cause the stump to right itself as the trunk weight is removed. Never stand in the area from which the roots were pulled.

21. Operators shall stay inside the bow of a spring pole. Stay as far as possible from the area where the spring pole could release. By repeatedly reaching out and nicking the outside of the bow, you may be able to cause it to release gradually, without the wood pinching the saw bar.
22. No cutting shall be done during electrical storms, strong winds, or conditions where light is deemed to be inadequate by the operator.
23. Clothing and PPE Requirements for all chain saw operators are as follows:
 - a. Safety boots to be worn in accordance with the American National Standard for Safety-Toe Footwear, ANSI Z.41.1 1991, (Loss Control recommends an 8" Logger Boot - with an impact/compression class rating of 75)
 - b. Eye protection (minimum safety glasses/goggles with side shields)
 - c. Face Protection (minimum mesh face shield)
 - d. An approved hard hat when felling trees and/or operation of a chain saw
 - e. Hearing Protection (earplugs and earmuffs), see PPM # CW-P-078
 - f. Non-slip gloves
 - g. Chaps to provide leg protection
 - h. Minimum 24-unit First Aid Kit
 - i. All clothing must be sturdy and snug fitting, while still allowing for complete freedom of movement. Avoid loose-fitting clothing, jewelry, flared or cuffed pants, or anything that could become entangled with the saw or nearby brush.
24. All chain saws purchased and used by Palm Beach County will include the machinery requirements in Section 5.12 of ANSI Standard B 175.1 - 1991, that sets performance and design criteria related to chain saw kickback.

To comply with this section:

- a. Saws with a displacement of less than 3.8 cubic inches must be equipped with at least TWO devices designed to reduce the risk of kickback injury. Such as a chain brake, a low-kickback chain, a reduced-kickback bar, or similar device as designed by the chain saw manufacturers.
- b. Saws with a displacement of 3.8 cubic inches or more must be equipped with at least ONE device designed to reduce the risk of kickback injury. Such as a chain brake, a low-kickback chain, reduced-kickback bar, or similar device as designed by the chain saw manufacturers.



VERDENIA C. BAKER
COUNTY ADMINISTRATOR

Supersession History:

1. PPM # CW-O-071, effective 01/22/2004
2. PPM # CW-O-071, effective 05/11/2011
3. PPM # CW-O-071, effective 07/15/2016