

## *Potential Hazard Review*

### Physical Hazards

- Flying object/struck by: Laceration, cut, puncture, foreign object in eye, abrasion
- Noise: Hearing loss
- Striking against: Laceration, puncture, abrasion
- Caught in/on/between; pinch points: Crush, amputation

### *Related Safe Work Practices*

- Fuel Safety
- Hearing Conservation
- Lockout and Tagout
- Machine Operation

### *Personal Protective Equipment*

- Close-fitting and tucked in clothing with no straps or strings.
- Face shield
- Foot protection
- Hearing Protective Device
- Head protection
- Safety glasses
- Safety gloves (with no cuffs)

### *Authority*

- CCR Title 8 Section 3424, 3425, 3445

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This safe work practice has been broken down into three sections:

- A. General
- B. Chippers
- C. Stump Grinders
- D. Tub Grinder

The General section provides information that applies to both chippers and grinders. Refer to the other sections as needed.

This SWP is dedicated to helping you avoid an injury or illness from known hazards. You are advised to follow these recommendations, read and follow this SWP and any related SWPs, complete any required or recommended training, and to obtain advice from a Qualified Person if you have any questions.

A Qualified Person is a person **designated** by the employer; and by reason of **training**, experience, or instruction who has demonstrated the ability to perform safely all assigned duties; and, when required is properly licensed in accordance with federal, state, or local laws and regulations.

All tasks require that you:

- Use the equipment in accordance with the guidelines set forth by the manufacturer. This includes following all signs and labels, and reviewing any manufacturer's operating manuals.
  - If the instructions provided in the operating manual conflict with this SWP, then follow the instructions in the manual. The manufacturer's instructions prevail over this SWP.
- Review the safety data sheets (SDSs) for each chemical.
- Be trained on this SWP and those listed above as related. Training on SWPs must be completed before initial assignment. It is also recommended that you complete refresher training every two years.

## A. GENERAL

1. Ensure that all brush chippers meet these Cal-OSHA specifications:
  - a. Each rotary drum tree or brush chipper or disk-type tree or brush chipper not equipped with a mechanical infeed system shall be equipped with an infeed hopper not less than 85 inches, measured from the blades or knives to ground level over the centerline of the hopper, and shall have sufficient height on its side members so as to prevent personnel from contacting the blades or knives of the machine during normal operations.
  - b. Each rotary drum tree or brush chipper or disk-type tree or brush chipper not equipped with a mechanical infeed system shall have a flexible anti-kickback device installed in the infeed hopper for the purpose of protecting the operator and other persons in the machine area from the hazards of flying chips and debris.
  - c. All brush chippers shall be equipped with a locking device on the ignition system to prevent unauthorized starting of the equipment.

2. Brush and logs should not be allowed to create a hazard at the work site. The work area should be kept clear of debris.
3. Restrict (barricade, tape, cone, etc.) the area around the equipment to keep members of the public and co-workers' from the hazard zone.
4. Check the following before starting the machine:
  - a. The infeed spout is clear of foreign objects, such as wrenches, etc.
  - b. The machine is free of broken parts, cracks, worn hinges or missing parts and pins.
  - c. The pin on the hood latch is secure and in good working condition.
  - d. The belt guard is in the proper position.
  - e. The hood covering the chipper knives is completely closed and latched according to the manufacturer's recommendations.
  - f. Ensure that all tools not in use be secured in a tool box.
  - g. Ensure that the discharge is not pointing at someone or something.
  - h. Ensure the area around the chipper/grinder is free of tripping hazards.
  - i. Do not wear loose clothing or big bulky gloves because it can become entangled in the machinery.
  - j. Keep long hair, shirt sleeves, and shirt tails properly contained while operating the machinery.
  - k. Avoid wearing necklaces, rings, watches, and especially neckties while operating the machinery to avoid the likelihood in being caught in moving machinery parts or tree branches.
  - l. Don all personal protection equipment as listed above.
  - m. Always keep a fully charged fire extinguisher with the chipper while operating or servicing the machine.
5. Start the engine, and run the disc/blade at the lowest RPMs possible. Listen for any type of noise that is foreign, such as steel against steel. If you hear a noise, stop the engine and resolve the problem using Lockout and Tagout procedures (see *Lockout and Tagout SWP*) prior to restarting. Prevent operation by removing key, or locking out controls and disengaging the clutch.
6. The following is prohibited:
  - a. Operation unless all hydraulic control devices operate properly. They must function, shift and position smoothly and accurately at all times.
  - b. Using jumper cables in a confined or unventilated area. Battery acid fumes are explosive.
  - c. Exposing an open flame or spark near the battery.
  - d. Overfilling the tank.
  - e. Refueling the chippers or grinders while the engine is hot, running, or in a confined area with no ventilation.

- f. Allowing persons under 18 years of age are operate chippers or grinders.
7. Report any problem or deficiencies noted during your shift. If the problem is serious, make it your responsibility to have the vehicle removed from service.
8. Always turn off engine and remove key before servicing.
9. Allow all parts to come to a complete stop and cool before touching.
10. Never put the machine in storage with fuel in the tank.
11. Always store fuel in approved (red) containers and away from sources of ignition (see *Fuel Safety* safe work practice).
12. Any maintenance or repair work conducted on this equipment must be done in compliance with the *Lockout and Tagout* safe work practice.

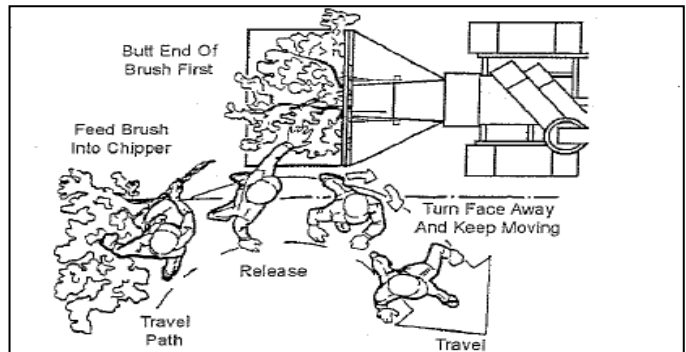
## **B. CHIPPERS**

13. Do not operate the chippers or grinders indoors. Exhaust fumes can be fatal.
14. The machine should never be parked on a slope at any time. It can coast or creep, thus damaging equipment or causing personal injury.
15. Before starting, ensure that:
  - a. the disc hood is completely closed and latched,
  - b. there are no foreign objects in the infeed area, and
  - c. the discharge chute is positioned to prevent chips from hitting employees.
16. Set up work zone and mark with cones, tape or barricades to prevent the public or co-workers from entering.
17. The following is prohibited:
  - a. Never sit, stand, lay, climb, or ride anywhere on this machine while it is running, operating, or in transit.
  - b. Never stand in front of the chipper discharge spout, and never direct it toward anyone.
  - c. Do not attempt to feed small, short pieces of wood by hand.
  - d. NEVER reach into the infeed spout. If you have short pieces, or leaves and twigs, just leave them until you are feeding longer pieces. While the long pieces are feeding, simply toss the short pieces on top of them. The longer pieces will taken them on into the chipper/grinder.

- e. Foreign material such as stones, wires, nails, sweepings, etc., shall not be fed into the chipper as they can damage the chipper and become dangerous projectiles.

18. Always block the tires and machine tongue whenever the machine is unhooked for operation.

19. Start the engine, and run the disc/blade at the lowest RPMs possible. Listen for any type of noise that is foreign, such as steel against steel. If you hear a noise, stop the engine and resolve the problem prior to restarting. Prevent operation by removing key, or locking out controls and disengaging the clutch.



20. All operators must at all times be located within easy reach of all feed control and shut-off devices when the unit is running.

21. Be aware of the location of your co-workers at all times.

22. At least two workers should be in close verbal contact while operating the machine.

23. Pay attention to the direction of the discharge chute before chipping.

24. When dragging brush to the chipper, face the direction of travel so as not to back into an obstruction.

25. When inserting material into the chipper:
- a. One person will be designated as a safety watch to be stationed near the emergency shut off while the other person feeds material into the chipper.
  - b. Always stand on the side of the infeed hopper when inserting material This will allow you to turn away from the wood, and walk away, without passing through the material.
  - c. Chippers should be fed from curbside whenever possible to avoid oncoming vehicles and decrease overall traffic congestion.
  - d. Keep hands and feet away from the immediate infeed chute area.
  - e. Check material fed to be sure it is free of metal and other foreign objects.
  - f. Feed brush and limbs into the machine butt end first.
  - g. Use longer pieces or a wooden tool as a push stick.
  - h. Small materials such as twigs and leaves should be put directly into the transport container instead of into the chipper.
  - i. Place shorter branches on top of longer branches while being fed into the chipper.

- j. Immediately turn away from the feed table when the brush is taken into the rotor.
26. Always stop chipping and warn anyone that comes near the discharge area. Failure to do this could result in severe injury.
  27. The chipper chute shall not be raised or removed while the rotor is turning. The chipper shall not be used unless an exhaust chute of sufficient length or design to prevent contact with the blade is in place.
  28. Make sure all internal machine parts have come to a complete stop before the hood covering the chipper disc or drum is opened.
  29. When removing clogged materials or making adjustments:
    - a. Shut down equipment.
    - b. Prevent operation by removing key, or locking out controls and disengaging the clutch.
    - c. Use proper locking pins to immobilize the disc cutting wheels.
    - d. No one should enter the chip box of the truck while the chipper is being operated.
  30. Turn off the chipper and remove the ignition key when it is unattended.

## **C. STUMP GRINDERS**

31. Operate the machine from 25 feet away. Cutter wheel may cause severe injury or death.
32. Keep remote cord away from cutter wheel to prevent cord tangling and electrical shock.
33. Operate the grinder on level surface during use. These machines may tip over sideways if operated on non-level surfaces. If the machine is turned over, you will cause engine damage, hydraulic damage, and possible personal injury.
34. Do not move or transport this machine while the cutterwheel is engaged.
35. Keep away from pressurized leaks. Never use your finger, hand, or other body part to check for leaks. Injuries from pressurized leaks penetrating the skin may lead to serious health problems or death. Consult a physician immediately if penetration occurs.

## **D. TUB GRINDER**

36. While the tub grinder is being operated:
  - a. The gates shall be locked. The tub grinder will need to be stopped when allowing in trucks with wood debris.
  - b. No vehicles may enter the compost yard<sup>1</sup>.
  - c. No other tasks may be conducted. The grinder must be non-operational in order to do other tasks (e.g. use the wash station).
37. Remove any non-wood debris from woodpiles prior to loading the tub.
38. Be sure everyone is clear of the machine by sounding the horn several times to alert anyone close by that the until is starting up.
39. Ensure shields and guards are in place, and in good condition.
40. Do not leave the machine running and unattended.
41. Wear gloves when changing or servicing the inserts.
42. Keep the grinder full during grinding operations to minimize the chance that debris will fly out of the tub.
43. Always use grab rails and safety steps.

**For any questions, please contact EHS at 415-831-2780**

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References:

1. MMWR Weekly, "Fatal and Nonfatal Occupational Injuries Involving Wood Chippers - United States, 1992-2002", December 10, 2004/53(48); 1130-1131
2. Brush Bandit Chipper Model 90/150/200 Operating and Parts Manual, Bandit Industries, INC. 2007.
3. Carlton OX 7500 Stump Grinder Owners Manual, JP Carlton Company, 2007.
4. OSHA Safety and Health Information Bulletin, "Hazards of Wood Chippers", 4/16/08.
5. Morbark Model 1300 Tub Grinder Operator's Safety Manual, Morbark Inc, Dated 7/05

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<sup>1</sup> RPD Policy Memorandum – Transport of Materials, D. Kern, 4/23/2015