

**Office of Environmental, Health & Safety Compliance**  
**Guidelines for >20 HP Tractor Mowing Operations**

Rev. 1, Effective 3/1/06

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## **Introduction**

These guidelines have been prepared to assist DEP's Bureaus in meeting their general duty to provide safe working conditions for employees performing tractor mowing operations.

## **Applicable Regulations**

The farm type tractors used by DEP employees to mow grass are not considered Powered Industrial Trucks (PITs) as defined in the OSHA regulations (29 CFR 1910.178(a)) and ANSI B56.1-1969 (these standards refer to tractors used as material handling vehicles), and therefore are not subject to the PIT requirements.

OSHA's Agriculture standard (29 CFR 1928.51(a)), defines an agricultural tractor as: "*a two or four-wheel drive type vehicle, or track vehicle, of more than 20 engine horsepower, designed to furnish the power to pull, carry, propel, or drive implements that are designed for agriculture.*" DEP is not subject to the Agriculture standard because it does not own or operate an agricultural establishment ("*a business operation that uses paid employees in the production of food, fiber, or other materials such as seed, seedlings, plants, or parts of plants*").

PESH has provided DEP with an interpretation letter indicating that grass mowing is "decorative in nature" and therefore meets the definition of "construction" under 29 CFR 1926.32(g), which includes "...decorating." The letter also indicated that the mowing falls within the definition of "industrial tractor" given in 29 CFR 1926.1002(j)(2):

*"Industrial tractor" means that class of wheeled type tractor of more than 20 engine horsepower (other than rubber-tired loaders and dozers described in 1926.1001), used in operations such as **landscaping**, construction services, loading, digging, **grounds keeping**, and highway maintenance. [emphasis added]*

Since this activity is regulated under the construction standards, the following other sections of these standards have applicable requirements:

- 29 CFR 1926.600, Equipment – covers night storage, use and care.
- 29 CFR 1926.601, Motor vehicles – covers all motor vehicles used off roads (except those covered under 29 CFR 1926.602, Material Handling Equipment).
- 29 CFR 1926.952, Mechanical Equipment – covers daily visual inspection and testing of brakes and operating systems.

The material handling equipment standard (29 CFR 1926.602) is not applicable to mowing because earthmoving, excavating and lifting/hauling are not being conducted during tractor mowing.

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## **Basis for the Guidelines**

The PESH letter indicated that the regulations applicable to DEP mowing operations are 29 CFR 1926.1000, 1001 and 1002 (construction vehicles are covered in 29 CFR 1926.1001), which include equipment standards for protecting employees in the event of accidental rollover of wheel-type farm tractors employed by DEP to mow grass.

Other applicable construction regulations (29 CFR 1926.600, 601 and 952) prescribe safety equipment (e.g., seat belts) and safe use requirements for the tractors used for mowing by DEP employees. These requirements were combined with good operating practices from the Agriculture standard and other sources to provide guidelines that can promote the safe use of this equipment.

## **Tractor Mowing Guidelines**

### ***Requirements for Rollover Protective Structures (ROPS) in All Equipment Purchases***

All industrial or agricultural tractors (defined as over 20 HP and “wheel type”, not tracked) manufactured after September 1, 1972 are required to have Rollover Protective Structures (ROPS) as described below. Tractors manufactured between July 1, 1969 and September 1, 1972 must be retrofitted with ROPS designed for the specific model of tractor supplied by the manufacturer or someone otherwise qualified to meet the requirements described below.

ROPS consists of either protective frames or protective enclosures that must meet the requirements of one of the following standards:

- Frame-Type: Test and performance requirement set forth in Society of Automotive Engineers Standard J334a-1970, “Protective Frame Test Procedures and Performance Requirements.”
- Enclosure-Type: Requirements outlined in Society of Automotive Engineers Standard J168 (July 1970), “Protective Enclosures, Test Procedures, and Performance Requirements.”

Each ROPS must have the following information permanently affixed to the structure:

- Manufacturer or fabricator’s name and address.
- ROPS model number (if any).
- Machine make, model, or series number that the structure is designed to fit.

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### ***Additional Required Equipment Features***

The OSHA construction standards require that the following additional features be provided on all newly purchased tractors, when applicable:

- A seat belt and anchorages that meet the Department of Transportation, Federal Motor Vehicle Safety Standards found in 49 CFR Part 571 (29 CFR 1926.601(b)(9)).
- Horn or other audible operator-activated warning device (29 CFR 1926.601(b)(3)).
- Reverse signal alarm audible above the surrounding noise level when rear view is obstructed by design or attachments (29 CFR 1926.601(b)(4)(i)).
- Service, emergency, and parking brake systems and brake lights (29 CFR 1926.601(b)(1) and (b)(2)(ii)).
- Whenever visibility conditions during intended use warrant it, at least two headlights and two taillights (29 CFR 1926.601(b)(2)(i)).
- Appropriate lights or reflectors for equipment that may be left unattended at night, adjacent to a road in normal use, or adjacent to an active construction area (29 CFR 1926.600(a)(1)).
- All vehicles with cabs must have windshields and powered wipers. Vehicles operating under conditions that cause windshield fogging or frosting must have defogging or defrosting devices. Glass must be safety glass, or equivalent, that introduces no visible distortion (29 CFR 1926.601 (a)(5) and 600(a)(5)).
- Equipped with fenders or, whenever motor vehicle equipment is not designed for fenders, mud flaps (29 CFR 1926.601 (b)(13)(i) and (ii)).

### ***Safe Work Practices***

DEP *requires* that Supervisors who are knowledgeable about the safe operation of such equipment make the employees under their supervision aware of these safe work practices derived from regulatory requirements, guidelines and manufacturer specifications. These may be communicated in tailgate sessions, posted or hung from the equipment or by any other means of communication. The following practices are derived from requirements (where 29 CFR 1926 is noted) and other relevant materials (where 29 CFR 1928 Subpart C Appendix A, 29 CFR 1928.57 and the National Agricultural Safety Database (NASD) Landscape Safety Series ([www.cdc.gov/nasd](http://www.cdc.gov/nasd)) are noted). These may be used for communication handouts, postings or placards placed on equipment:

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**TRACTOR (>20 HP) MOWING SAFE WORK PRACTICES**

**BEFORE FIRST USE OF ANY MODEL:**

1. Review the Operating Manual to understand manufacturer's instructions.
2. Learn the location and use of controls, gauges, and dials for the tractor.
3. Familiarize yourself with speeds, slope capabilities, braking and steering characteristics, and the tractor mower clearances.
4. If the tractor was made after June 30, 1969 and not equipped with a roll-over protective structure (ROPS) and a seat belt, do not use it until it is retrofitted. If you are not sure whether it is appropriately equipped, contact the person responsible for maintenance of the equipment.

**PREPARATION BEFORE EACH SHIFT:**

1. Obtain and don any personal protective equipment (PPE) required for your operation (e.g., work gloves, safety glasses with side shield, long sleeves, hearing protection, traffic vest – as needed based on working conditions and the PPE Hazard Assessment for your operation).
2. Check the power take off (PTO) control device, mower input driveline, drive belts, chains, and gears to ensure they are all properly guarded. Repair or replace guards, if necessary.
3. Check the discharge chute to see that it is present and pointed downward.
4. Before use, visually inspect to confirm safe operating conditions and that the equipment is free of apparent damage that could cause failure while in use. Check the following:  
 Service/parking/emergency brakes,       Tires,       Controls,       Horn,       Steering,  
 Windshield wipers,       Seat belts,       Coupling devices,       Reflectors,       Lights,  
 Safety devices,       Defrosters,       Fire extinguishers, etc., as applicable.  
Note: All defects shall be corrected before vehicle use. (29 CFR 1926.601(b)(14)).
5. Test to confirm that brakes and operating system are in proper working condition (29 CFR 1926.952(a)(2)).
6. Fill fuel tank outdoors with engine stopped and cool. Do not smoke while filling the tank.
7. If driving on public roads, confirm that the slow moving vehicle (SMV) emblem is in place.
8. Check overhead clearance of electrical wires and other obstructions, especially if you are using a wing-type, boom-type, or flail mower.
9. Inspect the work area for debris, ditches, potholes, stumps, irrigation valves, etc. Clear removable items and mark the others.

**OPERATION:**

1. Be sure your hands and shoes are clean and dry before mounting the tractor to prevent slipping. Use the steps and handbars.
2. Adjust seat and securely fasten seat belt if the tractor has a Roll-over protective structure (ROPS) – all tractors built after 1969 must have them (29 CFR 1928, Subpart C, Appendix A - Employees Operating Instructions).
3. Secure all tools to prevent movement (29 CFR 1926.601(b)(7)).
4. Make sure everyone is clear of machinery before starting the engine, engaging power, or operating the machine (29 CFR 1928.57(a)(6)(iv)).
5. Set the parking brake, place shift lever in neutral or park, and disengage the PTO before cranking the engine.
6. Raise the mower high and use low rpm before engaging power to the unit.
7. Where possible, avoid operating the tractor near ditches, embankments, and holes (29 CFR 1928, Subpart C, Appendix A).
8. Use a ground speed based on length and density of material being cut -- normally between 2-5 mph.
9. Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces (29 CFR 1928, Subpart C, Appendix A).

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10. Mow very tall grass twice at 90-degree angles if possible.
11. Look behind you before backing up. If view is obstructed and there is no backing alarm, only back up when a spotter signals it is safe (29 CFR 1926.601(b)(4)(ii)).
12. Watch where you are going, especially at row ends, on roads, and around trees (29 CFR 1928, Subpart C, Appendix A).
13. Do not permit others to ride on the vehicle (29 CFR 1928, Subpart C, Appendix A).
14. Operate the tractor smoothly - no jerky turns, starts, or stops (29 CFR 1928, Subpart C, Appendix A).
15. Hitch only to the drawbar and hitch points recommended by tractor manufacturers (29 CFR 1928, Subpart C, Appendix A).
16. Keep all guards and chains in place when the machine is in operation (29 CFR 1928.57(a)(6)(i)).
17. When conditions are wet or damp, see additional precautions below when working on slopes.

**WORKING ON SLOPES:**

1. Stay off slopes too steep for safe operation (refer to equipment manual or consult manufacturer for recommended limits applicable to the model of tractor used).
2. Mark/avoid all hazards that would invalidate the maximum recommended slope (e.g., wet or loose soil, washouts, holes, ditches, steep banks below, etc.).
3. Defer mowing on wet or damp slopes, when possible. If it is necessary to mow on wet or damp slopes, reduce manufacturer's recommended maximum slope accordingly.
4. Follow manufacturer's instructions for mowing on "slopes" (a grade >5-10%), generally mow:
  - Up and down slopes with rear-mount, pulltype, and wing-type mowers.
  - Across slopes with side-mount, offset, and sicklebar mowers.
  - Follow manufacturer's instructions and training for front-mount, high-slope mower use.

**STOPPING WORK:**

1. When finished or stopping, disengage the PTO, place shift in neutral or park, set parking brakes securely and use park lock if available. Also chock wheels if parked on inclines (29 CFR 1926.600(a)(3)(ii) and 29 CFR 1928 Subpart C, Appendix A).
2. Turn engine off, and wait for all movement to stop before dismounting.
3. Remove the key if leaving the tractor for any length of time.

**ADJUSTMENTS AND MAINTENANCE:**

1. Stop engine, disconnect power source & wait for all machine movement to stop before servicing, adjusting, cleaning, or unclogging the equipment (29 CFR 1928, Subpart C, Appendix A).
2. If the machine must be running to be properly serviced or maintained, seek instruction on all steps and procedures which are necessary to safely service or maintain the equipment (29 CFR 1928, Subpart C, Appendix A).
3. Lock out electrical power before performing maintenance or service on equipment (29 CFR 1928.57(a)(6)(v)).
4. Always block the mower wheels if working under it for any reason to prevent movement. If necessary to work under flail mower or mower deck, properly chock elevated equipment.
5. Do not alter guards or shields for tractors or attachments so equipped (29 CFR 1928, Subpart C, Appendix A).
6. Maintain, repair or replace guards or shields so they continue to provide at least as good protection as equipped when purchased (29 CFR 1928, Subpart C, Appendix A).
7. Use safety tire rack, cage, or equivalent when inflating, mounting, or dismounting tires installed on split rims, or rims with locking rings or similar devices (29 CFR 1926.600(a)(2)).
8. Refer to equipment manual for procedures applicable to the specific tractor.