**Standards of Practice**

**Bulldozer Operation**

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**I. PURPOSE**

It is the standard of practice of this organization to permit only trained and authorized personnel to operate a bulldozer. This standard of practice applies to both daily operators and those who occasionally use a bulldozer.

**II. DEFINITIONS**

Bulldozers are a powerful and heavy vehicle that has a large curved piece of metal at its front and that is used for moving dirt and rocks and pushing over trees and other structures **(Appendix A)**. *Merriam Webster*

**III. SCOPE**

This procedure covers bulldozer operations that KSU’s College of Agriculture can control and over which it can be expected to have an influence. These activities include, but are not limited to training, inspections, and the safe operation of the equipment.

**IV. CONSEQUENCES OF DEVIATION**

This procedure serves as an essential element in identifying and managing risk to staff associated with bulldozer activities. Ignoring this procedure could result in serious injuries, fatalities, or property damage.

**V. RESPONSIBILITIES**

The person who has overall responsibility for the department is responsible for the bulldozer safety program and assuring that the required records are kept on file. He/She may delegate any part of the training program to the Operations Trainer(s) to include educational instruction, inspection/maintenance procedures, bulldozer performance evaluations, and recordkeeping.

The Department Operations Trainer or Departmental Authority is responsible to ensure employee completion of on-line training (Bulldozer (track & wheel)-Operator Safety Course at 360training.com, review the manufacturer operational instructions and inspection/maintenance procedures, and conduct performance evaluations using **(Appendix B)** prior to bulldozer operation. After successful course completion, the trainer will keep a copy of all records on file.

**VI. PRE-OPERATIONAL PROCEDURES**

The KSU College of Agriculture requires operators to perform pre-operational equipment checks on bulldozers before it will be utilized. Operators are to complete the Pre-Operational Inspection Bulldozer Checklist **(Appendix C)** or manufacturer checklist.

No blank spaces are allowed on the form. If an item does not apply, use the code NIA. Fill out the comment section accurately to reflect any operational or visual defects so that appropriate repairs can be completed before the bulldozer becomes unsafe to operate. Describe the problem thoroughly so that the repair personnel can pinpoint the trouble immediately **(Appendix D).**

If a completed checklist form is not present on the bulldozer, then the bulldozer may not be operated until a checklist is completed.

If the bulldozer is safe to operate:

1. Place the completed checklist form on the holder provided on the vehicle. The checklist must remain on the vehicle's holder for the duration of the shift. This serves as a visual notice to all area operators that this piece of equipment was inspected and may be used during the shift without another inspection.
2. At the end of the shift, the checklist should be turned in to the department manager/supervisor. The manager/supervisor is responsible for reviewing the checklists for accuracy, completeness, and any noted defects.

If the bulldozer is unsafe to operate:

1. Note that on the checklist.
2. Remove the key from the bulldozer and place a DANGER DO NOT OPERATE tag on the steering wheel or control lever of the bulldozer.
3. The employee should take the completed checklist to the manager/supervisor and inform them of the problem. The manager/supervisor will complete a work order form and schedule the bulldozer for repair.
4. It is against company policy to operate a defective bulldozer or one that has a DANGER DO NOT OPERATE tag placed on the steering wheel or control levers. Appropriate disciplinary action will be enforced.

Department manager/supervisor should retain all Pre-Operational Inspection Checklist forms for each vehicle for six months. The file should be updated each month with the previous month's checklists thrown away so that the company always has a constant six-month record retention on these forms should an inspection occur.

**VIII. Standard OPERATING PROCEDURE (General) (Read Equipment Operations Manual)**

1. **Personal protective equipment**
2. Hardhat and high-visibility clothing to be worn when not inside the cab.
3. Safety boots in good condition, properly laced, must be worn at all times. Worn-out soles and heels could lead to slips and falls.
4. Eye protection will be worn where there is danger of falling or flying debris from equipment or loads, especially in windy conditions.
5. Hand protection will be worn when handling cable or any other material where there is danger of cuts or puncture injury.
6. Hearing protection will be worn when exposed to noise levels exceeding 85dBA.
7. **Mounting and dismounting** – three-point contact will be used to mount and dismount equipment.
8. **Inspection and repairs** – bulldozers will be inspected prior to use to ensure good mechanical condition.
9. When working under or around bulldozers, for inspections or repairs, the bulldozer must be locked and tagged out, and immobilized and secured against inadvertent movement.
10. **Housekeeping** – cabs, steps, and mirrors must be kept clean at all times. All debris should be removed.
11. **Parking** – the bulldozer must be parked on level ground, clear of hazards, to allow ease of access. Lower the blade or any attachment down to the ground. Lock-up machine when shut-down.
12. **Traveling** – proper gear selection must be used to maintain control. Drive according to terrain conditions. Reduce speed on rough terrain and close areas.
13. **Danger zone** – danger zone is defined as the area around operating machines or working personnel, in which there is potential for being struck by moving equipment or objects. The danger zone may vary according to the machine or work being performed. Operators must make sure that all persons, vehicles and equipment are clear of the danger zone before the vehicle or its components are moved.
14. **Lockout** – lockout procedures must be followed during mechanical service, repairs or inspection for the protection of employees and equipment.

Refer to company and manufacturer’s procedures on lockout.

Communications while assisting in mechanical repairs – When operators are assisting mechanics to repair machines, clear communications must be established prior to starting the tasks. The operator and the mechanic must each know who will be responsible for:

a) Starting or moving a machine

b) Ensuring that anyone involved is in a clear and safe position

c) Directing the movement of the machine

d) Ensuring that it is safe to resume working and that all guards are in place.

The operator must have a clear understanding of what is to be done and follow the specific lockout instructions and instructions given by the mechanic responsible for performing the job.

1. **Fueling** – shut off the engine while fueling. No smoking. Be aware of slip and trip hazards.
2. Beware of spills and splash-back. Return hose to its proper storage position when fueling is completed.
3. **Hazardous materials** – Read labels. If there is no label, contact the supervisor. Refer to SDS if further information is needed.
4. Use protective equipment and follow safe handling instructions as outlined on the label.
5. If an incident occurs, follow first aid instructions.
6. Use proper storage procedures.
7. **Bulldozing** – while operating on traveled roads, keep right, especially on corners and hills.

When pushing out a road, avoid pushing debris, for example, stumps, trees, rocks, and dirt, into standing timber. Do not create hang-ups. Lower stump-trees and hung-up trees as they are encountered along roadways.

1. Brush piles will be leveled so that harvesting equipment does not get hung up in them.
2. Roads will be made to the proper width, with sufficient turnarounds and turnouts.
3. Roads will be kept free of hazards, for example, stumps, rocks, and debris.
4. Keep well back from other working equipment when they are cutting roadways.
5. **Winching** – before winching, ensure the cable is in a safe condition and the hook-up is secure.
6. Brakes will be applied and the blade will be lowered onto the ground during winching.
7. Winch only at the proper speed that the machine being winched is able to move. Winch in a straight line, not on an angle.
8. **Moving trailers** – prior to hooking or unhooking any trailer, ensure the trailer is properly blocked (chocked).
9. Operators will be assisted in hooking up trailers.
10. While hooking or unhooking a trailer, ensure all personnel are clear of the area between the trailer and the bulldozer. While being assisted, ensure communications and directions are clear and understood before moving your machine.
11. Travel at proper speeds when pulling trailers.
12. Ensure that your bulldozer is capable of controlling the equipment/trailer being moved.
13. If moving a fuel trailer, ensure that it is hooked to a drawbar rather than on a winch.
14. **Blowdown** – road construction – if a road is required through a blowdown area, care should be exercised with the dozer to avoid spring pole and spear hazards.
15. When required to establish access to a cutting face, try to minimize disturbance of the blowdown.

**VIII. TRAINING**

Under no circumstances should an employee operate a bulldozer until he/she has successfully completed the bulldozer operation safety training program. This includes all new operators regardless of claimed previous experience.

The training program includes on-line training Bulldozer (track & wheel) Operator Safety Course at 360training.com, review the manufacturer operational instructions and inspection/maintenance procedures, and conduct performance evaluations using **(Appendix B)** prior to bulldozer operation.

The departmental manager/supervisor will identify all new employees that will need to be trained as bulldozer operators and make arrangements for those employees identified to complete the necessary training.

Course training consists of:

1. Review of equipment manufacturer operations manual by the employee.
2. Completion of interactive 360.com computer-based training Bulldozer (track and wheel) Operator Safety Course and successful completion of the examination.

The computer-based training program covers equipment introduction, stability, maintenance, inspections, hazards, safe operation, attachment and more.

1. Review of Bulldozer Standard of Practice by the employee.

Operational training consists of:

1. Pre-Operational Inspection or manufacturer checklist procedures. **(Appendix C)**
2. Operational review of the bulldozer, the employee is expected to operate. This includes:
	* Pre-operational checklist procedures;
	* Proper use of controls;
	* Maneuvering skills;
	* Selecting and picking uploads,
	* Driving with a load;
	* Moving loads; and
	* Re-fueling/charging operations.
3. Completion of the Bulldozer Operator Evaluation. **(Appendix B)**

**IX. RELATED DOCUMENTS & TOOLS**

* OSHA Standard 29CFR 1926.600
* Bulldozer Field Exam, by Safety Culture
* Pre-and Post-Operation Equipment Inspection Checklist, by Case Construction

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**Controlled documents are maintained electronically.
Printed documents are UNCONTROLLED.
Prior to relying on a printed document, verify that it is current.**

 **(Appendix A)**

 **Example of Bulldozers**



 Bulldozer Track

 Bulldozer Wheel

**Bulldozer Operator Evaluation Form (Appendix B)**

Instructions: Use this checklist during the field session to evaluate operator proficiency. It can also be used for period evaluation to ensure that operators are continuing to operate a bulldozer properly.

Operator Name Evaluator Name

Date of Evaluation Equipment Operated

|  |  |  |
| --- | --- | --- |
| **OPERATOR BEHAVIORS**  |  **RATING** |  **COMMENTS** |
| **Pre-use Inspection** |
| 1. Follow Operator’s Daily Checklist. | GOOD FAIR POOR N/A |  |
| 2. Look for Damage. | GOOD FAIR POOR N/A |  |
| 3. Document all findings on the checklist | GOOD FAIR POOR N/A |  |
| **Job Site Survey** |
| 1. Identify potential hazards such as but not limited to high voltage lines or underground utilities? | GOOD FAIR POOR N/A |  |
| 2. Identify and verify grade stakes? | GOOD FAIR POOR N/A |  |
| 3. Verify the safety of equipment set-up? | GOOD FAIR POOR N/A |  |
| **Start-up and Warm-up of Dozer** |
| 1. Successfully start the engine? | GOOD FAIR POOR N/A |  |
| 2. Check all controls function properly such as but not limited to the blade, steering, and travel? | GOOD FAIR POOR N/A |  |
| 3. Check all gauges for proper readings? | GOOD FAIR POOR N/A |  |
| **Perform Basic Maneuvering Skills**  |
| 1. Travel forward for at least 20 feet? | GOOD FAIR POOR N/A |  |
| 2. Travel in reverse for at least 20 feet? | GOOD FAIR POOR N/A |  |
| 3. Accomplish a gradual turn of at least 180 degrees with blade up? | GOOD FAIR POOR N/A |  |
| 4. Accomplish a sharp turn of at least 180 degrees with blade up? | GOOD FAIR POOR N/A |  |
| **Perform Basic Blade Operations** |
| 1. Able to lift and lower the blade? | GOOD FAIR POOR N/A |  |
| 2. Able to angel the blade? | GOOD FAIR POOR N/A |  |
| 3. Able to tilt the blade? | GOOD FAIR POOR N/A |  |
| 4. Able to pitch the blade? | GOOD FAIR POOR N/A |  |
| **Perform Basic Dozer Skills** |
| 1. Able to perform straight dozing pushing the material forward? | GOOD FAIR POOR N/A |  |
| 2. Able to perform the cutting of a slope the width of the blade at a 1 to 2% angle? | GOOD FAIR POOR N/A |  |
| 3. Able to perform the building of a stockpile while maintaining proper windrows and berms? | GOOD FAIR POOR N/A |  |
| 4. Able to complete a finished pad 20’x20’equal to less than 1/10 of afoot? | GOOD FAIR POOR N/A |  |
| **Dozer Shut-Down** |
| 1. Able to move the dozer to the designated shutdown area? | GOOD FAIR POOR N/A |  |
| 2. Able to properly shut down and secure the dozer? | GOOD FAIR POOR N/A |  |
| **Safety**  |
| 1. Used all necessary PPE to include seat belt? | GOOD FAIR POOR N/A |  |
| 2. Overall good safety procedures and use of the tools and assigned equipment?  | GOOD FAIR POOR N/A |  |

Based on my evaluation, the operator has successfully completed the evaluation and is qualified to operate the following equipment:

Based on my evaluation, the operator has not demonstrated competence in operating the following equipment:

Evaluator Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Operator Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Pre-Operational Inspection Checklist for Bulldozers (Appendix C)**

**Instructions:** The operator should inspect the bulldozer before placing the machine in service at the beginning of each work shift. Deficiencies noted on the inspection form should be corrected prior to operation. If the deficiencies cannot be corrected, the bulldozer should not be used and lock-out/tag-out procedures initiated according to the Bulldozer Operations Standard of Practice.

Bulldozer Make: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Model: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ S/N: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date completed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Inspected by: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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|  Pre-Operational Inspection Checklist Form |
| Operator's signature: | Date: |
| OPERATOR MUST COMPLETE CHECKLIST PRIOR TO USE (Place in the holder on vehicle)At end of shift turn in the checklist to supervision. |
| Check each of the areas that pertain to your bulldozer. |
|  | OK | Defective | *NIA* |  | OK | Defective | N/A |
| Tire Condition |  |  |  | Horn |  |  |  |
| Head/Tail Lights |  |  |  | Steering |  |  |  |
| Warning Lights |  |  |  | Brake |  |  |  |
| Fluid Levels/leaks |  |  |  | Engine |  |  |  |
| Battery |  |  |  | Hydraulic Controls/Pressure |  |  |  |
|  Console Controls |  |  |  | Attachment/Mount |  |  |  |
| Seatbelts |  |  |  | Engine |  |  |  |
| Filters (fuel, oil, and air)` |  |  |  | Tools |  |  |  |
| Belts (alternator, fan, etc.) |  |  |  | Mirrors |  |  |  |
| Structural Damage |  |  |  | Job site |  |  |  |

**(Appendix D)**

**Bulldozer Inspection & Maintenance Record**

If you have any questions about the use of the inspection and maintenance record, please contact your supervisor.

|  |  |
| --- | --- |
| Department |  |
| Manufacturer |  |
| Model # |  |
| Serial # |  |

**Repair and Maintenance Record**

|  |  |  |
| --- | --- | --- |
| **Date** | **Description of Work** | **Maintenance Performed By** |
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