

PART 503 - SAFETY

SUBPART C – SAFETY DURING GEOLOGIC INVESTIGATIONS

WA503.23(j)

WA503.23 Engineering Soils Investigation Truck

(a) Background

(1) Mounted on the flatbed of the engineering soils investigation truck is a Mobile Drill Model B-24 drill that was purchased in 1992 and completely refurbished in 2009 and 2010. The truck is also equipped with storage boxes, operator platforms, hydraulic outriggers and a front mounted electric winch. Improper use of any of this equipment may result in injury or death.

(2) There are many moving parts, heavy objects and sharp instruments associated with the operation of the engineering soils investigation truck that pose a potential safety hazard to NRCS personnel, landowners and personal property. Operation of the engineering soils investigation truck shall be conducted with all due caution necessary to reduce the hazard potential.

(b) Training Requirements

(1) *Drilling Safety Guide.* All personnel working on or around the engineering soils investigation truck shall read, become familiar with the National Drilling Association's Drilling Safety Guide and sign a statement that they have read and understand all information contained within the guide.

(2) *Basic First Aid.* All work parties using the engineering soils investigation truck shall have at least two members who have completed basic first aid training. First aid review classes shall be taken as necessary to retain Red Cross certification.

(c) Personal Safety

(1) *Communication.* Motor noise from operation of the engineering soils investigation truck and use of hearing protection limits the ability of the operator and other personnel to communicate orally. Before approaching any moving parts, personnel shall establish eye contact with the operator and use hand signals, in addition to voice commands, to communicate the intended action. Personnel will wait for the operator to move their hands away from the controls to prevent any accidental engagement of the equipment.

(2) *Lifting.* All lifting shall be done in a manner to prevent injury. This may include: lifting with the legs, lifting with assistance from other personnel or lifting through assistance of the rope and cathead.

(d) Work Environment Safety

(1) *Electrical Storms.* All operations of the engineering soils investigation truck shall cease when the time between lightning and thunder is 60 seconds or less. If at the time of the

electrical storm the mast is raised and there are auger flights in the ground, all personnel shall immediately seek shelter away from the engineering soils investigation truck until the storm has passed. No attempt to operate the engineering soils investigation truck shall be made during electrical storms.

(2) *Utilities.* The project engineer shall be responsible for requesting the location of underground utilities by a “Call before You Dig” utility crew at least 48 hours prior to on-site activities. The project engineer shall notify the operator once underground utilities have been located. Drilling activities may not commence until underground utilities have been located. The operator shall check for overhead utilities before raising the mast. The horizontal distance between overhead power lines and the drill mast shall be 100 feet or greater. Otherwise, consult with the local utility company prior to commencing operation.

(3) *Animals.* Exercise appropriate caution when operating the engineering soils investigation truck around livestock. Ask the landowner to remove aggressive animals from the investigation site for the safety of the animals and the work party.

(4) *Hole Plugging.* All test holes shall be backfilled according to Washington State requirements to protect groundwater quality and prevent injury to people, animals and/or equipment using the property.

(e) Safety Gear

The use of safety gear applies to all personnel within a working perimeter of 30 feet from the parked engineering soils investigation truck. This applies to operators, technical staff, landowners and other observers.

(1) *Hard Hats.* Hard hats shall be worn at all times when the mast of the engineering soils investigation truck is raised. Hard hats shall meet the requirements of ANSI Z89.1 and be in good repair.

(2) *Safety shoes or boots.* Safety shoes or boots shall be worn during all drilling activities. All safety shoes or boots shall meet the requirements of ANSI Z41.1 by providing crushing protection from items dropped on toes and puncture resistance for items stepped on.

(3) *Safety Glasses.* All drilling personnel shall wear safety glasses. All safety glasses shall meet the requirements of ANSI Z87.1 by providing impact resistance against flying objects.

(4) *Hearing Protection.* Hearing protection shall be used during operation of the drill. The level of protection provided shall be consistent with ANSI S12.6 through the physical attenuation of ambient noise.

(5) *Gloves.* Leather gloves shall be worn by the operator when using the rope and pulley system to raise and lower drill string and hammer to protect against rope burn. Non-slip gloves may be used by technicians to protect hands when handling drill rod and auger flights.

(f) Safety Equipment

(1) *Fire Extinguisher.* A fire extinguisher shall be maintained on the engineering soils investigation truck. The fire extinguisher shall be tested and resupplied at appropriate intervals as recommended by the manufacturer.

(2) *First Aid Kit.* A first aid kit shall be maintained on the engineering soils investigation truck. Items with expiration dates shall be replaced on regular intervals and used supplies restocked prior to the next site visit.

(g) Drill

(1) *Emergency Shut Down.* The drill is equipped with four emergency shut down switches. All personnel working on or around the drill shall be familiar with the location of these emergency shut down switches and know how to use them. The four emergency shut down switches shall be tested at the start of each day of operation.

(2) *Cathead.* The cathead is used with a rope to help raise and lower equipment.

a) The operator shall use one loop of rope around the cathead to assist with light loads and two loops to assist with heavier loads. Rope shall be loosely looped over the cathead to keep the cathead from wrenching the rope away from the operator and sending equipment flying into the air.

b) The operator shall never loop the rope around their hand; the rope shall always be free to move through the operator's hand. The rope shall never loop around the legs or feet of the operator and shall remain free of any other object in case the cathead wrenches the rope away from the operator.

c) Friction from the rope rubbing on the cathead causes the cathead to become very hot; the operator and other personnel shall avoid contact with the cathead until the cathead cools to prevent burns.

d) Use of the rope and cathead during precipitation events shall proceed at the discretion of the operator. However, once the rope becomes saturated operations shall cease and not resume until the rope has dried.

(3) *Mast.* A locking pin shall be used to secure the drill mast when in the lowered or raised position. Prior to removing the locking pin to lower the mast the safety cable shall be taut and in position to keep the mast from free falling onto the truck.

(h) Hydraulic Outriggers

The operator shall signal or otherwise notify all personnel prior to lowering or raising hydraulic outriggers. Outriggers shall be fully raised and secured with a safety chain whenever the engineering soils investigation truck is driven.

(i) Storage Boxes

Storage boxes shall be opened with caution, as shifting of equipment during transit may cause items to fall out upon opening. To minimize shifting, all equipment shall be securely stored and anchored.

(j) Winch

The winch mounted on the engineering soils investigation truck shall be used according to the manufacturer's recommendations.