

Guidelines and Procedures for Directional Drilling Tracking Operators

1. Scope—These general guidelines and precautions apply to personnel operating directional drilling tracking equipment when used with Horizontal Earthboring Machines as defined in SAE J2022.

1.1 Purpose—The purpose of this document is to provide manufacturers with an established set of guidelines and precautions to improve the degree of personal safety for jobsite personnel and people in the area.

2. Reference

2.1 Applicable Publication—The following publication(s) form part of this document to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE PUBLICATION—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J2022—Classification Nomenclature and Specification Definitions for Horizontal Earthboring Machines

3. Operating Guidelines

3.1 Before drilling, check that the following precautions have been taken:

3.1.1 Confirm that:

3.1.1.1 One-Call has been contacted and a minimum wait time has elapsed.

3.1.1.2 Any utilities that do not subscribe to One-Call have been contacted.

3.1.1.3 All known utilities have been marked and that the site is ready for drilling.

3.1.1.4 All required permits, such as road crossing, have been obtained.

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3.1.2 All personnel (contractor and trainer) are wearing proper personal protective equipment.

3.1.2.1 Personal protective equipment, may include but is not limited to, the following:

3.1.2.1.1 Properly rated, rubber-insulating foot wear

3.1.2.1.2 Safety glasses or safety goggles

3.1.2.1.3 Hard hat

3.1.2.1.4 High-visibility warning vest

3.1.3 All utilities to be crossed and approached have been exposed (by pot-holing or other hand excavation methods) and clearance will be observed while drilling and back reaming past the utility.

3.1.3.1 Drilling parallel to buried utilities may require frequent exposure of the utility and the drill head, to verify the necessary clearance between the utility and the bore path.

3.1.4 Planned work conforms to all regulatory requirements (OSHA, state, municipal etc.) applicable to the job.

3.1.5 If working in the vicinity of a gas line, crew has been advised not to smoke during operations and in the vicinity of exit or exposure pits.

3.1.6 Two-way communication has been established between you and drill unit operator.

4. *Electromagnetic Interference Precautions*

4.1 Directional drilling tracking receivers typically detect electromagnetic signals for tracking the drill head. These signals are subject to disturbances or interference from many sources. When interference is encountered, tracking receivers may give readings that are incorrect, including, but not limited to, improper depth readings and erratic clock readings when the drill head is still.

4.2 You should not rely only on depth readings, but factor in the following: ground conditions, drill pipe movement, drill head pitch, unexpected indications, and information from the drill unit operator.

4.3 The operator must be aware of the following:

4.3.1 Work site features which indicate possible sources of electromagnetic interference.

4.3.2 Large metal objects underground or in a close proximity to the receiver.

4.3.3 Underground metallic (steel or cast iron) pipes in the vicinity of the bore path.

4.3.4 Reinforced concrete roads, sidewalks, driveways or pipes.

4.3.5 Traffic signal loops.

4.3.6 Microwave and radar towers.

4.3.7 Electronic fences for dogs, or transmitters emitting signals at or near the same frequency as locating equipment.

4.3.8 Salt water or brackish water.

4.3.9 Other tracking or locating devices being used nearby.

4.3.10 Tracking equipment capacities and specifics.

4.3.10.1 Know the frequency of the tracking equipment to be used.

4.3.10.2 Be able to recognize unstable or inconsistent information.

4.3.10.3 Walk the bore-path with a tracking receiver turned "ON", but with transmitter turned "OFF" to note any signal changes.

4.3.10.4 Cross check depth readings with pitch information.

4.3.10.5 Know the limitations of the locating equipment to be used.

5. Emergency Operating Procedures

5.1 Procedure in Event of Electrical Strike

5.1.1 Stay where you are. Do not move.

5.1.2 Warn persons nearby that a strike has occurred and to stay away.

5.1.3 Have someone contact 911 or local emergency number and the electric utility.

5.1.4 Remind the drill unit operator to retract the drill head and attempt to break contact with the electric line.

5.2 Procedure in Event of a Gas Line Strike

5.2.1 Inform operator to stop drilling, shut down all engines and leave the area.

(Do not reverse or retract the tool head to break contact).

5.2.2 Alert persons nearby that a gas strike has occurred and to stay away.

5.2.3 Leave the area of the gas leak immediately and quickly.

5.2.4 Clear and secure the area.

5.2.5 Have someone contact 911 or local emergency number and the gas utility.

5.2.6 Do not smoke or cause sparks.

5.2.7 Do not resume drilling until given permission by the gas utility.

5.3 Procedure in Event of Fiber Optic Strike

5.3.1 Do not look into the cut ends of fiber optic or unidentified cables (vision damage can occur).

5.3.2 Have someone contact 911 or local emergency number and the appropriate utility.

5.4 Procedure in Event of Water or Sewer Strike

- 5.4.1 Do not reverse or retract the tool head.
- 5.4.2 Have someone contact 911 or local emergency number and the appropriate authority.

5.5 Procedure in Event of Interference

- 5.5.1 Consult the manufacturer for information.

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