



SURFACE VEHICLE STANDARD

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Guidelines and Procedures for Directional Drilling Tracking Operators

RATIONALE

Add reference to 811 in 3.1.1.1 and 3.1.1.2, added 3.1.1.5 for white lining, added section 3.2 for precautions during drilling.

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 International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

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

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3. OPERATING GUIDELINES

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

3.1.1 Confirm that:

3.1.1.1 811 or One-Call has been contacted and a minimum wait time has elapsed.

3.1.1.2 Any utilities that do not subscribe to 811 or 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.

3.1.1.5 Planned bore has been indicated by white-lining.

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

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

- Properly rated, rubber-insulating foot wear

- Safety glasses or safety goggles

- Hard hat

- 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 shall be observed while drilling and back reaming past the utility.

3.1.3.1 Precautions shall be taken when drilling parallel to buried utilities, including more frequent exposure of the utility and the drill head and more frequent tracker readings, to ensure the necessary clearance is maintained between the utility and the bore path.

3.1.4 Planned work conforms to all regulatory requirements (Occupational Safety and Health Administration, 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.

3.2 During drilling, check that the following precautions are being taken:

3.2.1 Do not stand on ground over drill string unless drilling has stopped.

3.2.2 Always track drilling progress. Never assume drill string is following a pre-drilled path.

3.2.3 Locate drill head after each joint of pipe if possible.

3.2.4 Never push broken pipe.

3.2.5 When drill head surfaces, use a lock out control or manual means such as removal of machine ignition key to disable thrust and rotation for breaking joints and/or changing tools at exit pit.

3.2.6 Stay clear from material being installed.

3.2.7 Never use a pipe wrench to break or tighten joints of pipe or downhole tools.

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, incorrect tracking receiver readings are possible, 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 shall 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 tracking 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.