

SAFETY MATTERS



Safety Matters is intended to promote discussions of safety issues among underground construction professionals. You should always read and understand the operator's manual before operating any equipment. For additional information, please e-mail safety@ditchwitch.com.

TOPIC:

Tracking—MANAGING INTERFERENCE

POTENTIAL HAZARDS

- Electrocution
- Burns
- Explosion
- Blindness
- Property damage
- Emergency communication hindered

INFORMATION/FACTS

- All tracking and locating systems are subject to electromagnetic interference. Interference can distort the beacon signal, providing inaccurate information. Interference must be identified and considered before and during drilling.
- There are two types of interference – active and passive.

Active Interference

- Active interference is caused by any magnetic field generated by a source other than the beacon, such as power lines, traffic loops, cable TV, diesel generators, welders and phone lines, that decreases the communication range of the tracker or distorts beacon signal.
- To identify active interference:
 - Measure active interfering noise with **Bore Path Analyzer** (if equipped) to determine the best operating frequencies
Note: Bore Path Analyzer will not identify passive interference
 - Measure noise floor or expected depth by **recording noise depths**
Note: For more accurate noise floor readings, this procedure is performed only after beacon depth calibration
- To manage active interference:
 - If frequency and measurable depth are within acceptable levels
 - Verify range between tracker and beacon, once beacon is calibrated (be sure beacon is in tool housing)
 - If the scans show that the depth levels are not acceptable, consider these steps:
 - Increase beacon power level
 - Identify noise source, turn off or move source, if possible

- Check Bore Path Analyzer and noise floor scans at night
- Check different angle or location
- Check into the possibility of using a wireline system

Passive Interference

- Passive interference is caused by large metal objects such as fences, pipe, rebar, buried utility vaults, culverts and vehicles which distort the signal and shape of the beacon dipole field, thus distorting location and depth readings.
- To identify passive interference
 - Walk the bore path and **visually observe** markers, overhead lines, rails, culverts, etc.
 - Passive interference should be identified during the visual inspection of the bore path
 - A metal detector could be used to identify passive interference below ground.
- To manage passive interference
 - If interference is suspected during bore, quickly check for interference by raising tracker 1 ft (0.3 m) and make second depth estimate. If the difference between the two estimates is not 1 ft (0.3 m), there is interference.
 - Lower frequencies are the best choice when encountering passive interference
 - Increase beacon power level to overcome noise (this will reduce battery life)
Note: Do not use extreme power level (referred to as "X") in AT housing

BEST PRACTICE

Because interference can be present to some degree, it is a best practice and mandated in some areas, to always expose existing utilities that will be crossed or approached to the depth of the bore or at least to the vertical tolerance zone around the utility. The crossing must be watched during the pilot bore and the backream.

**DON'T LEARN SAFETY
BY ACCIDENT**