

2.99

100 EXCAVATION SAFETY GUIDE & DIRECTORY

Safety in the trenches



LOCATING & MARKING

Can You Afford NOT to Know?

by Mark R. Wallbom, CEO, Underground Imaging Technologies, LLC

More and more construction claims are including a loss of productivity element in court handled cases today. Contracting firms as well as everyone along the value chain are becoming more cognizant of the requirements to document observations in the field that support or differ from what was disclosed in the specifications or scope of work. The old legal axiom of “*He with the most paper wins*” is being demonstrated over and over again in court decisions today. When things go wrong, the party with the most support for their claim, the party that has done the greatest amount of due diligence will have the higher probability of prevailing. In the end somebody is going to pay.



If there is a death or serious injury on a jobsite the costs associated with that accident can be staggering. Take for example the horrific accident in 2005 in *Walnut Creek, California* where according to published reports \$94.5 million dollars in damages have been awarded to date with the potential to go higher. Five men are dead and four others critically injured, with criminal charges being levied against the engineering companies and the contractor. All of this because of a mismarked pipeline and a subsequent explosion and fire caused by work being done on an adjacent new pipeline installation. With so many people looking to shift risk it is important to understand that knowing all you can know about any given project site ahead of construction makes profound sense.


According to **Jim Anspach**⁽¹⁾ more and more engineering firms are being found culpable for failure to do a sufficiently adequate job of designing underground projects. Disclaimers only go so far. When the ultimate utility locating device – a backhoe or excavator – encounters an unknown utility or other appurtenance that was mismarked, or not marked at all, the potential for extraordinary loss of life or property exists. One shocking example of this comes from data that are published by the *Office of Pipeline Safety* for years 2000 to 2004 involving accidents reported by natural gas distribution pipeline operators. There were 2,580 incidents causing 318 fatalities and 1,404 individuals injured, with \$356.6 million dollars in property damages. We simply need to do a better job of mapping those utilities and ensuring that contractors working around them have the means and methods to avoid hitting these utilities.

The *American Society of Civil Engineers (ASCE) Standard Guideline 38-02* provides for different levels of quality that relate to subsurface utility engineering (SUE) and it spells out requirements for the collection and depiction of existing subsurface utility data. However, all too often owners and/or their engineers fail to understand just how much improvement has been made in the art and science of designating the

location of known utilities as well as other anomalies previously unknown such as tanks, foundations, trolley tracks, and undocumented utilities.

The use of advanced geophysical instruments, together with subscription grade GPS or a Total Robotic Station, can produce very accurate 3-D subsurface images yielding very close tolerance X, Y and Z co-ordinates of linear features such as utilities. The careful selection of which geophysical instruments to use is critical in order to obtain optimal results depending on soil types, expected targets, and applicable depths. The photo to the left shows just one example of these advanced geophysical tools.

It is expected that the upcoming revision to ASCE 38--02 will more fully recognize the use of advanced geophysics such as GPR and TDEMI to detect both known and unknown utilities. Therefore, it is important for the SUE professional to keep up with advances in geophysical means and methods in order to meet the standards of their profession

The more data you have and the more accurate that data is the higher will be the probability that accidents can be avoided. The more owners and engineers learn of the value proposition made possible by using these new technological capabilities the greater will be the probability that accidents will be reduced by their application. 

DISCOVER MORE!

Author's Footnote

(1) Jim Anspach is the Chair, American Society of Civil Engineers Standards Council; Chair, ASCE 38-02 "Standard Guideline for the Collection & Depiction of Existing Subsurface Utility Data," Chair, ASCE Board Committee, Codes & Standards; Investigator, National Academies, SHRP, TRB, and has 30 years of experience developing and leading the subsurface utility engineering profession

About the Author

MARK R. WALLBOM is the CEO of Underground Imaging Technologies, LLC, a *Caterpillar Affiliate Company*. He can be reached by phone at 518.783.9848 or by email at mwallbom@uit-systems.com.