



CSL - When and how to use it

Cross hole Sonic Logging (CSL) is often required for new bridge piers and critical infrastructure buildings. In this month's newsletter we will cover:

- Basics of CSL and where to use it
 - Tips for dealing with CSL access tubes
 - How to correctly set the signal gains
- Find out what's new in our WINCSL Software Version 2.14



CSL basics - What is it used for?

The Crosshole Sonic Logging method facilitates Quality Assurance (QA) testing of:

- Drilled shaft foundations, newly placed
- Auger cast piles
- Slurry walls
- Mat foundations
- Mass concrete pours.

Using water-filled access tubes, CSL testing provides assurance that the foundation concrete is sound with no defects. Remember the tubes need to be installed at the same time as the cage!

Technical Tips

The CSL access tubes should be filled with water at the time of concrete placement. The early presence of water in the tubes helps to alleviate debonding of the tubes from the concrete.

The access tubes should stick up approximately 3 feet (1m) above the top of the foundation to allow for water displacement when the hydrophones and cables are lowered into the tubes during the CSL testing.

During the CSL test, the cables with the hydrophones should be lifted from the access tubes at a steady rate of speed (approximately 1-2 ft/sec) to avoid noisy signals caused by banging of hydrophones against the tubes' sides when pulling them up too quickly.

Setting The Gain Correctly

Lower the hydrophones to the bottom of the access tubes. Ensure that the tips of the hydrophones are gently resting at the bottom of the tubes. The bottom can be felt by removing all slack in the cables and gently raising and lowering the hydrophone several inches.

Test the signal and set the gain. If a strong signal is displayed, proceed with testing. If the signal is weak (requiring a gain setting of 1000 or more) or not seen at all, check all connections and re-adjust hydrophone elevations to ensure they within 3 - 6 inches (7.5 - 15cm) in elevation from each other and not laying on their sides.

If a strong signal is still not displayed, the bottom of the tube might be resting in mud or there may be a "soft bottom" condition in the shaft. Raise the hydrophones three (3) feet (1m) and set the gain at that elevation. Then lower the hydrophones to the bottom of the tubes again to begin testing.



What's new in WinCSL Software v2.14?

Data logs now display energy units reported in dB. (This is the format preferred by many regulatory agencies.) Additionally, it is now possible to export raw data to other programs (such as MatLab) for data analysis.

Olson CSL History

For more than 25 years, Olson has built and sold our Freedom Data PC based Crosshole Sonic Logging systems (now shipped with Windows 10). We take particular pride in the superior quality of our hardware and the signal generated by our 42 KHz hydrophones (which are interchangeable as both source and receiver).



Upcoming Events

TRB Annual Meeting

January 12 – 16, 2020
in Washington, DC
Please visit us at Booth #606



Free FTG Pile Integrity Workshop

January 23, 2020, 9:30am - 4:30pm
12401 W. 49th Avenue
Wheat Ridge, Colorado
RSVP at info@olsoninstruments.com



NDE & Geophysics Seminar-Earn PDH's

March 10 – 12, 2020
7529 Standish Place, Room 360
Rockville, Maryland
Registration coming soon