

GEI has developed the patented hydrocarbon and water knockout ( $H_2AWK^{TM}$ ) precision flow meter to test LNAPL transmissivity in the field.

## $H_2AWK^{TM}$ - NAPL TRANSMISSIVITY TESTING



### Benefits

- Quantitative real-time data
- Precise, repeatable measurements
- Versatile, durable, easy to use
- Fast (test multiple wells per day)
- Accurate  $T_n$  testing in challenging conditions where other methods may not be feasible



### $H_2AWK^{TM}$ Transmissivity Testing

The  $H_2AWK^{TM}$  provides a fast and effective way to measure LNAPL transmissivity ( $T_n$ ) by gauging the volumetric ratios of LNAPL and water that are purged from a well during a NAPL/water ratio test. LNAPL  $T_n$  is estimated using standard equations that consider the fluid drawdown, aquifer properties, and LNAPL physical properties (ASTM E2856-13).

Traditional methods of measuring LNAPL  $T_n$  can be expensive and may take days or weeks to complete (e.g., baildown testing, manual skimming testing, etc.). Transmissivity testing with the  $H_2AWK^{TM}$  can save time and money compared with these traditional methods by allowing you to test multiple wells per day without requiring repeated mobilizations and long-term measurements of LNAPL recharge. In addition, the  $H_2AWK^{TM}$  is not sensitive to errors in  $T_n$  calculations due to small apparent NAPL thicknesses or fluctuating water tables, which can pose problems during baildown and skimming tests.

GEI offers unmatched technical excellence when it comes to LNAPL transmissivity testing and strategic consulting services. Our field engineers are ready to mobilize anywhere in the country and we possess a wide range of training and certifications to perform work on a variety of sites.

$T_n$  testing with the H<sub>2</sub>AWK™ is a valuable solution that will improve the overall site conceptual model and decision-making capabilities including site closure determinations.

### Case Study

A major oil company anticipated spending up to \$2M to remediate LNAPL at a large commercial travel center with active fueling operations, a shallow groundwater table, and multiple isolated LNAPL plumes (both diesel and gasoline). LNAPL thicknesses were generally less than 6 inches and traditional baildown and manual skimming tests were not expected to provide reliable  $T_n$  data. GEI performed LNAPL/Water ratio testing using the H<sub>2</sub>AWK™ at five wells and calculated that the site-wide LNAPL  $T_n$  was below the threshold generally considered feasible for effective hydraulic recovery of LNAPL. Data were presented along with an LNAPL site conceptual model and the owner was able to pursue alternative remediation measures and avoid costly active hydraulic LNAPL recovery that would not have been effective.



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## GEI Consultants, Inc.

GEI Consultants, Inc. is a consulting engineering firm that delivers value-laden professional services that improve our world's built environment. Founded in 1970, the firm was built on the foundation of geotechnical engineering and has evolved into a multidisciplinary engineering firm serving the water, energy, buildings, infrastructure, and industrial markets. GEI has over 800 staff, 45+ years of technical experience, and has completed over 50,000 projects globally.