

U.S. LUST Market

- 150,000 LUST sites
- Strong political and economic incentives to close LUST sites
 - End expensive long-term monitoring
 - Redevelopment



Growing Interest in Multilevel Monitoring at LUST Sites in the U.S.

- Conventional wells yield biased samples due to compositing (blending)
- Ambient flow in conventional wells can cross-contaminate aquifers

Multilevel monitoring wells solve the above problems, yielding accurate depth-discrete samples and preventing ambient flow in the well.

More complete and accurate data sets quickly identify LUST sites which pose a threat to downgradient receptors and those that can be closed with no further action.

Advantages and disadvantages of four multilevel sampling methods that are used at LUST (Leaking Underground Storage Tanks) sites

Description	Advantages	Disadvantages
Diffusion Bag Samplers	<ul style="list-style-type: none"> • Low cost • Can collect many samples from a single well • Compatible with all gasoline constituents except MTBE, TBA and ethanol 	<ul style="list-style-type: none"> • Data worthless if there is ambient vertical flow in the well • Samples water in the well, not in the aquifer
Nested Wells	<ul style="list-style-type: none"> • Standard materials • Many contractors available to install • Many sampling options 	<ul style="list-style-type: none"> • Often poor well seals • Prohibited or discouraged in many areas • Large annular space increases purge time
3-Well Cluster	<ul style="list-style-type: none"> • Standard materials, abundance of contractors • Good annular seals between zones • Many sampling options • Highest quality samples 	<ul style="list-style-type: none"> • Increased drilling costs • Increased permit fees in some areas
3-Channel CMT	<ul style="list-style-type: none"> • Good annular seals prevent vertical groundwater movement and cross contamination • Possibly lowest cost 	<ul style="list-style-type: none"> • Fewer sampling options available. • Long purge times if micro-purge not used. • Positive sample bias if sampled incorrectly

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