GeoDayz - 2018

GeoProbe (Direct-Push), HAS and Rock Drilling, Sampling, Coring, and Monitoring Well Construction, Monitoring and Testing

by

Jeffrey D. Sammons, P.G.
Henry M. Wise, P.G., C.P.G.
Michael D. Campbell, P.G., P.H., C.P.G.

Version 1.1
February 28, 2018

Drilling, Sampling, Coring, and Monitoring Well Construction, Monitoring and Testing

Hydrogeologists Logging Station

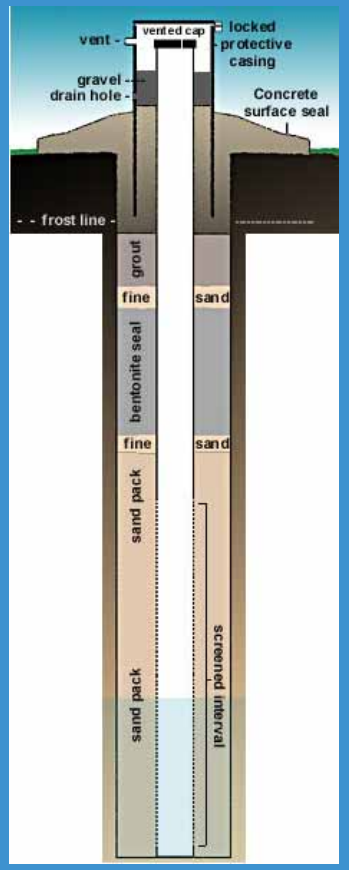
- Direct- Push Technology commercialized by GeoProbe,
- Makes shallow sampling much faster and easier than 10 years ago,
- Drilling site supervisor (you) must monitor drillers activities to ensure that sediment core orientation is recorded properly,
- Establish by scope of work in drilling contract who strips the core.

Drilling, Sampling, Coring, and Monitoring Well Construction, Monitoring and Testing

- Direct-Push (GeoProbe) is suited for typical shallow environmental (more),
- Other types of drilling and sampling are available (more),
- A GeoProbe Case History in Groundwater Recharge Zone (more)
- Sampling with GeoProbe (more)
- Unified “Soil” Classification System and other systems (more)
- Decontamination of GeoProbe activities (more)
- Sediment Characteristics Classifications (more)

Drilling, Sampling, Coring, and Monitoring Well Construction, Monitoring and Testing

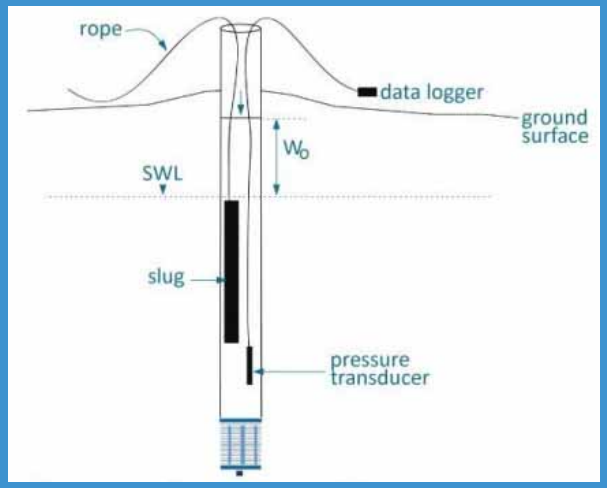
- EPA Monitoring Well Construction Methods (more)



- USGS Monitoring Well Testing of Hydraulic Conductivity (more)

Drilling, Sampling, Coring, and Monitoring Well Construction, Monitoring and Testing

- USGS Monitoring Well Testing of Hydraulic Conductivity (more)



Slug Testing Method

REFERENCES

ASTM D4044, *Standard Test Method (Field Procedure) for Instantaneous Change in Head (Slug Tests) for Determining Hydraulic Properties of Aquifers*. ASTM 04-08, Soil and Rock.

ASTM D4104, *Standard Test Method (Analytical Procedure) for Determining Transmissivity of Nonleaky Confined Aquifers by Overdamped Well Response to Instantaneous Change in Head (Slug Test)*, ASTM 04-08, Soil and Rock.

ASTM D5785, *Standard Test Method (Analytical Procedure) for Determining Transmissivity of Confined Nonleaky Aquifer by Underdamped Well Response to Instantaneous Change in Head (Slug Test)*, ASTM 04-09, Soil and Rock.

ASTM D5881, *Standard Test Method (Analytical Procedure) for Determining Transmissivity of Confined Nonleaky Aquifer by Critically Damped Well Response to Instantaneous Change in Head (Slug Test)*, ASTM 04-09, Soil and Rock.

ASTM D5912, *Standard Test Method (Analytical Procedure) for Determining Transmissivity of an Unconfined Aquifer by Overdamped Well Response to Instantaneous Change in Head (Slug Test)*, ASTM 04-09, Soil and Rock.

Bower, Herman, 1989. *The Bower and Rice Slug Test – An Update*. Ground Water, Vol. 27, No. 3, pp 304-309.

Bower, H., and Rice, R.C., 1980. *A Slug Test for Determining the Hydraulic Properties of Tight Formations*. Water Resources Research, Vol. 16, No. 1, pp 233-238.

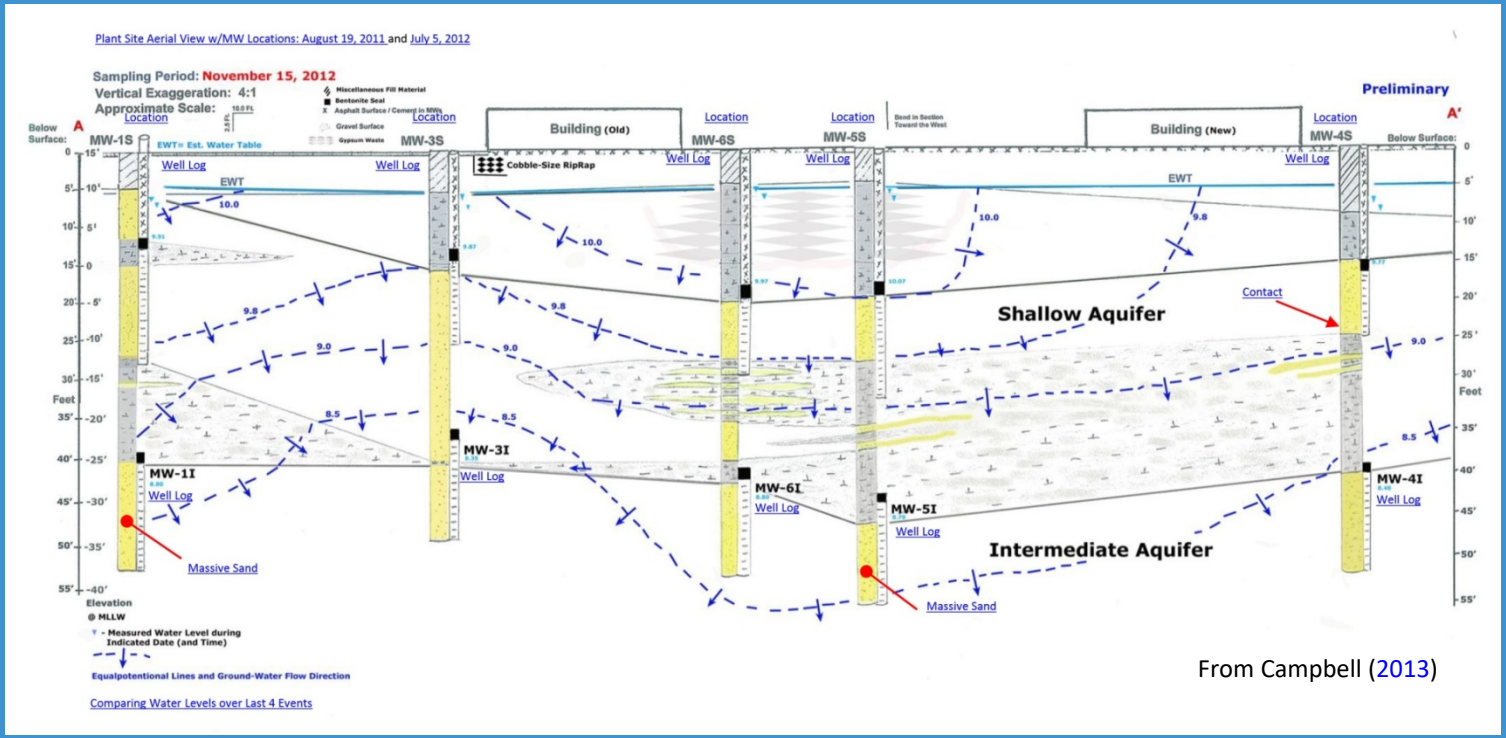
Cooper, H.H., Bredehoeft, J.D., Papadopulos, S.S., 1967. *Response of a Finite-Diameter Well to an Instantaneous Change in Water*. Water Resources Research, Vol. 3, No. 1, pp 263-269.

Ferris, J.G, and Knowles, D.B., 1964. *The Slug-Injection Test for Estimating the Coefficient of Transmissibility of an Aquifer*, from Methods of Determining Permeability, Transmissibility and Drawdown, compiled by Ray Bentall. Geological Survey Water-Supply Paper 1536-I, U.S.

Additional ASTM References (**more**).

Drilling, Sampling, Coring, and
Monitoring Well Construction, Monitoring and Testing

Application of Sediment Classification Systems and Use of Monitoring Well Data to Determine Groundwater Flow Rate and Direction



From Campbell (2013)

To Active PDF of Above Figure (here) Note: When clicking on links within, change broken URL from: /Downloads/ to /downloads/.

To Remote Continuous Groundwater Monitoring (here)

To Arsenic Monitoring Records (2011-2015) – (here)

Drilling, Sampling, Coring, and
Monitoring Well Construction, Monitoring and Testing

Final Note: For students who have produced a thesis or dissertation that reflect unusual subsurface geological conditions, we encourage you to publish your findings in the TPG or other journals (more).

If you would like to keep up on employment issues, see (here) and (here), the latter involving the need for geologists over the decades ahead to apply their skills to off-world geological conditions in asteroids, the Moon, etc.

If time permits, Questions?

Should you have further questions after GeoDayz - 2018, feel free to contact either Jeff Sammons of Hydrex, or Henry Wise or Michael Campbell via the AIPG-TX.org.

We trust you will find the rest of the GeoDayz program of interest and helpful.

XXX