

Wednesday, March 11, 2020

HGS Environmental & Engineering Dinner Meeting

New Location: Craft Republic Houston • 11470 Westheimer Rd.
Social Hour 5:30–6:30 p.m.
Dinner 6:30–7:30 p.m.

New Cost: \$35 Preregistered members; \$40 non-members/walk-ups

To guarantee a seat, pre-register on the HGS website & pre-pay by credit card.

Pre-registration without payment will not be accepted.

Walk-ups may pay at the door if extra seats are available.

If you are an Active or Associate Member who is unemployed and would like to attend this meeting, please call the HGS office for a discounted registration cost. We are also seeking members to volunteer at the registration desk for this and other events.

David Bardsley, PG

Ellingson-DTD

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Horizontal Well Used for Coal Ash Basin Dewatering

Coal combustion residuals (CCRs), or coal ash, are a byproduct of burning coal. The ash has a variety of constituents including silicon, iron, and aluminum oxides along with trace amounts of heavy metals such as arsenic, selenium, mercury, boron, and chromium. Power plants are the main generator of CCRs and normally the ash is beneficially used or stored onsite in landfills or impoundments.

According to the Environmental Protection Agency, there are over 1,000 active coal ash sites in the United States. Many coal ash basins will require dewatering before remediation and/or closure activities can occur. This presentation details the design, construction, and results of a 650-foot long dewatering well installed in a 9-acre closed ash basin using horizontal directional drilling methods. The CCR materials at the site were characterized as fly ash (10 – 100 μm) and bottom ash (5 – 38 mm). Design challenges included well screen and casing selection and drilling/installation methodology. Well installation challenges included geometry of the landfill and unexpected site conditions encountered during well completion.

Once installed, the horizontal well performed better than anticipated. The level of water in the basin was drawn down by ~18 feet in less than four months and CCR-related constituents in the surrounding groundwater declined considerably. ■

Biographical Sketch

DAVID BARDSLEY P.G. has over thirty-five years of environmental drilling experience working in a variety of settings across the United States. Mr. Bardsley earned a Bachelor of Science degree in Geology and Geophysics along with a Communications Minor (1984) from the University of Missouri-Rolla. He started his career as a drill rig helper advancing through various technical and managerial positions in both small and large drilling companies. He was an early leader in the use of horizontal drilling to solve environmental and water supply challenges and has authored/co-authored over twenty papers on horizontal environmental drilling methodology. David has been directly involved in the design and oversight for the installation of hundreds of horizontal environmental and water supply wells.



He is a licensed well driller in Texas, Arizona and Louisiana and holds RG/PG certifications in Texas, Missouri, Louisiana and Tennessee. Mr. Bardsley is a strong proponent of education and has served as a short course instructor at Battelle environmental conferences and University of Wisconsin Madison along with presenting environmental drilling training to students at University of Arizona and University of Louisiana Lafayette.