

July 2009 MEETING

Wednesday, July 15, 2009

TECHNICAL PROGRAM

Construction Dewatering

Speaker: David Giles, President of TerraFirma Earth Technologies, Houston TX. Tel. No. 866-379-3478.

PRESENTATION SUMMARY

To an audience of about 65, at the HESS Club, Mr. David S. Giles, who has a degree in Geology, gave a slide presentation titled "Construction Dewatering Means and Methods".

Mr. Giles' presentation discussed the various construction dewatering methods that are utilized today, as well as detailing the analysis that goes into the planning and executing a successful dewatering project. The presentation began with an overview of construction dewatering and provided examples of the various requirements of a dewatering program.

The presentation began with a definition of dewatering, which is basically the lowering of a water table below the work elevation, and to intercept the migration of ground water seepage. Next, the reason to dewater. This is basically to keep the work site free of significant ground water so that work can be performed, and the consequences that can develop, if dewatering is not performed.

A large portion of the presentation involved the design of the dewatering program, and the conditions that determine the type of procedure that must be implemented. This is basically determined by a boring log, and the experience of those that implement this type of work. This design is necessary to determine the method of dewatering.

Mr. Giles informed us that shallow excavations can be accomplished with a dewatering program by top vacuum pumps in well points spaced 6 to 9 ft. apart, which can draw the water table down 15 ft., sometimes as much as 20 ft., and are applicable even in low permeability soils. Deeper dewatering requires large submersible pumps, usually used for 25 to 100 ft depths, but are only good in higher permeability strata. In deep wells where the permeability of the strata is low a more complex Eductor system with bottom vacuum pumps can be used. In extreme cases, cut-off walls are required, along with a dewatering program inside the work area.

A case study of a dewatering program for a pipeline crossing, across the Rio Grande River near Albuquerque, New Mexico was explained in detail. The dewatering of the riverbed was done so that parallel water pipelines could be installed below the elevation of the existing river bed. The excavation to be dewatered below the river measured 1100 x 110 x 26 ft. deep below the riverbed. Mr. Giles' company pulled the water table down 5 feet below the bottom of the excavation using 12" deep wells inside 30" gravel-packed bore holes spaced 50 to 75 ft and collecting to a 6" header pipe.

Mr. Giles' slide presentation can be downloaded from TerraFirma's website by [clicking here](#)

