

August, 2009 MEETING

Wednesday, August 12, 2009

TECHNICAL PROGRAM

Grouting Materials and Applications: Research at CIGMAT

Speaker: Dr. C. Vipulanandan, Ph.D., P.E., Chairman and Professor of Civil Engineering and director of CIGMAT and THC-IT at the University of Houston. Tel. No. 713-743-4278

PRESENTATION SUMMARY

To an audience of about 65 at the HESS Club, Dr. Vipu, who has authored or co-authored over 150 papers on grouting and soils gave a slide presentation on the latest research and usages of grouting. He said CIGMAT (located at University of Houston, Houston, Texas) has been developing and investigating the performance of various grouting materials used in wastewater facilities, soil stabilization and offshore applications for over 25 years. The CIGMAT Laboratory is the only grout testing laboratory recognized by the Environmental Technology Verification Program (ETV) supported by the EPA.

Dr. Vipu said cementitious and polymeric grouts are being increasingly used in new construction and maintenance of deteriorating civil

infrastructure projects. Grouts are used in soil stabilization, sealing joints in water pipelines and in controlling leaks in wastewater systems and retaining walls. Grouting materials are also used in the annular space in the Pipe-in-Pipe (PIP) configuration in deep-water oil production where it must be a good insulator. In Geothermal Heat Pump systems (GHPS), the grout material has to promote the heat transfer between the heat exchanger and the surrounding media and hence must be a good conductor. Along with the thermal conductivity aspect, these applications demand higher bonding shear strength from the grout. Hence, there is interest in developing grouting materials with varying mechanical, thermal and bonding properties for onshore and offshore applications.

Dr. Vipu said that grouting has been shown to be effective in a wide variety of applications. Grouts can be custom tailored to fit most any situation from new construction to repair of existing materials. Size of the repairs varies from small scale residential to large industrial. Behavior of grouts under various application conditions have been investigated and quantified. Groutability of soils has been investigated. Behavior of the grouted sands has been modeled. Bonding properties of grouts with various substrates have been investigated. Performance of grouts under various applications has been verified using model tests.

To view Dr. Vipu's previous FPA presentations, click one of these links:

May 2008 - [Coatings and Sealers for Protecting Concrete Facilities](#)

June 2005 - [Designing, Constructing and Testing ACIP Piles in Texas Gulf Coast Soils](#)



Pipe Joint Tests



Grout Test



Hydrostatic Test



Load Test