Trenchless Technology Center Newsletter

DECEMBER 2015

TTC Auger Boring School 2015

The TTC held the first auger boring school at the Louisiana Tech campus, Ruston, La., this fall. Auger boring is a proven and relatively inexpensive technique to drill horizontal bores and install pipelines. Recognizing that this trenchless method has not been receiving the recognition that was so visible in the 1980s and early 1990s, the TTC set to develop a permanent training facility and develop a training program that would be offered recurrently.

The school was an intensive five-day course, from Oct. 12-16, consisting of both classroom sessions and hands-on practical sessions. The course covered various aspects of auger boring projects from design to construction and safety. A total of 21 students enrolled, mainly contractors from across the United States (Alaska, Oregon, Illinois, Indiana, Texas, Louisiana, Mississippi, Minnesota, Ohio, New Jersey, and New York). The registration fee was $1,595 per student. About half students took advantage of early registration discount ($200), which was offered until four weeks before the school started.

Classroom lectures were prepared and instructed by some of the best experts in auger boring in the United States, including renowned Leo Barbera (Horizontal Holes), Brian Dorwart (Brierly Associates), Dan Liotti (Midwest Mole), Dan Heath and Jimmy Lee (American Augers), Frank Canon (Baroid Industrial Drilling Products), Tony Barbera (Barbco), Jessada Sunhachawi (Thompson Pump), Trevor Gonterman (Permalok) and Babs Marquis (McMillen Jacobs Associates).

Practical sessions were held at the TTC field testing site located behind the TTC National Trenchless Technology Research Facility at Louisiana Tech South Campus. A state-of-the-art outdoor facility was constructed for the school, consisting of one large pit that housed two launching pads with auger boring machines and a large soil box consisting of sections with different soil materials. The height of the soil box was 4 ft and it was easy to observe the surface above the bore head while boring was taking place. The pit was 4 ft deep and easily accessible. Two auger boring machines were provided by American Augers and Barbco, and the steel casings by American Augers and Permalok/Northwest Pipe. Boring through different soil types was explained and demonstrated. In addition, one temporary pit was excavated and used to demonstrate a new electric auger boring machine by American Augers, shown for the first time at the ICUEE show in Louisville, Ky., just prior to the school.

TTC Auger Boring School 2015: Students in the pit during hands-on practical session.

Sponsors of TTC Auger Boring School were American Augers, Baroid Industrial Drilling Products, Barbco, Permalok, Northwest Pipe Co., Thompson Pump, Brierley Associates, Midwest Mole, and McMillen Jacobs Associates. A local contractor, Lincoln Builder Inc. provided complimentary labor for the construction of the outdoor facility, in support of Louisiana Tech.

The school will continue to be offered annually or as needed to contractors, engineers, public utility personnel and others interested in the auger boring method of pipe installation.

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FEATURED TTC RESEARCH PROJECTS

Performance Testing of Internal Pipe Seals. The use of internal pipe seals may be a cost-effective alternative to full length pipe lining or pipe replacement when only spot repairs are required. The seals consisting of a stainless steel sleeve and a rubber gasket are suitable for repairs in gravity sewer pipes, as the materials are corrosion resistant and the seals can be installed easily and quickly, especially in low flow conditions, eliminating the need for bypass pumping.

The TTC performed external pressure testing of the seals to evaluate their leak sealing performance at certain pressures and burst testing to evaluate their struc-

Burst pressure testing of specimens with installed internal seals.

Top: View at the gap of testing specimen sealed with the internal seal. The rubber gasket is visible through the gap. Bottom: View inside the testing specimen. The stainless steel sleeve is pressing the rubber gasket against the inside wall of the specimen.

tural strength. A total of three test specimens were tested. Each specimens consisted of two short steel tubes welded together, with gap of varied length (0.19 to 0.41 in.) applied at different clock positions. The internal seal was applied to seal the gaps. The testing showed that the seals held twice the design pressure for more than two hours, with only minor leaks occurring at the end seals fabricated for testing. For burst testing, two rigid rings were welded to the ends of each testing specimen and the specimen was next encapsulated inside a larger external steel pipe. The external pressure was gradually increased until the lock of the stainless steel sleeve would break. The seals could hold pressure up to 65 psi.

Manhole cover under testing in vertical actuator.

This research was a collaborative effort between EPA, Battelle Memorial Institute and the TTC.

Testing of Composite Manhole Covers Subject to Simulated AASHTO H-20/HS-20. Light-weight and corrosion resistant composite manhole covers (high-density polyethylene, non-metallic) are an alternative to traditional cast-iron manholes. The TTC performed testing of Composite Manhole Covers manufactured by BlueGreen Municipal Solutions from Houston, to evaluate the strength of these covers and their ability to withstand traffic loads. The covers were subjected to simulated AASHTO H-20/HS-20 load using the 300 kip vertical actuator. AASHTO Designation for H-20 and HS-20 Highway Traffic Service specifies Wheel Load 16,000 lbs and Proof Load 40,000 lbs. The tested covers carried peak load between 112,000 and 140,000 lbs at the break, which is more than 2.5 times more than AASHTO Proof Load (between 2.8 and 3.5 times).

Industry Advisory Board Meeting Holds Annual Meeting

The TTC hosted its annual Industry Advisory Board meeting in Ruston, La., on the campus of Louisiana Tech University from Oct. 21-23. More than 35 participants, including IAB members and TTC staff, faculty and students attended the meeting. Selected ongoing or completed research projects were presented. TTC also brought into the spotlight some researchers that have potential for innovations in trenchless products or services. TTC welcomed NASSCO (Lynn Osborn) rejoining the TTC industrial Advisory Board.

TTC Industry Advisory Board in Ruston, La.

Municipal Forums Update

Four Municipal Users' forums were held this fall: in New York, Sept. 15; Columbus, Ohio, Nov. 11; Sarasota, Fla., Nov. 17, and Northwest (Portland, Ore./Vancouver, Wash.) Dec. 3. The Sarasota forum was the first TTC forum in this area and was very well received. The Northwest forum, exceeding 130 participants continues to be both the most attended TTC forum and the forum with most municipal participation (90 percent) representing different agencies in the area. The forum in Springfield, Mass., has been postponed until early 2016 (date TBD). Gina Snyder, EPA - New England Assistance and Pollution Prevention, will be a keynote speaker and talk about "Condition Assessment for Permit Compliance."

The forums are designed as one day programs with low participation cost ($55 for municipal participants). Participants can earn CE units for attending (a $15/certificate fee applies). Online registration for the forums has been done through Eventbrite site, link available at http:\ttc.latech.edu.

The most current information about location/dates of forums can be found at any time on the TTC web site: *http://ttc.latech.edu.* Contact person: Jadranka Simicevic, (318) 257-2744, *jadranka@latech.edu*

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Trenchless Technology Center *Newsletter*

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