From the Director

The winter weather here in mid-Michigan is true to form: cold and unpredictable, so we decided to pack up and leave for a bit. The CUIRE research team traveled to UCT in Houston at the end of January for some UCT education, and man did they get it! The three days of educational sessions mixed in with trade exhibitions left little time for rest. Many thanks go out to Robert Carpenter and the whole UCT staff for producing an excellent event for the industry.

Also while in Houston, CUIRE hosted two certification schools, one for Trenchless Technology Engineer and Inspectors, and another for Horizontal Directional Drilling. The schools were very successful thanks to the excellent participants and speakers present.

CUIRE will be holding another Horizontal Directional Drilling workshop on March 7-8 in Novi, Michigan.

Many thanks to CUIRE board member Lori Burgett at Kokosing Construction Company for sharing their interesting project highlights with us. As always, if you or your company has news or projects that you would like to share with the CUIRE community, please send them to simps117@msu.edu and we’ll do our best to include them in the next issue of Currently @ CUIRE.

It is with deep regret that I inform you of the loss of Dan Hanson, CUIRE board member and a frequent speaker at our workshops. Dan’s contribution to the industry is significant, and he will be missed.

I hope you enjoy the second issue of Currently @ CUIRE. As always, I am happy to take suggestions regarding our newsletter content.

Best wishes for the coming months,

Mohammad Najafi, Ph.D., PE
Director, CUIRE
In May of 2003, Kokosing Construction Company, Inc. was awarded a $5.3 million dollar project to install a corrosion protective lining system in 7,500 lf of the 120" Scioto Main Sanitary Sewer in Columbus, Ohio. The City of Columbus, in conjunction with the US Army Corps of Engineers' Huntington District, selected Linabond’s® patented co-lining system as the project to be installed. This system, which had never been utilized in Ohio or by Kokosing's personnel prior to this project, consists of a multi-layered liner composed of a high-solids epoxy primer, spray-applied structural polymer, and semi-rigid PVC sheets. These components when applied together form an impenetrable barrier, which resists hydrogen sulfide gas that attacks sanitary sewers constructed with reinforced concrete pipe.

Prior to beginning lining work inside the pipe, Industrial Waste Control, Inc. of Youngstown, Ohio prepared the interior of the pipe by water blasting the surface with pressures up to 20,000 psi. The two-fold purpose of the surface preparation was to abrade the pipe’s surface and remove all laitance and contaminants from the concrete. Further preparatory work involved Kokosing's personnel undergoing extensive classroom training and on-site test applications before installing the lining system.

As the lining began, the crew worked diligently to provide the quality required by Linabond's® on-site representative while trying to improve its efficiency and productivity performing work of a nature they had never before encountered. Kokosing's management team encouraged all members of the project team to continually challenge the process of their newly learned tasks to find new ways to improve safety, quality and productivity on the project. After the first week of lining, it was evident to all parties involved that Kokosing was up to the challenge of undertaking a new line of work. The project was successfully completed on time and within budget in May of 2004.

Kokosing Construction Company: Scioto Main Sanitary Sewer Lining System

Project Details:
- 5,088 lf of 300° Lining 120" RCP sanitary sewer
- 2,402 lf of 270° Lining 120" RCP sanitary sewer
- 636 ea 60° Invert Lining at RCP joints
- 300 ea 90° Invert Lining at RCP joints
- 195,500 sf of Total Lining Area
- Installation of 120" Sluice Gate
Dan Hanson, age 54, of Canton, Michigan. Owner of Hanson Engineering P.C. Passed away February 12, 2005. Devoted husband of Sharon. Loving father of Teri and Mark. Beloved son of Theresa Hanson-Waldie. Loving brother of Phyllis Hanson and Mary Jo (Daniel) Clark. Dan is also survived by many nieces and nephews.

He graduated from Michigan State University with a BS in Civil Engineering and MS in Civil Engineering with a Geotechnical Major.

He was very active in the community and with his children while they were growing up. He supported their sports teams by coaching and volunteering his time. He also helped the local schools by donating equipment and donating design services whenever a problem arose.

Dan founded Hanson Engineering, P.C. in 1991. He was a contractor's engineer and was always very mindful of their timelines and construction problems. He was a great problem solver and many clients came to him for answers to tough problems. Dan's specialties include analyses and evaluations related to soil mechanics and foundation studies, underground engineering including the design of tunnels and underground support systems for shafts and excavations, design and evaluation of deep foundation systems, design of marine structures and shoreline stabilization projects, evaluation of groundwater conditions, design of dewatering and groundwater control systems and impact mitigation analysis, evaluation of dam and embankment stability and design of repair and stabilization techniques, consultation on construction techniques and litigation assistance.

Dan was registered as a Professional Engineer in 14 states, and had over 30 years experience in the industry. He was a good teacher to his staff and a wealth of information for his clients. Always willing to share his knowledge, he gave numerous seminars to the MDEQ, universities, underground construction associations and Civil Engineering associations. He was a board member of CUIRE since 2002.

The CUIRE hosted two certification schools in Houston in conjunction with the UCT conference. The first, held on January 23-24, was a general school for Trenchless Technology Engineering and Inspector Training and Certification. The second, held on January 27-28, was a more specific school for Horizontal Directional Drilling (HDD). Each school was taught by several CUIRE board members, each bringing their area of expertise to share with the attendees. Participants attending the classes were of various backgrounds with a variety of experience, which made for a great atmosphere. Upon conclusion of the school, participants were issued a certificate of completion with 16 professional development hours and 1.6 Continuing Education Units from Michigan State University. In addition, an inspector certification card was mailed to students successfully passing the course exam.

Another HDD course will be held on March 7-8, 2005 in Novi, Michigan. Topics covered in Novi will include an introduction to trenchless technology and horizontal directional drilling, safety issues, soil characteristics and boring operations, drilling fluids, bore planning and rig setup, tracking and locating, Michigan specifications and permit requirements, pipe loads, and job management. There is still time to register if you would like to attend. For registration information, please contact Cathy Morrison at morris12@msu.edu, or by calling 517-432-2096.

In Loving Memory: Dan Hanson

Dan Hanson, age 54, of Canton, Michigan. Owner of Hanson Engineering P.C. Passed away February 12, 2005. Devoted husband of Sharon. Loving father of Teri and Mark. Beloved son of Theresa Hanson-Waldie. Loving brother of Phyllis Hanson and Mary Jo (Daniel) Clark. Dan is also survived by many nieces and nephews.

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Abstract: With an aging underground infrastructure, ever-encroaching population areas and increasing economic pressures, the burden on the municipal agencies to efficiently prioritize and maintain the rapidly deteriorating underground utilities is increasing. Accurate forecasting of pipeline performance is essential for prioritizing and risk management of the underground infrastructure. The essential function of a pipeline asset management system is to consider the pipeline maintenance and improvement needs and to arrive at the program of optimal rehabilitation, replacement, and maintenance. Hence, the development of a pipeline condition prediction model will be indispensable to the concerned authorities in prioritizing the care and rehabilitation of pipelines, and in pipeline asset planning and management. This research developed an Artificial Neural Network (ANN) model for predicting the condition of sewer pipes based on the historic condition assessment data. The neural network model was trained and tested with acquired field data. The developed model is intended to aid in identifying the distressed segments of the overall sewer pipeline network using a set of known input values. These can then be directed toward assessing and prioritizing the maintenance measures needed to prevent accelerated future distress and eventual failure of sewer pipes.

Request for Help with Research Project

Safety and Personality in Trenchless Construction

Suzie von Bernuth is a graduate student working with CUIRE. She is doing research for her thesis, which will explore the correlation between personality and safety awareness in trenchless construction workers. At this preliminary stage, Suzie is looking for industry input on the safety hazards that are encountered by trenchless construction workers. Suzie requests that anyone who has interest or concern in the area of trenchless construction safety contact her via email. She is interested in information pertaining to pipe ramming, pipe jacking, auger boring, directional drilling microtunneling and utility tunneling. She is looking specifically for major accident causing issues that result in personnel injury. Suzie would appreciate any input or opinion you may have and this data/information will be the basis for her thesis research. Whether you are a contractor, manufacturer or aficionado, Suzie would like to hear from you! Please email her at vonbern2@msu.edu. Thank You!

CUIRE Contact Information

Please contact us with any concerns, comments, compliments, or suggestions that you might have. We are also always looking for new Board Members!

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This comprehensive reference covers the latest techniques and materials for high-demand trenchless technology methods. Offering practical procedures, details on new tools and techniques, and analysis methods that can save pipeline owners, municipalities, and utilities thousands of dollars in costs and weeks of surface disruptions, this valuable resource offers dig-free answers that will help planners and engineers:

- Locate and assess the condition of existing pipelines
- Plan, design, and implement trenchless construction and renewal projects
- Manage, assess risks, and prioritize underground pipeline and utility assets
- Choose from a number of useful trenchless technologies
- Apply field-tested analysis to projects
- Manage social costs, environmental concerns, and safety issues
- Get need-to-know answers on soil compatibility of trenchless construction
- Discover the latest pipeline advances in equipment, methods, and materials for water, wastewater, gas, and oil applications
- Learn trenchless construction methods, such as microtunneling, horizontal directional drilling, the pilot tube method, pipe ramming, horizontal auger boring, pipe jacking, and utility tunneling
- Learn pipeline renewal methods, such as cured-in-place pipe, pipe bursting, sliplining, close-fit pipe, underground coatings and linings, panel linings, sewer laterals, localized repairs, modified sliplining, thermoformed pipe, and manhole renewal
- Get practical answers from case studies and easy-to-read tables and charts

From need-to-know information on construction methods to design guidelines and regulatory help, *Trenchless Technology* is a priceless working tool for engineers tackling the dual challenges of aging infrastructures and new environmental mandates. For ordering information, please visit our website at www.cuire.org.

**Report from ASCE Pipe Bursting and Pipe Ramming Task Force**

The ASCE Pipe Bursting and Pipe Ramming Task Force is busy working on preparing the ASCE Manual of Practice on Pipe Bursting. According to ASCE "a manual or report consists of an orderly presentation of facts on a particular subject, supplemented by an analysis of limitations and applications of these facts."

The task committee first met on July 31, 2004, in conjunction with ASCE Pipeline 2004 in San Diego. During this meeting a tentative table of contents was prepared and an aggressive schedule of completing the manual by August 2005 was selected. The second meeting was held on October 12, 2004, in conjunction with WEF Tech Conference in New Orleans where the task committee refined the table of contents and prepared several sections. The third meeting was held on January 26, 2005, in conjunction with UCT 2005 in Houston. In this meeting, the task committee was divided into several subcommittees and charged with preparation of each section. The sections which will be included are General (including introduction and background, history and related documents), Planning Phase, Pipe Materials, Design and Preconstruction Phase, Construction Phase and References. The subcommittees will have to complete their assignments by March 24, 2005. The upcoming meeting which will be held on April 26, 2005, in conjunction with No-Dig 2005 in Orlando will review each section and prepare the final draft. The final version of the manual will be evaluated and approved during the meeting schedule in August in conjunction with ASCE Pipeline 2005 in Houston. After this meeting, the manual will be sent for final review of blue ribbon committee and ASCE Pipeline Executive Committee. For more information on the manual and/or to contribute on its preparation, contact task committee chair, Mohammad Najafi at 517-432-4937 or Najafi@msu.edu
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If you would like to join our board, please contact us! Several benefits come with membership, including a voice in the future of our research. Please contact Mohammad Najafi at najafi@msu.edu or by calling 517-432-2096. Thank you!
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