

C U R R E N T L Y @ **C U I R E**

CENTER FOR UNDERGROUND INFRASTRUCTURE RESEARCH AND EDUCATION

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 If you have a story about your products, services, or projects, please e-mail it to us and we will do our best to include it in future issues of **Currently at CUIRE**.

2009 Fall CUIRE Board Members

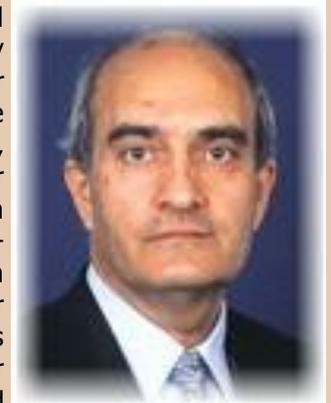
The CUIRE Board is the backbone of our organization, and we would like to recognize them for all their support and dedication.

Chris Brahler	TT Technologies, Inc.
Ralph Carpenter	AMERICAN Ductile Iron
Robert Carpenter	Underground Construction
George Davis	Missouri DOT
Mark Dionise	Michigan DOT
Siggi Finnsson	Digital Control, Inc.
Troy Freed	WRSCOMPASS
Bruce Kuffer	Plastic Pipe Institute
Dan Liotti	Midwest Mole, Inc.
Joe Lundy	Hanson Pipe & Precast
John Matthys	UT Arlington
John Morgan	CANTEX
Mohammad Najafi	UT Arlington
Gary Natwig	3M Water Infrastructure
Lynn Osborn	Insituform Technologies, Inc.

From the Director

Dear Colleagues and Friends,

As 2009 draws to a close, I would like to wish you a happy holiday season and thank you for your continued support to CUIRE, the only known industry, government, university association to cover research, education, and outreach services in all areas of underground infrastructure construction and renewal. We appreciate your contributions to CUIRE at this challenging times, and try our best to advance the science and disseminate new technological breakthroughs in the area of civil and construction engineering.



This newsletter provides you with updates on some of our activities. We would like to invite you to attend a special CUIRE meeting on Friday, May 28, 2010, 8:00 AM – 4:00 PM, in CUIRE headquarters at UT Arlington. During the meeting, we will update you on our past and current activities, and seek your feedback for future plans and directions. This meeting will be in conjunction with 50th anniversary of UT Arlington College of Engineering. During the meeting we recognize those of you who have been instrumental in foundation and growth of CUIRE. Please email me any suggestions for the meeting agenda.

On behalf of our students, associate faculty and all of us at CUIRE, thank you again and we look forward to be working with you in the coming year!

Warm Regards,



Mohammad Najafi
 CUIRE Director
najafi@uta.edu

Jim Rush	Benjamin Media Inc.
Jim Scott	Solution Resource
Mike Sechelski	Northwest Pipe Company
Lawrence Slavin	OPCS
Fred Tingberg, Jr.	Lanzo Lining Services, Inc.

For More Information Regarding CUIRE: www.cuire.org

CUIRE Sponsors Pipelines and Trenchless Technology Conference in Shanghai, China

On October 19th through 21st, 2009, Center for Underground Infrastructure Research and Education (CUIRE) at the Department of Civil Engineering sponsored the first International Conference of Pipelines and Trenchless Technology (ICPTT) held at the Regal International East Asia Hotel in Shanghai, China, (www.icptt.org). CUIRE, under a grant from the U.S. National Science Foundation (NSF), joined forces with the Pipeline Division of American Society of Civil Engineers (ASCE), the China Society for Trenchless Technology, and China-U.S. Joint Center for Trenchless Research & Development (CTRD), to provide a world forum for 80 oral presentations and poster discussions of 227 papers published in the ICPTT Proceedings. The conference theme was "Advances and Experiences with Pipelines and Trenchless Technology for Water, Sewer, Gas, and Oil Applications." This conference was a resounding success with more than 350 participants and over US \$7 millions business transactions at this first ever historic event in China. Dr. Mohammad Najafi, Assistant Professor of Civil Engineering and Director of CUIRE, was the co-chair of the conference and also technical co-chair and editor. During ribbon cutting ceremonies, Dr. Najafi introduced the inaugural launch of the Pipeline Division's new quarterly Journal of Pipeline Systems (JPS) in early 2010 and requested submission of possible Journal papers from ICPTT participants.

The technical program was a balance of pipeline oil, gas and water/sewer related scientific and practice presentations focusing on asset management, geographic information systems, corrosion analysis, planning, design, and construction, hazard inspection, and risk management. "The evolution of trenchless products, processes, and projects and critical infrastructure issues were a highlight of the many speakers" says Najafi.



The conference started on Monday, October 19, 2009 with two technical workshops consisted of two sessions; one on New Pipeline and Trenchless Technology Advances and the second on Pipeline Rehabilitation. More than 150 pipeline professionals from all over the world attended these workshops to hear a number of instructors present on these two important topics. Before and after the conference, U.S. delegates visited two leading manufacturers of HDD drills in China, Drillto and Gudeng, and also the Shanghai Letong Pipeline Engineering Co. Ltd. The visitors were all very impressed on these companies' rapid development, and high quality products and services. ICPTT Proceedings were published through the ASCE Publications and are available from ASCE Pipeline Division Website at www.pipelinedivision.org.

CUIRE to Offer Three Trenchless Technologies Certification Schools

CUIRE will offer three trenchless technologies certifications schools on Sunday and Monday, January 17-18, 2010 in Tampa, Florida, in conjunction with Underground Construction Technology (UCT) 2010. The schools that will be offered are "Advanced Horizontal Directional Drilling (HDD) School", "Trenchless Technology Pipe Lining, Renewal & Replacement Methods", "Trenchless Technology New Construction Methods". "Advance HDD School" will present planning, contract and specifications, alternative project delivery methods, bore planning and layout, pipe load calculations, safety issues, steering and accuracy, gravity pipe applications, site and geotechnical investigation requirements, inspection and QA/QC, drilling fluids, tracking and locating, and new technologies. "Trenchless Technology Pipe Lining, Renewal & Replacement Methods" will present an overview of different pipeline renewal & replacement technologies, including, planning, design, and construction concepts, contracts, specifications and renewal inspection issues, application assessment,

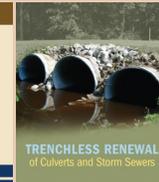
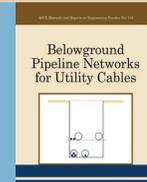
alternative project delivery methods, old & new pipe site investigations, QA, QC, new equipment & methods, and case studies. "Trenchless Technology New Construction Methods" will present an overview of different new installation technologies, planning, design, and construction concepts, contracts, specifications and inspection issues, application assessment, geotechnical and site investigations, QA/QC, alternative project delivery methods, new equipment & methods, and case studies.

At UCT 2009 held in San Antonio, CUIRE had successfully conducted two schools: "Advanced HDD School" and "Horizontal Auger Boring and Pipe Ramming School". Technical and registration information are available at: www.cuire.org and www.uctonline.com.



New Manuals from ASCE

ASCE has published five manuals of practice. The published manuals include: "Manhole Inspection and Rehabilitation (MOP 92), Second Edition" edited by Joanne B. Hughes, "Buried Flexible Steel Pipe: Design and Structural Analysis (MOP 119)" edited by William Robert Whidden, "Inspecting Pipeline Installation (MOP 117)" edited by T. J. Hovland & Mohammad Najafi, "Trenchless Renewal of Culverts and Storm Sewers (MOP 120)" edited by Lynn Osborn, and "Belowground Pipeline Networks for Utility Cables (MOP 118)" edited by Lawrence M. Slavin. For order information please visit <http://pubs.asce.org>.



RESEARCH PROJECTS

CUIRE Receives a Second Phase to Existing Research Grant from 3M

With U.S. water infrastructure expenditures expected to reach billions of dollars annually, 3M in cooperation with the Center for Underground Infrastructure Research & Education (CUIRE) at the Department of Civil Engineering, is developing a new water pipe renewal product. The first phase of this research contract was awarded in March 2009, and the second phase was announced on July 31, 2009. The cooperation between 3M and CUIRE includes development of design and construction guides, specifications, short term and long term testing and field evaluations for the new spray-on structural enhancement product in final stages of development. The contract will be awarded in different phases, and expected to reach hundreds of thousands of dollars in multiple years. Dr. Najafi is the principal investigator of this important research program.

Testing of Bulldog Restraint Joint System for Trenchless Applications

In past year, CUIRE has conducted pipe testing for different pipe manufacturing companies at its new laboratory facility at the University of Texas at Arlington. Tests for various strength parameters of different pipes and their joints have been conducted. Bulldog Restraint Joint System (BRSJ) for PVC pipes are being tested for use in trenchless applications. PVC pipes assembled with BRJS have been tested for axial tensile loads. Results and reports are available at www.cuire.org. The tests will continue with axial tensile tests of larger diameter pipes and also simultaneous bending and axial loads.



Preparation of a Manual of Practice for Potable Water Pipeline Renewal Methods

On November 17, 2009, CUIRE hosted the first meeting for preparation of manual of practice at the Civil Engineering Laboratory Building at UT Arlington. The topic of renewing potable water pipelines was brought up at the PINS meeting during the ASCE Pipelines Conference 2009 in San Diego. A task committee was formed to look into writing a Manual of Practice on this topic. Mario Perez (3M) was elected as the task committee chair. Among the attendees of the first meeting were Leonard Assard (Heitkamp), Luc Lupien (Sanexen), Dudley Primeaux II (Primeaux Associates), Jim Scott (Aquapipe), Steve Leffler (Sekisui NordiTube), Ralph Carpenter and Richard Bonds (American Ductile Iron Pipe, Richard made it to Arlington but was ill for the meeting), Lynn Osborn (Insituform), Dr. Mohammad Najafi, Abhay Jain, Mustafa Kanchwala and Trupti Kulkarni (CUIRE), Gary Natwig and Mario Perez (3M). Table of contents for the MOP was discussed and tasks were assigned. The next meeting was proposed to be held at UCT 2010, Tempa, Florida.

Midwest Mole (CUIRE Board Member) Announces a Redesigned Website



Midwest Mole, Indianapolis based leader in trenchless technology, unveils a new company website. The new website will feature industry information, company news and events, with a focus on services that they offer. The 27 year old, family-owned company has grown and changed from a small local firm, to one of the recognized leaders in the boring, jacking and tunneling industry as well as other various trenchless technology services. In June 2009, they announced their rebranding and now they intend to go further by offering an advanced interactive website. The rebranding initiative serves to convey their expanded services and territory, with a commitment to their roots and to the trenchless industry.

The website features a **plan room** for easy access to bidding information, **services** offered with large pictures to view, **About** section highlighting their employee and company story, **Links** to the industry, **news/events** on the company, a **safety** page to offer information on their safety standards and awards, a **photo** gallery that will showcase different services and locations, **request a quote** and **contact** to make contacting them easier, a newsletter sign up section, and view special videos on jobs and events that they have completed. "The company website needed to be more user-friendly and showcase what services we have to offer" said Dan Liotti president of Midwest Mole. "Please visit our website and see for yourself the advanced features it has to offer." (The website was created by MLT Group, located at Rochester, MN).

Pam Salvador Receives 2009 Texas Engineering Foundation Graduate Scholarship

Pam Salvador, a graduate student in Construction Engineering & Management, recently received the 2009 Texas Engineering Foundation Graduate Student Scholarship. The \$2,000 scholarship was well contested, and will be presented to Pam in Fall 2009. Pam received her undergraduate degree from the CE Department. She has been outstanding student in terms of her academic and extra-curricular achievements. Pam's extra-curricular activities included Toastmasters, Chi Epsilon, Tau Beta Pi, SHPE and ASCE. Pam also received various student awards. Pam has been recognized as a good team player as a full time employee at Half Associates.

About Midwest Mole: Founded in 1982 by Len Liotti, Midwest Mole has become an established leader in the trenchless technology industry. Committed to safety, quality and customer satisfaction, their reputation boasts reliable, efficient and state-of-the-art trenchless services. After more than 27 years of service they are still one of the best in their field.

With services ranging from boring and jacking to tunneling and rehabilitation, Midwest Mole is recognized as one of the "Best Places to Work" in Indiana. Their focus on their employees has allowed them to build a staff with more than 450 years of industry experience insuring projects of all sizes are done efficiently, promptly and above industry standards.

For more information on Midwest more please visit www.midwestmole.com or call 1-800-274-MOLE, or e-mail: info@midwestmole.com.

State-of-the-Art Pipeline Methods & Technologies: *Journal of Pipeline Systems Engineering and Practice*

The *Journal of Pipeline Systems Engineering and Practice* reports on a broad range of topics including the planning engineering design, construction, renewal, safety, operation and maintenance asset management, environmental aspects, and sustainability of pipeline systems. An important technical reference for researchers and practitioners from academia, industry, and government, it presents in-depth information on water distribution and transmission systems; wastewater collection systems (gravity and force mains); storm sewers and drainage structures/culverts; oil, gas, industrial, slurry, pneumatic and capsule pipelines; as well as conduit applications for power and communication cables.

Dr. Mohammad Najafi, P.E., the founder and Editor in Chief of this *Journal*, is currently the coordinator of the Construction Engineering and Construction Management Area and Director of the Center for Underground Infrastructure Research and Education (CUIRE) in the Department of Civil Engineering at the University of Texas at Arlington. He has more than 28 years of experience of being a project manager and engineer, researcher, and consultant at numerous multi-million projects, research, and consulting assignments. Dr. Najafi is also a productive writer, who authored books such as *"Trenchless Technology: Pipeline and Utility Design, Construction and Renewal"* and published more than 100 papers and several manuals about trenchless technology.

Forthcoming technical papers include *"Long Range Facility Planning Based on Dynamic Programming for Optimum Combined Cost and Probability Paths"* by Kamal K. Botros, W. J. Tchir, J. F. Henderson, & B. Chmilar, *"A Hierarchical Fuzzy Expert System for Risk of Failure of Water Mains"* by Dr. Tarek Zayed & Hussam Fares, *"Recommendations for Design of Reinforced Concrete Pipe"* by Dr. Ece Erdogmus, & Brian N. Skourup, *"Ring-Reinforced Pipelines: That Moment of Mystery"* by Dr. W. Davis Carrier, III, *"Reliability Analysis of Buried Flexible Pipe-Soil Systems"* by G. L. Sivakumar Basu & Amit Srivastava, and *"Ranking of the Factors Affecting Productivity of Microtunneling Projects"* by Dr. Mohamed Hegab & Dr. Ossama M. Salem.

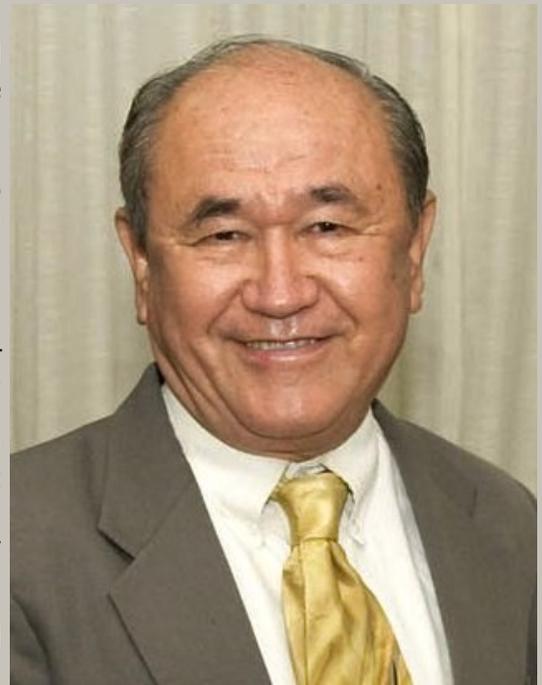
CUIRE Remembers Dr. Henry Liu (1936-2009)

Dr. Henry Liu, president of Freight Pipeline Company in Columbia, MO, passed away Tuesday, December 1. A fatal one-car crash took his life but not his legacy. He will be remembered among those of us who advocate underground freight transportation through research and development as a pioneer in the field.

Dr. Liu had Ph.D. and M.S. degrees in Civil Engineering from the Colorado State University and B.S. in Agricultural Engineering (Hydraulics) from the National Taiwan University. Dr. Liu had more than 37 years of teaching, research and development experience in civil engineering specifically serving the pipeline and underground infrastructure industry. He was emeritus professor of civil engineering and founder and past director of the Capsule Pipeline Research Center at the University of Missouri—Columbia. He served as president of the Freight Pipeline Company in Columbia, Missouri. He was recognized as a world-renown authority and leader in the field of pipeline engineering. He had authored three recognized books and more than 50 journal (refereed) research papers and more than 150 conference papers. He was a recipient of major research grants (totaling more than six million dollars) from federal, state and private agencies, such as the U.S. National Science Foundation and Department of Energy. He was a patent holder for more than 13 inventions.

Dr. Liu was a recipient of many awards, especially the prestigious Stephen D. Bechtel Pipeline Engineering Award in 1992. He organized and chaired many national and international conferences, short courses and was a frequently invited and keynote speaker for professional events. He was founder and chair of International Society for Underground Freight Transportation (ISUFT). Professor Liu was a tremendously creative and influential underground freight transportation (UFT) researcher. His dedication to UFT centered on developing the Pneumatic Capsule Pipeline (PCP) technology and increasing our knowledge about UFT. Always interested in new insights, he communicated with scientists around the world and impressed us all tremendously with his UFT orientation and his foundation thinking.

Dr. Liu was a Life Member and Fellow of ASCE with his most notable work achieved as a member of the Pipeline Division. He was a frequent contributor to the annual Pipeline Division's conferences and workshops serving as committee member, session chair, reviewer and speaker. He was vice chair of the Pipeline Research Committee and Associate Editor of the new *ASCE Journal of Pipeline Systems Engineering and Practice* (JPS). It is difficult to say how much we will all feel the loss of such a great scientist. Deepest sympathies continue to flow in to the Liu family from representatives of the entire pipeline industry. ASCE Pipeline Division will keep his memory in the highest regard. He recently received the national purpose prize given to social entrepreneurs who use their Encore Careers to advance society. His fly ash brick (noted as one of the best inventions of 2007 by both Time Magazine and Popular Science) brought him the most acclaim, but his vision for using PCP in underground freight transportation was foremost on his mind at the time of the award. He had planned on creating a nonprofit organization to educate the public about this important technology—and to assist with its research and development. The nonprofit organization could not be realized due to his death but a memorial fund has been created. Anyone wanting to donate to the Citizens for Underground Freight Transportation can do so by writing a check to that organization and sending to Susie Liu (Dr. Liu's wife) at 2601 Maguire Blvd., Columbia, MO 65201. Mrs. Liu will seek the guidance of leaders in the field to select the best place(s) for the donations.



Dr. Henry Liu (1936-2009)