

## From The Director

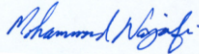
*Dear Colleagues and Friends*

This newsletter brings you exciting news on recent CUIRE activities, such as the following:

- Testing and Consulting Services for the Integrated Pipeline (IPL) Project,
- Outreach Activities,
- Research Projects,
- Publications,
- Educational Activities.

On behalf of our students, associate faculty and all of us at CUIRE, we look forward to be working with you! This newsletter just highlights a few of our activities, for more information, please do not hesitate to contact us at 817-272-0507 or [najafi@uta.edu](mailto:najafi@uta.edu) with any questions or comments.

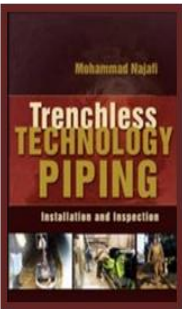
Warm Regards,



Mohammad Najafi

CUIRE Director

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### ***New Book by Dr. Mohammad Najafi***

Last June, McGraw-Hill published a new book “Trenchless Technology Piping - Installation and Inspection” by Dr. Mohammad Najafi. Packed with illustrations and a range of national and international case studies and examples, the book covers proper planning, contracting, and procuring, installing, and inspecting different pipe materials, and includes testing and acceptance methods, project contract and delivery, and safety issues. This cutting-edge engineering tool also contains vital information on quality control and quality assurance (QC/QA) guidelines. Trenchless Technology Piping features:

- Pre-installation, installation, and post-installation requirements
- Detailed coverage of field and laboratory testing
- Proven methods of project delivery and final inspection
- The latest information on asset management and sustainability of pipeline systems
- Effective procedures for project planning and contract administration

### ***CUIRE Holds Trenchless Schools in Conjunction with UCT***

During Underground Construction Technology (UCT) 2010 held in Tampa, Florida, CUIRE offered three schools on Trenchless Technology on January 17, 2010 and January 18, 2010. “Advanced HDD,” “Trenchless Technology New Construction Methods” and “Trenchless Technology Pipe Lining, Renewal and Replacement Methods” were offered in conjunction with the UCT 2010. In January 2011, CUIRE will offer several two-day Trenchless Technology Certification Schools and a Pipeline Design and Construction School in conjunction with UCT 2011 in Houston, Texas.



It took ASCE Pipeline Division Executive Committee (EXCOM) and the ASCE Publications department more than 8 years to plan and establish a dedicated journal for pipeline papers. The new ASCE Journal of Pipeline Systems Engineering and Practice provides a rapid forum for the dissemination of research papers as well as case studies and technical notes in all areas of pipeline systems.

The Journal of Pipeline Systems Engineering and Practice provides an authoritative international forum for timely and in-depth exchange of ideas and integrated technical solutions. It also supports the professional interests of a broad group of researchers and practitioners from academia, industry, and government. These groups are concerned with new pipeline technologies, planning, engineering, design, construction (conventional and trenchless), renewal, safety, operation and maintenance, asset management, environmental aspects, and sustainability of pipeline systems.

The Journal covers all the areas of technical interest summarized in the following (nonexclusive) list:

Current and emerging technologies; investigation innovations and condition & structural assessment; pipeline stress analysis and mechanical design; pipe materials (composites, hybrids, and "smart" pipes), appurtenances and joining systems; internal and external corrosion protection (linings, coatings and cathodic protection); pipeline hydraulics, modeling, and pumping; developments in codes, specifications, and standards; hazard identification, as well as hazard location, security, and safety; in-line, remote, and automated condition assessments; performance, deterioration, life-cycle-cost analysis and optimization techniques; geotechnical, pipe-soil-structure interaction and seismic issues; risk assessment & management; budgeting & funding issues; forensic investigations, GIS applications; and renewal and replacement/installation techniques.

The Journal may address above areas with analytical studies, physical testing, computational methods, full-scale trials or operational experiences, failure investigations and case studies. These areas pertain to water distribution and transmission systems, wastewater collection systems (gravity and force mains), storm sewers & drainage structures/culverts, oil, gas, industrial, slurry, pneumatic and capsule pipelines as well as conduit applications for power and communication cables.

Manuscripts should be submitted to the Journal's Editorial Manager at <http://www.editorialmanager.com/jrnpseng/>



**Students Attend UCT 2010**

Six students from UT Arlington attended UCT 2010 held in Tampa, Florida, on Jan 19-21, 2010. CUIRE thanks UCT for providing the opportunity for students to gain firsthand knowledge of Trenchless Technologies. Dr. Najafi, CUIRE Director and two graduate students, Mustafa Kanchwala and Trupti Anil Kulkarni presented on new pipe lining method using polyurea spray-on and also the development of design, and installation guidelines.



**Student Scholarship News (NASTT)**

The North American Society for Trenchless Technology (NASTT) selected two Civil Engineering graduate students, Lalit Chilana and Sahar Hasan, both majoring in Construction Engineering and Management, to receive a NASTT 20th Anniversary – Michael E. Argent Scholarship with an amount of \$5,000 each. NASTT received 18 applications for consideration. Also, NASTT awarded \$1,500 a Scholarship to Kelly Tye Quintana, another graduate student majoring in Construction Engineering and Management.

**CUIRE Holds Pipelines and Trenchless Class**

Last June, CUIRE offered a pipelines and trenchless technology course to 38 graduate and undergraduate senior civil engineering students. The text book, Trenchless Technology (McGraw-Hill, 2005), by Dr. Najafi, was used to teach this course. As a class project, the students worked on method selection and design of a deteriorated cast iron force main. As students commented, this class gave them a lot of practical information and ideas that they can use in future.

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### ***NASTT Student Chapter – UT Arlington***

The main objective of the NASTT student chapter at UT Arlington is to educate and train the graduate & undergraduate students in the field of Underground Construction & Trenchless Technology. To date in this academic year, the club has participated in the UCT 2010, Tampa, FL, and a trip to the No-Dig show and conference in Chicago, IL. At regular meetings, presenters such as Frank Canon of Baroid Industrial Drilling Products, Craig Fisher of S&B Technical Products and Hugh Martin of Hanson Pipe & Precast have spoken to the student group.



### ***CUIRE and S&B Technical Products hold Two Seminars for PVC Restrained Joint***

CUIRE along with S&B Technical Products held two seminars for “Municipal Applications for Internally Restrained PVC Pipes” on June 10 and August 5, 2010 at CUIRE lab in Civil Engineering Laboratory of UT Arlington. The seminar described the working of internally restrained product and reviewed the results of the performance testing conducted by UT Arlington on the internally restrained PVC pipe. Tensile test and hydrostatic test of an assembled joint that uses Bulldog Technology to restrain the joint were also run. Live demo was also given to assemble the PVC pipe joint.



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## Recognition of CUIRE Board Members

Center for Underground Infrastructure Research and Education (CUIRE) held its first meeting of 2010 on Thursday, May 27. The meeting took place in the CUIRE classroom lab at Civil Engineering Laboratory (CELB) at UT Arlington and was attended by 11 board members. Dr. Bill Carroll, Dean, College of Engineering and Dr. Nur Yazdani, Chair of Department of Civil Engineering partially attended the meeting. The proceedings began with a welcome speech by Dean Bill Carroll. He presented to the board members about the different activities going on in UT Arlington and invited them to the 50th Anniversary celebration of College of Engineering on June 4, 2010.



This was followed by the presentations of the board members. They talked about their profession and association with the CUIRE. The students working in CUIRE presented their research in front of the board members. The presentation was highly appreciated and various positive feedbacks were given to the students by the board members to improve and enhance the research. A tour of laboratory was conducted for the board members to show them the equipment and other facilities available to conduct tests or researches. After lunch, board members were recognized by CUIRE for their contributions in Underground Construction. Dr. Nur Yazdani, Chair of Civil Engineering presented each board member with a plaque of appreciation.



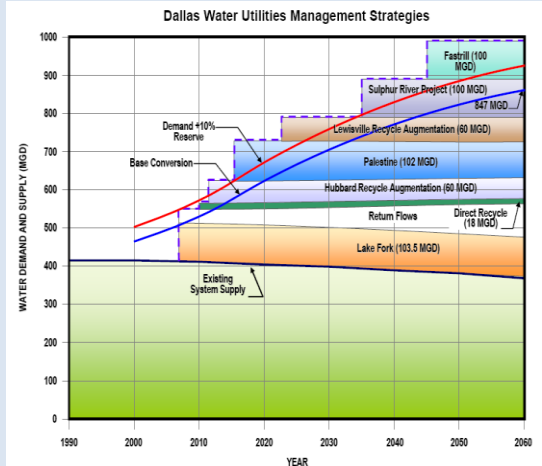
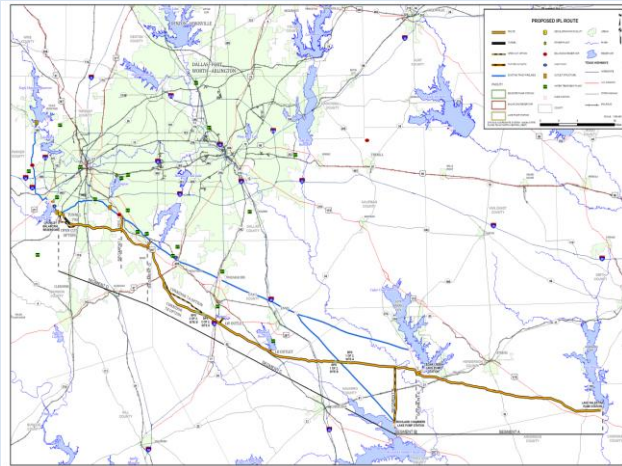
The proceedings concluded with the discussions among the board members on short and long-term plans for CUIRE. The discussions touched all the three basic goals of CUIRE i.e. Education, Outreach and Research. The following board members were in attendance:

- Mr. Sam Arnaout, Hanson Pressure Pipe
- Mr. Robert Carpenter, Underground Construction Magazine
- Dean Bill Carroll, UT Arlington
- Mr. Craig Fisher, S & B Technical Products
- Dr. Tom Iseley, IUPUI
- Mr. John Morgan, Cantex, Inc.



- Dr. Mohammad Najafi, UT Arlington/CUIRE
- Mr. Gary Natwig, 3M Water Infrastructure
- Mr. Lynn Osborn, Institutorm Technologies
- Dr. Mario Perez, 3M Water Infrastructure
- Mr. Ellis Pope, UT Arlington
- Mr. David Slawson, JM Eagle
- Dr. Kris Sridhar, 3M Water Infrastructure
- Dr. Nur Yazdani, UT Arlington





Integrated Pipeline (IPL) Project Route (Source: CDM Final Report, July 2010)

The Tarrant Regional Water District (TRWD) recently awarded CUIRE a testing, evaluation and research services contract for the new large diameter (between 70-in. to 108 in.) and 157 mile long raw water transmission project. The initial planning for the project started last January and its completion is scheduled for 2020. The design and construction cost of this project is estimated to be more than 1.5 billion dollars.

The Tarrant Regional Water District (TRWD) and the City of Dallas Water Utilities (DWU) own or hold water rights or contracts for a combined 14 surface water reservoirs and provide raw water transmission facilities for many cities and water agencies across North Central Texas. Additionally, Dallas supplies treated and raw water to wholesale customers in Dallas, Collin, Denton, Ellis, and Kaufman Counties. Through 58 wholesale water agencies and cities and the DWU retail water operations, TRWD and DWU provide drinking water to 4.4 million people, a population that is expected to double in the next 50 years.

The scope of CUIRE and UT Arlington services includes:

- Develop design alternatives to be explored and review them with the design/owner IPL team.
- Develop Material Characterization Based on Geologic Maps & Published Materials.
- Screen Suitable Materials as Native Backfill/ Modified Backfill for each type of Pipe, and Identify Unsuitable Materials even with Modifications.
- Include in the Analysis (beyond Physical Characteristics), Limitations that may make the System Unusable (as Quality Control Problems, Extreme Costs), etc.
- Develop a Finite Element Analysis of Pipe/Soil Interaction for each Potential Pipe Type/Backfill to Determine the Feasibility of the System using a Single Live Load/Dead Load Scenario.
- Evaluate design alternatives that would lead to a constructible design while minimizing hauling costs.
- Evaluate the Systems for Differing Live Loads. From the alternatives that are structurally sound and constructible, examine the issues associated with constructing the next parallel pipeline in the same right-of-way.
- Perform Physical Testing and Determination of Soil/Pipe interactions to test the most viable systems.

CUIRE is fortunate to be involved in this unique and challenging project and looks forward to work closely with TRWD and other project participants. For more information, contact Dr. Najafi at najafi@uta.edu.

**CUIRE Students Visit Northwest Pipe (NWP) Company Plant in Saginaw, Texas**

On Thursday, July 22, 2010, twelve students along with Dr. Najafi, CUIRE Director, took a tour of the Northwest Pipe Company plant in Saginaw, Texas. During the visit, NWP engineers showed all the aspects of the steel pipe manufacturing, including, fabrication, testing, coatings and linings, and quality control procedures. The tour started 10:00 AM and was completed at 3:00 PM. During the tour, the engineers also explained the design and construction concepts for water applications of steel pipe.





### *Three South Korean Researchers Visit CUIRE Lab*

Last June, Drs. Kwon, Lee, Cho, and Jang from Ultra-High-Speed Train Research Department of Korea Railroad Research Institute visited CUIRE laboratories to learn about research and collaboration opportunities on capsule freight transportation. South Korea, much like the rest of the world, is facing an ever-growing problem for population densities of major cities and traffic congestion by commuters and conventional transportation methods which are growing beyond the capacity of current standard transportation methods.



Oil is increasing in scarcity and emission laws continue to choke ground-based vehicle advancement. This is a prime opportunity to revolutionize the world by producing transportation and shipping system that is capable of meeting the growing demands, conserving energy and natural resources, and minimizing environmental impact on the planet.

### *CUIRE Holds a Workshop on Earthquake Effects on Underground Infrastructures, Management of Underground Infrastructures and Trenchless Technologies in Istanbul, Turkey*



On August 17th, 1999 there was a very major earthquake in Marmara region (including Istanbul) and caused more than 17,000 deaths and 40,000 injuries. Unfortunately, a disastrous earthquake is expected in Istanbul region in the near future. In the anniversary of this earthquake, CUIRE in collaboration with Turkish Society for Infrastructure and Trenchless Technology (TSITT or AKATED) held a workshop on Tuesday, August 17, 2010, named "EARTHQUAKE EFFECTS ON UNDERGROUND INFRASTRUCTURES, MANAGEMENT OF UNDERGROUND INFRASTRUCTURES AND TRENCHLESS TECHNOLOGIES WORKSHOP," in Istanbul, Turkey.

This workshop was considered to be very crucial because there is not much information available in Turkey regarding earthquake effects on underground infrastructures, management of underground infrastructures and trenchless technologies. This workshop attracted attention of utilities, municipalities, and so on to the management of underground infrastructures and trenchless technologies. The workshop was held at the conference facility of Istanbul Natural Gas Distribution Company (IGDAS). More than 150 people attend this workshop.

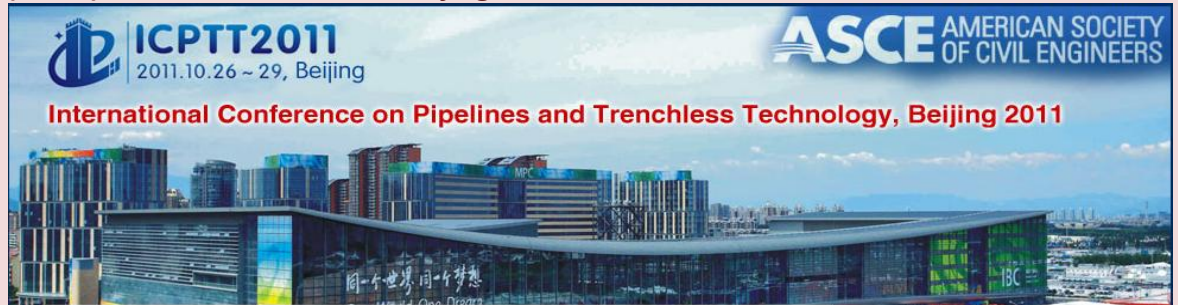
As part of the workshop, Dr. Najafi and Mr. Yasin Torun (Chair of AKATED-TSITT) visited with the following organizations:

- A) Istanbul Metropolitan Municipality - [www.ibb.gov.tr](http://www.ibb.gov.tr)
- B) Union of Municipalities of the Marmara Region - [www.marmara.gov.tr](http://www.marmara.gov.tr)
- C) Istanbul Water and Sewerage Administration - [www.iski.gov.tr](http://www.iski.gov.tr)
- D) Istanbul Natural Gas Distribution Company - [www.igd.com.tr](http://www.igd.com.tr)
- E) Arel University - [www.arel.edu.tr](http://www.arel.edu.tr)
- F) Istanbul Technical University - [www.itu.edu.tr](http://www.itu.edu.tr)
- G) Adapazari Water and Sewerage Administration - [www.adasu.gov.tr](http://www.adasu.gov.tr)
- H) Izmit Water and Sewerage Administration - [www.isu.gov.tr](http://www.isu.gov.tr)

For More Information Regarding CUIRE: [www.cuire.org](http://www.cuire.org)



***CUIRE will Co-sponsor International Conference of Pipelines and Trenchless Technology (ICPTT), October 26-29, 2011, Beijing, China***



At present, China is the largest market for trenchless technology all over the world, with huge gas and oil transmission pipeline projects under construction and 100,000 km of new municipal pipelines installed each year and 300,000 km municipal pipelines need to be rehabilitated urgently. There are more and more related international organizations and companies paid much more attention to the pipeline and trenchless technology market in China.

China-U.S. Joint Center for Trenchless R&D (CTRDR), American Society of Civil Engineers-Pipeline Division, Center for Underground Infrastructure Research & Education (CUIRE)-UTA, Geotechnical Engineering Research Center, China Ministry of Education, and China University of Geosciences (Beijing) co-sponsor the International Conference on Pipelines and Trenchless Technology 2011 (ICPTT 2011), which will be held on October 26 through 29, 2011 at China National Convention Center, Beijing. With the success of the ICPTT 2009, the organizer expects that ICPTT 2011 will draw more than 500 participants, and more than 1000 visitors will attend the conference. For more information visit - <http://www.icptt.org/>

***CUIRE will Organize ASCE International Pipelines 2013 in Dallas Fort Worth, May 19-23, 2013.***

In October 2009, CUIRE sponsored the first highly successful International Conference on Pipelines and Trenchless Technology (ICPTT) conference in Shanghai, China, entitled "Advances and Experiences with Pipelines and Trenchless Technology for Water, Sewer, Gas, and Oil Applications", that emulated the ASCE Pipeline Division's annual conference format. The ICPTT developed from an initial workshop on trenchless technology and critical underground infrastructure issues in 2007 in Wuhan, China funded in part by a National Science Foundation grant and created the China-U.S. Joint Center for Trenchless



Research & Development (CTRDR), as well as equal support from the Center for Underground Infrastructure Research & Development (CUIRE) with The University of Texas at Arlington (UT Arlington).

ICPTT 2009 followed with ASCE Pipeline Division sponsorship and the Division approved, at their February 13 and 14, 2010 winter meeting, sponsorship under equivalent provisions for a second ICPTT conference to be held in Beijing, China in 2011. ICPTT organizers' goal is to grow ICPTT and hold a biannual conference with equal representation by the water and oil and gas industries similar to the technical program of their first conference.

The ASCE Pipeline Division's vision is to "become the organization that is the world leader for excellence in water, wastewater, oil, gas, and solid pipeline engineering." The Division has been looking for a venue to bring the oil, gas, and freight pipeline industry back to the Division's annual conference, as well as its technical committees. The authors of this proposal believe that an ASCE Pipeline Division conference with ICPTT sponsorship to be held at a strategic location in the Dallas - Fort Worth metropolitan area in 2013 is the best possible venue for sustaining the Division's vision.

This international specialty conference is expected to draw interest from all facets of industry i.e. owners, consultants, academia, contractors, and manufacturers from the U.S., China, and other countries. It is estimated that more than fifty (50) Chinese delegates will attend the Dallas-Fort Worth (DFW) 2013 Conference. Based upon the conference's subject matter, previous ASCE Pipeline specialty conferences and ICPTT 2009's success, as well as other industry symposiums, it is expected that DFW 2013 Conference participation will be upwards of 600 pipeline and related professionals and 70 to 80 exhibitors. Mr. David Marshall of Tarrant Regional Water District (TRWD) has been invited to serve as the honorary chair of this conference.

Hope to see all of you Sunday, May 19 through Thursday, May 23, 2013, in Dallas Fort Worth, Texas!

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