

# Thielsch Engineering

Volume 9 Issue 1  
April 2006

195 Frances Avenue, Cranston, RI 02910 Tel: (401) 467-6454 Fax: (401) 467-2398 www.thielsch.com

## Data Management and Maintenance

Thielsch Engineering understands that in this era of deregulation and downsizing of maintenance personnel many companies in the power generation, utilities, chemical, pharmaceutical, and petrochemical industries are finding it difficult to maintain an accurate history of repairs and maintenance of their components. Plant managers are routinely faced with the daunting task of determining the current conditions of their equipment. They have to forecast outage budgets and schedules and perform risk assessments for their facilities to keep their plant operations running smoothly in a very competitive environment. Insurance companies are also increasingly requiring inspection and maintenance records. Below are three data management and maintenance programs Thielsch Engineering offers.

The 4SITE program is being offered by Thielsch's Utility Engineering Services (UES) division. In an effort to provide clients with the insight they need to determine the existing condition of their equipment and the foresight they need for maintenance and budgeting, UES developed, and is currently implementing an online, 3-dimensional, interactive data management program called 4SITE Data Management Solutions. The attributes of the program for each piping system are:

- Design, operation, and maintenance data
- Piping isometrics
- Material specifications
- Failure history
- Reinspection procedures and schedules



The 4SITE program enables utility plant personnel to access and manage all previous inspections, repairs, and recommendations associated with any area of their high-energy piping systems, headers, or pressure vessels within each of their facilities. The program simplifies the planning and budgeting to maintain safe and reliable equipment while providing transparency in the budgetary phase. 4SITE works not only for engineers at the plant level but also for corporate level planners.

For more information about 4SITE, please contact Pam Smoske at (440) 537-2490, or by e-mail at [psmoske@thielsch.com](mailto:psmoske@thielsch.com).

### PRIME

PROGRAM FOR INSPECTION, MAINTENANCE AND ENGINEERING

Thielsch Engineering's Program for Inspection Maintenance and Engineering, or PRIME is a software database program. The program allows users to manage inspection, maintenance, and engineering data. Utilizing PRIME software, plant personnel can retrieve their inspection/evaluation data for planning and budgeting purposes. Each PRIME program is unique because it is designed to address the needs of individual clients and meet state and federal codes and standards for mechanical integrity issues for aboveground storage tanks, pressure vessels, and process piping systems. Thielsch provides a broad range of engineering services on a national and international level to the pulp and paper, power generation, chemical, pharmaceutical, petrochemical, and other industries. Each database is customized for the specific industry.

Highlights of PRIME's database capabilities include outlines for inspection procedures and protocols and risk assessment summaries. The program organizes and presents data for several categories including specifications inspection summaries, re-inspection schedules, repair and maintenance needs, and calculations of corrosion rates. The engineering services include the preparation of protocols based on client needs, insurance requirements, codes, and jurisdictional authorities. The program provides risk assessments, classifications and categorization of equipment, collection and input of historical information, and the import of data from other systems and software programs

For more information about PRIME, contact Scott Hoffman at (401) 467-6454 or by e-mail at [shoffman@thielsch.com](mailto:shoffman@thielsch.com).



### Reporting and Electronic Data Deliverables

ESS Laboratory utilizes a computerized Laboratory Information Management System (LIMS). LIMS interfaces with the laboratory instrumentation to produce laboratory reports, provide quality control, and produce electronic deliverables. This interface promotes data integrity, speed, and ease of use. ESS Laboratory has the tools and systems available to provide customized electronic information for clients. ESS routinely produces electronic data deliverables (EDDs) comparing results to regulatory requirements. In addition, customized EDDs based upon client or project specific requirements in formats that include Excel, GIS Key, EQUIS, and SEDD are provided.

#### Web Access to Data

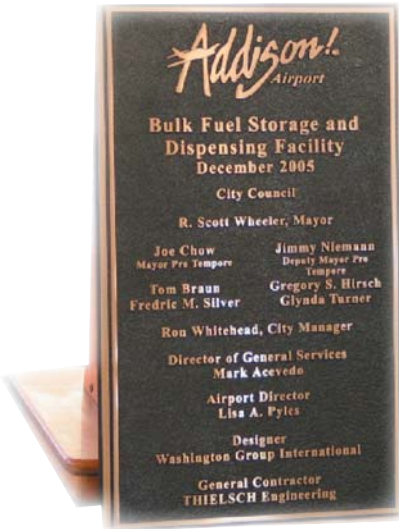
At the ESS Laboratory website ([www.esslaboratory.com](http://www.esslaboratory.com)), clients can access the status of their samples in addition to analytical data. Upon completion of a project, data packages and EDDs in a standard or customized format can be downloaded by the client at their request.

Data access is one advantage to using the ESS Laboratory website. Another advantage is that bottle orders or sample pickups can be scheduled via the web. The on-line bottle order and sample pickup forms prompt clients to enter the required information. The client will receive a confirmation of receipt via e-mail from a Project Manager.

For more information, contact John Gaspari at (401) 467-7181, or by email at [jgaspari@thielsch.com](mailto:jgaspari@thielsch.com).



# Texas Tanks



The Addison Airport, located in Addison, Texas, is popular with private aircraft and corporate jet fleets because of the 7,200-foot runway and its close proximity to Dallas and other nearby industries with large employment centers. The airport, owned by the Town of Addison since 1976, is the third busiest general aviation airport in the state with an increasing number of aircraft using the airport as a home base. With increased daily flights, the town decided it was time to replace the aging underground fuel storage facility. There were also important economic factors involved with

this decision. The impact of the airport to the community is well over \$600 million in generated revenue with an additional employment impact of 2,789 jobs. At the airport alone, there are 80 employers creating an estimated 1,450 jobs.

Thielsch Engineering was the successful respondent to a public offering and signed the Notice to Proceed on February 14, 2005. The Utility Engineering Services Division (UES) started pipe fabrication work in March of 2005 and mobilized to the project site on April 4, 2005. The project consisted of installing 15 aboveground, double-walled, insulated, steel fuel storage tanks – six 15m gallon and nine 25m gallon tanks - for a total fuel capacity of 315m gallons. The tanks are sheltered by a non-flammable stretched fabric roof canopy that has a 20-year warranty.

The Project Team, lead by Rick Normandeau, General Manager of the Utility Engineering Services office in Austin, Texas, chose Fireguard® Tanks, built by Highland Tank & Mfg. Company from Storystown, PA, to supply the fuel storage tanks. To start the project, the team developed a detailed construction schedule, identified major local subcontractors (civil/concrete, fence/gates, landscaping, instrument/electrical, etc.) and major local suppliers (bolts/nuts/fasteners, structural steel, pipe and fittings, instrument fittings, specialty aviation fuel equipment, etc.).

The UES team managed the construction labor force, provided overall project quality assurance, and procured and received all project materials. They oversaw and monitored the progress of the subcontractors while supervising the installation of all major equipment. There were weekly meetings with personnel representing the Town of Addison and the Engineer of Record to discuss issues, opportunities, and progress on the project. Using an extensive punch list for each of the individual tanks and associated equipment ensured each task was completed in a timely manner. UES was responsible for overseeing pressure testing, line flushing, and fuel farm commissioning. The final task was to turn over all project documentation to the Town of Addison and the Engineer of Record.

On December 2, 2005 Addison town and airport officials formally opened the airport's new \$3.975 million fuel storage and dispensing facility with a ribbon cutting ceremony attended by town and state officials. The facility is one of the largest, fire-rated, aboveground fuel farms in the country. Thielsch Engineering was proud to partner with the designers, Washington Group International, to construct this new facility. After extensive testing and numerous inspections, full operation began by the end of February 2006.

For more information about the Utility Engineering Services, please contact Peter Kennefick in the Thielsch Rhode Island offices at (401) 467-6454 or by e-mail at [pkennefick@thielsch.com](mailto:pkennefick@thielsch.com). Rick Normandeau can be reached in the Austin TX office at (512) 912-9941, or by e-mail at [rnormandeau@thielsch.com](mailto:rnormandeau@thielsch.com).



## Employee Updates



Michael J. Cooney, Senior Metallurgical Engineer for Thielsch Engineering in the Professional Engineering Division, received his Professional Engineer License in Metallurgical Engineering from the State of Connecticut. He has a Bachelor

of Science degree in Metallurgical Engineering from the University of Notre Dame. He is a member of the National Association of Corrosion Engineers, ASM International, American Society of Mechanical Engineers, and the American Welding Society.



John Gaspari has joined ESS Laboratory, a division of Thielsch Engineering, as the Vice President of Sales and Marketing where he is responsible for establishing the sales and marketing strategies. John has 35 years of experience in the environmental laboratory business. Before joining Thielsch, he was with Chemtech as the Vice President of Sales and Marketing. He also held the title of CEO and President of Nytest Environmental Inc. John resides in Warwick, RI and Long Island, NY.



Kevin Braga, Senior Account Executive of the ESS Laboratory, was elected President of the Independent Testing Laboratory Association of Massachusetts (ITLA-MA) for a two-year term. ITLA-MA is a non-profit association of the Massachusetts

Department of Environmental Protection. The membership of the association is comprised of approved environmental laboratories and related industry representatives. Braga also served as past Secretary, Treasurer, and Senior Advisor to the Executive Committee.

# Upgrades Continue for the Materials Testing Laboratory

Since June of 2003, Thielsch's Materials Testing Laboratory has continued its commitment to provide clients with advanced engineering services. From a new metallograph Baldwin Tensile Testing machine to the Lab's A2LA accreditation, the Lab continues to upgrade and improve their testing services.



TRAK-1540V Lathe

The Materials Testing Laboratory recently acquired a Southwest Industries TRAK-1540V Lathe. It is a combination lathe that has both CNC and manual capability. It can be programmed to machine tensile and stress rupture specimens and repetitive parts. It can also be used manually for fixtures, maintenance items, and one-of-a kind specialty parts.

This new equipment gives the Laboratory the capability of manufacturing a full line of tensile and stress rupture specimens. It shortens the time it takes to manufacture specimens which in turn allows a faster turn around time for clients. It also allows the Lab to machine standard creep and fatigue specimens. The new equipment is able to do hard turning with ceramic tool bits which gives the added capability of machining hard materials such as titanium and hardened tool steel.

For more information about the Materials Testing Laboratory services or to find out more about the 1540V Lathe's capabilities, please contact: John Goetz at 401-467-6454 or, by e-mail at [jgoetz@thielsch.com](mailto:jgoetz@thielsch.com).

## Fire and Ice

In the early morning hours of Sunday, January 8, 2006, a fire broke out in the rafters of the Veteran's Memorial Ice Rink located in Cranston, Rhode Island. Fortunately, there were no injuries. The building suffered extensive smoke damage and the heat of the fire removed paint and melted the Plexiglas walls that surround the rink. The fire also caused damage to the large ventilation fans and singed the scoreboard. The most serious damage was to the wooden arches that support the roof.

After the fire was extinguished, Cranston officials immediately called Thielsch Engineering which provides on call, 24/7 engineering expertise. Expediency was necessary to determine the structural soundness of the building and to investigate the cause of the fire. The 29,792 square foot rink is home to many school and recreation leagues. The fire left them scrambling to find ice rinks nearby that could accommodate their schedules. For February alone there are 40 high school hockey games scheduled for Veteran's Memorial rink.

Florence Cone, Principal Engineer for the Professional Engineering Division, was on the scene Sunday morning to provide the initial analysis. On Monday morning, Ara Nalbandian, Vice President of Engineering with the Professional Engineering Division, conducted a detailed investigation for structural integrity and assessment for insurance claim documentation.

Mr. Nalbandian has over 35 years of experience in failure analysis, cause and origin of fires and explosions, product design and development, performance testing and evaluation and condition assessment. As part of his broad failure analysis experience, he has been extensively involved in major failures including boiler explosions, and refinery and chemical plant fires. Ms. Cone also has considerable experience with the assessment of cause and origin of damage by fires and explosions to industrial, commercial, and residential facilities including piping, pressure vessels, and other equipment.

From the standpoint of safety and continued serviceability of the ice rink, it was important that the investigative methods be appropriate and effective in determining the structural integrity of the wooden structure of the building which included large laminated wooden arches, purlins, and various roofing materials.

Assisting Nalbandian with the examination of the two sections



Ara Nalbandian (L) inspecting rink's wooden arch.

of the ice rink structure and contents was Roger Kalikian, P.E. who also has experience in conducting investigations and assessing the structural integrity and reliability of structures and vessels after fires, explosions, and elevated temperatures caused by fire damage.

Upon completion of the on-site investigation and the examination of the charred wooden arches and beams, a heat map was developed to show the extent of the damage surrounding the epicenter of the fire. Engineering and structural calculations were also performed to determine the structural integrity of the arches, purlins, and roofing materials and to assist in the restoration of the ice rink.

Nalbandian and the Professional Engineering Division continued to assist the city by providing technical assistance in recommending proper methods for the refurbishment of the charred arches, purlins, and degraded roofing materials.

For further information regarding Fire Explosions, Forensic Investigations, and Failure Analysis, please contact Ara Nalbandian at (401) 467-6454 or by e-mail at [nalbandiana@thielsch.com](mailto:nalbandiana@thielsch.com).

# Pilot Valve Control Units for New Orleans

On September 8, 2005, almost two weeks after the levees in New Orleans were breached, ALCO Engineering received a telephone call from the Federal Emergency Management Authority (FEMA) in Baton Rouge, LA. FEMA was representing the Water and Sewage Board of New Orleans. The pumping stations and treatment plants for New Orleans were flooded, and most of the equipment was destroyed, making the plants inoperable. It was critical to get these services up and running as quickly as possible.

In the past, ALCO had supplied the pilot valve control units that are used to open and close discs in butterfly valves. The New Orleans Water and Sewage Board used the parts in their water and sewage treatment plants. The pilot valve control units



A closer look at the pilot valve control units.

were damaged or destroyed by flood waters so the plants could not operate. Fortunately, ALCO had some of the replacement parts in stock to repair or replace pilot valves and control units

FEMA initially placed an order for 20 valves with ALCO. When ALCO received a fax confirmation for the

order the next day, FEMA had upped the order to 50 valves. This was the largest parts order ever received by ALCO.

ALCO first told FEMA that it might take 8 to 10 weeks just to receive additional parts with several more weeks needed to assemble and test the over 6,000 pieces necessary to make the 50 units. However, everyone understood the importance and urgency of this order. Immediately, the ALCO team started working the phones and coordinating with their suppliers. Rycourt Metal Fabricators in Pawtucket, RI, fabricated the brackets that hold the pilot valves and the controllers together. Hawkins Machine and Complex Machine & Tool Co., located in Coventry, RI manufactured the bodies, armatures, and the metal parts needed to assemble the units. A.V. Weber in Pennsylvania made the springs, and Melrath Gasket Co. manufactured the gaskets and diaphragms. Once the pieces were in the ALCO workroom, the pilot valve control units were assembled and tested.

Everyone worked quickly to ensure the timely delivery of the pilot valves to the New Orleans's Water and Sewage Board. The ALCO team managed, in approximately 16 weeks, to procure the necessary parts, to make and test the units and send 100% of the order to New Orleans by the close of 2005.

For more information about ALCO and ALCO parts please contact Bill Billings or Ben Bosco at (401) 467-4448 or by e-mail at [wbillings@thielsch.com](mailto:wbillings@thielsch.com) or [bbosco@thielsch.com](mailto:bbosco@thielsch.com).

# Thielsch Engineering is Growing

In a continuing effort to seek growth opportunities, Thielsch Engineering applied for and was granted a low-interest loan from Citizens Bank's new Job Bank Loan Program. The bank, partnering with the Rhode Island Economic Development Corporation (RIEDC), has committed nearly \$60 million in low-interest financing to help create more than 1,535 regional jobs across New England.

In a recent visit to Thielsch Engineering Corporate Headquarters, Citizens Bank President and CEO Joseph J. MarcAurele announced the award of a low-interest loan that will allow Thielsch to create 35 new, full-time jobs over the next three years. Governor Donald E. Carcieri attended the announcement as well as Michael McMahon, Executive Director of the Rhode Island Economic Development Corporation, and Cranston Mayor, Stephen Laffey.

The award announcement took place in the Thielsch Industrial Fabrication Services department. A tank being built for a utility in the Midwest served as the backdrop. It was an appropriate setting for the announcement of the loan because, as Thielsch's Director of Finance Trent Theroux said, the loan will "have a direct and immediate impact on the growth path of Thielsch Engineering. The use of this capital will allow us to improve our infrastructure and equipment as well as increase our technical, service and production personnel over the coming years."

In his opening remarks, bank president MarcAurele said that "Citizens Bank is committed to job creation in Rhode Island and we're proud to serve as a financial engine to create new jobs in the state. Thielsch Engineering is creating 35 good-paying jobs that will positively impact the local economy, which was our goal in creating the Citizens Job Bank."

Governor Carcieri then spoke about the importance of creating job opportunities utilizing the Citizens Bank Job Bank loan program. Job creation has always been one of the Governor's top priorities and he thanked the bank for its "continued commitment to growing Rhode Island's job force."

Michael McMahon, Executive Director of the Rhode Island Economic Development Corporation, said that "the spirit of the program is being realized in all corners of the state. Thielsch Engineering is a wonderful example of the vibrancy of Rhode Island's expanding business community."

After the announcement ceremonies, the Governor was given a tour of the facilities, talking with engineers and welders alike. While in the high-bay area, he praised the workmanship of the large fabricated tank to a bystander. It turned out the man was a Thielsch customer. He was from the Midwest utility that ordered the tank which served as the backdrop for the ceremony. It was a fitting end to a memorable day for Thielsch Engineering.



Governor Donald L. Carcieri Addresses the crowd.