

OWEN TECHNOLOGY INSIDER

A Publication of the Owen Oil Tools Engineering Department

From The Desk Of



Dan W. Pratt
Vice President
Engineering & Explosives Technology
Owen Oil Tools



Welcome to the first issue of the **OWEN TECHNOLOGY INSIDER**. It will be published semi-annually for the present and will focus on updating you with new product development, technology, patents and spotlighting our engineering personnel and their accomplishments.

Highlighting this first issue I would like to comment on the restructuring of the engineering department in late 2005. In our pursuit to creatively and diligently serve both our internal and external customers, we divided our department into 4 groups, each with specific and focused responsibilities. This realignment of personnel will expedite our responsiveness to your needs; decreasing lead times and improving communication. We will be highlighting a different group the first four newsletters with the Customer Solutions Group this issue, however I would like to briefly introduce each group.

CUSTOMER SOLUTIONS GROUP –

Managed by Jim Mooney, this group focuses on our “external” customers and their specific engineering needs. This group will handle testing and development of products that are applications specific to the customer’s needs. This group will also be a conduit for communication with our customers. In addition, the Customer Solutions Group will handle any customer

specific complaints and responses with the assistance of our Quality group. Customer training in the proper and safe use of Owen products can also be provided.

INTERNAL CUSTOMER SUPPORT GROUP –

Under the management of Cory Day, this group focuses on supporting engineering staff and all our “internal” customers. Internal customers include departments such as production, accounting, sales and purchasing. The internal group is challenged with improving communication by providing appropriate resources. The handling of NCR’s, ECN’s, and internal customer issues by this group has already shown significant fruition and improved relations.

INNOVATIVE DEVELOPMENT GROUP –

Managed by Tim LaGrange, PE, the Innovative Development Group will be responsible for development and implementation of most long-term projects. These projects include both mechanical and ballistic, but also Thru Tubing, Tech Services, and Owen Canada. The engineering resources in this group are varied in experience and outside support is available as required.

EXPLOSIVES TECHNOLOGY GROUP –

Going “back to my roots”, I will be managing this group as we develop new generation perforating products. The focus will naturally be on high performance shaped charges, but we will provide explosives/ballistics support to the other engineering groups as needed. This is where I will be spending at least 50% of my time.

Engineering recently added staff members to several of the above groups, more specifically the Innovative Development and Explosives Technology groups. The addition of graduate engineers and highly experienced design and development personnel will greatly enhance our ability to meet the challenges of the future. We have added the use of hydrocode computer modeling to enhance charge development and the new Engineering Technology Center (ETC) is nearing completion and operation. This facility, once complete, will be a state-of-art development lab, allowing rapid prototyping and development of ballistics/explosives products. In closing I want to inform you that we are in process of updating the current Owen Engineering 411 format to provide more detail and further our communication efforts.

I hope you find our newsletter interesting, informative and helpful. Should you have any questions or comments please contact me personally at dan.pratt@corelab.com.

On The Inside:

<i>Customer Solutions Group</i>	2
<i>Industry Trends</i>	4
<i>GTX-Span Systems</i>	3
<i>How To</i>	2
<i>Meet The Staff</i>	4
<i>Development Projects</i>	5
<i>Standardized Gun System</i> <i>4" / 4-1/2" SDP Charge</i>	

Customer Solutions Group

Owen Oil Tools was founded in November 1983, on the principles of customer service and understanding the customer's desire to select a product based upon the value received from the product, service, and company. Harrold Owen relished the challenge of meeting ever changing customer needs and requirements. There are many stories of middle-of-the-night phone calls or holidays where products were requested, designed, built, and shipped in less than 24 hours. I'm sure many of you reading this article can recall one of those instances. Owen Oil Tools' emphasis on serving customers is one of the many reasons why Owen is recognized in the industry as a leader in perforating systems.

Since Core Lab purchased Owen Oil Tools in 1998, we have experienced exponential growth of our company along with the growth of the industry. Owen has grown into two separate manufacturing facilities, 37 distribution centers, and over 4 international distribution. In today's world, the rig count is consistently topping 3,000 rigs each month, crude oil over \$70/bbl, and natural gas over \$6/MMbtu. Technology is pushing the limits of current products and service offerings, and the industry as a whole is struggling to maintain a level of resources and inventory to cover

demand. Owen Oil Tools is dedicating significant effort to lead innovative development of products and maintain an ample supply of finished goods for the industry. Now more than ever, Owen Oil Tools recognizes the individual needs of regions, applications, and its customers. We wish to remain true to the founding principles of the company and focus efforts on the customer to meet product/service needs while delivering safe, effective solutions, and dedicated support.

In October 2005, a Customer Solutions Group was formed out of the Engineering department to provide rapid response and application engineering to fulfill customer queries for new product/service solutions and testing services. The Customer Solutions Group currently consists of four personnel with a combined 78 years of experience in the perforating sector of the oil and gas industry. Internally the group interfaces with each department of Owen Oil Tools from sales to shipping. A model for "Rapid Response" projects has been developed combining tried and true customer service principles, solid engineering practices, and the latest software packages. This helps us to identify the needs of a customer, determine the requirements of the product or service, deliver the result to the customer, and measure the

satisfaction and success of the project while effectively communicating the status and progress along the duration of the process.

The Customer Solutions Group has also been tasked with assisting in the completion and response of technical questions, customer complaints, and product demonstrations. "Rapid Response" models similar to the project model are being developed to increase the responsiveness and completion efficiency to each assistance request. In the coming months, the Customer Solutions Group will be working hard to increase the capacity of Owen testing services; and working with our customer base to identify and deliver Best Practices through customer training, technical bulletins, and product literature.

Owen Oil Tools is eager to assist you with all your needs for well completion, workover, remedial, and abandonment operations. We hope the Owen Experience will further develop our relationship for the future. To request assistance with product/service solutions, testing, technical questions, and customer complaints contact your local Owen representative, the corporate office, Jim Mooney (Customer Solutions Manager), or visit www.OwenHelp.com.

See you in the Patch!

- Jim Mooney

How To: Request a Project

In this issue, we want to go over how to request a project from Owen Engineering. Submitting a project request form is the best way to ensure a "Rapid Response" to

your need, whether you're in need of product testing, a new product, technical support or technical information. To request a project, go to www.OwenHelp.com, click the 'Project Request Form' link, fill in the blanks, and click 'Submit'. A confirmation e-mail will be sent to you stating that your request was received and that an Engineering Manager will be contacting you soon.

<http://www.OwenHelp.com>



Product Line Development

The Owen Oil Tools Gas Tight X-Span™ (GTX-Span™) System Tubing/Casing Patches provide a heavy-duty, permanent seal over splits, holes, or perforations in tubing and casing and are ideal for gas shut off applications. These patches are run on electric wireline, tubing, or coil tubing and set with a pressure setting tool (electrical, mechanical, or hydraulic). The large bores assure easy passage of tools and equipment and minimize restriction to fluid flow. Patches can be customized for most well applications including premium alloys, restrictions, and geothermal well applications.

The GTX-Span™ System Tubing/Casing Patch consists of three basic components: a top metal element with an expandable elastomer seal; a tubular extension; and a bottom metal element with an expandable elastomer seal. As the system is modular, various patch lengths may be obtained by adding tubular extensions. The top and bottom metal elements are swaged outward during the setting process, thus providing a rigid mechanical anchoring system with pressure integrity.

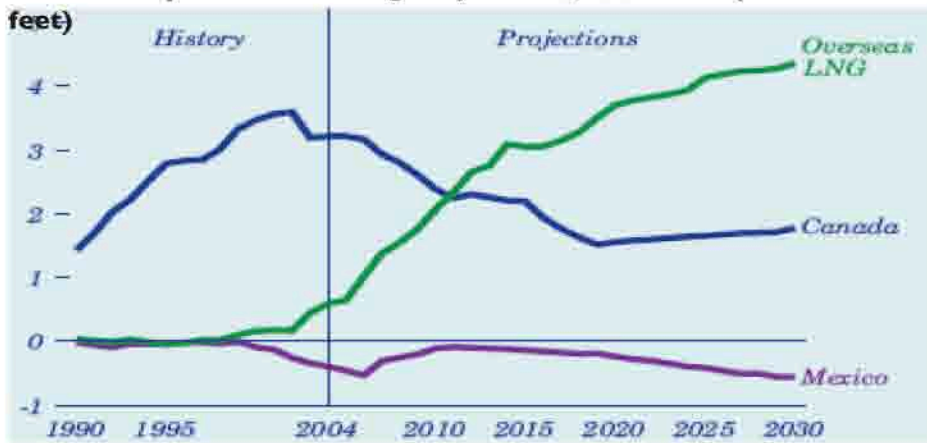
During the setting process, the pressure setting tool exerts a pushing force on the top tapered metal swage and a pulling force on the bottom tapered metal swage. Both swages are driven into the metal sealing elements (with expandable elastomer seals) which expand outward into the casing wall, providing both a metal to metal and an elastomer seal. At a predetermined force, a calibrated weak point shears and the setting process is complete. A collapsible setting collet located in the bottom swage retracts and allows the setting equipment to be retrieved. The interval is now fully isolated with metal seals and expandable elastomer seals.

The X-Span™ product line development continues to expand in support of our worldwide tubing/casing patch market. The GTX-Span™ system now includes five commercially available sizes (2.875" 7.9 lb/ft, 3.5" 12.7-12.9 lb/ft, 4.5" 15.1 lb/ft, 4.5" 16.9 lb/ft and 5.5" 14 lb/ft). As well as our standard size patches, we offer several non-standard sizes. The new sizes we are currently working on are as follows: 3.5" 9.2 lb/ft, 4.5" 11.6-12.6 lb/ft, 5.5" 15.5 lb/ft and 5.5" 23.0 lb/ft.

– Tim LaGrange, PE



Net U.S. imports of natural gas by source, 1990-2030 (trillion cubic feet)



Facts and figures courtesy of the EIA, DOE, US govt.

Industry Trends

Trends in Global and US Energy Needs

According to the Energy Information Administration, DOE, US, in 2006 and 2007, total domestic energy demand is projected to increase at an average annual rate of 1.4% each year. Many of the same factors that drove world oil markets in 2005, such as low world spare oil production capacity and rapid world oil demand growth, will continue to affect markets in 2006 and 2007. Other factors are less certain, such as the frequency and intensity of hurricanes, other extreme weather, and geopolitical instability.

The EIA has also reported that, world spare oil production capacity is projected to increase modestly during 2006 and 2007 despite new supplies from both non-OPEC and OPEC countries. The primary reason is that many mature fields, such as those in the North Sea, Mexico, and the Middle East, are showing declines. Non-OPEC supply, which grew by an annual average of 800,000 bbl/d between 1995-2005, is projected to grow by 800,000 bbl/d in 2006 and by 1.6 million bbl/d in 2007.

Total natural gas demand in 2006 is projected to remain near 2005 levels, then increase by 2.3% in 2007. Residential demand, is projected to slip from 2005 levels in 2006 and then increase by 3.3% in 2007. The EIA predicts that strong growth in natural gas-intensive industrial output is expected both this year (3.1%) and next (2.2%).

Domestic dry natural gas production in 2005 declined by an estimated 2.7%, mainly due to the hurricane-induced disruptions in the Gulf of Mexico. Dry gas production is projected to increase by 3.0% in 2006 and 1.3% in 2007. Total liquefied natural gas (LNG) imports are projected to increase from their 2005 level of 630 billion cubic feet (bcf) to 840 bcf in 2006. LNG imports in 2007 are expected to reach 1,070 bcf.

— Keith Ivie

Meet The Staff

Chris Hoelscher

Explosives Technology Group



Originally from Corpus Christi, Texas, Chris is married with two children. He has a Bachelor of Science in Mechanical Engineering from University of Texas at Arlington and an Associate degree in Applied Science from South Plains College, Levelland, Texas. Previously, he has worked for Halliburton as a Senior Drafter, concentrating on zonal isolation and sand control. At Granutech he was a Senior Drafter and at Baker Hughes Mining Tools he was an Engineer II, working on mechanized boring. With Owen Oil Tools for over a year, Chris is a Ballistic Engineer, working in shaped charge development. In his spare time, Chris enjoys yard work and is an avid Texas Ranger baseball fan.

Kurt Schneidmiller

Innovations Development Group



Originally from Denver, Colorado, Kurt is married with two children. He has a Bachelor of Science in Applied Mathematics from Tarleton State University, Stephenville, Texas and a Bachelors of Science in Mechanical Engineering from University of Texas at Arlington, Arlington, Texas. He has worked for Owen Oil Tools for almost a year as a Mechanical Engineer focusing on gas tight and stackable patch systems. His hobbies are computers, yard work, sports and spending time with his family.

Zeping Wang

Explosives Technology Group



Originally from Changsha, Hunan, China, Zeping is married with two children. He has a Bachelor of Science in Geophysics from Beijing University and a Masters in Geophysics. He also has a PHD in Structures and Materials from Purdue University, Indiana. Before coming to Owen Oil Tools, he spent 4 years working as a Ballistic Scientist, designing shaped charges. He has worked for Owen for nearly a year as a Ballistic Engineer, designing shaped charges. In his spare time, Zeping enjoys basketball, fishing, movies, swimming and running.



Congratulations to
AESC
on their
50th Anniversary

Development Projects –



4" / 4-1/2" SDP Charge

In November of last year the first Owen Innovation Meeting was held. This meeting involved representatives from all departments of our organization and was held to decide which areas of the Company had the greatest need in development of resources. In the area of engineering, specifically ballistics, the number 1 initiative was development of the "Next Generation HERO". It was agreed that the 1st charge/charges to be designed would be for the 4" / 4-1/2" systems.

The Explosives Technology group was already in process of developing these products prior to the innovation meeting, however we've since added several resources to enhance this development. New charge design personnel as well as hydrocode development have been used to bring this design to its current level of

performance. To date, data in the 4-1/2" gun configuration has yielded penetration in Q.C. configuration as high as 68.50" while still maintaining a very respectable 0.46" entry hole. However, we are not yet ready to release this product to manufacturing.

We will soon have appropriate pressing capabilities in the Engineering Technology Center. Once available we will finalize the design and release for initial production and API RP-19B, Section I testing. Owen is the world leader in designing "Gun Systems" and therefore we will be testing these products as a system before release, assuring that these new designs provide the intended performance when assembled as a package.

Look forward to the delivery of these products in the coming months.

– **Dan W. Pratt**

Standardized Gun System

As part of our ongoing Innovation Initiatives, we are now developing a standardized gun system. The standardized gun system will incorporate design elements from each of the current Owen Oil Tools and Owen Canada gun systems. The Owen Oil Tools (imperial gun system) and Owen Canada (metric gun system) are based on distinctly different designs and use different internal components. Due to these unique design elements, at present, our gun systems do not have interchangeable components including endplate/ alignment collars, retaining ring/snap rings, booster transfer systems, etc....

This project is being pursued to provide interchangeability of internal components

between the US and Canadian gun systems while maintaining distinct charge density and charge phasing for each market (as well as metric vs. imperial gun lengths). This will ensure a standardized gun system that is available worldwide and provide the ability to interchange internal components. The interchangeability of internal components (including charge tubes) is necessary, so as to allow the use of different sizes and types of charges within a specific gun.

Here at Owen Oil Tools, we are very excited about this new development and our progress will be updated in future announcements and newsletters.

– **Tim LaGrange, PE**



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OWEN OIL TOOLS, A SUBSIDIARY
OF CORE LABORATORIES.

Phone: 1.817.551.0540

Fax: 1.817.551.0795

MAILING ADDRESS:

12001 County Road 1000,
Godley, TX 76044, USA

EMAIL: info@corelab.com

WEB SITE:

www.corelab.com/owen

President:

Jeff West

VP of Engineering:

Dan Pratt

Sales & Marketing Mgr.:

Mike Miller

Editor:

Keith Ivie

Production & Design:

Wendy Sgt.-Fairley

Contributing Writers:

Tim LaGrange, PE., Cory Day,
Dan Pratt, Jim Mooney and Keith Ivie

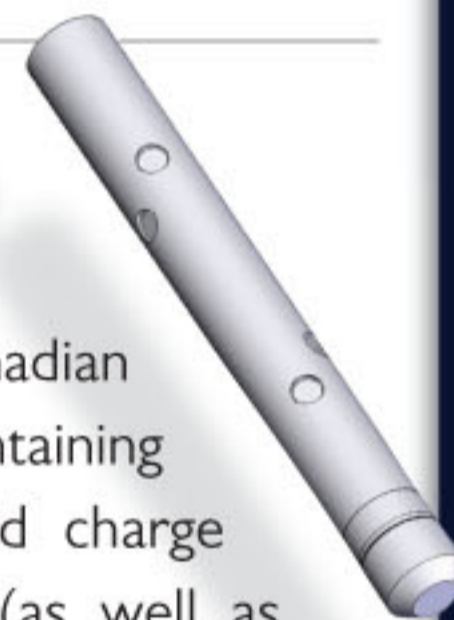
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Please send copy of mailing label
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P.O. Box 568, Godley, Texas 76044

Warning: Use of Owen equipment contrary to manufacturer's specifications or operating instructions may result in property damage, serious injury or fatality. If you are not trained in the handling and use of explosive devices, do not attempt to use or assemble any Owen perforating systems or Owen firing devices.

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OWEN OIL TOOLS
Sales & Marketing
12001 County Road 1000, Godley, TX 76044, USA
Phone: 1.817.551.0540 • Fax: 1.817.551.0795
www.corelab.com/owen



OWEN OIL TOOLS WORLDWIDE DIRECTORY

Globally positioned

ASIA/PACIFIC

Adelaide, Australia
Phone: (61-8) 8152 0244
Fax: (61-8) 8152 0255

Jakarta, Indonesia
Phone: (62-21) 780-1533
Fax: (62-21) 780-2042

Songkhla, Thailand
Phone: 66 (0) 74-334070
Fax: 66 (0) 74-334071

CANADA

Calgary, AB
Phone: (403) 571-2400
Fax: (403) 571-2409

Brooks, AB
Phone: (403) 362-2633
Fax: (403) 362-2867

Edmonton, AB
Phone: (780) 449-2021
Fax: (780) 467-0277

Fort St. John, BC
Phone: (250) 785-7792
Fax: (250) 785-7688

Grande Prairie, AB
Phone: (780) 539-0506
Fax: (780) 539-6974

Lloydminster, AB
Phone: (780) 871-0670
Fax: (780) 539-5964

Red Cliff, AB
Phone: (403) 548-2888
Fax: (403) 548-2891

Red Deer, AB
Phone: (403) 340-1017
Fax: (403) 340-1018

Slave Lake, AB
Phone: (780) 849-9789
Fax: (780) 849-9790

CHINA

Beijing, China
Phone: (86-10) 8548-0128
Fax: (86-10) 6473-9484

EUROPE

Aberdeen, Scotland
Phone: 44(0) 1224 421077
Fax: 44 (0) 1224 421005

LATIN AMERICA

Latin America
Business Development
Phone: (58) 41-668-22413

Cd. del Carmen, Mexico
Phone: (52) 938 383 18 60
Fax: (52) 938 383 18 61

Poza Rica, Mexico
Phone: (52) 782 823 5172
Fax: (52) 782 822 9105

Reynosa, Mexico
Phone: (52) 899 925 6364
Fax: (52) 899 925 9068

Villahermosa, Mexico
Phone: 01 993 310 47 00
Fax: 01 993 316 60 00

MIDDLE EAST

Muscat,
Sultanate of Oman
Phone: (968) 24593032
Fax: (968) 23492460

USA

Belle Chasse, LA
Phone: (504) 398-1727
Fax: (504) 398-1439

Broussard, LA
Phone: (337) 837-0021
Fax: (337) 837-0025

Casper, WY
Phone: (307) 266-6936
Fax: (307) 234-9710

Corpus Christi, TX
Phone: (361) 241-9575
Fax: (361) 241-3618

Godley, TX
Phone: (817) 551-0540
Fax: (817) 551-0795

Houma, LA
Phone: (985) 868-7010
Fax: (985) 868-6655

Houston, TX
Phone: (713) 238-2676
Fax: (713) 328-2150

Odessa, TX
Phone: (432) 368-9920
Fax: (432) 385-0910

Oklahoma City, OK
Phone: (405) 495-4441
Fax: (405) 495-4446

Parkersburg, WV
Phone: (304) 464-4338
Fax: (304) 464-4339

Rosharon, TX
Phone: (281) 595-3357
Fax: (281) 595-3889

Shreveport, LA
Phone: (318) 220-9009
Fax: (318) 220-0707

Snyder, TX
Phone: (325) 573-9580
Fax: (325) 573-3342

Tyler, TX
Phone: (903) 526-5300
Fax: (903) 526-5303

Victoria, TX
Phone: (361) 576-6083
Fax: (361) 576-6086

Wichita Falls, TX
Phone: (940) 569-2486
Fax: (940) 569-5505

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