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Greetings All,

During our winter board meeting, Punxsutawney Phil saw his shadow...... 6 more weeks of winter. Well, we are almost thru those 6 weeks. Finally!!!!

The Technical Committee had their meetings a couple of days before the board meeting and I had the opportunity to attend those meetings. If you ever have a chance to attend the tech meetings, I highly recommend it. The work that Don Pellow and his team does is priceless for our organization. Thank you to all of the committee members who have offered your time and input. The work you do does not go unnoticed. We will be hearing more from the subcommittees at our future meetings. The latest project, just finished, is the Recommended Practice for the Operation of Sling Shops. The AWRF members will vote on it at our April meeting in Scottsdale. This will be our 6th RP&G.

The schedule for our April convention, being held in Scottsdale is set. Some of the speakers will be: Caroline Harris speaking on “2018 Tax Policy Outlook”, Kris Paronto presenting “13 Hours: The Inside Account of What Really Happened in Benghazi “, and a panel discussion by the Technical Committee with Brandon Gutshall.

In closing, I would like to thank my fellow board members for all the work that went into making our winter meeting a success. See everyone in Scottsdale.

Nick Gladue
Dakota Riggers & Tool Supply
Sioux Falls, SD
www.dakotariggers.com

AWRF CALENDAR

2018

April 22 - 25  AWRF General Meeting
Scottsdale Omni Resorts Montelucia
Scottsdale, AZ

May 7 - 10  ASME B30 Committee
Nashville, TN

May 15 - 18  ACRP General Assembly
Doubletree Houston Hobby Airport
Houston, TX

July 11-12  AWRF Technical and Board Meeting
July 13-14  Hotel Indigo
Denver CO

September 18-19  ASME B30 Committee
Location TBD

October 14 - 17  AWRF General Meeting
Hyatt Regency San Antonio
San Antonio, TX

2019

April 7 - 10  AWRF General Meeting and P.L.E.
Hilton Cleveland Downtown
Cleveland, OH

October 27 - 30  AWRF General Meeting
San Diego Westin Gaslamp Quarter
San Diego, CA
PRACTICE MAKES PERFECT –
Even in Bridge Building at the Tacoma Narrows

By Peter Hildebrandt

Photos provided for this article by
The failure of the first Tacoma Narrows bridge in November 1940 may be among the most dramatic and well-remembered film clips ever recorded. Engineers, physics students and all those simply interested in the world around them never seem to tire of watching and commenting on the bridge that ripped apart in the relentless 42 mph winds that day only four months after the bridge officially opened in July of the same year.

The event brought forth investigations, studies, debate, and rancor among engineers but eventually led to a much better understanding of how the flexibility of such structures - both vertically and horizontally - in combination with a relatively narrow bridge width can give rise to extreme aerodynamic torsional forces. Subsequent generations of suspension bridges have benefited from far more robust designs that have corrected possible problems caused by oscillations from just the slightest wind occurrence. Though this bridge did fail; out of that failure came a deeper understanding of what needed to be done to correct such problems in the future.

The bridge opened on July 1, 1940 to public acclaim. It had been completed in record time and, with a 2,800-ft. central span, was the third largest span in the world. The people of western Washington celebrated the realization of their hopes when the Tacoma Narrows Bridge opened to traffic.

This first suspension bridge to cross the Tacoma Narrows, which separates Tacoma, Washington, from the southern part of the Olympic Peninsula was a long-time dream of area residents. That structure opened to traffic but succumbed to wind-induced instability just four months later. Although no lives were lost in that stunning collapse – with the exception of a black Cocker Spaniel named “Tubby” - the event shook the engineering community and prompted many to question the profession’s understanding of wind-induced forces in an elegant type of bridge that was gaining popularity at the time: the suspension bridge.

Early on, this toll bridge gained the nickname “Galloping Gertie.” Those crossing paid 55 cents per car, 15 cents per passenger, and 15 cents for pedestrians. It even became something of a tourist attraction. Lines of up to 50 cars formed, waiting to ‘ride’ the gently undulating bridge.

Although engineers were convinced that the structure was safe, in late July 1940 the University of Washington, under the direction of an engineering professor, F.B. Farquharson, began filming the bridge’s movement and conducting a series of experiments to attempt different methods to limit the movement. Film footage at the time of the opening show people and vehicles crossing the bridge while it is gentle rocking.

The original Tacoma Narrows Bridge was built between November 1938 and July 1, 1940. Viewed as a vital economic and military portal to the Olympic peninsula, its completion was called a triumph of man’s ingenuity and perseverance. Four months after it opened to the public it fell, an event later described as the “Pearl Harbor of engineering.”

Though at the time many people seemed to be in shock about the collapse, the bridge also always had some wavelike undulations even in the final phases of its construction. Perhaps such activity, because it was occurring, was thought to somehow be normal for this structure.

Farquharson and other University engineers were hired to suggest methods to reduce the movement on the bridge. Over the next few months experiments were conducted on a scale model but a solution to the problem proved elusive. Perhaps engineers on the Tacoma Narrows Bridge could have benefited from the work of George Washington Bridge builder, Othmar Ammann.

As Ammann hung his bridge’s suspender cables and the bridge deck took shape, he felt that, though the use of strengthening, stiffening trusses can prove to be critical, his GW Bridge could do without them to keep the structure from vibrating and bowing. Ammann’s gamble, his going with his gut in the case of the George Washington Bridge paid off in the end. But his bridge was also much heavier and wider than the Tacoma Narrows Bridge. Designers of the Tacoma Narrows Bridge made the same decision as Ammann. But in their case the results were far different.

But it can get quite windy along the Hudson River in Upper Manhattan as well, yet the GW Bridge remains standing. Clearly the design, one using simply steel girder without strengthening trusses proved the main factor in the Tacoma bridge’s collapse. The wind accentuated the problem, letting this design flaw doom the bridge a mere four months after completion. As mentioned, the GW Bridge did without the trusses which most likely would have held the Tacoma Narrows Bridge in place and keep it from undulating in the wave motion eventually proving fatal to its existence.

On November 7, 1940 Professor Farquharson witnessed and documented the dramatic collapse of this, the third longest suspension bridge in the world at that time one also containing the longest single span in the country. In the aftermath many theories were brought forth regarding the cause of the bridge’s collapse.

But in the end, an investigative board for the Washington State Toll Bridge Authority concluded failure came from the bridge’s design in the face of the Narrow’s winds. With this cause of wind-induced instability, the dramatic collapse sparked renewed research into the aerodynamics of suspension bridges, research that informed the design of both newer structures.

Perhaps no bridge owner has been more aware of why changes would have to come in the design of the replacement bridge, and more vigilant in its efforts to prevent similar disasters, than the Washington State Department of Transportation (WSDOT). The agency opened a suspension bridge replacement for that first bridge in 1950. This new structure was constructed on the original bridge’s deep-water caissons and above its submerged debris field.

As the Tacoma Narrows Bridge was being dismantled, Farquharson, also director of the University of Washington Engineering Experiment Station, was employed by the state to create and test a scale model of the original bridge to confirm the cause of the bridge’s collapse.
The new bridge floor was made with a lightweight concrete to counteract the placement of a wider bridge that carried four lanes of traffic. The increased weight of the bridge added foundation pressures of 6%. The anchorages were substantially enlarged to support the increased weight.

Tests continued to run for the duration of World War II. These tests confirmed the collapse of the original bridge was due to its flexibility and inability to absorb the dynamic forces caused by the wind in the Narrows. Tests also consistently showed a new bridge design that would withstand steady winds of 125 mph. Steel became available in late 1947, and although there were initial problems in finding financiers, construction on the $14,000,000 replacement bridge began in June 1948.

The floor also had open steel gratings between each driving lane to act as stabilizing agents. Double acting hydraulic jacks were also placed on the towers and bridge deck where the main cables connected to the supporting cables and the trusses. The new design called for a wider bridge that was heavier and sturdier than the original. The girders were open trusses that offered less wind resistance than the solid girders of the first bridge.

The original piers were used to build towers with legs that, instead of being 50 ft. apart at the bottom and 39 ft. at the top, were 60 ft. apart at top and bottom thus creating better distribution of load on the piers. The pedestals had to be removed and constructed to support the new legs.

On October 14, 1950, 29 months after construction began, the new Tacoma Narrows Bridge opened to the public. Slowed by fire and an earthquake, construction lasted longer than anticipated. Once the spinning of the wire rope cables for the bridge was complete the strands were compacted, and welded cable bands were placed around them. The cables were then wrapped in galvanized wire before being laid in a thick paste of red lead. Finally, they were painted to match the towers; the final step involved with this bridge’s cables construction.

But the need for additional traffic capacity across the Tacoma Narrows was acknowledged as early as the 1980s. In 1993 various proposals were issued under a specific stipulation of a Washington legislative request for public-private proposals to develop transportation infrastructure projects in the state. Development of the new bridge began that same year.

On September 25, 2002, the WSDOT issued a notice to proceed, directing Tacoma Narrows Constructors (TNC)—a 50:50 joint venture of Bechtel Infrastructure Corporation, of San Francisco, and Kiewit Pacific Company, of Omaha, Nebraska—to plan and build the new suspension bridge parallel to and some 55 miles south of the existing crossing. TNC retained Parsons/HNTB, a joint venture of Parsons Transportation Group—part of Parsons, of Pasadena, California—and HNTB, which has its headquarters in Kansas City, Missouri, to design the bridge and supply other engineering services.

In July 2007 the department celebrated the completion of a new Tacoma Narrows Bridge, which alleviated traffic congestion on the 1950 crossing. This latest bridge project allowed the WSDOT to benefit not only from the knowledge that has been gained in the decades since the original bridge’s collapse but also from the comparatively new project delivery method, design/build. Design/build teams incorporate innovations in an efficient and cost-effective manner, something not always possible using other bridge building methods. Opening on time and under budget, this latest Narrows bridge bears witness not only to the effectiveness of modern engineering and design methods but also to the rewards conferred by collaborative planning and teamwork.

This new structure would have a main span 854 meters in length and be a way for travelers on Route 16 to cross eastward from Gig Harbor, Washington to Tacoma. This bridge would also be among the first suspension bridges on the North American continent to feature a design-build contract, carrying a definitive delivery date and fixed price.
The bridge's two 155 meters tall reinforced-concrete towers are founded on massive reinforced-concrete gravity caissons built by open dredging. Gravity anchorages on the hillsides serve to secure the suspension cables. The suspended superstructure consists of 7.2 m deep and 1,646 m long continuously welded steel trusses with a built-in orthotropic steel deck. The design is such that a future roadway or light-rail system on a deck beneath the main deck may be a future possibility.

Though starting out with only one lane for high-occupancy vehicles and two lanes for all other traffic, in time the public pushed for inclusion of a fourth lane devoted to traffic entering from Gig Harbor and exiting at Tacoma.

Structural elements of the bridge, including the towers and foundations, the anchorages, and the superstructure framing, were designed to physically accommodate the second deck, but an alternate cable system would have to be added to fully support the lower level should the need for it arise. Detailed analysis, including seismic and aerodynamic studies, were conducted to support the design of these elements for these potential future loads.

Early in the project the design/build team tackled the challenge of determining the most suitable foundation type for the two main towers of the new bridge. Two prominent types were considered in detail: large-diameter drilled shafts and deep-water gravity caissons.

Because of the unique and challenging site conditions—including very deep water, swift tidal flows, geotechnical features that made it possible for boulders to conflict with foundation locations, and the overall design and construction risk associated with using drilled shafts—gravity caissons were selected. In arriving at that decision, integrated design and construction teams advanced two competing initial designs and then evaluated the benefits of every possible foundation design and construction scenario.

This approach enabled the teams to review every facet of construction planning early in the design development phase and yielded a design solution that met the needs of those who would be constructing the caissons. The soil conditions at the caisson locations result from glacial deposits of sand, gravel and silt, and the depth to bedrock is estimated to be roughly 550 meters. These dense granular soils provide an effective bearing stratum for the caissons and made it possible for the caisson sinking operations to go on expeditiously using conventional clamming equipment.

Each of the two caissons consists of a 5.5 meters tall steel armored cutting-edge, false-bottom air domes that provided buoyancy during construction, a submerged reinforced-concrete caisson body more than 20 stories high encompassing integral dredge wells, and a 4.6 m thick caisson cap designed to receive the pedestal of the tower base. As designed, the footprint of each caisson is 24.3 by 39.6 meters; their heights are 64 and 58 meters.

The new bridge caissons are a mere 20 meters from the foundations of the 1950 bridge, and site reconnaissance revealed that they were to be constructed at the location of a scour hole created by 64 years of tidal flows. A scour analysis of the existing bridge showed that while the scour hole was very large, it had a long way to go to reach its full potential.

Site investigations using underwater video equipment and current profiles revealed that a layer of gravel had formed on the seabed and was resisting further scouring. Because the new caissons required a level bed on which to land, it was necessary to excavate down to the natural seabed, which would expose the entire area, including the existing bridge, to further scour. Therefore, during periods of low tidal flows, the seabed was leveled, and a thick layer of rip rap was placed to armor the areas around both the new and the existing bridge foundations.

During the sinking operations, each caisson was held in place by a radial pattern of sea anchors, each adjusted for every lift of the caisson concrete. The positioning of the caisson was controlled by

Continued on page 76
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Monday – April 23rd, 2018

7:00 a.m. Networking Breakfast
7:30 a.m. Call to order and Association Business/Committee Reports
8:00 a.m. Tom Sullivan – U.S. Chamber of Commerce – “Small Business – Big Impact; The Role of Small Business in the Economy”
9:00 a.m. Kris Paronto – “13 Hours: The Inside Account of What Really Happened in Benghazi”
10:00 a.m. Mike Patten – Southwest Industrial Rigging – “Our Rigging Job of the Year”
11:00 a.m. Adjourn

Tuesday – April 24th, 2018

7:00 a.m. Networking Breakfast
7:30 a.m. Call to order and Association Business/Committee Reports
8:00 a.m. Caroline Harris and Ed Mortimer – U.S. Chamber of Commerce – “The Growth Frontier: Tax Reform and Infrastructure Modernization”
9:00 a.m. Panel Discussion – AWRF Technical Committee with Brandon Gutshall – “Risk Management Techniques”
10:00 a.m. Felix Nyberg – Gunnebo Johnson Corporation – “Effects of Environmental Conditions”
11:00 a.m. Billy Strawter and Dimitri Pivtorak – MILO Detroit – “Lifting Your Business with Social Media 2.0”
12:00 noon Adjourn

Subject to change
April 2018 AWRF General Meeting Speakers

**Thomas M. Sullivan - Vice President, Small Business Policy**

Thomas M. Sullivan is vice president of small business policy at the U.S. Chamber of Commerce. Working with chambers of commerce and the U.S. Chamber’s nationwide network, Sullivan harnesses the views of small businesses and translates that grassroots power into federal policies that bolster free enterprise and reward entrepreneurship. He runs the U.S. Chamber’s Small Business Council and the Mid-Markets Business Council, engaging those members on a regular basis to increase small business input and involvement in Chamber activities.

Sullivan served under President George W. Bush as the highest-ranking government official charged with exclusively advocating the views and needs of small business before government agencies and Congress. As chief counsel for advocacy at the U.S. Small Business Administration, he was directly involved in more than 100 regulatory and legislative matters, testified frequently before congressional committees, and was a spokesman on economic conditions and entrepreneurship. The hallmark of his tenure at SBA was a national legislative initiative guaranteeing that small business has a voice in state regulatory decisions.

**Kris “Tanto” Paronto - Security and Military Consultant • Hero of Benghazi Attack**

Kris Paronto - “Tanto” as he is affectionately known in security contracting circles - is a former Army Ranger from 2nd Battalion 75th Ranger Regiment and private security contractor who has deployed throughout South America, Central America, the Middle East and North Africa. He also worked with the US Government’s Global Response Staff conducting low profile security in high threat environments throughout the world. Mr. Paronto was part the CIA annex security team that responded to the terrorist attack on the US Special Mission in Benghazi, Libya, September 11th, 2012, helping to save over 20 lives while fighting off terrorists from the CIA Annex for over 13 hours. Mr. Paronto’s story is told in the book “13 Hours” written by Mitchell Zuckoff and his five-surviving annex security team members. Kris’ newly released memoir, “The Ranger Way” is now available for pre-order and is being released on May 23rd. Mr. Paronto was born in Alamosa, Colorado and obtained his Associate Degree from Dixie College (now Dixie State University) in St. George, Utah, Bachelor’s Degree from Mesa State College in Grand Junction, Colorado and Master’s Degree from The University of Nebraska at Omaha. He served 4 years in the US Army and an additional 4 years in the US Army National Guard reaching the rank of Sergeant then becoming a commissioned officer in 2003. He started contracting for Blackwater Security Consulting in 2003 and continued to deploy on various security contracts, to include the Global Response Staff until 2013. Mr. Paronto has been involved in security operations in hostile environments for over 10 years. His team’s involvement with the September 11th, 2012 attack on the US special mission in Benghazi, Libya was paramount in the saving of US lives and assets. He is a proven leader, teammate and friend to those who have deployed with him, and a devout father to three children.

**Mike Patten – Safety and Training Director – Southwest Industrial Rigging**

With over thirty years of experience in the mining industry as a rigger, crane operator and Millwright; Mike is one of the most knowledgeable crane and rigging safety trainers available for lifting equipment training. He has been actively involved in the safety aspect of the construction and general industry as a trainer since 1982 and is an authorized OSHA & MSHA instructor as well as an NCCCO (National Commission for the Certification of Crane Operators). He is also a Practical Examiner for all mobile crane types & rigging and signal person. In 2009 Mike was named the Top Corporate Trainer in the United States by Crane Hotline magazine, and he has been asked to contribute his crane and rigging safety knowledge with various organizations including Intel, The Mosaic Company, APS Palo Verde and Occidental Petroleum. His knowledge and experience in the crane and rigging industry led to his hands on, no-nonsense approach to safety.

**Caroline Harris - Vice President, Tax Policy, and Chief Tax Policy Counsel**

Caroline L. Harris is vice president, tax policy, and chief tax policy counsel at the U.S. Chamber of Commerce. She directs the development, promotion, and publication of the Chamber’s policy on tax-related matters. She analyzes tax legislation, other legislation with revenue-raising provisions, and tax reform proposals, and submits comments, Hill letters, and testimony to Congress and regulatory agencies. Harris routinely meets with members of Congress and their staffs, the administration, and regulatory agencies to promote the Chamber’s tax policy. Harris also frequently speaks to business leaders, local chambers of commerce, other trade associations, and member companies to educate them on the Chamber’s tax policy priorities and current legislative outlook. She regularly meets with Chamber members to assess what provisions affect their businesses.
**Edward Mortimer – Executive Director, Transportation Infrastructure**

Ed Mortimer serves as executive director of Transportation Infrastructure at the U.S. Chamber of Commerce. Mortimer oversees the development and implementation of the Chamber’s transportation infrastructure policy and represents the Chamber on Capitol Hill as well as before the administration and industry organizations. He also leads the Americans for Transportation Mobility (ATM) Coalition, a collaborative effort by business, labor, transportation stakeholders, and concerned citizens to advocate for improved and increased federal investment in the nation’s aging and overburdened transportation system. Mortimer comes to the Chamber from AECOM, an engineering and construction company, where he served as director of government relations. He was responsible for coordinating government affairs efforts with the company’s infrastructure market segment, representing AECOM’s interests before federal, state, and local officials. Prior to that, Mortimer was director of Transportation and Infrastructure at the U.S. Chamber. Earlier in his career, he was director of government relations for the Transportation Intermediaries Association (TIA) and a legislative representative for the American Road and Transportation Builders Association.

**Brandon Gutshall – Partner - Shook, Hardy & Bacon LLP**

Brandon is a partner with the firm Shook, Hardy & Bacon LLP. He practices all aspects of general and product liability litigation in courts across the country. His practice focuses on defending cargo securement and heavy construction manufacturers in high-stakes product liability litigation. As part of that practice, Brandon regularly leads litigation risk assessments to help manufacturers reduce litigation risks throughout all aspects of their company. Brandon handles large dockets of cases with a focus towards efficient case resolution. To further this goal, he has developed lasting relationships with his clients. He prioritizes understanding their products, services, and contracts. Brandon prides himself on leveraging his client knowledge to resolve matters quickly, often before his client is forced to incur the expense of substantive case work-up. Brandon graduated summa cum laude from the University of Missouri-Kansas City School of Law in 2009. He was the recipient of the Academic Excellence Award, graduating first in his law school class. During his final year of law school, Brandon served as editor-in-chief for The UMKC Law Review. Brandon lives in Kansas City with his wife of 14 years, Meredith, and they have four children.

**Felix Nyberg - International Sales Manager - Gunnebo Industries**

With a background in Industrial Engineering, Felix Nyberg currently works as International Sales Manager for Gunnebo Industries - a leading manufacturer in the lifting and material handling industry. From his base in the Västerås headquarters of Gunnebo Industries, he travels extensively, managing: South East Asia, Eastern Mediterranean, the Baltics and eastern Europe. In addition to managing sales, Felix has also helped develop and carry out Gunnebo Industries’ training program. In 2017 he spent 3 months as a Product Specialist in the U.S., providing training to customers and end-users across the country. Now, in April 2018, he will return to North America as Director of Sales for parts of the U.S. as well as Canada. In his free time, Felix can often be found practicing for and participating in long-distance races; most recently completing a Swedish Classic, consisting of a 55 mile cross country ski race, 185 mile bike race, 30k trail running and 2 mile river swim.

**Billy Strawter - Director of Digital Services - MILO Detroit**

Coming from a traditional marketing background, Billy seamlessly blends traditional and digital marketing. He has worked with international brands and companies, leading hundreds of successful, measurable digital marketing strategies backed by data and insights that have resulted in over $750 million in incremental sales. Billy specializes in alignment and integration of traditional and digital marketing objectives, data-informed digital strategy development, management and optimization of digital campaigns including PPC, Email, retargeting, SEO and social media channels. Billy’s background includes advanced manufacturing, automotive, food, retail, finance and technology.

**Dmitri Pivtorak - Digital Strategist - MILO Detroit**

With a marketing background that spans over a decade, Dmitri has experience working within all facets of digital, including social media and digital advertising. He specializes in developing and executing digital strategies for clients, which includes social media community management, content creation, digital and social ad targeting. He utilizes data and current technologies to monitor active campaigns, tailoring them for continued success. Dmitri's background includes work with medical, nonprofit, automotive, government, technology, retail, manufacturing and faith-based organizations.
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Joint Employers

On December 18th of last year, the Wall Street Journal published an editorial entitled A Joint-Employer Redo. The article is noteworthy for its review of the history of this woeful subject.

In 2015, the Obama administration’s deference to labor unions reversed three decades of legal precedent regarding joint employment with a stroke of the pen by the National Labor Relations Board (NLRB). The well established “direct control” standard for defining employer status known as the Browning-Ferris decision was reduced to “indirect control.”

Until Browning-Ferris, to be classified as an employer, a business needed the ability to hire, fire, discipline and establish working conditions. Suddenly, employer/employee status was created via indirect control over workers for purposes of establishing joint employment. Did this mean that temporary employment agencies, contractors who employ subcontractors, franchisors and technical support companies were now to be considered joint employers along with the real employers of these workers? Yes, because the goal of the Obama NLRB was to force as many indirectly related companies into the labor disputes of their franchisees and subcontractors as possible. The intent was also to expand bargaining units by the combining workers of contractors and their subs or franchisees with their own workforce.

Totally apart from the obvious legal uncertainties created by the new joint employer concept, former Secretary of Labor, Tom Perez exacerbated these burdens by applying the indirect control standard to overtime rules and minimum wage issues. Suddenly, this nightmare for businesses became a haven for trial lawyers. Gradually, to reduce exposure to liability, paternal assistance to subcontractors and franchises was diminished or totally withdrawn.

Enter the new administration in 2017. The current Labor Secretary, Alexander Acosta, soon withdrew the former Perez guidance rules and in December, the NLRB overturned “Browning-Ferris” in the interest of restoring stability to wavering labor/management relations.

In order to solidify the joint employer issues, it is necessary for Congress to adopt appropriate legislation. Otherwise, the pendulum is likely to swing back to “Browning-Ferris” status with the next anti-business administration. On November 10, 2017, the House of Representatives obliged by passing a bill (HR 3441) codifying the standard of direct control for joint employer status. Eight Democrats voted with the Republicans. Next up is Senate action where a filibuster is likely. The Government Affairs Committee of AWRF suggests that you ask your Senators to cast a vote for good business sense in supporting the Save Local Business Act.
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A retired Marine Corps Colonel, Baron has forty years of leadership, management, and mentoring experience. In the ten years of his business career, he has been an investment banker, a C-level executive in the oil and gas sector, a management consultant, and for the last two years, the CEO of ELS. ELS is a consultative chemical distribution company for the oil and gas industry, and the premier distributor of nanoActiv® HRT, a disruptive nanotechnology developed by Nissan Chemical America. Baron’s professional career spans a diverse spectrum of positions: Marine Corps officer, fighter pilot, strategist, intelligence officer, professor, commander, and finally, senior business executive.

If I have heard it once, I have heard it a thousand times, “I’ve been in the oilfield for XX years and this is my X downturn. I’ve been through this before and know what to do.” Ironically, in 2014 I thought so too until I did some research for prospective advisory clients. The fact is, the 2014 to 2016 “Oil Price War” was different from anything we have ever seen. This time, it was not only different; it was in reality the beginning of a new age. A time when the U.S. is on the verge of energy independence; an eventuality that will change just about everything in terms of how we view the world and our role in it. Sound farfetched? Then please read on and come to your own conclusions.

A combat tour against Iraq and years of planning against regional threats like Iran, during nearly three decades as a Marine Corps officer have given me an acute awareness of the strategic nature of the global oil industry. So, it should be no surprise that I chose to use the term “Oil Price War.” You could be more “PC” and call it “predatory competitive tactics to gain market share,” but the truth is, oil IS the global currency and the life-blood of global commerce. And, the rapid collapse of oil prices in late 2014 was a deliberate act to undermine the viability of U.S. unconventional oil productivity. It certainly was undermined, as the following illustration from my presentation on the subject indicates (see Figure 1):

Figure 1
The first major difference between this oil price war and the last time OPEC manipulated production to drive down oil prices in 1985-1986, is the U.S. shale oil revolution (or more accurately the U.S. unconventional oil production revolution). Over the last seven years, U.S. conventional oil technological advances have given us a real possibility of U.S. energy independence, and they have caused a crippling drop in market share for OPEC. The startling fact is the U.S. has been the biggest oil producer (total oil supply) since the third quarter of 2012 (see Figure 2 from the EIA). This fact seems to be missing in the news. If you remember, domestic oil production was in a very steep decline back in 1985—we were running out of oil, and it took the U.S. energy industry nearly twenty years to recover from that oil price war. The advent of horizontal drilling and hydraulic fracturing has literally changed the global strategic picture.

**Figure 2**

Based on this U.S. shale oil revolution, OPEC’s response should perhaps have been predictable. They (and I really mean Saudi Arabia) simply went back to the 1985 playbook, and in the face of impending oversupply, decided to keep OPEC oil production levels at the 30.4-million-barrel mark. At the November 2014 OPEC meeting, Saudi Arabia abdicated their traditional role as “price setter,” stating that the market would find its own equilibrium. This move effectively made the U.S., and specifically U.S. shale oil, the global swing producer, which highlights two interesting problems making that swing producer role a bit difficult:

1. We can’t refine all the light, sweet WTI crude we can produce
2. Legislation dating back to the 1973 oil embargo prevented the export of U.S. crude oil, until a legislative change in early 2016

Thankfully, OPEC has come to its senses since mid-2016 and our new presidential administration has done much to improve the relationship with Saudi Arabia. The outcome has been a 49% increase in oil prices since the low point in April of 2016, and unlike the 1985/86 price war, the U.S. energy sector is alive and flourishing due to better business practices, rapidly advancing oil production technology (to include the product my company sells, nanoActiv® HRT), and since the 2016 presidential election, a thriving U.S. economy coupled with a recovering global economy.

The shale oil revolution, brought about by advancing technologies in horizontal drilling and hydraulic fracturing, is a uniquely American phenomenon. There are, of course, several other countries with significant shale oil potential—France, Russia, China, and Argentina just to name a few, but none of them have the unique set of circumstances we enjoy in the U.S. The five factors below are unique to the U.S. and give our shale oil industry an advantage that no other country has or can have for many decades to come—if ever. The following is in part paraphrased from *The Accidental Super Power*, by Peter Zeihan, a book I think everyone should read:

1. **We enjoy a unique geological history, and political and economic systems that make U.S. shale oil development possible.** I’m not a geologist, but even a cursory study of U.S. geological history will tell you that we have a unique set of circumstances that makes unconventional oil production not only possible, but virtually guarantees that we will be able to produce enough oil domestically to supply our needs for as much as two hundred years. This astounding bounty of natural resources is coupled with a political and economic system that allows companies and private citizens to financially benefit from this treasure of energy related resources. Say what you want about the American republic and our sometimes rather embarrassing and alarming political realities. That same republic when combined with a free enterprise system is what has driven this country into super power status and will continue to do so for a very long time.

2. **Shale oil development requires huge amounts of readily available capital—$6-to-12 million per well.** When one considers that it takes a lot of wells to maintain a reasonable production capability (about 25,000 wells a year, based on current extraction rates and decline curve realities), the tremendous amount of low cost capital required is obvious. The good news is that we have never had more cheap capital available.

*Continued on page 82*
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Oops!
because we missed this in the last issue

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The AWRF Technical Committee (TC) is looking for volunteers with new ideas for our committees to pursue. Whether it be information, testing, data gathering, a new approach for informing the AWRF members of the work the TC is accomplishing or other proposals.

You don’t have to be an engineer to be on the TC, you just need to be an active AWRF member with product knowledge and interest in advancing the work of the TC.

The TC is committed to establishing, acquiring, preserving and disseminating technical information within the lifting, rigging and load securement industry. The TC also deals with common problems of the industry, such as those involving risk management, Shop Safety and developing Recommended Practices and Guidelines, RP&G.

If you are interested in becoming part of the AWRF Technical Committee please contact Technical Committee Chair, Don Pellow – Pellow Engineering Services, Inc. – www.donpellow.com. Email - dpellow@aol.com

**Technical Committee Sub-Committees**

- **Below the Hook Lifting Devices**
  - Chair: Tom Eicher – The Caldwell Group
- **Blocks, Tackle & Other Fittings**
  - Chair: Brett Woodland – Yarbrough Cable Service
- **Chain & Chain Slings**
  - Chair: Tim Lewis – Columbus McKinnon
- **Cordage & Cordage Slings**
  - Chair: Greg D’Elia – Slingmax
- **Information Resources**
  - Chair: Tim O’Rourke – Strider~Resource
- **Load Securement**
  - Chair: Celena Moses – Van Beest
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  - Chair: Tony Mazzella – Mazzella Companies
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  - Chair: Mark Kowalick – Liftex Corp.
- **Wire Rope & Wire Rope Slings**
  - Chair: Tim Klein – Wireco WorldGroup

The Next TC meeting is July 11-12, 2018 at the Denver Indigo hotel in downtown Denver. Hope to see you there.
Enhanced Large Capacity 9-Part Slings from Union —

Now offering:
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WireCo’s 9-Part Super-Flex slings have improved efficiencies providing the industry’s maximum-rated capacity lifting slings per diameter for wire rope. The improved efficiency is backed with a proven design that provides internal adjustment to distribute the load equally among all nine parts of the sling body.

Are You Taking Your Vacation Days?

Believe it or not – rest can mean more than just getting your eight hours every night. Rest includes a good night’s sleep as well as weekly, monthly, and yearly relaxation and rejuvenation. In 2013 alone, Americans left 429 million paid time off days unused. And in 2014, 42 percent of Americans did not take a single vacation day!

If you are one of the many Americans shorting themselves of necessary rest, consider these tips to start incorporating more rest into your daily life:

- Go for a walk on your lunch break to incorporate a much needed break in your day
- Plan your family vacations ahead so you have something to look forward to
- Turn your phone off or on silent during dinner time so you are fully present with your family
- Take a hot bath, meditate, or do deep breathing exercises to decrease stress
- Use your vacation days!

Are you one of the 4 out of 10 Americans that don’t use their full vacation days? Don’t let them go to waste! Here are five reasons to start planning your next vacation:

1. **Taking vacation can lead to better health** - The stress of your day to day job can take a toll on your heart health, but taking a vacation from time to time can help reduce your risk of a heart attack.

2. **Build stronger relationships** - Vacations provide valuable time for family and loved ones to be together and create lasting memories.

3. **Increase mental strength** - The feeling of calmness and happiness most get while on vacation can do wonders for the brain.

4. **Gain new perspectives** - Learn about a new culture or language and explore new destinations - all of this will open you up to new perspectives on life and what’s most important.

5. **Return to work more productive** - now that you’re rejuvenated from your vacation you’ll be able to focus on the task at hand.

These tips should help you incorporate more rest (daily, weekly, and yearly) into your life. However, Florida Hospital knows that nightly rest is still as important as ever! In fact, Florida Hospital developed a program to help end exhaustion, enhance energy and sleep smarter.

The Rest of Your Life addresses the whole person, looking at areas like stress, outlook, and exercise that could make a huge difference in whether or not you get good rest and feel energized the next day. If you are interested in offering this program at your company, contact us at (407) 303-9910 or email FH.Health.Performance.Strategies@FLHosp.org.

---

**Spaghetti Squash with Marinara Sauce**

**Ingredients**

- 3 lbs. Spaghetti Squash
- 1 1/2 cups yellow onion, diced
- 3 tablespoons fresh garlic, chopped
- 1 tablespoon olive oil
- 1 1/2 teaspoons dried basil
- 2 teaspoons dried oregano
- 1 teaspoon fresh thyme
- 1/8 teaspoon red chili flakes
- 3/4 teaspoon honey
- 6 cups diced tomatoes in juice
- 2 cups crushed tomatoes
- 1/2 cup fresh basil
- 1/2 teaspoon salt

**Directions**

Cut spaghetti squash in half lengthwise and clean the seeds.

In a roasting pan place the squash open face down and add water to cover at least 1/8 of the squash. Bake squash for 45 minutes at 350 degrees and scrape the spaghetti strands.

While the squash is roasting, place the olive oil in a medium sauce pan and sauté the first 6 ingredients, when onions start to get translucent add the rest of the ingredients except the fresh basil.

Simmer sauce for 20 to 25 minutes. Remove from the heat, add the fresh basil and puree sauce in a blender.

Return the sauce back to the heat source and simmer for 5 more minutes.

Divide the spaghetti squash into 8-3oz. servings and serve with 3 oz. marinara sauce.
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Time to take advantage of the **NEW**

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What a great opportunity you have to take advantage of the online safety video program that has been set up for AWRF members. With **24/7** access to over **250** safety videos, you can help keep your employees safe. By using the free tokens, you can access the videos from any computer, anywhere! 90% of the videos are available in both English and Spanish with a downloadable quiz. Ask us how to use your free tokens.

**YOU SHOULD NOT PASS ON THIS PROGRAM!**

The QHSE committee and the Board of Directors urges that your safety manager/team takes advantage of this **important** resource. With 2.9 million non-fatal workplace injuries and illnesses reported by private industry, we need to do our part in reducing these numbers.

Need to access your 4 FREE tokens or have any questions? Contact Emily Gilbert at [emily@awrf.org](mailto:emily@awrf.org) or call 313-608-3884

[http://www.clmi-training.com/awrfstreaming](http://www.clmi-training.com/awrfstreaming)
The new Green Pin Power Sling® Shackle saves you 20% on wire rope costs.

In today’s challenging times, heavy lift projects require revolutionary power. The new Green Pin Power Sling® Shackle gives you this power in a range from 125T - 1250T. Its unique design (patent pending) enables you to lift the same load with lighter wire rope, reducing cost by 20%.

DOWNLOAD THE CAD DRAWINGS ON GREENPIN.COM/POWER
Passing Over
The Wire Rope Bridge

Susan Perkins Meder

Susan Perkins Meder, 64, a resident of Westfield, NJ, passed away on Saturday, November 25, 2017, in Ortley Beach, NJ.

Susan was born in Philadelphia, PA, to Raymond and Nancy Peck Perkins. She met her husband of 33 years, Eric Meder, while she was working as a buyer for the retail chain Bamberger’s (now Macy’s).

Their sons, Eric (“Rick”) and Alex, were born in Westfield, where Eric grew up and Susan and Eric have lived for 32 years. Susan was devoted to her family, whom she loved more than anything, and never wasted a minute of her active and energetic life as a homemaker, volunteer, working professional, exercise enthusiast and world traveler. She loved summers with her boys at Ortley Beach, as well as the wonderful weekends she and Eric spent there with family and friends.

Susan was preceded in death by her parents, her brother, Raymond Perkins, and her brother-in-law, Bernie Ritchey. Survivors include her husband Eric and their two sons, Rick, and his partner, Ariel Risinger, of Jersey City, NJ, and Alex and his wife, Mary Kate, of Hoboken, NJ; sisters Nancy Ritchey of Manasquan, NJ, and Judy Perkins of Ocean City, NJ; brothers Paul Perkins and his wife, Lorraine, of Mount Holly, NJ, and Donald Perkins of Las Vegas, NV; sister-in-law Valerie and her husband, Richard Williams, of Richmond, TX, as well as a number of beloved nieces and nephews.

The Meder family would like to thank family, friends and all who have provided support during this difficult time. Donations may be made to Children’s Specialized Hospital, 150 New Providence Road, Mountainside, NJ, 07092 www.childrens-specialized.org or the Mental Health Association in New Jersey, Inc., 673 Morris Avenue, Suite 100, Springfield, NJ, 07081 www.mhanj.org/donate or the charity of the donor’s choice.

Ms. Janie Mayle

It is with heavy hearts that we inform you of the death of our beloved President, Ms. Janie Mayle. She unexpectedly passed away following a brief illness. Janie was a valuable employee to Voto. Over the past 41 years she has worked at Voto in various capacities starting as receptionist, inside sales, Secretary to the Board of Directors, Corporate Secretary, Vice President of Sales and President/CEO. Janie took over the Presidency during a difficult time and lead our company into some of its most prosperous years. She cared very deeply about our Voto family. Needless to say we will all miss her more than words can express. Her passing has deeply affected us all. She was not just our boss but our good friend as well. Our company will move forward confidently through her legacy.

Memorial contributions may be made in Janie’s memory to the Jefferson County Humane Society or Hounds Haven.

Reitzel Orville Swaim, Jr.

Reitzel Orville Swaim, Jr., 80, of Sadsbury Twp., went home to be with the Lord on Tuesday, January 23, 2018, under the care of Tel Hai Retirement Community. He was the widower of Doris J. Swaim, who passed away in 2016 after they had shared 53 years of marriage.

Born in Coatesville, Reitzel was the son of the late Mary L. (Richardson) and Reitzel O. Swaim Sr.

He was a graduate of Scott High School and obtained an Assoc. Degree from Wharton.

Reitzel served in the United States Army Reserve from 1960 to 1966. He served in Coatesville, and later on in Reading. He was Company A, 4th Battalion, 77th Armor, of the 157th Infantry Brigade.

He was the former President and Owner of ALP Industries.

He is survived by two daughters, C. Elise Shepard of Coatesville, and Stephanie A. Jones, wife of Donald, of Parkesburg; five grandchildren, Michael, Hannah, Emma and Ruth Shepard and Lisa Jones and his brother, Bob Swaim of Coopersburg, PA. He was predeceased by his son, Michael Lee Swaim; and brother, Jim Swaim.

Memorial donations may be made in his memory to the Parkesburg Point Youth Center, PO Box 731, Parkesburg, PA 19365.
Profit Improvement Report

Distributors in all lines of trade, including AWRF members, operate in a sales-focused environment. Interestingly, that focus is both positive and negative. On the one hand, the economy continues to provide a strong tailwind which allows firms to enjoy steady, albeit moderate, growth. On the other hand, there is near-hysterical concern about how Amazon might cause the sales party to end badly.

Such a sales focus inevitably leads to a challenge with regard to expense control. In a strong growth environment, expense control is largely neglected. Further, if Amazon is a competitive concern, then there is a feeling that customer services—and the associated expenses—need to be increased.

This report attempts to balance with the sales versus expense conundrum. It does so by examining two specific issues:

- **Goal Setting for Expense Control**—A suggestion as to the specific targets that firms can use to control expenses over time.
- **Expense Control Procedures**—An examination of the specific actions required to make the expense goals a reality.

### Goal Setting for Expense Control

Expense control has a terrible reputation. This is because it is generally confused with expense cutting. This conjures up famous expense slashers with nicknames such as Chainsaw Al and Neutron Jack. The mere thought of expense cuts puts fear into the heart of almost every manager.

Expense control is the polar opposite of expense cutting, except in a very few instances where expense levels may be outrageous. Expense control involve matching up expenses with sales in a more meaningful way. It starts with the assumption that in most firms expenses are likely to rise from year to year. The key is to control the rate of growth relative to the anticipated increase in sales.

This is demonstrated in **Exhibit 1** which presents current results for the typical AWRF member. The first column provides information at the present time, with dollar figures in the top and percent of sales figures at the bottom.

Based on historical data*, the typical firm generates $10,000,000 in sales, operates on a gross margin percentage of 30.0% and generates $400,000 in pre-tax profits. This represents a bottom-line profit of 4.0% of sales.

The final three columns of numbers track the performance of this typical AWRF member as it generates sales growth of 5.0%. This is a fairly typical figure in mature industries. The three columns combine the same 5.0% sales growth rate with three different levels of expense growth.

The first of the three scenarios demonstrates the impact of 5.0% sales growth with an expenses increase of only 3.0%. This produces what is typically called a 2.0% sales to expense wedge. It is a figure that is widely discussed in distribution as a reasonable goal for expense control.

As can be seen, profits explode from the current $400,000 to $472,000. This $72,000 improvement is an increase of 18.0% as shown at the bottom of the first “what if” column. It represents a modest improvement in expense control, but a significant improvement in the bottom line.

---

**Exhibit 1**

The Impact of Alternative Expense Increases Combined With a Five Percent Sales Increase for AWRF Members

<table>
<thead>
<tr>
<th>Typical Firm Income Statement-$x</th>
<th>Current Results</th>
<th>3.0% Expense Increase</th>
<th>5.0% Expense Increase</th>
<th>7.0% Expense Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Sales</td>
<td>$10,000,000</td>
<td>$10,500,000</td>
<td>$10,500,000</td>
<td>$10,500,000</td>
</tr>
<tr>
<td>Cost of Goods Sold</td>
<td>7,000,000</td>
<td>7,350,000</td>
<td>7,350,000</td>
<td>7,350,000</td>
</tr>
<tr>
<td>Gross Margin</td>
<td>3,000,000</td>
<td>3,150,000</td>
<td>3,150,000</td>
<td>3,150,000</td>
</tr>
<tr>
<td>Total Expenses</td>
<td>2,400,000</td>
<td>2,678,000</td>
<td>2,730,000</td>
<td>2,782,000</td>
</tr>
<tr>
<td>Profit Before Taxes</td>
<td>$400,000</td>
<td>$472,000</td>
<td>$420,000</td>
<td>$368,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Typical Firm Income Statement-%</th>
<th>100.0</th>
<th>100.0</th>
<th>100.0</th>
<th>100.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Sales</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Cost of Goods Sold</td>
<td>70.0</td>
<td>70.0</td>
<td>70.0</td>
<td>70.0</td>
</tr>
<tr>
<td>Gross Margin</td>
<td>30.0</td>
<td>30.0</td>
<td>30.0</td>
<td>30.0</td>
</tr>
<tr>
<td>Total Expenses</td>
<td>26.6</td>
<td>26.5</td>
<td>26.0</td>
<td>26.5</td>
</tr>
<tr>
<td>Profit Before Taxes</td>
<td>4.0</td>
<td>4.5</td>
<td>4.0</td>
<td>3.5</td>
</tr>
<tr>
<td>Change in Dollar Profit</td>
<td>72,000</td>
<td>20,000</td>
<td>-32,000</td>
<td></td>
</tr>
<tr>
<td>Percentage Change in Profit</td>
<td>18.0%</td>
<td>5.0%</td>
<td>-8.0%</td>
<td></td>
</tr>
</tbody>
</table>

---

*Learning to Love Expense Control* by Dr. Albert D. Bates
Principal, Distribution Performance Project
The second scenario reflects sales and expenses increasing by the same exact 5.0% rate. It is a sales to expense wedge of zero. The result is that profit follows along with a modest 5.0% increase. This represents what has tended to happen in distribution over the last two decades—glacial change.

The final scenario highlights what happens if the sales to expense wedge is negative. In this case, expenses have increased 2.0% faster than sales. Sales still reach the same $10,500,000 level as in the first two scenarios, but profit is decimated. The resulting profit margin is just 3.5%, and profit falls by $32,000.

In all three projected columns sales have increased at the same 5.0% rate. However, the level of expense growth causes profit to increase by very different amounts. Over time the change is massive.

Ideally, firms should be looking for ways to achieve a positive sales to expense wedge on the magnitude of 2.0%. This should be an integral part of the planning process. However, it can’t be generated without some precise planning.

**Expense Control Procedures**

Historically, there has been an assumption in distribution that a greater use of technology will result in expense control. The historical pattern discussed earlier indicates that sales and expenses have grown at about the same rate over time. This does not mean that technology is not important. Instead, it suggests that something must be added to the technology mix. Four additional ingredients are required to help achieve true expense control.

**Analytics**—It is hard to know if expenses are under control or out of control without some specific points of comparison. It is essential to benchmark against other firms in the same industry on an expense line by expense line basis.

**Transaction Economics**—The two most important metrics that influence costs throughout the business are the number of lines on each order and the average line value. Transactions with few line items or a low value per line extension are inherently unprofitable.

Customers buy the quantity they want, of course. However, the opportunities to change both the line extension and number of lines per order are huge. The simple idea of one more item on every order (want fries with that?) can dramatically change the entire sales to expense equation.

**Customer Analysis**—Results continually show that some customers are highly profitable and others are quite unprofitable for the firm. While eliminating customers is almost never justified, working with customers to equate the support and services they receive to the profit levels they generate is entirely reasonable.

**Proper Planning**—The role of planning in generating higher profit levels cannot be overstated. Unfortunately, too many firms continue to plan sales and expenses separately. They must be planned simultaneously in order to ensure that the desired sales to expense wedge is achieved.

**Moving Forward**

Expense control continues to be the Achilles’ heel of most distribution organizations. Cost levels have not been decreased despite major technological improvements. It seems time to think in some new ways.

Firms need to plan for generating a sales to expense wedge on the magnitude of 2.0%. If that planning process is backed up with specific actions to make the wedge a reality, expenses can be controlled and profits can be increased sharply.

*J. B. Epperson edit

**About the Author:**
Dr. Albert D. Bates is a Principal at the Distribution Performance Project. That organization’s website: (distperf.com) has numerous free tools distributors can use to improve profitability.

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...your load is our load
Reel in More Customers:
7 Sales and Marketing Tips to Boost your Business

By KP Persaud

In the rigging industry, large outfits have decided to enter markets historically dominated by smaller rigging shops. These smaller shops are losing customers at an alarming rate, which is why they must do everything they can to hold onto existing customers and obtain new ones.

I’ve never heard of a business that has ever “perfected” sales and marketing to the point that they can sit back and not worry about these areas any longer. It’s sort of like golf. You might get good at it, but you’ll never truly perfect your game.

Whatever your particular circumstances are, there’s always room for improvement with sales and marketing. While I myself don’t offer sales and marketing services, I help owners and executives with high-level strategies, budgeting, measuring returns on sales and marketing expenditures, managing in-house and external personnel, and more.

I’ve compiled seven tips to help you get the most out of your sales and marketing efforts. They not only provide important big picture considerations, but also some practical ways of getting more leads and increasing conversions.

1. UNDERSTAND THE BIG PICTURE OF SALES & MARKETING

When it comes to sales and marketing, there are five main areas you need to worry about:

- **Number of Leads**: How many potential customers do you attract?
- **Conversion Rate**: How many leads do you convert into customers?
- **Average Dollar Sale**: How much do they spend each time they buy?
- **Number of Transactions**: How many times will they buy?

2. CREATE A SALES PROCESS AND FOLLOW IT

Think about the entire “customer journey” people have when dealing with your business. This customer journey spans from the time people are cold prospects all the way until after purchasing from you.

Decide how your business should be engaging with customers at every step along this journey. Don’t just guess what the best approach is at each step. Instead, verify what actions work best.

Once you’ve mapped out your entire sales process, document it in writing and make your team learn it backwards and forwards. Use workshop-style training sessions to have your sales team practice relevant scripts and tactics.

You’ll need to continue refining your sales process over time to maximize your results. Getting a defined sales process off the ground can be challenging, but it can pay huge dividends.

3. EXPAND YOUR SALES & MARKETING FOOTPRINT

How do you currently generate leads? Think about all of the different “channels” available to you: direct contact, trade shows, print ads, online ads, your website, social media, direct mail, public relations, etc.

Many businesses only take advantage of two or three channels to generate leads. Expand your current efforts by trying out new channels.

- **Margins**: What is the gross or net margin your business achieves?

  All sales and marketing efforts can be tied, directly or indirectly, to improving one or more of the above areas.

  Your goal should be to improve ALL of the above areas—not just one or two. Even if you just make slight improvements to each area, you’ll see massive results due to their collective impact.
4. EMBRACE THE DIGITAL AGE

Does your website look like it was built in 1997? Or does it only include some basic contact information and one or two pictures? Do you use social media to promote your business? Do you serve ads to specific types of customers you’re trying to target?

Digital marketing is no longer a “should” but a “must” for your business. You not only need to reach more prospects, but you also need to leave a good impression in the minds of those you do reach.

Don’t wait to get on the bandwagon or you’ll get left behind for good.

5. THINK OF SALES & MARKETING AS AN INVESTMENT, NOT AN EXPENSE

Not all sales and marketing dollars will yield a positive return. You don’t necessarily know what will work well and what won’t.

Think of your sales and marketing dollars like an investment portfolio. You first determine how much money you’ll be investing. From there, you buy certain investments (things like marketing campaigns or commissions you pay out). You want to have a well-balanced portfolio and keep track of how well your investments are performing.

A major ingredient of success is how well you can manage this portfolio. For example, you might try a specific marketing campaign that brings in many new customers. As long as it’s working, you’d be crazy to stop spending money on the campaign—even if you’re exceeding your original budget for it.

By spending money on sales and marketing, you should see a corresponding boost in revenue. To ensure that happens, though, you need to effectively manage these expenditures.

6. TEST AND MEASURE

When you try new approaches, such as exploring a new channel, the best strategy is to perform an inexpensive test and then measure your results. For example, let’s say you currently use three channels for generating leads.

If you want to try out a fourth channel, devote a fixed part of your budget to running an experiment. Spend enough money so that you can make an informed opinion about the performance.

7. LOOK OUTSIDE OF YOUR OWN INDUSTRY

It’s good to see what other businesses in your industry are doing in the way of sales and marketing. However, if you only look at (and follow) what businesses in your own industry are doing, you’ll miss out on some good ideas you could use to promote your business.

Jay Abraham, a famous business strategist, points out that businesses within the same industry mostly market themselves in the same way. It’s like they’re all reading from the same playbook.

He advocates studying what strategies businesses outside of your industry use. You’ll pick up some good ideas that you haven’t thought of before—and neither have your competitors.

CONCLUSION

At the end of the day, sales and marketing is about results. If your business is not seeing results, then you need to evaluate the performance of your sales and marketing activities.

The tips in this article will help you keep a high-level perspective of what is most important. Use these tips to evaluate your current results and to come up with new strategies to improve underperforming areas.
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“Smart and funny.” That’s what the late legend George Carlin had to say about Jeff Caldwell after seeing him at Caroline’s Comedy Club in New York. We couldn’t agree more. Jeff Caldwell’s quick wit, good taste, and clever material have made him a favorite nationwide. Jeff has shown his comic wares on TV as the host of ESPN’s “Sports Figures” and as a standup performer on many shows including a recent spot on “Conan,” ESPN’s “The Lighter Side of Sports,” A&E’s “An Evening at the Improv,” multiple appearances on “The Late Late Show with Craig Ferguson” and six wildly successful sets on CBS’ “Late Show with David Letterman” where he was one of Dave’s favorite acts. Jeff is also in demand on the college circuit and has toured the country with Jon Stewart.

Jeff is a rare comic who can make the audience double over with laughter without resorting to sleazy, stupid material. Don’t miss the chance to see this great act for yourself!
Wire rope and cranes are joined at the hip when endeavoring to lift, move or transport materials. For centuries the combination of rope (sisal, manila, vegetable, steel, synthetic...) and a winching system have stirred the imagination of engineers and other interested persons in aiding the lifting and handling of heavy objects. Giant strides in the development of the “crane and rope” system have led to unimaginable progress in leaps and bounds in today’s world.

One thing that has remained constant over many decades is the fact that all types of rope used on cranes do eventually wear out and must be replaced. This article focuses on actual wire rope failures, or near failures, that have occurred. The fact that all wire ropes on a crane will deteriorate over periods of operation is a universal truth, but the useful service life of wire rope will vary according to applications, operating conditions, working environment, type of crane, crane operator and other factors. Therefore, it is a necessity that proper inspection, maintenance and retirement criteria be firmly established to achieve safe and efficient working conditions. The industry accepted sources for inspection and retirement procedures are listed in the ASME B 30.5 Safety Standard for Mobile Cranes & Locomotive (Photograph #1), and the OSHA Regulation CFR 29 1926 .552 OSHA Regulations on Cranes & Derricks.

When a wire rope on a crane fails, traumatic consequences will likely follow. At the very least, equipment damage and downtime will ensue, but more importantly lives many times are lost. These wire rope failures are mostly, not because of structural causes, but from human error, neglect, lack of training or not following known instructions. In my experience, the three main reasons for wire rope failures on cranes are misuse, abuse and overuse.

The listed ASME Standard and OSHE Regulation provide guidelines on the critical elements involved for inspection and retirement. This article addresses wire ropes which have failed on a crane or in such a condition that failure is imminent. The following descriptions and photographs are meant to enhance the training and experience of those involved with crane operations and wire rope inspection for safer crane operations.

Today’s cranes have become more sophisticated with more lifting capacity, reach and computer controls, but the wear on a wire rope remains constant. This article presents the typical wear patterns on various applications of wire rope on a crane. Each application has its own normal wear patterns; however, all of these photographs depict conditions of failures or near failures which have occurred wire ropes on a crane.

Photographs #2 & #3 show typical construction ground based cranes and tower cranes commonly found on construction sites. With the exception of pendant lines, all other wire ropes on a crane are dynamically operating on and off a drum and around sheaves during the operation of the crane. Considering the wire rope operating on and off a drum, winding should be in an even thread-winding condition on all layers on the drum (Photograph #4). When uneven winding or “skipping” across a drum develops (Photograph #5), high compression cross-over points develop which severely and permanently damage the wire rope (Photograph #6). If the crushed wire rope continues to be operated, it will eventually worsen with the development of broken wires and unbalancing of the load placed on the wire rope. (Photograph #7) depicts a wire rope that fortunately was removed prior to it failing.

Wire rope operating through sheaves under normal conditions (Photograph #8) will eventually develop broken outer wires due to bending fatigue (Photograph #9). These wire fatigue breaks are usually found on the “crowns” or contact points of the wire rope against the sheave groove. If a wire rope with such wire fatigue breaks continues to be run through the hoisting system, additional wire breaks will develop, both on the crowns and quite frequently in the “valleys” of the strands (Photograph #10). This wire rope was removed just prior to it failing.

If the wire rope operating through a sheave is at or less than the maximum allowable parameter of an off-lead angle of 1 ½ degrees (Photograph #11), as suggested in the Wire Rope Technical Board’s Wire Rope Users’ Manual, normally expected outer wire wear patterns will develop. However, if the off-lead angle of
the wire rope entering and exiting the sheave severely exceeds 1 ½ degree angle (Photograph #12), two types of damage can occur very quickly during the operation of the wire rope. First, accelerated crown wire wear from abrasion of the wire rope against the flange of the sheave will develop, and many times will embrittle the outer strand wires. As the wire rope continues to be operated around such a sheave, these brittle wires will then prematurely begin to break a rapid pace (Photograph #13). Second, if the wire rope is being operated at a severe off-leed angle from the sheave, the wire rope can slide up and over the flange of the sheave resulting in permanent damage of the wire rope (Photograph #14) which requires immediately removal.

The next area to be discussed is the wire rope operating in the boom hoist system (Photograph #15). This boom hoist wire rope is subject to the same type of wear and damage as the hoist lines, but in addition is more susceptible to the development of broken wires away from the crowns, and either in the “valleys” of the wire rope strands, or at contact points of the outer strands against the IWRC (core). These types of wire breaks are caused by additional impact and vibrational fatiguing action in a limited section of the wire rope around smaller sheaves than normally found on the hoisting line sheaves. Valley wire breaks are much more difficult to detect since they are partially or totally hidden from view. Photograph #16 depicts both crown wire breaks, which can be easily observed, and valley wire breaks which are more difficult to see in a straight section of wire rope. Removal of just one outer strand from around the IWRC of such a boom hoist wire rope reveals multiple broken wires in the IWRC (Photograph #17). If the remaining outer strands are unwound from around the IWRC, small fragments of fatigue wires fall from both the outer strands and the IWRC (Photograph #18). This wire rope section was taken approximately 5’ from an actual failure of a boom hoist wire rope at a construction site. Tragically, a rigger was killed when the boom then fell and struck him. Proper inspection along with following industry removal criteria would have prevented this accident. One side note is that wire ropes operating around sheaves, which subject the wire rope to such small diameter bending and vibrations/impact loading conditions, should be inspected on the sheaves since bending of the wire rope will reveal many such valley wire breaks Photo #19).

Another source of wire rope failure is the onset of severe pitting corrosion (Photograph #20). A magnified view of a highly corroded wire rope reveals a heavy coating of rust (iron oxide) which has actually pitted and significantly reduced the cross-sectional area of the steel wires, thereby reducing the strength of the wire rope (Photograph #21). In addition, the corrosion has minimized the equalizing ability of a wire rope operating around a sheave or drum. That is, the wires and strands are inhibited from sliding and moving against each other, which is imperative to the operation and functioning of a wire rope. And the pitting corrosion of the wires initiates early break locations due to the notch sensitivity of the high strength, high carbon steel wires of a wire rope. Corrosion and lack of any lubrication resulted in this jib hoist line breaking, resulting in severe injuries and permanent disability to a worker (Photograph #22). Highly magnified viewing of several of the broken wires in this wire rope exposes the high degree of pitting corrosion leading to this wire rope failure (Photograph #23).

Additional types of permanent damages that require immediate removal from service are heat affected areas, such as contact with a welder’s torch (Photograph #24); popped core from a sudden release of load accompanied by a localized un-laying of the wire rope (Photograph #25); and broken wires at or adjacent to a socket or fitting.

The crane operator and/or the crane inspector should be aware of the fact that wire rope does wear out and there are signs to look for during the inspection of wire rope. It is critical to follow the established removal criteria and be aware that wire rope can deteriorate more rapidly and possibly fail after the initial signs of wire wear, broken wires, corrosion or other damage become evident. Crane accidents are mostly catastrophic events with loss of life, costly equipment damage and construction down time. Prudent training, adhering to industry retirement criteria and being vigilant on construction sites can eliminate most all crane accidents involving wire rope.

Donald L. Pellow - P.E.
Pellow Engineering Services, Inc.
ASME B 30.5 & OSHA 1926 Retirement Criteria

- 6 randomly distributed broken wires in one rope lay or 3 broken wires in one strand in one rope lay
- In Rotation-Resistant wire rope, 2 randomly distributed broken wires in six rope diameters or 4 broken wires in thirty rope diameters
- 1 outer broken wire in the valley or at contact point of the core
- Wear of 1/3 of the original diameter of the outer individual wires
- Kinking, crushing, birdcaging or other damage resulting in distortion of the rope structure
- Evidence of heat damage
- Reduction in nominal diameter of 5%
- In standing ropes, more than 2 broken wires in one rope lay beyond the end connection or more than 1 broken wire at the end connection
- Severe corrosion or pitting of wires
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Your visit to the Queen Creek Olive Mill includes a fun, educational, informative, 30-45 minute tour! During the Olive Oil 101 Tour, guests learn the history of the mill, qualities and standards of olive oil, health benefits & why it's important to "Know Your Farmer"! Discover how to correctly taste olive oil (no bread!) and shop the gourmet marketplace following the tour.

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ADB® recently held a ground-breaking ceremony following the announcement of an expansion to the headquarters and manufacturing facility in Valdosta, GA. The expansion will add 36,000 square feet to the existing 35,000 square foot building. The extra square footage will bring an estimated 35 new jobs and will strengthen our ability to provide quality products and exceptional service. The building project is expected to be complete in July of 2018 and will coincide with our 75-year anniversary celebration.

In 1943, ADB started in Los Angeles, California making drill bushings. The focus on the current product line, swivel hoist rings, began in 1964 when the company patented the first design for a swivel hoist ring.

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Ferndale, WA – January 25, 2018 – Samson, worldwide leader in high-performance synthetic rope and market leader in mining and utility applications, is pleased to announce the introduction of Panther, a recovery tow sling designed for mining and vehicle recovery operations.

Panther is a lightweight, high-strength, low-stretch recovery tow sling that is specifically engineered for reliability and safety. Made of Dyneema® SK78, and covered with Dyneema® HMPE (high-modulus polyethylene) chafe protection, it’s flexible and provides the ease of handling found in a single-leg tow sling with superior abrasion resistance. Panther can handle loads from 20MT to 700MT, and is available in various lengths. Previously in limited distribution, Panther is now available through Samson’s normal distribution channels.

According to Adrian Eyre, Director of Sales for Samson, “Synthetic rope slings bring something to the mining industry not seen with steel wire or chain, namely – improved safety. They’re easier to handle, because of their light weight and flexibility, and the reduced risk of injury due to recoil or sparking incidents is key.”

Samson Marketing Strategy Manager Michelle Jarvis says: ‘We’re very excited to launch this product to the mining and utility industries worldwide. Panther is another step in Samson’s long history of increasing safety and improving efficiency with the use of synthetic rope to replace steel wire.”

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“Commander’s Intent”:

Effectively Communicating What You Want Done
by Baron Lukas

Just imagine; you and your spouse are finally headed to the airport. You have been looking forward to this short, but well deserved ski vacation for months—no more endless emails and phone calls, just the two of you, the mountain, and the snow. Then suddenly, it hits you, that nagging feeling that you left something undone at the office. As you make your way through rush hour traffic, you think back over the last few weeks to see if you can figure out what is bothering you. The annual inventories went better than expected, this year’s performance is certainly better than last year’s, and the three-day executive off-site strategy planning session seemed to hit the mark this year. The plan is approved by the board and has been released to your top managers—so what’s missing? Then you remember the strange conversations you had yesterday with two of your middle managers in the bistro next-door to the office. You asked both Joe and Susan how they were doing and what they thought of the direction the company was going, and neither of them gave you a clear answer. It was almost as if they had not seen the plan for the next year, or maybe they did not understand it. Either way, after thinking about it all through airport security and the long wait at the terminal, you realize that it has been a long time since you personally communicated with the company at large.

The unfortunate truth is that only about two in five people in the typical business say that they have any idea of their company’s strategy or senior management’s priorities. Can you imagine a marching band where only 40 per cent knew the formation? Chances are that right now, at least one of your employees does not know the answers to these questions:

- What are the company’s goals?
- What is the CEO’s vision for the future?
- How are customers to be treated?
- What are the guidelines for doing my job?

If you are not confident that your team knows what “success” looks like for you and your company, I suggest that you think about
disseminating a “Commander’s (read Senior Leader’s) Intent.”

The term “Commander’s Intent” is taken from the U.S. Military. It is an integral part of the military planning process and it can be equally as valuable to your strategy development and business planning processes. The “Intent” statement is the commander’s personal view of the purpose of the mission, what effects he or she wishes to create on the battlefield, and what the desired results are. The commander (or in your case CEO, President or other senior business leader) explains the “what” but not the “how”—the “how” being left to the initiative of the lower unit commanders. The “Intent” empowers the entire team to address unexpected circumstances. A well written “Commanders’ Intent” statement gives the commander a virtual presence on portions of the battlefield not under his direct control.

This concept has direct application to you, the senior executive or business owner. You may wish to call it something else, but the challenge is to communicate to the entire workforce what a successful day, month, quarter, or year looks like for you and your business. A thorough “Intent” should describe, at a minimum, what success would look like in terms of customer/client relations, employee relationships and teamwork, the conduct of key work processes, the allocation and use of critical resources (money, time, inventory, and personnel) and finally, the desired outcome of your combined efforts—profit, market satisfaction, and a satisfied workforce. Keep it short and simple. Cover the three basic requirements for an effective “Intent” statement: Purpose, required effects, and desired results. Be creative, but keep it to one page.

If your “Intent” is crafted in concert with your strategic and operational plans, is clearly communicated down to the lowest levels in your organization, and is understood, you achieve the same effect that military commanders achieve: You convey your presence at every level of your company and you empower your work force to achieve your stated success goals. It will give your team greater confidence to deal with the day-to-day uncertainties of business, and it will give you greater faith in their ability to make the right decisions for the success of your business.
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Press Release

Weaving Corporation of America Launches Industry Veterans Form Industrial Weaving Company

Piedmont, SC: Today, weaving industry veterans Curtiss Burdette and Tommy Lee announced the formation of Weaving Corporation of America (WeaveCorp™). The new company will serve the rigging, cargo-control and specialty webbing markets. WeaveCorp managing partners Burdette and Lee, along with shareholders of Liftex Corporation, partnered to acquire the weaving and dyeing assets of Liftex in forming the new company.

Vice President of Operations/Managing Partner Curtiss Burdette stated, “WeaveCorp is fortunate to have attracted a talented team of experience weaving professionals. Our people have decades of experience weaving high-quality industrial textiles. I’m excited to work with them in exceeding our customer’s needs, through unmatche service, and the development of new products for this industry”.

Vice President of Operations/Managing Partner Tommy Lee stated, “We are very excited to have this opportunity in an industry we’ve been part of for many years. The company has been structured with a foundation of experienced team members who are dedicated to serving all facets of our customer’s needs.” Lee added, “The coupling of our dedication to service with our vast experience producing quality webbing products allows us to offer compelling value to our customers.”

About Weaving Corporation of America: WeaveCorp™ is a narrow fabrics company based in Piedmont, South Carolina. Established in 2018, the company weaves nylon and polyester webbing used in industrial lifting slings, round slings, cargo control straps and many other uses.

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Issue #s & Content Closing Dates

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LGH Celebrates First Year Back in UK

Lifting Gear Hire (LGH) will this month (December) celebrate a year since returning to the UK lifting and rigging marketplace. It completes 12 months with three facilities, in Manchester, London and Aberdeen, after reaching a series of milestones throughout 2017.

Ian Parkinson, chairman of LGH, said: “Since its launch in 1970, LGH has grown into a multinational company. Though absent from the UK marketplace for the last 10 years, LGH’s operations in North America and Europe continued to expand and thrive with LGH being in the top 50 U.S. hire companies for several years. Over the last 47 years, LGH has gained a breadth of experience across a variety of complex jobs, and learned new applications for new and existing products.”

He added: “LGH is a brand best suited to highly regulated markets with a strong emphasis on health and safety; this has given LGH a strong platform for its re-launch back into the UK market. Not only has demand exceeded expectations, compliance and accreditation issues have been achieved well ahead of schedule under Colin Naylor [managing director]. To have resurrected the brand under the same family ownership, and even at the group’s former headquarters in Atherton, under a strong new management team, has been a great accomplishment.”

Two widely reported highlights of the year are the acquisition of the Aberdeen, Scotland-based hire division of JD Neuhaus, making LGH the largest hirer of air hoists in Europe; and achieving the Bronze accreditation from the Fleet Operator Recognition Scheme (FORS), a voluntary organisation that promotes best practice for commercial vehicle operators.

However, Colin Naylor pointed to others, including publication of the Technical User Guide, a second version of which will follow in Q1 2018; associate member status with LEEA, due for upgrade to full membership early next year; and accreditation by SafeHire, a trade association with a specific focus on the plant and tool hire sector.

Naylor said: “We can attribute much of our achievements this year to the determination of our staff to ensure this new venture is a success. It is also testament to the strength of the LGH brand in the UK, Europe and North America. We already have over 200 active customers and are working on some of the UK’s largest, most high profile infrastructure and construction projects.”

LGH’s UK operation has invested approximately £3 million in equipment from the industry’s leading suppliers of lifting and rigging gear, all of which is covered in the aforementioned Technical User Guide. Launched in April this year, the Technical User guide is available in both hard copy and digital formats; the latter is downloadable from the website.

Naylor concluded: “Our trusted and handpicked partners are innovative, market-leading manufacturers, which provide the safest and most reliable products. If a supplier meets our high standards it’s a sure sign that our customers will only be working with the best equipment. Our chosen suppliers allow us to guarantee customers safety, certainty and great service—the three pillars upon which LGH is built.”
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Understanding the new Tax Laws and why it’s the right time to buy new equipment.

There has never been a better time to invest in your business’ future. It’s a new year and we have some great new tax laws that will benefit not only the manufacturing industry, but it allows business owners to finally be able to purchase that long overdue new equipment and take a major capital deduction on their taxes.

What this means for small businesses on future equipment purchases? Owners can now deduct up to $1 Million in 2018, which is a substantial increase over the 2017 deduction amount. The reform bill also increases bonus depreciation from 50% to 100%. 1

First and foremost, the corporate tax bill lowers the tax rate from 35% to 21%. 2 Owners will have from 2018 to 2022 to take advantage of the 100% depreciation, basically five years before it tapers off. 3

To learn more about the Section 179 Deduction and how it can help with future equipment purchases, visit: http://www.section179.org/ 4. Dig into this site, as they also have a handy TaxDeductionCalculator™ 4, to quickly help you evaluate the equipment purchase price and projected deductions you can take.

We recommend talking to your accountant, so you fully understand how these Tax Reform Laws can benefit you and help you grow your business. All in all, this is great news for business owners. It’s definitely the right time to start looking at new machinery to make your business more efficient or to replace machinery that is on its last leg, limping by and long overdue for replacement.

“We have been building machinery consistently for nearly 50 years. Our customers trust us to deliver a machine that is safe and one that is built to last.

Customers also like that our products are made in the USA as we are held to some of the highest quality manufacturing standards in the world.”, said Phil Chant, President of Chant Engineering.

We are sharing a few things you need to consider when making new equipment purchases. (Fig. 1)

For more information about Chant Engineering, please visit www.chantengineering.com.

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Rope and Sling Completes Key Load Tests for Tottenham’s New Stadium

Rope and Sling Specialists Ltd. (RSS) has completed load tests on three lifting frames for mechanical handling specialist SCX Group, which has been selected to provide a retractable pitch for Premier League football team Tottenham Hotspur’s new stadium on White Hart Lane, London. One of the aforementioned frames will be used there during installation of pitch trays.

The new stadium (the Northumberland Development Project), scheduled for completion later this year in time for the 2018-2019 season, will boast nearly 62,000 seats and includes nine floors. Spurs have agreed a 10-year partnership that will see NFL International Series (American football) matches played at the new stadium.

Integral to the multi-purpose design is a retractable grass field with an artificial surface underneath that will be used for NFL games. SCX Special Projects’ concept features rails for the retractable pitch, hidden safely beneath its surface. The real turf pitch will roll into the stadium in three sections; each weighs over 3,000t and is driven by 68 powerful electric motors that will roll it along rails on 168 wheels. These wheels were tested in-house by RSS in 10t increments up to 85t, employing the company’s 120t Enerpac hydraulic press, complete with gauge.

The whole pitch, which is split lengthways, can be rolled out in just 25 minutes. Once parked alongside the central section, the side sections will move inwards. When the sections are in position, hydraulic actuators open flaps so the touchline can be raised up to pitch level. Then, tunnel ramps are raised before the flaps are closed and the stadium is ready for action.

RSS, a lifting and rigging equipment supplier, was presented with a scope of work by SCX to test three frames, one of which (pictured, yellow) was to be used for installation of pitch trays at the White Hart Lane construction project and needed to be uprated from 27t to 35t working load limit (WLL). RSS completed two load tests on the frame—one at the new WLL and another with a proof load of 46t.

A 150t capacity mobile crane from PP Engineering; four 35t, 12,000mm wire rope slings; soft eyes for each end; and four 25t alloy bow shackles combined to complete the lifts. Railway sleepers were used to level the load for the tests.

Mick Gill, senior testing engineer, explained that the lifting eyes were at 11,600mm so 12,000mm wires created a 60-degree angle. For the final test the total weight to be lifted, including the 6t frame was 52t.

RSS used the pitch trays and moving assemblies (pictured, grey) to be employed during retraction as test weights—so the frame was used as intended onsite—to create a uniformly distributed load. There will be 99 of these trays installed by the frame at White Hart Lane. Gill combined with Gary Coleman, site engineer at RSS (both are based at the company’s Rotherham depot), to complete the 10-hour project.

Steve Hutin, managing director at RSS, concluded: “Tottenham isn’t my team but this is a truly iconic project to be associated with; Mick and Gary should be proud of their involvement. When I’m watching matches on the television at White Hart Lane next season I’ll be thinking of the integral role RSS played in keeping the project on track.”
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Erie, PA— The Eriez® Metalworking Demo Truck, a 32-foot Peterbilt diesel rig with a 24-foot equipment showroom, is once again travelling across North America to deliver hands-on training and education to customers and distributors. The 2018 tour got underway in late January and starts with west coast stops.

The Metalworking Demo Truck houses many of Eriez’ magnetic and vibratory material handling products as well as equipment from the company’s HydroFlow® fluid recycling and fluid filtration lines. Demonstrations and workshops are tailored to assist participants in finding economical and effective solutions—right in their own parking lots—to their material handling, fluid recycling and filtration challenges.

The heavy duty rig serves as a state-of-the-art interactive learning center, complete with the latest technology which enables team members to customize drawings and fulfill other customer requests on-demand. The truck’s on-board database provides instant access to Eriez brochures, photos and video presentations.

The Eriez Metalworking Demo Truck has logged more than 130,000 miles since its 2014 maiden voyage, visiting 41 states and four Canadian provinces. Approximately 3,500 participants have climbed aboard over the course of the truck’s more than 1,000 visits.

Eriez’ Manager of Metalworking Distributor Sales Andrew Kloecker explains that in addition to demonstrating equipment on the truck, factory-trained staff can bring units inside customers’ facilities for analysis. He says, “This mobile capability enables us to prove performance and show how Eriez technology can solve customers’ unique challenges. For example, a fabricator can try out a range of SafeHold® Lift Magnets to determine which one works best to move their steel parts, or a manufacturer can test their parts on a variety of Eriez conveyors to find the model best suited to their needs.”

To learn more about Eriez’ Metalworking Demo Truck and view a schedule of planned 2018 stops, go to http://www.eriez.com/MetalworkingDemoTruck. To request a visit, contact Eriez and ask to speak with a metalworking team member.

Eriez® Executive Vice President of Global Technology Dr. Michael J. Mankosa Elected to National Academy of Engineering

Erie, PA— Eriez® announces that Dr. Michael J. Mankosa, Executive Vice President of Global Technology, has been elected to the National Academy of Engineering. He will be formally inducted during a ceremony at the NAE’s annual meeting in Washington, D.C., on Sept. 30, 2018. The NAE recently elected 83 new members and 16 foreign members, bringing total U.S. membership to 2,293 and the number of foreign members to 262. Election to the NAE is among the highest professional distinctions accorded to an engineer.

According to the NAE, Academy membership honors those who have made outstanding contributions to “engineering research, practice, or education, including, where appropriate, significant contributions to the engineering literature” and to “the pioneering of new and developing fields of technology, making major advancements in traditional fields of engineering, or developing/implementing innovative approaches to engineering education.”

Eriez President and CEO Tim Shuttleworth said, “Mike has earned a leadership role in the mineral processing field through his many groundbreaking research projects and subsequent innovative developments. His most recent work is focused on improving the efficiency of mineral recovery systems while simultaneously providing substantial reductions in energy consumption.” He adds, “We proudly congratulate Mike on his well-deserved election to the National Academy of Engineering.” Mankosa has co-invented numerous technologies which are rapidly being adopted by the mining and minerals industry. His HydroFloat coarse particle flotation system is used commercially in the phosphate and potash industries, while the StackCell fine particle flotation system is being applied within the coal and minerals industries.

Mankosa earned his doctorate in mining and minerals engineering from Virginia Polytechnic Institute and State University (Virginia Tech) in 1990. His graduate work focused on modeling, design, instrumentation and control of process equipment. Throughout his career, Mankosa has published more than 100 articles in prominent scientific and technical journals, obtained over 30 process and equipment patents and received more than $2 million in research funding from a number of state and federal agencies. Among Mankosa’s other honors, he received the 2014 Frank F. Aplan Award from the American Institute of Mining, Metallurgical and Petroleum Engineers in recognition of “engineering or scientific contributions that further the understanding of the technology of coal and/or mineral processing”. He has presented at numerous academic and technical conferences and provided industrial workshops and training for domestic and international audiences.
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ST3 Lifts Jacket Foundations for Wind Farm with Modulift Beams

Modulift has supplied two large spreader beams to complete a rig that will lift 20 wind farm jacket foundations onto vessels at ST3 Offshore’s dockside location in Szczecin, Poland, close to the country’s northwestern border with Germany. The jackets are bound for Cuxhaven and will eventually be installed at the Borkum Riffgrund 2 offshore wind farm.

The two beams, MOD 400/600s, both 8m long, were used in an inverted configuration above another Modulift beam, an 800/1000, which was hired in from Schmidbauer GmbH & Co. KG. The beams combined with shackles and other rigging gear, including delta plates, to form the rig beneath the hooks of a rail-mounted, 117m-high, 1,400t capacity gantry crane.

The MOD 400/600s offer up to 600t at 14m or 44 ft. and up to 24m or 78 ft. at a lower capacity, while the 800/1000 can lift up to 1,000t at 15m or 51 ft. and up to 26m or 85 ft. at a lower capacity. The foundation jackets weigh 700t apiece and stand 52m high. They are lifted in their entirety onto a barge that can transport three at a time.

John Baker, sales and marketing director at Modulift, explained that the top two 400/600 beams were used in an inverted (upside down) configuration to utilise the four hoist hooks on the crane, and allow the lower slings to come down to a single point on top of the lower 1,000t beam; below that again, two delta plates and a horizontal sling created the vertical angle for the bottom slings that attached the rig to the top of each jacket.

Baker added: “Modulift spreader beams are put into compression when loaded so another beam wouldn’t have been suitable at the bottom of the rig between the delta plates because the forces applied are tensile rather than compressive. A wire rope grommet acted as a tie sling between the delta plates and created the vertical sling angle for the bottommost slings in the rig.”

ST3’s facility is specifically designed for the production of transition pieces, jacket foundations and offshore wind foundation components and other large fabricated structures. In this case, the jacket foundations will be assembled at their destination with 10m-high suction buckets, used to anchor the structures. Water will be pumped out of the buckets to lower pressure and, combined with the weight of the foundation, the structures will sink to the sea floor.

At the time of writing, the first phase of loadout remains ongoing. The rig will stay in Szczecin for the duration of the project. A different lifting and rigging solution will take the weight of offload and installation at Borkum, which is one of the largest offshore power plants in Germany, with a capacity of 450MW, expected to supply electricity to nearly 500,000 households per year.

Baker concluded: “It has been fascinating to spend time at the Szczecin site and work with the great team there to consult on this below-the-hook application. The inverted solution was an effective way to utilise the four hoists on the crane and further innovation was demonstrated by the delta plates further down the rig. We are continuing to welcome greater demand from the wind energy sector and look forward to meeting many more challenges in the future.”
Construction company Pace Contracting recently completed removal and installation of three vertical turbine pumps, used in emergency flooding situations in downtown Louisville, Kentucky. Integral to the project were four 50-ton capacity Straightpoint (SP) wireless compression load cells supplied by Lifting Gear Hire (LGH).

Pace accepted a scope of work from the Metropolitan St. Louis Sewer District (MSD), which partners with 59 municipalities (co-permitees) to comply with storm-water permit requirements for the St. Louis Metropolitan Small Municipal Separate Storm Sewer System. MSD charged Pace with jacking and remounting new replacement flood pumps, having removed the old units.

LGH provided from its hire fleet the load cells along with SP software (SW-MWLC) and a rugged tablet. Pace also utilized a 10t capacity air hoist from LGH and a 12-ton hoist on a gantry crane that was permanently installed in the building above the pumps. The pump columns were designed to be installed in five sections, with a total weight of 28,350 lbs., which exceeded the capacity of the 12-ton crane.

Michael Bryant, project manager at Pace Contracting, said: “[Therefore], we had to utilize the hydraulic rams on the bottom of the pump to support the weight of four sections while the crane installed the fifth and final section on the main floor. Once that piece was installed the lower four sections were raised up, using the hydraulic rams, so the pump could be bolted together. The load cells were very useful because they helped us keep the center of gravity for the lower section of the pump centered, preventing it from tipping over.”

Dan Tobin, heavy rigging and lifting OSR at LGH, explained that two major complications on the project were caused by this offset center of gravity and the fact that the physical line of sight for the last 12 in. to 18 in. of the jacking process was lost once the pump assemblies were in place.

The offset center of gravity on the 3.5-ft. diameter structures was due to a discharge elbow midway up the suction tube assembly. As explained, the solution was to employ the load cells atop four LGH hydraulic rams, which sat on timber blocks, to weigh the 35-ft. suction tube and pump as it was assembled.

“We used the tare weight mode and set the weight sensitivity scale down to 20 lbs. per jack point; we also programmed the alarm mode for additional safety,” Tobin said.

Pace safely jacked the last part of the entire assembly by using SP’s 2D center of gravity function to align the flange holes to the roof studs, despite only 0.5 in. of tolerance. Tobin said he was familiar with the concept following consultation with Wayne Wille, technical sales manager at SP, who introduced him to the ability of the product to display live, clear readings, featuring 2D center of gravity, on a handheld device.

He added: “I immediately saw the potential for new and existing LGH rental customers and this application served as a case study that we’ll use to further demonstrate that capability.”

Both operator and crew were safely out of harm’s way to complete all three jacking jobs. “The complete solution was covered by a three-week rental and saved over a week in additional labor costs,” Tobin said.

Bryant concluded: “We were satisfied with the solution presented by LGH; the SP equipment was easy to use and truly plug-and-play. We were grateful for the technology and expertise, given inherent complications with working around the two-story building in a downtown environment, whilst working 50 ft. below ground level.”
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Global Positioning System (GPS) receivers and land surveys, the tolerances being less than 75 mm.

An innovative construction method was developed to mitigate the harsh conditions at the site. The steel cutting-edge was prefabricated in a dry dock operated by Todd Shipyards Corporation, a shipbuilder based in Seattle, and towed to Tacoma, where an additional 12.8 meters of the caisson was constructed on top of it. Each caisson was subsequently towed to the bridge site, maneuvered into position, and moored to an extensive anchoring system to hold it in place while construction operations proceeded.

The design of the caissons for the new bridge was critical to advancing the remainder of the bridge design. The caissons were constructed above water by casting the concrete in lifts and then slowly sinking the caissons to the mud line and excavating through their dredge wells. Each of the main suspension cables, right, was spun in the air on-site; each cable contains 8,816 high-strength steel strands.

The engineers planned to test a second model of the proposed new design to assure its strength. A structural research lab was constructed to house a wind tunnel in which the models would be tested. Built in a half-tubular shape, the building was made of laminated wooden arches covered with composition roofing paper. 100’ x 34’ and 31’ high at its highest point with an office and shop on either end, the building provided adequate space to run tests on both the original and proposed design of the Tacoma Narrows Bridge.

Clearly designers and engineers had come a long, long way since the construction of the original bridge in the late 1930s. The end result, however, of all this extra engineering and scientific study, prior to and during construction operations, was a bridge built with a deeper knowledge of the aerodynamics over a fixed object than had ever been.

The second bridge, built at the site of the first, was described in the “Souvenir of Tacoma Narrows Bridge,” 1950, as “a combination of men’s dreams, fortitude and inventive ingenuity which, with private capital, has created a masterpiece of engineering skill together with the solution of a dire economic need.” This time the suspension bridge and its wire rope cables stood firm against the winds of the Narrows.

PRACTICE MAKES PERFECT – Even in Bridge Building at the Tacoma Narrows

Continued from page 7

LEEA (Lifting Equipment Engineers Association), the world’s leading representative body for the lifting equipment industry, is delighted to announce the appointment of Paul Fulcher as the new LEEA Chairperson and to welcome Dr. Ross Moloney as Chief Executive Officer of the Association.

Paul Fulcher, MD of Rigging Services takes up the appointment of Chairperson from Oliver Auston after his 2 year tenure. Paul has been an active member of the board for 20 years and previously held the position of Chairperson from 2001 to 2003.

Paul Fulcher said:

‘I am excited to be back in the role as Chairman of the Association especially during this time of change and global re-organisation of LEEA’s member services which will be the focus for 2018. I am particularly pleased to be working alongside a talented, united and strong Board of Directors, also to be working with Ross in his new role as CEO of LEEA. Ross brings a wealth of experience in skills development, senior leadership and employer representation.”

The Board has been hugely impressed by Ross’ strategic approach and commitment to supporting our members. We look forward to working with him in championing the role of LEEA over the coming years.”

Dr. Moloney said:

“I am honoured to be leading LEEA into its next phase of growth and excited to be working with the Board and the Association’s dedicated staff. I look forward to meeting our valued members over the coming weeks and months.”

LEEA is also pleased to announce the appointment of board member Kat Moss, from Catena Inspection as Chairperson of the Association’s Learning and Development Committee. Kat has been a Board member for 2 years and will add invaluable experience and guidance to the ongoing L&D strategy delivered to our members.
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3. **Highly skilled labor and continuously developing technology.** It takes hundreds, if not thousands, of companies, along with hundreds of thousands of scientists, geologists, and highly skilled laborers to drill, frac, and otherwise complete the required number of wells annually. Only the U.S. has this level of industry, including the large number of small and mid-sized privately held companies that make this possible.

4. **A legal structure that rewards the landowners where drilling will take place.** This is my personal favorite, since I own a small Texas ranch, including the corresponding mineral rights. The U.S. is the only country that gives the private landowner direct financial benefit from oil and gas exploration. It would be difficult to convince a French grape farmer to reduce his crop and resulting wine production to allow someone to drill on his land, since he does not have any rights to the hydrocarbons in question.

5. **Pre-existing natural gas collection and distribution infrastructure, and established industrial, transportation, and logistics infrastructure.** Now some folks may not think of the Permian or the Bakken, or even the Eagle Ford as garden spots or tourist destinations, but the required infrastructure exists in these basins and exists in abundance. The same cannot be said for Siberia or China, or anywhere else for that matter.

   Only the U.S. currently meets all of these criteria, and it is unlikely that shale will be effectively exploited anywhere else for a very long time. The strategic significance of all this cannot be overstated. The U.S. shale oil revolution changes everything, including your specific business circumstance and outlook. While global oil prices will certainly vary with the dynamics of supply and demand, we will no longer be vulnerable to the threat of oil embargoes or artificially elevated energy costs.

   In the aftermath of the 2014 to 2016 “Oil Price War,” we have seen an astounding recovery. Now we are not at an activity level to match the 2010 to 2014 shale oil boom, but neither are we back at $100 plus oil. As of this writing, WTI (West Texas Intermediate) crude prices are hovering around $57, a 48% or so increase since early 2016. Perhaps more importantly, at that price the oil companies are making a reasonable profit. Enough profit to warrant continued capital investment and exploration. Concurrently, $57 oil, and the corresponding prices for natural gas and coal, allow for U.S. economic growth to be unimpeded by high energy costs. It is quite literally a win-win situation.

   For 2017, the following facts should give you both pause for thought and encouragement for the future of the U.S. energy sector and your own business situation:

   ✓ $10 billion in investments in the Permian Basin in 2017 by Exxon Mobile, Shell, and Chevron alone
   ✓ By year’s end 2017, the Permian Basin may be the highest producing oilfield in the world
   ✓ Oil drilling rig count has gone from 332 in April 2016 to 898 on 4 Nov 2017
   ✓ Technology is advancing rapidly:
     ➢ Multilateral drilling
     ➢ Walking drilling rigs
     ➢ Multi-stage hydraulic fracturing
     ➢ Variable mesh proppants and micro-proppants
     ➢ And, now with the advent of nanoActiv® HRT even nanotechnology and quantum physics has been applied to the oilfield

   With our unique circumstances, resources, and capabilities, how far away can U.S. energy independence be? When it comes, it will change everything we thought we knew about the global security structure, U.S. foreign and defense policies, and closer to home, how you will view your business and future opportunities.
Modulift Beam Lifts Tunnel Boring Machine in World First

Modulift provided a custom lifting beam, slings and shackles as specialist pipeline contractor Stockton Drilling completed multiple lifts of a 28t, 18m-long tunnel boring machine (TBM) that was working subsea at the Beatrice Offshore Windfarm / Direct Pipe Landfalls (BOWL) project at Portgordon, Scotland.

The BOWL project is one of the largest private investments ever made in Scottish infrastructure and produces 584 megawatts from 84 turbines situated in the outer Moray Firth, powering approximately 450,000 homes at a cost of £2.6 billion to its investors SSE, Copenhagen Infrastructure Partners and Red Rock Power.

Stockton’s scope of work included the trenchless installation of two independent 48-inch x 450m steel landfalls for high-velocity cables by utilising Herrenknecht’s DirectPipe system and AVN1000 micro tunnelling machine. DirectPipe, a hybrid micro-tunnelling and pipe-jack system that lines the tunnel as it advances, was selected due to undrillable geology.

In a world-first, the TBM was recovered from the sea after each drive using a remote disconnect module. Divers were then dispatched to the TBM’s location to attach the 34t capacity, 16.6m-long beam so a 120t capacity crane, placed on a rented jack-up barge, could lift it out of the water and place it on a multi-cat for return to Buckie Harbour.

Modulift was challenged with design and manufacture of a below-the-hook solution to lift the TBM from beneath the surface, where it was to be found four degrees from horizontal. The TBM is made up of 10 modules that each have their own individual lifting points, all of which were to be utilised to provide equal loading and enable the machine to be lifted in one piece. The beam also had three top lifting points to facilitate rigging to the crane.

Modulift utilised counterweights so the beam tilted when unloaded in order to have the same inclination as the load on the seabed, ensuring all bottom connections were carrying load. However, the beam had to lift the TBM level. It was also manufactured to withstand the dynamic forces present in the demanding, marine environment.

Patric Ridge, business development manager at Stockton Drilling, said: “The product satisfied the requirements and standards set out at the beginning of the project. Lifting [the TBM] in one piece was a swifter, safer and more efficient process. Weather conditions had to be just right in order to perform the lift, so the lift had to be completed in a timely and safe manner. The process was further complicated by the low depth of water [less than 10m] in the area.”

Ridge explained that the TBM was submerged for less than 48 hours for each 420m drive, approximately half-a-mile offshore. Surface alluvial comprising pebbles and cobbles, overlaying bedrock of weathered sandstone, prevented the use of more traditional horizontal directional drilling methods. Further, the beach area around the landfall site is a designated Site of Specific Scientific Interest (SSSI).

Stockton has retained the beam for future utilisation.
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SP Adds Distance Measurement Tool to Product Range

Construction and other professionals can now measure force, load and distance with Straightpoint (SP) products, as the Hampshire, UK-based manufacturer launches the Wireless Linear Displacement Transducer (WLDT).

SP already boasts a comprehensive range of force measurement and load cell products, which is now complemented by a new tool, available in stroke lengths from 25mm (1 in.) to 200mm (8 in.) that can accurately measure displacement or movement in a variety of applications presented by the construction, civil engineering, aerospace and other sectors.

David Ayling, director at SP, said: “Like many products in our range, the WLDT hits the market in response to demand. There are many instances where an end user is measuring force or load and has a desire to measure distance as well. They might want to know how high something has been jacked up or to what extent a building has shifted, for example.”

The WLDT is a robust, absolutely linear position / displacement transducer and is inherently frictionless, presenting a mean time between failures (MTBF) in excess of 100 million cycles when properly used. An eye at each end of the transducer enables the sensor to be quickly and accurately positioned in place and connected to SP’s Multiple Wireless Load Cell Controller (SW-MWLC) software package. It is also supplied with SP’s SA700C wireless transmitter.

Ayling highlighted two product features, beyond its appeal as a wireless versus cabled solution: first, its plug-and-play capability; and, second, its compatibility with SP’s renowned software, suiting it to civil engineers; positional control applications; research and development testing; lifting or spreader beam testing; aerospace system integration; and hydraulic or jacking work.

He said: “There are other options for professionals looking to apply distance measurement technology, but most will require sourcing of a separate transmitter, calibration and other labour just to set them up. Like previous SP products, the WLDT is ready to go. Further, consider the extent of the data that can be captured and logged; users can chart load versus displacement and present information in graphs and other infographics.”

As industry has already noted, SP’s software package is a versatile, user friendly, wireless load cell control, display and data-logging tool designed for use on the Windows PC platforms, Vista, Win 7, 8 and 10. It allows simultaneous, wireless communication between SP products and a Windows PC. A resizable window displays a table of up to 100 wireless load cell channels of live data.

Ayling concluded: “Perhaps a user will start with a requirement to move something a specific distance—say, when jacking a bridge—and arrive at the WLDT as a solution. Based on the extent of enquiries we received, we have built up stock levels in anticipation of global demand for the latest addition to the SP portfolio.”
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Barbara Gilbert
Editor
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800-444-2973 • 248-994-7753
RENFROE EXCELS ON CLAMP ENDURANCE TEST

In an independent test of the three leading manufacturers of industrial lifting clamps, J.C. Renfroe proved to be the most durable in the category of horizontal lifting. Rexnord Innovation Center (RIC) an independent, accredited laboratory, performed fatigue testing on three manufacturers’ vertical, 180 degree turn + side pull clamps in the horizontal orientation. Results show Renfroe’s new LPA model, completed 1,664,928 cycles while competitor Company A completed only 159,672 cycles before experiencing a crack at the bail pin and Company B only completed 79,352 cycles.

For over 70 years, Renfroe has produced the most reliable, durable clamps in the industry. And that tradition has continued with the L series clamps.

For the actual test results or for more information on the new lightweight L series of clamps, call 1-800-874-8454.