WALDEMAR S. NELSON AND COMPANY
INCORPORATED
ENGINEERS AND ARCHITECTS

"consultant"®

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Thinking Outside The Box

By: Kenneth H. Nelson, P.E.

Not all of the services we provide fall strictly in the category of design. We can sometimes add value to our clients' operations by providing an objective third party perspective or helping to think "outside the box".

Anticipating Client Needs

One of the services we can provide is helping clients do "big picture" thinking to anticipate challenges to their operations and help them be prepared to meet them. Years ago when I was in the chemical plant of a client, a torrential rainstorm hit one afternoon. I rode around the plant, mapped the areas that were flooding, and put the sketches in a folder for future reference. About two weeks later I got an urgent call from one of the plant engineers who said management was concerned over the recent flooding and that they would need us to do a study of how to fix it. I told him that would be no problem, I had sketches of the flooding situation in my file and we could start working on a solution immediately. He wondered how, and I told him I had been there the day it happened and could see this was going to need to be the next thing on their agenda.

My indoctrination into this kind of thinking began from hearing about my father's experiences during World War II as an engineer on the construction of training facilities for U.S. Army troops at Camp Claiborne near Alexandria, Louisiana. The camp was expanding so fast that the sanitary facilities used by the thousands of new troops began to overwhelm the existing sewage treatment plant. He knew this situation could not long be tolerated due to the public health implications, so in his "spare" time (an inside joke for those who know how fast the pace was during World War II) he drew up plans for a treatment plant that could handle the increased load from the thousands of newly arriving troops. He got bids from some of the contractors already working onsite and put them in a file, waiting for someone in Washington D.C. to reach the obvious conclusion he had seen and prepared for. Some weeks later, a panicked call came from Washington that the troops were being exposed to unsanitary living conditions and that the situation needed to be dealt with immediately. Waldemar told the officer who delivered the message not to worry, that the work could start within the week. The officer stammered that was impossible, since plans would need to be prepared, bids received and evaluated, and an approved contractor engaged. Waldemar explained how all the necessary steps had been taken per regulation, and that construction could indeed start within a few days. Taken aback, the officer said he needed to figure out how he could report all this back to Washington. Waldemar suggested they contemplate how to accomplish this over a drink in the officers' club, which they did, and the officer went back to Washington with a copy of the plans in hand and assurance that the problem had been dealt with in accordance with all the procurement rules. It was a fine example of how to anticipate and meet a client's changing needs. In the current turbulent economy, we are watchful for such opportunities and eager to help our clients meet their challenges.

One service we provide that makes use of anticipatory thinking is called HAZOP analysis, which is the exercise of looking at everything that

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might go wrong with a system and then designing safeguards either physically into the facility or operationally into the work process to try to avoid the identified hazards. This process is usually applied to industrial operations, but the principles could be applied to other areas such as logistics. In that vein, we have performed transportation congestion studies for clients to see if their marine facilities would be able to handle projected traffic. We have also helped with studies of the number of personnel needed to operate industrial facilities and the accommodations needed to house them.

Root Cause Failure Analysis

Some of our most technically sophisticated work involves root cause failure analysis of electrical equipment. These studies have resulted in discoveries that have prevented millions of dollars of lost production and possibly even loss of life, since our staff have communicated the cause of failures to code writing committees that they serve on, and preventive safety measures have been incorporated into industry standards as a consequence. This process of discovery and designing against future failure is one of the most rewarding aspects of engineering practice.

Mediation

Serving as an independent third party, we are sometimes able to observe things in a client's operation that the pressures of their daily schedule may not allow them to see, or the internal politics of their company may not allow them to talk about. We can help facilitate finding solutions in such situations. I was called by a client one time who said "I need you to come out to the plant tomorrow. I need a marriage counselor." That was a curious request, so he went on to explain that there was a dispute between a contractor and an inspector, and he could see there would be no resolving it through discussions involving anyone already working on the project. I went to look at the situation, which turned out to be more of an ego problem than a physical one, and with a technical explanation in hand, we were able to get the job rolling again with no harsh feelings among the folks who had been in a standoff.

Another time I was called out to investigate a failure involving a hose handling crane. After looking at the broken parts and talking with some of the people at the site, it became apparent that the cause was operator error inducing water hammer in the hose rather than an inherent flaw in the design of the parts attached to the hose. We were able to diplomatically suggest that more careful attention to procedure might prevent such failures in the future, and we never heard of another failure after that. A similar situation involving cooling water applied to an overheated vessel revealed that someone had gotten too vigorous with a hose and ended up generating so much steam that the vessel almost ruptured. The vessel was unfortunately ruined, but luckily there were no injuries. Again, after we provided a diplomatic technical explanation of what had caused the near catastrophe, we never heard of a similar incident at that plant again.

So although not all of our services involve producing drawings or specifications, we can sometimes save our clients money and time by thinking "outside the box" to identify, solve, and prevent problems.

SERVICE ANNIVERSARIES 2016

Thank you to the following employees who have continued to offer their loyalty and talent to our company and clients. Your dedication allows NELSON to deliver the caliber of service to our clients for which we all strive.

15 Years

Kenneth C. Leaber

10Years

Vincent H. Bologna
Susan B. Calamia
James C. Cheron
Gary W. Cravey
James M. Daigle
Jason A. Frisch
Tiphanie D. Giroir
James P. Green
Thomas B. Grehan
Daryl J. Hattier
Kevin P. Houghton
Lauren F. King
William C. Kirby
Larry T. Koepplinger
Stancel P. Lafaver
Liem Chanh Ly
Raphael A. Magnotta
Thu T. Quach
Paul Sciortino
Jess B. Shelley
Marie A. Vonderheide

5 Years

Ryan M. Adams
April C. Antoine
Elizabeth B. Bahr
Brooks J. Berggren
Justin Bertheaud
Daniel R. Borst
Angelic M. Boudreaux
Stephanie H. Breen
Harold Brown, Jr.
Tameeka C. Bullock
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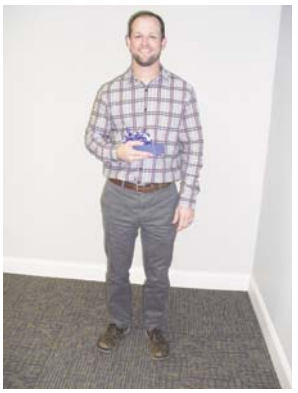
Kristy-Le T. Nguyen
Jared A. Leach
Karen L. Matlock
Jonathan S. McBride
Slobodanka Muzdeka
Robert J. O'Bryan
Alvin L. Phelps
Dave Pinner
Hermon B. Russom
Nicole K. Sciacca
Jimmie Snyder Jr.
Frank P. Tanguis
George A. Treuil, III
Ian S. Walsdorf
Darrell A. Walsh
Jaime A. Zamora

10 Year
I to r: Tom Grehan, Vincent Bologna, Lauren King, J.B. Shelley, Paul Sciortino, Tiphanie Giroir, James Green, Daryl Hattier, Liem Ly, Raphael Magnotta, Stan Lafaver, Jason Frisch, Thu Quach, Marie Vonderheide, Jim Cheron and Clay Kirby

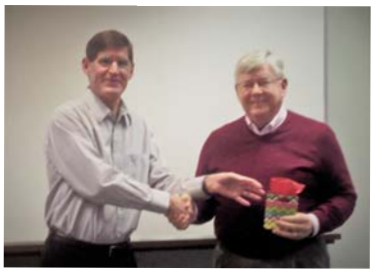


15 Year
Kenny Leaber

5 Years
I to r: Roy Phelps, Dave Pinner, Danny Borst, Boba Muzdeka, Justin Bertheaud, Harold Brown, Kristy Nguyen, April Antoine, Tameeka Calvin, Patrick Hildebrand, Brooks Berggren, Nicole Sciacca, Karen Matlock, Darrell Daws, Ian Walsdorf, Mike Delatte, Robert O'Bryan, Frank Tanguis.

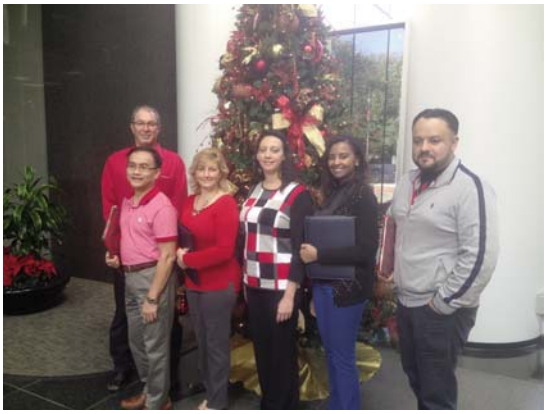
Jim Lane and
Deborah Fulton
(5 years)

Hermon Russom
(5 years) and Jim
Lane



Jim Lane and Larry
Koepplinger
(10 years)

Scott McBride (5 years) & Kent Davis



10 and 5 Years
I to r: Kevin Houghton (10 years), Thomas Du, Angel Boudreaux, Stephnie Breen, Elizabeth Bahr, and
Jaime Zamora (5 years)

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9th Annual Louisiana Engineering Society New Orleans Chapter Golf Tournament

The NELSON team participated in the 9th Annual Louisiana Engineering Society New Orleans Chapter golf tournament at Audubon Golf Club, October 7, 2016. Team participants were Dean Bickerton (Reynolds Company) Roy Phelps, Joe Lawton, Steven Mitchell (Freeport McMoran), Mike Fernandez (CTI), Daryl Daws, Joel Dorsa and Wayne Settoon.
Congratulations to Mike Fernandez with CTI who won the putting and gambling hole contests.