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PIPELINE IN THE MIDDLE OF NOWHERE?

JIM GARDNER CAN WRITE THE BOOK ON COMMUNICATIONS

By Jeff Share, Editor | **August 2013, Vol. 240 No. 8**

In the field of wireless automation, Jim Gardner is well known as a leader and an innovator. His employer, OleumTech, founded in 2000 and based in Irvine, CA, provides wireless solutions for applications in a host of industries, such as pipelines, refining, petrochemicals, utilities and water/wastewater.

In fact, Gardner's middle name could be communicator. Whatever fashion he chooses, the Seattle, WA native knows how to get his message across. As we learn in this interview, that message describes the urgency to use advanced technology in the energy industry, along with an attitude that ultimately nothing is impossible.

Gardner did his undergraduate work courtesy of the GI Bill at the University of Washington. In 1976, his GI Bill benefits had run out so to earn money for graduate school, he packed his duffle bag, bought a one-way ticket to Anchorage and went to work on the Trans Alaskan Pipeline.

After working on drilling rigs in Prudhoe Bay as a roughneck, he took a laborer position with AMF Tuboscope, which did electronic pipe inspection for the drill pipe used on the rigs.

"All of our work was done outdoors where the temperature was minus 60 and winds were 40 mph, making it minus-100 with the wind-chill factor. It was a great experience in learning how to get the job done regardless of what the obstacles were. My first foreman used to say, 'First you have to want to do it, then the rest is easy,'" he recalled.

Later he moved to Rock Springs, WY, where he continued to work in pipe inspection (non-destructive testing). In 1984, he started his own company in Vernal, UT and sold it in 1992. He was approached by the owners of an oil field automation company (ROS-Remote Operating Systems) to manage their central regional office. Part of his job was working with the Texas Railroad Commission and the federal Bureau of Land Management, getting custody transfer acceptance for electronic level gauges.

ROS dissolved in 1999 and sold its level sensor products. Gardner went to work as a business development manager for ABB Totalflow, which acquired a ROS sensor product.

Two years later, he was approached by FreeWave of Boulder, CO, then a small manufacturer of data radios. His job was to pioneer their entry into the oil and gas business, which appealed to Gardner who wanted to return to the "small company" environment. FreeWave quickly gained market share for retrieving data from production sites, gathering systems and pipelines, as prices for oil and gas were rising and rig counts and gathering systems were steadily growing.

By 2013, many of his former colleagues were working at OleumTech, a company that touts a reputation for combining quality, wireless technology to instrumentation and measurement devices. With his background in radio and measurement systems, the job as Western Regional sales manager sounded ideal. And that's where the interview picks up.

Gardner: Managing sales and distribution of wireless instrumentation for monitoring and controlling oil and gas processes such as tank monitoring, pressure and temperature monitoring, valve control, ESD (Emergency Shut Down), flare stack monitoring, compressor monitoring, etc., all wirelessly. My area of responsibility is Texas, New Mexico, West Coast and Canada. I work with a team of sales and applications engineers who are very hands on/field operations-focused people. I am a very visual person who enjoys being in the field, so this team is a great fit for me.

P&GJ: Are companies keeping up with the rapid advances, and do they realize the value of these tools?

Gardner: Both production and pipeline operators have historically installed equipment to monitor and control their operations. The evolution over the past 30 years has seen the industry move from sight gauges and manual controls to automated hardwired devices. In the past 10 years, there has been a steady growth of wireless monitoring; with the acceptance of wireless, many operators are moving to wireless control for ESD and valve control.

The oil and gas industry has had huge advances in production techniques with multistage frackings and huge increases in the pressures and volumes that we deal with at production locations and in gathering systems and pipelines. Today, new wells cost five times more than a conventional well did 10 years ago, so optimization to achieve return on investment (ROI) is on everyone's mind.

With those increases in volumes and pressures the need for real-time data has become critical for optimizing production and profitability. Additionally, there are so many wells being drilled and increases in production that we have a manpower shortage. The trend is to let automation do more work, reducing the hours of driving and non-productive work. The workforce is becoming more technical and each operator is being asked to manage more wells per person than was possible in the past.

P&GJ: What do clients say are their greatest needs and challenges?

Gardner: The needs are always changing. As technology solves one problem the industry always says, "That's great, but can you do this?" Technology is always creeping forward, and the industry demands more. As each new product and process expands the possibilities, people's imaginations move to what could be and what can we do next.

Today, one buzz word is accurate liquids measurement. With oil prices hovering at $100 per barrel, ensuring accurate measurement of volumes for sales is critical; with huge increases in volumes, the danger of spills is greater than ever so being able to alarm or shut down a process before there is an environmental incident is on everyone's mind.

P&GJ: What could be the next major advances in wireless communications?

Gardner: The trend for combining technologies is in its early phase, so I expect to see operators using iPads with Internet access on location. Manufacturers of equipment will be consolidating and working toward providing total solutions from one end of the process to the other: instruments to RTU and PLC functionality to wireless data being transferred to the web, where anyone in the organization has real time access anytime, anywhere. One system will monitor, control and operate the wells, whether oil or gas, and provide data to the IT department, accounting department and production. These systems will come from one vendor that can provide equipment, installation, service, maintenance and training.

P&GJ: With cybersecurity, how important is remote monitoring and control?

Gardner: There is a lot of confusion about security, encryption, firewalls and data retrieval in general. Today, much of the wireless data transfer is serial communication, much like the movement of data from PC to monitor, just point-to-point. It is safe and secure, no real way to hack it. The issue gets more complicated as we move to an IP-based world, where everything is accessible if you know the IP address of the device you want to contact.

The military has led the way in building security systems for wireless. The "secret sauce" is encryption combined with radios that change frequencies multiple times per second. Many of the manufacturers of oilfield equipment are using similar systems, not as elaborate, but still reliable and secure.

P&GJ: Likewise, with the increased focus on pipeline safety, what role can remote monitoring/control play in making pipelines safer? Can this also affect the increased emphasis on control room activities?

Gardner: After the San Bruno explosion, there were multiple changes in state law in California. There has been much discussion in other states and federally about sweeping changes. Most have not yet come to fruition. It's not a question of if that will happen as much as when.

We've worked with several pipeline companies testing and implementing systems that can remotely monitor pipeline pressures and report changes up or down in near real time. With that data the controllers can run algorithms to automatically make control changes and adjustments to prevent or minimize leaks and collateral damage through automated wireless valve control.

P&GJ: Did your service as a Marine in Vietnam help prepare you as a leader, one willing to accept difficult challenges?

Gardner: I was 18 when I joined the Marines, very idealist, very patriotic, very naive. I have often felt that my time as an infantryman in Vietnam was a pivotal experience. We learned the meaning of teamwork, that you are stronger together than as an individual, and that you can do way more than you ever thought you were capable of if you just keep going. Personally, I learned that danger is real, but fear was a choice. If we chose not to be afraid, we could and did make better decisions.

P&GJ: Are there any particular personal or professional accomplishments that you're most proud of?

Gardner: I am proud to be a part of the oil and gas industry. I began as a laborer and have always enjoyed the unique combination of being outdoors, technology and drilling a hole two miles deep, extracting the energy that runs our economy. I've always felt that our industry is a different environment than most others.

Everyone has a chance to succeed based on his own merit. I've traveled the world and worked in Russia, Australia, Brazil, Mexico and all across the U.S. Everywhere I have gone, I have always been given a chance and an opportunity to prove my worth. Who could ask for more than that!

P&GJ: Are there any particular memories or people that stand out as either having an impact on your life and career?

Gardner: I have worked with two men with Ph.Ds. in physics and roughnecks from the farthest corners of civilization (and that's using the term loosely). They all have something to teach you. Some teach you how to do things and some teach you how not to do them.

One interesting story was back in the boom in the '70s. I was managing a company in Wyoming, and we had more work than we had people to do it. I began driving around with employment contracts in my glove box picking up hitchhikers. I'd tell them I would give them a ride to the next town, but if they would work a few days I would give them a ride and some spending money. I have no idea how many guys I dragged out to location to roll pipe and provide labor for a few days in coveralls that didn't fit and a brand new pair of work gloves.