

Editorial

Welcome to the Summer 2011 issue of the PARS Reporter, a quarterly publication for clients and friends of the firm! PARS Environmental is a full service environmental consulting firm that offers creative solutions to a broad range of engineering, health & safety, and environmental issues. The company combines technical capabilities, with a focus on eco-friendly and pragmatic approaches.

-Lisa Keil, Editor, lkeil@parsenviro.com

PARS Environmental named one of the fastest growing women-led Businesses



Hamilton Mayor John Bencivengo presents PARS Environmental CEO Kiran Gill with a proclamation honoring her firm's distinction as the nation's 21st-fastest-growing business led by a woman.

PARS Environmental Inc., received national recognition for being one of the 50 fastest growing women-led businesses in the United States.

More than 350 companies were considered for the annual list. PARS Environmental Inc., located in Hamilton, is ranked 21st. Last year, PARS was ranked 49th. To be considered for the list, companies had to be private, either women-owned or led, and acquired a minimum revenue of \$500,000 in 2006 and 2010 revenue of at least \$2 million.

PARS revenues increased fivefold in the past five years. Revenues increased from \$1.2 million in 2006 to over \$10 million in 2010. Last year, Kiran Gill, President/CEO of PARS Environmental Inc., was awarded the 2010 NJ Minority Small Business Person of the Year by the US Small Business Administration. (Continued)

Message from Management

I am pleased to report that PARS has steadily been growing, with new contracts with the Federal Government, the private utility sector, and within our Health and Safety practice. Over the past six months PARS has also developed new areas of expertise to support our growth including: Underground Storage Tank Removal and Installation; Equipment and Facility Decontamination; Waste Recycling, Transportation and Disposal Management; and Remediation Estimating and Management.

As the company continues to align its services with our client needs, we will expand into other areas in the future. The addition of all these services are a direct result of client requirements, and their faith in our ability to perform. Contact your business representative for more information on any of the services outlined or call the office direct.

Geographically, PARS has expanded into the Philadelphia market, and plans to establish a presence in the mid- Atlantic area in the near future. Although we provide our services nationwide, these areas will increase our ability to provide our services to local markets.

Since part of our growth is fueled by our government contracts, it is important to note that we are always looking for specialized environmental firms to team with on contracts. We are always interested in finding firms that complement our business in areas that are not our expertise. If there is interest as a vendor, contact our office. In July or August vendors will be able to register direct on our new website.

Speaking of the new website, stay tuned as we are reconstructing our web page to include vendor, employment and bidding opportunities, and a host of other features detailing our company.

- Gary Gardner, Senior Vice President-General Manager

(Fastest Growing Women Led Companies Continued)

"We are very pleased to be able to expand our business in this difficult economic environment. We want to thank our customers and employees for their loyalty and support," said Gill.

Hamilton Township is a wonderful community to do business in, and having a nationally recognized woman-led company like PARS Environmental here in Hamilton is another example of the strength "and vibrancy of our local business environment," said Hamilton Mayor John Bencivengo, who recently presented Gill with a special proclamation acknowledging this national distinction.

PARS receives OS&H Award for 2010

PARS Environmental earned an award for achievement in the prevention of occupational injuries during the year 2010. The award was presented at the Governor's Occupational Safety and Health Awards Program dinner. PARS celebrated the 83rd anniversary of the Governor's Occupational Safety and Health Awards Program with two representatives attending the dinner award program.



Occupational Safety and Health award presented to PARS Environmental Senior Vice President and General Manager, Gary Gardner (third from the left) and Senior Consultant Harch Gill (first on the left).

New Employees

PARS added six new employees to the firm since January 2011.

We are pleased to announce that **Gary Gardner** joined PARS in May, as Senior Vice President and General Manager. Gary's professional, operational, and management experience spans over 30 years. He has been involved with both large and small businesses engaged in environmental remediation and consulting throughout North America including OHM, IT Corp, and Site Waste Logistics, Inc.

In an interview with The PARS Reporter, Gary said, "I am pleased to be on board with PARS Environmental. With the firm's dramatic growth over the past few years, and experienced staff, they are poised to sustain continued growth. One of my objectives is to maintain the continuation of quality services, with a high degree of personal attention to every client."

Karen Ruliva joined PARS Environmental in April as Public Health Technician at the Travis AFB in CA. She received her bachelor's of science in nursing at the Philippine Women's University Manila in the Philippines. Her previous experience includes over 20 years in the United States Air Force. (Continued)

New Employees (continued)

Kelly Clarkson joined PARS Environmental in June as a Health & Safety Specialist. She received her Bachelor's of Science in Environmental Management, Occupational Safety and Health from Columbia Southern University. Kelly brings a broad range of experience in that includes: inspections for hazardous waste materials, collection and analysis of materials for report preparation, monitoring remediation sites to ensure compliance and inspected worksites for safety violations.

Joey Awwad joined PARS Environmental in March. He is a recent graduate of Penn State University. His degree is in Civil Engineering and currently performs various CAD projects as well as field support at various locations.

Brett Crowthers joined PARS Environmental in April. Brett received his Masters degree from Drexel University in Environmental Policy and his B.S. in Meteorology at Millersville University in PA. His current responsibilities include H&S oversight and he provides field support throughout the United States.

Cody Postlethwait joined PARS Environmental in June 2011. Cody completed his B.S. degree in Biology and Environmental Studies from Ursinus College. His responsibilities include field support to the environmental and health & safety department as well as the Construction Manager.

We are very happy to have such impressive growth in this economic down climate. PARS Environmental would like to formally welcome all new employees to a successful career at the firm.

-Lisa Keil, Editor

Travis AFB



PARS recently began work with a new client in California, a long-term contract with Travis Air Force Base near San Francisco. PARS contracts an employee for the Davis Grant Medical Center on Travis AFB. The Public Health Technician position performs a full spectrum of services and support to the Public Health Flight. We are delighted to expand our employee status throughout the United States and look forward to building a strong relationship with our client.

-Lisa Keil, Editor

State-of-the-Art Watershed Management

Environmentally, the new national buzzword is “watersheds” – a term that envisions a comprehensive, environmental approach to water resource management. Using this approach, several major cities throughout the nation are working to transform our urban waterways and its associated land (our watersheds) into vibrant, green communities where people want to live and work. In the past five years, PARS has been a leader and proponent of this marriage of an environmental vision with economic health, quality of life improvements and sustainability.

PARS has been retained by the Environmental Protection Agency to provide technical support for development evaluation, and application of methods for molecular biological, biological, microbiological, sediment toxicity, and water quality assessment in marine and freshwater environments for environmental pollution prevention. PARS also operates and maintains the USEPA Office of Research and Development UWRP (Urban Watershed Research Facility) facility.

The Accotink Creek, Fairfax, VA project is an example of the successful management of a watershed. The Accotink Creek headwater watershed located mostly within the city limits of Fairfax has uncontrolled urban runoff that has resulted in the creek’s channel deepening, widened the stream, sediment removal and deposition, and caused increased erosion. Many of the fish and other aquatic life, which are important for the Creek’s viability, began to disappear. In the spring of 2002, the city completed stream restoration improvements on the North Fork of Accotink Creek from Stafford Drive to Lee Highway. This project consists of stream restoration of a segment of 1,800 linear feet of the North Fork of Accotink from Lee Highway to Old Lee Highway in the City of Fairfax, Virginia. Proposed restoration includes installation of native plant materials along the stream and bioengineering structures to stabilize the stream channel and bank.

These actions are intended to restore the stream channel to a stable condition. Reducing stream bank erosion and sediment loads in the stream while decreasing stream bed velocities and creating shallow pools to improve habitat for aquatic life.



In addition, continuous water-quality monitoring for approximately 19 months using water quality sondes which are used to continuously monitor such parameters as turbidity, specific conductance, pH, and water temperature at one location to understand pre-implementation, during implementation, and post-implementation conditions of the system. The project also collected approximately 28 water-quality samples over a wide range of flow conditions and analyze for fecal coliform, *E. coli*, and suspended sediment concentrations (SSC). The continuously monitored data will provide a detailed record of water quality with watershed changes. (Continued)

Grab samples were used to develop relationships with continuously measured parameters and used as a predictor for related stressors.

Another high profile project is the Monitoring to Evaluate the Performance of BMPs (Best Management Practices). The primary objective of this task is to confirm the effects of maintenance on the pollutant removal of BMPs. Monitoring before and after showed maintenance improved the effluent suspended solids (SS), chemical oxygen demand (COD) at the New York City Department of Environmental Protection’s (NYCDEP) Bluebelt BMP located at Richmond Creek (RC-5) in Staten Island. Confirming the effects of maintenance at RC-5 periodic maintenance did improve BMP performance at removing discharges to surface waters. Activities under this task involved the collection of samples for SS, COD and nutrients to determine the impact on the loading to the BMP and subsequent discharge from the BMP at various storm intensities. Approximately 10 storms were collected as composites using automated sampling equipment and analyzed in duplicate. Analysis included five background samples collected during periods of no precipitation and QA samples. Additionally, approximately 20 sediment samples were collected and analyzed for nutrient content and total organic carbon.



Porous Pavement Parking Lot Demonstration Site - Edison Environmental Center - Edison, NJ. - This demonstration site is a joint effort between EPA’s Office of Administration, Region 2, and the Office of Research and Development, and the study will continue for ten years. NRMRL/WSWRD has installed a full-scale 110-space porous pavement parking lot that is instrumented and monitored for a number of water quantity and quality parameters. Various types of porous pavement are commercially available for the control of stormwater runoff; the demonstration will provide valuable information for improved design and performance. The study will monitor side-by-side porous asphalt, porous concrete, and permeable interlocking concrete paver systems. There are three parking rows, each one a different porous pavement type, the driving lanes of the lot will be conventional asphalt. The porous pavement parking areas have sections lined with an impermeable liner to collect the porous pavement effluent and sections that allow the effluent to infiltrate to the underlying soil. Each monitored parking row has four impermeable and five permeable sections for each porous pavement type, which will allow for statistical analyses of collected data. The parameters that will be monitored include: volume, solids, microorganisms, nutrients, metals, and semi-volatile organic compounds.

- Harch Gill, Senior Consultant

PARS Environmental Technology Talk

An Innovative Technology for Treating “Hydrofracking” Fluids

The treatment of “hydrofracking” fluids is a major challenge in the development of huge gas reserves in the Marcellus Shale Formation, the gas reserves are considered to be the largest in the world. ELECTROCOAGULATION is an innovative technology to treat hydrofracking fluids in an efficient and cost-effective manner.

The Marcellus Shale Formation spans 600 miles of the Appalachian Basin, from West Virginia and Ohio to the Northeast through Pennsylvania and New York. In terms of potential recoverable gas, it is considered one of the largest unconventional sources in the world.

Many experts agree that the Marcellus shale region’s potential for natural gas production is vast. The only economical way to extract the gas is through a controversial technique called hydraulic fracturing, or hydrofracking. The technique involves blasting millions of gallons of water mixed with sand and a small amount of chemicals deep into the ground to create in the rock fissures that then release the natural gas. The process is extremely resource-intensive. A single well can require more than three million gallons of water as part of its development process.

Engineering construction firms are finding plentiful work in the burgeoning oil-and-gas exploration and production industry throughout the Marcellus shale region as well as at plays in other parts of the U.S. and the world. Further, enterprising firms may well find themselves at the heart of determining whether this gas sector continues to develop or public pressure brings future drilling to a standstill.

ELECTROCOAGULATION is an innovative technology that uses electrical energy to cause the release of contaminants from an aqueous medium. In North America, PARS has used the electrocoagulation technology for treating wastewater in the pulp and paper, mining, and metals processing industries. In the past few years, interest in electrocoagulation has increased in the United States as a result of increasingly stringent requirements on water discharges.

With the proper technological design, electrocoagulation can be applied to a broad spectrum of water and wastewater treatment systems, including the treatment of hydrofracking fluids. The technology is most effective in removing inorganic contaminants, pathogens, and hydrocarbons to very low concentrations. Because of the technology’s broad applicability, it has recently been used for groundwater and surface water remediation at several sites. The technology lends itself to treating complex mixed wastewater streams and pre-treating water to increase the efficiency of purification and desalination.

The simplicity of operating an electrocoagulation system (basically a pipe, pump and a D.C. power source) masks the complex reactions that occur within the process. Electrocoagulation systems must be designed to optimize more than 20 variables and transfer the electrical energy effectively to the aqueous medium.

Using electrical energy reduces treatment reactions to the fundamental laws of physics, thereby overriding interference from within the water matrix. When water that contains colloidal particulates, oils, dissolved metals, or other contaminants moves through an electric field, the forces of ionization, electrolysis, hydrolysis, free radical formation, and magnetism, alter the physical and chemical properties of both the water and the contaminants. This excited and reactive state causes contaminants to be released from water and destroyed or made less soluble. Minutes after treatment, the water-contaminant mixture separates into an organic-rich floating layer, a mineral-rich sediment, and clean water that can be extracted using conventional equipment.



75 GPM System

The electrocoagulation reaction is accomplished by three mechanisms: Double-layer compression, which is achieved electrically by producing ions at the anode during oxidation. Electrocoagulation charge neutralization, which results when electron flow through the water reduces surface charges and allows agglomeration; and bridging and entrapment, which occur when the floc formed creates a sludge blanket that entraps colloids that have not complexed but are carried out with settling.

Electrocoagulation floc is similar to chemical floc, except that electrocoagulation floc tends to be much larger and more stable. (100 um versus 25 um) and separates faster.

The uniqueness of the electrocoagulation technology resides in the application of the treatment phenomena. This includes the “cell” and the “power supply”. Both components are specially designed to achieve an efficient and effective treatment of aqueous solutions and mixtures.

-Harch Gill, Senior Consultant



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