



Vol. 19 No. 1

Update to Clients

Update

California industrial facility faces stricter discharge limits

Industrial facilities across the nation continue to struggle to meet ever increasing regulatory requirements. Phibro-Tech, Inc., a long time SAI Client, was facing this problem at its Santa Fe Springs, California facility. (The latest changes in local regulatory requirements have made it difficult to consistently meet the discharge regulatory requirements.) This particular facility manufactures and markets various metal-based chemicals derived from treatment of waste products from other facilities. By its nature, the waste stream is highly variable and it requires extreme care to make certain the treatment method addresses all the possible waste characteristics.

SAI was retained to evaluate current practices and determine a design approach to meet these new limits. The critical parameter was arsenic although the waste stream will typically carry many other metals which are also closely regulated.

A preliminary assessment of the facility indicated facility personnel were doing an outstanding job of dealing with the varied waste streams, but the revised standards required changes to stay in compliance. Due to lack of space, SAI engineers needed to design a facility that was effective in a small area.

Based on bench scale studies, SAI engineers determined that an iron powder media was suitable to the entire range of metals encountered. To further test feasibility, design and implementation of this idea, SAI designed, constructed and operated a

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GAF remedial action nears completion, construction to begin this spring

Canal Crossing of South Bound Brook is one giant step closer to becoming a reality. Redeveloper Matzel & Mumford (M&M) has nearly completed the remedial action of the former 11+ acre GAF Main Plant property located on the Delaware & Raritan (D&R) Canal in the heart of downtown South Bound Brook. Remediation of several areas of environmental concern (AOCs) was performed and restoration of the canal bank was completed with SAI oversight. Placement of the final site-wide soil cap has been completed on the eastern portion of the property, and is ongoing in the western portion.



Contractors connect new sanitary lines to the South Bound Brook municipal system.

SAI prepared and submitted to NJDEP a Remedial Action Report with a deed notice for the capped portion of the property. Upon receipt of a "No Further Action" for the capped portion, it is anticipated that M&M will begin construction of the townhouse buildings in late spring or early summer.

The project involves the environmental remediation and redevelopment of a once-heavily contaminated former factory site that blighted the center of the Borough. There will be 152 townhomes, along with 23,000 square feet of commercial space. The resulting development will serve as the centerpiece of South Bound Brook's downtown revitalization.

The project started when the Borough first studied the redevelopment potential of the site. The property had 15 co-joined vacant buildings laden with asbestos, eight defined soil remediation areas found to be contaminated with petroleum hydrocarbons (tars/oils), polychlorinated biphenyls (PCBs) and/or as-

bestos materials, and free product at limited groundwater locations. Also, impacts were found in the adjacent state park property and in the D&R Canal.

Following extensive investigations, a revised remedial strategy was developed and implemented. As with many brownfield remediations, the scope of the remediation expanded as building demolition commenced. To date, M&M has removed about 1,600 tons of asbestos, about 55,000 tons of tarry petroleum waste, and about 2,683 tons of PCB waste. M&M also removed about 3 cubic yards of tar from the bottom of the D&R Canal.

Critical to the success of this effort and an outstanding example of cooperation was the fact that as a redeveloper, M&M was a Partner with the Borough. The Partnership allowed the Borough to create a redevelopment plan that was consistent with the vision of the elected officials and their constituents,

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INSIDE

Getting rid of gas. *see page 2*

Soils/geotechnical lab celebrates 3 years in business. *see page 3*

Helis visits the Delaware River. *see page 4*



Services for gas venting & monitoring systems

SAI provides comprehensive engineering design, construction oversight, and monitoring services for gas venting systems. Services include :

- Design of site-specific systems according to the environmental conditions and the end use of the property
- Routine monitoring and sampling of the sub-slab environment and required reporting
- Routine monitoring and sampling of gas system emissions
- Assistance obtaining required permits
- Assistance to ensure compliance with permits and regulations

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pilot test of the proposed pretreatment polishing step at the facility.

While the pilot test confirmed the effectiveness of the technique, further evaluation of the existing facility indicated an opportunity to better control treatment effectiveness with additional operational changes. Working closely with facility personnel, SAI developed a knowledge of site operations that resulted in recommendations for plant operations changes to successfully meet the more stringent requirements while minimizing capital investment and operational costs.

Preventing hazards and odors the goal of under-slab gas venting systems

*By Khaled Benslimane
Project Manager*

As one of the pioneers of brownfield redevelopment in the State, SAI helps its clients reclaim prime real estate for commercial and residential use. Many brownfield sites are closed landfills or abandoned dumps, which produce “biogas” as a by-product of waste decomposition (the volume of biogas produced drops off rapidly when new waste is no longer added to the site). The biogas is about 50 percent methane and 50 percent carbon dioxide with a trace of hydrogen sulfide. Methane provides an explosion risk, while hydrogen sulfide can be a health hazard, in addition to emitting a characteristic odor of “rotten eggs.”

SAI is often responsible for design of environmental controls that provide a safe and clean environment for redevelopment of brownfield sites. One of the environmental controls SAI designs is a gas ventilation system, which can be installed below a building slab to prevent biogas from accumulating under or entering a building. The gas venting system provides three layers of protection for the building:

- The first layer is for ventilation, and contains a gravel layer with an embedded system of pipe mains and perforated laterals. The piping allows fresh air to travel through the gravel below the slab, which has the effect of



A gas venting system was installed prior to pouring the slab at the Elizabeth, N.J. Marriott Residence Inn. The piping system brings in fresh air and vents out air collected under the slab.

diluting and evacuating gases that may accumulate below the slab.

- The second layer of protection is the vapor barrier, consisting of an impermeable membrane overlaying the ventilation layer. The membrane typically is 4-6 mil plastic with 100 mil geotextile fabric above and below. The membrane is sealed to the grade beams supporting the slab.
- The third layer of protection is the detection system that triggers an alarm in the unlikely event that the biogas penetrates through the first two layers.



NJ Senator Jon Corzine, shown here with SAI's Susan Goetz, Sr. Vice President, and Paul Rotondi, Director of Business Development, was the keynote speaker at the recent “Invest in Camden Day” held at the Tweeter Center in March.

SAI has many years of experience in designing and implementing under-slab gas venting systems. The firm's extensive list of completed and ongoing design projects includes multiple installations at the former OENJ Redevelopment Site in Elizabeth, NJ. The 166-acre site is now home to Jersey Gardens Mall (the largest outlet mall in the State), a 21-screen stadium-seating theater, as well as four hotel buildings. SAI's work at the site is currently expanding with the construction of a new restaurant building equipped with the SAI-designed gas venting system.

SAI also designed a system currently being installed as part of the redevelopment of a former landfill into a residential development in North Wildwood, NJ. This is one of the first under-slab gas systems approved by NJDEP for use under a residential building.

Brian McGhee, Vice President HR/Finance, and **Rodney Chow**, Project Manager, were interviewed by KYW-TV for a story about Helis, the beluga whale (see Life on the River on page 4).

Lahbib Chibani, Ph.D., P.E., Sr. Vice President Engineering, co-authored a paper entitled “Residential Redevelopment of a Former Landfill” presented at the Twentieth International Conference on Solid Waste Technology and Management April 4-6, 2005, in Philadelphia. The paper was co-authored by Ramesh Tharwani, P.E, Land Development Manager, K. Hovnanian Companies.

Geotech lab celebrates 3rd anniversary

Princeton Geotechnical and Materials Services, LLC (PGM), an SAI affiliate, is celebrating its 3rd anniversary. The soil mechanics laboratory provides services for testing the physical and mechanical properties of soils, including:

- Grain Size Distribution (Sieve and Hydrometer)
- Atterberg Limits
- Compaction Test (Modified/Standard Proctor)
- Unconfined Compressive Strength Test
- Triaxial Tests (UU & CU)
- Consolidation Test
- Soil Permeability

- Soil Class Rating
- Moisture Content
- Specific Gravity

The lab director is geotechnical engineer Amira Fahim, Ph.D., P.E., who has more than 20 years experience in the field with more than 10 years of industry experience. Her recent work has included foundation recommendations for school construction projects throughout the state, as well as evaluation of and recommendations for stabilizing earthen dams.

Health care waste management is topic of Sadat International awareness workshops



Sadat International, Inc. (SII) was selected by the World Bank to organize awareness workshops on Health Care Waste Management (HCWM) in North Africa – Morocco, Algeria, Tunisia - and the Middle East – Egypt, Jordan, Syria, Lebanon, Palestinian Authority and Yemen.

Dr. Lahbib Chibani, Ph.D., P.E., Vice President of SII, gives a presentation in Rabat, Morocco.

The main objective of the workshops is to raise

the awareness of decision makers, community, medical and health care staff about the negative effects that poor HCWM practices have on the environment and public health. A main component of this program is the dissemination of a World Bank – World Health Organization (WHO) manual on *Better Health Care Waste Management: An Integral Component of Health Investment*.

SII is working with WNNW International, Inc., which specializes in studies on HCWM and Occupational Safety, and a local partner where the workshop takes place.

GAF

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while qualifying for many other opportunities to upgrade the areas surrounding the project site.

While not a “responsible party” for site contamination, M&M agreed to remediate the adjacent D&R Canal bank, and is constructing and restoring a public walkway along the Canal to enhance the development.

Borough's Role

The project would not have been possible without the leadership and vision of the Borough. The Borough's subcommittee and professional staff, under the leadership of Mayor Jo-Anne Schubert, contributed hundreds of hours to help guide the project and maximize the opportunities for the Borough, as well as to provide as many incentives as possible to make the project a success.



Marwan Sadat and Susan Goetz are shown here with their host, Ramesh Tharwani, at K Hovnanian's Trade Partner Appreciation Dinner on February 13, 2005.



SAI finishes another Cleanup Star project

The New Jersey Department of Environmental Protection (NJDEP) developed the Cleanup Star Program in 2004 as a way to speed up the site remediation process for certain types of environmental cleanups.

Under this innovative program, NJDEP approves highly qualified individuals in the private sector to be “Cleanup Stars.” Site remediation activities managed by the Cleanup Star are fast-tracked through the NJDEP's approval process within two weeks, rather than months or years for projects moving through the standard approval process.

SAI's recent project, its second completed under the Cleanup Star program, involved a diesel fuel spill at a site in Jackson Township, Ocean County. The site owner had the foresight to immediately excavate the contaminated soil once the spill was discovered, place the soil on top of a plastic liner and cover the pile with plastic.

SAI staff visited the site that week to collect soil samples. The Remedial Action Report documenting the cleanup was prepared under the direction of Kenneth Goldstein, the Cleanup Star for this project. The No Further Action letter from the NJDEP was received only six days (four business days!) after the submittal of the Remedial Action Report.

For more information about the Cleanup Star Program, please contact Kenneth Goldstein, P.E., Senior Vice President, or Rodger Ferguson, Senior Project Manager at 609-826-9600.

Kenneth Goldstein, P.E., Senior Vice President of the Science Group, received the *Professional Advancement of Hazardous Waste Management Award* for 2005 from the New Jersey Water Environment Association (NJWEA). NJWEA is a non-profit educational organization dedicated to preserving and enhancing the water environment.

Welcome!

Khyati Mehta.

Ms. Mehta has joined the firm as an Environmental Scientist. She graduated from Nirma Institute of Technology, India, in 2002 with a bachelor's degree in chemical engineering, and earned her master's degree in chemical engineering from the Illinois Institute of Technology, Chicago, in 2004. Her previous experience and responsibilities have included assisting with facility permitting, compliance and contingency planning, as well as preparing process flow diagrams and reporting.



Appointments

The following appointments have been announced:

Susan Goetz was named Senior Vice President of Marketing. She will have overall management responsibility for the Marketing Group, including business development and corporate marketing strategies. Ms. Goetz continues in her role as Project Manager for selected projects.

Brian McGhee was named Vice President of Finance/Human Resources. In addition to all financial and human resources responsibilities, Mr. McGhee oversees Management of Information Systems.

Sharon McSwieney was named Vice President of Science. She will be responsible for assisting Senior Vice President Kenneth Goldstein in his responsibilities managing and coordinating the Science Group.

Mounir Sadat, P.E., was named Vice President of Engineering. He will be responsible for assisting Senior Vice President Lahbib Chibani in his responsibilities managing and coordinating the Engineering Group.

Life on the River

Delaware River hit with 50-year flood (again!) and a visit from a beluga whale

By Joe Wiley
Chief Operating Officer

When SAI moved its offices from the busy Route 1 corridor to its waterfront location in Trenton we knew that the Delaware River would provide constant interest.

We have become accustomed to great fishing scenes, with the annual herring and shad runs, catfish hauls and striped bass. A bald eagle buzzed our Dumpster last year. The public walkway between our office and the river gives us a steady stream of visitors. A tugboat moors nearby weekly.

On April 3-4, the Delaware experienced a near-record flood. The office was designed to be above the 100-year flood so we had more than 3 feet of freeboard and experienced only minor flooding on the local access road.

The big surprise was the sighting of a large white creature surfacing in view of Sadat's office around 9:45 am April 12. We immediately reported the whale-like appearance to the Marine Mammal Stranding Center in Brigantine.

The expert's first reaction was that it was most likely a large dolphin and could not be a beluga whale (the only pure white whale species) since their range is far north from New Jersey. A second call to the center reassured them that all onlookers believed it to be a 12-foot white whale behaving normally. By the end of that day the banks of the Delaware were crowded with onlookers.

The whale was soon identified as a male named Helis, a lone beluga known to inhabit the Saint Lawrence estuary (normally belugas are found in groups call "pods"). He is distinguished by a large scar from a propeller injury.

The beluga is a toothed whale that sometimes feeds on migratory fish (in this case herring) in estuaries.



Photos by Rodney Chow



Beluga whale Helis, a longtime resident of Canada, visible above in a photo taken from the SAI office building, spent a week in April gliding through the waters of the Delaware River in Trenton, often escorted by state police (left) and other officials for protection. Helis was last seen near Philadelphia.

Within a week Helis was migrating back toward the ocean, and was later sighted in the Schuylkill River.

Looking back to an earlier part of our careers, Dr. Sadat and I reminisced about working for NJDEP on wastewater planning and the sewage treatment grant program for the Delaware River. Probably no one anticipated the remarkable recovery of this great river, but it definitely happened, as sewage plants were upgraded in Pennsylvania and New Jersey and industrial discharges upgraded to meet stringent treatment levels.

The sighting of a beluga whale—a rare species even in its native Arctic habitat—in a developed river environment is an indication of what can be achieved through long-term commitments to environmental protection.

From the Editor -

If you would like to receive a full-color electronic version of our newsletter in Adobe PDF format via email, or if you want additional information about SAI and its services, please email me at: kkane@sadat.com.

Thanks — we look forward to hearing from you.