THE STANDARD

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Experimental Bioremediation Project In Fractured Bedrock Is Among The First In Virginia Solid Waste History

Environmental Standards recently passed the mid-point of implementing an experimental bioremediation project at a closed municipal solid waste (MSW) landfill site in Central Virginia. The site, located west of Charlottesville, Virginia, has persistent groundwater impacts from chlorinated volatile organic compounds (VOCs) well above regulatory limits. The geologic setting of the site consists of fine-grained saprolitic overburden and fractured crystalline bedrock.

Since becoming involved in the project in early 2002, Environmental Standards has supported the development of a Virginia Department of Environmental Quality (VA DEQ)-approved Assessment of Corrective Measures (similar to a RCRA RFI/CMS) and a Corrective Action Plan (corresponding to a RCRA CA Work Plan). Starting in October 2004, Environmental Standards implemented a phased remedial action to address impacted groundwater using an enhanced bioremediation strategy incorporating periodic injections of bioaugmentation substrate and proprietary microbial cultures. The first phase of the project included deploying the technology in a very small area of the most severely impacted groundwater.

The bioremedial strategy being employed at the site was based on data developed from laboratory microcosm studies of various substrate and microbial scenarios on impacted site groundwater. The results of microcosm studies indicated that the addition of substrate materials consisting of sodium lactate, yeast extract, and diammonium phosphate would create total organic carbon (TOC) and nutrient levels in site groundwater conducive to facilitating reductive dechlorination by native and introduced species of bacteria (*Dehalococcoides sp*). A sodium bromide tracer was added to the initial substrate injection to evaluate substrate dispersal and groundwater flow velocities within the fractured bedrock. The injection and monitoring program consists of monthly substrate injections for a 12-month period with the addition of microbial injections during the fifth and sixth monthly events. Monitoring consists of extensive monthly and semi-monthly groundwater

Pictured adding microbiological cultures as part of a landfill bioremediation process are (from left to right) Phil McKalips, P.G., manager of the Environmental Standards Charlottesville, Virginia, office; Mike Gaffney, Chairman of the Rivanna Solid Waste Authority; and Judith Mueller, Director of Public Works for the City of Charlottesville.

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Occupational Safety And Health Administration Publishes New Hexavalent Chromium Standard

The Occupational Safety and Health Administration (OSHA) published a new, lower standard for occupational exposure to hexavalent chromium in the *Federal Register* on February 28, 2006. Concern about employee exposure to hexavalent chromium in the workplace (estimated by OSHA to be over one-half million workers) amid increased evidence of the carcinogenic effects of this metal prompted the action. Chemical industry workers who are exposed to pigments containing dry chromate and spray paints and coatings with chromate are at risk; stainless steel welding workers are particularly vulnerable. Hexavalent chromium, which is a potential lung carcinogen, has also been linked to permanent eye injury (through direct contact), irritation of the respiratory tract, dermatitis, and skin ulcers.

The new permissible exposure level (PEL) of 5 mg/m^3 of air is signifi-

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FEATURED TOPICS

Auditors Witness The Devastation Of New Orleans

Environmental Standards was requested to perform an on-site audit of a commercial environmental laboratory in New Orleans on behalf of two industrial clients. Arriving one day before the audit was set to begin, Environmental Standards personnel were taken on a tour of the city's Ninth Ward, where devastation like that shown in the photo above remains.

Hexavalent Chromium

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cantly lower than the 1971-established PEL of 52 mg/m^3. The standard adopted in 1971 (when OSHA was established) was recommended by the American National Standards Institute in 1943 to address worker nasal cavity perforations caused by chromium. OSHA referred to the new PEL as "the lowest level that is technically and economically feasible for businesses to meet." Reaction to the new standard has been mixed as industry representatives view the standard as too strict and worker safety advocates remain concerned about carcinogenic effects. The effective date of the new standard is May 30, 2006.

Environmental Standards has worked on chromium projects since 1990 and our professionals were instrumental in the development and promulgation of the analytical method for chromium, SW-846 Method 3060A, in 1996. Preparation of soil samples by Method 3060A (using an alkaline digestion) allows for the extraction of both the soluble and insoluble forms of hexavalent chromium; the former method used deionized water and allowed for the digestion of only the soluble form of hexavalent chromium. More recently, our work has included hexavalent chromium projects on both the East Coast and West Coast.

Supreme Court Hears Arguments In Wetlands Cases

The US Supreme Court heard oral arguments in February for two Michigan cases that could have a significant impact on the reach of the federal government's authority to enforce the Clean Water Act (CWA). Also at issue are aspects that the high court did not address in a 2001 decision in a similar wetlands case – *Solid Waste Agency of Northern Cook County v. Corps.* Both Michigan cases – *Rapanos v. United States* and *Carabell v. Corp.* – were last heard by the Sixth Circuit US Court of Appeals. *Rapanos* involved a federal enforcement action against a developer for filling wetlands at two locations. These wetlands were connected to the nearest navigable waterway, located 20 miles away, by a man-made ditch, a small creek, and a river that ultimately flows into Saginaw Bay. The federal court of appeals held that this connection was sufficient under the CWA to prohibit the fill activity. In *Carabell*, the Sixth Circuit ruled that wetlands separated from a ditch by an upland berm that blocked surface drainage water were sufficiently adjacent to navigable waters, establishing CWA jurisdiction over the decision to deny the US Army Corps of Engineers' permit to fill the wetlands.

> *"...at some point, the definition of a tributary has to have an end."*
> ***Chief Justice John Roberts***

At issue in both cases is what type of waterway, whether it is a drainage ditch or an actual stream, constitutes a potential tributary to navigable water. Lawyers for the property owners and those filing "friend of the court" briefs in these cases argue that a strict interpretation of the CWA in this matter would give the federal government "unlimited control over land use, since most roads and many private properties in America are bordered by drainage ditches or storm drains." Government representatives contend that protecting wetlands is crucial to the health of ecosystems that provide safe drinking water to communities across the country and that such waters would be permanently harmed if federal authority to protect wetlands near drainage ditches and small creeks is restricted. During arguments, newly appointed Chief Justice John Roberts noted that "at some point, the definition of a tributary has to have an end."

A decision on these cases is expected in June, and *The Standard* will have complete coverage of this important wetlands issue.

Bioremediation Project Among First In Virginia

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monitoring to evaluate baseline and ongoing groundwater characteristics.

To date (the sixth injection event occurred on March 9, 2006), groundwater analytical data indicate that reductive dechlorination has occurred due to the augmentation of native bacterial cultures by substrate injections. Concentration reductions of parent chlorinated ethenes (tetrachloroethene, trichloroethene) have reached 100% in some areas. The dechlorination process appears to be successfully reaching completion to ethene without inhibition at intermediate steps (*i.e.*, *cis*-1, 2-dichloroethene, vinyl chloride).

Pictured above is the microbiological culture that is being injected into the groundwater at a closed municipal solid waste facility in Central Virginia. Nearly 5,000 gallons of this solution is injected into the subsurface every month.

Additionally, due to the extensive ongoing monitoring, data have been developed that indicates relatively simple pH moderation (via the inclusion of sodium bicarbonate in the substrate) may allow a recalcitrant zone of the test area to achieve similar dechlorination as observed elsewhere.

If this interim data continue to hold course, it appears that this technology will be a viable and cost-effective remedy for the remaining 4,000 feet of impacted landfill perimeter. Future editions of *The Standard* will follow the progress of this very important project.

Understanding The Ecological Risk Assessment Process Is Key To Remediation

In today's regulatory climate, it is increasingly more common that the risks posed to ecological receptors from constituents identified at a given site ultimately drive remediation efforts. The winter edition of *The Standard* included an article that presented an introduction to risk assessment and the human health risk assessment (HHRA) process. The intent of this article is to briefly explain the ecological risk assessment (ERA) process.

Although the more familiar HHRA paradigm (*i.e.*, hazard identification, data analysis, exposure assessment, toxicity assessment, and risk characterization) is at the core of an ERA, the two approaches differ in three key areas. First, instead of evaluating the potential risks posed to a single receptor such as a construction worker, an ERA considers population, community, or even ecosystem-level assessment end points. Secondly, ERA receptors can include species from a wide taxonomic range (*e.g.*, plants, mammals, fish); consequently, several measures of effect (the measurable physiological responses of ecological receptors to site stressors) can apply to any one situation. Finally, the possible effects of non-chemical stressors such as stream turbidity and human disturbances, can also be included as contributing factors to risk.

In order to accommodate these differences, the US EPA established the following unique paradigm for conducting an ERA.

- The first step in the ERA process is the development of the Problem Formulation and involves presentation of a preliminary characterization of exposure and effects and the examination of data needs, issues, and objectives in order to define the scope, goals, and feasibility of the assessment. This step is comparable to hazard identification and planning issues that are addressed at the beginning of most HHRAs. Given the potential variability of habitats and ecosystems present at a site, the information compiled during the Problem Formulation phase is crucial to the selection of appropriate assessment endpoints, measures of effect, and ecological receptors of concern.

- Once the Problem Formulation is complete, receptor exposures to site constituents and their resulting ecological effects must be characterized. The Analysis phase of the ERA addresses the two main requirements of assessing risk – the capacity of a stressor to cause harm and the potential for the co-occurrence of a stressor and an ecological receptor. Comparable to the data evaluation and exposure assessment steps of a traditional HHRA, the Analysis phase includes the statistical evaluation of site data, the selection of constituents of potential concern (COPCs), and the development of receptor-specific exposure models to assess risk.

- The final step of an ERA is the Risk Characterization. Similar to the risk characterization portion of an HHRA, this process involves the evaluation of the likelihood of adverse effects associated with exposure to identified stressors and includes a discussion of uncertainties and the strengths and weaknesses of the assessment.

The ERA process is considerably more involved than can be described in this brief article; our intent is to shed a little light on the often-confusing nature of the ERA process. If you would like more specific information, please feel free to contact Kris Schuett at kschuett@envstd.com.

Environmental Standards Selected By CCEDC To Continue Brownfields Work

Environmental Standards is one of three organizations recently selected to provide the Chester County Economic Development Council (CCEDC) with Brownfield Redevelopment Services. CCEDC partnered with Environmental Standards in successfully executing a US EPA Region III Brownfield Pilot Demonstration Project several years ago. In part as a result of that success, CCEDC was subsequently awarded $200,000 in additional US EPA Brownfield grant monies. Some of those monies were used to investigate and prepare a Habitat for Humanity property for redevelopment (see *The Standard*, Vol. IX, Issue III).

In partial recognition of the efficient use of prior funding grants, the US EPA awarded the CCEDC a $200,000 Hazardous Waste Assessment Grant on October 1, 2005. The US EPA designed its Hazardous Waste Assessment Grant program to supplement other efforts conducted under Brownfields Projects to promote the cleanup and redevelopment of brownfields. Grant monies under the Brownfields Assessment Project may be used for Phase I and Phase II investigations and the establishment of cleanup options and remedial action cost estimates. CCEDC intends to use its newly awarded funding in support of its Brownfields Assessment Project, and these funds will be issued to provide site selection, environmental assessment, reuse planning, and identification of cleanup services. Using the Brownfields Assessment Project as a funding tool, the CCEDC intends to further stabilize neighborhoods, to ensure community-wide vitality, and to stimulate private-sector investment in urban communities.

CCEDC's selection of Environmental Standards to execute part of this latest grant means that our firm will be working on our fourth Brownfields grant project in Pennsylvania. According to Gerry Kirkpatrick,

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Consortium-Sponsored Laboratory Audits Offer Clients A Cost-Saving Option

Clients typically contract our environmental laboratory auditing services because they realize the importance of knowing the quality and defensibility of the analytical data received from their contracted environmental laboratories. When some of our clients expressed concern about funding availability to support full laboratory audits, Environmental Standards offered a solution that has since benefited many clients over the past several years – a "consortium" or cost-sharing approach to audits. A single audit is performed on behalf of multiple clients, thereby substantially reducing the cost to each client. Audits focus on the analyses requested by each consortium partner, and costs for travel, auditing, and report writing are shared. In fact, this program has been so successful that our clients have often contacted other industrial entities in their geographical area or industry group to generate more cost-sharing opportunities.

In early 2006, Environmental Standards conducted multiple laboratory audits in Oregon and Alaska on behalf of a consortium of six clients representing four different industrial groups (oil, mining, pipeline, and railroad). The audits, which focused on a broad range of drinking water, wastewater, and solid waste analyses, were conducted to follow up on the corrective actions initiated by the laboratories in response to the findings from the 2005 audits.

Before the long weekend return trip to the East Coast, the Environmental Standards Audit Team watched the teamwork of the dogs and "mushers" at the ceremonial start of the "Last Great Race On Earth," the 2006 Iditarod Trail Sled Dog Race in Anchorage.

Environmental Standards annually audits over 70 laboratories for drinking water, wastewater, solid waste, whole effluent toxicity, and product testing. On an on-going basis, many cost-sharing opportunities are available. For more information about our on-site auditing services and cost-sharing opportunities, please contact Rock Vitale at 610-935-5577.

Laboratory Data Falsification Remains A Problem

Environmental Standards Retained To Independently Evaluate Data

A story that appeared in the Anchorage Daily News on April 8, 2006, reported that a former laboratory technician for an Alaska-based laboratory was sentenced to three years probation for falsifying wastewater test data filed with environmental regulators. In addition to probation, the US District Judge imposed a $1,000 fine. Based on the investigation by the US Attorney's Office, the analyst had falsified analytical data associated with at least 102 samples.

The analyst "manually modified the analysis performed on a laboratory sample," making it look like the sample had passed quality control criteria when, in fact, it failed, according to Friday news release. The falsified data ultimately reached the Environmental Protection Agency, which regulates wastewater discharges. Environmental Standards was retained by laboratory management to independently evaluate the data fraud by performing tape audits and forensic review of the analyst's data.

Many industrial entities have realized that no amount of laboratory certifications or the perceived "shielding" of having their engineering firms act as the subcontracting agent can minimize the liability associated with analytical data of questionable quality. For this reason, Environmental Standards has designed, executed, and provided oversight for a significant number of direct-contract, corporate laboratory programs. Quality monitoring includes third-party data validation of compliance data and other data used for high-profile, decision-making. In addition, Environmental Standards conducts a notable number of on-site commercial laboratory audits, often with multiple industrial clients sharing the costs in a consortium style approach. For more information on Environmental Standards quality monitoring programs, contact Rock J. Vitale, CEAC, CPC, at 610-935-5577.

Update: New Procedures For Determining MDLs

Environmental Standards has been an active participant on the technical subcommittee of the Federal Advisory Committee on Detection and Quantification (FACDQ). FACDQ has been tasked with development of an updated procedure for quantitative determination of an acceptable range for the reporting of data below method reporting limits. There have been four FACDQ meetings to date (see http://www.epa.gov/waterscience/methods/det for details).

Environmental Standards is advocating calculating sensitivity (*viz*., detection limits) by using either the analysis of method blanks where method blanks generate numerical results or through the analysis of laboratory control samples. In either case, a change in the current method is favored to increase confidence at the limit of detection. Approximately eight detection and/or quantification procedures are still under consideration by the FACDQ. The final procedure(s) will likely be a modification of one or more of the proposed procedures. The FACDQ will be narrowing the number of detection/quantitation procedures to be tested in the pilot study (starting July 2006) down to three for detection and three for quantification.

Logistics Auditing News

The Environmental Standards Logistics Auditing Department has had an exciting first quarter of 2006. The Fortune chemical and petrochemical companies that we represent have, as of March 31, 2006, nominated 34 logistics service provider (LSP) companies for audit, the core of Logistics Auditing's services. For reference, Logistics Auditing conducted 23 audits throughout the entire year of 2005.

In order to keep up with this increasing demand, Environmental Standards recently hired MurrayLee Starke as its newest Logistics Auditor. Ms. Starke comes to us with extensive health & safety, auditing, and security experience in both the private and government sectors.

The Logistics Auditing department is also conducting a complete renovation of the auditing protocols used by our auditors to maintain consistency from audit to audit. We have conceptually designed a modular approach to a new protocol and will continue to refine those ideas into a workable document. Look for the release of the new-format auditing protocol by this summer.

State Regulatory News

Massachusetts Performance Evaluation Study

The Massachusetts Department of Environmental Protection conducted a 2004-2005 double-blind performance evaluation study to gauge the validity of analytical data generated and reported by 19 commercial laboratories (and the Department's own laboratory) in the Northeast. The study concluded that most participating laboratories performed acceptably and that the data reported to support decision-making at hazardous waste sites in the state are, therefore, reliable.

The relatively large study included laboratories in Massachusetts, New Hampshire, Rhode Island, Connecticut, and Maine and consisted of three events in which soil and groundwater performance evaluation (PE) samples were submitted to the laboratories; the PE samples contained the same five volatile organic compounds spiked at the same concentrations for each event. Although a few false positive and false negative results were reported, the "vast majority" of laboratories consistently quantified most compounds within 20% of the actual value. A copy of the report can be obtained at http://www.mass.gov/dep/cleanup/dblblnd.htm.

Pennsylvania Laboratory Accreditation Act Takes Effect

The Environmental Laboratory Accreditation Regulations (25 Pa Code, Chapter 252) became effective on January 28, 2006. Laboratories performing testing or analysis of drinking water (potable water), non-potable water (wastewater), and/or solid and chemical material matrices for compliance with any of the 12 statues listed in Chapter 252 must be accredited in accordance with Chapter 252. Laboratories have until July 28, 2006, to submit an application for accreditation and to be granted "interim accreditation" status.

Environmental Standards is currently providing pre-application consulting services that consist of document and quality systems review and auditing for compliance with this regulation for several of our industrial clients' in-house laboratory facilities. If you are interested in learning more about these services, please contact Rock Vitale at 610-935-5577.

Sediment Session Approved For Upcoming SETAC Conference

The Society of Environmental Toxicology and Chemistry (SETAC) has selected a session proposed by Environmental Standards Technical Director of Chemistry/Principal Rock J. Vitale entitled "Innovative Planning and Quality Oversight for the Characterization of Complex Sediment Investigations" for inclusion in the organization's 27th Annual North America conference. This session topic was selected from the more than 125 sessions proposed.

The overall theme for this year's conference is "Global Environment and Sustainability: Sound Science in a World of Diversity." The conference is scheduled for November 3-9, 2006, at the Palais de Congres in Montréal, Québec, Canada. SETAC is a non-profit, worldwide professional organization that promotes the advancement and application of scientific research related to contaminants in the environment, education in the environmental sciences, and the use of science in environmental policy and decision-making. Additional information on SETAC and the conference can be found at www.setac.org. The session to be chaired by Mr. Vitale will consist of eight 20-minute presentations. The presentations within the session can address a wide range of topics related to the successful planning and execution of complex environmental sediment investigations including planning and evaluating data quality collection and analysis methods before, during, and after the execution of sediment characterization programs.

The society is seeking abstracts for inclusion in this session. Abstracts should be submitted through the SETAC website at http://setac.abstractcentral.com. As you work your way through the submission process, select the "Remediation/Restoration" category and the subject session will be available as an option in the drop-down session box. Abstracts are due by June 1 and will be reviewed and accepted by an independent committee; Mr. Vitale is not individually reviewing and accepting abstracts.

Texas PCB Rule

The Texas Commission on Environmental Quality's (TCEQ's) Remediation Division held a second meeting in January 2006 (along with an invited Technical Advisory Group representing industry, commercial laboratories, and consultants) to discuss regulatory issues and solutions to potential problems associated with the Texas Risk Reduction Program's (TRRP's) proposed PCB rule. The meetings were held to address TCEQ's concern that Aroclor results cannot, in many cases, be used to quantitate total PCB results. There was significant concern that when SW-846 Method 8082 is used to quantitiate the total PCB result as Aroclors, PCBs may not be accounted for in the reported Aroclor concentration or PCBs may be reported as "not-detected" even when present in the sample because an Aroclor pattern was not found.

The TCEQ concluded that Aroclor results are questionable and should not be used to represent the total PCB concentration in a sample if the chromatogram indicates one of the following conditions:

- Aroclors are not detected in the sample but the total area under the chromatogram integrated as an Aroclor mixture concentration is greater than the level of required performance (LORP).
- Aroclors (one or more) are detected in the sample and the sum of the Aroclor concentrations is less than the LORP, but the total area under the chromatogram integrated as an Aroclor mixture is greater than the LORP and the concentration of the chemicals extraneous to the Aroclor(s) is greater than 15% of the total Aroclor concentration.

In early April, the TCEQ decided **not** to include the revision to the PCB rule in the code; however, information at press time from TCEQ personnel indicates that development of a draft total PCB method may be pursued for future rule-making consideration.

Environmental Standards Lost No Time To Injury During 2005

Environmental Standards continued its risk-control record in 2005 by recording yet another year of no lost time due to injury. In addition, employees posted a year of "spotless" driving records and no insurance policy claims were filed.

Gerald Kirkpatrick, Chief Operating Officer, recently addressed safety and noted that Environmental Standards' safe workplace record hit 1.1 million hours (no lost time due to injury) in 2005. "We now provide our services for a good two dozen top international companies, and some of these companies are safety obsessed." Mr. Kirkpatrick emphasized that this safety record is even more impressive because field work operations have skyrocketed over the past 12 months (in keeping with our substantial growth). Field projects in 2005 included a 2-week 24/7 field sampling effort on the Delaware River during one of the heaviest precipitation events of the past 5 years in the area. Environmental Standards was able to conduct the work error-free – attention to detail and availability of sufficient staff were paramount to the success of this extensive sampling effort.

Environmental Standards has developed a rigorous subcontractor selection process that includes a careful evaluation of safety programs and insurance records in order to ensure continued safety. Typically, our subcontractors charge slightly higher fees than their competitors, making us slightly more expensive than some. Alluding to the 1960s adage, Mr. Kirkpatrick concluded that "Safety really does pay, and the clients in our portfolio appreciate safety and certainly do not take safety for granted."

OSHA Statistic

According to the Occupational Safety and Health Administration, each year, 6 million workers suffer non-fatal workplace injuries at an annual cost to US businesses of more than $125 billion.

2006 Infrastructure Investments Expected To Pay Clients Long-Term Dividends

Environmental Standards continued to invest in new systems, equipment, and infrastructure to improve client services in 2005, and many system enhancements and improvements are planned for 2006. The most notable feature to our clients will be the modifications to our Valley Forge, Pennsylvania, office. Our Headquarters Building has served us well for more than 10 years, but the conference rooms and several sections of the office area are being remodeled to better accommodate and organize our growing staffs. Employee offices are being renovated and many internal design changes are underway to facilitate employee communications and ultimately customer service.

> *"Environmental Standards is well known for both our technical and financial reporting abilities, and these improvements will help keep it that way."*
>
> ***Rock J. Vitale, CEAC, CPC***

In addition, more than $200,000 is being invested in an improved Information Technologies infrastructure. Improvements that include larger system storage, enhanced back-up processes, more efficient electronic mail, and handheld communication services will make it easier and faster for our clients to contact our staff.

The accounting system is being upgraded to better provide financial information to our clients. Client accounting and financial management needs have become considerably more complex over the past several years and the accounting system improvements will allow us to continue providing our clients with excellent reporting capabilities relative to budget performance and project costs. CEO Rock Vitale told employees that changing the way we to do things can be tedious at times but was adamant that that the firm needs "to improve what we have to stay competitive and to meet client expectations. It takes considerable investment and long-range planning to cost-effectively roll-out new support products and services, but we are committed to doing just that." Environmental Standards is well known for both our technical and financial reporting abilities, and these improvements will help keep it that way.

ASTM Subcommittee E50.06 Addresses Forensic Environmental Investigations

ASTM Subcommittee E50.06 was established in the last quarter of 2005 to address the challenging and growing field of environmental forensics. Several meetings and conference calls during the last few months have resulted in the formation of task groups; these task groups have been charged with the development of a set of standards applicable to forensic environmental investigations and associated issues such as how to qualify an expert and the substance of expert testimony. The standards to be developed are intended to provide the federal courts and other judicial and administrative decision-making bodies, whose personnel in most cases do not have environmental expertise, with widely accepted, consensus-developed, standards and guidance.

Forensic environmental investigations are typically conducted to establish when and how site contamination occurred, to identify the potentially responsible parties (PRPs), and to determine the degree of responsibility of each PRP. Forensic chemistry is a sophisticated discipline that allows chemists to distinguish between contaminants that are often similar in composition. With the advance of this relatively new methodology comes the need to provide environmental decision-makers with standards and guidance.

The work products of the Forensic Environmental Investigation Subcommittee will obviously impact the efforts of environmental lawyers and consultants on behalf of industry, property owners, insurers, and responsible parties. Environmental Standards chemists, who have provided forensic expertise for a number of projects, are active members of the subcommittee tasks groups. The activities of this important ASTM subcommittee will be closely monitored and featured in future issues of *The Standard*.

Cross-Selling, New Client Relationships Result In Substantial Growth For Geosciences Department

The Geosciences Department at Environmental Standards has evolved through the years from a small support group formed in 1988 to the second-largest department in the company (both in terms of revenue and the number of personnel) in 2005. In 2001, the Geosciences Department eclipsed the $1 million mark in total revenue for the first time. By 2005, Geosciences revenue was almost $2.7 million, which includes revenue from the Virginia office that was formed in early 2005 to support a Geosciences-based project. In 1994, the Geosciences Department was comprised of four professionals; by the end of 2005, that number had increased to 15. In spite of this growth, many clients are unaware of the Geosciences services offered by Environmental Standards.

The development of the Geosciences Department is, in part, a result of new client relationships established by department managers, but an equally significant portion of the growth is attributable to the cross-selling of services from the other departments. Geosciences personnel now provide on-site services to our national clients from eastern New York to southern Florida to western California. In addition to on-site investigation activities, our services include fate and transport modeling, field auditing, data visualization, Brownfield redevelopment, and litigation support. To find out more about our Geosciences services, contact department principals Gerry Kirkpatrick or Dan Claycomb at 610-935-5577.

CCEDC Brownfields Work

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Principal Geoscientist and Director of the Environmental Standards Brownfields Program, "We are extremely flattered to have been selected. The company, in many ways, owes our very existence to the support of CCEDC – CCEDC coordinated an SBA Loan for us when we were just starting out as a company." Environmental Standards CEO Rock J. Vitale added that "we have long since paid the loan back, but we still feel a fondness for CCEDC, its mission, and its excellent people."

Spring Conference Participation Heats Up With A Visit To The "Lone Star" State

Environmental Standards Technical Director of Chemistry/ Principal Rock J. Vitale, CEAC, CPC, is presenting at the **Texas Commission on Environmental Quality (TCEQ) Environmental Trade Fair & Conference**, scheduled for May 9-11 in Austin, Texas. The TCEQ is Texas's environmental agency, and this conference is the state's premier environmental educational forum, drawing attendees from across the country. Mr. Vitale's presentation, co-authored by Ruth L. Forman, CEAC, Quality Assurance Specialist/Principal with Environmental Standards, is titled "Performance Evaluation (PE) Sample Studies – Pros and Cons of Single-Blinds vs. Double-Blinds." The presentation will use three case studies to demonstrate the differences between single-blind and double-blind PE studies and the significance of those differences in determining data quality.

Environmental Standards will also be visible in the exhibit hall at the TCEQ Conference (booth #609) along with 400 other environmental companies.

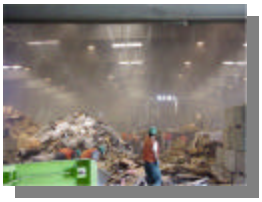
Check the pages of the summer issue of *The Standard* for future conference information.

Property Managers, Building Owners, and Contractors Need To See Importance Of Low-Impact Renovations

The renovation of an occupied building or space presents many challenges to property managers, business owners, tenants, and contractors. The difficulty of planning and execution of even minor renovations (if there is such a thing) is increased when the space is occupied. Several aspects of renovations can impact tenants, workers, and retail space – odors, dust, and temporarily reduced space.

It is in the property manager's or building owner's interest to ensure that impacts resulting from renovations are as minimal as possible; impacts can be limited through several avenues such as timing of the renovation, segregation and ventilation, materials selection, and communications. The appropriate planning for a renovation project can affect tenant satisfaction, work productivity, and sales.

Contractors are able to accommodate requests and specifications that provide for low-impact renovation and generally provide costs based only on what is specifically requested. Low-impact renovation techniques should not significantly increase the cost of a renovation.



The property manager, building owner, and contractor need to understand and appreciate the importance and process associated with low-impact renovation. Environmental Standards can assist in the training of property managers, building owners, and construction project managers in the techniques and strategies associated with low-impact renovation. For additional information, please contact Stephen Zeiner at 610-935-5577.

Is This Your Newsletter?

Are you currently reading your copy of *The Standard* or did a co-worker pass this along to you? If you would like to receive your own copy of our quarterly newsletter, visit our website — *www.envstd.com/News-Newsletter.html* — and register for either hardcopy or electronic delivery.

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Did you know?

- The average American uses more than 100 gallons of water per day; the average residence uses in excess of 100,000 gallons of water during a year.
- Every year, 46,414 pounds of new minerals must be provided for every person in the United States to make the things we use, every day.
- The amount of toxic chemicals released into the environment decreased 4% from 2003 to 2004, according to the US EPA's Toxics Release Inventory.