InSights

a quarterly newsletter from Mayotte Design & Engineering

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## Environmental Liabilities Managed through Contractual Transfers and Buyouts

With passage of the Sarbanes-Oxley Act in 2002 the requirements for disclosure and accuracy of reserves for environmental liabilities on annual 10-K corporate financial reports have increased significantly. This has brought about greater scrutiny of such disclosures by regulators and investors alike. For these reasons, many public companies are seeking innovative financial solutions to manage risks associated with existing environmental contamination problems. Management objectives typically range from a desire to lock-in the often uncontrollable financial implications of an environmental liability to removing the liability from the balance sheet entirely. These goals are often achieved through the strategic use of available environmental insurance products and contracting with reputable environmental management or consulting firms. A brief summary of options includes:

*Remediation Cost Cap*
A remediation cost cap policy is an environmental insurance policy designed to "fix" the cost of an environmental liability. Such policies typically cover costs exceeding 10-20% of the estimated cost to address, or close, and environmental liability. Policy terms often require that eligible cost over-runs are due to:

- the detection of higher than expected concentrations in impacted media;
- discovery of a broader than expected distribution of impacts;
- failure of a remediation technology; or
- changes in applicable regulations.

With this option, the Owner/Operator still retains the liability, but has essentially capped its value.

*Fixed Cost to Closure*
A third party, often an environmental management or consulting firm, provides to the Owner/Operator a fixed cost to manage and complete a remedial action or closure. The third party back-stops the fixed cost with a remediation cost cap policy, as described above.

With this option, the liability is retained by the Owner/Operator, but closure cost overruns are transferred to the third party.

*Finite Risk Policy*
An insurer offers the Owner/Operator a specialized policy that requires a premium to address:

- the present value cost to remediate the liability; and
- coverage for over-runs

The funds associated with the remediation are deposited into an interest bearing account. Remediation expenses are then paid from the account. If the funds of the account are depleted, the over-run coverage attaches. Conversely, if a surplus remains in the account upon completion of the remedy, all funds within the account, including interest accrued, are returned to the Owner/Operator.

Like the remediation cost cap, this type of policy fixes the financial burden of the liability for the Owner/Operator, but with fewer restrictions and the potential for a discount on the original investment.

*Liability Buyout*
With a liability buyout, a third party contractually assumes ownership of the liability. The third party takes on the responsibility for remediating the liability, thereby limiting or eliminating the management burden to the Owner/Operator. To protect all parties to the agreement, the third party back-stops the indemnities of the buyout contact with a finite risk policy. With this option, the Owner/Operator retains the asset, but is able to transfer the liability to the third party.

*Transfer of Real Assets*
With this option, an asset beset with environmental liabilities is sold entirely to a third party. The third party back-stops indemnities associated with the sale with a finite risk policy. In this scenario, both the liability and the asset are removed from the Owner/Operator's balance sheet.

These methods of liability management require careful planning and due diligence of a variety of risk factors. But the informed user may find significant relief to the troublesome financial and administrative consequences associated with managing environmental liabilities. Contact MD&E to learn more about these options and successful examples of their application.

## Regulatory News

*New Enforcement Initiative Encourages Cleanup and Reuse of Contaminated Property*

(EPA News Release, September 23, 2004) EPA's Office of Enforcement and Compliance Assurance (OECA) has launched a new initiative to promote safe, sustainable reuse and redevelopment of contaminated property. Environmentally Responsible Redevelopment and Reuse (ER3) will provide incentives to developers who commit to the best sustainable environmental practices in the redevelopment and reuse of contaminated properties. The ER3 initiative will encourage green building design, construction, and operation; energy efficiency; use of renewable energy sources; environmental management systems; storm water and wastewater management; pollution prevention; waste minimization and recycling; healthy building; design for the environment; industrial ecology; sustainability; and smart growth. Incentives include Prospective Purchaser Agreements, which provide liability relief on Superfund property, and Comfort/Status Letters, which describe the likelihood of EPA involvement at a property, or clarify the cleanup progress at a site. ER3 aims to leverage resources from other federal agencies, universities, nonprofit organizations and private organizations to expand the environmentally sound reuse and redevelopment of contaminated sites.

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*EPA Solicits Proposals for Up to $800,000 in Brownfields Grants for Low-Income Communities throughout the Country*

(EPA News Release, September 24, 2004) EPA is now accepting proposals for training, research, technical assistance and cooperative agreement grants focusing on health and environmental conditions in low-income and socio-economically disadvantaged communities unable to get alternative sources of funding for Brownfields cleanups. EPA hopes these grants will stimulate redevelopment, economic revitalization, and other beneficial reuse of land. The deadline for proposals is Nov. 16, 2004. The winners are expected to be named in February 2005.

These grants are authorized by the Small Business Liability Relief and Brownfields Revitalization Act of 2002.

EPA will only consider proposals that emphasize: Community Involvement in low-income and socio-economically disadvantaged communities; Integrated approaches to Brownfields cleanup and redevelopment in low-income and socio-economically disadvantaged communities. Integrated approaches explore linkage between Brownfields and other environmental, economic, and social issues, including: port and waterfront utilization, transportation planning, city and regional planning, etc.; how the economics of Brownfields cleanup and redevelopment impact low-income and socio-economically disadvantaged communities.

The grants will be in the form of a cooperative agreement. Eligible applicants include: governmental and non-profit organizations, as well as public and non-profit private universities. For-profit organizations are not eligible and may not submit "joint" applications with eligible applicants.

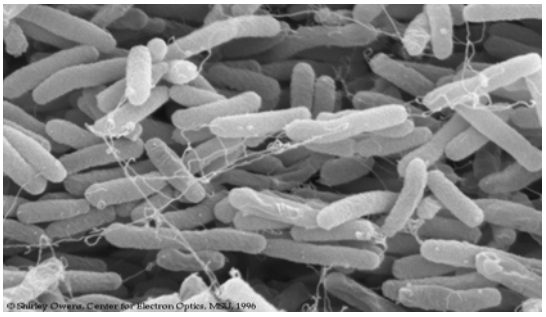
EPA estimates that $800,000 will be available to make awards under this competition and up to three grants may be awarded depending on the quality of the applications. EPA intends to fund successful applicants for periods ranging from 1-5 years, contingent upon the availability of funds. The Agency reserves the right to offer partial funding for specific components of applications. EPA may also decide to make only one award or no awards, if warranted, by changes in Agency funding obligations.

For more detailed information and assistance regarding the application process, go to: http://www.epa.gov/brownfields/pg/pg0904.htm

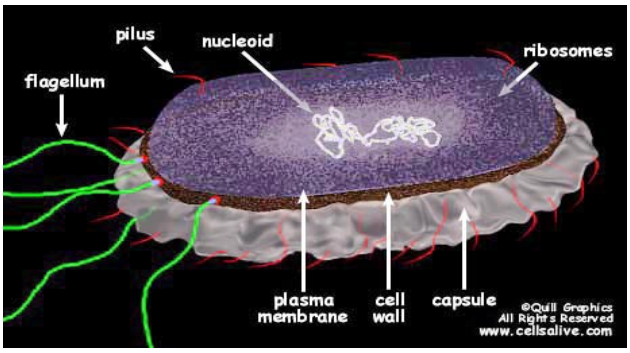
## Technology

*"Real-Time" PCR – A genetic tool for natural attenuation and bioremediation projects*

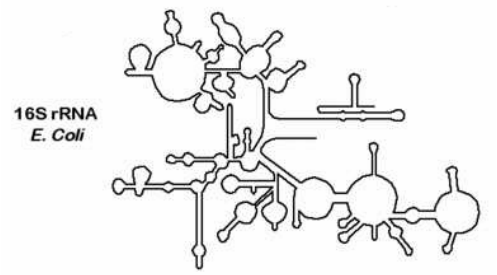
Ribosomal ribonucleic acids (rRNAs) are large molecules that serve as components of the protein synthesizing system within the cytoplasm of bacteria and archea. rRNA molecules evolved early in evolutionary history. They are therefore functionally constant and universally distributed throughout the microbial world.



The genes that encode (e.g., provide the script) for the synthesis of rRNA are moderately well conserved in sequence across a diverse range (or phylogenetic distance) of the microbial world. These genes, or sequences of nucleotides of the DNA in a cell, are also large molecules. The number of different DNA sequences possible in such a large polynucleotide molecule is immense. Therefore, if two DNA sequences are compared and reveal some similarity, a phylogenetic relationship is apparent. The degree of similarity indicates the relative evolutionary relatedness.

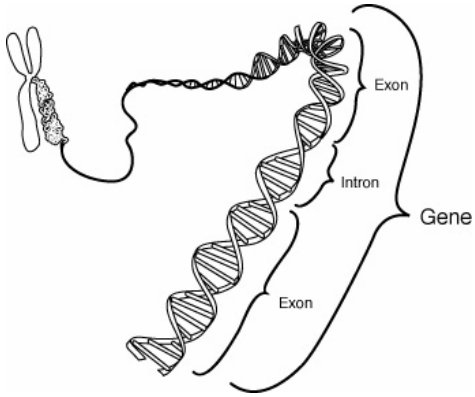



"Small sub-unit (16S) rRNA" genes are specific sequences of DNA approximately 1,500 nucleotides in length found in all microorganisms. These genes have highly conserved regions that serve well for aligning two or more sequences for comparison. The variabilities present in other regions of the DNA sequence are what make these genes excellent evolutionary chronometers.

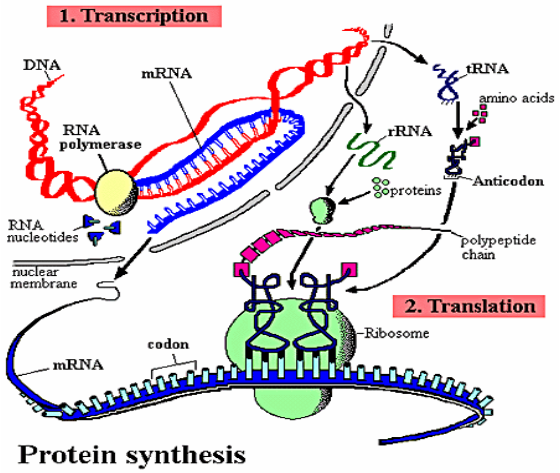



Through many years of comparative analyses and sequencing by researchers, it has become possible to identify 16S rRNA genes that are associated with specific populations and strains of microorganisms. From this information (e.g., knowledge of specific nucleotide sequence associated with the gene), it has been possible to commercially develop primers and probes, which are themselves polynucleotide sequences that facilitate replication and, therefore, amplification of the quantity of the gene from DNA extracted from a sample of source material.

In environmental samples, such as soil and groundwater, it is possible to remove and concentrate biomass associated with microorganisms within these media. DNA is extracted from the concentrated biomass. The "total community" DNA solution can then be treated to amplify specific polynucleotide sequences using probes and primers designed to facilitate the transcription and amplification of genes like 16S rRNA in a process called polymerase chain reaction (PCR). PCR simply entails a series of "thermocycles" during which DNA is denatured (split apart), annealed (bonded) with the primer, and then elongated to form a new pair of genes by a transcription enzyme. Because the amount of DNA doubles with each thermocycle, the amplification of DNA occurs exponentially under optimum reaction conditions.




In recent years, primers for 16S rRNA genes associated with certain microorganisms, such as *Dehalococcoides* sp. and *Desulfuromonas* sp. (degraders of PCE and TCE) have been synthesized with fluorescent dyes and quenchers. When used in a specially designed thermocycling device, the increase in fluorescence detected after each cycle can generally be correlated to the concentration of the gene in the original sample. Therefore, we have a tool for determining in real time the presence and quantity of these and other specific microbial populations in environmental samples. This process has come to be known as Real-Time PCR (RT-PCR). – *T. Mayotte, Ph.D., P.E.*




**Protein synthesis**

Mayotte Design & Engineering, PC opened for business in late 2002. Since that time, the Company has quickly established itself as a highly responsive advocate and risk management partner for clients in the automotive, lithographic printing, textile, pharmaceutical, chemical, real estate and home improvement industries. Further, MD&E has expanded its base of experience and expertise with brownfield redevelopment projects across the Upper Midwest, and continues to support academia with the development of innovative environmental remediation technologies. Learn more about MD&E at our web site at mayottedesign.com.

## Projects Activated or Completed since January 2004

Wastewater Engineering at Aerospace Facility
Environmental Characterization/Remediation at Paint Formulation Operation
Characterization/Remediation of former Automotive Components Facility
Environmental Site Assessment of Tool and Die Facility
RCRA Closure of Former Metal Finishing and Annealing Facility
Corrective Action at Abandoned Metal Working Facility
Redevelopment of Vacant Machining Facility
Remediation of Chlorinated Solvents at Former Truck Terminal
Peer Review/Remedial Consultation for multiple Automotive OEM Facilities in MI
Brownfield Redevelopment of Former Printing Facility
In-Situ Bioremediation of Chlorinated Solvents and Hexavalent Chromium
SPCC Planning and Certification at Automotive Parts Plant
Acquisition Due Diligence of Printing Operations in NJ, MA, OH, IL, MO, TX and CA
Acquisition Compliance/Due Diligence of Textile/Apparel Operations in CA
Title V CAAPP Annual Emissions Reporting for Printing Plants in IL
UST/LUST Closures at Metals Fabrication Facility in OH

## Publications / Presentations

MD&E will be presenting two papers at the Third International Conference on Oxidation and Reduction Technologies to be held in San Diego in late October 2004.

*Mayotte, T. J. and M. J. Dybas, Redox Gradients, TCE Reductive Dechlorination, and Cr(VI) Detoxification in Bioaugmented Model Aquifer Systems, Third International Conference on Oxidation and Reduction Technologies, San Diego.*

*Mayotte, T. J., D. M. Capone, In Situ Redox Manipulation and Fixation of Cr(VI) in Vadose Zone Soils, Third International Conference on Oxidation and Reduction Technologies, San Diego.*

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