

PLENARY ABSTRACTS

Making Optimization Routine in the Superfund Program

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Abstract:

Not Available.

Progress Made to Date on Brownfields and the Work that Lies Ahead

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Abstract:

Not Available.

Time to Rethink, Retool, Retrain and Re-energize Our Environmental Programs and Our People

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Director
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Abstract:

Not Available.

The Department of the Navy's Optimization Strategy

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Abstract:

The Department of Navy (DON) manages a comprehensive Environmental Restoration Program addressing contaminated sites on both active and closed Navy and Marine Corps facilities. DON has executed approximately \$5.5 Billion to date with an estimated \$4 Billion cost to complete the program. Various sites are at different phases of the cleanup process with the program progressing from the investigation and remediation phases into the operation and maintenance and long term management phases.

DON, in coordination with the other Services and Federal agencies, has taken several critical looks at the program trends to learn from the lessons of the past and to streamline the process for future projects. One of the most significant program evaluations has led to the Navy's Optimization Strategy. DON developed this strategy in a step-wise manner over the past several years.

Initial efforts evaluated remedial systems in the remedial action operation (RAO) phase, most of which were pump and treat systems. This led to a Navy RAO optimization guidance document, followed by a groundwater monitoring optimization guidance document. Further reviews targeted the remedy evaluation, selection, and design phases of the process, which resulted in a guidance document to optimize these phases of the remedial process. DON has implemented a policy to solidify this optimization strategy and require the use of all of these guidance documents.

This strategy has been used for two major programmatic reviews in the last two years. The first application was a complete review of the BRAC program, which yielded a program cost avoidance of \$146 Million. A similar process was applied to the active installations, which yielded another program savings of \$270 Million. DON plans to continue emphasizing this optimization strategy to ensure the most efficient implementation of its Environmental Restoration Program.

The Chevron/Texaco Optimization Initiative

John MacLeod

O/M Superintendent

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Abstract:

Chevron/Texaco (CVX) has initiated an Optimization Initiative (OI) directed at reducing annual and life cycle O&M costs while improving the performance of environmental remediation systems and processes within the CVX RCRA portfolio. Annual O&M costs at RCRA sites currently exceed \$10M with several sites exceeding \$1M/yr. Initial OI efforts will focus on those most technically complex, highest cost remediation programs having the greatest optimization potential. These remediation programs occur on active and inactive sites across the United States and tend to be very complex to manage, involve a wide range of remedial technologies addressing a range in target constituents, and operate under varied regulatory and environmental settings.

The principal OI goals are to reduce life cycle costs by greater than 30%, while accelerating site remediation and property transition to other beneficial uses where operations have ceased. An initial strategy was developed to complete several optimization projects in 2004. For the purposes of this initiative optimization includes implementation of recommendations, and implementation of cost and performance

tracking based on quantitative metrics. Findings from the RCRA Optimization Initiative will be linked to site strategic reviews, with successful optimization strategies, tools, and lessons learned transferred to other CVX business units.

The presentation will provide details of this new CVX corporate process, means for incorporating identified improvements to the optimization program, and the financial and technical basis for the legitimate business recognition of this major optimization initiative.

Remedial Optimization: The State of the Art

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Abstract:

The substantial interest in this conference and growing numbers of optimization methods, software, and applications are indicators of the growing interest in remedial optimization to reduce costs, accelerate site closeout, and improve performance. The term "optimization" has different meanings to different members of this community, ranging from broad professional evaluations of remedial systems to rules of thumb for improving system efficiencies (e.g., reducing monitoring frequencies) to mathematical algorithms that search for improved solutions given specified remedial objectives (e.g., minimizing cost or minimizing mass remaining in the subsurface). This talk will focus on the latter, particularly emerging approaches and technologies for improving remedial optimization. First, an overview of the mathematical optimization process and currently available technologies will be given. Next, shortcomings of existing technologies will be discussed and highlights of emerging technologies that offer promise to overcome these shortcomings will be given. These include handling of uncertainty in optimization, identifying optimal tradeoffs among multiple objectives, overcoming computational barriers (e.g., when optimization requires using a time-intensive transport simulation model), and incorporating professional judgment into the optimization process.