

U.S. Environmental Protection Agency Technical Sessions
Employing Best Management and Technical Practices In Site Cleanup Programs

All days in Hall Aries

Best management and technical practices in site cleanup programs are the basis for ensuring high quality, cost effective, and defensible project success. Approaches that maximize the benefits of today’s systematic planning methods, real-time analyses, data management and visualization tools, and dynamic decision making practices have shown significant improvement to project and program efficiencies.

Additionally, green remediation approaches are minimizing the environmental footprint of cleanup projects.

Since ConSoil 2005, the U.S. government and others involved in the Triad “community of practice” have expanded the role of best practices and integrated these into regulatory frameworks, moving beyond the theoretical to real applications. The focus of this series of technical sessions provides a perspective on the expanding influence of specific best management and technical practices and the impacts on practical site implementation. It also introduces the concept of green remediation to share experiences and foster communication on developing practices.

Time Slots	Tuesday June 3	Wednesday June 4	Thursday June 5	Friday June 6
9:00-10:30		Critical Role of Data Management	Sample Design Part 1	Introduction to the Tools and Mechanics of Systematic Planning
11:00-12:30	Introduction to the Tools and Mechanics of Systematic Planning	Best Management Practices Part 1 Conceptual Site Models	Sample Design Part 2	Green Remediation
14:00-15:30	Demonstration of Method Applicability and QC for XRF	Best Management Practices Part 2 Dynamic Work Strategies		EU Panel
16:00-17:30	Green Remediation			

Speakers will include:

Stephen Dymont, U.S. Environmental Protection Agency

Robert Howe, Tetra Tech EM Inc. (EPA Support Contractor)

Dave LePoire, Argonne National Laboratory U.S Department of Energy

Sandra Novotny, EMSUS (EPA Support Contractor)

Carlos Pachon, U.S. Environmental Protection Agency

Tom Purucker, U.S. Environmental Protection Agency

Introduction to the Tools and Mechanics of Systematic Project Planning

Tuesday, 3 June, 11.00 – 12.30 hrs, Hall Aries

Friday, 6 June, 09.00 – 10.30 hrs, Hall Aries

Under the US EPA’s Triad approach a comprehensive systematic planning process has been shown to significantly enhance stakeholder acceptance, project team functionality, technical planning, uncertainty management, and overall project success at hazardous waste sites. Within a Triad framework, systematic project planning (SPP) extends beyond data quality objectives to include social, economic,

and political factors that can have a significant impact on project outcomes. Conceptual site models (CSMs) play a critical role in project planning as project teams seek to recognize, identify, and manage uncertainty related to technical, regulatory, and fiscal project constraints.

This workshop will provide a framework and an overview of tools available to assist project teams with comprehensive SPP. Practical considerations associated with expected regulatory frameworks, property re-use, potential remedies, performance metrics, applicable or relevant and appropriate requirements (ARARs), and other critical factors will be discussed in the context of developing exit strategies and achieving a consensus site vision.

Participants will be exposed to a “briefcase” containing templates, examples, resources, and process assistance gear that accompanies many successful team leaders to systematic planning meetings. The tools and mechanics showcased should provide sufficient flexibility to incorporate many of these planning best management practices into your environmental programs. Discussions of the impact of available contacting mechanisms, decision criteria development, contingencies, dynamic work strategies, and activity sequencing are provided in an effort to streamline field activities and compress project timeframes to achieve time and cost savings. The importance of data management, field decision authority, remote stakeholder participation, and quality assurance/quality control will also be highlighted to provide a cross walk between critical project elements and available tools or strategies.

Conducting a Demonstration of Method Applicability and Designing Quality Control Programs for Field Portable X-ray Fluorescence (XRF) Applications

Tuesday, 3 June, 14.00 – 15.30 hrs, Hall Aries

Field portable X-ray fluorescence (XRF) instrumentation is now commonly used for many applications within the environmental industry. Although years of experience indicates that XRF provides fast, accurate, high quality, defensible information many environmental professionals still consider XRF data as “field screening”. In an effort to move beyond conventional XRF expectations, the US EPA’s Technology Innovation and Field Services Division has developed a 90 minute presentation exploring the benefits of conducting a demonstration of method applicability (DMA) and incorporating the results into a comprehensive quality control (QC) program.

The session will discuss strategies for designing DMAs and using collaborative data sets to develop and refine QC programs for field applications of XRF. Particular emphasis will be placed on the “real-time” value of XRF information and how appropriately structured QC programs can provide high quality defensible data similar to information expected from many of today’s common laboratory analyses. Presenters will provide examples of DMA outputs, types of QC samples and activities, as well as the development and use of collaborative relationships between XRF and inductively coupled plasma (ICP) analyses. The session is expected to touch on potential pitfalls and limitations as well as previously employed successful strategies for using XRF effectively in decision making.

Green Remediation

Tuesday, 3 June, 16.00 – 17.30 hrs, Hall Aries

Friday, 6 June, 11.00 – 12.30 hrs, Hall Aries

Business sectors around the world are “going green” in order to become better environmental stewards and the business of cleaning up and revitalizing contaminated sites is no different. In recent years EPA has sought to increase the sustainability of redevelopment at previously contaminated sites. More recently there has been increasing interest in EPA’s Office of Solid Waste and Emergency Response (OSWER) in identifying best practices that will help reduce the environmental

footprint of the actual site cleanup activities. The concept is being termed “green remediation”.

“Green remediation” is the practice of considering all environmental effects of remedy implementation, and incorporating options to maximize net environmental benefit of contaminated site cleanup projects. Sustainable cleanup practices place greater emphasis on considering a project’s energy requirements, air emissions, water consumption, impacts on land and ecosystems, material consumption and waste generation, and impacts on long-term stewardship of a site. The concept of green remediation builds on environmentally conscious practices already used across business and public sectors, but seeks ways to adapt and adopt state-of-the-art practices and products to reduce the environmental footprints at cleanup projects, regardless of the regulatory framework. The session will focus on exactly how a site cleanup can go greener, examining our usual ways of doing business to find more opportunities to conserve natural resources and energy.

The Critical Role of Data Management

Wednesday, 4 June, 09.00 – 10.30 hrs, Hall Aries

Using conceptual site modeling as a foundation, participants in this technical session will learn how to best manage the many types and large quantities of data that often flow from real-time data collection tools and other data sources during site investigation and cleanup activities. These data management approaches will be coupled with the use of decision support tools and advanced visualization software to better understand and communicate site information. Collaborative work environments created virtually to reach team members also will be explored. Participants will gain an appreciation of an expanded site data and information life cycle, from collection, transfer, and storage to processing, analysis, decision-making, visualization, and communication to support effective decision making and site management.

Best Management Practices: Part I Conceptual Site Model Case Studies

Wednesday, 4 June, 11.00 – 12.30 hrs, Hall Ariel

Robust conceptual site models (CSM) are essential to project success throughout any site cleanup. Initial or preliminary conceptual site models serve as planning tools for the technical project team to conceptualize and visualize what is known or unknown about a site in terms of contaminants of concern, contaminant distribution, geology, hydrogeology, receptor pathway networks, historical activities, and a host of other critical information. By capturing this information in a holistic CSM that incorporates text, tables, figures, and 3D visualizations, project technical teams can efficiently prioritize and address potential data gaps, uncertainties, or stakeholder concerns. Particularly with contentious sites, the CSM serves as a facilitation tool where competing site visions are verified or disproved and resources can be applied in the most cost effective manner to meet project decision criteria.

As the project matures, the CSM serves as a living representation of site realities as they unfold. Continuous updates provide the framework for public presentations and technical planning for remediation evaluations, cleanup implementation, or monitoring remedy effectiveness. This session will explore in depth several case studies where sound CSMs were the linchpin for sampling design, project communication, stakeholder consensus, and ultimate project success.

Best Management Practices: Part II Dynamic Work Strategy Case Studies

Wednesday, 4 June, 14.00 – 15.30 hrs, Hall Ariel

Dynamic work strategies (DWS) allow effective use of real-time measurements to drive field activities. Efficient DWS are critical to increasing data density expeditiously to target site uncertainties while controlling project costs and maximizing resources. A carefully planned DWS includes contingencies for when technologies or strategies don't work as planned and help to streamline the data collection process by providing a flexible decision framework driven by field decisions. Stakeholders and technical team members not on site during field activities still provide critical input through web based collaboration tools and visualization packages.

This session will provide an in depth look at several case studies where DWS were not only successfully employed but critical in data collection efforts necessary to make project decisions. The case studies will highlight how decision logic developed during systematic planning was used to drive sampling design and target areas of concern in real time.

Sample Design Part I and II

Thursday, 5 June, 09.00 – 12.30 hrs, Hall Aries

The sampling design sessions focus on contaminated soils and provide a look at designs that extend beyond simple random or "gridded" grab-sample formats. More advanced designs can reduce sampling and analytical costs while simultaneously improving data quality and usability. This session is presented using common sense concepts (not statistical equations) such that project managers can provide confident and critical reviews of proposed sampling designs and communicate data needs to their contractors. More technical audiences will be exposed to advanced sampling designs that target many of the real world uncertainties related to sampling while providing context to analytical uncertainties that have been the focus of most historical quality control activities.

Difficulties posed by generating data from heterogeneous environmental media such as soils, sediments, and groundwater aquifers are evaluated. Strategies that apply to newer technologies and best practices that often outperform older strategies are described while data sets from actual sites illustrate the pitfalls of some older practices. Particular attention is paid to the concept of defining decisions and decisions units such that representative samples can be collected. Sample designs for searching vs. parameter estimation are provided to illustrate the effectiveness of designs that utilize non-traditional methods such as multi-incremental sampling and adaptive compositing.

Joint European-US Panel Discussion

Friday, 6 June, 14.00 – 15.30 hrs, Hall Aries

Environmental professionals from both sides of the Atlantic are increasingly collaborating and sharing their experiences in improving approaches to contaminated site cleanups. In this spirit, experts from the United States and Europe will discuss the state of the practice in environmental clean-up projects, focusing on how lessons learned can be readily adopted by regulators, practitioners, and clients of environmental services companies. The panelists will draw from their experiences in achieving increased cost-effectiveness and success rates at projects by employing systematic planning and other components of the Triad (see EPA Technical Seminar Series), and from green remediation practices that are reducing the environmental footprint of contaminated site cleanups. Considerations may include technical difficulties, regulatory and policy obstacles, and business practices that foster or impede such practices.