

Why Triad?

Federal Remediation Technologies Roundtable
Technical Focus Area
The Triad Approach to Site Cleanup

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Why Triad Today?

- ◆ Multi-Agency “Triad” efforts are at an early crossroads
 - » Triad framework “codifies” ongoing initiatives, past efforts of member agencies into a comprehensive framework
 - » Documented several case studies of the approach working (anomaly vs. standard practice)
 - » Expanding base of interest, experience, and resources

Why Triad Today?

- ◆ Starting to see increased demand pull for the approach inside and outside EPA
 - » Building off theories established across organizations
 - » Brownfields assessment, cleanup work
 - » States
 - NJDEP Brownfields
 - NY DEC request for assistance and training
 - ITRC engagement
 - » Ongoing DOE efforts
 - ESC, ASAP
 - EPA Region 4, ORNL
 - » USACE work, advocates
 - » USAF interest in piloting approach at some OUs
 - » Navy “adaptive engineering” approach, applications

Why Triad Today?

- ◆ Have witnessed organizations being able to implement approach in current milieu, now must determine how to implement broadly across programs, Agencies (norm vs. anomaly)
- ◆ Interest growing, momentum to take “bigger steps”
- ◆ Need to organize and leverage collective experience, expertise, lessons to avoid implementation problems

Why “Now?”

- ◆ Initial technical support infrastructure in place and growing – “service windows” (see handout)
 - » OSRTI contractor resources
 - » U.S Army Corps of Engineers
 - » Argonne National Laboratory
 - » EPA
 - » Academia (Hazardous Substance Research Centers)
- ◆ Need more
 - » Support (sources, staff)
 - Sites
 - Different roles (conveners, implementers, “specialty” expertise, review)
 - » Training/outreach (speakers, capacity, opportunities)

Organization/Integration of Technical Support Services



EPA's Technology
Innovation
Program

U.S. Army Corps of
Engineers

EPA's Office of
Research and
Development
Technical Support
Centers

Agency partner

Brownfields Technology Support Center

IAG

Agency partner

EPA
Environmental
Response Team

Request Support:
www.brownfieldstsc.org
1-877-838-7220
(toll free)

IAG

DOE Argonne
National
Laboratory

Other Sources

- Hazardous Substance Research Centers
- EPA Environmental Photographic Interpretation Center
- EPA Office of Research and Development - U.S./German Bilateral Agreement, *Site-specific Management Approach and Redevelopment Tools (SMART) Plan*
- EPA Superfund Innovative Technology Evaluation (SITE) Program
- Brownfields Federal Partnership

Why Now?

- ◆ Need to further explore and address real world implementation issues, document and relate experience
 - » Organizational
 - » Contracting
 - » Staffing/workload shifts
 - » Technical support, training
 - » Management and oversight
 - » Funding issues

The Triad Approach

**Systematic
Project
Planning**



**Managing
Uncertainty**

**Dynamic
Work
Strategy**

**Real Time Measurement
Technologies**

Synthesizes practitioner experience, successes, and lessons-learned into an institutional framework

Why Triad?

- 🔑 We believe the approach leads to increased decision confidence by managing both sampling and analytical uncertainty
- 🔑 We believe the increased decision confidence leads to time and cost savings over the life cycle of assessment, cleanup and closeout/reuse
- 🔑 We believe the advancement of technologies and evolution of strategies now makes Triad an economically viable strategic approach

Targets of Opportunity

- ◆ Elements of Triad applicable to all sites - YES
- ◆ All aspects of Triad at all sites - probably not
- ◆ May be a strategy to address some current headaches
 - » Sites with large cost overruns due to under estimation of soil or ground water needing treatment.
 - » Teenage sites where progress impeded by uncertainty related to the scope of the problem set.
 - » BF and VCP sites where developers are seeking greater decision confidence before moving forward on reuse plans

Why Triad?

◆ Planning emphasis:

- » Organizes understanding of what is known about a site and what you need to know better
- » Focuses assessment, investigation, monitoring, etc. activities on collecting the data needed to support decisions
- » Therefore, clarifies efforts to determine what data is telling you (data does not create more questions than answers)
- » Minimizes review steps (and time), minimizes debate over results and next steps, and minimizes need for multiple mobilizations to fill gaps in data

Why Triad?

- ◆ Saves time and money:
 - » Affordably increase density in sampling needed to understand heterogeneity with rapid sampling and data analysis
 - » Reduce need for multiple mobilizations by employing a dynamic work strategy approach
 - » Reduce review steps (fewer mobilizations, fewer reports)
 - » Reduce review time (know what you are looking for in resulting data, collecting only data you need)
 - » Reduce future analytical costs (collecting data to support future steps vs. redoing sampling at every step)

Why Triad?

- ◆ Saves time and money (continued):
 - » Reduce cleanup costs, time (more certainty on where contamination is reduces treatment and/or disposal costs)
 - » Reduce unknowns, i.e., lessens likelihood of “we weren’t expecting to see this” or the “Uh-oh!!!’s”
- ◆ Where are the savings?
 - » Assessment?? Sometimes not
 - » Cleanup
 - » Development
 - » Transaction support (insurance, finance)
 - » Must look at impact on total project

Today's Discussion

- ◆ Ensure common understanding
 - » Concepts
 - » Terms
- ◆ Share (Interagency/inter-organizational) experience
- ◆ Identify FRTR (and member agencies') role to advance or support the campaign
 - » Tech support
 - » Case studies
 - » Training
 - » Interagency Triad Support Network-filling various roles, needs