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Programmatic Implementation of Triad on a State-wide, Multi-site Reimbursement Program

Presentation Overview

- Objectives
- DATCP Program History and Overview
- Typical Site Layout
- Systematic Planning and CSM
- Dynamic Work Strategy
- Real-Time Measurement
- Conclusions

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Presentation Objectives

Objectives

To demonstrate……

- ❑ that simply using a mobile laboratory does NOT make a Triad project
- ❑ Triad approach can be used on small sites
- ❑ “Programmatic” application of Triad
- ❑ how Triad techniques extend into remedial action
- ❑ Triad project that never uses the term “Triad,” *i.e*., Triad chicken and egg debate

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DATCP Program Overview

DATCP Program

- DATCP – Department of Agriculture, Trade, and Consumer Protection
- The Agricultural Chemical Cleanup Program (ACCP) has two separate functions.
  - Identifies and helps manage clean up of releases of pesticide and fertilizer spills
  - Once a site has been identified as needing a clean up, the ACCP program provides reimbursement for eligible costs incurred by the responsible persons

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DATCP Program - History

- **PROBLEM STATEMENT:** 1984 to 1988, DATCP/ DNR discovered approximately 30 cases of soil and/or groundwater contamination at or near sites where pesticides where mixed and loaded
- 1989 – Comprehensive report summarizing the findings
  - Necessitated a call for state-wide action plan
  - Stakeholder group formed and additional studies conducted
- 1991 – Findings of additional study published, basically forming the essence of a programmatic Conceptual Site Model (CSM)
- 1994 – ACCP established
- 1994 to Present – Success Story!
  - Initiated over 509 facility-related clean ups
  - Closed out over 287 facility-related cleanup cases
  - Responded to and closed out over 97% (848) of the 874 reported spills of agrichemicals
  - Received over 950 reimbursement applications and have paid out over $33 million in reimbursements

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Typical Site Layout

Typical Pesticide/ Fertilizer Dealership

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Typical Pesticide/ Fertilizer Dealership

Typical Site Areas of Concern

- ❑ Bulk Liquid Mixing/ Loading Areas
- ❑ Bulk Liquid Pesticide and Nitrogen Storage Areas
- ❑ Drainageways and Ponding Areas
- ❑ Pesticide Equipment Parking Areas
- ❑ Vehicle Weigh Scale Pits
- ❑ Acute Spill Areas
- ❑ Discarded Pesticide Container Storage Areas
- ❑ Burn Piles
- ❑ Dry Fertilizer Load In and Load Out Areas
- ❑ Wash Areas

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Systematic Planning and CSM

Systematic Planning

- Systematic planning includes three primary elements. These are:
  - **Framing the Problem:** identifying project objectives, constraints, stakeholders, the regulatory framework, and primary/secondary decisions.
  - **Developing a CSM:** constructing and maintaining a conceptual site model (CSM) that captures information pertinent to the primary/secondary decisions that must be made.
  - **Evaluating and Managing Uncertainty:** evaluating and managing the uncertainty associated with decision-making in the context of the CSM so that decisions can be made with acceptable levels of confidence.

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Conceptual Site Model

- The CSM…..
  - Synthesizes and crystallizes what is already known about a site that is pertinent to decision-making requirements.
  - May take any (or several) of a number of formats (or combinations of formats) that can effectively portray site concerns significant to the decisions that must be made.
  - Evolves and mature as project work progresses.

CSM Development

- Inputs to State-wide Strategic Planning and Baseline CSM Process (early 90's)
  - Between 86 and 99% of all sites in Wisconsin can be expected to be contaminated
  - Between 45 and 75% will require soil remediation
  - Several common site areas will be targeted
  - Sites sampled and entered into the program
  - Budgets and timeframe are essential – need for use of dynamic approaches across the board

Dynamic Work Strategy

Dynamic Work Strategy

Needed to:

- Fill data gaps that are present between the programmatic CSM and unique site-specific conditions
  - History of operations
  - Secondary containment
  - Geology/ hydrogeology
- Address investigation/ remedial activities during a very short window (spring and fall)

Dynamic Work Strategy

Keys to DATCP/ACCP success….

- Starting with the well-documented baseline CSM
- Understanding site-specific nuances and uncertainty
- Not being rigid and allowing CSM to mature real-time
- Experienced field staff (both consultants and agency)
- Large universe if sites employing a consistent approach
- Informed stakeholder group
- Used throughout the process, up to and including site closure

Real Time Measurement

Real Time Measurement

- Direct-push drilling (investigation) and test pits (remedial action)
- Mobile laboratory used for 75% of the sites (investigation and/or remedial action)
- Experienced chemists using established, codified methods
  - Pesticides by 8141 (GC/NPD)
  - Nitrate/nitrite + ammonia by Standard Method 4500 F and G (Ion Selective Electrode)
- 25 pesticide and 25 nitrogen can be analyzed for ~ $1,800 per day (total)
- Results within 1-hour (pesticides) and <0.5-hour (nitrogen/ ammonia)

Conclusions

Conclusions

To demonstrate……

- ✓ that simply using a mobile laboratory does NOT make a "Triad" project
- ✓ that the Triad approach can be used on small sites
- ✓ a "programmatic" application of Triad
- ✓ how Triad techniques extend into remedial action
- ✓ a "Triad" project that never uses the term "Triad," *i.e*., Triad chicken and egg debate

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Effective Funding Management Approaches for Triad Investigations

Sharon Budney, CHMM

CDM

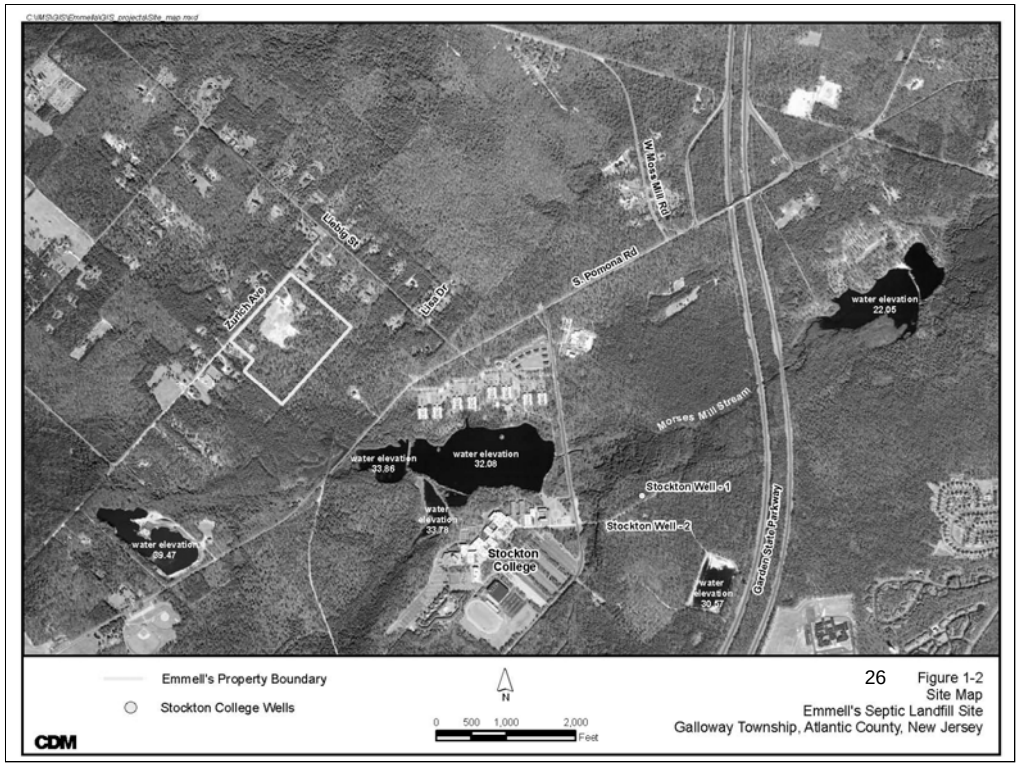
August 18, 2009

Overview

- **Project Summary**
- **Incremental Funding Challenges**
- **Triad Investigations Implemented**
- **Optimal Funding**

Project Summary

- Emmell's Septic Landfill Site – 38-acre former septic waste and sludge disposal facility
- Located in a rural area of Atlantic County, New Jersey
- Wastes disposed from 1967 to 1979
  - Septic wastes and sewage sludge were disposed in trenches and lagoons
  - Chemical wastes, paint sludge, and household garbage were also disposed at the site



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Site Map
Emmell's Septic Landfill Site
Galloway Township, Atlantic County, New Jersey

Project Summary

- Primary contaminants – TCE, cis-1,2-DCE, vinyl chloride in groundwater
- Placed on the National Priorities List on July 22, 1999
- EPA Fund-Lead Site
- CDM is completing the RI/FS under the EPA Region 2 Response Action Contract (RAC)
- The project is incrementally funded

Incremental Funding

- **Definition: Incremental allocation of funds based on a project's scope, fund usage rate (burn rate), and schedule.**

Incremental Funding Challenges

- **Flexible work plan needed to address the dynamic strategy of the field screening program**
- **Communication plan to inform EPA when funds will be required for each stage of work**
- **Flexibility to accommodate field changes and associated additional funding requests**
- **Keeping within existing project funding limits**

Triad Investigations

- Triad approach was implemented in three phases of the field investigation:
  - Groundwater screening in the shallow aquifer combined with on-site laboratory analysis
  - Membrane Interface Probe (MIP) was used to screen for NAPL in the source area
  - Groundwater screening in the deep aquifer using off-site laboratories

Groundwater Screening - Shallow Aquifer

Investigation Summary

- **Planned 60 locations – screening every 10 feet from the water table to 80 feet bgs**
- **Identified sampling locations ahead of time**
- **Implemented screening in accordance with dynamic strategy**
- **Requested funding to cover full investigation**
- **Held daily calls with EPA to discuss results and future locations to be investigated**

Groundwater Screening - Shallow Aquifer

Results

- **Determine plume boundary in the shallow aquifer with 24 screening locations**
- **Supported targeted placement of permanent monitoring wells**
- **Completed 3 weeks ahead of schedule and under budget**
- **Managed property access issues to limit impact on the program**

Groundwater Screening - Shallow Aquifer

Successes

- **Implemented Triad approach within the contract requirements and funding structure**
- **Used remaining screening funds to continue the field investigation**
- **Executed a communication plan:**
  - **Kept EPA informed on progress, results, and field decisions**
  - **Communicated property access agreements critical to the program**

MIP Investigation

Investigation Summary

- **Planned to screen 47 locations in the source area - surface to 80 feet bgs**
- **Completed 37 locations as planned – except for weather delay**
- **Added 3 new locations to further define specific areas**
- **Coordinated with EPA and other stakeholders regularly to make field decisions as a team**

MIP Investigation

Challenge

- **Formal submittal and review of technical memorandum after screening delayed the Phase 2 field investigation**

Solution

- **Minimize submittal of formal interim reports**
- **Propose meetings, present results, and use meeting minutes to document decisions**
- **Establish this more interactive approach during project planning**

Groundwater Screening - Deep Aquifer

Investigation Summary

- **Initially planned 9 locations to be completed using Geoprobe® drill rig**
- **Screened at 10-foot intervals from 80 to 160 feet bgs**
- **Sent groundwater samples for VOC analysis to off-site laboratory – 24-hour turn around time**
- **Frequent meetings with EPA and stakeholders to discuss results and plan the next screening points**

Groundwater Screening - Deep Aquifer

Funding Challenges

- **Geoprobe® could not reach proposed depth – limited to 125 feet bgs under site conditions**
- **Needed to use hydropunch with mud rotary drilling to reach total depth**
- **Required installation of casings into low permeability layer**
- **Did not include these costs in budget, although identified potential need for this method if Geoprobe® failed**

Groundwater Screening - Deep Aquifer

Solution

- **Completed screening to maximum depth of Geoprobe® and then stopped**
- **Provided EPA with justification for new drilling method and associated cost increase**
- **Modified drilling subcontract**
- **Successfully completed investigation using new drilling and sampling method**

Groundwater Screening in the Deep Aquifer

Lessons Learned

- **Maintain communication with EPA**
  - **Notified EPA early about drilling method shortcoming and immediately began work on alternative method**
  - **Minimized downtime to less than one month**
- **Clearly identify contingencies in the work plan**
- **Address impacts of contingencies on funding**

Conclusions

- **Successful implementation of the Triad approach with limited and incremental funding requires:**
  - **Detailed planning**
  - **Clear statements of goals and contingencies**
  - **Frequent and effective communication with EPA's technical and management personnel and other stakeholders**

Resources

- **EPA Remedial Project Manager**
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- **Sharon Budney, CDM**
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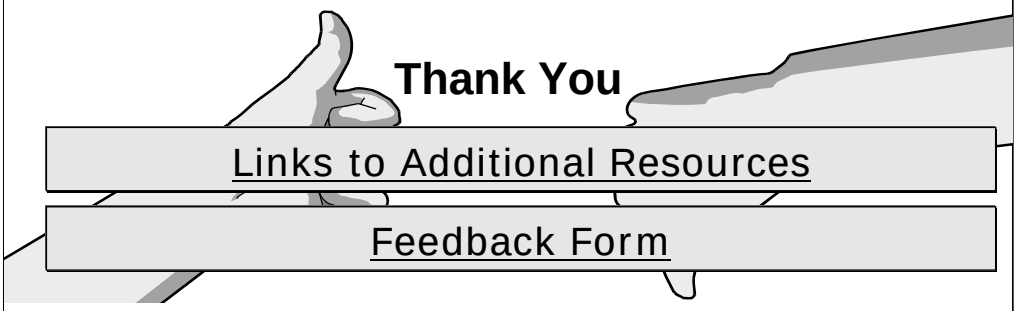
- **EPA CERCLIS Website**
  http://cfpub.epa.gov/supercpad/cursites/

Thank You

After viewing the links to additional resources, please complete our online feedback form.



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