

Allied Site Update

Kalamazoo, Michigan

July 28, 2009

Imagine the result



Overview

- Supplemental Groundwater Study
 - Purpose
 - Preliminary Findings
- Feasibility Study (FS) Update
 - FS Process
 - Alternatives Analysis
- Key Milestones

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SUPPLEMENTAL GROUNDWATER STUDY

Supplemental Groundwater Investigation

- City expressed concern that potential impacts to the Central Well Field had not been sufficiently evaluated
- Groundwater study designed to reduce uncertainty as to whether a groundwater pathway exists from the Allied Site to the well field
- Study plan developed with City and MDE in, ut, approved by USEPA

Approach

- Measure groundwater levels at the Allied Site and nearby areas to the north/northwest toward the City well field
- Determine direction of groundwater flow potential in the shallow aquifer
 - Horizontal
 - Vertical
- Use new measurements with existing Remedial Investigation Report (MDEQ 2008) data to improve Site understanding

Conceptual Site Model



City's Concerns

- Migration to City well field
- Downward migration to regional aquifer
- Westerly or northwesterly flow within surficial aquifer

Vertical Flow Potential

- Comparison of water levels in shallow wells and deeper wells indicates groundwater potential is upward in vicinity of Allied Site
 - Groundwater in deeper regional aquifer is under pressure and has potential to flow upward to shallow aquifer or Portage Creek
 - Portage Creek appears to be point of discharge for shallow groundwater

Safety of City Well Supply

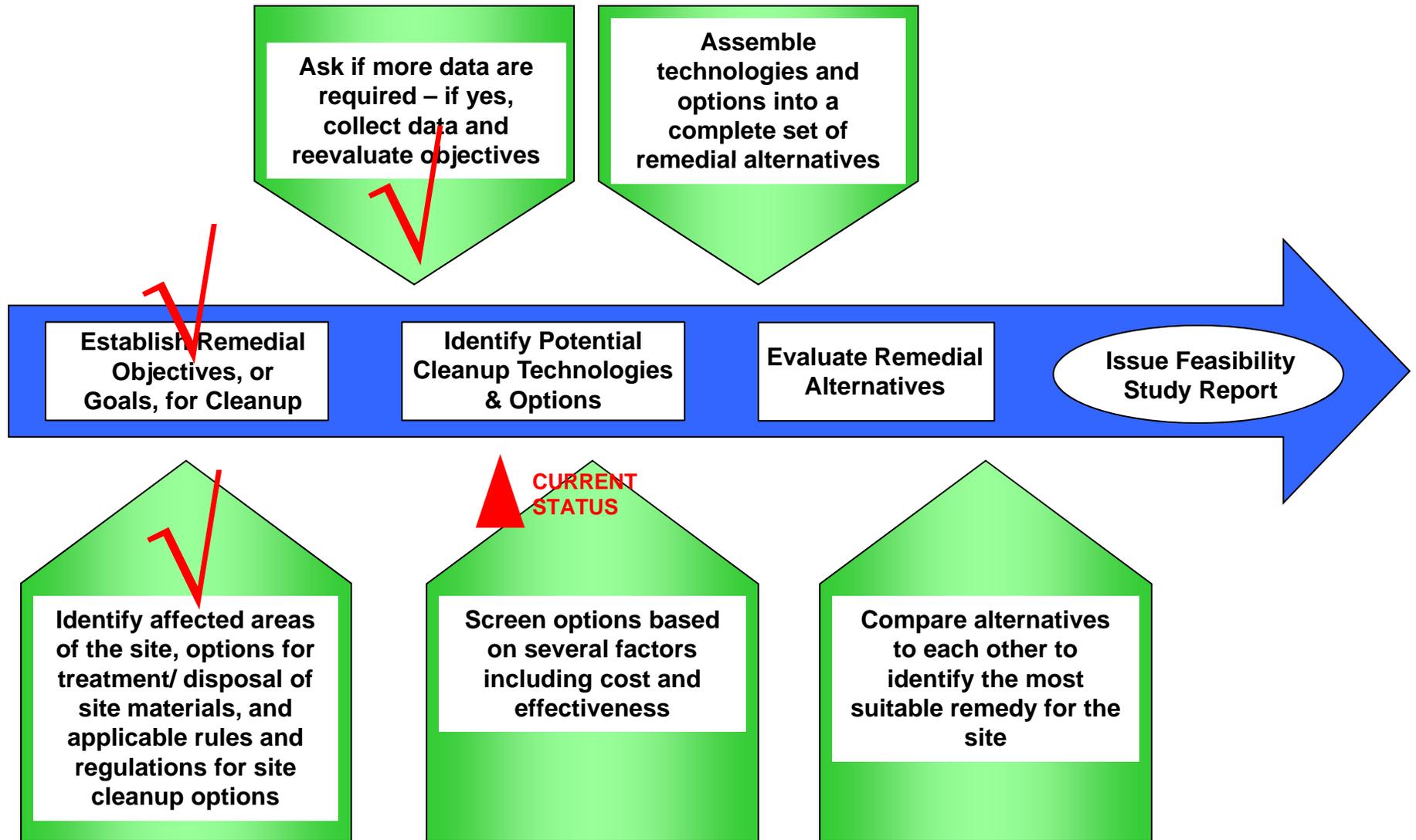
- Preliminary data analysis together with prior data reduce uncertainty – data do not support concern regarding potential impacts to City Well Field
 - Potential flow paths determined by water level data indicate migration pathway not present
- PCBs have not been detected in water samples taken by the City from the Central Well Field
- Results to date are , reliminar, , further assessment is continuing (including by City)



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FEASIBILITY STUDY ALTERNATIVES ANALYSIS PROCESS

Feasibility Study (FS) Process



Feasibility Study Status

- Preliminary Remedial Goals (PRGs) Developed by USEPA (May 2009)
 - Local area is serviced by City supply, no indication of complete pathway to well field – drinking water pathway not a focus of PRGs
- Alternatives Analysis Memo under development will use USEPA PRGs, MDEQ 2008 RI Report, and Supplemental Groundwater Study
- Draft FS Report due Fall 2009

Cleanup Alternatives Development and Screening Process

Prepare Alternatives Array Document

- Identify and screen potential technology options
- Assemble technologies into alternatives array
- Media-specific (e.g. soil), site-wide perspective

Complete Feasibility Study

- Comprehensive process to refine alternatives array
- Screening process to develop remedial alternatives
- Site sub-area perspective
- Evaluation of alternatives

Initial Screening of Soil/Sediment Technologies

Possible Cleanup Action	Remedial Technologies	Screened Based on Technical Implementability
No Action	No Action	Retained
Institutional Controls	Land Use Restrictions	Retained
In-Place Containment	Physical Barrier	Retained
In-Place Treatment	Biodegradation	Not retained
	Immobilization	Retained
	Chemical	Not retained

Note: Shading denotes technology not retained

Initial Screening of Soil/Sediment Technologies (continued)

Possible Cleanup Action	Remedial Technologies	Screened Based on Technical Implementability
In-Place Treatment	Thermal	Not retained
Removal	Excavation	Retained
	Dredging	Retained
Treatment after Excavation	Bioremediation	Not retained
	Chemical	Retained
	Thermal	Retained
	Immobilization	Retained
Disposal	Landfill	Retained
	Backfill	Retained

Note: Shadin_ denotes technolo_, not retained

Initial Screening of Groundwater Technologies

Possible Cleanup Action	Remedial Technologies	Screened Based on Technical Implementability
Monitoring	Monitoring	Retained
Institutional Controls	Land Use Restrictions	Retained
In-Place Containment	Hydraulic Control	Retained
	Physical Barrier	Retained
Removal	Pumping	Retained

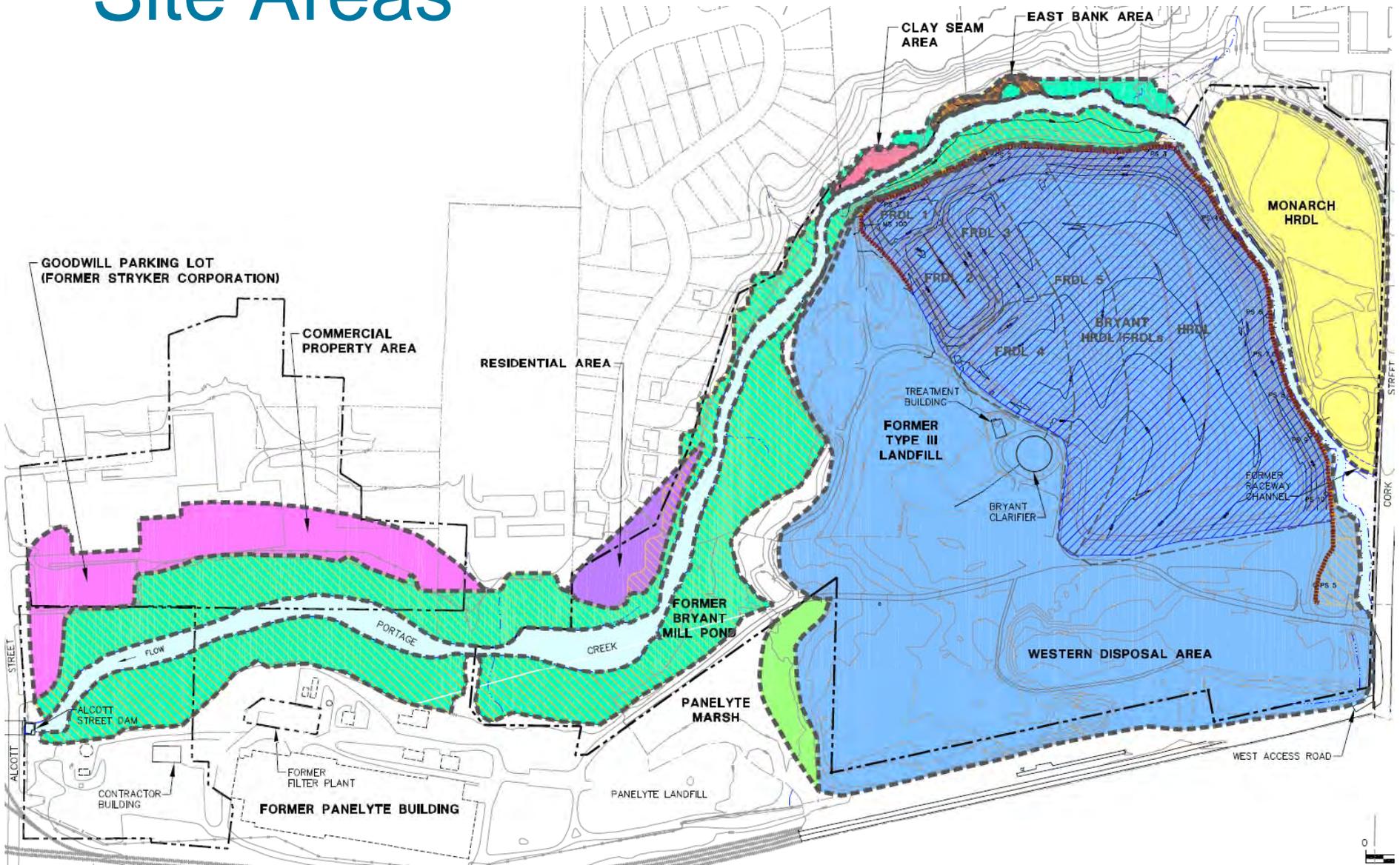
Secondary Screening Step to be Conducted

- Process Option Screening Evaluation Criteria:
 - Effectiveness
 - Implementability
 - Cost
- Screening Approach
 - Identify representative process options
 - Relative comparison criteria (e.g. high, low, medium)
 - Emphasis on effectiveness

Alternatives Development

- Assemble process options into complete remedies specific to media, areas, and volumes, at the Site
- Identify finite number of alternatives focusing on most viable options
- Alternatives will represent substantially distinct approaches
 - Each alternative represents multiple variations

Site Areas



Detailed Analysis (last phase of FS)

- Once sufficient data are available, each alternative is evaluated against nine criteria established by USEPA

Overall protectiveness of human health and the environment

Compliance with ARARs

Long-term effectiveness and protectiveness

Reduction of toxicity, mobility or volume

Short-term effectiveness

Implementability

Cost

State acceptance

Community acceptance

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NEXT STEPS AND UPCOMING MILESTONES

Key Milestones

- Groundwater Report – August 2009
- Alternatives Array Document – August 2009
- Draft Feasibility Study Report – Fall 2009

- Continuing Status Update Meetings
 - Approximate Quarterly Frequency