

Arkema Site

Project Update

February 13, 2008

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Site Work – An Overview

- ◆ Work Moving Forward
- ◆ Upland Source Control - Significant Accomplishments
 - Groundwater (GW) Interim Remedial Measure (IRM)
 - Alternative treatment technologies
 - Storm water (SW) IRM
 - Field work and risk assessments

Site Work – An Overview (cont.)

◆ Early Action

- Mass removal approach proposed
- Progress made
- Formal dispute resolution on remaining few issues

◆ Next Steps

- Work with DEQ
- Work with EPA

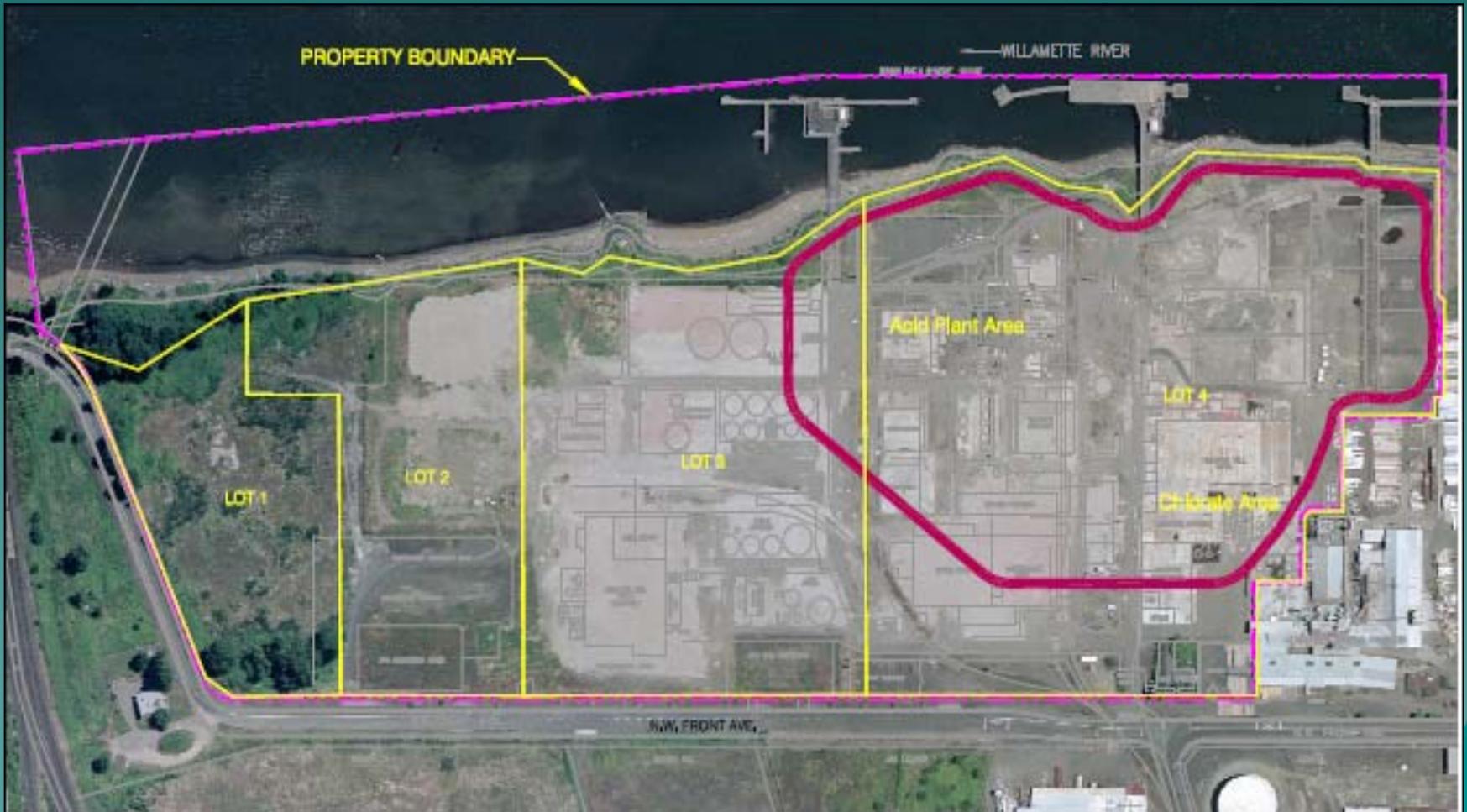
Groundwater

- ◆ Upland IRM – GW Source Control Scoping Memo completed
 - Identifies major components for barrier wall systems
 - Identifies components of pump & treat systems
 - Identifies criteria for evaluating hydraulic control systems
- ◆ Slurry wall compatibility evaluation & other barrier wall evaluations completed
- ◆ Additional geotechnical testing completed
- ◆ Significant bench scale GW treatability study completed

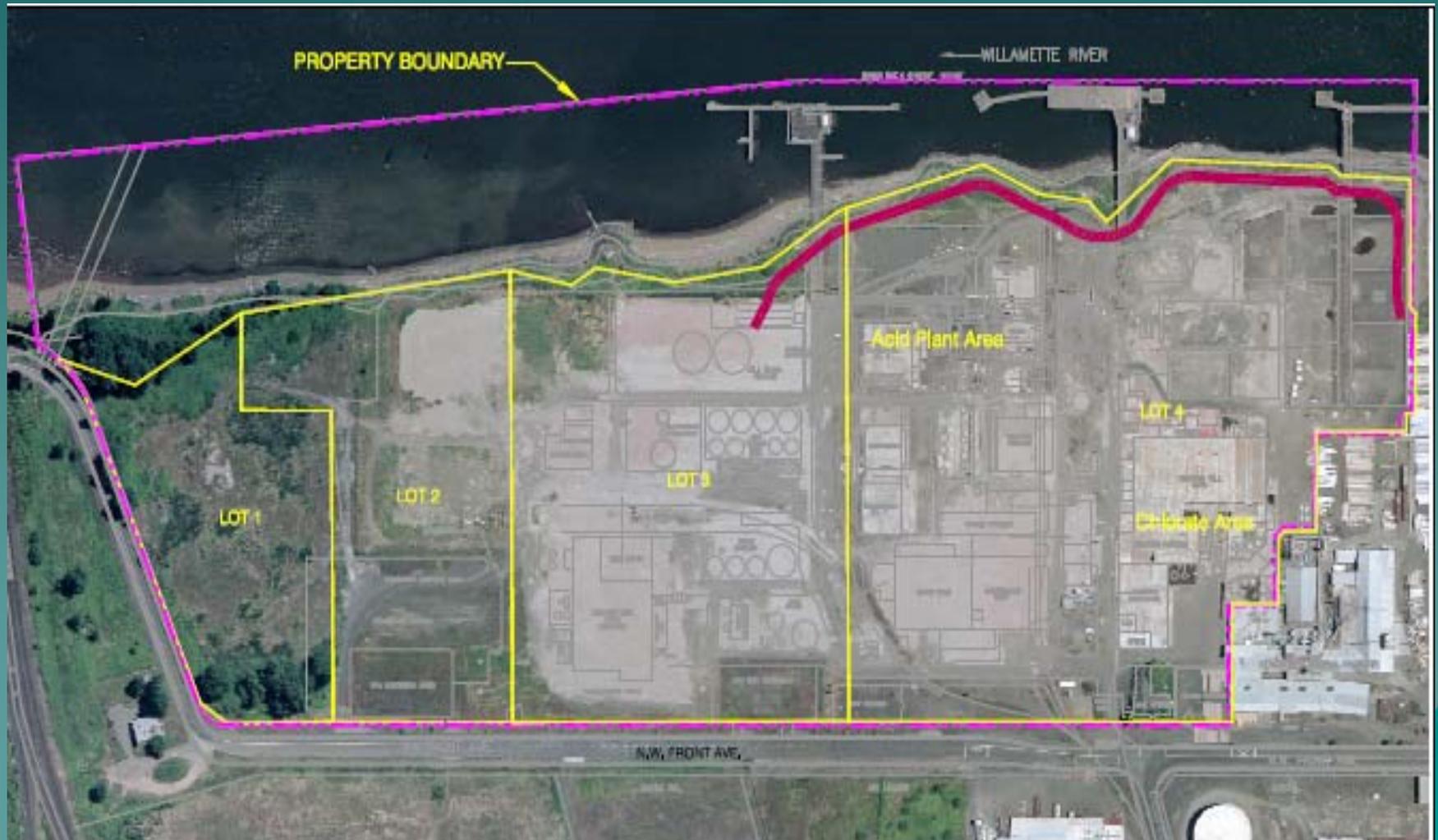
Groundwater IRM (cont.)

- ◆ Completed site-wide GW monitoring
- ◆ Completed a more regional GW evaluation cooperatively with other PRPs
- ◆ Draft GW modeling report completed
- ◆ Continued monitoring GW COIs migrating across Front Ave. onto Arkema Property
- ◆ GW Technical Memo Completed
- ◆ GW Focused Feasibility Study (FFS) In Progress

Fully-enclosed Barrier Wall



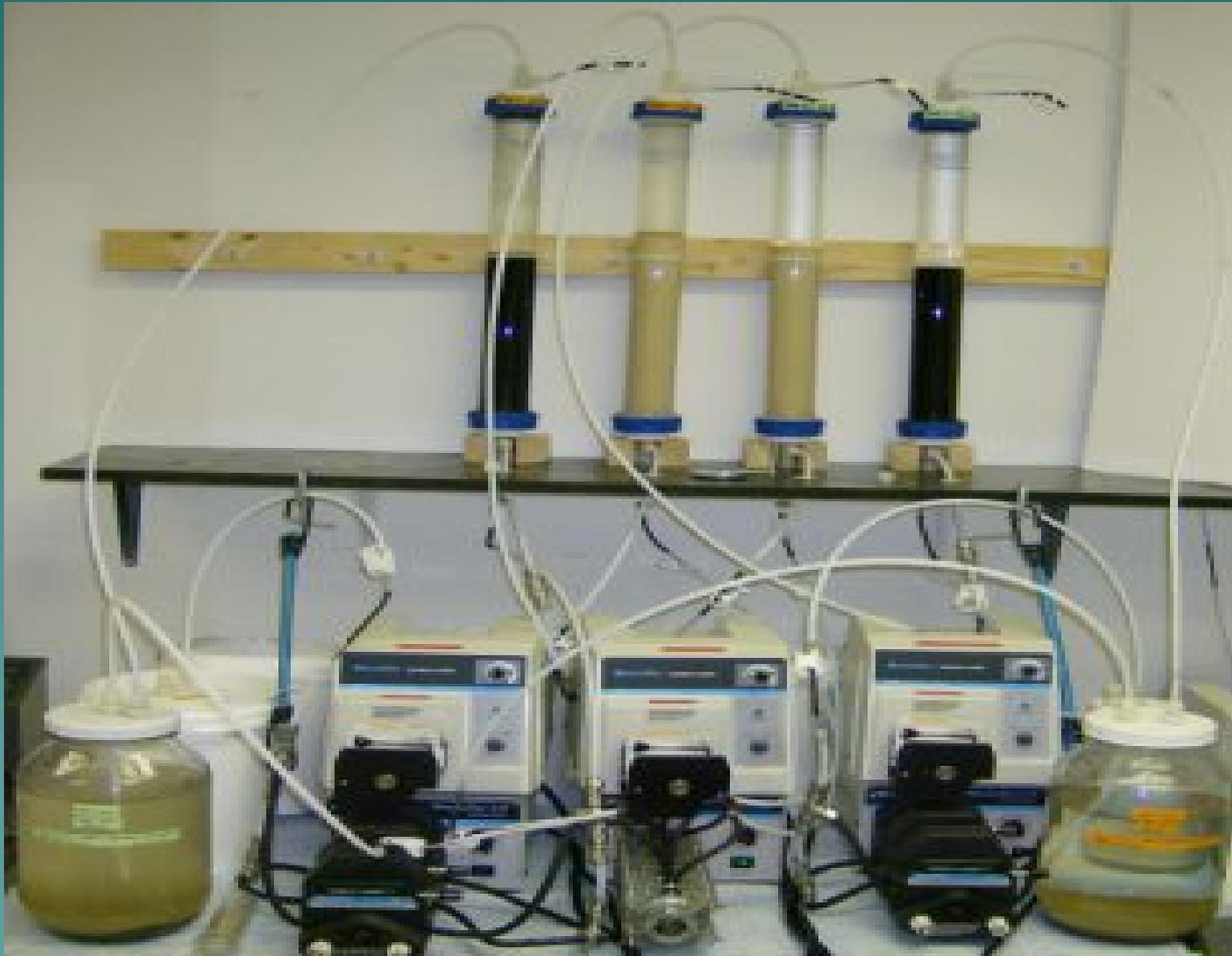
Downgradient Barrier Wall



Innovative Treatment Technologies

- ◆ Full-scale in-situ stabilization of chromium in GW successful
- ◆ Bench-scale treatability studies for pump and treat system completed
 - Evaluated Chem Precip, Iron Co-precip, FBR, PBR and alternative ex-situ technologies
 - Treatment of GW COIs also successful
 - Treatment systems ready for pilot and/or full-scale testing

Fluidized Bed Reactor



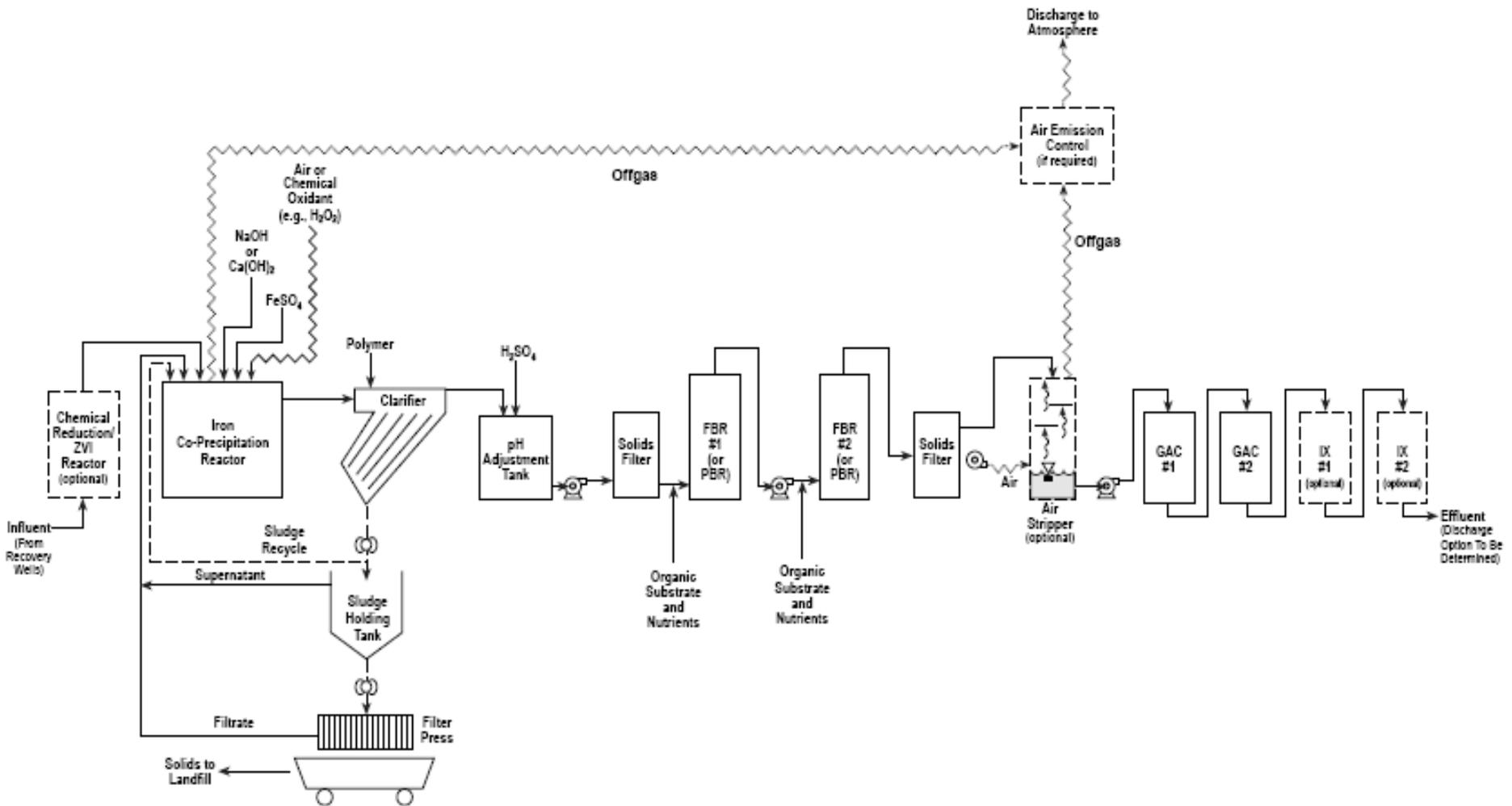
Packed Bed Reactor



EHC Alternative Reactors



Treatment System Schematic



Stormwater

- ◆ Completed SW and catch basin solids sampling
- ◆ Completed SW Best Management Practices
 - Continued cleaning of catch basins
 - Maintained filters in all catch basins
 - Decommissioned unnecessary catch basins
- ◆ Prepared and submitted SW data report

Stormwater

- ◆ Completed site-wide survey for SW IRM
 - Identified soil and well sampling locations
 - Detailed identification of drainage areas and SW flow on site
- ◆ Revised SW plan for site
- ◆ Completed Joint Source Control Strategy screening of SW, GW, & catch basin solids
- ◆ SW FFS In Progress

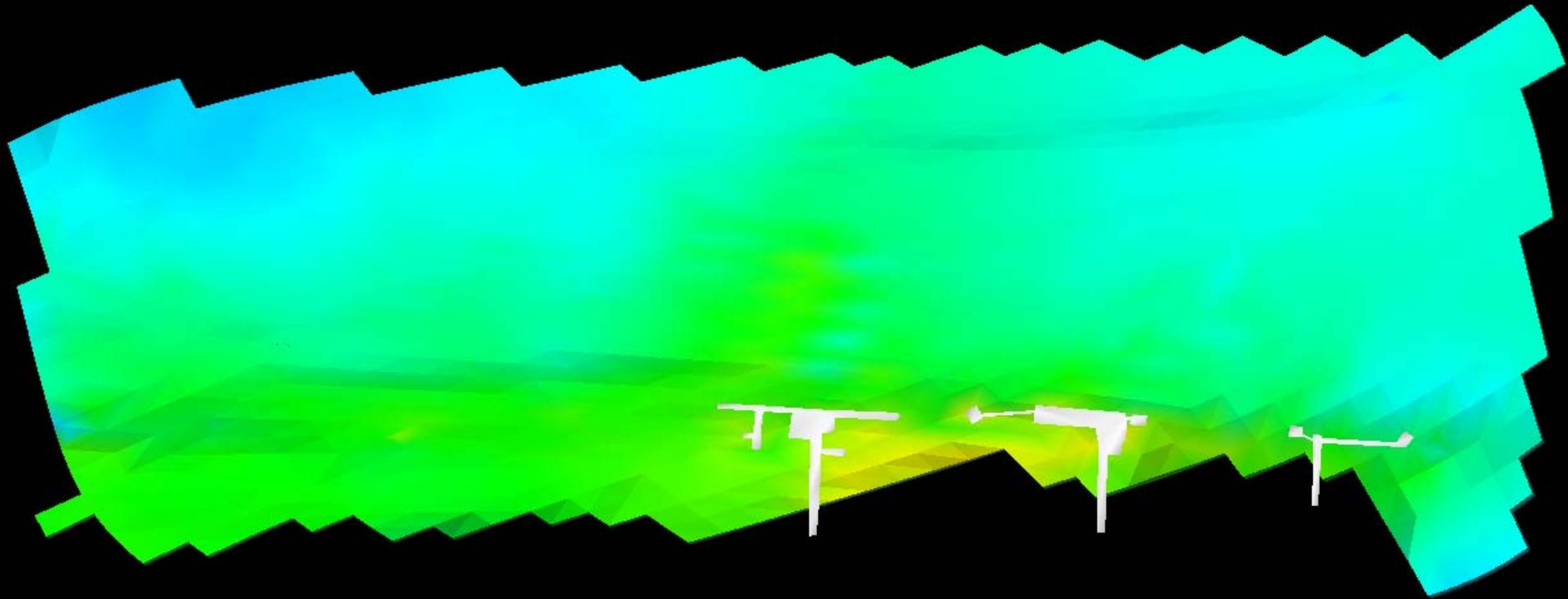
Field Work/Risk Assessments

- ◆ Riverbank sampling completed
 - Evaluate potential risks of RB soils
 - Conduct source control screening
- ◆ Draft Level II Eco-risk assessment (RA) completed
- ◆ Draft Human Health RA near completion
- ◆ Institutional controls expanded
 - Signage
 - Fencing
 - Trespasser management

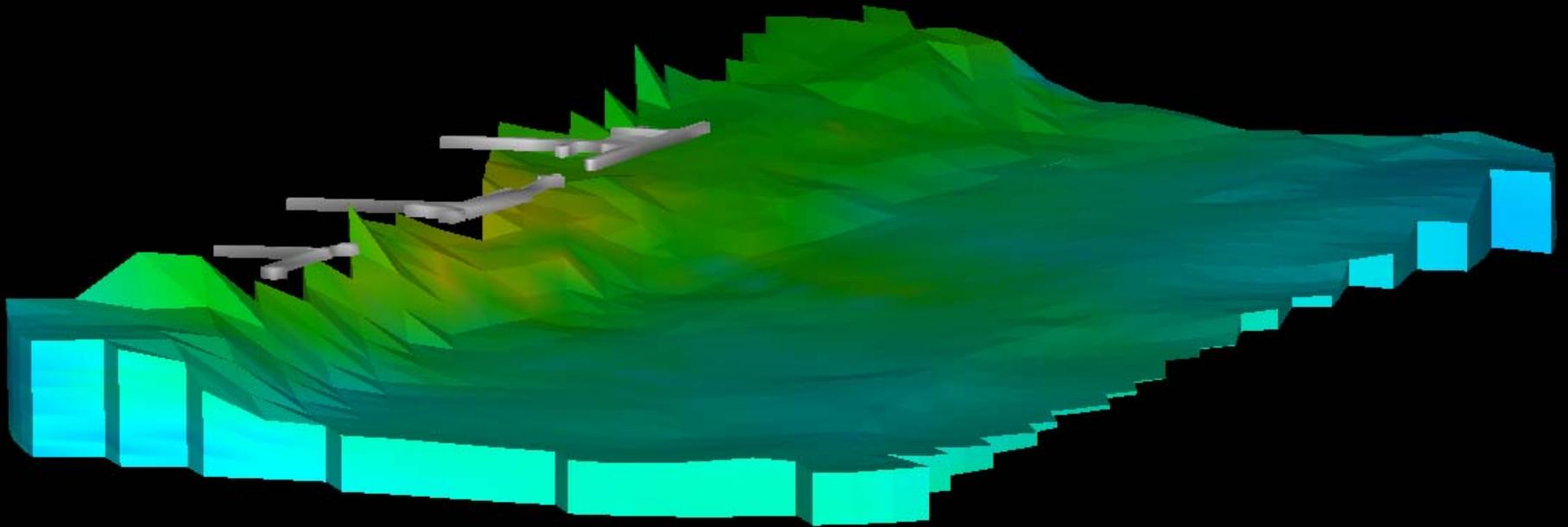
Early Action

- ◆ EPA Revised Draft Work Plan received May 2007
- ◆ LSS developed a state-of-the-art model to evaluate DDT mass in sediments for use in the EE/CA
- ◆ LSS presented mass removal approach June 2007

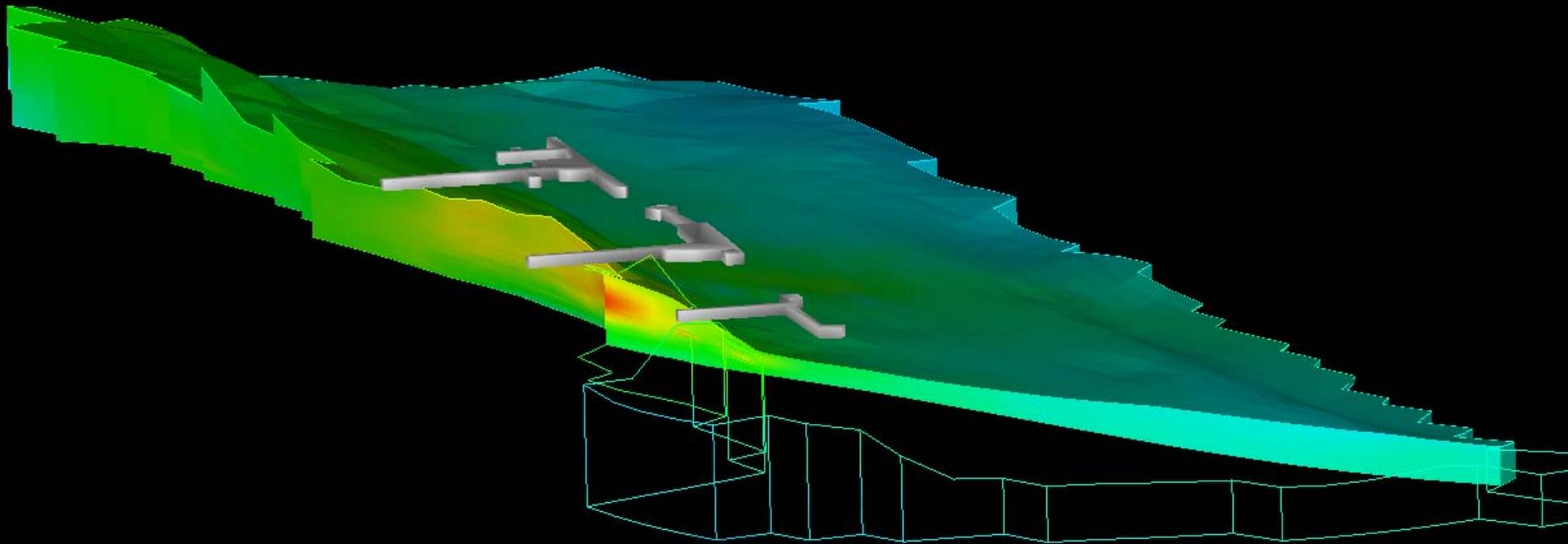
EVS Model – Plan View



EVS Model – View to NW



EVS Model – View to N

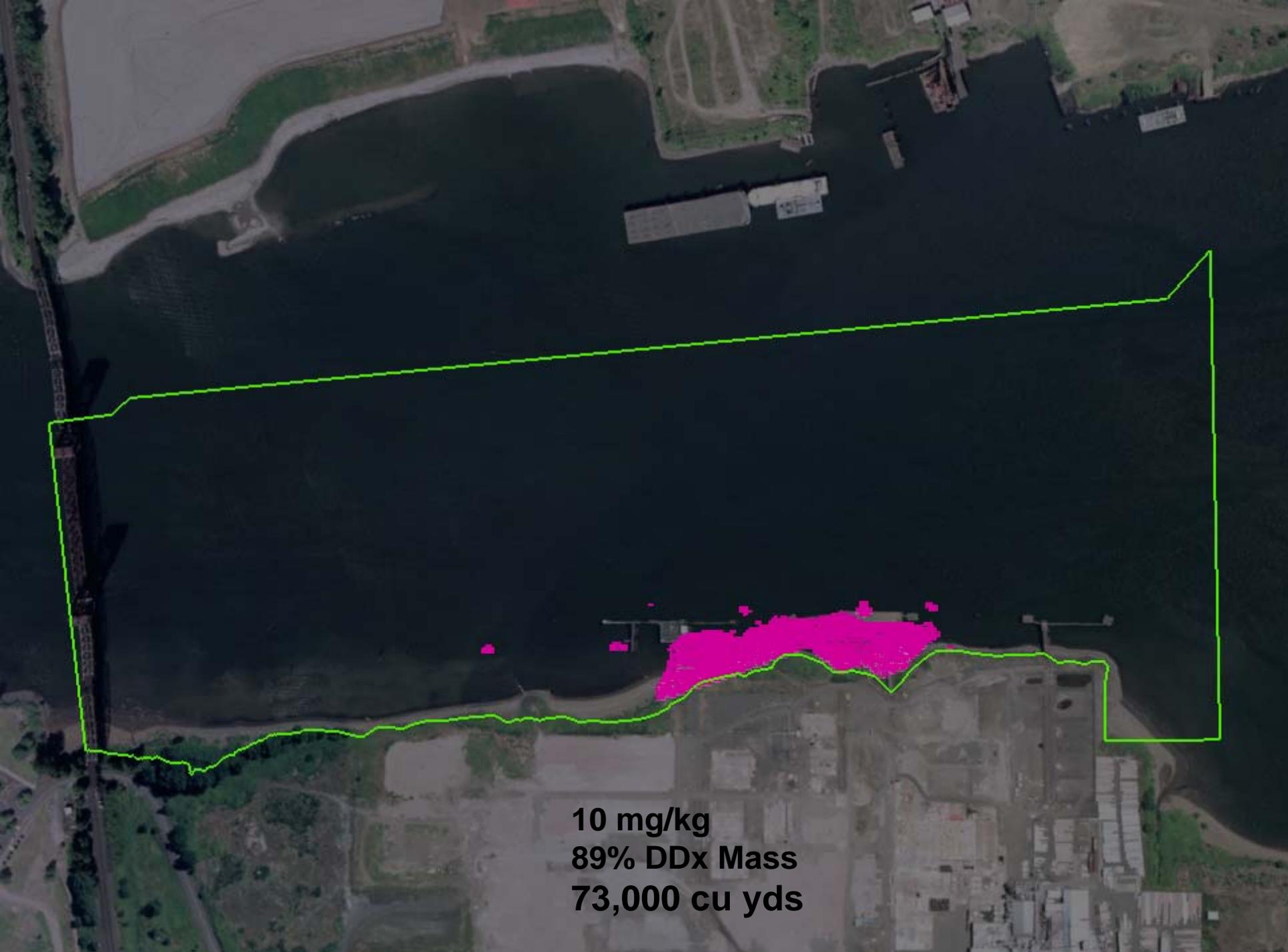




**1,000 mg/kg
7% DDx Mass
3,500 cu yds**



**100 mg/kg
56% DDx Mass
19,000 cu yds**



**10 mg/kg
89% DDx Mass
73,000 cu yds**

Next Steps - DEQ

- ◆ Groundwater Source Control
 - Complete FFS (March 2008)
 - Begin pilot or field testing alternative technologies as necessary
 - Verify GW model by performing pump tests
 - DEQ seek public comment and select source control option (March – May 2008)
 - Begin preparing remedial action/remedial design specifications for selected source control option
 - Initiate construction of hydraulic containment/treatment system (4th Quarter 2008)
- ◆ Stormwater Source Control
 - Complete FFS (March 2008)
 - Implement selected stormwater IRM (Summer 2008)
 - Monitor effectiveness of stormwater IRM

Next Steps - DEQ

- ◆ Riverbank Source Control
 - Complete FFS 2008
 - Integrate Design and Implementation with In-Water Early Action
- ◆ Upland Feasibility Study for Final Remedy

Next Steps – EPA 2008

- ◆ Resolve dispute
- ◆ Prepare addendum to draft EE/CA Work Plan
- ◆ Prepare FSP and QAPP
- ◆ Field work
- ◆ Prepare Site Characterization Report