



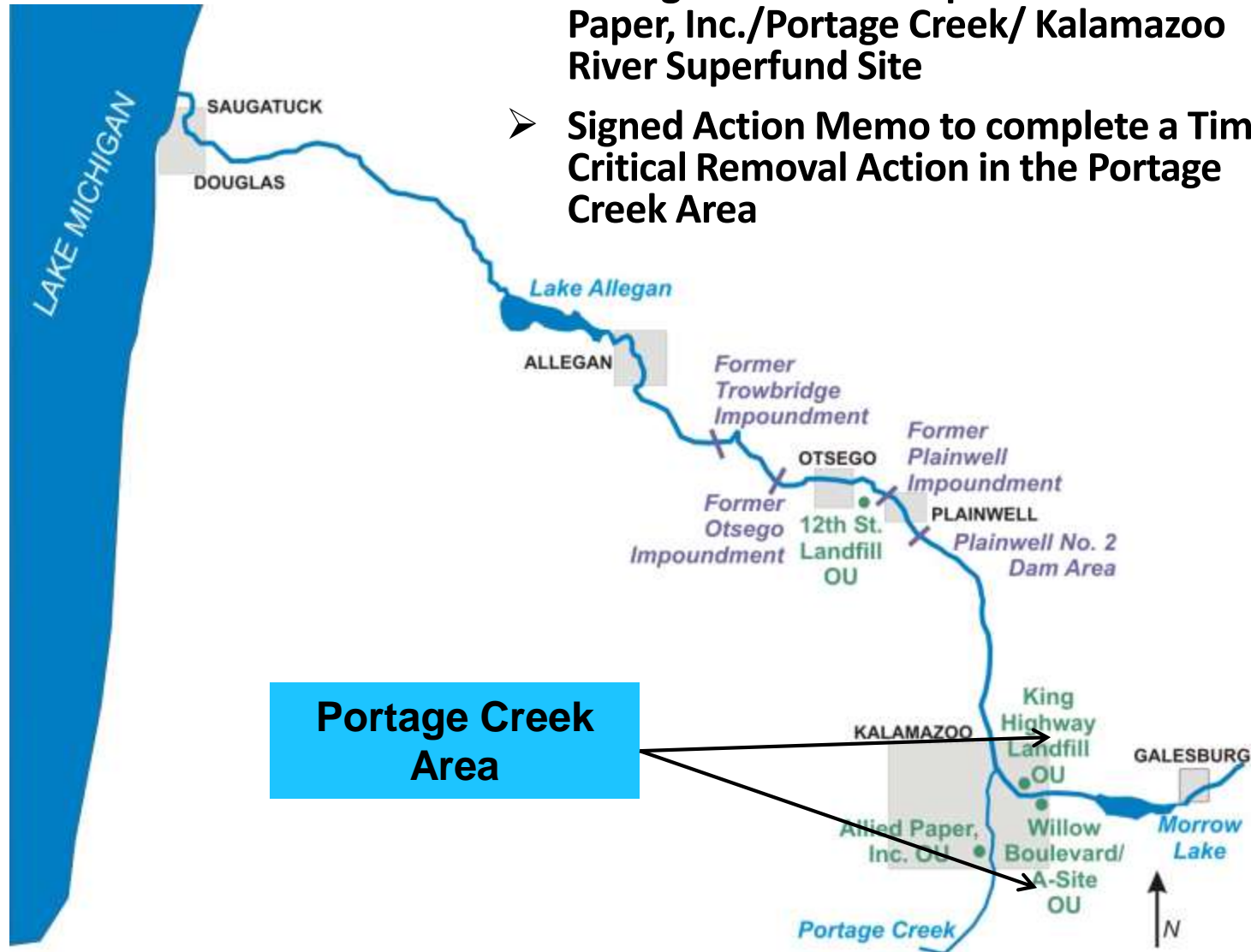
# Portage Creek Area Site Kalamazoo, Michigan

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**WEDA 2013 Midwest Chapter Meeting  
St. Louis, Missouri**

# Overview

- Portage Creek Area is part of the Allied Paper, Inc./Portage Creek/ Kalamazoo River Superfund Site
- Signed Action Memo to complete a Time-Critical Removal Action in the Portage Creek Area



# Portage Creek Investigation Results

## ➤ 1993-2000 Remedial Investigation/Feasibility Study (RI/FS)

- Series of transects sampled
- Highest PCB concentration 79 mg/kg

## ➤ 2008 Supplemental RI/FS

- Target sediment probes and depositional features
- Highest PCB concentration 300 mg/kg

## ➤ 2010 MDNRE sampling

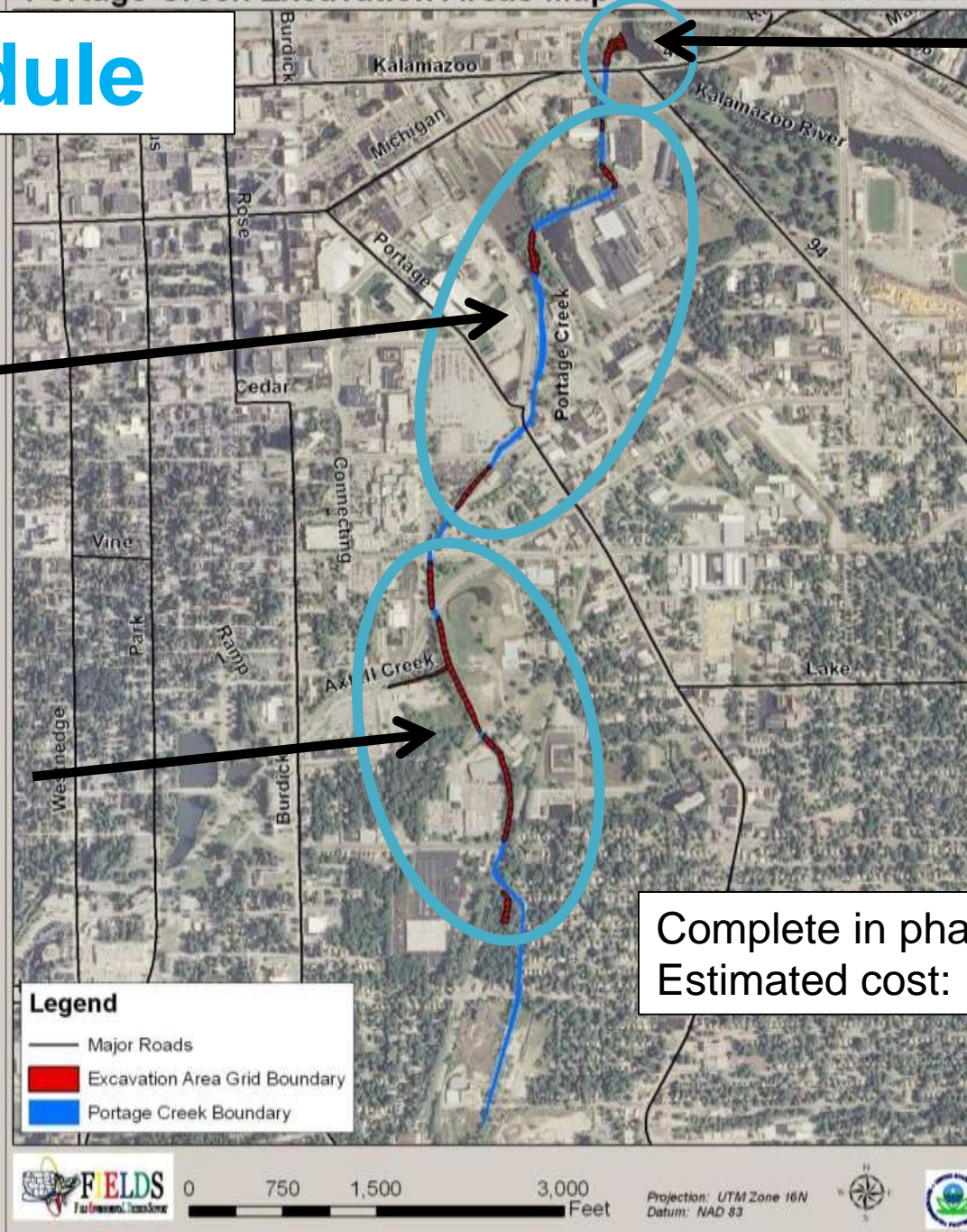
- Define hotspots
- Highest creek sediment PCB concentration 590 mg/kg
- Highest floodplain PCB concentration 72 mg/kg

# Schedule

2014  
SA1-A

2013  
SA5-A  
SA3-A  
SA1-B&C

2012  
SA7  
SA6  
Axtell Creek  
SA5D&C  
- completed -



Complete in phases in 2-4 yrs  
Estimated cost: \$15.8m

# EPA Required Plans

- **Action Memo**
- **Field Sampling Plan**
- **QAPP**
- **Health & Safety Plan**
- **Soil Erosion & Sediment Control Plan**
- **Traffic Control Plan**
- **Debris Management Plan**
- **Restoration Plan**
  - Generic & area specific
- **Technical Memos (area specific)**



# Operations Overview

## -Site Preparation-

### Clear & grub for operational access



# Operations Overview

## -Site Preparation-

### Property Access



# Operations Overview

## Site Preparation

### ➤ Isolation

- Cofferdam construction
- Bypass pumping ongoing during removal
- Excavation area dewatering and water treatment









# Operations Overview

## -Contaminated Sediment Removal-

- Preliminary solidification (cob)
- Load & transfer sediment to dewatering pad



# Environmental Monitoring



**Stream turbidity  
(1 upstream, 2 downstream)**



Perimeter air monitoring



# John Street Staging Pad

**Additional  
solidification  
with bed ash**



**> 50ppm – EQ (Detroit)  
< 50ppm - C&C Landfill (Marshall)**



# Operations Overview

## -Contaminated Sediment Removal-

- Verification sampling/re-excavate and re-sample as needed  
(6 points/grid composite)



# Removal Objectives / Goals

## ➤ In stream sediments

- 10 mg/kg
  - ‘Performance standard’
  - Superfund Removal Program
- 1 mg/kg
  - ‘Performance standard goal’
  - Superfund Remedial Program

## ➤ Flood plain and bank soils

- 10 mg/kg (Removal)
- 5 mg/kg (Remedial)

# Operations Overview

## -Site Restoration-

### Backfill stream channel/bank





# Operations Overview

## -Site Restoration-

- Restoration planting





# Operations Overview

## -Site Restoration-

### Post-condition documentation



# Forested wetland





# Excavation



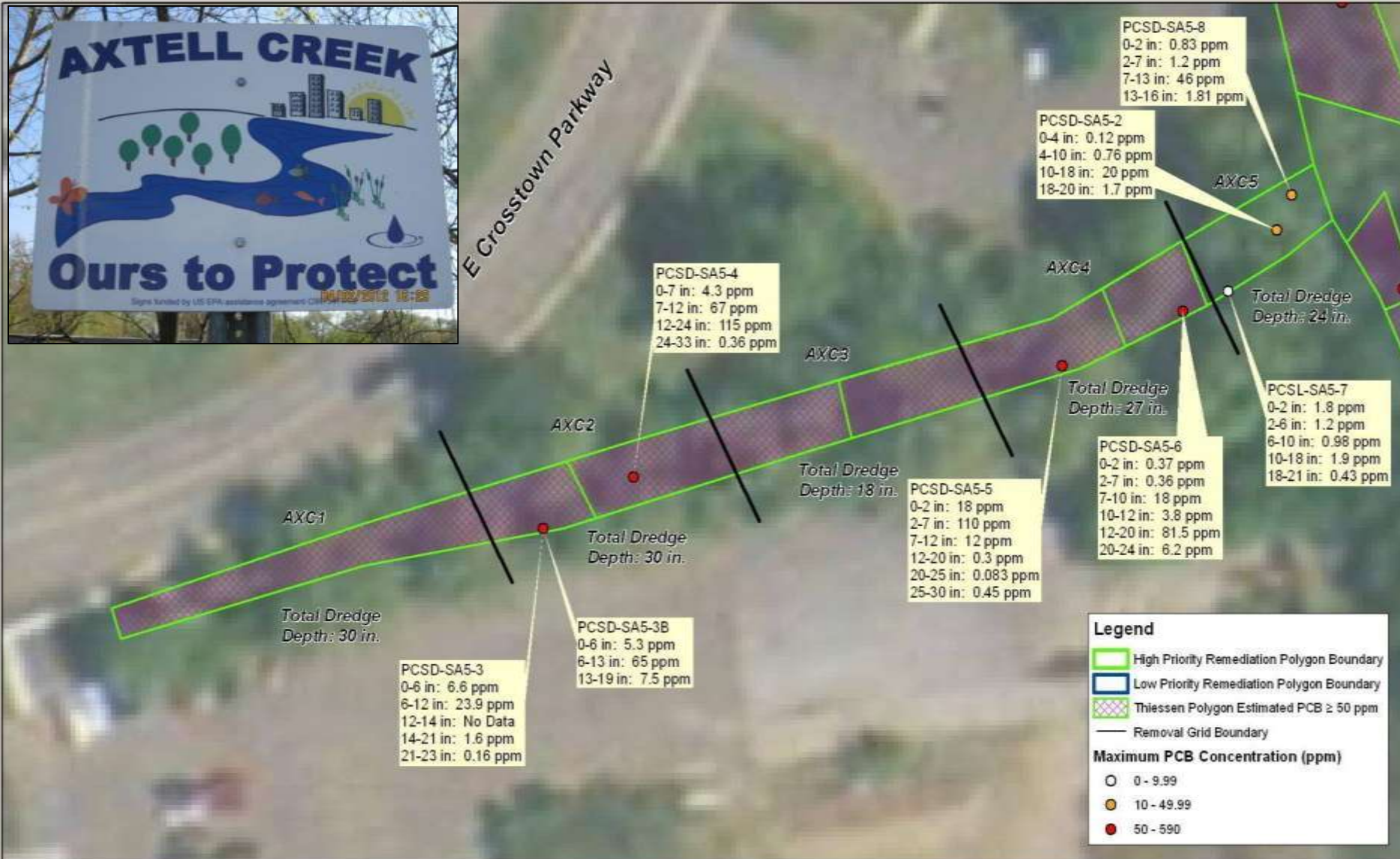
**Approx 1000 yds  
removed**



## Axtell Creek (SA5/Axtell)

### Portage Creek - Remediation Scenario (> 10 ppm): Axtell Creek

04/14/2011

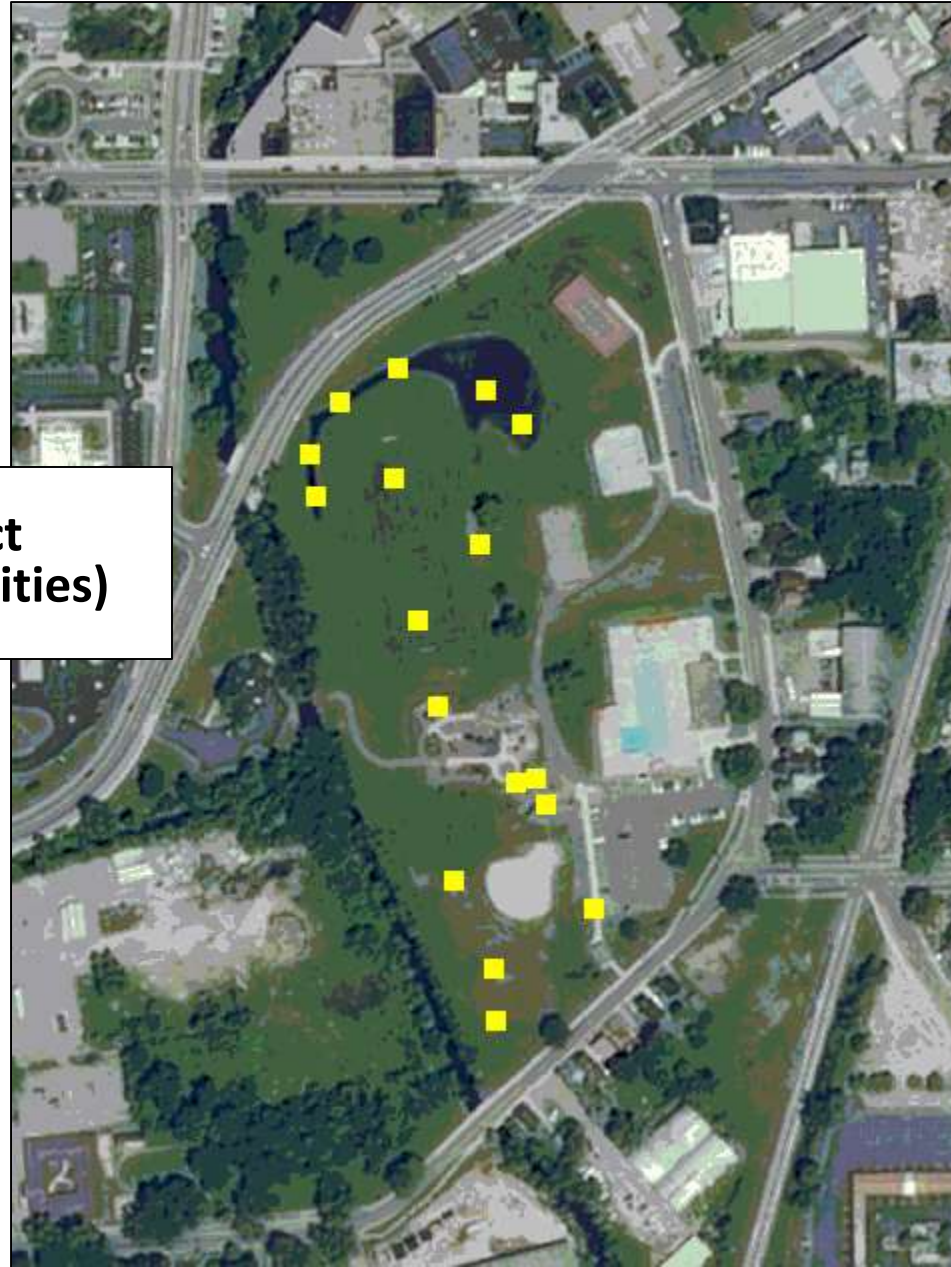




# Upjohn Park Sampling



**All results were non-detect  
(below lab instrument capabilities)**





# SA5D Excavation



# SA5D Creek By-Pass System



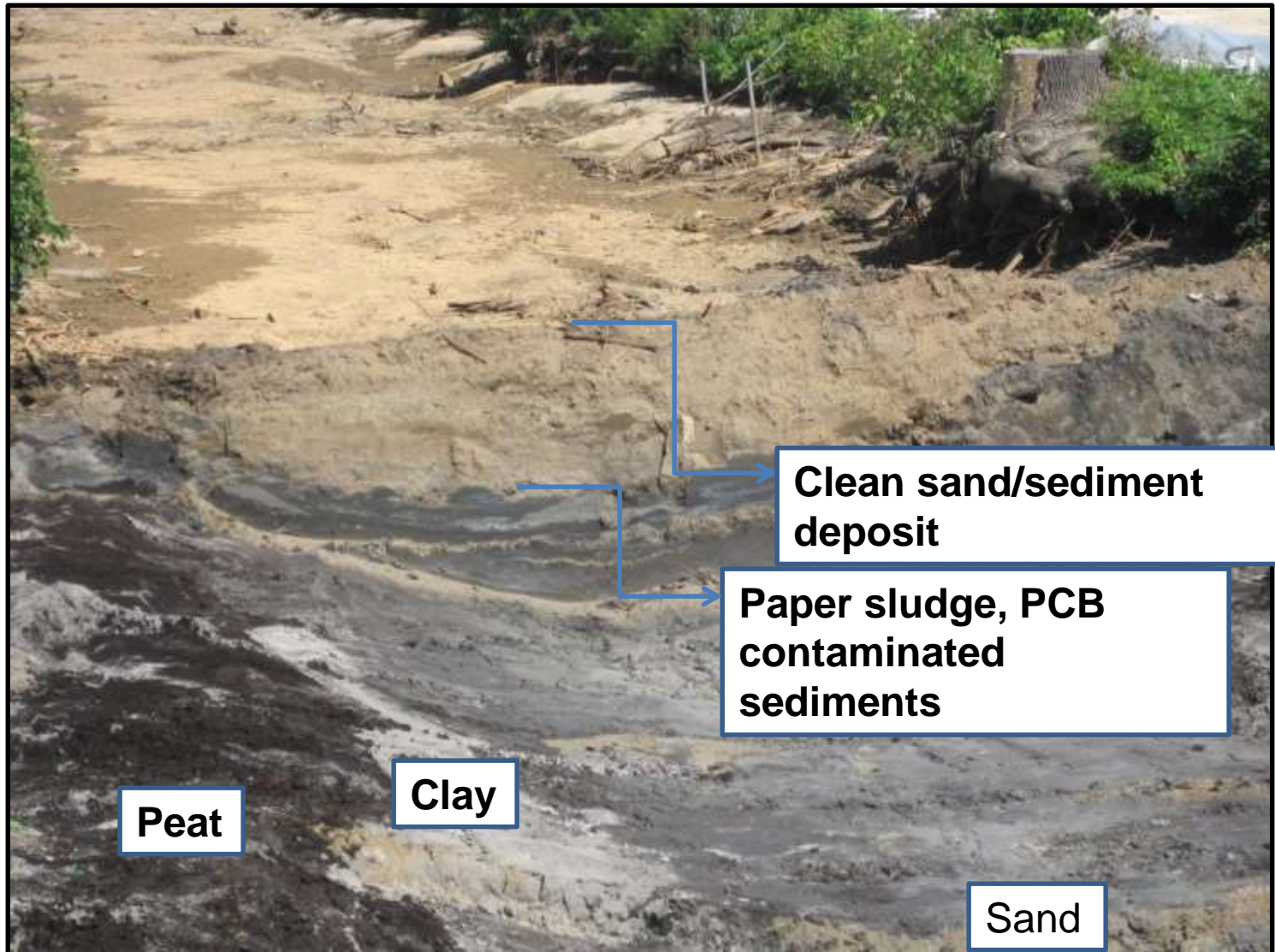
- - Locking, sound dampening cabinets
- Easier to work on
- Better fault indication
- Resolved many problems vs. 24's in SA6

- 4 – 12” pumps w/ 12” suctions
- 2 – 18” discharge lines
- 1 – 12” backup pump
- 1 – 1000 gal fuel cell





# SA5 Excavation





# Verification Data

- Multiple grids required over-excavation from target depths
- Verification samples are taken at target depth to justify over-dig
- Confirmation samples are taken at final depth for clean-up objectives



GRID	TARGET DEPTH (in)	INITIAL PCB RESULT (ppm)	OVERDIG (in)	TOTAL DEPTH (in)	CONFIRMATION PCB RESULT (ppm)	2nd OVERDIG (in)	TOTAL DEPTH (in)	2nd CONFIRMATION PCB RESULT (ppm)
AXC-1	24	27.9	12	36	35.8	24	60	ND
AXC-2	30	8.9	12	42	14.3	24	66	0.97
AXC-3	24	16.1	12	36	19.3	24	60	6.97
AXC-4	30	18.7	12	42	22.6	24	66	0.061
AXC-5	24	4.15	6	30	3.93	6	36	0.189

Example of grid data from Axtell Creek

# Wastewater Treatment

(contact water, wheel wash, staging pad run-off)

MDEQ  
required SRD  
(weekly  
samples)

50 gpm

Sump -> Frac  
tank ->  
25 u filters ->  
5 u filters ->  
1 OMC & 2  
carbon  
vessels ->  
1u filter ->  
Creek



# Summary of Original Estimated vs. Final Volume for Areas Excavated during FY 2012

Removal Area	Original Volume (yd <sup>3</sup> )	Final Volume (yd <sup>3</sup> )	Increase in Volume (yd <sup>3</sup> )
<b>SA5-C</b>	2,040	2,871	831
<b>SA5-D</b>	3,880	4,504	624
<b>SA6</b>	2,737	2,982	245
<b>SA7</b>	826	826	0
<b>Axtell Creek</b>	849	1,871	1,022
<b>Total</b>	<b>10,332</b>	<b>13,054</b>	<b>2,722</b>



# Questions ?

[www.epaosc.org/portagecreekarea](http://www.epaosc.org/portagecreekarea)



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