



Portsmouth EM Site Specific  
Advisory Board

## WASTE DISPOSITION AND RECYCLING SUBCOMMITTEE

TUESDAY, MARCH 13, 2012 @ 4:30 P.M. ROOM 165

### AGENDA

- PRESENTATION –Waste Acceptance Criteria presented by J.D. Chiou, Fluor-B&W
- PRESENTATION –Landfill Report presented by Dennis Carr, Fluor-B&W
- DISCUSSION
- MEETING STRUCTURE AND PUBLIC PARTICIPATION GUIDELINES
- PLAN OF ACTION

ADJOURN

#### **SUBCOMMITTEE CHAIR**

WILLIAM E. HENDERSON II

#### **SUBCOMMITTEE VICE CHAIR**

DANIEL J. MINTER

#### **BOARD CHAIR**

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BRIAN F. HUBER

#### **DOE DEPUTY DESIGNATED**

#### **FEDERAL OFFICIAL**

JOEL BRADBURNE

#### **DOE FEDERAL COORDINATOR**

GREG SIMONTON

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## WASTE DISPOSITION & RECYCLING SUBCOMMITTEE

MEETING SUMMARY

MARCH 13, 2012 • 4:30 P.M.

THE OHIO STATE UNIVERSITY ENDEAVOR CENTER  
1862 SHYVILLE ROAD, PIKETON, OH 45661

**Subcommittee Members Present:** Will Henderson Subcommittee Chair, Dan Minter, Subcommittee Vice-Chair, Shirley Bandy, Martha Cosby, Brian Huber

**SSAB Subcommittee Members Absent:** Frank Halstead

**Other SSAB Members Present:** Dick Snyder Board Chair, Val Francis Board Vice-Chair, Stan Craft, Michael Payton, Cristy Renner, Terri Ann Smith

**U.S. Department of Energy (DOE) and contractors:** Joel Bradburne, Greg Simonton, DOE; Rick Greene, Joe Moore, Restoration Services, Inc. (RSI); Karen Price, Dennis Carr, Jerry Schneider, Marc Jewett, Frank Miller, Deneen Revel, Jennifer Chandler, Pete Mingus, Fluor-B&W Portsmouth (FBP)

**Liaisons:** Melody Stewart, Stephen Wells, Ohio Environmental Protection Agency (EPA); Mike Rubadue, Ohio Department of Health (ODH)

**Support Staff:** Julie Galloway, Cindy Lewis, Eric Roberts, EHI Consultants (EHI)

**Public:** Steve Shepherd, Southern Ohio Diversification Initiative (SODI); Craig Cecala, Alliant; Bob Eichenberg, Ohio University; John Knauff

**Henderson** opened the meeting.

**1. Tar Creek Vehicle Accident Summary presentation was delivered by Marc Jewett, FBP:**

- Tar Creek Vehicle Accident Summary
- Accident Location
- Accident Photos
- Tar Creek Vehicle Accident Findings
- Follow-up actions

**2. SSAB Information Portfolio Waste Acceptance presentation was delivered by J.D. Chiou, FBP:**

Waste Acceptance Criteria

- Components of WAC Specified in DFF&O
- Other Potential Components of WAC
- Protectiveness Performance Requirements To Guide WAC Modeling and Development
- Updated OSDC Conceptual Site Model
- OSDC Conceptual Long-Term Performance
- General Numerical WAC Development Steps
- **Discussion:**

<b>Question/Comment:</b>	<b>Answer:</b>
<p><b>Minter:</b> Is there criteria for waste going off-site?</p> <p>What percent of the total waste is being recycled?</p>	<p><b>Chiou:</b> Yes, EPA has the final say.</p> <p>10% of the total waste is being recycled.</p>
<p><b>Snyder:</b> Is the public comment period before the RI/FS?</p> <p>When is the proposed plan due?</p> <p>You will have to meet the off-site requirements. Each community needs to know what you are bringing into their community.</p> <p>Is the cell here going to be the same design as in Fernald?</p> <p>Who is the designing contractor?</p>	<p><b>Jewett:</b> Yes, the public comment is included in the RI/FS in the draft form. Time for the official comment is in the draft proposed plan, then EPA and DOE will negotiate.</p> <p>The proposed plan is due mid-summer.</p> <p><b>Chiou:</b> Yes, each state you drive thru has requirements and needs to know what we are hauling.</p> <p>The design is pretty much the same but the geology is better here.</p> <p>GeoSyntec, they were also the designer at Paducah and Fernald.</p>
<p><b>Francis:</b> As you are doing the D&amp;D, are you looking at what SODI might be able to recycle?</p> <p>We want to push recycling for not only our site but other sites also.</p>	<p><b>Chiou:</b> Yes, ten thousand yards is what we have set to recycle, it is an ongoing effort.</p>

**3. SSAB Information Portfolio Landfill Disposal Areas Assessment presentation was delivered by Dennis Carr, FBP:**

- Landfill Disposal Areas Assessment
- Six General Areas with Landfill Disposal

- Three Landfill Disposal Areas Outside Perimeter Road
- X-735 North Hazardous Waste Landfill
- X-735 South Industrial Solid Waste Landfill
- Landfill Disposal Areas Assessment
- X-736 Spoils Landfill
- X-734 Sanitary Landfill, S-734A & X-734B Construction Spoils
- Landfill Disposal Areas Assessment
- X-611A Former Lime Sludge Lagoons
- Landfill Disposal Areas Assessment
- Three Landfill Disposal Areas Inside Perimeter Road
- X-231A Oil Biodegradation Plot
- Landfill Disposal Area Assessment
- X-231B Southwest Oil Biodegradation Plot
- Landfill Disposal Areas Assessment
- X-749A Classified Burial Grounds
- Landfill Disposal Areas Assessment
- X-749 Contaminated Materials Disposal Facility
- Landfill Disposal Areas Assessment
- X-749B Peter Kiewit (PK) Landfill
- Landfill Disposal Areas Assessment
- X-616 Chromium Sludge Surface Impoundments
- Landfill Disposal Areas Assessment

<b>Question/Comment:</b>	<b>Answer:</b>
<p><b>Francis:</b> Does DOE handle the surveillance and maintenance of the landfills?</p> <p>Does the information you are presenting tonight on the contents of the current landfills come from OEPA?</p> <p>Is the contents in the current landfills all waste from our site, or was anything shipped in from off-site?</p> <p>The 611A landfill, what happened between 1960 and 1997?</p>	<p><b>Carr:</b> Yes, DOE is responsible for the surveillance and maintenance of the current landfills.</p> <p>Yes, all the paperwork is from EPA.</p> <p>Yes, the waste was all on-site waste. No off-site waste is in any of these landfills.</p> <p>Dewatering, they just did not close it until 1997.</p>
<p><b>Snyder:</b> What is the discharged water testing at right now?</p>	<p><b>Thomson:</b> The dewatering pipes have no water coming out now. Only surface water, and yes, it is tested regularly.</p>

**4. Plan of Action:**

- Continue working on several recommendations.

**Board comments:**

**Henderson:** I want to go over the SSAB's mission and meeting structure. According to the by-laws, we do not have to have public comments during subcommittee meetings. I think we need to stick to the guidelines that have been set.

Before we adjourn, I would like to ask the subcommittee members to meet down the hall for 10 minutes.

**Henderson:** Meeting adjourned

Next meeting: Tuesday, April 10, 2012 at 4:30 p.m.

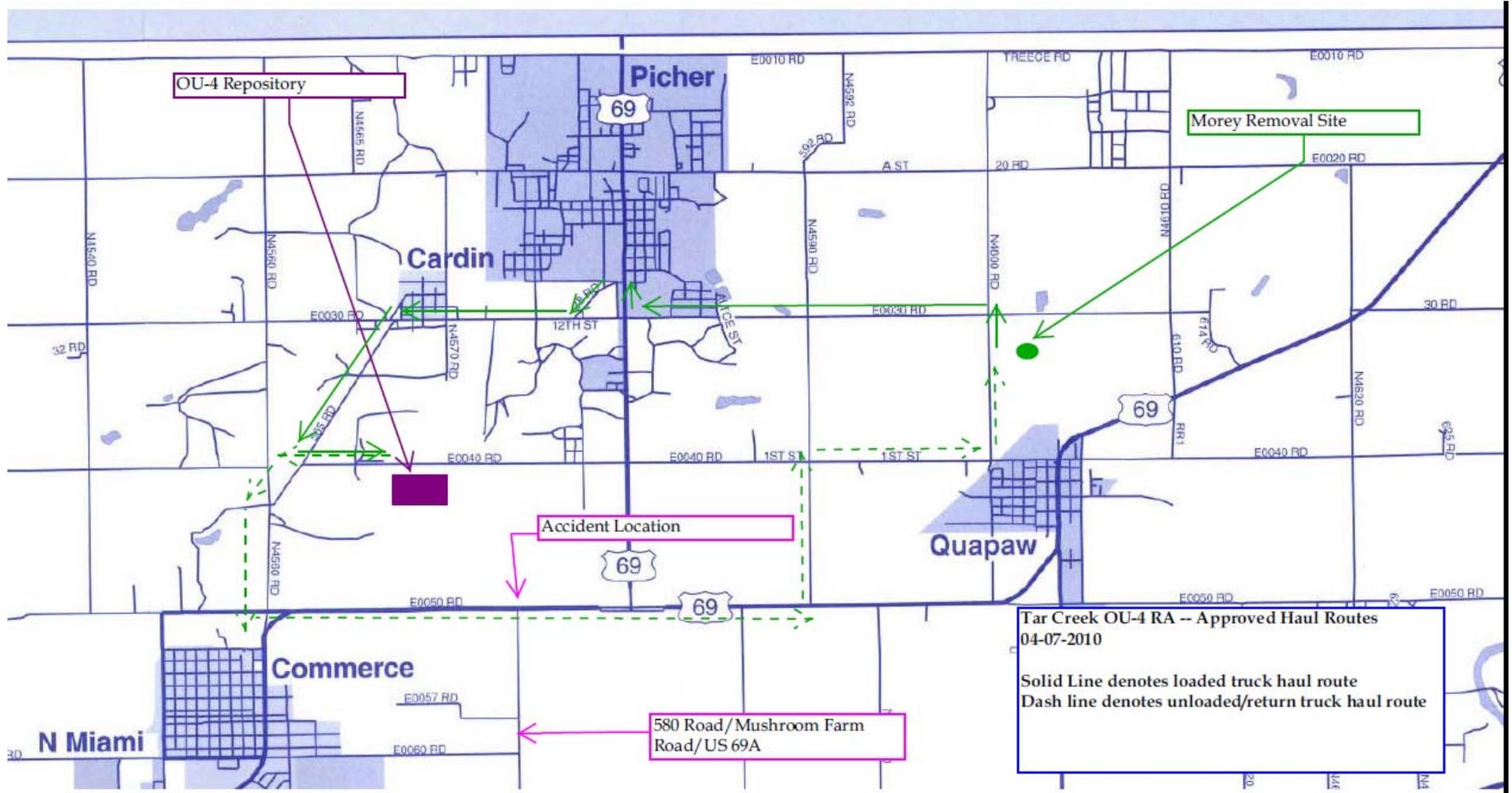
**Action Items:**

1. Everyone take the draft recommendation and submit to EHI any comments you may have, we will get those changes made and e-mail it back out to the subcommittee within a week. EHI will also e-mail an electronic copy to you.
2. Submit a formal request for the Edison Center to speak at a meeting.

# Tar Creek Vehicle Accident Summary

- April 7, 9:15 AM, Commerce, OK, near Tar Creek site
- Lower-tier haul truck driver returning to site with empty load hit a passenger vehicle broadside, haul truck rolled over in a ditch
- Passenger vehicle driver died at scene, juvenile passenger and haul truck air lifted to local hospitals
- Both survivors released from hospital the next day with minor injuries
- Official collision report states that passenger vehicle driver “failed to yield to a stop sign”
- “No improper action” by haul truck driver

# Accident Location



# Accident Photos



# Tar Creek Vehicle Accident Findings

- Driver – “Normal day”, no known distractions, CDL qualified and participates in regular drug testing program
- Haul route considerations
  - The haul routes were selected to minimize two-way heavy truck traffic
  - The haul routes were selected to comply with Ottawa County and Oklahoma DOT (ODOT) road weight restriction requirements
  - All haul routes were coordinated with the Northern Ottawa County Commissioner
- Location Considerations
  - The intersection of U.S. Highway 69 and South 580 Road is regulated by a stop sign only
  - The posted speed limits are 65 mph for 69A and 55 mph for South 580.
  - Both roads are paved and maintained by the ODOT
  - U.S. Highway 69 is the southern boundary of the Superfund site has been in use for remedial efforts for at least 8 years without accident

## Follow-up actions

- Meeting in Dallas with CH and EPA representatives 4/12
- Reviewed accident details and decided on the following:
  - Continue the following health and safety practices
    - Stress traffic safety during safety meetings
    - Review subcontractor qualifications and safety records prior to work
    - Review all driver qualifications including drug tests
  - Review historic vehicle accident data on haul roads and suggest possible traffic safety improvements to county commission
  - Respond to inquiries from EPA, regulatory agencies, and municipalities. Direct media inquires to EPA
  - Implement other actions as needed – drive with headlights on, flashing (strobe) becon on haul trucks, possible signage at intersections

# SSAB Information Portfolio

## *Waste Acceptance Criteria*

JD Chiou

Fluor-B&W Portsmouth, LLC

March 13, 2012

## Waste Acceptance Criteria (WAC)

*"Waste Acceptance Criteria" ("WAC") means the criteria developed by Respondent **with community input** and approved by Ohio EPA which specify standards that must be met by each waste prior to its acceptance into any on site disposal facility, if such a facility is selected as a remedy pursuant to these orders. The criteria must specify: waste evaluation and characterization standards, waste physical characteristics standards, waste packaging standards, waste safe handling standards, waste transportation standards, activity criteria and chemical concentration criteria.*

***No Dispute Resolution Process for Matter Pertaining to WAC and OSDC***

## Components Of WAC Specified In DFF&O

1. Waste Evaluation and Characterization Standards
2. Waste Physical Characteristics Standards
3. Physical Structure
4. Waste Packaging Standards
5. Waste Safe Handling Standards
6. Waste Transportation Standards
7. Removable and Fixed Activity Criteria
8. Chemical Concentration Criteria

## Other Potential Components Of WAC

1. Negotiated Administrative Prohibitions
  - Any Selected Administrative Prohibitions Invoked By Ohio EPA/DOE Including Offsite Wastes, etc.
2. Applicable or Relevant and Appropriate Requirements (ARAR)/To Be Considered (TBC) Defined Requirements
3. Waste Acceptance Organization, Quality Assurance/Quality Control, And Documentation/Record Requirements
4. Nuclear Safety Requirements As Specified in The Documented Safety Analysis and Technical Safety Requirement (if required)
5. Security Driven Requirements

# OSDC Waste Acceptance Criteria – Components And Documentations

	Waste Disposition RI/FS	Proposed Plan	ROD	Preliminary Design (60% and 90% Designs)	Final Design (100%) Package RA Work Plan	Remedial Action Report
Community And Public Input	<ul style="list-style-type: none"> <li>Fence Line Neighbors Meeting</li> <li>Quarterly Public Meetings</li> <li>Monthly SSAB Meetings</li> <li>Envoy Program</li> </ul>	<ul style="list-style-type: none"> <li>30-Day Public Review and Comment</li> </ul>	<ul style="list-style-type: none"> <li>Public Input Incorporated</li> </ul>	<ul style="list-style-type: none"> <li>Quarterly Public Meetings</li> <li>Monthly SSAB Meetings</li> <li>Envoy Program</li> </ul>	<ul style="list-style-type: none"> <li>Quarterly Public Meetings</li> <li>Monthly SSAB Meetings</li> <li>Envoy Program</li> </ul>	
Activity Criteria and Chemical Concentration Criteria	<ul style="list-style-type: none"> <li><b>ARARs and TBCs</b></li> <li><b>Conceptual Model Development</b></li> <li><b>Field Data Collection</b></li> <li><b>Lab Tests</b></li> <li><b>F&amp;T Modeling for WAC Development</b></li> <li><b>Draft Limits in RI/FS</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Ohio EPA Approved Limits</b></li> <li><b>Negotiated Administrative Exclusion and Restrictions of Waste Streams</b></li> <li>Compliance Strategy</li> <li><b>Incorporate Community Input</b></li> </ul>	<ul style="list-style-type: none"> <li>Performance and Protective Statement of the OSDC</li> <li>Updates or Changes from the Proposed Plan If Necessary</li> </ul>		<ul style="list-style-type: none"> <li><b>WAC Implementation Plan:</b> <ul style="list-style-type: none"> <li>Acceptable Process Knowledge</li> <li>NDA Requirements</li> <li>Sampling Requirements</li> <li>QA/QC Requirements</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Actual Compliance Record</li> <li>Summary of Placed Waste Inventory and Characteristics</li> </ul>
Waste Physical Characteristics Standards	<ul style="list-style-type: none"> <li>ARARs and TBCs</li> <li>Simple Assumptions for Cost Estimation Purposes</li> </ul>	<ul style="list-style-type: none"> <li>General Summary of the Proposed Approach</li> </ul>		<ul style="list-style-type: none"> <li><b>Categories, Sizes, Void Space, Grid/Layer/distance, Compaction, etc.</b></li> <li><b>Based on Long-Term Physical Stability Requirements</b></li> </ul>	<ul style="list-style-type: none"> <li><b>OSDC Impacted Materials Placement Plan</b></li> <li>Updates or Changes From the Preliminary Designs If Necessary</li> </ul>	<ul style="list-style-type: none"> <li>Actual Compliance Record</li> <li>Completed 3-D Waste Layer Structure in the OSDC</li> </ul>
Waste Packaging, Safe Handling, and Transportation Standards	<ul style="list-style-type: none"> <li>Simple Assumptions Consistent With D&amp;D Approaches and Lessons Learned from Other DOE Sites for Cost Estimation Purposes</li> </ul>	<ul style="list-style-type: none"> <li>General Summary of the Proposed Approach</li> </ul>		<ul style="list-style-type: none"> <li><b>By ESH&amp;Q, NCS Engineering, and Security Based on All Relevant Short- and Long-Term Safety and Security Requirements</b></li> </ul>	<ul style="list-style-type: none"> <li>Updates or Changes From the Preliminary Designs If Necessary</li> </ul>	<ul style="list-style-type: none"> <li>Actual Compliance Record</li> </ul>
Waste Evaluation and Characterization Standards	<ul style="list-style-type: none"> <li>ARARs and TBCs</li> <li>Simple Assumptions for Cost Estimation Purposes</li> </ul>	<ul style="list-style-type: none"> <li>General Summary of the Proposed Approach</li> </ul>		<ul style="list-style-type: none"> <li>Updates or Changes If Necessary</li> </ul>	<ul style="list-style-type: none"> <li><b>WAC Implementation Plan:</b> <ul style="list-style-type: none"> <li>WAO System Document</li> <li>Waste Profile Requirements</li> <li>Waste Tracking Requirements</li> <li>OEPA Inspection</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Actual Compliance Record</li> <li>Summary of Waste Placement Record</li> <li>Summary of Project Performance Statistics</li> </ul>

## Protectiveness Performance Requirements To Guide WAC Modeling And Development

- **Compliance Timeframe:** *1,000 Years*
- **Groundwater Protection Point of Compliance and Limits:** *At The Edge of Waste Footprint; Maximum Contaminant Limits (MCLs) for drinking water or Equivalent*
- **RME POC and Limits:** 100 Meters Down Gradient Of OSDC; Cumulative Elevated Lifetime Cancer Risk  $\leq 10^{-5}$ , Hazard Index  $\leq 1$ ,
- **Ecological Receptors, POC, and Risk Limits:** TBD
- **Radon Flux through Cover:**  $\leq 20$  pCi/M<sup>2</sup>/S
- **DOE Order 435 Requirements:** Performance Assessment and Composite Analysis Dose Limits (100mR/Yr Outside of The Buffer Zone)

# Updated OSDC Conceptual Site Model

## 5/6. Calculate Uptake/Risk and WAC

### 5. Resident Receptor

#### Well Water

- Ingestion of drinking water
- Inhalation of volatiles while showering
- Dermal exposure while showering

### 6. Recreational Receptor

#### Surface Water/Sediment

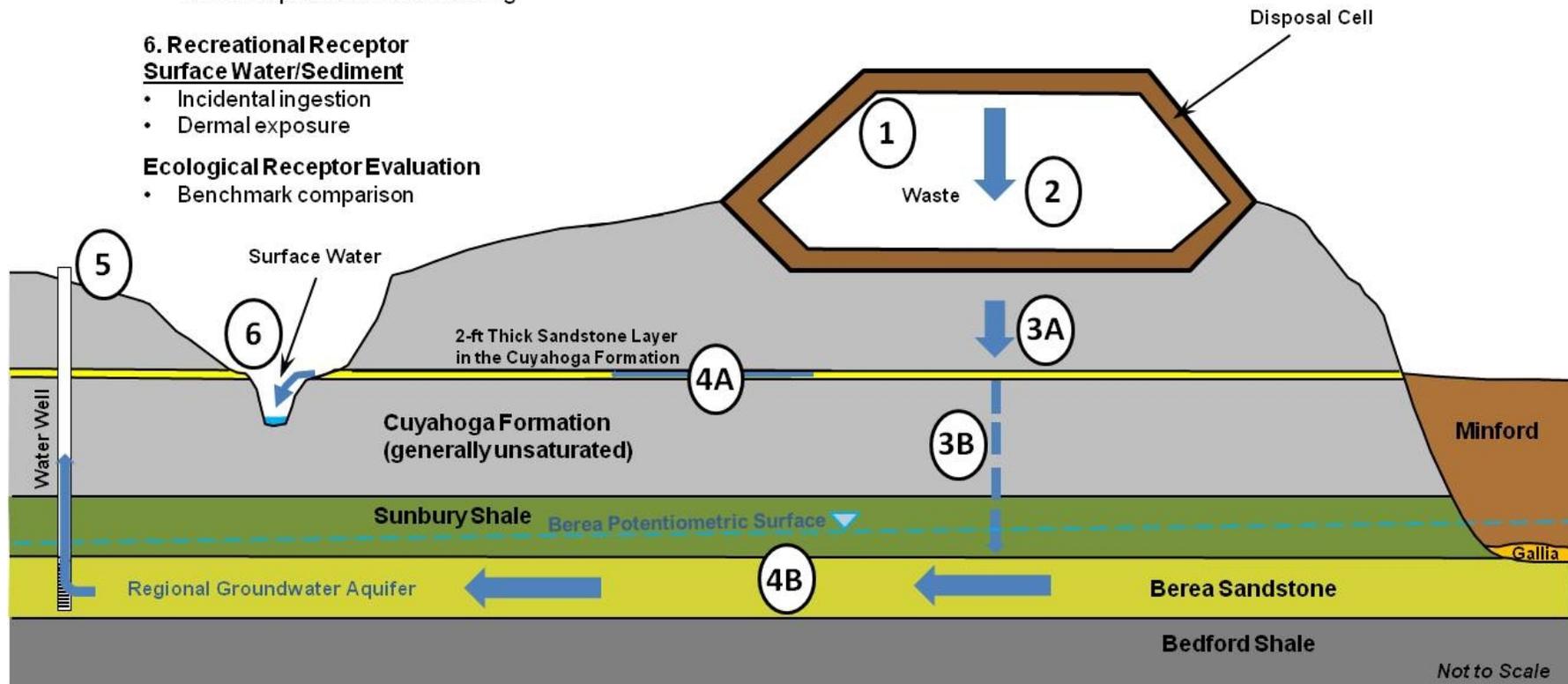
- Incidental ingestion
- Dermal exposure

### Ecological Receptor Evaluation

- Benchmark comparison

## 1. Source Estimate

## 2. Infiltration/leaching rate through waste

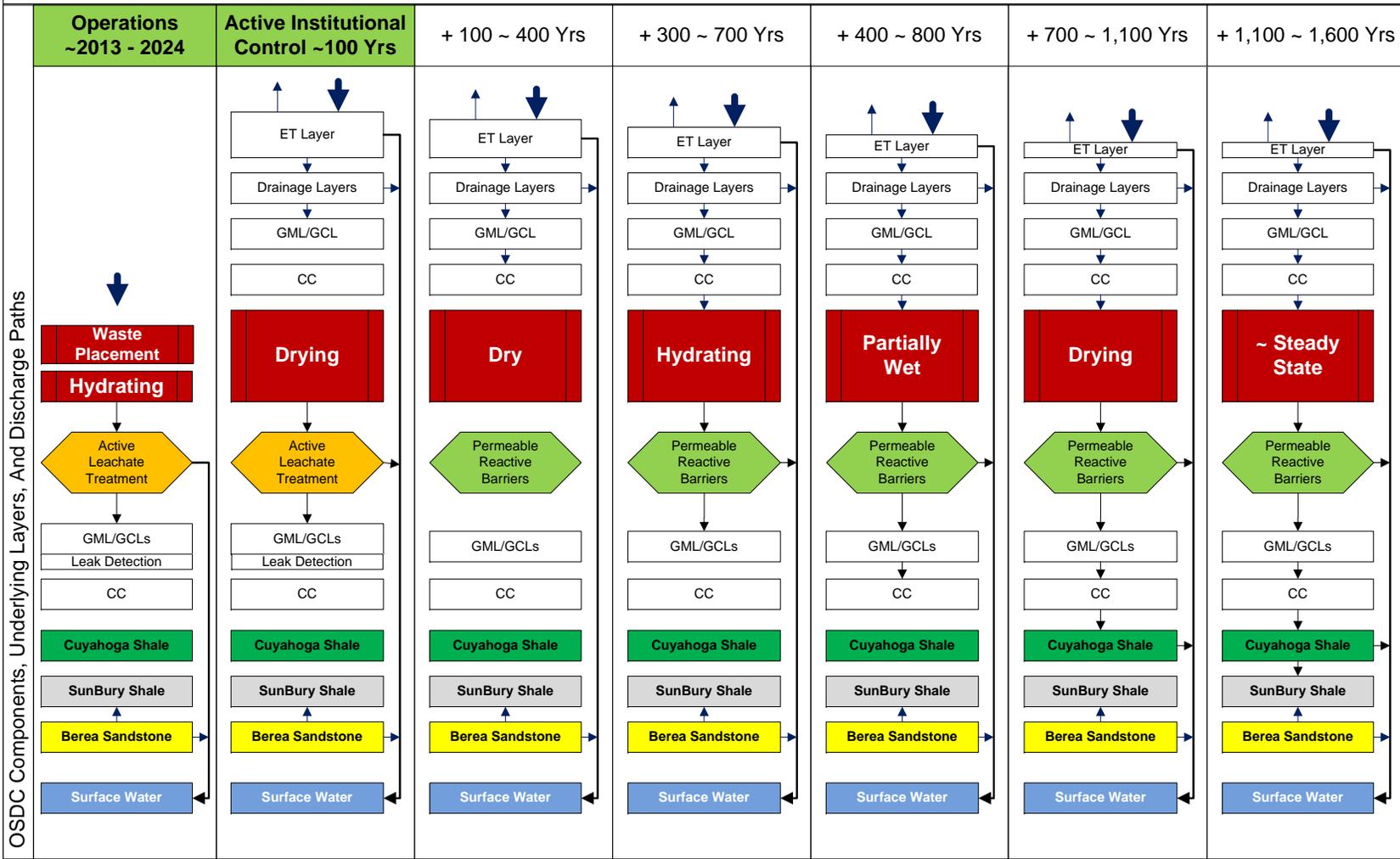


- 3A. Vertical migration to potential lateral pathway in Cuyahoga  
 3B. Potential vertical migration to lower confined saturated zone

- 4A. Lateral migration in potential lateral pathway  
 4B. Lateral migration in the regional groundwater aquifer

# OSDC Conceptual Long-Term Performance

## OSDC Conceptual Long-Term Performance Stages And Starting Times



10,000

**Notes**



**Modeling Assumptions:** 100 200 500 1,000  
 3/13/2012 GML/GCL/CC/DL GCL/CC/DL CC/(DL) CC

Information compiled for PORTS SSAB use by Fluor-B&W Portsmouth, LLC from DRAFT version of RI/FS

## General Numerical WAC Development Steps

- **Step 0**: Identify potential Contaminants of Concern
- **Step 1**: Set limits so that Maximum Contaminant Limits (or equivalent) for individual Contaminants of Concern (COCs) will not be exceeded at the edge of waste footprint in 1,000 years
- **Step 2**: Check/revise limits so that Elevated Lifetime Cancer Risk  $\leq 10^{-5}$ , HI  $\leq 1$ , and DOE O 435.1 Performance Assessment requirements are met at location 100 meters down gradient for at least 1,000 years with combined impact from COCs
- **Step 3**: Verify DOE O 435.1 Composite Analysis requirements are met with combined impact from all residual sources for at least 1,000 years
- **Step 4**: Estimate the potential maximum dose up to 10,000 years



# SSAB Information Portfolio

## *Landfill Disposal Areas Assessment*

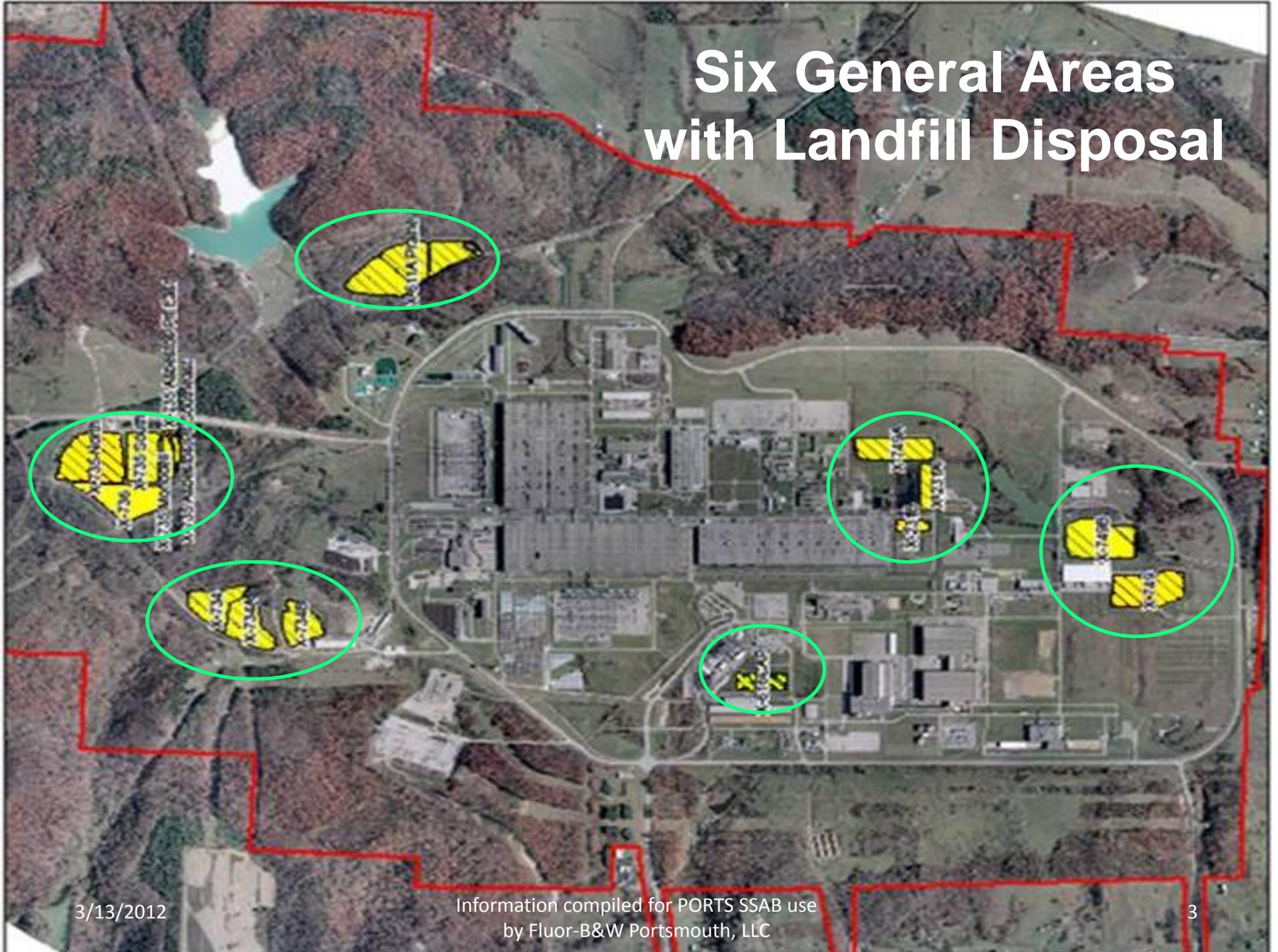
Dennis Carr

Fluor-B&W Portsmouth, LLC

March 13, 2012

- Six General Areas
  - ~101 acres*
  - 532,480 cubic yards of Cap*
  - 1,665,818 cubic yards of Waste*
- No further action is required.
- Regulatory Requirements have been met.
- Surveillance and Maintenance is ongoing.
- Up-gradient and down-gradient groundwater monitoring programs are in place at each landfill.

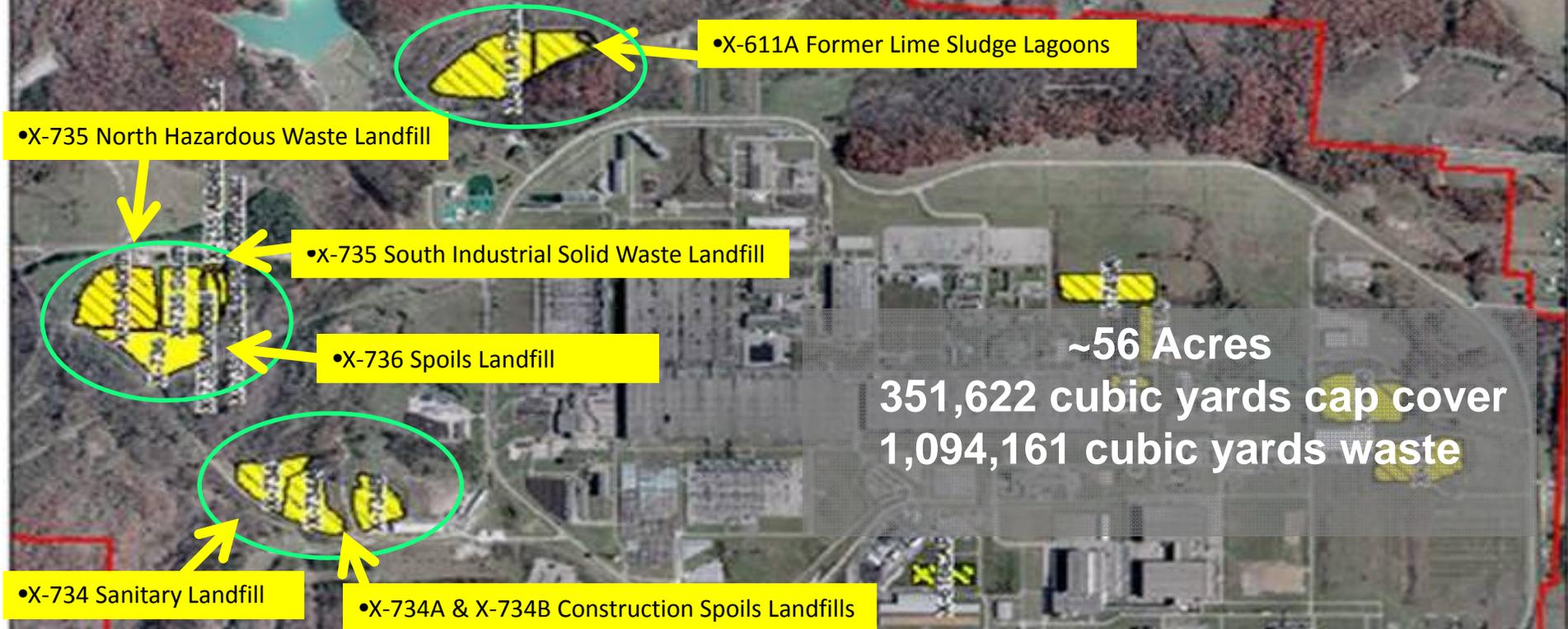
# Six General Areas with Landfill Disposal



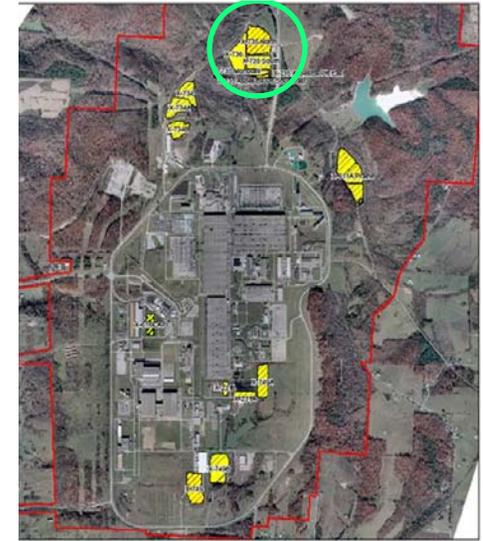
3/13/2012

Information compiled for PORTS SSAB use  
by Fluor-B&W Portsmouth, LLC

# Three Landfill Disposal Areas Outside Perimeter Road



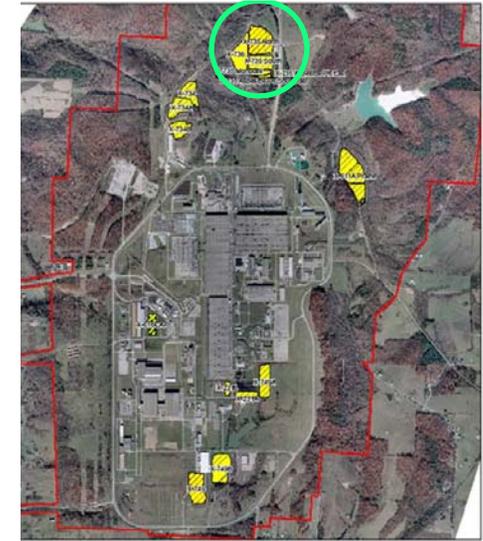
# X-735 North Hazardous Waste Landfill



Last Waste Received: 1991  
Closure Date: 1995  
Footprint: 11.3 acres  
Waste Volume: 263,544 cy  
Cap Volume: 86,693 cy

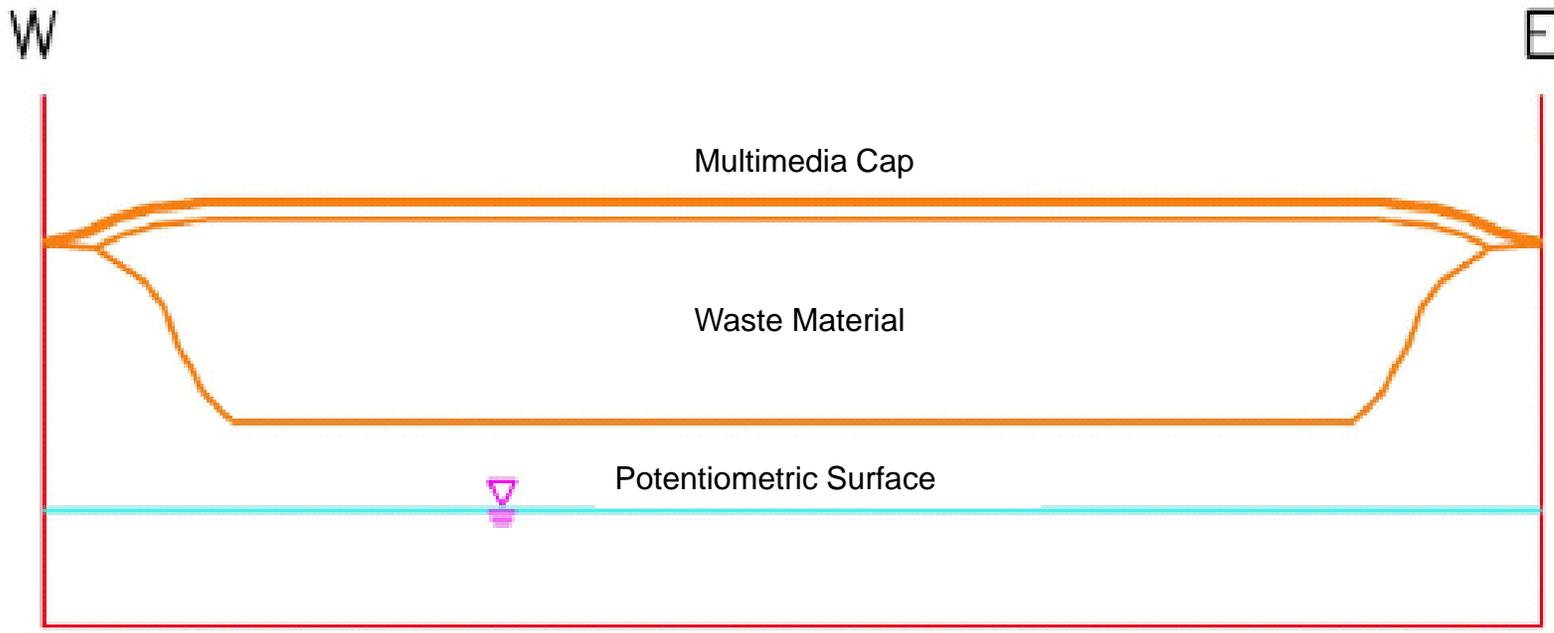
Contents: wipe rags contaminated with solvents, industrial and office waste, cafeteria waste, asbestos, semi-solid sludges, fly ash, construction debris.

# X-735 South Industrial Solid Waste Landfill



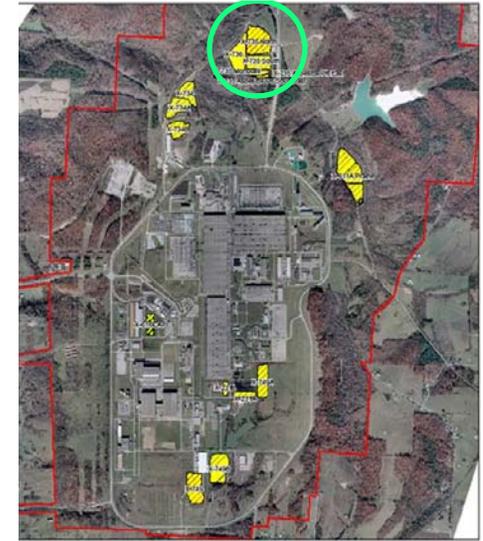
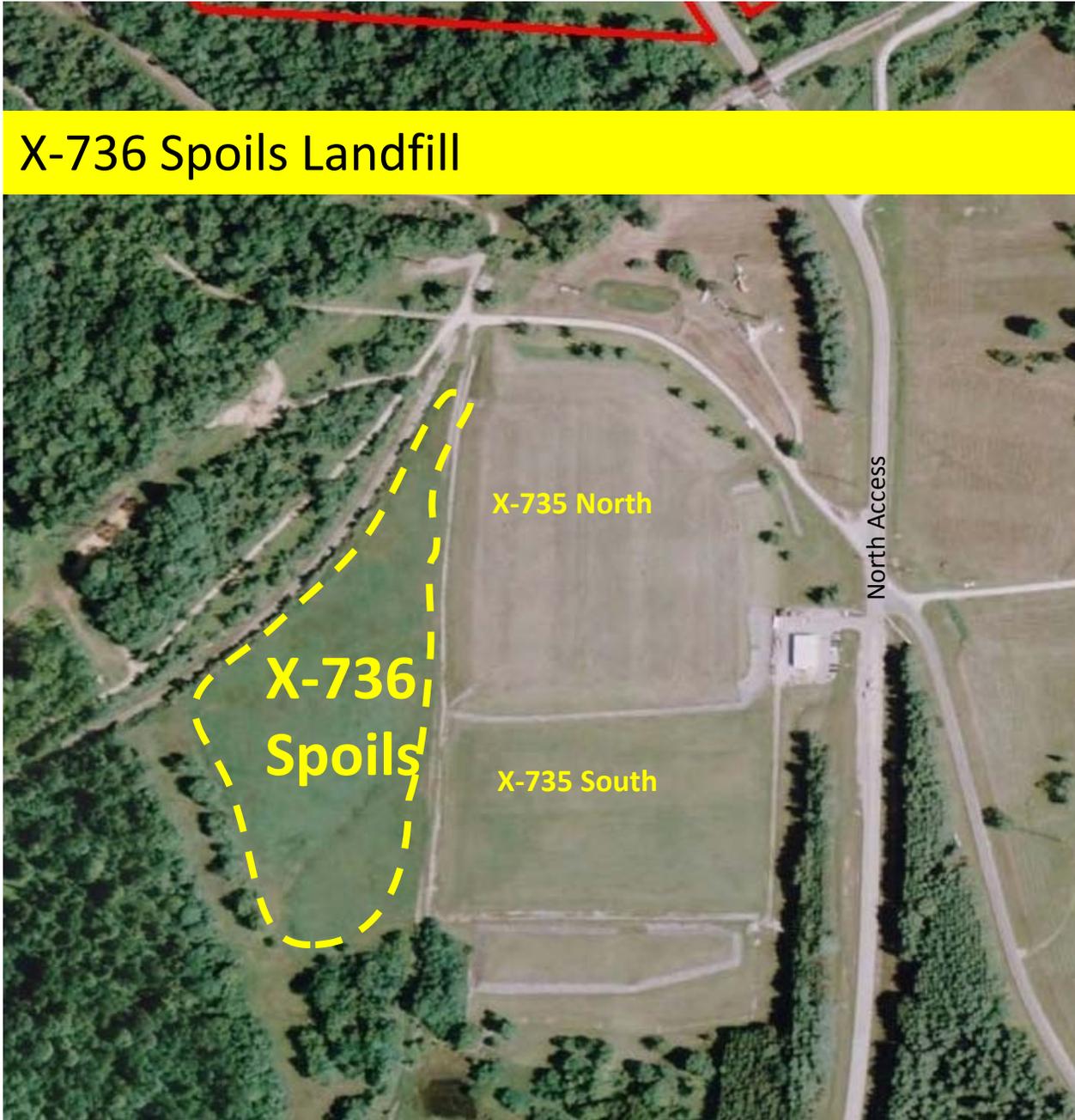
Last Waste Received: 1998  
Closure Date: 1998  
Footprint: 6.6 acres  
Waste Volume: 247,091 cy  
Cap Volume: 73,639 cy

Contents: industrial and office waste, cafeteria waste, medical wastes, asbestos, semi-solid sludges, fly ash, construction debris.



**Generalized Cross-Section of the X-735 RCRA and Industrial Solid Waste Landfills**

# X-736 Spoils Landfill

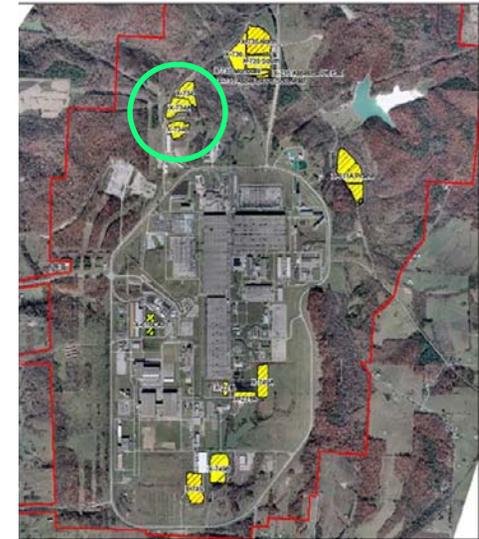
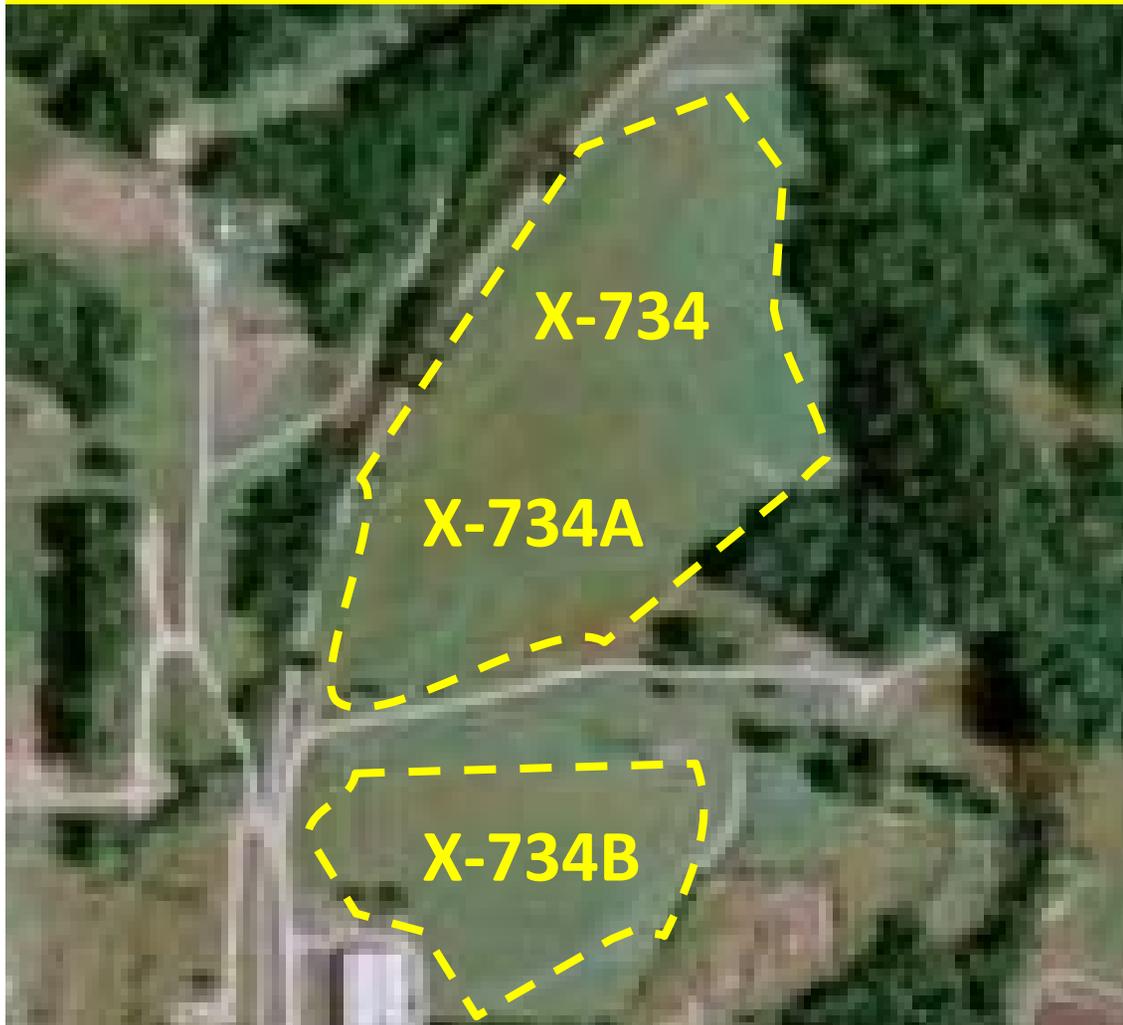


Last Waste Received: 1996  
Closure Date: 1996\*  
Footprint: 8.44 acres  
Waste Volume: 31,302 cy  
Cap Volume: 18,875 cy

Contents: construction and demolition debris, brush from cleaning and grubbing

*\*no formal regulatory closure required.*

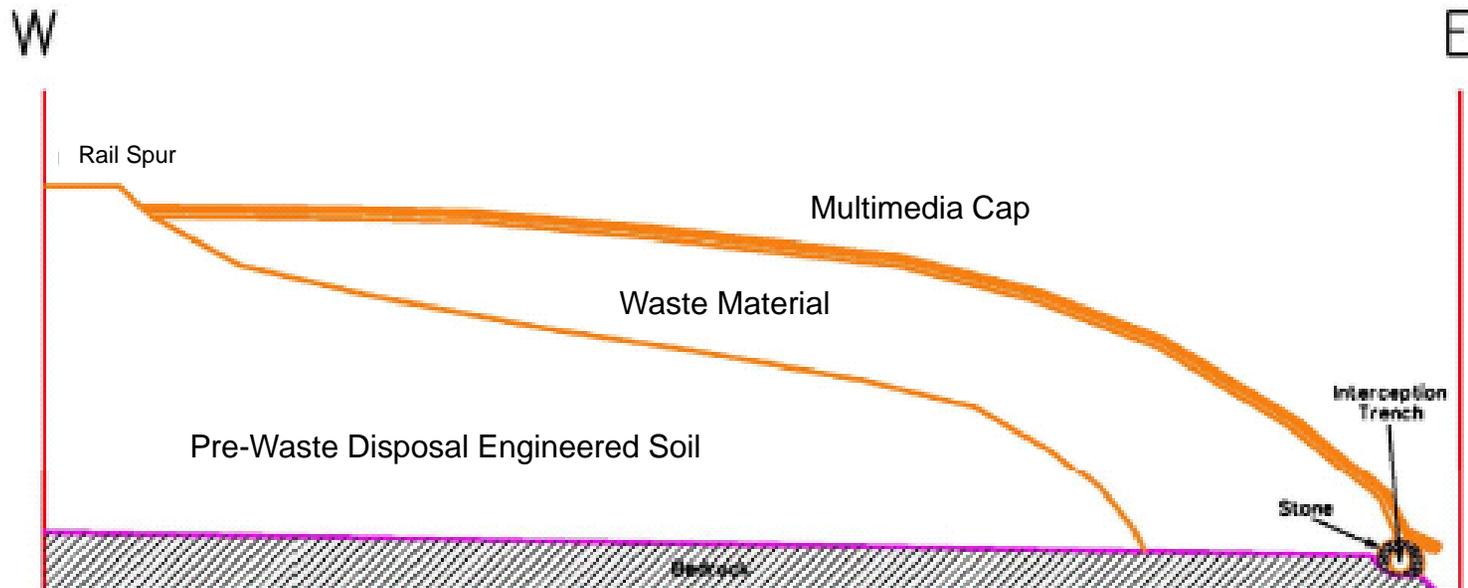
**X-734 Sanitary Landfill  
X-734A & X-734B Construction Spoils**



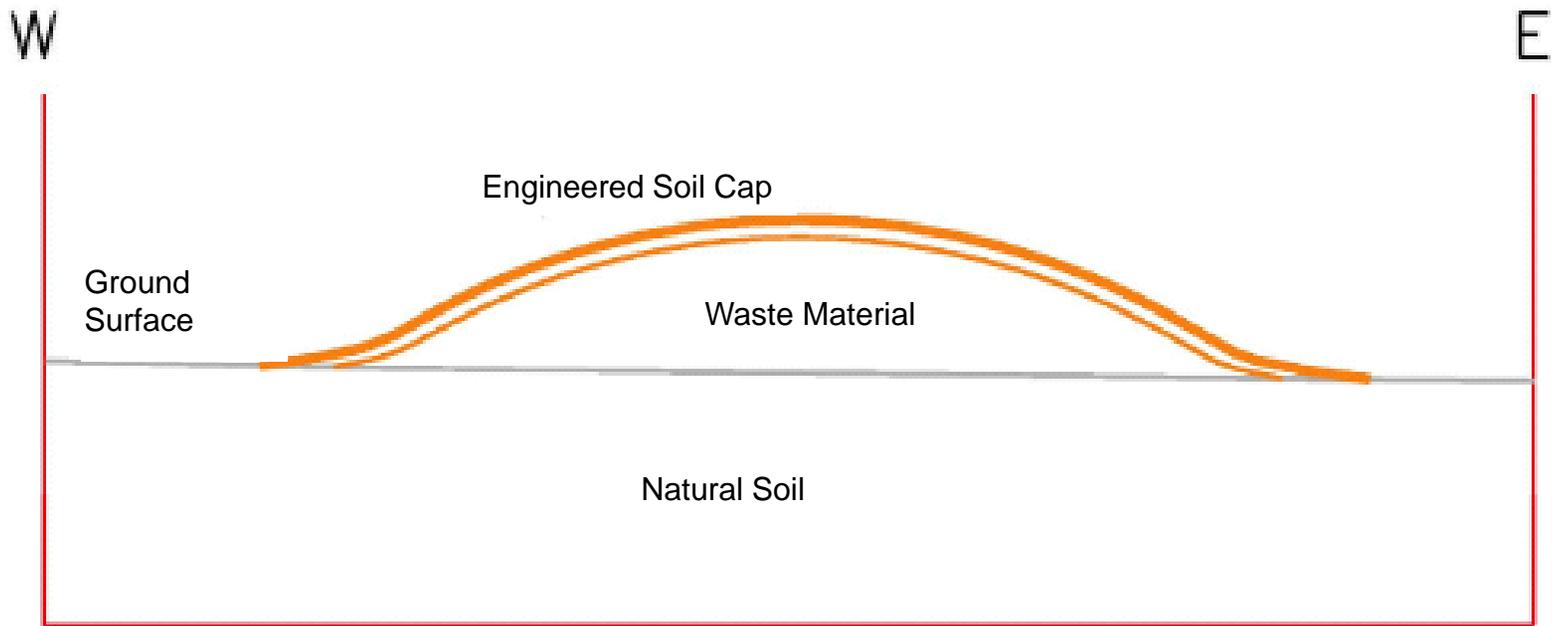
Last Waste Received X-734: 1981  
Last Waste Received X-734A: 1985  
Last Waste Received X-734B: 1985  
Closure Date for X-734 &A: 2000  
Closure Date for X-734B: 1999

Footprint: 15.66 acres  
Waste Volume: 226,960 cy  
Cap Volume: 114,718 cy

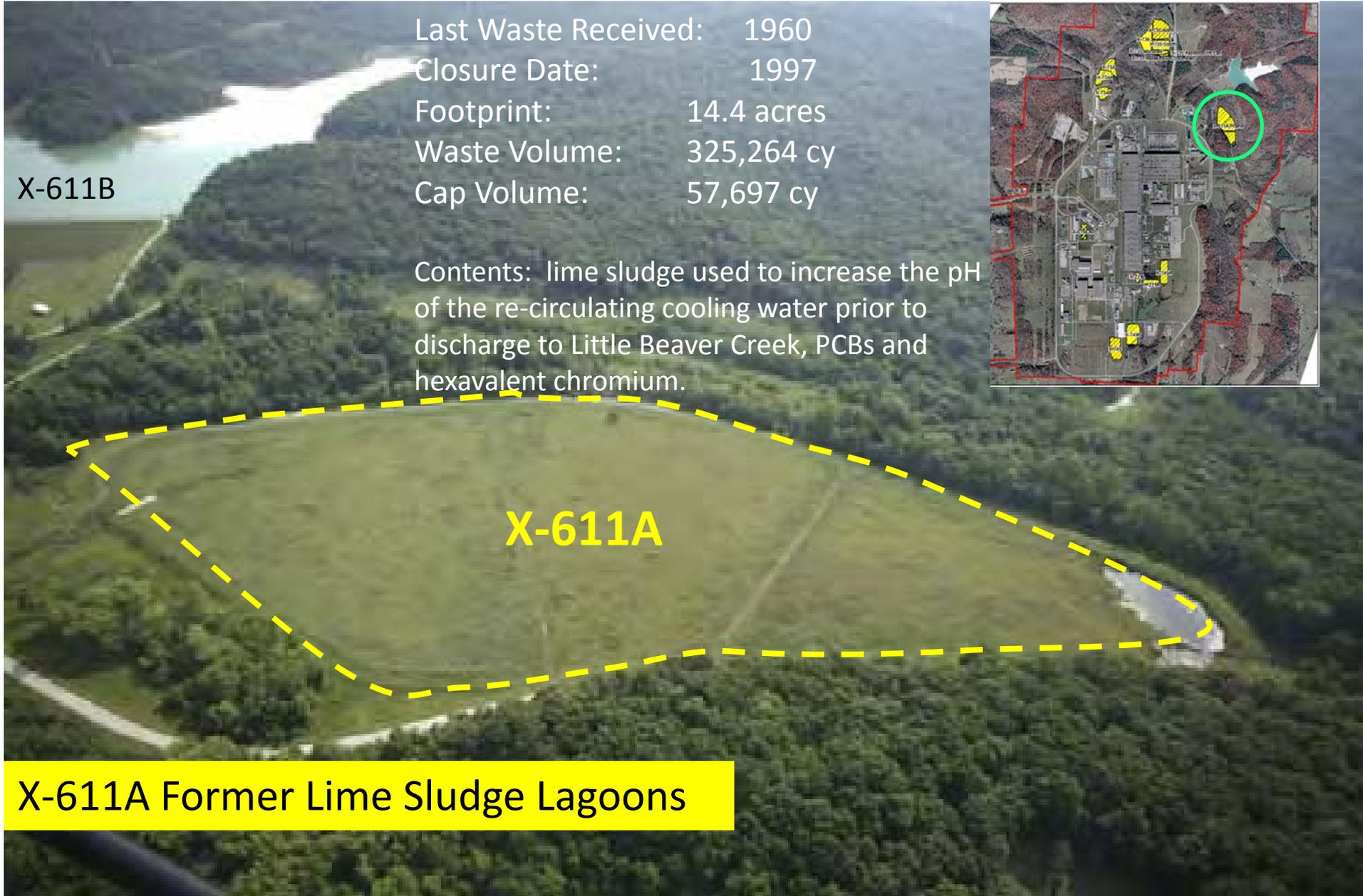
Contents: organic solvents, heavy metals, PCBs, and uranium, construction spoils, industrial and office waste.



**Generalized Cross-Section of the X-734A Construction Spoils Landfill**

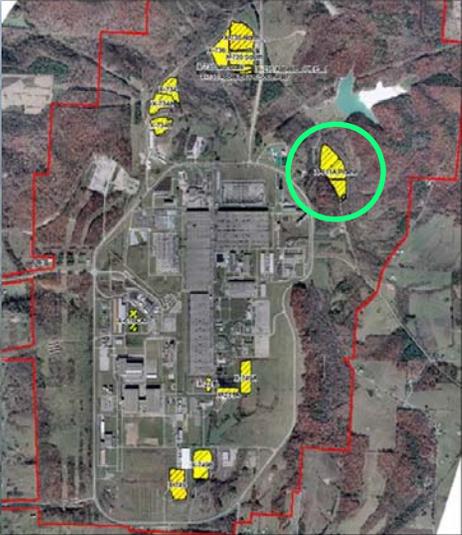


**Generalized Cross-Section of the X-734B  
Construction Spoils Landfill**



Last Waste Received: 1960  
Closure Date: 1997  
Footprint: 14.4 acres  
Waste Volume: 325,264 cy  
Cap Volume: 57,697 cy

Contents: lime sludge used to increase the pH of the re-circulating cooling water prior to discharge to Little Beaver Creek, PCBs and hexavalent chromium.



**X-611A Former Lime Sludge Lagoons**

<b>Outside Perimeter Road</b>	
Footprint	~56 Acres
Unaffected Media (Cap Cover)	351,622 cubic yards
Waste Volume	1,094,161 cubic yards
Total Waste Volume and Unaffected Media	1,445,783 cubic yards

# Three Landfill Disposal Areas Inside Perimeter Road

•X-749A Classified Burial Grounds

•X-749B Peter Kiewit (PK) Landfill

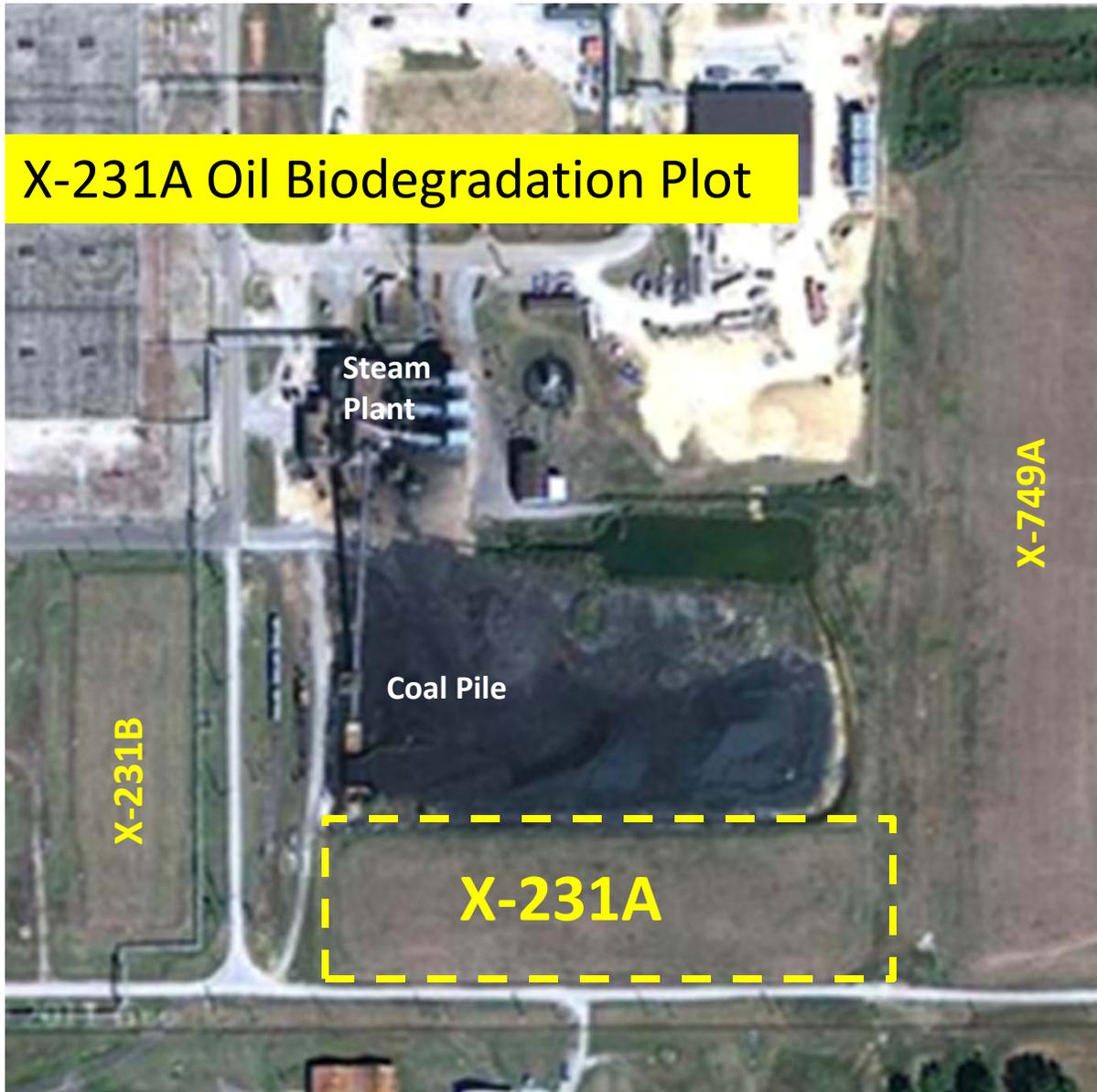
•X-231A Oil Biodegradation Plot

•X-231B Oil Biodegradation Plot

•X-749 Contaminated Materials  
Disposal Facility

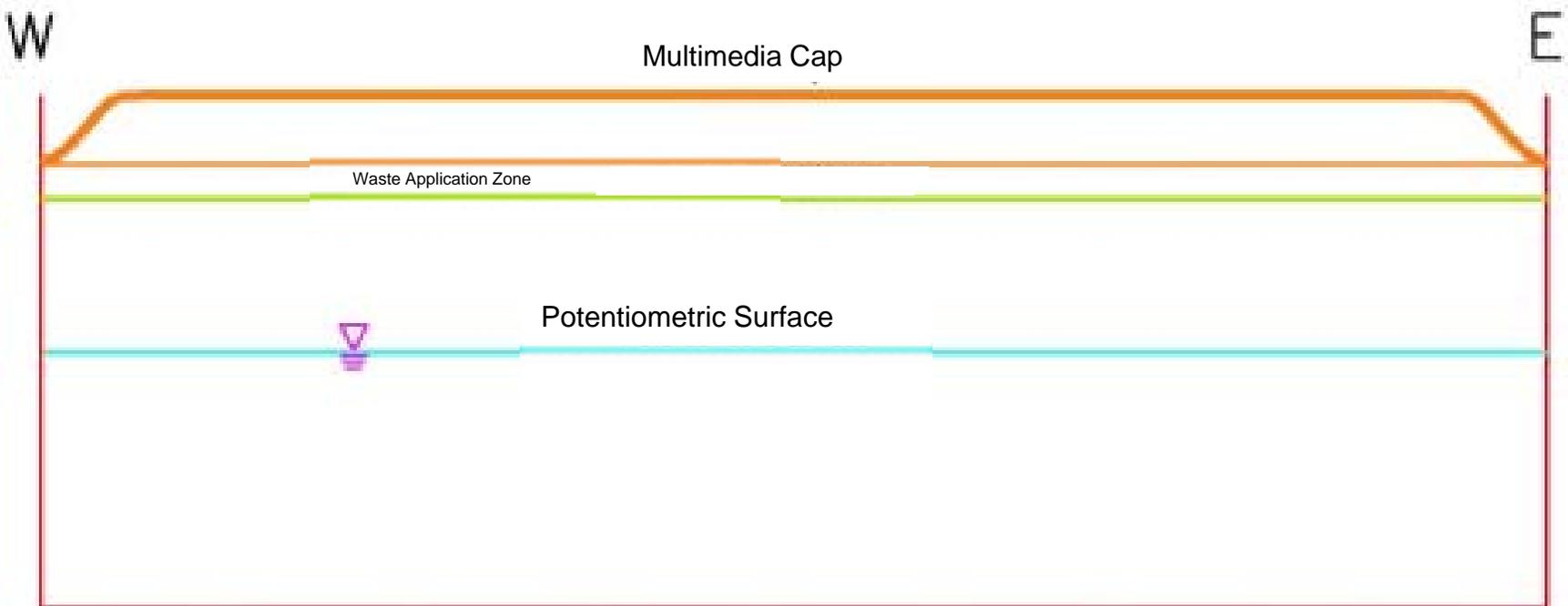
•X-616 Chromium Sludge  
Surface Impoundments

**~45 Acres**  
**180,858 cubic yards cap cover**  
**571,657 cubic yards waste**



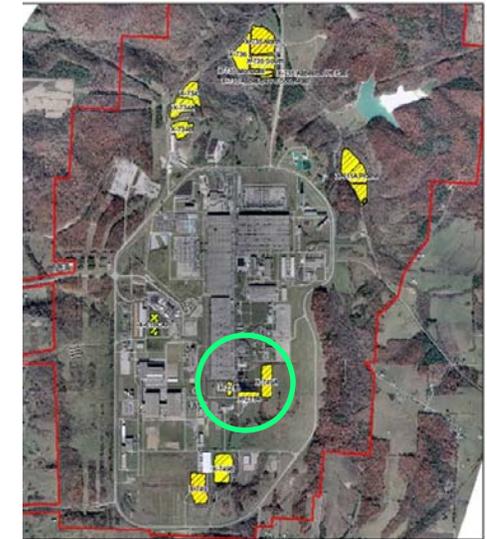
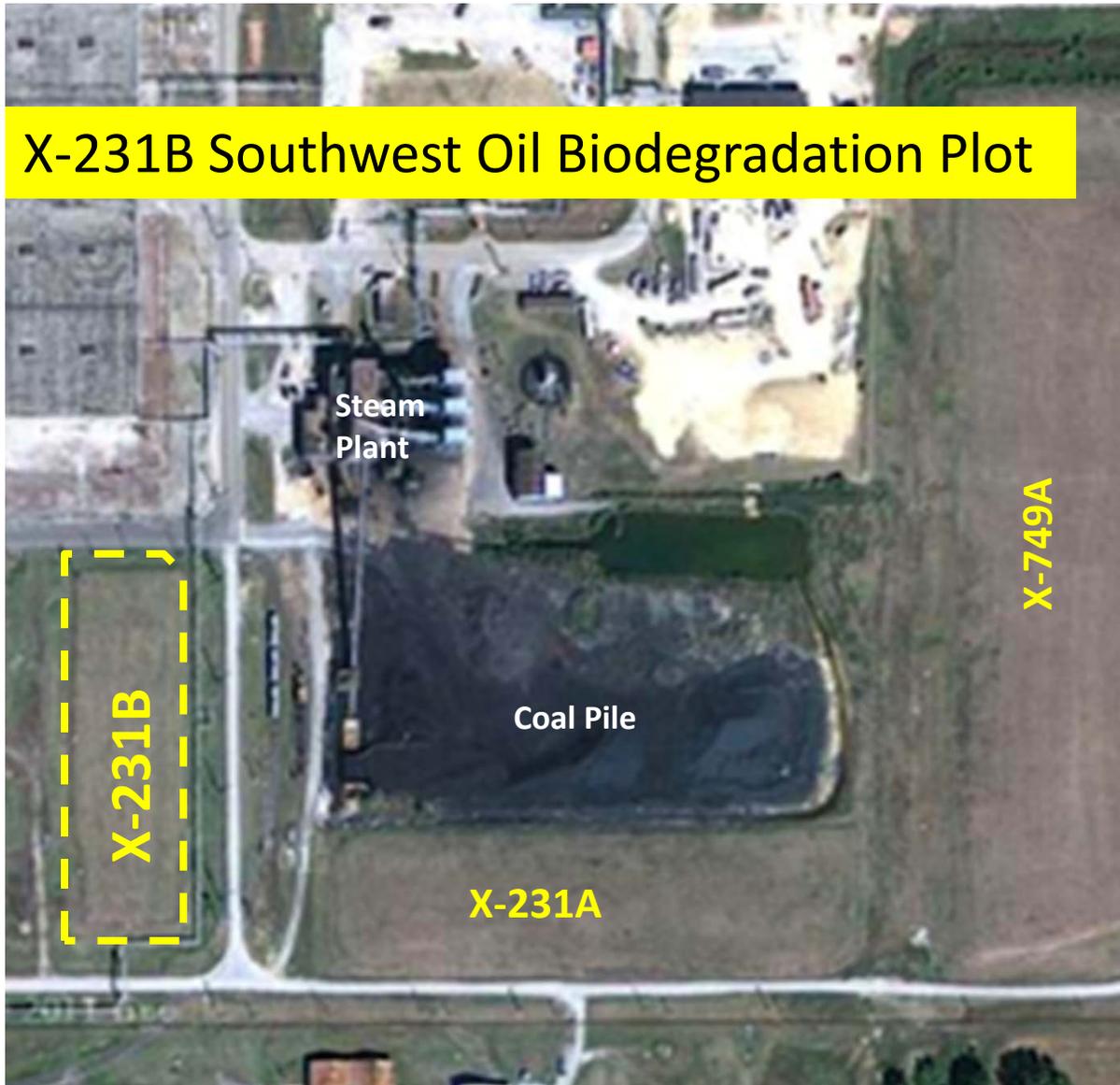
Last Waste Received: 1976  
 Closure Date: 2000  
 Footprint: 2.46 acres  
 Waste Volume: 19,095 cy  
 Cap Volume: 10,096 cy

Contents: Radioactive waste oil contaminated with solvent, chlorinated solvents, oil-soaked Fuller's Earth, PCBs, technetium, and trichloroethylene.



**Generalized Cross-Section of the X-231A Southeast Oil Biodegradation Plot**

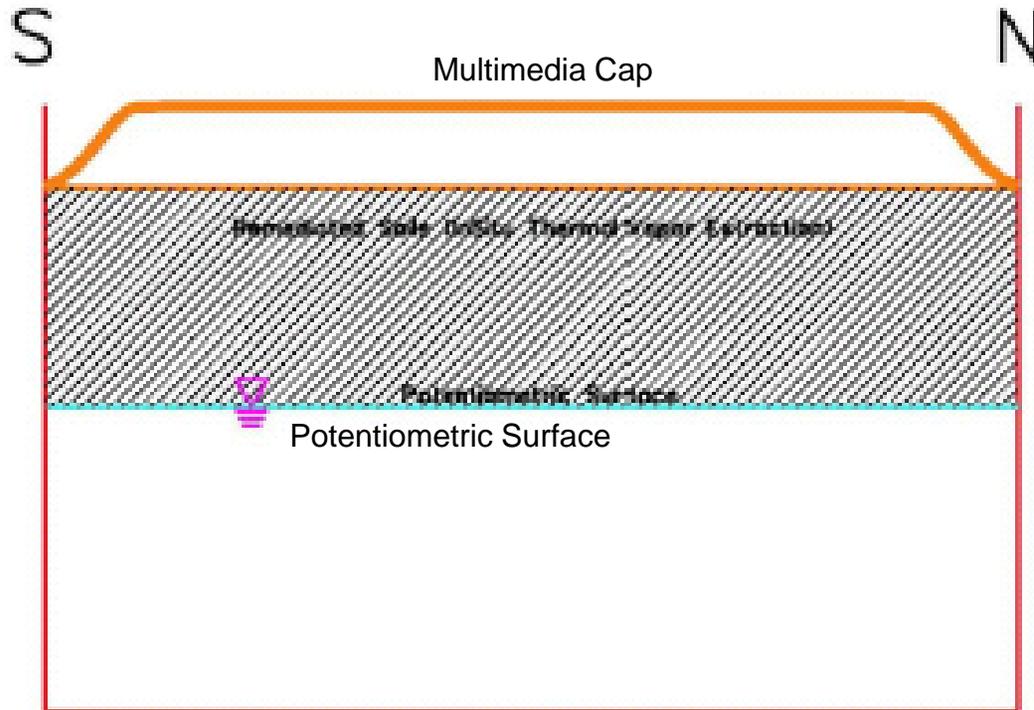
## X-231B Southwest Oil Biodegradation Plot



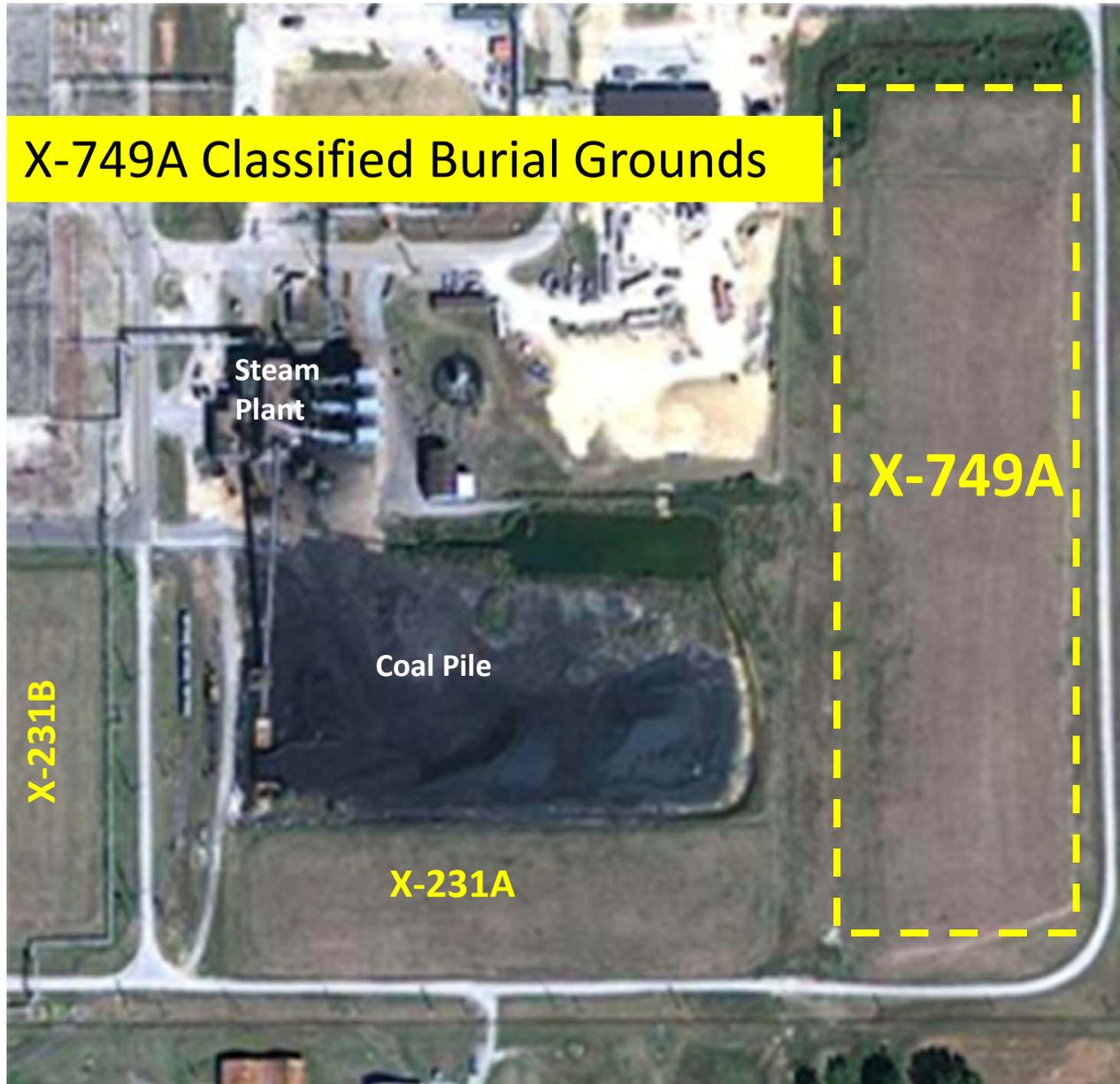
Last Waste Received: 1983  
Closure Date: 2000  
Footprint: 1.31 acres  
Waste Volume: 17,451 cy  
Cap Volume: 9,314 cy

Contents: Waste oils contaminated with chlorinated solvents, metals, radionuclides, and PCBs.

# Landfill Disposal Areas Assessment



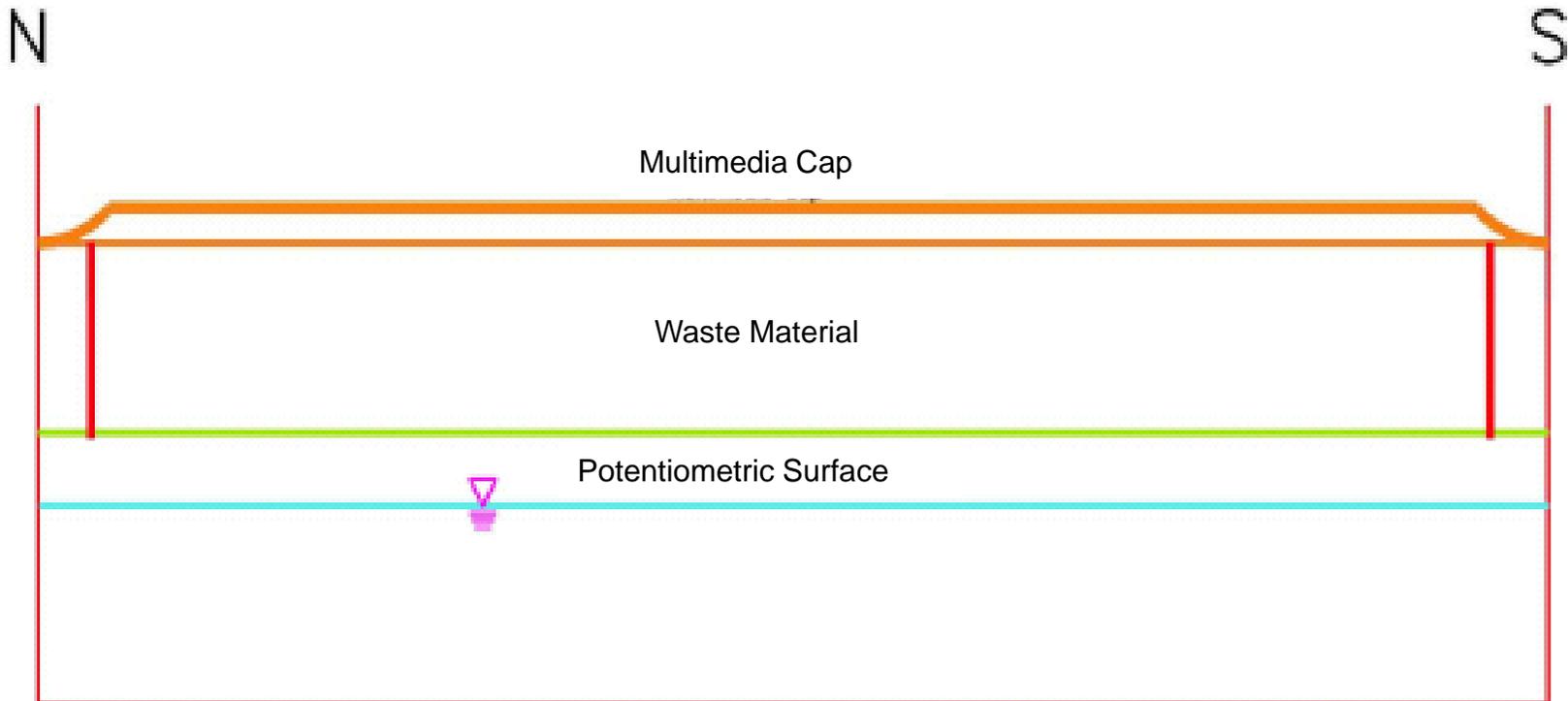
**Generalized Cross-Section of the X-231B Southwest Oil Biodegradation Plot**



Last Waste Received: 1988  
 Closure Date: 1994  
 Footprint: 5.9 acres  
 Waste Volume: 127,798 cy  
 Cap Volume: 59,335 cy

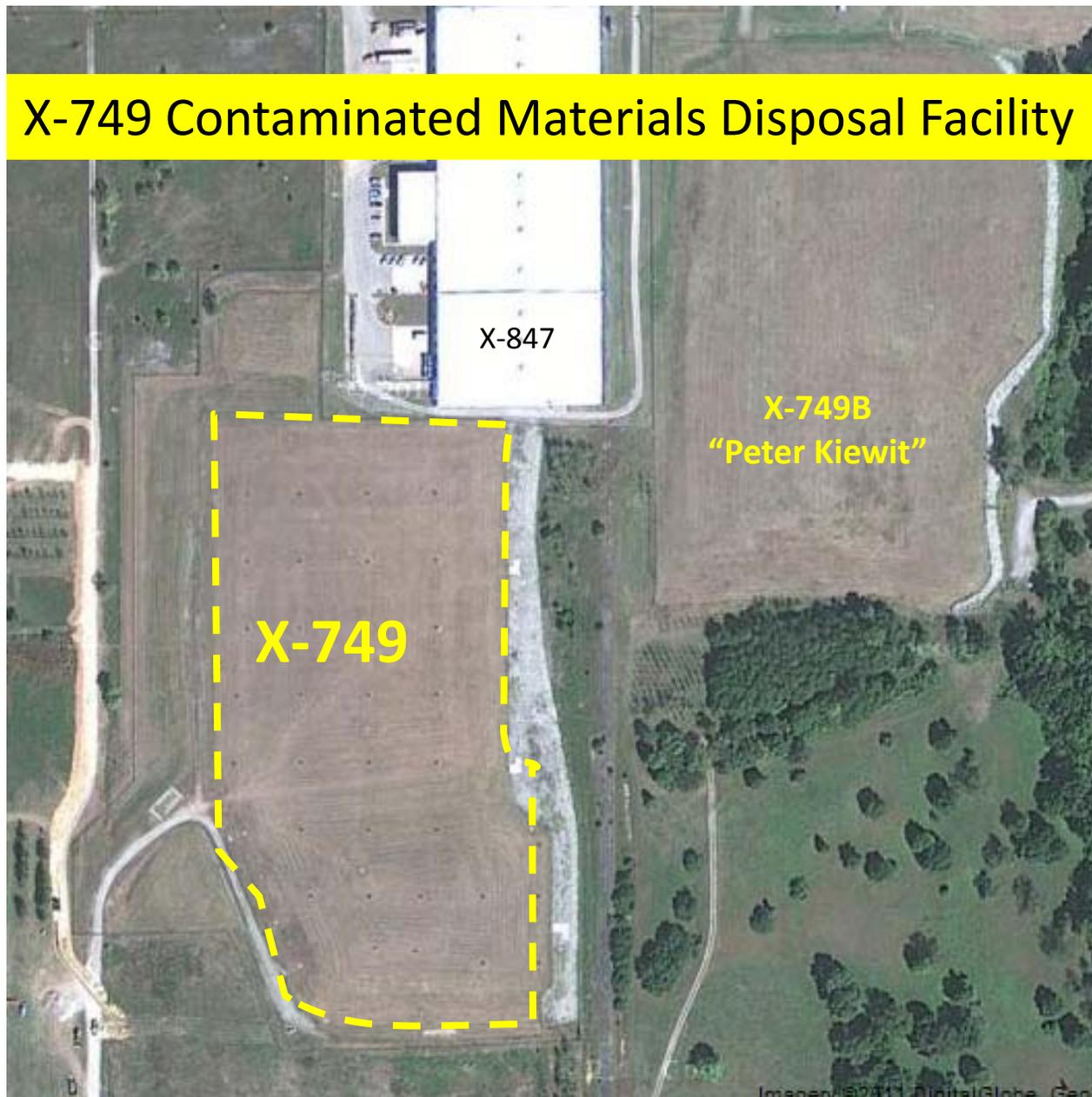
Contents: Metallic process scrap, floor sweepings with PCBs and radionuclides, computer media, ash, aluminum dross, nickel processing plant.

# Landfill Disposal Areas Assessment



**Generalized Cross-Section of the X-749A  
Classified Materials Burial Grounds**

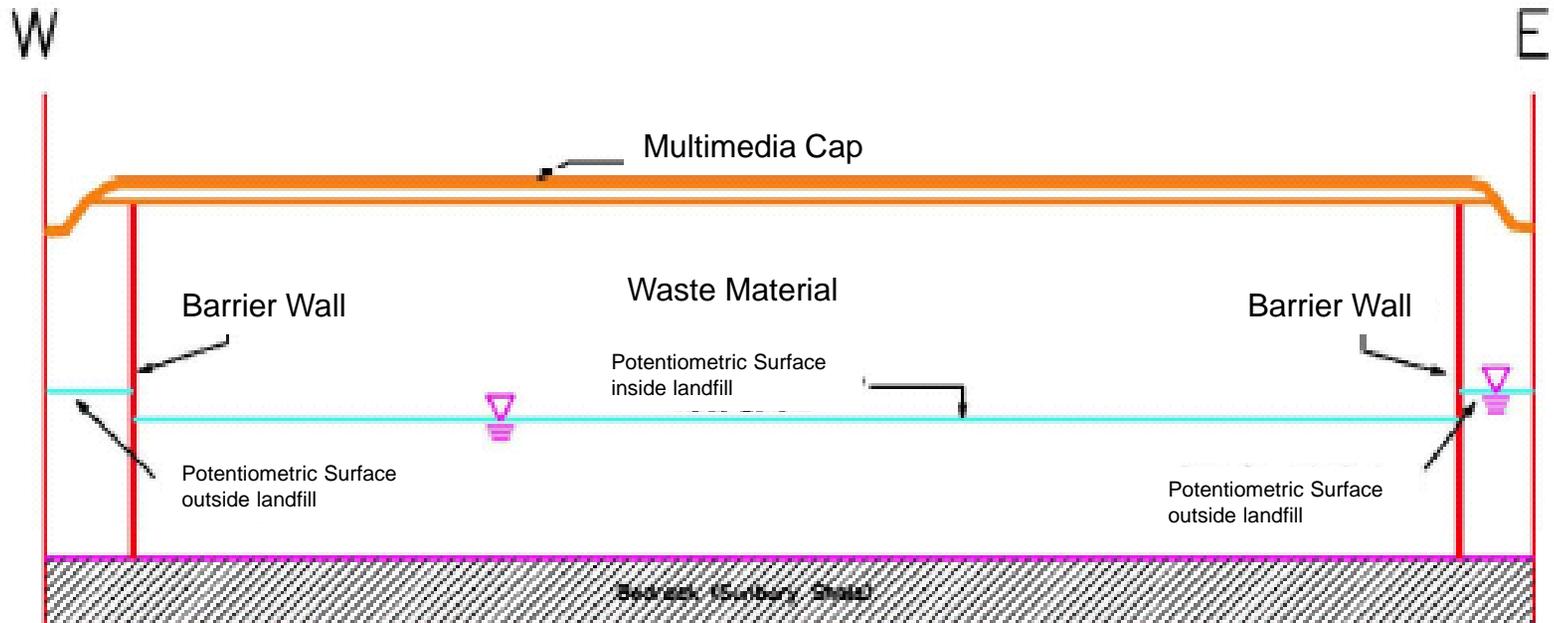
# X-749 Contaminated Materials Disposal Facility



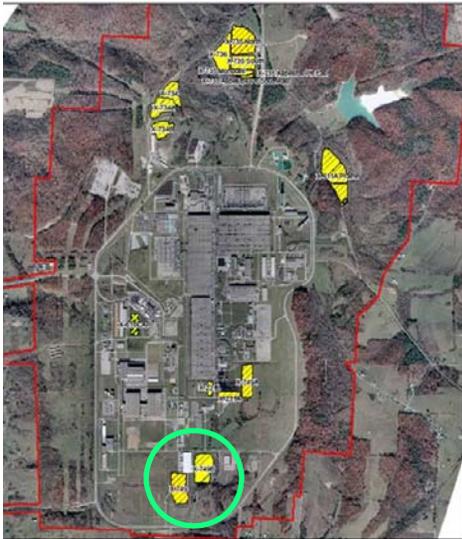
Last Waste Received: 1990  
Closure Date: 1992  
Footprint: 8.35 acres  
Waste Volume: 194,789 cy  
Cap Volume: 71,423 cy

Contents: Low-level radioactive contaminated equipment, construction scrap, and solid waste.

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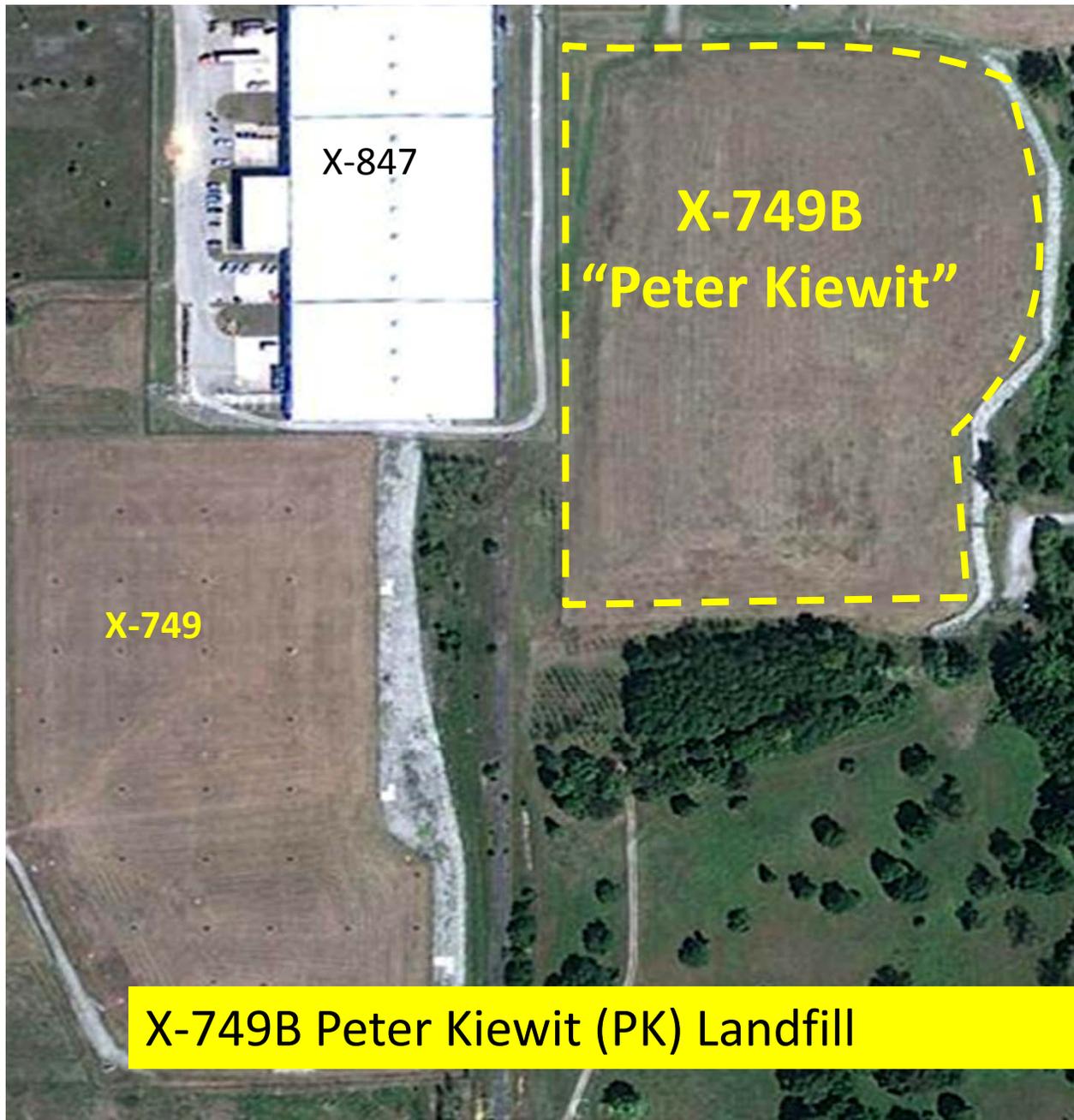


**Generalized Cross-Section of the X-749  
North and South Landfills**

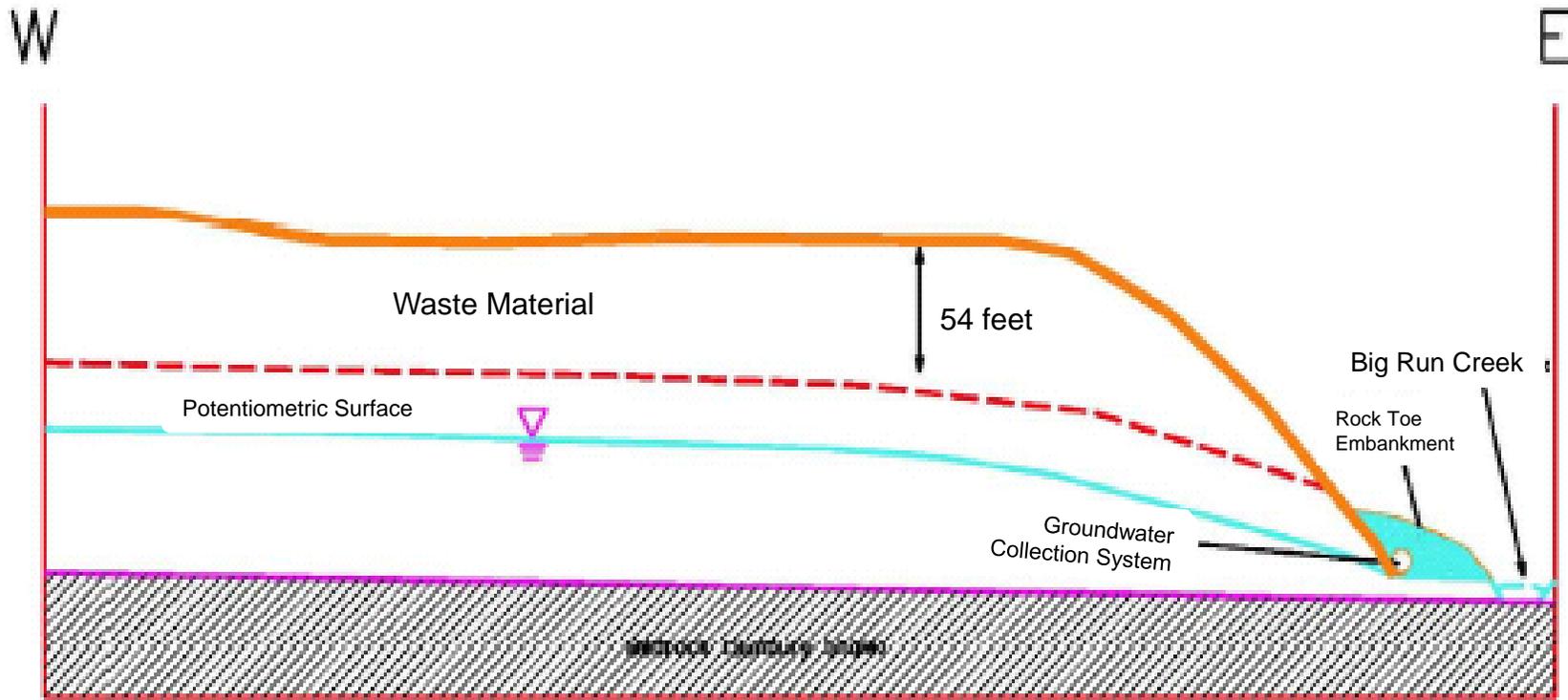


Last Waste Received: 1968  
Closure Date: 1998  
Footprint: 23.5 acres  
Waste Volume: 212,524 cy  
Cap Volume: 27,422 cy

Contents: Salvage yard, burn pit,  
sanitary trash and construction  
materials.



**X-749B Peter Kiewit (PK) Landfill**



**Generalized Cross-Section of the X-749B Peter Kiewit Landfill**

DUF6 Plant

## X-616 Chromium Sludge Surface Impoundments

X-616



Last Waste Received: 1985  
Closure Date: 1993  
Footprint: 2.75 acres  
Waste Volume: 0 cy  
Cap Volume: 3,268 cy

Contents: Sludge containing tri-valent chromium generated by the treatment of cooling water.

<b>Inside Perimeter Road</b>	
Footprint	~45 Acres
Unaffected Media (Cap Cover)	180,858 cubic yards
Waste Volume	571,657 cubic yards
Total Waste Volume and Unaffected Media	752,515 cubic yards

<b>Outside and Inside Perimeter Road</b>	
Total Footprint	~101 Acres
Unaffected Media (Cap Cover)	532,480 cubic yards
Waste Volume	1,665,818 cubic yards
Total Waste Volume and Unaffected Media	2,198,298 cubic yards