Bunker Hill Superfund Site
State Perspective on the Remediation of over 7,000 properties
Presentation Overview

• State Perspective on the Cleanup Approach
• Property Remediation Program
• Key Monitoring Data
• Institutional Controls Program
• Long Term O&M and Redevelopment
People have wised up to the "carefully chosen y-axis range" trick, so we misleading graph makers have had to get creative.
State Perspective
Northern Idaho was the epicenter of America’s hardrock mining industry. Bunker Hill had more than 180 miles of tunnels. The deepest was the Star Morning at 8,100 feet. And the richest, Kellogg’s Sunshine had given more than 300 million ounces of silver – one fifth of America’s total output.

-Greg Olsen, The Deep Dark
# State Perspective

**Table 1. 1960 Selected Employment Figures**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Shoshone County</th>
<th>Idaho</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Employed</td>
<td>7,551</td>
<td>232,858</td>
</tr>
<tr>
<td>Agriculture</td>
<td>0.4%</td>
<td>18.4%</td>
</tr>
<tr>
<td>Forestry and Fisheries</td>
<td>0.6%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Mining</td>
<td>44.7%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Construction</td>
<td>2.9%</td>
<td>6.8%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>9.2%</td>
<td>13.5%</td>
</tr>
<tr>
<td>Other</td>
<td>42.1%</td>
<td>58.9%</td>
</tr>
</tbody>
</table>
State Perspective
Based on responses to "What is the most serious problem in Shoshone County as you see it?"
State Perspective
Engaging the Public

- Bunker Hill Task Force
- Basin Environmental Improvement Project Commission
- Citizens Coordinating Council
Implementing the Program

- Protect Human Health
- Maintain Feasible Costs
- Utilize Local Contractors and Labor
- Allow for Future Development and Commerce
Property Remediation

- Remediate Yards with Pb > 1,000 mg/kg
- Goal: Reduce Community average Pb to 200-400 mg/kg
- Goal: Reduce House Dust to < 500 mg/kg Pb
- Goal: Childhood Blood Pb < 10 ug/dL
  < 5 ug/dL
Property Remediation

- Upstream Mining Group (PRP)
- USACE
- State
- Asarco Work Trust (PRP)
Property Remediation

• Utilize Local Labor

• Utilize Local Contractors

• Workforce Builds Public Awareness
Property Remediation

Surface Pb Concentration

1990

Legend:
- Blue: 0 - 349.9 mg/kg
- Cyan: 350 - 499.9 mg/kg
- Green: 500 - 999.9 mg/kg
- Orange: 2500 - 4999.9 mg/kg
- Yellow: 1,000 - 2499.9 mg/kg
- Red: 5,000 and greater mg/kg
Property Remediation
Property Remediation

Surface Pb Concentration

1994
Property Remediation

Surface Pb Concentration

1996
Property Remediation

Surface Pb Concentration

1998
Property Remediation

Surface Pb Concentration

2000
Property Remediation

Surface Pb Concentration

2002
Property Remediation

Surface Pb Concentration

2004
Property Remediation

12”-18” deep Pb Concentration
Property Remediation - City

Slide depicting widespread nature of contamination, Osburn or Smelterville Flats – "not just yards"
Outlying Rural Areas

Slide depicting widespread nature of contamination, Osburn or Smelterville Flats – "not just yards"
Property Cleanup Status

• Soils, House Dust, and Blood Leads General Decrease from Pre-Remediation Condition
• Fluctuations in House Dust and Blood Lead
  • Weather, Dustiness
  • Recreation Habits Beyond Neighborhood
• Confounding Variables
  • Other Lead Sources (paint, solder, work)
  • Screening is a Service, not a Study
House Dust (vacuum)
House Dust (dust mats)
House Dust (dust loading)
House Dust (lead loading)
Blood Lead (Box)

*Ref.=(Mahaffey et al. 1982; Pirkle et al. 1994; Pirkle et al. 1998; Lofgren et al. 2000; CDC 2013)
Blood Lead (Basin)
Percentage of children >10 ug/dL
Lessons Learned
“There are logical reasons to believe that yard remediations decrease exposure to lead, but the scientific evidence supporting substantial beneficial effects is currently weak. Similarly, there is suggestive evidence of efficacy within the Bunker Hill box and river basin. Thus, the strategy for yard remediation is supportable. However, the long-term effectiveness of this remedy in the Coeur d’Alene River Basin is questionable because of the possibility, even likelihood, of recontamination”

- National Academy of Sciences
Superfund and Mining Megasites, Lessons Learned from the Coeur d’Alene River Basin
Other Barriers

Paved Roads

- Settlement Funds used as grants to local road jurisdictions
- Leverage additional funding
- Improve Barrier Durability
Remedy Protection
Disaster Preparedness

• Included $80 million CERCLA remedy in Local Hazard Mitigation Plan

• Implemented Remedy Protection Projects

• Ongoing Coordination with FEMA/USACE
Maintaining the Barriers

- Institutional Controls Program (IDAPA 41.01.01.500)
- Permitting for activities that affect barriers
- Property disclosures for real estate transactions
- Integrated with utility locating One-Call system
- Property owner responsible for maintaining barrier or establishing new barriers for land use changes
ICP

- Enforced by local health department
- Violations can be punished with fines and up to 6 months in jail
- Free Disposal
- Free Licensing
- Free Permits
ICP – Lead Health Education

- Classroom Visits
- Local Health Fair
- State Fair Outreach
- In Home Consultations
Maintaining the Barriers

“Long term support of institutional controls programs should be provided to avoid undue human health risks from recontamination and to maintain the integrity of remedies intended to protect human health.”

- National Academy of Sciences
  Superfund and Mining Megasites, Lessons Learned from the Coeur d’Alene River Basin
Long Term O&M

- Maintain closed repositories and industrial remediation areas
- Transfer remediated areas to private ownership for redevelopment
- Provide long term disposal capacity for ICP
Long Term Disposal Capacity
Disposal Capacity

Limited Use Repositories
Redevelopment

Sites in Reuse
Silver Valley Former Mining Properties
Silver Valley, Smelterville, Idaho 83837

Images from left to right: Resort development, neighborhoods and recreation areas at the site.

**Site Name:** Bunker Hill Mining & Metallurgical Complex Superfund Site
**Size:** 1,500 square miles and 166 river miles
**Existing Site Infrastructure:** All major utilities are available.
**Current Site Uses:** Several site areas offer reuse potential for commercial, industrial, public service, residential and recreational uses. Many reuses are already in place on the Bunker Hill Box portion of the site.
**Use Restrictions:** The site’s unique and comprehensive institutional control program (ICP) protects public health and incentivizes local lenders to fund redevelopment projects.
Redevelopment
Redevelopment
Recap

- EPA, State, and Community effort to build support
- Over 7,000 properties remediated
- Blood lead numbers are down from pre cleanup levels
- Fluctuations come from multiple sources
- Long Term Support of ICP imperative
- O&M and Redevelopment
Questions

For more Bunker Hill Superfund Site information go to http://www.deq.idaho.gov/bunkerhillsuperfundsite

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