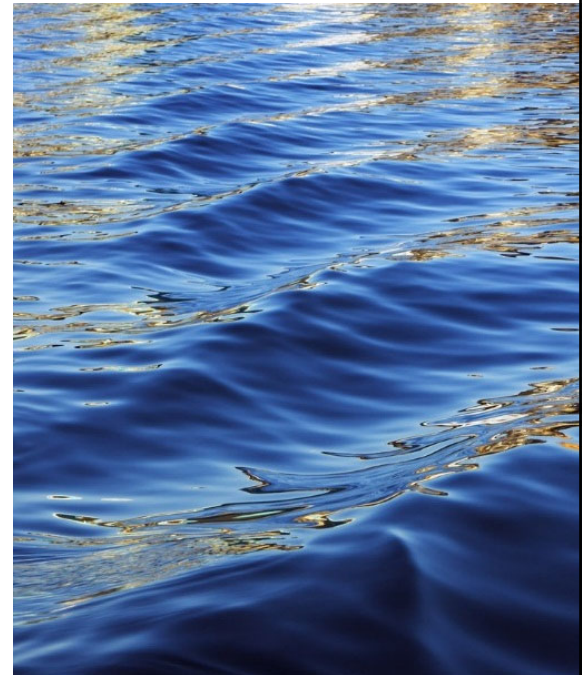


Bunker Hill Superfund Site:

Past & Present

Basin Commission Meeting
May 17, 2023



Purpose & Introductions

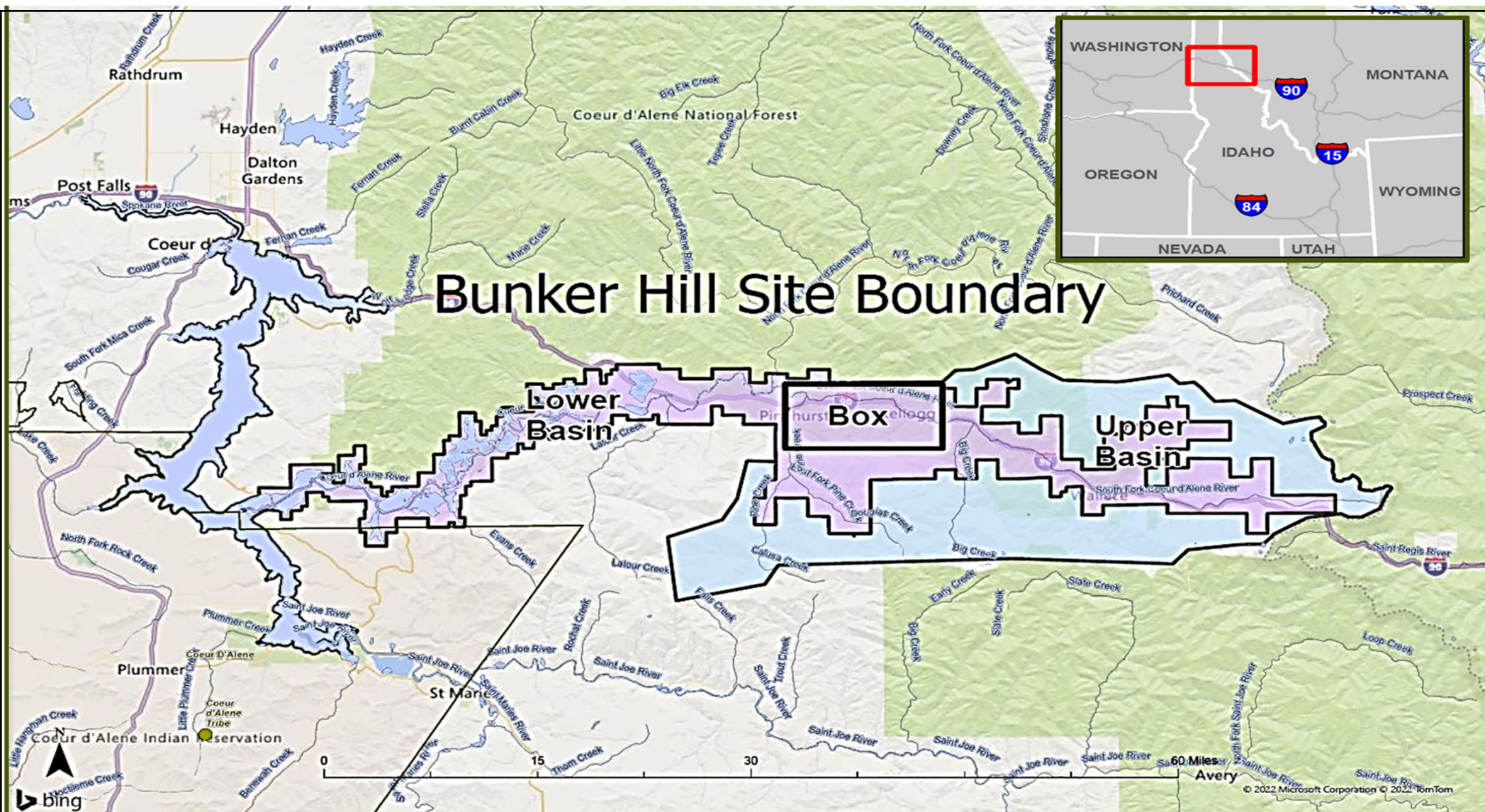
Today's Presentation

- Site Location
- A Bit of Silver Valley History
- Phased Cleanups
 - ✓ Risks to People
 - ✓ Risks to Ecology/Environment
- Paying for Cleanup

Today's Presenters

- Jocelyn Carver, EPA
- Tyler Chatriand, EPA
- Eric Nicolai, EPA
- Tamara Langton, EPA

In absentia: Bonnie Arthur & Jennifer Crawford, EPA





A Bit of Silver Valley History

1880's to Start of Cleanup

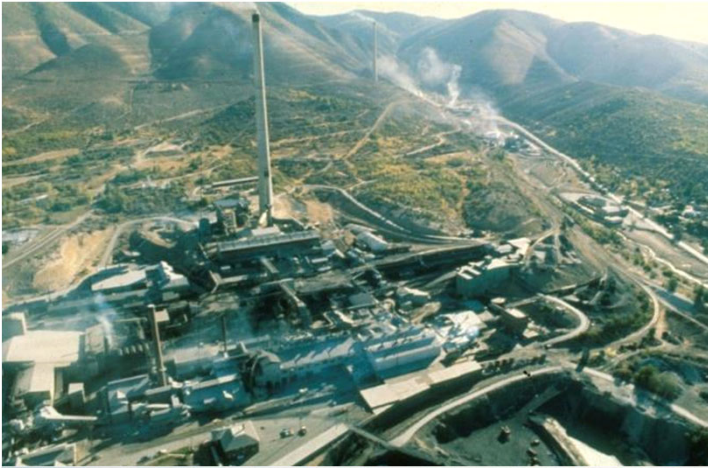


Century of Mining, Milling & Smelting



- The Silver Valley
 - ✓ Commercial Mining: 1880s - 1991
 - ✓ Smelter Operations: 1917 - 1981
- Spoils of Success
 - ✓ By 1994, > \$5 billion in silver mined
 - ✓ Legacy of contamination

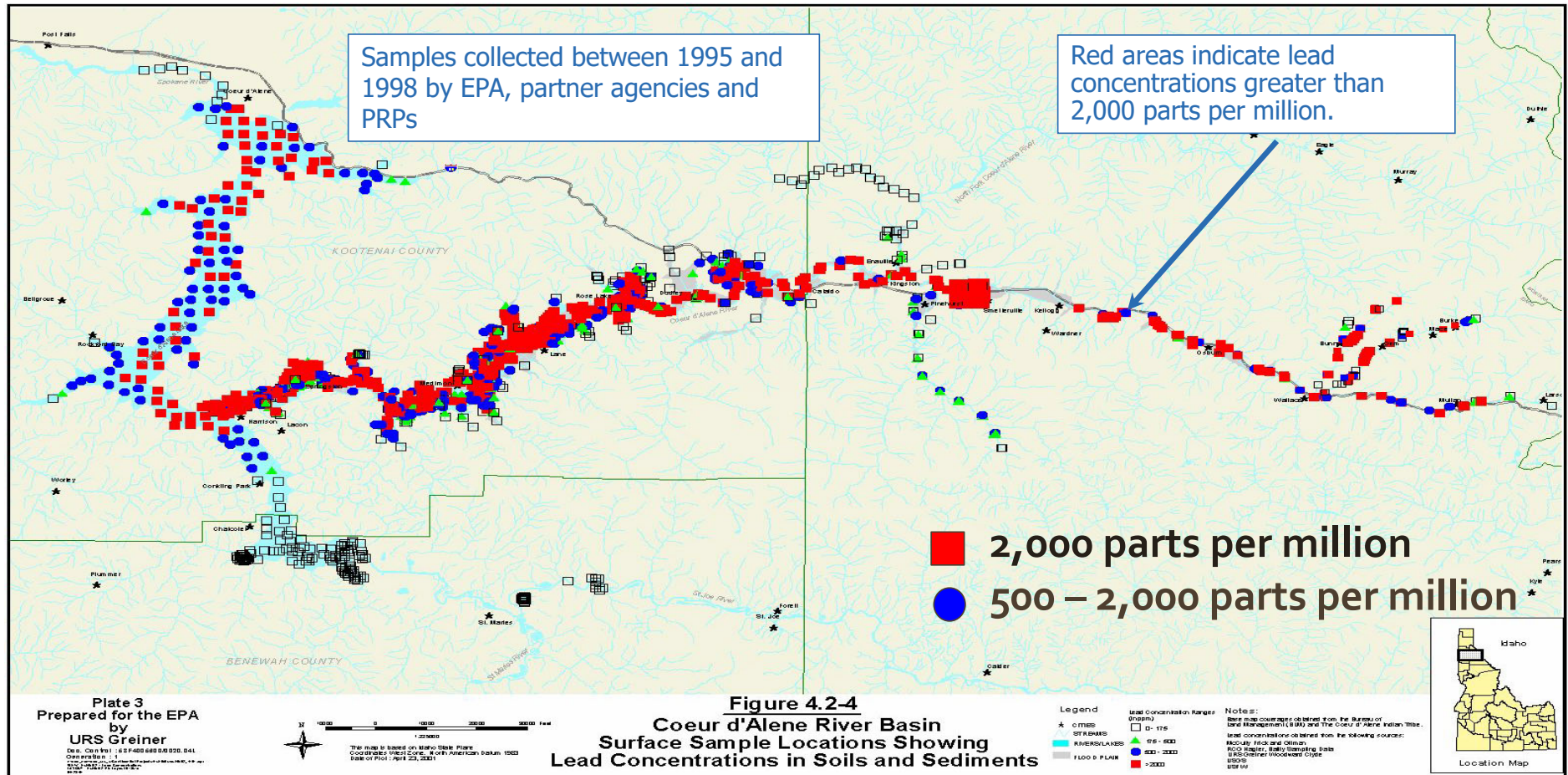
Air Emissions from Smelter Stacks



Direct Discharge to Creeks & Rivers



Soil & Sediment Contamination



Phased Cleanup Strategy

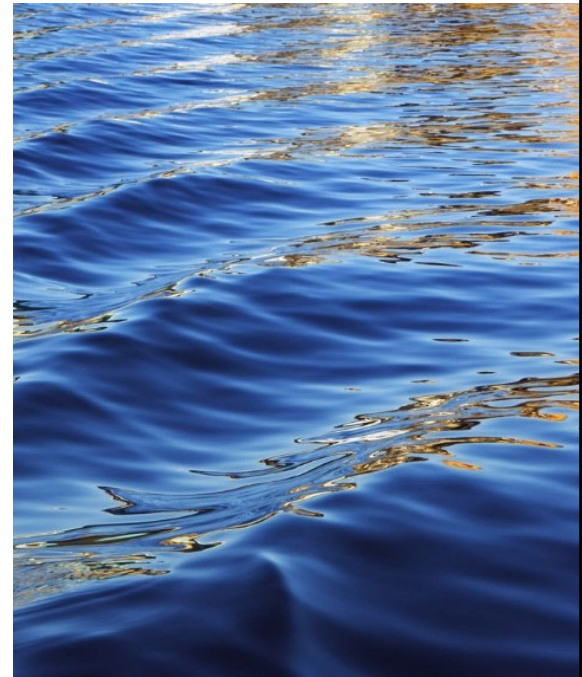
- **Site Placed on NPL (1983)**
 - ✓ Highest Blood Lead in the Country at 25 micrograms per deciliter ($\mu\text{g}/\text{dL}$)
- **First Priority: *Risks to People***
 - ✓ Primary Contaminant of Concern (COC) = Lead, Arsenic & Cadmium in Soil & Sediment
 - Cleanup Started in Box & Upper Basin in 1986
 - Cleanup Started in Lower Basin in 1989.
- **Second Priority: *Risks to the Environment & Ecology***
 - ✓ Primary COC = Zinc & other Heavy Metals in Soil & Sediment that Impact Water Quality + Treatment of Minewater & Groundwater
 - Early Source Removals initiated in 1990s





Risks to People

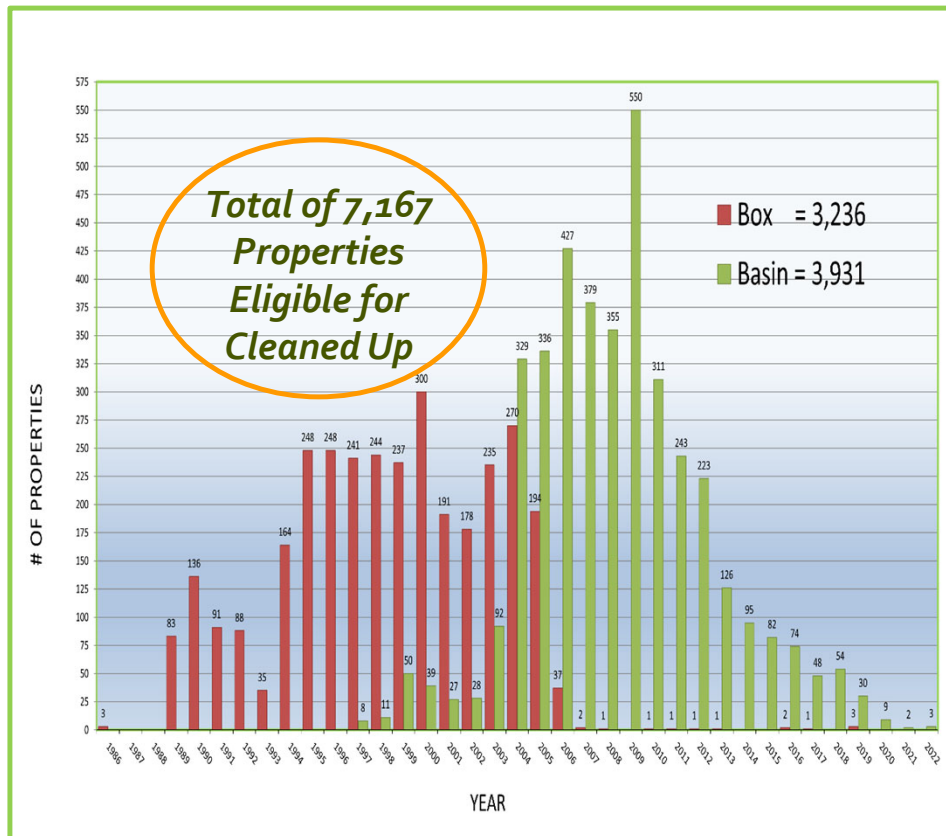
Where People Live, Work & Play



Box/Basin Property Remediation Program

1986 - 2022

Planned for 2023



- Most community areas cleaned up
- Focus on eligible properties that have changed ownership
 - ✓ Previous owners refused sampling and/or cleanup
- Estimated # of Properties:
 - ✓ Sample: 15 Basin Properties
 - ✓ Cleanup: 5 Basin Properties
 - ✓ No high-risk properties identified

Beyond BPRP

Prior to 2023

- Industrial Smelter Complex
- Hillsides, Gulches, Streams
- Engineered Waste Disposal Areas
- Remedy Protection Projects
- Paved Roads



Planned for 2023

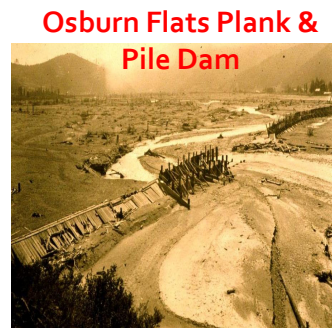
- Box Targeted House Dust Surveys
 - ✓ 300 vacuum samples
 - ✓ 150 dust mats
- Barrier Enhancements
 - ✓ Rights-of-Ways in Pinehurst, Smelterville, and Kellogg.
- East Smelterville Flats

Smelterville Flats

Prior to 2023

- **Plank & Pile Dams Early 1900's.**

- ✓ Impounded tailings from OU2 & upstream sources.
- ✓ 1933 flood resulted in failure of Pinehurst Narrows dam.



- **Remedial activities 1996 - 2004**

- ✓ Source removals, capping, revegetation
- ✓ Surface water management.
- ✓ Streambank stabilization

Planned for 2023

- **East Smelterville Flats**

- ✓ **Phase 1 Theater Road**

- Removal of several piles of lead-contaminated soil at east end.
- Fence & jersey barriers, signage



- ✓ **Airport Riverwalk**

- Enhance barriers with 4" of compacted gravel.

Lead Health Intervention Program

Established in 1985

- **Free Blood-lead Screenings**

- ✓ Year-round at Shoshone Medical Center
- ✓ 6-day annual screening events

- **Free Consultations**

- ✓ In-home to identify sources of lead contamination
- ✓ House dust lead monitoring
- ✓ Loan of HEPA Vacuum

- **Education & Outreach**

- ✓ Schools (all levels), Multi-Family Residences, Local Medical Organizations, Health Fairs, Blood Drives, Other Events, Social Media, Radio, Signage, Mailings.



Recreational Sites Program

Initiated in 1999

- **Reduce Lead Exposures**

- ✓ Interagency group that prioritizes areas based on risk and public access.
- ✓ Signage, Cleanup, Continuous Outreach & Education.

- **Recently Completed & Upcoming Work**

- ✓ Highway 3 Beach Augmentation Completed (2022)
- ✓ Complete Box Recreational Sites Strategy Plan (2023)



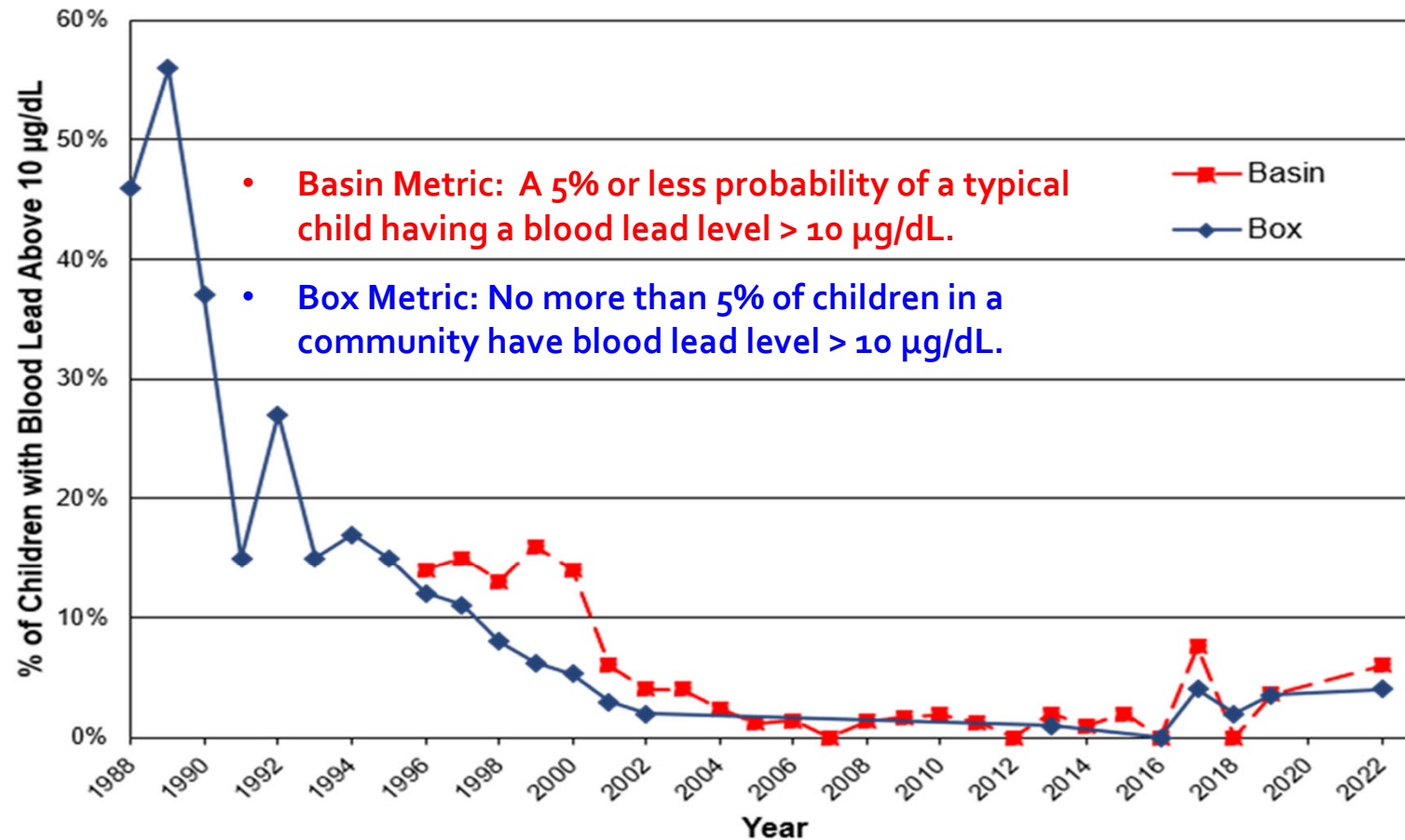
Institutional Controls Program

Established in 1995



- **Install & Maintain Clean Barriers**
 - ✓ New construction & remodeling permits
 - ✓ Contractor training & oversight
- **Real Estate Disclosures**
 - ✓ Requirements at property sale/transfer
 - ✓ Train local realtors, lenders, title companies
- **Free for Residents**
 - ✓ One cubic yard clean gravel or topsoil a year
 - ✓ Loan of HEPA vacuums to all residents

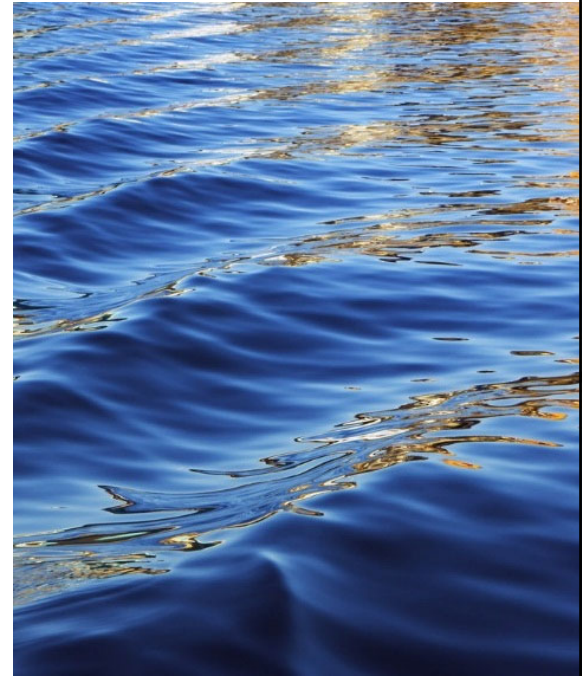
Impact on Blood Lead Levels





Risks to the Environment

Upper Basin Mine & Mill Sites



Ninemile Creek Basin

Prior to 2023

- Completed Cleanups

- ✓ Rex Mine and Mill No. 2 / Sixteen-to-One (2007 - 2010)
- ✓ Interstate-Callahan Rock Dumps (2014 - 2015)
- ✓ Success Complex (2016 - 2019)
- ✓ Interstate Millsite (2019 – 2020)

Planned for 2023

- 2nd of 3-Year Cleanups

- ✓ Tamarack Complex



- ✓ Dayrock Complex & Lower EFNM Creek



Canyon Creek Basin

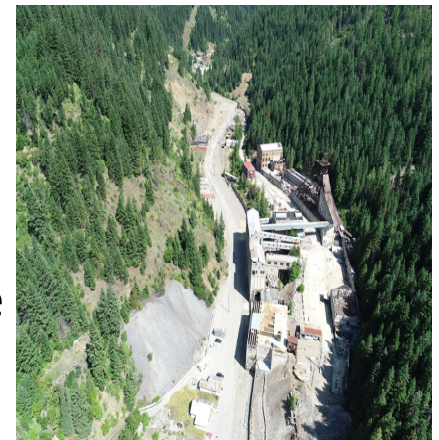
Planned 2023 Design Investigations

- Gem Mine Complex
- Standard Mammoth Sites
- Frisco Reach Sites
- Lower Canyon Riparian Area Sites



Planned 2023 Remediations

- Hecla Star Complex
 - ✓ 1st of a 4-year remediation
 - ✓ Installation of 16 shallow extraction wells.
 - ✓ Removal of 6,600 cubic yards of mine waste.



Pine Creek Basin

Prior to 2023

- **Douglas Mine (1996)**
 - ✓ Tailings Impoundment Time-Critical Removal from Pine Creek
- **Constitution Mine & Mill Site Cleanup (2005 - 2006)**



Planned for 2023

- **Douglas Mine**
 - ✓ 2023 - Install access controls



- ✓ 2025 - RA Construction
 - Excavate ~25,000 CY of mine waste
 - Existing onsite repository



Risks to the Environment

Wetlands, Waterfowl &
Streambed & Banks



Wetlands Remediation & Restoration

Prior to 2023

- **Box**
 - ✓ West End Natural Infiltration Area (WENI) wetland restoration
- **Basin**
 - ✓ Schlepp Agriculture-to-Wetland Conversion
 - ✓ Robinson Creek



Planned for 2023

- **Conservation Easement near East Killarney Lake Road**



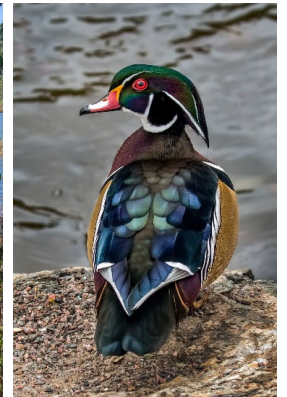
- **Gray's Meadow Remediation & Restoration**

Gray's Meadow



Waterfowl Biological Monitoring Research

- **Develop and refine efficient, non-invasive tools to monitor cleanup effectiveness and waterfowl health over the long-term**
 - ✓ Work is based off of previous studies: refining for ease and accuracy of implementation.
 - ✓ Studies ongoing: Tundra Swan (2021-2024) & Wood Ducks (2023-2026)
 - ✓ Team: EPA R10, EPA ORD, IDFG, CDA Tribe, USFWS, & USGS



Streambed & Bank Pilot Projects

Prior to 2023

- Riverbed and bank monitoring since 2019
- Repeat bathymetric surveys
- Dudley Reach Pilot Design Investigation
 - ✓ Riverbed and bank sampling
- Cataldo Reach Predesign Investigation
 - ✓ Bank characterization and monitoring

Planned for 2023

- Investigations will continue in the Cataldo and Dudley Reach
- Dudley Reach Pilot Design





Waste Disposal Areas

Repositories , LURs & Waste
Consolidation Areas



Repositories

Prior to 2023

- **Box**
 - ✓ Page Repository
- **Basin**
 - ✓ Lower Burke Canyon Repository
 - ✓ Big Creek Repository
 - ✓ Big Creek Annex Repository
 - ✓ East Mission Flats Repository

Planned for 2023

Decontamination pad at Lower Burke Canyon Repository



Waste Consolidation Areas

Prior to 2023

- **Basin**

- ✓ East Fork Ninemile (EFNM) WCA

- ✓ Canyon Creek WCA



Planned for 2023

- **Basin**

- ✓ Design Expansion of EFNM WCA

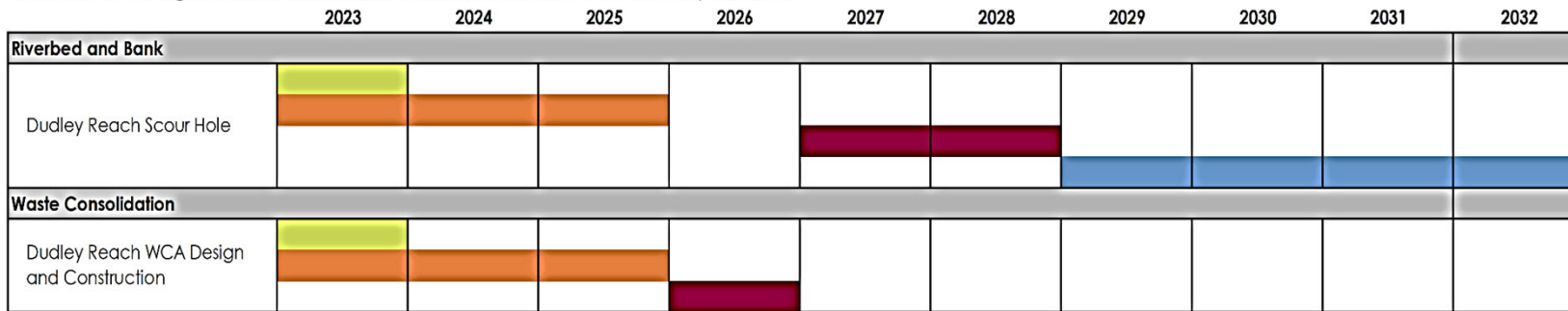


- ✓ New Lower Basin WCA

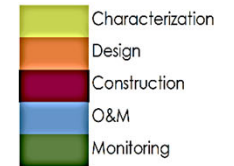
New Lower Basin WCA

Schedule Comparison

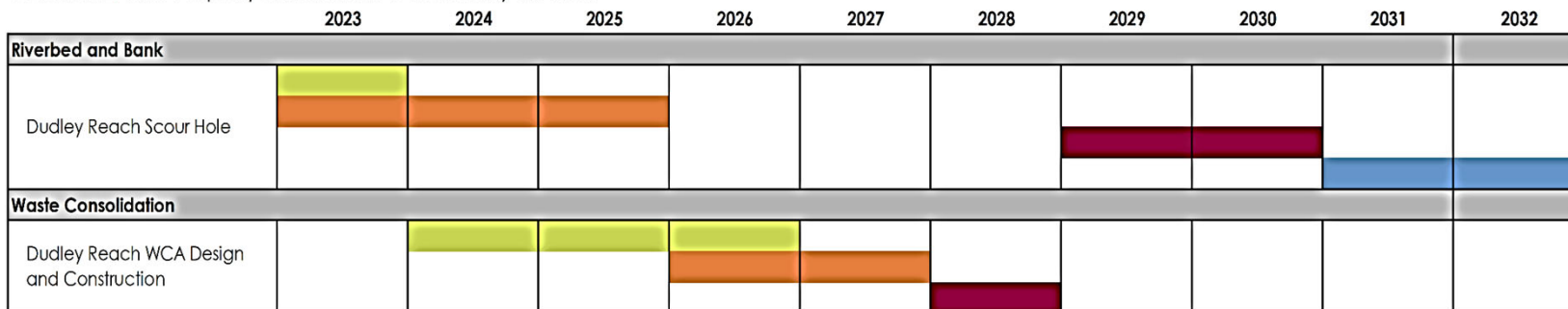
Scenario 1: Dredge Road or South River Road Selected for WCA in Early Q3 2023



Legend




Scenario 2: New Property Selected for WCA in Early Q3 2023



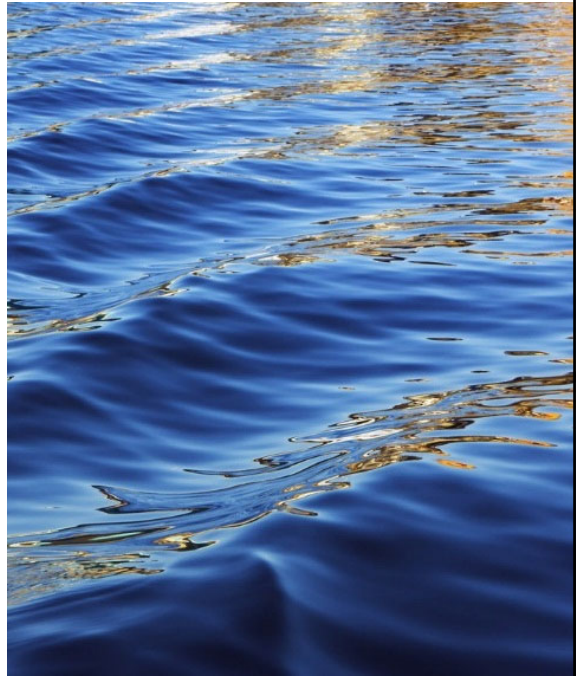
Notes

O&M = Operations & Maintenance.
WCA = Waste Consolidation Area.



Minewater, Groundwater & Surface Water

Collecting, Treating & Monitoring



Collection & Treatment of Minewater

Prior to 2023

- Upgrades to Bunker Hill Mine/Reed Landing
- Upgrades to Central Treatment Plant
- Installation & Operation of New Groundwater Collection System



Planned for 2023

- Optimize CTP & GWCS
- Government Gulch
 - ✓ Pre-Design Investigation Planning
- Central Impoundment Area
 - ✓ Complete Design to Close Old Sludge Pond
 - ✓ Transition to New Sludge Disposal Area



Basin Environmental Monitoring Program

Prior to 2023

- **Surface water monitoring & sampling**

- ✓ 2-6 times per year



Photograph credit: Nick Korzen, USGS

- **Groundwater monitoring & sampling**

- ✓ 73 sites in 2022

Planned for 2023

- **Surface water monitoring & sampling**

- ✓ Increased frequency up to 12 times per year (USGS)

- **Groundwater monitoring & sampling (IDEQ/Alta)**

- **Suspended sediment surface water sampling in CDA River (Trust)**

- **Scoping & installation of NAS-recommended sediment surrogate monitoring instrumentation for the CDA River (USGS).**



Funding Cleanup

EPA, DEQ & CDA Trust

Bunker Hill Funding Sources

EPA Special Settlement Accounts for the Box

- All Work in Operable Units 1 & 2 (the “Box”)
- Funds cannot be used in Operable Unit 3 (the “Basin”)

State of Idaho

- Box ICP as RA; Box Long-term ICP & O&M; Box Discretionary Projects (e.g., Blood Lead Screenings); Box & Basin Remedial Action Cost-Share & O&M; O&M of Central Treatment Plant.
- BEIPC Executive Director, Expenses & Clerical Support

EPA Appropriated Funds

- Pipeline (Planning, Investigations, Design, Monitoring)
- Remedial Action (Remediation/Construction/Cleanup)

Coeur d’Alene Trust – Can Only Fund Trust Work in the Basin

- Basin (Operable Unit 3) Environmental Actions
- Cannot be used to fund Grants, Cooperative or Interagency Agreements with State, Tribe, Local Governments or EPA’s Oversight of Trust Work.

Coeur d'Alene Trust Funds

Background

- **2008 Asarco Bankruptcy Settlement**
 - ✓ \$436.6 million deposited into the Successor Coeur d'Alene Custodial and Work Trust (the CDA Trust).
- **Federal Trustee Appointed**
 - ✓ Fiduciary of the CDA Trust Funds including investment of funds.
 - ✓ Income primarily from investments in stocks & bonds.
- **Annual Submittal to EPA**
 - ✓ CDA Trust account balance
 - ✓ Draft annual workplan, schedule & line-item budget of OU₃ Environmental Actions proposed for next year.
 - ✓ EPA approves or disapproves any or all of the draft workplan.

Current

- **Annual Budget: \$30 million**
- **Total Expenditures through March 2023: \$213.4 million**
- **CDA Trust Fund Balance as of March 2023: \$557.7 million.**
 - ✓ The 2002 OU₃ Interim ROD and the 2012 Upper Basin ROD Amendment cost estimates were each over \$300 Million.