

Citizens Coordinating Council Coeur d'Alene Basin Overview October 16, 2007

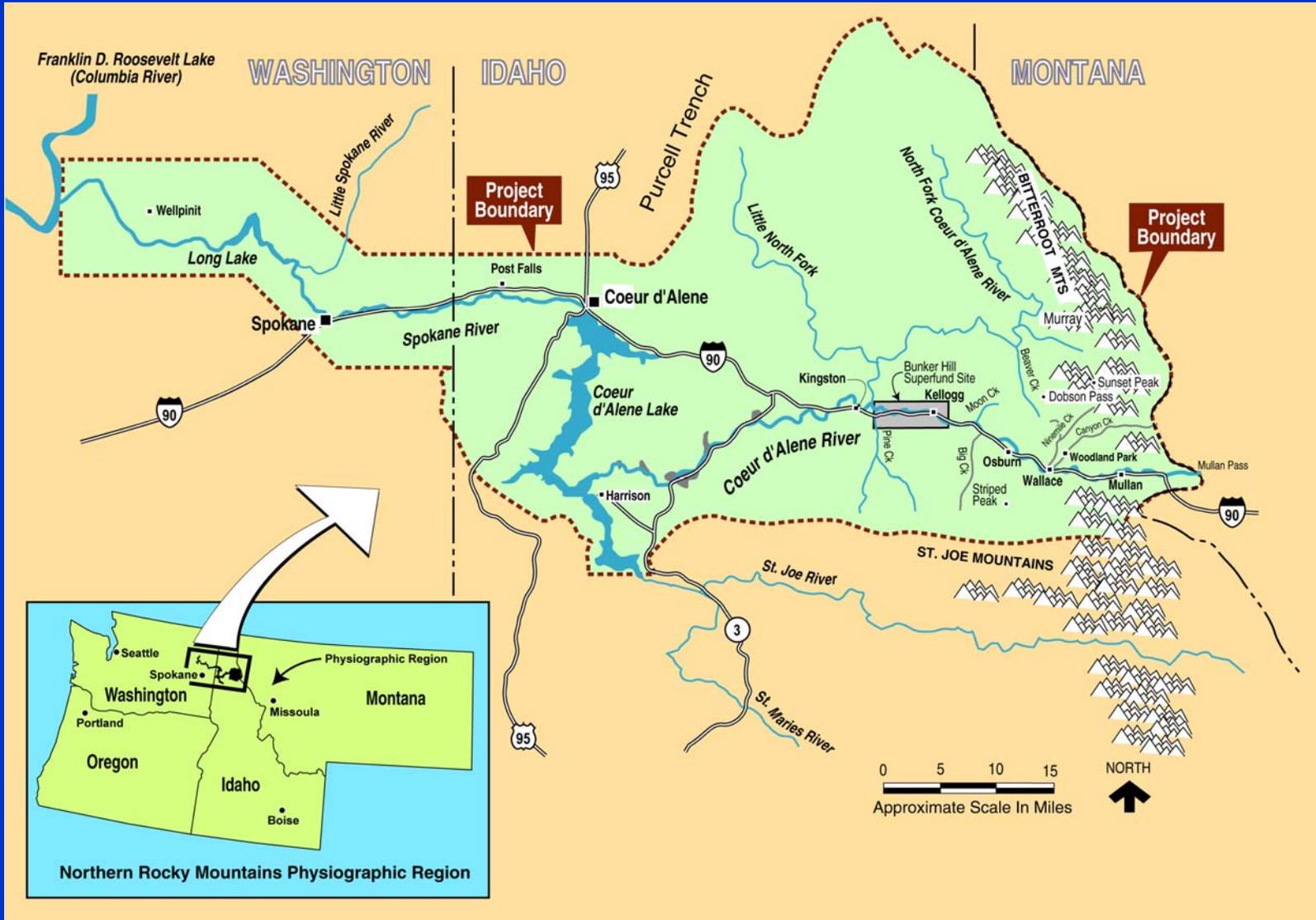


**EPA Region 10
Coeur d'Alene Basin Team
Ed Moreen, P.E.**

Coeur d'Alene Basin Overview Topics

- ❑ Understanding the Geography
- ❑ Nature and Extent of Contamination
- ❑ History of Cleanup
- ❑ Summary
- ❑ Crystal Ball

Coeur d'Alene Basin Geography



Geographic Terminology

- ❑ Upper Basin u.s. of Cataldo.
- ❑ Lower Basin d.s. of Cataldo.
- ❑ Box ~ 21 sq. mile area surrounding Kellogg bounded by Pinehurst and Elizabeth Park.
- ❑ Lake CDA – included in site investigation.
- ❑ Spokane River in ID & WA.
- ❑ Pursuant to Comprehensive Environmental Response, Compensation and Liability Act (CERCLA = Superfund).

Bunker Hill Mining and Metallurgical Complex Superfund Site

- Site listed on NPL in 1983
- Decision Documents:
 - OU1 – Box Populated Areas/ROD in 1991
 - OU2 – Box Non-populated Area/ROD in 1992
 - →OU 3 – Coeur d'Alene Basin/ROD in 2002

Nature and Extent of Contamination

- ❑ Coeur d'Alene Basin impacted by over 100 years of mining.
- ❑ BH Smelter operated from 1917 to 1981.
- ❑ Until 1968, 2200 tons/day of mine waste discharged to South Fork CDA River.
- ❑ Air, soil and water pathways were significant.
- ❑ Some of highest blood leads in U.S.

Nature and Extent of Contamination

- Primary source areas remain in the Upper Basin.
- Most are adjacent to streams and will contribute to downstream contamination.
- Primary Contaminants of Concern:
 - Lead
 - Zinc
 - Arsenic
 - Cadmium



Nature and Extent Of Contamination

- Human health exposure -contaminated areas popular with dirt bike/ATV riders.



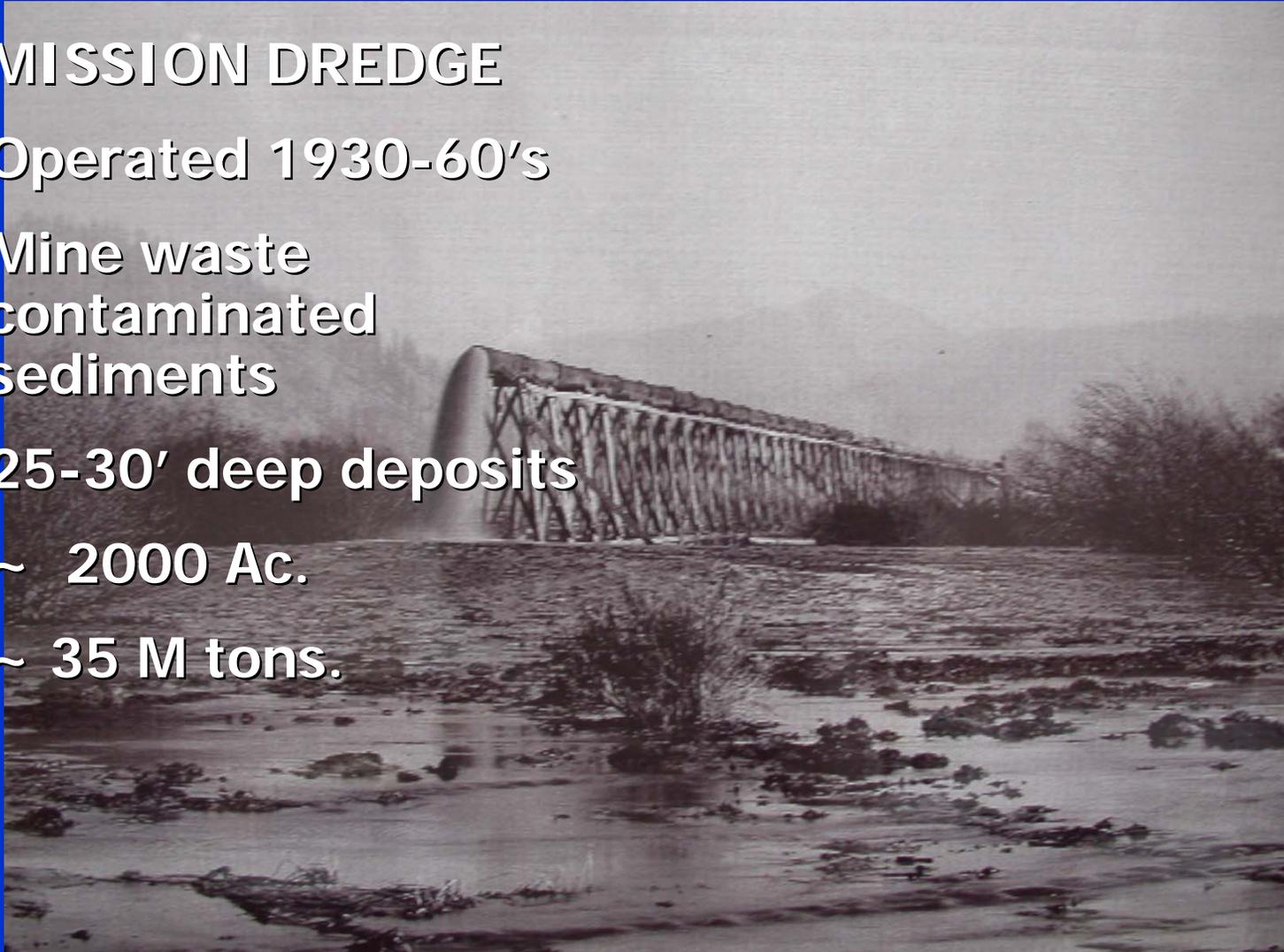
Nature and Extent of Contamination

- ❑ Metal contamination present in beds, banks, and floodplains.
- ❑ Widespread groundwater contamination.
- ❑ Flooding continues to bring contamination to the surface, where kids and birds may ingest the lead.
- ❑ In communities and floodplains, contaminants often go as deep as 10 ft.



Nature and Extent of Contamination

- ❑ MISSION DREDGE
- ❑ Operated 1930-60's
- ❑ Mine waste contaminated sediments
- ❑ 25-30' deep deposits
- ❑ ~ 2000 Ac.
- ❑ ~ 35 M tons.



Nature and Extent of Contamination

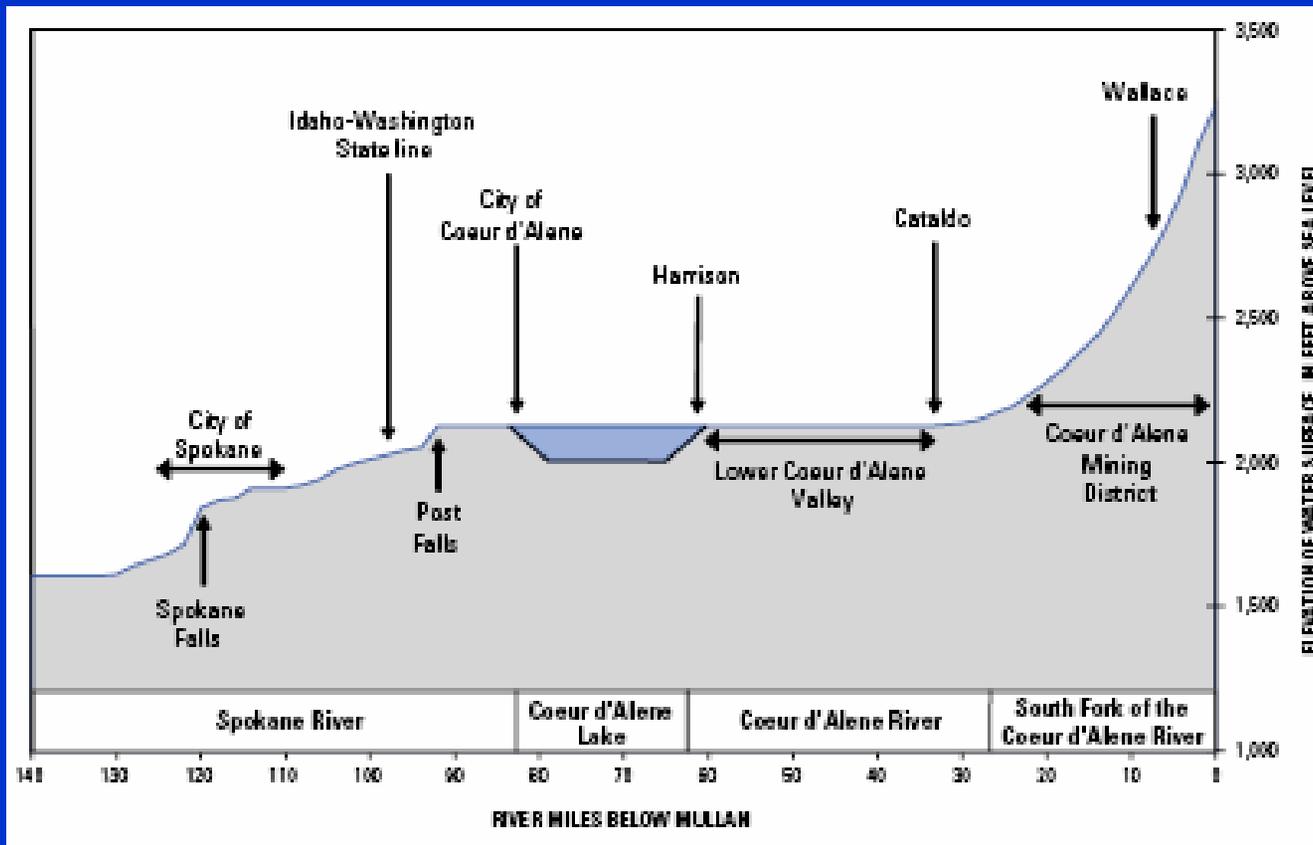
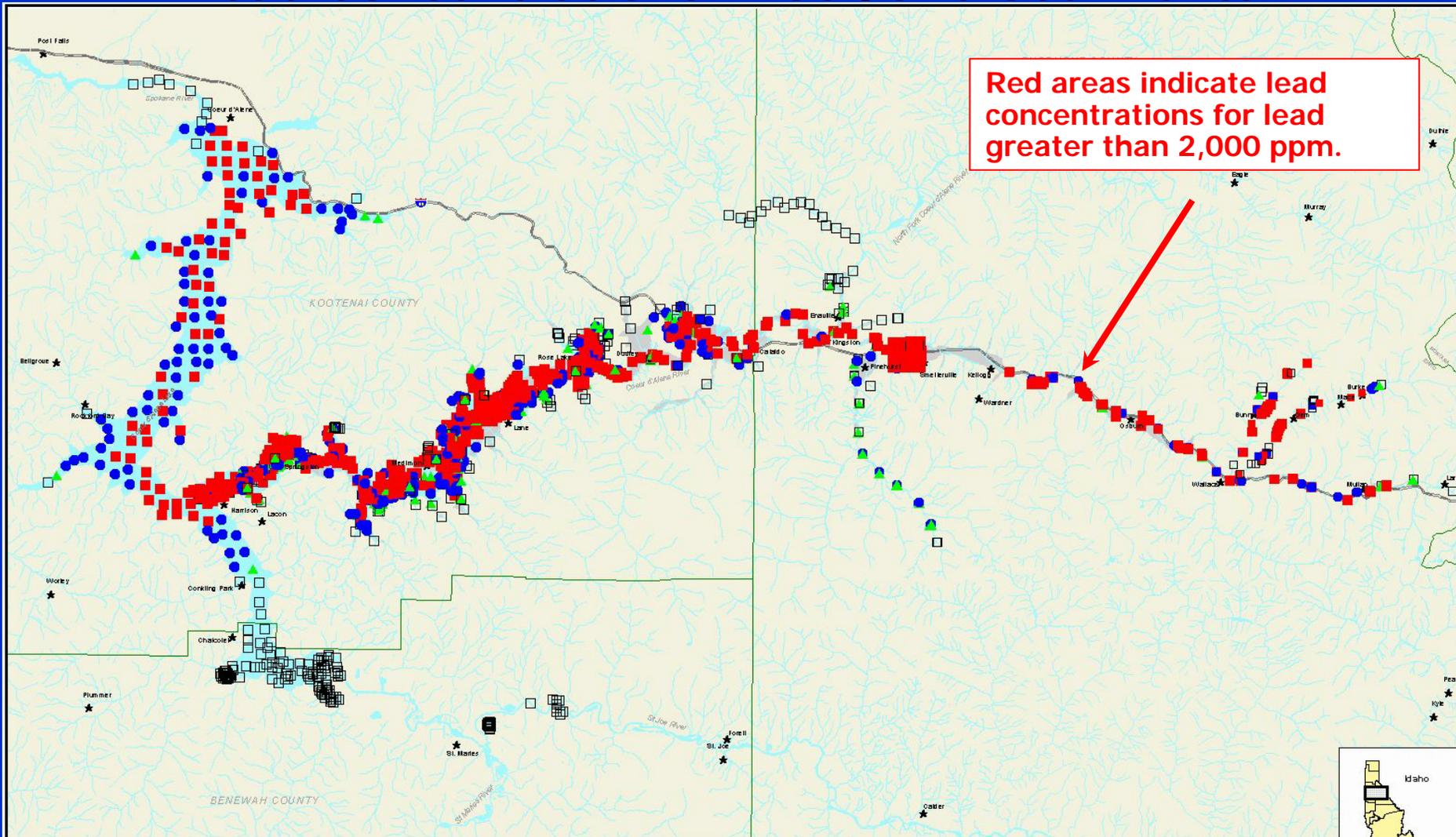


Figure 4. Longitudinal stream gradient of the Coeur d'Alene-Spokane River system from upstream, east of Wallace, Idaho (right) to downstream, west of Spokane, Wash. (left; see Figs. 1 and 2 for locations). Steep upstream gradient at Wallace gradually decreases to just below Cataldo, where waters of Coeur d'Alene Lake backflow lower 28 mi of the Coeur d'Alene River channel. Lake waters are impounded by a bedrock constriction on the Spokane River at Post Falls, now augmented by the Post Falls dam.

Nature and Extent of Contamination

Lead Concentrations in Soil and Sediments



Red areas indicate lead concentrations for lead greater than 2,000 ppm.

Plate 3
Prepared for the EPA
by
URS Greiner

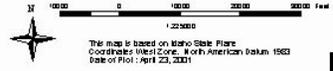


Figure 4.2-4
Coeur d'Alene River Basin
Surface Sample Locations Showing
Lead Concentrations in Soils and Sediments

- Legend**
- Lead concentration Ranges
 - 0-175
 - 175-500
 - 500-2000
 - >2000
 - CRMS
 - STREAMS
 - RIVERS/LAKES
 - FLOOD PLAIN

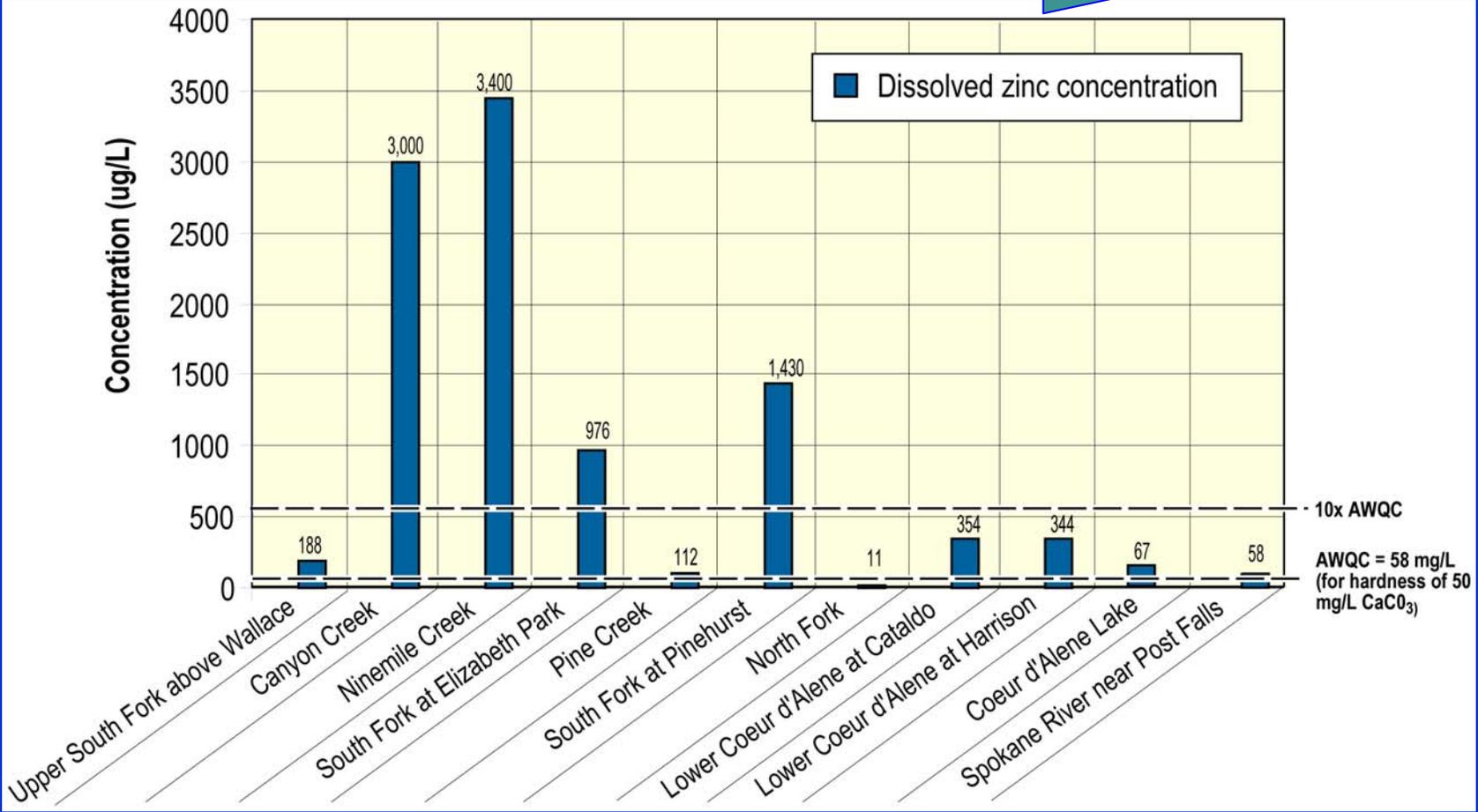
Notes:
Base map coverage obtained from the Bureau of Land Management (BLM) and The Coeur d'Alene Indian Tribe.
Lead concentrations obtained from the following sources:
MOU by Rick and Oliman
RCA by Roger Bally Sampling Data
URS Greiner Woodward Clyde
USGS
USFWS



Nature and Extent of Contamination

Zinc Exceedances Over AWQC

EAST (UPSTREAM) WEST (DOWNSTREAM)



ROD - Ecological Protections

- ❑ Aquatic life protection from dissolved metals (zinc and cadmium) in streams and rivers
- ❑ Waterfowl protection from lead in wetlands and floodplains
- ❑ Reduction in particulate lead transport in surface water



Lower Basin

Protection of Human Health

Why Property Cleanups?



Protection of Human Health

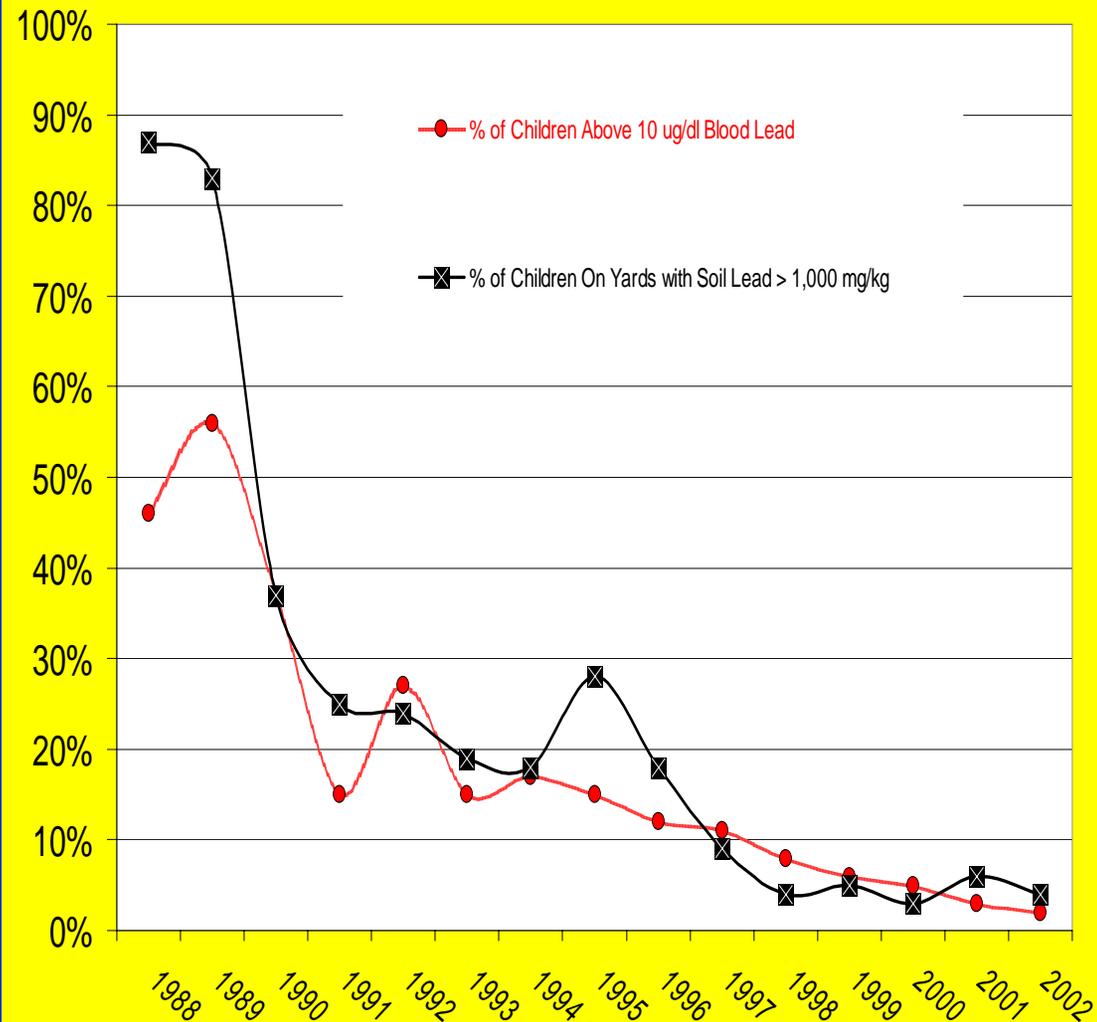
Why Property Cleanup?

→ Blood Lead Levels Decline

Percent of Children

- ↓ Kids On Yards > 1000 ppm
- ↓ Kids > 10 $\mu\text{g}/\text{dl}$ Blood

Data from within Bunker Hill Superfund Site



Protection of Human Health Properties Cleanup



- ✓ Removal/Replacement of contaminated soil
- ✓ Disposal → Repositories
- ✓ Provision for clean drinking water
- ✓ Provision of clean "oases" for recreation
- ✓ Lead health intervention efforts

Protection of Human Health

Properties Cleanup



- ✓ Vegetation is reestablished on top of the clean soil
- ✓ Clean Gravel in parking areas

Protection of Human Health - Rec. Areas – E. Rose Lake Launch



- Rec. Areas:
 - ✓ Subject to recontamination.
 - ✓ Primarily capping operations
 - ✓ Minimize waste disposal

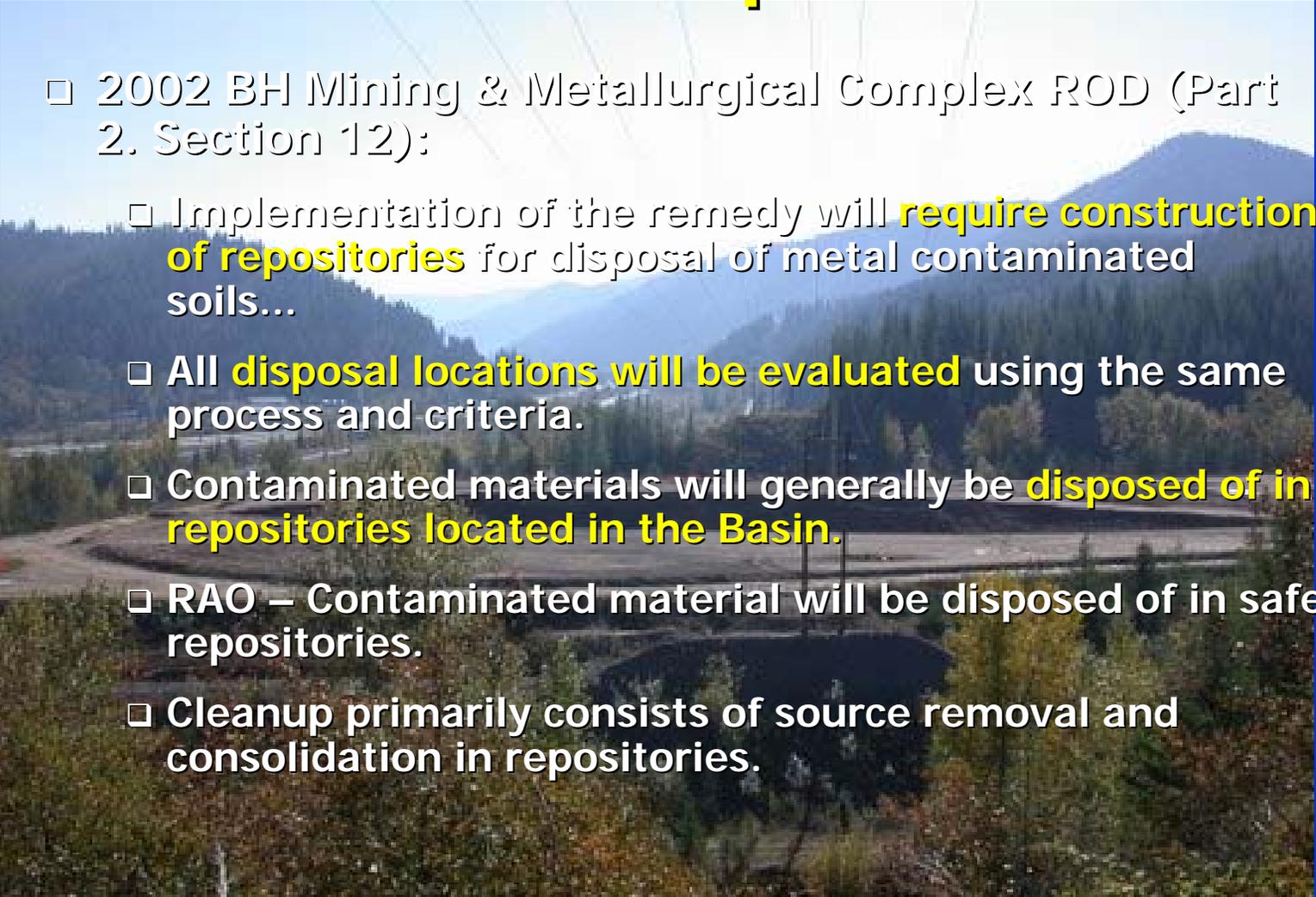
Protection of Human Health - Rec. Areas – Rose Lake Launch



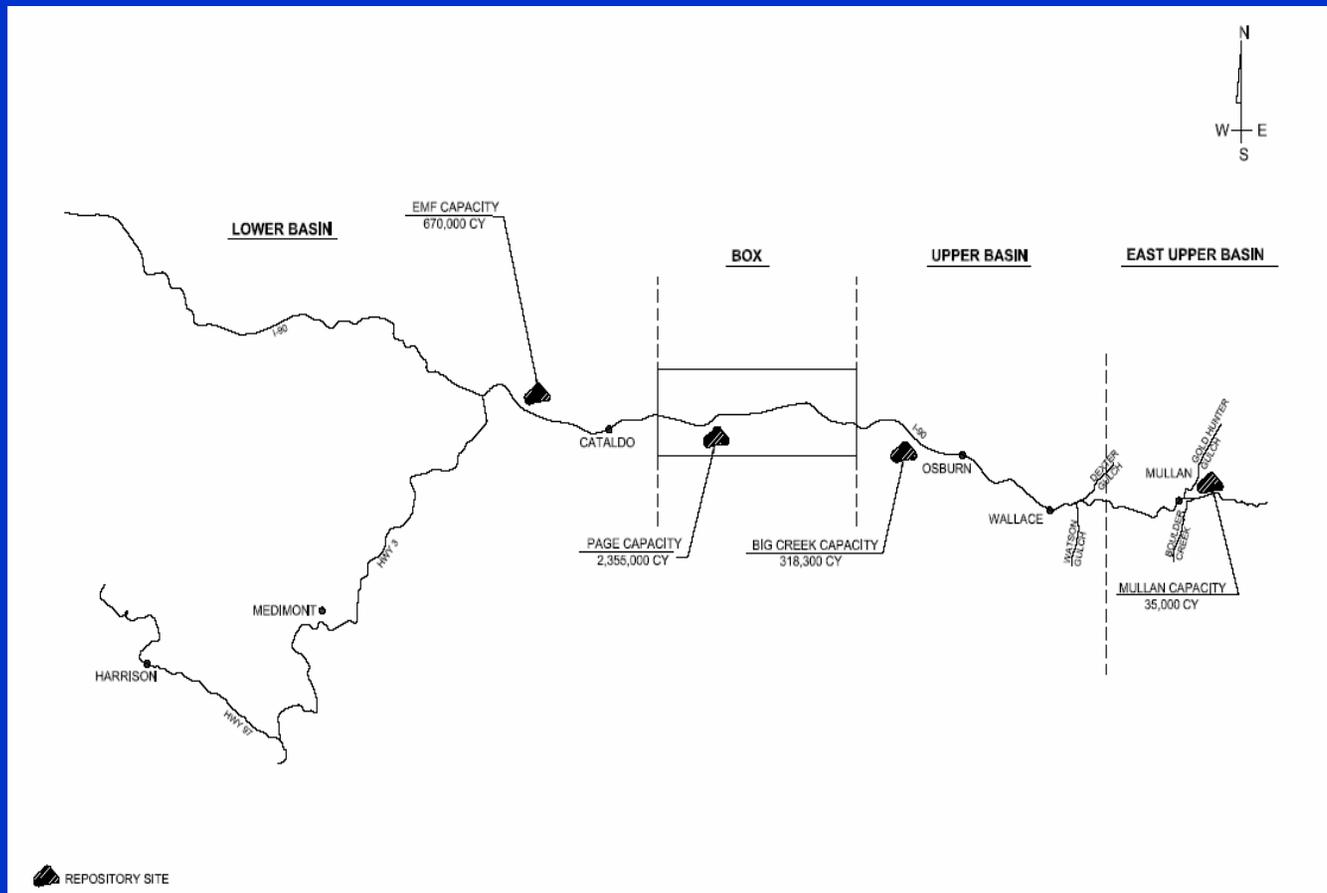
□ Remedy:

- ✓ Bank Stabilization
- ✓ Boat Launch
- ✓ ACP Parking Area
- ✓ Protection of Historic Building

Protection of Human Health – Waste Disposal

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- 2002 BH Mining & Metallurgical Complex ROD (Part 2, Section 12):
 - Implementation of the remedy will **require construction of repositories** for disposal of metal contaminated soils...
 - All **disposal locations will be evaluated** using the same process and criteria.
 - Contaminated materials will generally be **disposed of in repositories located in the Basin.**
 - RAO – Contaminated material will be disposed of in safe repositories.
 - Cleanup primarily consists of source removal and consolidation in repositories.

ROD - Waste Disposal



- 2 major geographic waste sheds in OU-3
 - ✓ Upper Basin = U.B. + E.U.B
 - ✓ Lower Basin = d.s. of Box
- (No Remedy specified for Lake → LMP)

Summary

- ❑ The Coeur d'Alene Basin and down gradient Spokane River severely impacted by over 100 years of mining activities.
- ❑ Significant measurable risks exist to:
 - ❑ People – high BLLs.
 - ❑ Environment
 - ❑ Comprehensive watershed approach
 - ✓ use available regulatory tools
 - ✓ achieve tangible progress toward protection

Crystal Ball

- ❑ **First priority - reduce human health exposure**
 - ❑ **Continue cleanups:**
 - ✓ **Property and Recreational Sites**
 - ✓ **Mine & Mill Sites**
 - ✓ **Dispose of contaminated materials in repositories**
- ❑ **Implement environmental cleanup actions**
 - ❑ **Improving water quality**
 - ❑ **Minimizing downstream migration of metals**
 - ❑ **Improving conditions for fish and wildlife**
- ❑ **Remedy implementation in context of Basin Commission**
- ❑ **O&M - responsibility of State**
- ❑ **Long-term remedy assessment thru 5-Year Reviews**

Crystal Ball (cont.)

- ❑ Joint Lake Management Plan – Lake CDA.
- ❑ Operate/Close soil repositories - integral to cleanup.
- ❑ Construction of Clean Water Fowl Habitat.
- ❑ Total cleanup plan ~ 30 yrs.
- ❑ Community & citizen involvement:
 - ❑ Citizens Coordinating Council
 - ❑ Basin Commission Board Members
 - ❑ Agency Reps



A home in the Basin