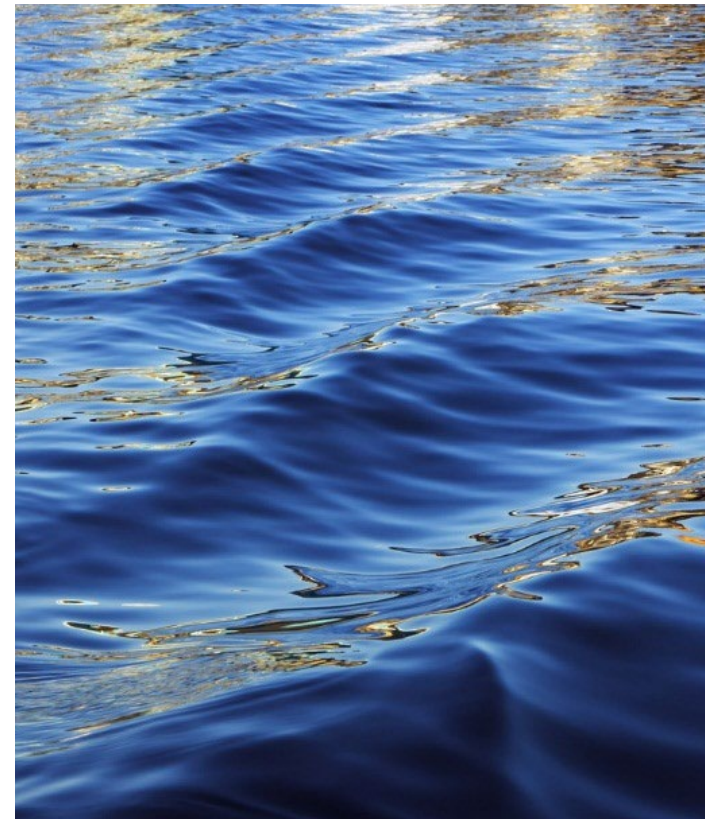




Repository Information Session

with a highlight on BCR/BCRA

March 5, 2025



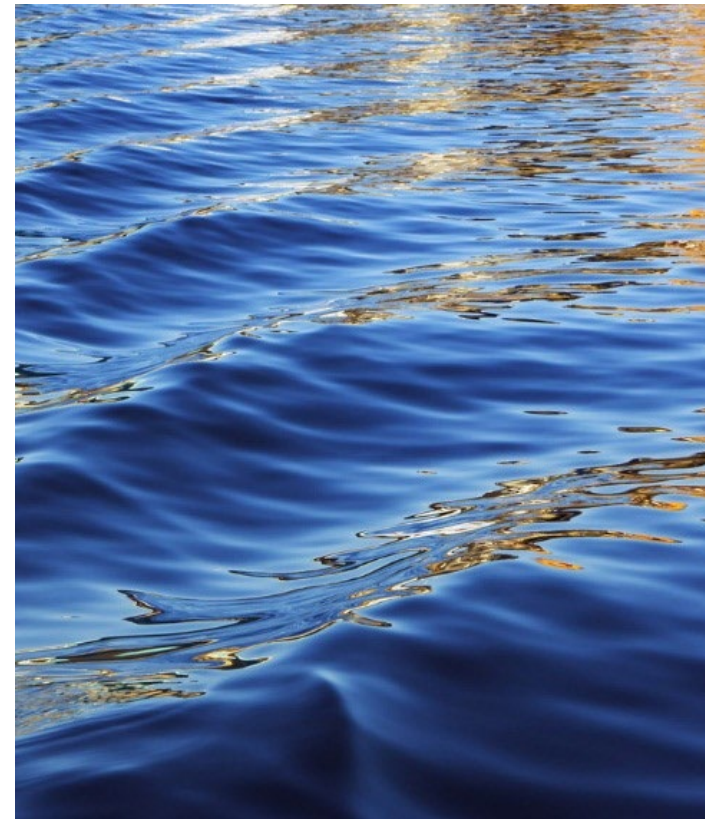


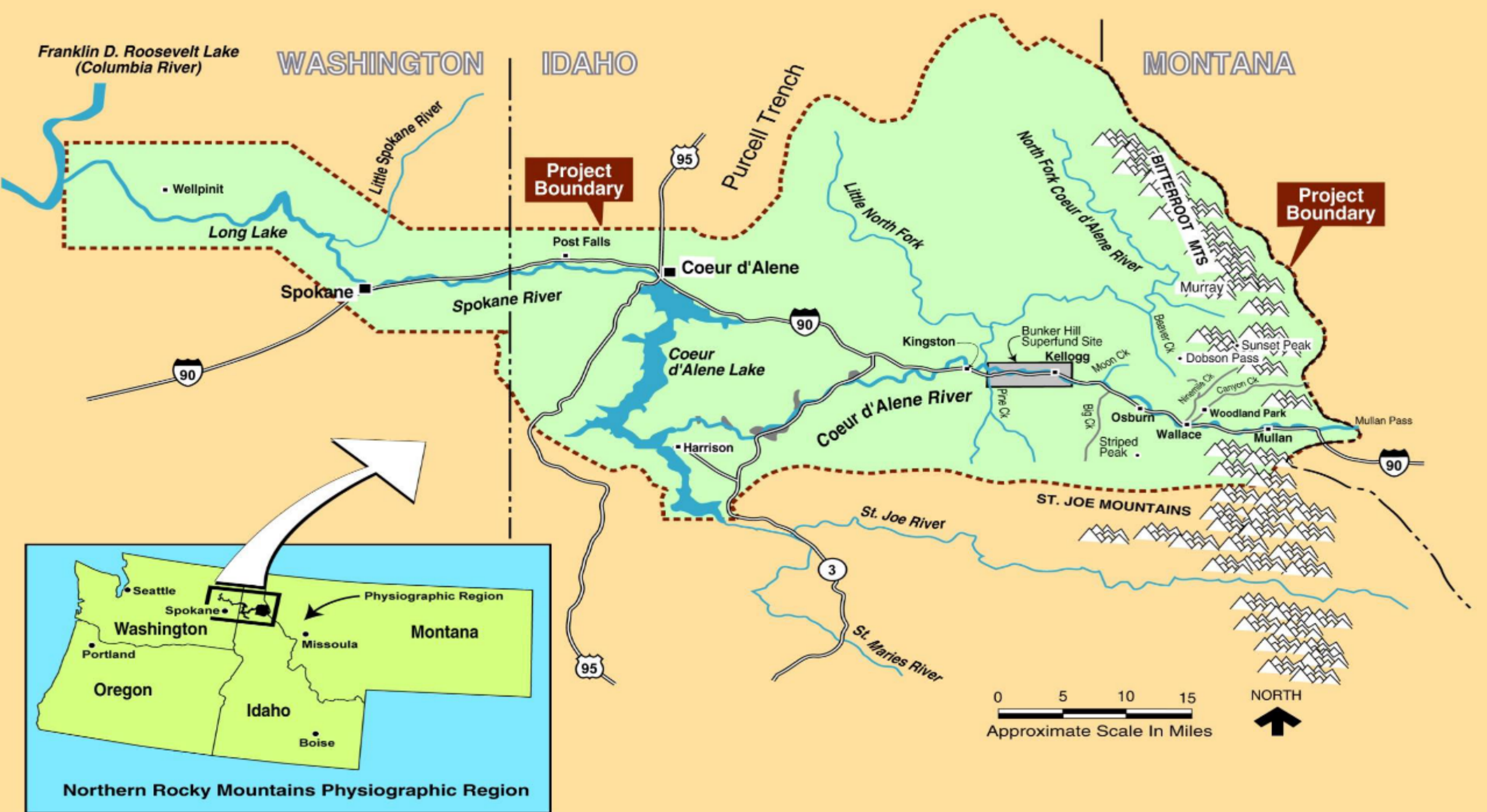
Agenda

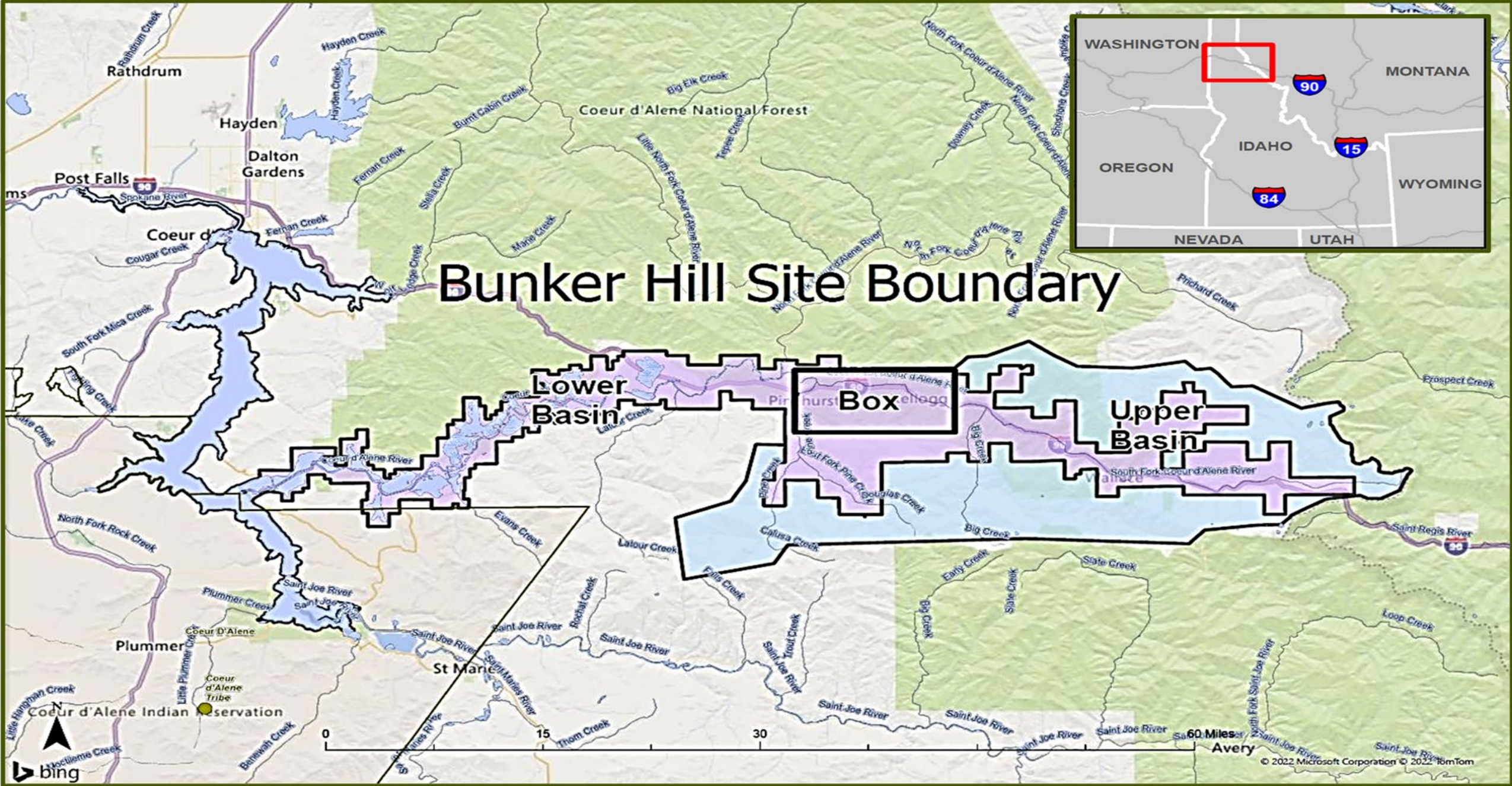
- Brief Site History
- Waste Management Strategy
 - Types of Waste Disposal Areas
 - Siting, Design, Protection and Monitoring of Waste Disposal Areas
- Discussion of Big Creek Repository (BCR) and Big Creek Repository Annex (BCRA)
- Public Engagement



Site History







Century of Mining, Milling & Smelting

Morning Mill at Mullan, 1909

Sluice Line Discharge

South Fork Coeur d'Alene River

Morning Mill

Copyright 1909 by
Richard's Studio.

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Phased Cleanup Strategy

- **First Priority: *Risks to People***

- ✓ Box & Upper Basin
 - Time-critical actions started in 1986
 - First EPA cleanup decision document in 1991
- ✓ Lower Basin
 - Early actions in 1989
 - First EPA cleanup decision document in 2002



- **Second Priority: *Risks to the Environment & Wildlife***

- ✓ Box & Basin
 - Incidental removal actions in 1990's
 - First EPA cleanup decision document in 2002



30 Years of Cleanup Highlights

Benefits to People

- **Reduced Blood Lead Levels from 25 µg/dL to almost 3.5 µg/dL.**
- **7,171 Residential & Commercial Properties Cleaned Up**
- **571 Road Segments Remediated as part of Roads Program**
- **25 Human Health Remedy Protection Projects Completed**
- 72 Miles of Contaminated Railroad Embankment Cleaned Up & Converted to Trail
- 6 Boat Ramps Remediated/Dozens of Signs Installed at Recreation Areas
- Offer year-round free blood lead testing and in-home intervention services.
- Provide Free House Dust Monitoring and in-home intervention services.
- Created and Implemented Institutional Controls Program based on local land-use requirements to maintain clean barriers & guide future development.
- Participate in hundreds of public meetings, education & outreach events.
- Established Numerous Multi-Agency Partnerships.

Benefits to Environment & Wildlife

- Demolished/Cleaned Up Mine Operations & Smelting Areas
- **2.8+ million cubic yards contaminated soil and other source materials removed and consolidated into engineered waste disposal facilities**
 - ✓ 8 Waste Disposal Facilities Constructed & Operated
 - ✓ 2 Repositories Closed & Capped
- 800 acres of property within Box Non-Populated Areas Capped and Revegetated
- 1,000+ acres of barren hillsides revegetated
- **Nine Mine and Mill Sites Remediated Reducing Sources of Contamination to Surface Water and Groundwater (also reduced risks to people).**
- Implemented Major Upgrades to Central Treatment Plant & Treatment of Acid Mine Drainage from Bunker Hill Mine and Installed Groundwater Collection System to meet discharge standards & Improve Water Quality.
 - ✓ Since 1995 treated over 19 Billion Gals of Acid Mine Water @ CTP – removing over 14 Million lbs of Zinc & other metals
- Converted Agricultural Lands to Clean Waterfowl Habitat



Waste Management Strategy



Waste Management Strategy

- Repositories were selected in the 2002 Record of Decision (ROD) to contain excavated contaminated materials from the site
- ROD estimated volumes of material that may require excavation and identified priority clean up areas
 - 500,000 – 900,000 cy in the Upper Basin
 - 2,600,000 cy in the Lower Basin



Types of Waste Disposal Areas

Types

- Repository
- Waste Consolidation Area
- Limited Use Repository

Differences

- Waste stream
- Location
- Construction

Similarities

- Long-term engineered storage
- Monitored throughout the lifetime of disposal area
- Effective and secure method to remove contaminated materials away from receptors, such as wildlife and people



Waste Streams

- Institutional Controls Program (ICP)
- Source site remediation
- Basin Property Remediation Program (BPRP)
- Recreational sites
- Paved Roads Program



Location and Construction

- Removed from areas where it impacts human health and the environment
 - Then it is capped, monitored, and maintained into the future

- Waste Consolidation Area

- Located near Waste Source
- Designed for Specific Waste Stream(s) Typically Open for Shorter Timeframes

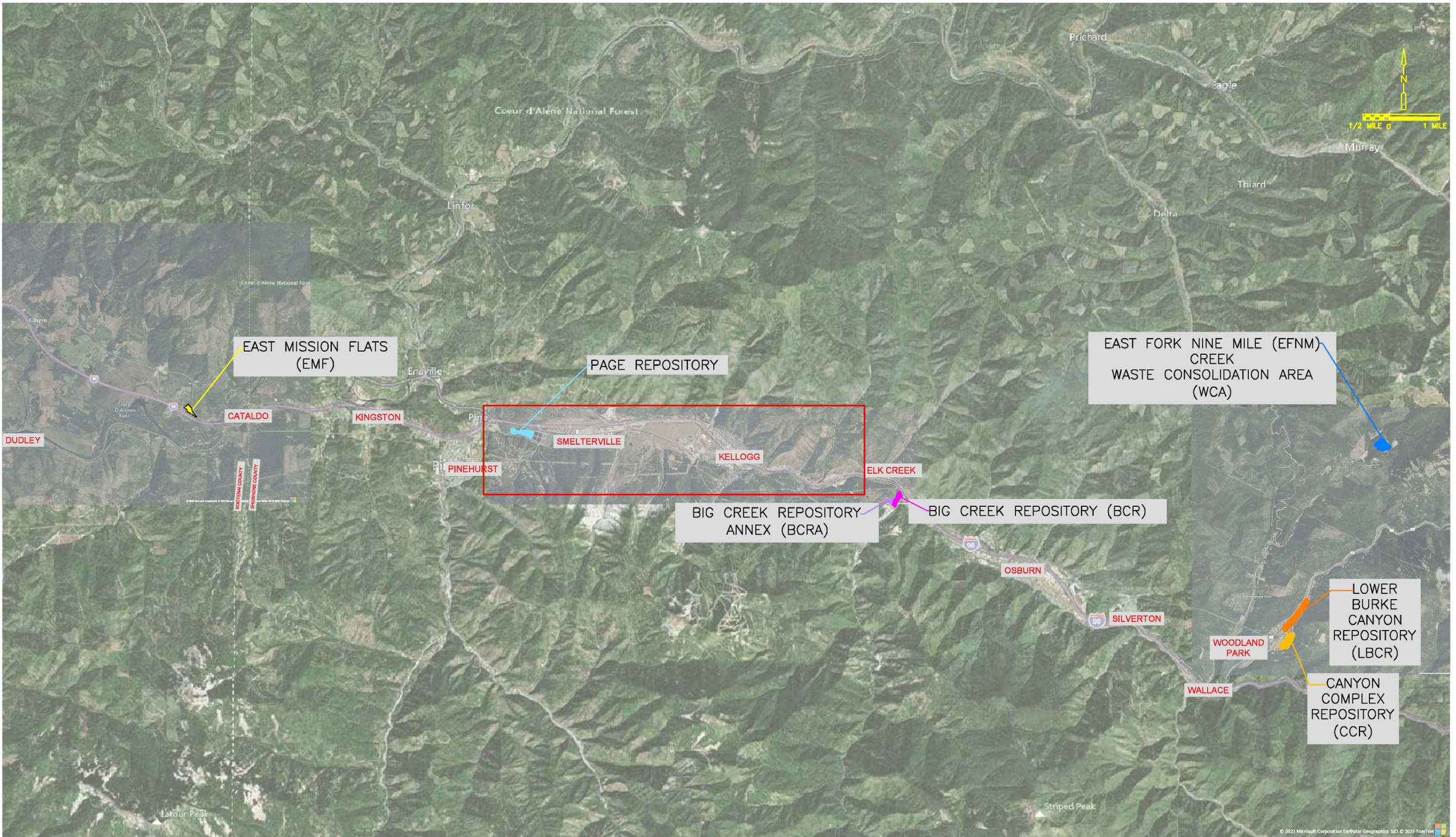


East Fork Ninemile WCA

- Waste Repository

- Not always located near waste source
- Designed for Varied Waste Streams for a Long Timeframe

\\Users\schmidt\ACCDocs\CDM Smith Inc\CDA Trust\Project Files\Repositories\BCR\02 DWGS\2023 Figure.DWG
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Basin Environmental Improvement Project Commission Meeting, March 5, 2025

Siting, Design, Protection and Monitoring of Waste Disposal Areas

Siting and Design Considerations

Baseline – pre-waste conditions

Performance Monitoring – during waste placement


Operation and Maintenance Post-Closure

Best Management Practices (BMPs)

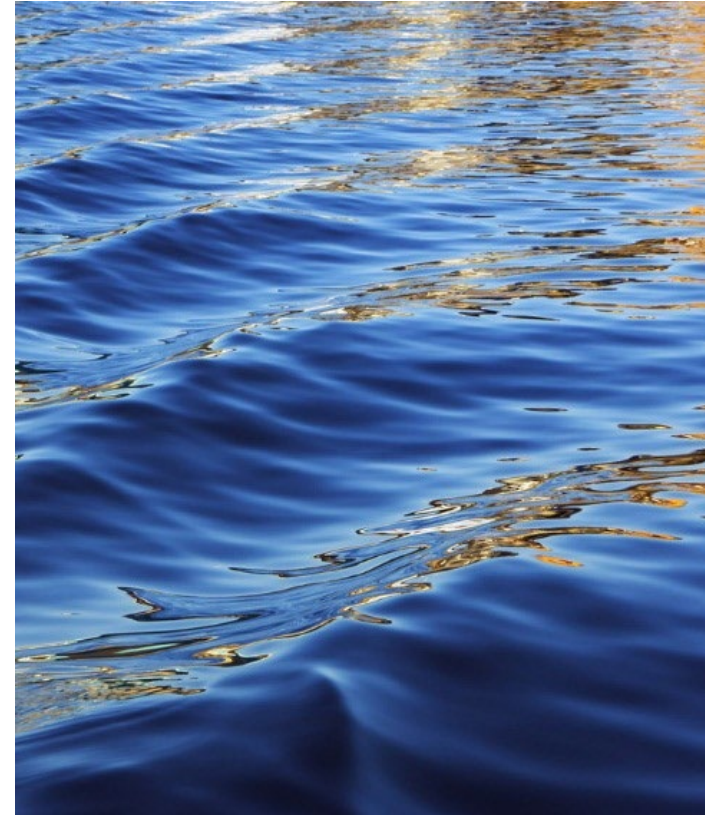
Adaptive management approach

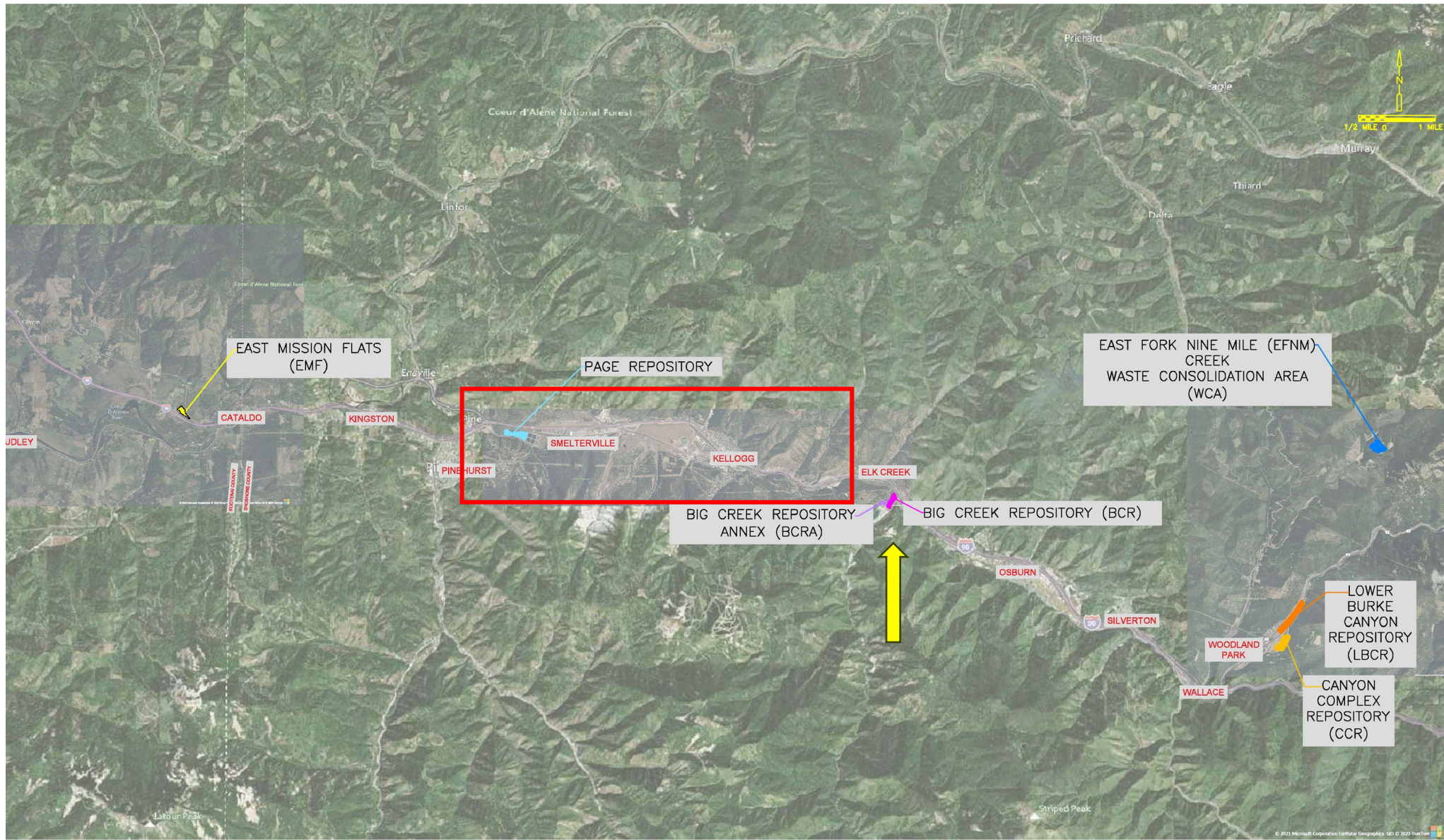


Big Creek Repository



Discussion of Big Creek
Repository and Big Creek
Repository Annex

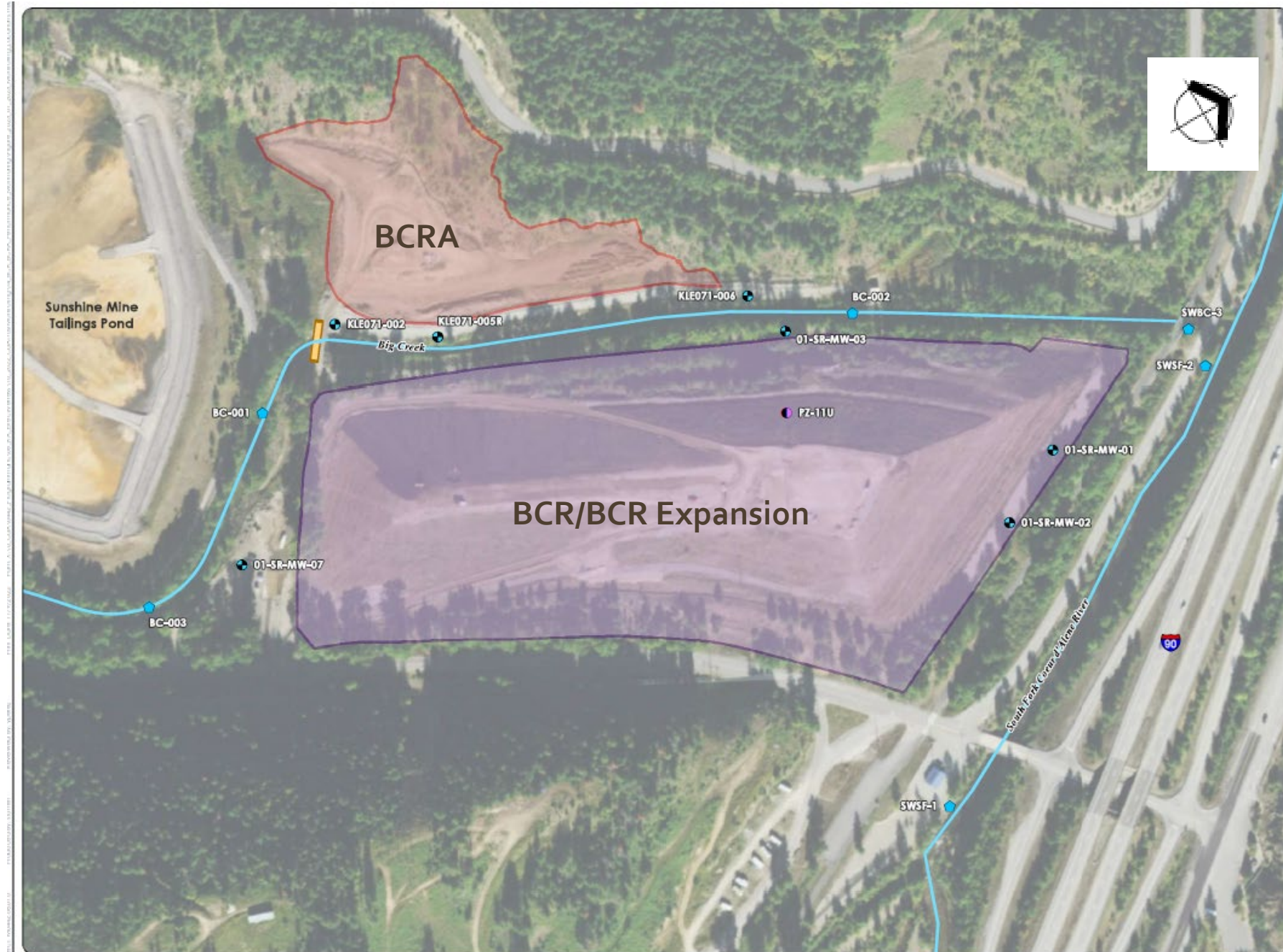




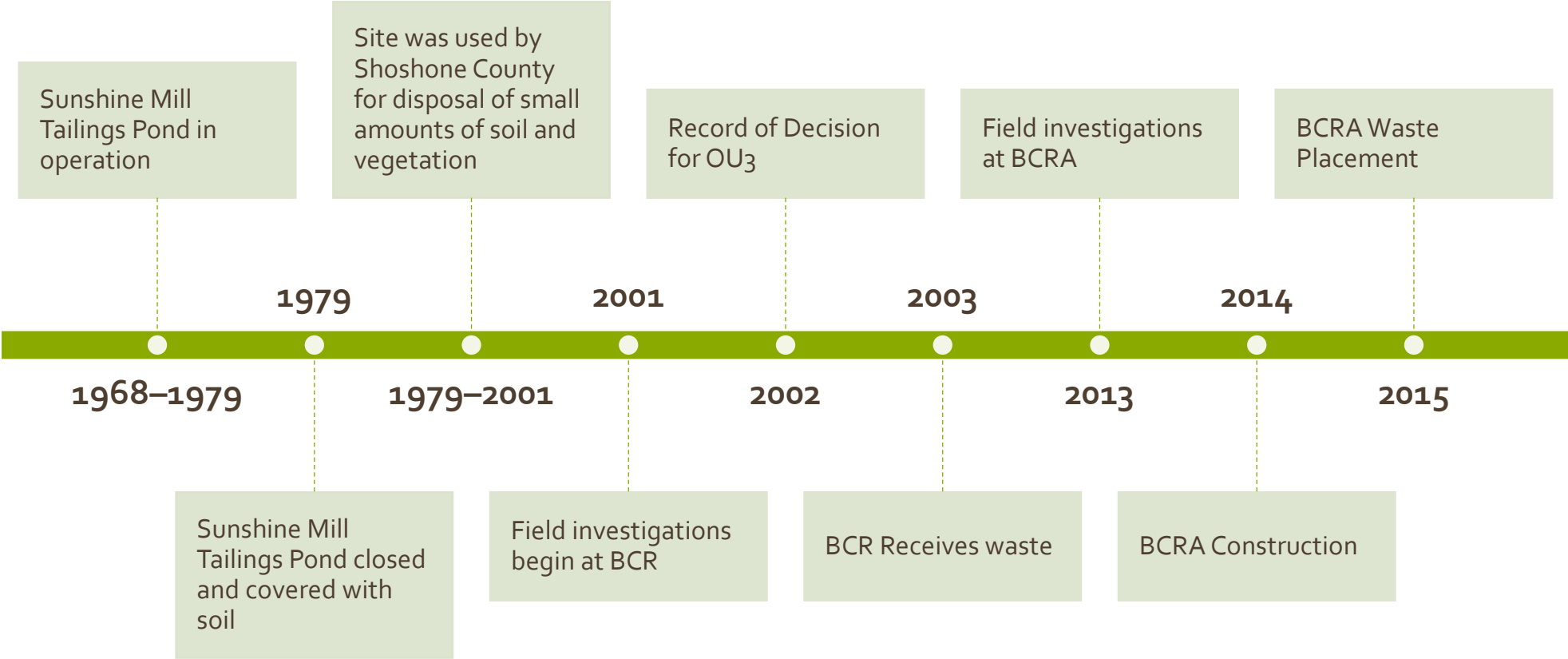
Big Creek Repository and Big Creek Annex Repository

Overview

- Big Creek Repository (BCR)
 - Remaining Capacity: 81,000 cubic yards
 - Total built capacity: 703,000 cubic yards
- Big Creek Repository Annex (BCRA)
 - Remaining Capacity: 168,000 cubic yards
 - Total Capacity: 190,000 cubic yards
- Waste streams
 - Institutional Controls Program
 - Basin Property Remediation Program Waste
 - Paved Roads
 - Remedy Protection



Siting History Timeline



Baseline Monitoring and Pre-Design Investigations

TABLE 6. DISSOLVED METALS CONCENTRATIONS IN GROUNDWATER MONITORING WELL SAMPLES (SUMMARY OF 6 SAMPLES)

Metals	Minimum Concentration (ug/L)	Maximum Concentration (ug/L)	Coeur d'Alene River Basin RI/FS Screening Levels (ug/L)
Antimony	4.6	421	2.92
Arsenic	ND (0.5)	32.5	150
Cadmium	ND (0.05)	2037	0.38
Copper	ND (10)	ND (10)	3.2
Iron	ND (20)	4400	1000
Lead	0.02	0.7	1.09
Manganese	24.6	2290	20.4
Mercury	ND (0.2)	ND (0.2)	0.77
Silver	ND (10)	0.03	0.43
Zinc	ND (10)	11.1	42

ND – Not detected (detection limits in parentheses)



Establish baseline environmental conditions



Provide data for engineering and design



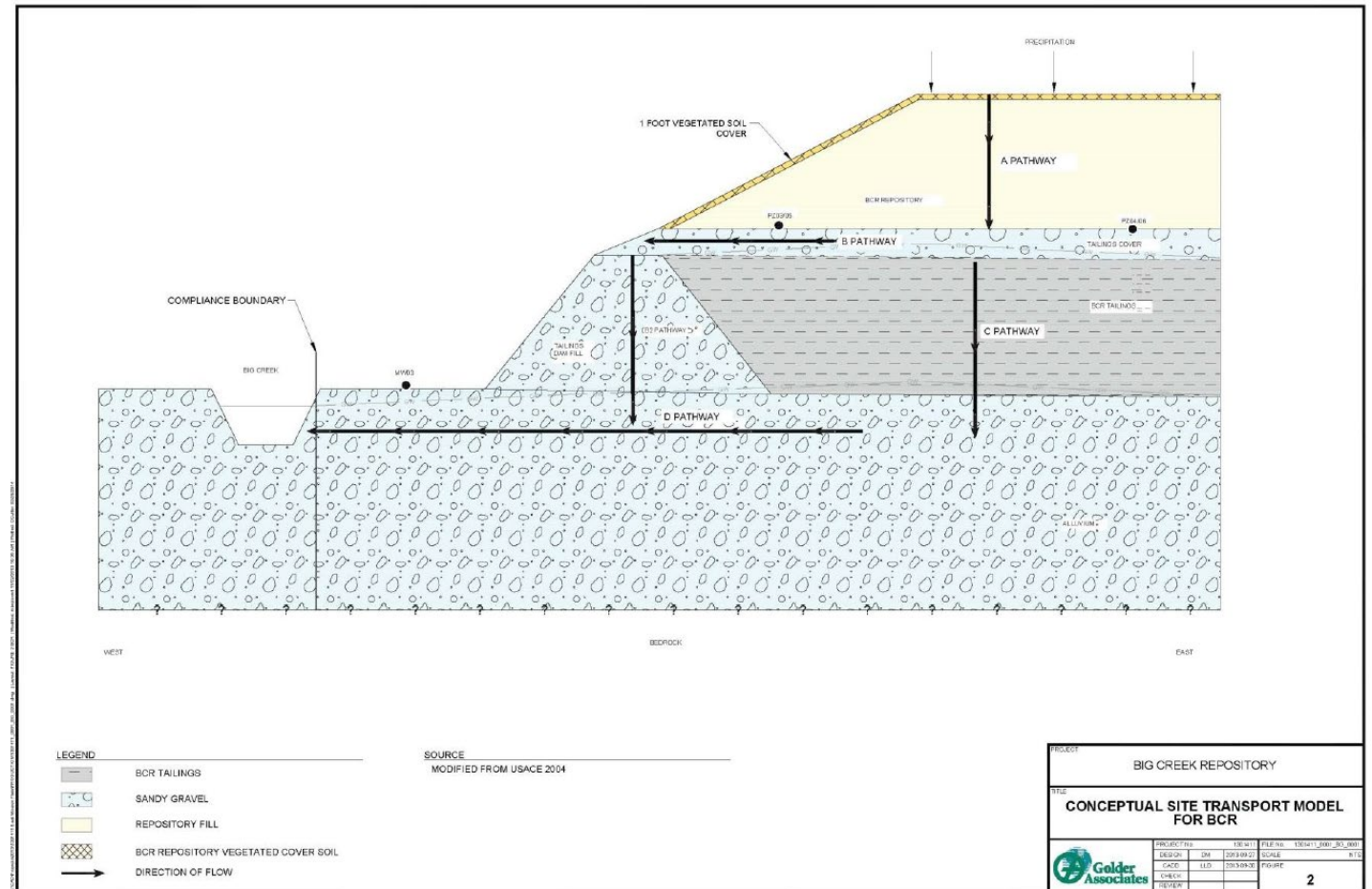
Soil, surface water, groundwater samples collected



Samples were analyzed for metals

Fate and Transport Modeling

- Hydrologic Evaluation of Landfill Performance (HELP) modeling
- Results: None of the metals modeled will leach into groundwater at concentrations in excess of remedial goals any time within the next several hundred years



Stormwater Management

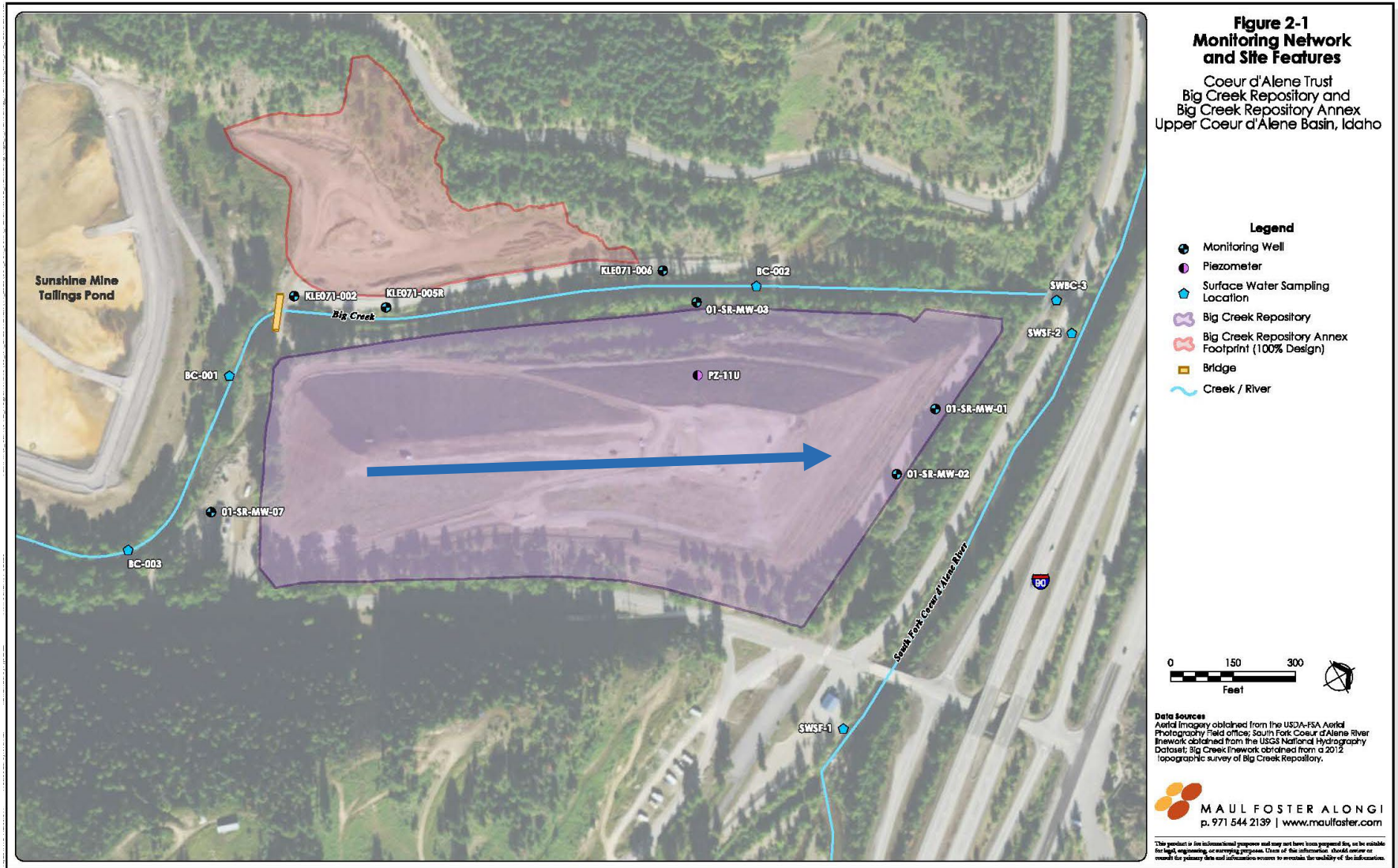
- Goal: Minimize the release of impacted runoff and sediment from the repository from precipitation
- Promote runoff off and away from the footprint of the repository
 - Run off control ditches and swales
 - Retention basin
 - Silt fences
 - Mulch berms
 - Vegetated slopes
- Base drainage and infiltration trenches at BCRA

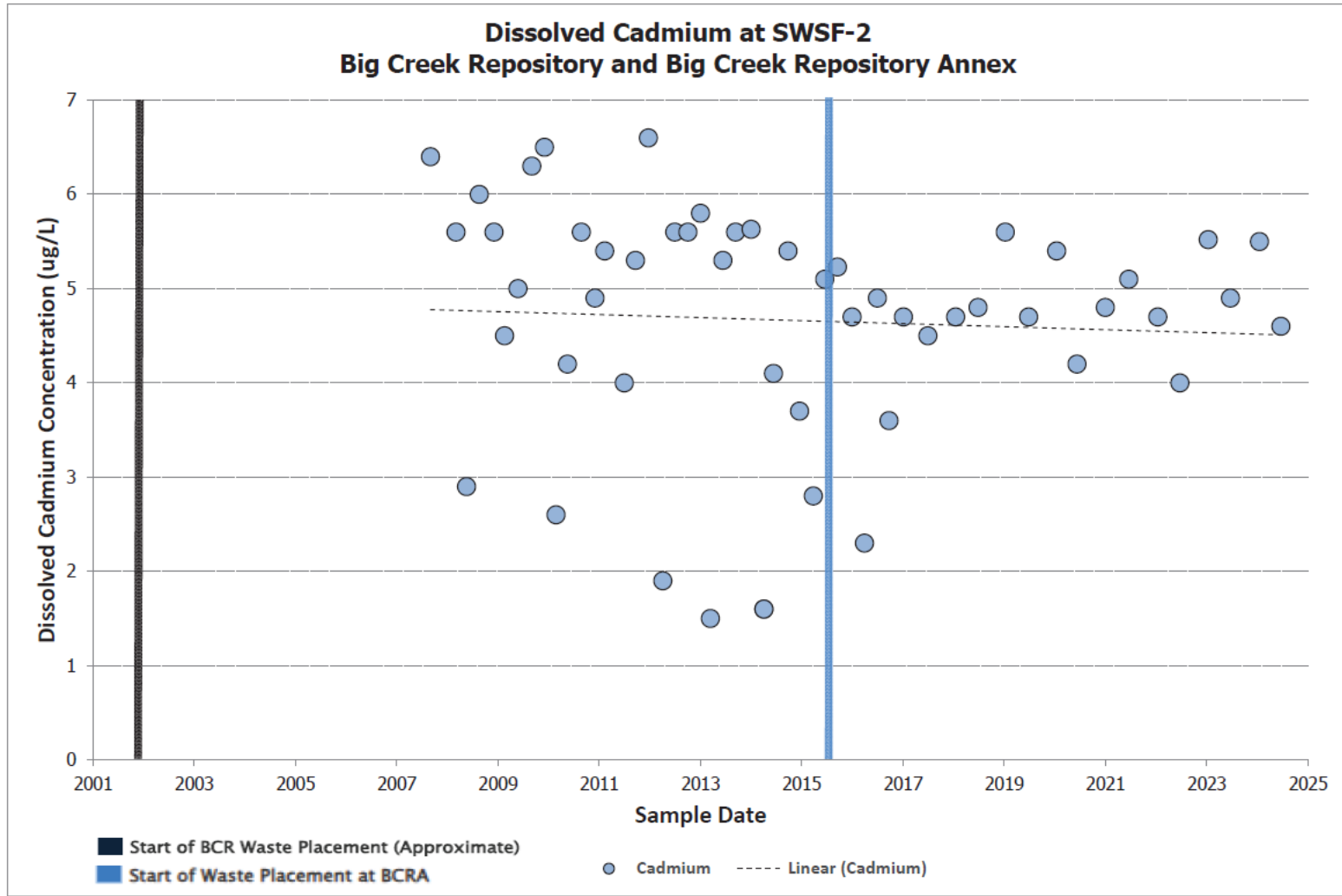


Performance Monitoring at BCR/BCRA



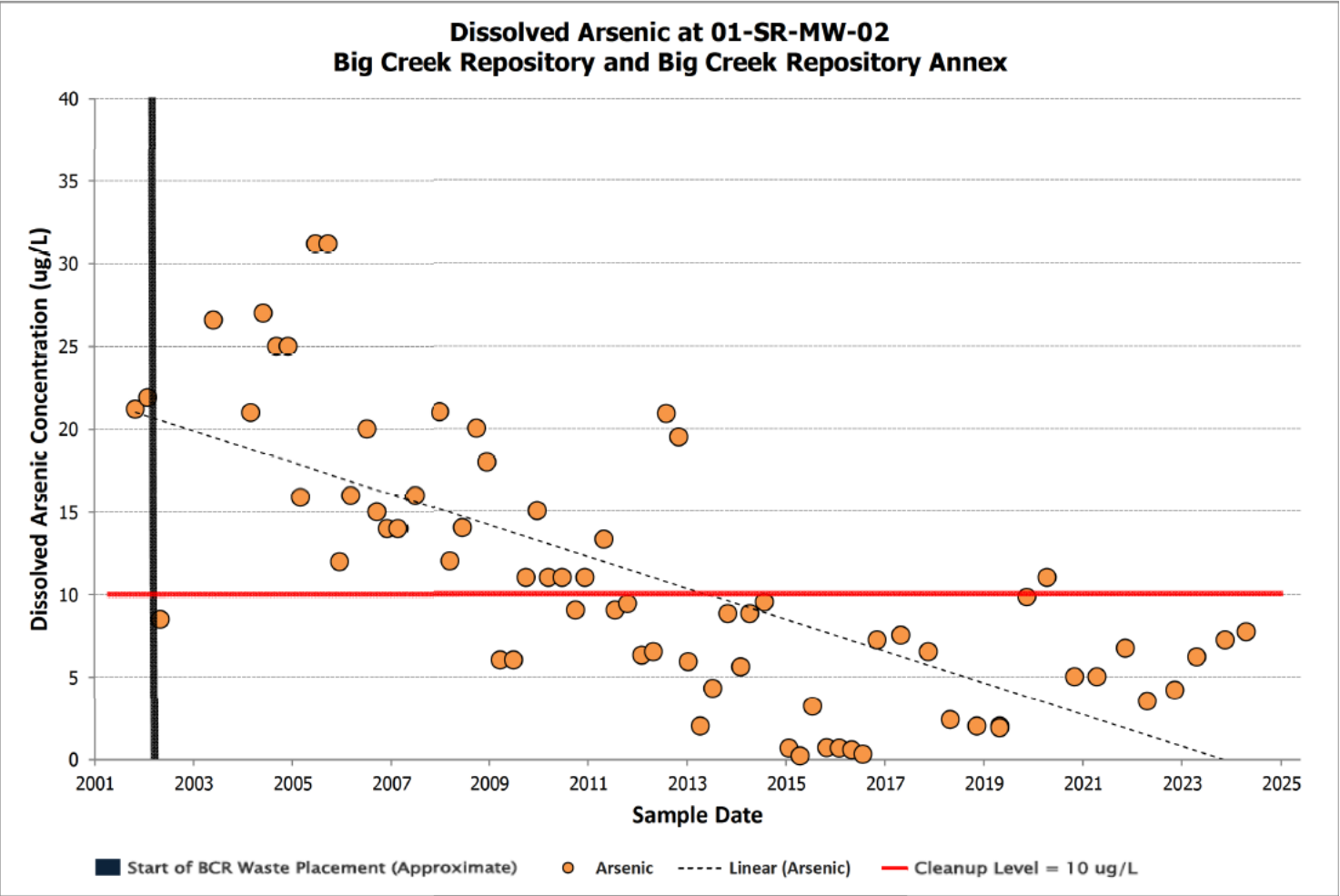
- Monitoring is conducted semiannually in the first and third quarters of the year
- Goals
 - Monitor COC concentrations in GW and SW
 - Evaluate interactions between GW and SW in Big Creek and SFCDR
 - Assess for potential impacts to GW and/or SW quality from repository operations
- Development of decision logic framework





Notes:

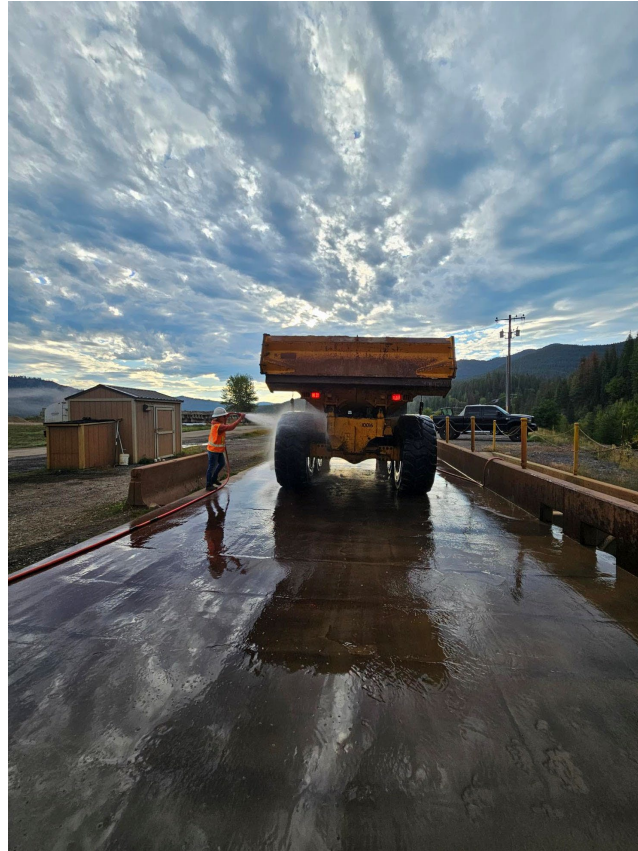
The exact date on which waste placement began at BCR in 2002 is unknown, but was likely during the April to October field season.
 The RODA surface water cleanup level for cadmium is based on the South Fork Coeur d'Alene River-specific chronic AWQC (as specified in IDAPA 58.01.02.284) (EPA 2012), which is a function of hardness and sample-dependent. Since the cleanup level is unique to each sample, the cleanup level for cadmium is not shown on the graph.
 AWQC = ambient water quality criterion.
 BCR = Big Creek Repository.
 BCRA = Big Creek Repository Annex.
 ug/L = micrograms per liter.



Notes:
The exact date on which waste placement began at BCR in 2002 is unknown, but was likely during the April to October field season.
The cleanup level is per the National Primary Drinking Water Regulations. Groundwater criteria based on the total recoverable fraction have been applied to sample data reflective of the dissolved fraction. Therefore, the comparison to the noted criteria may under represent the total presence of the analyte in the water.
BCR = Big Creek Repository.
ug/L = micrograms per liter.

Best Management Practices

- Best management practices can include:
 - Erosion control and surface water management
 - Dust suppression
 - Decontamination pads



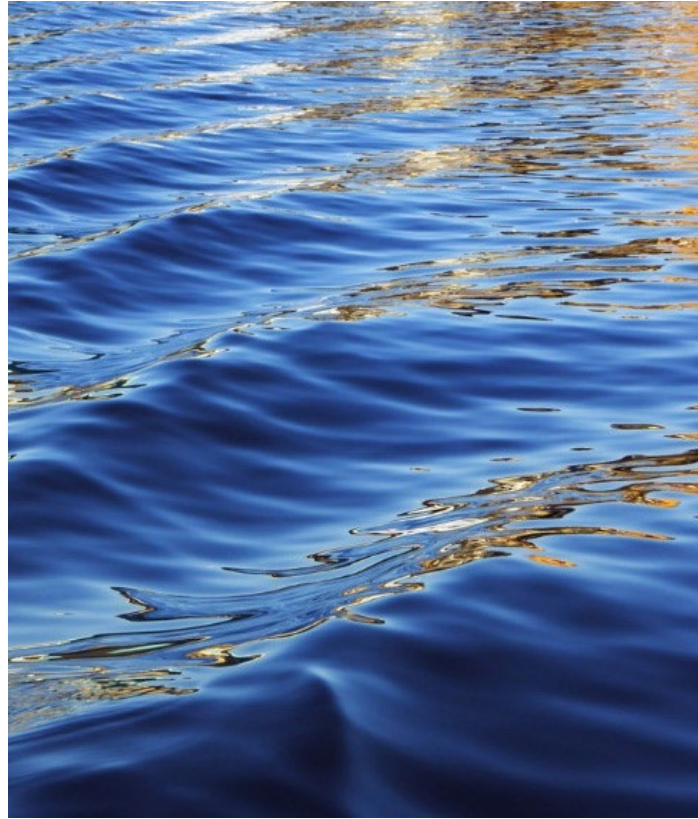
Operation and Maintenance (O&M)

- Monthly O&M Inspections includes:
 - Inspection of infrastructures such as fences, gates, signs, roads, culverts, and bridges
 - Inspection for signs of soil erosion or evidence of subsidence, slope failure or unstable slopes
 - Inspection of stormwater conveyance and control features
 - Well maintenance
- O&M continues after the final cover is installed





Public Engagement and Siting Criteria



How EPA Engages with the Public

- Fact sheets to residents
- public information session
- Facebook
- Newspaper public notices
- Messages to project email listserv
- Basin Bulletin issued 3x a year
- Basin Commission Meetings



The Coeur d'Alene Work Trust is starting to look for places to site *Waste Consolidation Areas*, under EPA's direction. Your input is welcome.

WCAs are places where contaminated material — mostly soil — is stored. The waste material mostly comes from nearby cleanup sites. When WCAs are full, they are capped with clean material. WCAs are engineered and managed to contain the contamination safely over time. This reduces exposure and helps protect people and wildlife.

More cleanup projects are coming to the Lower Basin. The Lower Basin refers to the downstream end of the Lower Coeur d'Alene River Basin. It is the area along the Coeur d'Alene River valley, stretching from Enaville to Harrison. Cleanups will take place in select areas here over the next many years. The cleanup projects will help protect people's health by removing soil and sediment contaminated with heavy metals like lead and arsenic. Several areas are needed to safely consolidate and store that waste. EPA's goal is to have one or more Lower Basin WCAs ready by 2024. The WCAs will be placed close to cleanup projects, to reduce cost and roadway congestion.

In 2009, local communities helped develop these criteria for selecting waste repository locations (the criteria are like a checklist of important things to consider when choosing locations):

- Impacts to wetlands
- Impacts to surface water, fish, and wildlife
- Impacts on floodplain
- Proximity to faults and landslide areas
- Impacts to people living or working nearby (residences and schools along truck haul routes)
- Impacts to businesses along truck haul routes
- Trucking costs
- Potential for economic redevelopment once repository construction is complete
- Storage capacity

We want to check in with you to make sure this is still the right list of considerations. What do you think? Are these considerations still relevant? Are there other issues to consider? Send your input to Debra Sherbina, sherbina.debra@epa.gov, by September 30, 2020.

Siting WCAs can be a complicated task. In addition to local values, there is also much to consider from a technical standpoint. EPA will give full consideration to community input when siting these WCAs. However, it may not be possible to meet all community criteria due to technical criteria, property availability, and other limitations.

For More Information:

Coeur d'Alene Basin Bulletin • <https://go.usa.gov/xfWEP>

Patrick Hickey, EPA Project Manager
206-553-6295 • 800-424-4372, ext. 6295
hickey.patrick@epa.gov

Debra Sherbina, EPA Community Involvement
206-553-0247 • 800-424-4372, ext. 0247
sherbina.debra@epa.gov

If you need materials in an alternative format, please contact Debra Sherbina at 800-424-4372, ext. 0247.
☎ TDD or TTY users, please call 800-877-8339 and give the operator Debra Sherbina's phone number.

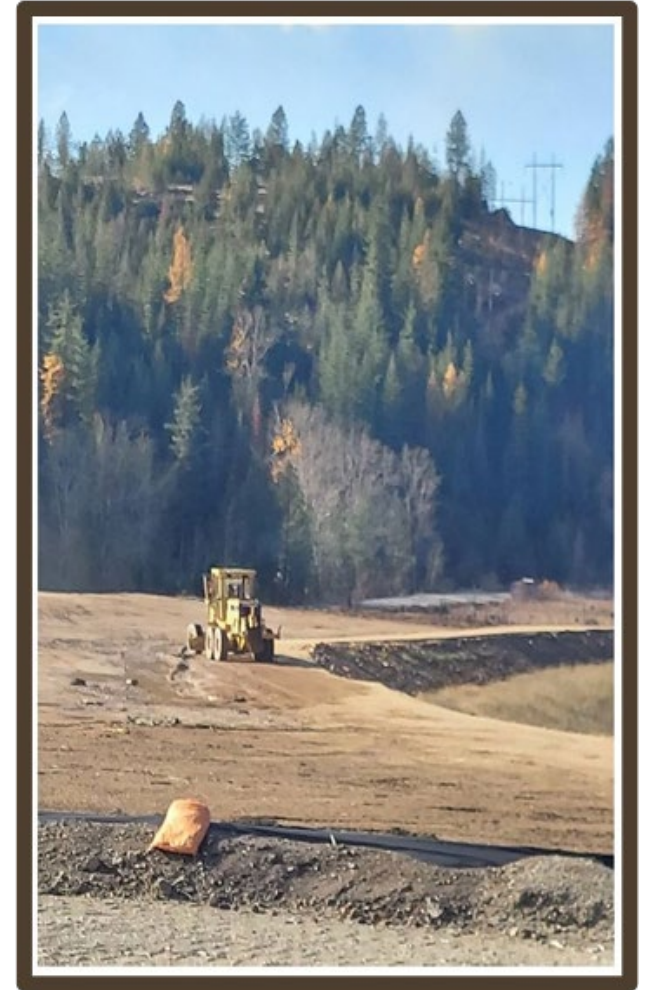
Including Community Values in WCA Siting Criteria: A Public Process

- In 2009, EPA, IDEQ, and local community members developed waste repository siting criteria. The criteria are a checklist of issues local community members told the agencies were important to consider when selecting locations.
- In 2020, EPA asked whether these 2009 criteria were still relevant, and if there were other issues we should consider when finding a location for the new WCA. We held a 60-day public input period.
- EPA issued the "Lower Basin Waste Consolidation Areas Siting Criteria: EPA Responsiveness Summary" to respond to all input we received:
<https://semspub.epa.gov/work/10/100285186.pdf>.

2009 Citizen's Criteria

In 2009, citizens in the Silver Valley's upper basin were asked what concerns they had regarding siting a new repository. They provided the following list of important things to consider when finding locations for repositories.

- Impacts to wetlands
- Impacts to surface water, fish, and wildlife
- Impacts on floodplain
- Proximity to faults and landslide areas
- Impacts to people living or working nearby (residences and schools along truck haul routes)
- Impacts to businesses along truck haul routes
- Trucking costs
- Potential for economic redevelopment once repository construction is complete
- Storage capacity
- Development of WCAs generates clean soil or rock for remedial action construction and caps



<https://semspub.epa.gov/work/10/100253223.pdf>

Ways to Continue Communication w/ EPA

- **Join our mailing list:**
<https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=1000195>
- **Contact Community Involvement Coordination team:**
 - Rafi Ronquillo (206)-603-6358, Ronquillo.Rafi@epa.gov
 - Deb Sherbina (206)-679-9667, Sherbina.Deb@epa.gov



Q&A/ Discussion

