

Lower Basin Superfund Cleanup and Waste Consolidation Areas

Consolidating Waste to Protect Human Health
and the Environment

Strategies for the Lower Basin and Lower Basin
Waste Consolidation Areas Siting Criteria



Let Me Introduce Myself

I'm Patrick Hickey

- 2003 North Carolina State University / 2006 University Of Idaho graduate
- Masters Degree in Soil and Land Resources (Soil Chemistry)
- Started at EPA in November 2018
- Project Manager overseeing repositories, waste consolidation areas, and limited use repositories



Studying at Iddings Hall at the U of I

At the 2019 North Idaho Fair




Showing off my study site to my proud mother
(Black Rock Slough near Bull Run)

What is the Lower Basin?

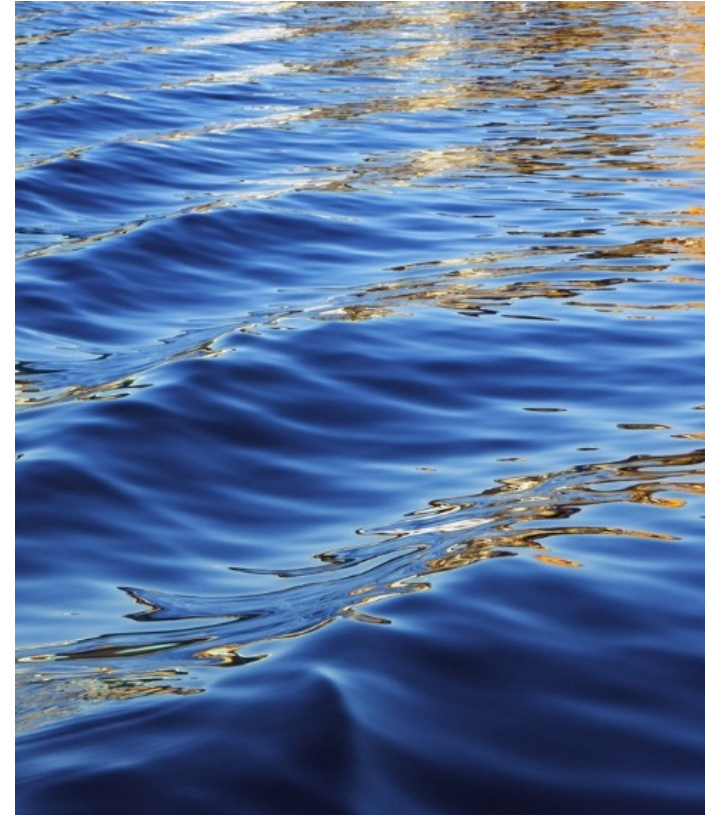
- The Lower Basin refers to the downstream portion of the Lower Coeur d'Alene River Basin.
- The Lower Basin is the point where the North and South Forks of the Coeur d'Alene River connect.
- It is the area along the Coeur d'Alene River valley, stretching from Enaville to Harrison.
- The Lower Basin is a part of the Coeur d'Alene River that has a much smaller elevation drop which lowers the river flow speed.





Mine Wastes and Contamination in the Silver Valley and Kootenai County

Where they are and how we are cleaning them up



What are the contaminated materials?

- The contaminated materials come from metals in mine tailings.
- Prior to 1968, mine tailings were deposited in small creeks and streams connected to the South Fork of the Coeur d'Alene River.
- Tailings were also deposited onto hillsides.
- Over time, the contaminated materials from the tailings washed into the South Fork of the Coeur d'Alene River and then into Lake Coeur d'Alene.

- ☐ Lead
- ☐ Cadmium
- ☐ Arsenic
- ☐ Antimony
- ☐ Zinc
- ☐ Copper
- ☐ Mercury

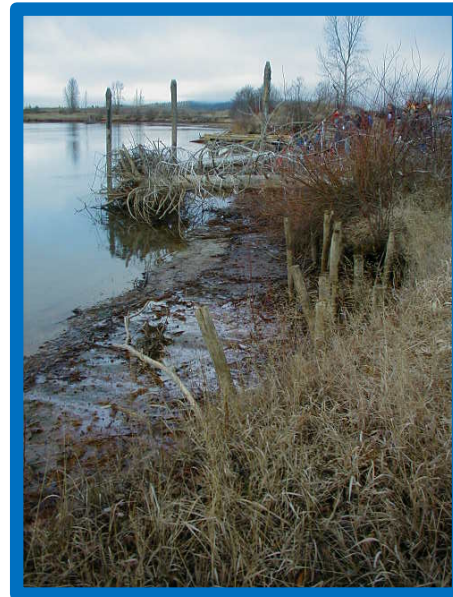
River transported to...



- Wetlands



- Riverbeds*



- Riverbanks and Floodplains

**Where are the
contaminated
materials in the
Lower Basin?**

Where do the collected contaminated materials go?



- Removed from areas where it impacts human health and the environment,
- Placed in a **Waste Consolidation Area** or a **Waste Repository**,
- Then it is capped, monitored, and maintained into the future



Waste Consolidation Area (WCA)

- ☐ Engineered
- ☐ Designed for Each Unique Site
- ☐ Located Near Waste Source
- ☐ Designed for a Specific waste stream or streams
- ☐ Maintained During and After Closure

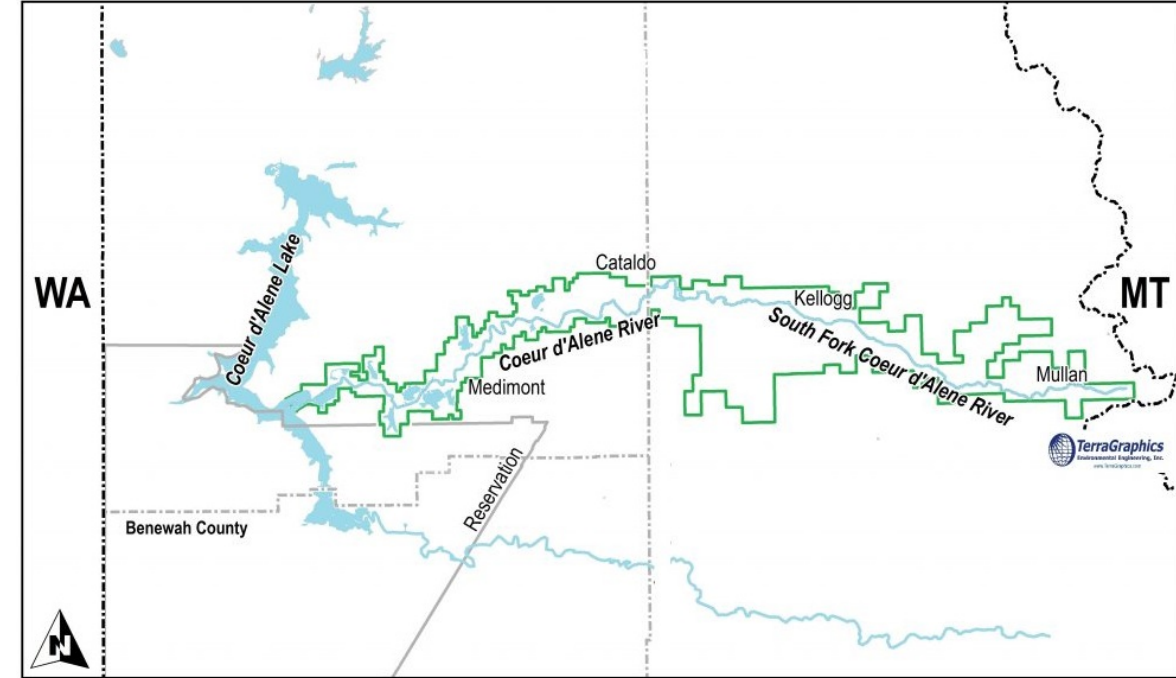


Waste Repository

- ☐ Engineered
- ☐ Designed for Each Unique Site
- ☐ *Not* Always Located Near Waste Source
- ☐ Designed for Varied Waste Streams
- ☐ Maintained During and After Closure

Institutional Control Program and Contaminated Materials

- Institutional controls are an important component of the remedial actions taken at the Bunker Hill Superfund Site. They provide various legal land use restrictions and regulations where contamination may remain after remedy work has been completed.
- Institutional Control Program, or ICP, is an important part in the execution and upkeep of institutional controls. It is run by the Panhandle Health District (PHD). The PHD manages many programs associated with human health in the Superfund Site.
- One of the main goals of the ICP is to ensure barriers established over contaminants are maintained. This is done through a permitting process for construction activity that disturbs barriers and/or generates contaminated soils. The ICP provides guidance and oversight for how to properly handle and dispose of contaminated materials.
- PHD also provides education for residents & contractors, sampling assistance, and materials to help maintain your barrier.
- The contaminated soils are the responsibility of the resident or contractor performing the removal or transport, and not the PHD.



Boundaries of the ICP for the Bunker Hill Superfund Site

How do WCAs interact with the ICP?

In a nutshell, they don't...

Contaminated soils removed under the ICP are directed to repositories and **not** WCAs.

Location, Location, Location

- WCAs are specifically located such that they are close to the waste source.
- WCAs are designed for project specific waste streams.
- Once the project objectives have been completed, the WCA is capped, monitored, and subject to Institutional Controls.
- WCAs are an essential part of the CdA Basin cleanup. To manage WCAs, Institutional Controls (IC) are used to protect human health, the environment, and the WCA.

Examples include:

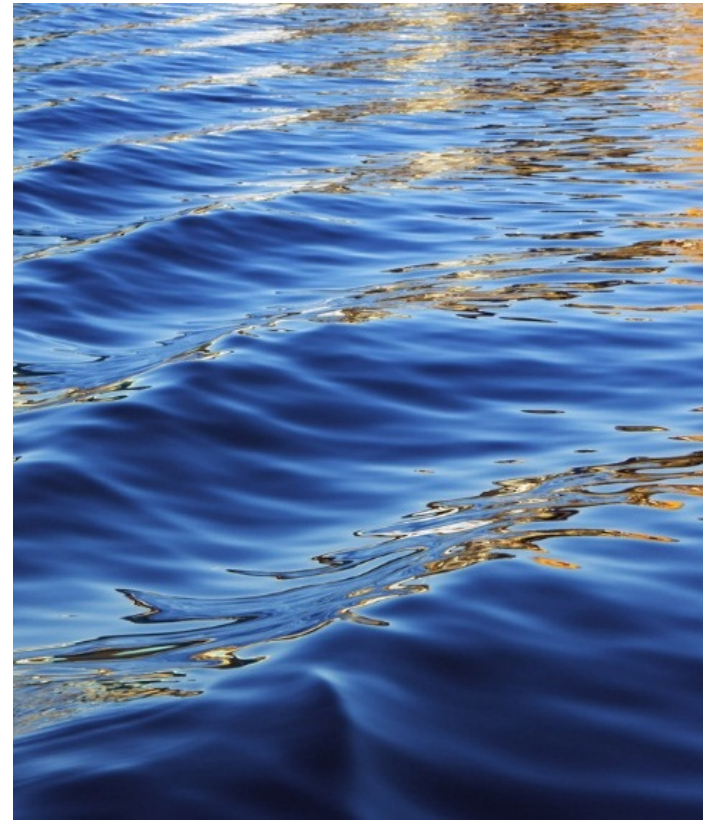
- Fencing, walls, or other boundaries
- Land use restrictions
- Access restrictions
- Redevelopment restrictions

- In comparison to WCAs...
- Repositories are generally located in areas that are convenient (e.g. in old tailings ponds) to many projects.
- Repositories are open to a variety of waste streams from many projects in the valley. For example they:
 - Accept the ICP waste;
 - Accept waste from ongoing, larger cleanup projects (e.g. mine site cleanup)
 - Accept wastes not previously anticipated.
- While repositories may be open longer, they do have an engineered capacity and must close (capped, monitored, and ICs in place) upon reaching that volume.



Cleanup in the Lower Basin

Continuing to make the Silver Valley and Kootenai
County healthier



Pilot Project Planned for the Lower Basin

- ❖ Planning for a pilot project is underway for the Dudley Reach area of the Coeur d'Alene River.
- ❖ However, no approach has been selected. It is plausible that some riverbed and bank material will need to be removed regardless of the type of technology tested, and that creates the need for disposal.
- ❖ The Coeur d'Alene River, below the confluence of the North and South Forks, has about 37 miles of contaminated riverbed and banks.
- ❖ Planning driven by science, data, and adaptive management will determine the future cleanup locations.



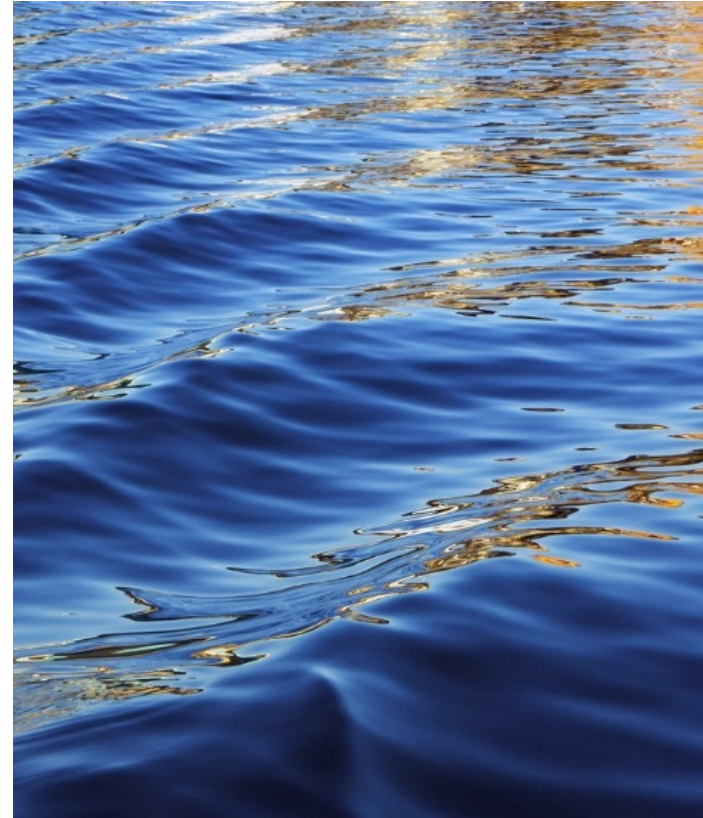
What Guides Lower Basin Projects?

- Projects in the Lower Basin will use EPA's **Adaptive Management Project Management Plan**¹.
- The plan aids in many aspects of project management and builds off years of experience at the Bunker Hill Superfund Site.
- The plan directs the EPA's use of new information we've learned about the site to help guide our cleanup projects.
- EPA will use adaptive management principles to lead decisions on starting and carrying out projects.
 - Developed as a living document for the Lower Basin project areas of the Bunker Hill Superfund Site, the plan includes:
 - Documentation and regular review of site goals, objectives, and strategy.
 - Use of models and tools to help make better decisions.
 - A careful, organized analysis as well as identifying factors that can affect outcomes
 - Establishing and documenting measurable goals.
 - Formal process for assessing potential actions and decisions.
 - Links to detailed plans for monitoring, evaluating, and informing future actions/decisions.
 - Getting and using stakeholder feedback.



Siting a Waste Consolidation Area

A very careful process



Differences between the Coeur d'Alene River's Upper and Lower Basins

The Lower Basin refers to the downstream portion of the Lower Coeur d'Alene River Basin. It is the area along the Coeur d'Alene River valley, stretching from Enaville to Harrison.

• Upper Basin

- Steep valley sides
- Many areas above the floodplains
- Swifter river current
- Heavy, coarser contaminants in river

• Lower Basin

- Wide low-lying areas
- Floodplains prominently extend across valley
- Slower river current
- Contamination is finer and is readily waterborne

These are notable differences between the Coeur d'Alene River's upper and lower basins. These differences will be strongly considered when siting a WCA in the lower basin.

Repository Site Selection Criteria

In 2009, citizens in the Coeur d'Alene River'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.

The 2009 Citizen's Criteria considers:

- 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

On the next slide, the above 2009 Citizen Criteria have been incorporated into WCA draft siting criteria.

- Minimize potential for impact to wetlands and related wildlife
- Minimize potential for impact to surface waters and fish and wildlife
- Minimize potential for impact to groundwater
- Minimize potential for impact to base flood elevation
- Site is not near a mapped fault or likely to be affected by a landslide
- Site not likely to result in impacts to persons living or working near the repository (residences, schools, urban areas)
- Truck route along State Highway 3 to the WCAs not likely to affect existing persons or businesses
- Minimize trucking costs by locating WCAs close to cleanup areas
- Development of WCAs generates clean soil or rock for remedial action construction and caps
- Capacity of WCAs is sufficient for the planned remedial actions in the vicinity of the WCAs

WCA Site Selection Criteria (continued)

Draft Technical Criteria for WCA Siting

The 2009 Citizen Criteria has been incorporated into draft technical criteria listed to the left. These criteria will be used to evaluate sites for potential WCAs.

Technical Considerations for Siting WCAs



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

These Key Assumptions will be used to guide siting and development of WCAs:

- The WCAs will be sited in the Lower Basin.
- The WCAs will be designed and sited to serve specific geographic areas, feasibly serving more than one specific remedial action.
- Using standard engineering practices, the WCAs will be designed to minimize potential for metals leaching to groundwater and surface water.
- During operations and after closure, the WCAs must be able to be secured and maintained to prevent off-site migration of contaminated solids.
- WCAs will only be sited within the 100-year floodplain if the contaminant release assumption stated above is met.
 - The sites must be reasonably flat.
- The sites must be accessible from existing roads or the river.

Remediation of contaminated material in the riverbed is the pilot project's key point. While a particular approach hasn't been chosen, material removal may or may not be needed. If needed, a location is required to store the waste.

WCAs are engineered and managed to contain the contamination safely over time.

Deciding where to locate a WCA is thoroughly evaluated, based on the Siting Criteria and Key Assumptions.

Once a site is selected, the WCA is engineered specifically for the site conditions and the cleanup project's goal.

**WCAs are needed
in the Lower Basin
to reduce metal exposure
and help protect
people and wildlife**

Once the project goals have been met and the WCA is full, it is closed and securely capped with clean materials.

We welcome your input

We want to check in with you to make sure we are taking your concerns into account as we move forward with the Waste Consolidation Area siting process.

- ❖ What do you think?
- ❖ Do the 2009 Citizens Criteria for siting repositories work when siting WCAs?
- ❖ Are there other issues to consider?

Send your input to Debra Sherbina, Community Involvement Coordinator,
sherbina.debra@epa.gov.

- ❖ Please send your comments by September 30, 2020.



Thank you!

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