



Former ASARCO East Helena Smelter Site Slag Pile Survey

Montana Environmental Trust Group (METG) is seeking community feedback about the slag pile recycling and capping project.

Background Information

East Helena Slag Pile

The 16-million-ton slag pile at the former ASARCO lead smelter is a defining feature on the landscape in East Helena. (See [Figure 1](#).) The pile occupies 65 acres and rises 150 feet above ground (equivalent height of a 15-story building). (See [Figure 2](#).) The black, glass-like slag pile was created by [pouring molten slag](#)—the byproduct of smelting ores to produce lead bullion. The pile grew over the 110-plus years that ASARCO operated the smelter.

The slag pile consists of “fumed slag” (FS) and “unfumed slag” (UFS). From 1940 to 1982, zinc was recovered from FS before it was poured onto the pile. (See [Figure 2](#).) After shutdown of the fuming plant in 1982, ASARCO poured the ±2-million-ton “upper lift” of UFS, which contains zinc and other metals. (See [Figure 3](#).) Most of the pile —±13 million of the 16 million tons—is fumed.

Groundwater Impacts

While precipitation causes all slag to leach metals to groundwater, the upper lift of UFS is the source of 75% of the remaining selenium. To prevent selenium from loading to groundwater, EPA has approved the final remedial action at the former smelter, which entails grading and capping the UFS with an estimated 2-foot-thick vegetated soil cover. A similar, thinner vegetated soil cover will be placed over the rest of the slag pile.

Slag Recycling Project

In 2021, METG began working with Metallica—an international metals trading company—on a recycling project designed to remove the upper lift of UFS. (See [Figure 4](#).) Slag was crushed, transported by rail to Canada, and shipped to the Korea Zinc (KZ) smelter (in South Korea) for “fuming” to extract zinc and other valuable metals and use the remaining byproduct to manufacture cement. Metallica had planned to ship ±30,000 tons of slag per month to remove ±2 million tons of UFS in 5 years. Since 2021, Metallica has transported almost 145,000 tons of UFS to KZ, but supply chain and transshipping issues delayed delivery of the required slag quantities. KZ terminated its contract with Metallica in June 2024, pausing the recycling project. To resume recycling, Metallica or METG would need to find a new slag purchaser¹ and resolve transshipping issues. Currently, shipping costs are high, and a viable purchaser has not been identified. **Removal of UFS will no longer be feasible once the slag pile is capped.**

Benefits of Removing Upper Lift of Unfumed Slag

- Reduces pile height by 50% if entire upper lift is removed (see [Figure 5](#))

¹ There are no zinc smelters in North America that can handle the quantities of UFS from East Helena.

- Removes primary, remaining source of groundwater selenium contamination
- Shortens the construction time required to grade and cap slag pile by ± 1 year
- Allows slag sale proceeds to fund other East Helena cleanup activities
- Reduces cost to cap slag pile, leaving more funds available for other cleanup activities

Other Facts

- Pursuing the UFS recycling will delay capping the slag pile (which is the final action to remove the largest source of selenium contamination to groundwater).
 - However, groundwater quality has significantly improved as a result of cleanup measures implemented at the Site. The off-site selenium plume has receded by $\frac{3}{4}$ of a mile since 2016. (See [Figure 6.](#))
- A large portion of the slag pile will remain in place and be capped regardless of whether the upper lift is removed.
- Capping will involve regrading and vegetating the pile so it will look more natural.
- Recycling requires crushing, which could increase contaminant leaching to groundwater; however, monthly groundwater monitoring to date has shown no increased leaching to groundwater.
- Grading and capping the pile will take ± 2 years to complete.
- EPA is evaluating placing soil excavated from East Helena residential yards onto the slag pile, which would increase its height and delay capping by several years.

Community Survey Questions

1. **Name:**

2. **Address:**

3. **Email address:**

4. Where do you live? (check box)

- ☐ East Helena
- ☐ Helena
- ☐ Elsewhere

5. Should METG start work on grading and capping the slag pile as soon as possible or continue working to find a slag buyer to resume the slag recycling?

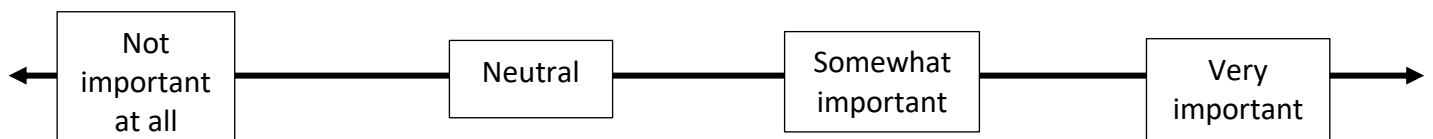
6. If you think other potential buyers should be pursued prior to capping, how long should METG and Metallica try to find a UFS buyer and resume the slag project before preparing to cap the pile?

- ☐ 6 months
- ☐ 1 year
- ☐ 2 years
- ☐ More than 2 years

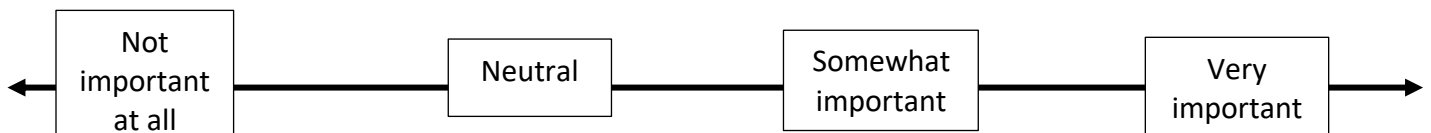
7. Do you care how long it takes to cap the slag pile?

- ☐ Sooner is better
- ☐ No preference
- ☐ As long as it takes to find a slag buyer and decrease the pile height

8. Is decreasing the current size/height of the slag pile important to you? Place an X to mark your choice.



9. Is the recycling of unfumed slag important to you? Place an X to mark your choice.



10. Do you have any ideas for letters or a logo that can go on the side of the slag pile after it is capped?

11. Do you have other questions or thoughts?

Thank you for sharing your valuable input! Visit <https://www.mtenvironmentaltrust.org/east-helena/documents/> to find resources and learn more about the East Helena Site.

Returned surveys can be emailed to an@g-etg.com.

Figures 1 to 3: East Helena Slag Pile



Figure 1

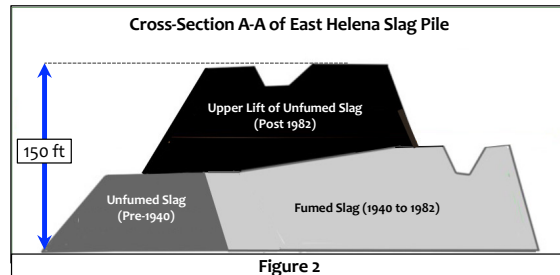


Figure 2

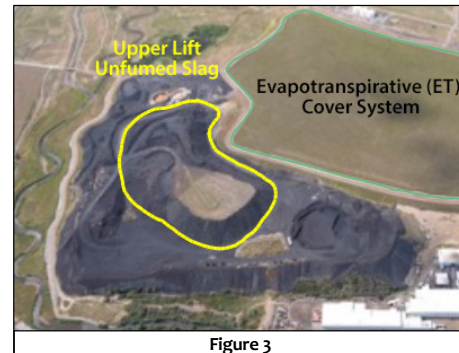


Figure 3



Montana Environmental Trust Group, LLC
Trustee of the Montana Environmental Custodial Trust

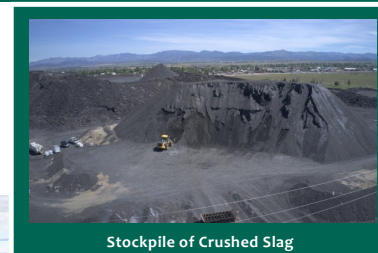
Figure 4: Unfumed Slag Removal Project – East Helena Operations



Loading Crushed Slag into Hopper Rail Cars



Transferring Slag From Stockpile to Hopper



Stockpile of Crushed Slag

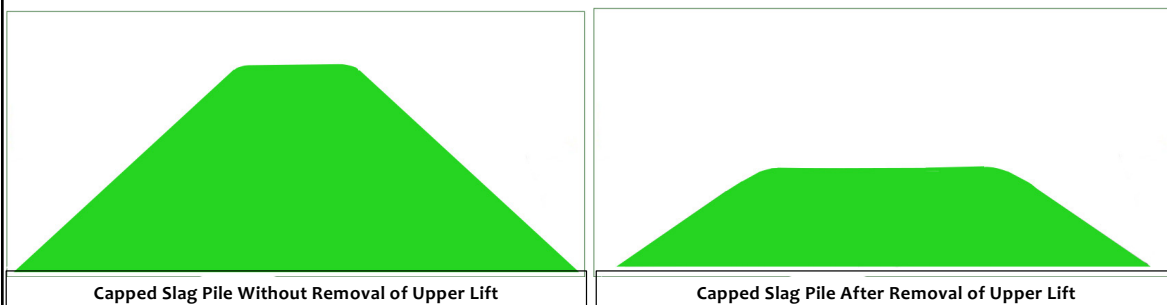


Transporting Slag from Overland Conveyor to Surge Hopper Near Rail Loadout Area (via Radial Stacker)



Transporting Slag by Overland Conveyor from Stockpile to Rail Loadout Area

Figure 5: Capped East Helena Slag Pile



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Figure 6: East Helena Groundwater Selenium Plume

