

# TAILINGS MANAGEMENT AT HECLA

Tailings are the fine grained material remaining after the valuable minerals are separated in hard rock mining and ore processing. After removal of the valuable minerals, the remaining milled rock tailings are typically pumped or flow by gravity to an engineered impoundment area.



## Tailings Stewardship Program

In 2014, Hecla began a formalized tailings stewardship program with the intent to ensure best practices were being implemented and a risk-based approach was being followed. In addition, the company adopted a structured internal company-wide tailings management standard. The Hecla program is benchmarked against industry leading tailings management frameworks of the Canadian Dam Association and Mining Association of Canada's Toward Sustainable Mining, the Global Industry Standard on Tailings Management. These frameworks include development and communication of emergency response plans, including site specific plans to prevent overtopping of impoundments, early warning and prevention systems, and emergency response plans that are periodically reviewed and tested.

The Hecla program includes:

- Third party review and assessment of design, construction, operation and monitoring systems.
- High level risk assessments in design and operations
- Operation, maintenance and surveillance plans
- Standardized design criteria considerations with a focus on geotechnical stability and water management
- Assigned responsibilities for the third-party engineer and designer of record as well as Hecla's tailings management team

- Tailings reclamation plan reviews
- Emergency response planning
- Quality assurance, documentation, and other controls

## Dry Stack Method

Hecla was an early adopter of the dry stack method of tailings management at our Greens Creek operation in Alaska. Here, tailings are filtered to a low moisture content and then trucked and placed into a "dry stack" which is not an impoundment. This method minimizes the tailings surface footprint, reduces the amount of water retained in the tailings, and lessens the consequences of any potential failure. It also allows the opportunity for concurrent reclamation that further enhances the site's stability.

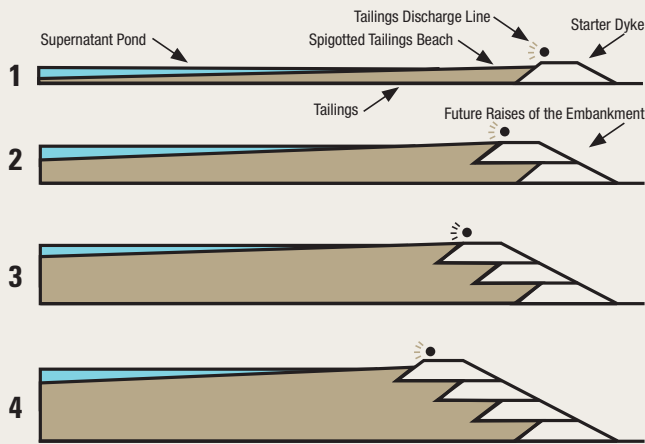
## A High Percentage of Tailings are Reused

In 2020, the total tailings produced company-wide that were returned to the mine as backfill rather than stored on the surface increased from 24% to 28%. Returning these tailings as structural fill increases stability, improves safety, and reduces surface storage requirements. At our Lucky Friday mine in Idaho, the volume of tailings produced in the milling process that was returned to the underground mine as structural fill was 50% and at Greens Creek in Alaska it was 44%.

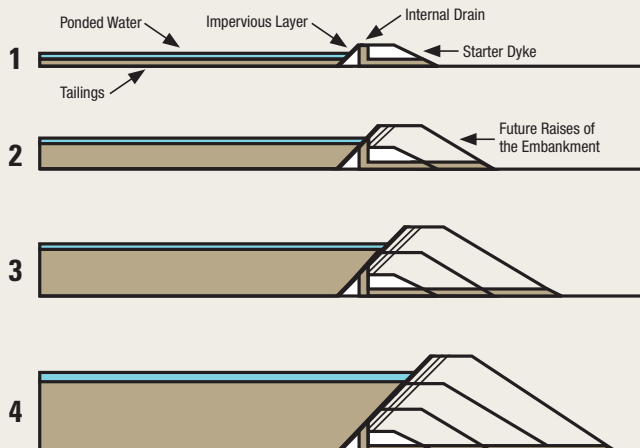
## Q. What type of tailings dams does Hecla have?

**A.** We have six active tailings storage facilities (Greens Creek, Lucky Friday, Casa Berardi, Midas and Aurora), and we lease the Velardena tailings facility in Mexico. The Casa Berardi tailings facility is our only active facility that utilizes the upstream construction method. Our planning for the next tailings expansion at Casa Berardi will include transition to the downstream method of construction. As a 130 year-old company, we have inherited several other tailings facilities which have been closed or are no longer considered jurisdictional dams by the authorities.

### UPSTREAM CONSTRUCTION METHOD



### DOWNSTREAM CONSTRUCTION METHOD



## Q. Are there specific groups dedicated to tailings management within the company?

**A.** Both our tailings management system and our safety and environmental management system include assigned responsibility and accountability. Our tailings stewardship program mandates the formation of tailings management teams that bring our internal experts and external stakeholders together to ensure open communication. This includes assigning a specific person or champion at each site.

## Q. What happens to the tailings facilities at the end of the mine life?

**A.** Before we begin, we think of the finish. The initial tailings design process includes planning for final reclamation and closure of our tailings facilities. However, we perform concurrent reclamation where feasible. For example, we have closed two older facilities and are in the process of closing a third facility at the Lucky Friday Mine in Idaho. Also, the tailings facility at Grouse Creek in Idaho is no longer considered a jurisdictional dam, has been reclaimed, and the financial assurances released. At the Troy Mine in Montana, we have reclaimed the 300-acre tailings storage facility by placing soil cover and revegetating the surface to return the land to productive post-mining uses. We have planted more than 200,000 shrubs and trees that are already creating a self-sustaining native forest community and wildlife habitat.



**TROY RECLAMATION**