# HOLDEN MINE REMEDIATION PROJECT UPDATE

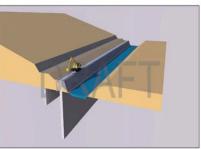
April 29, 2015



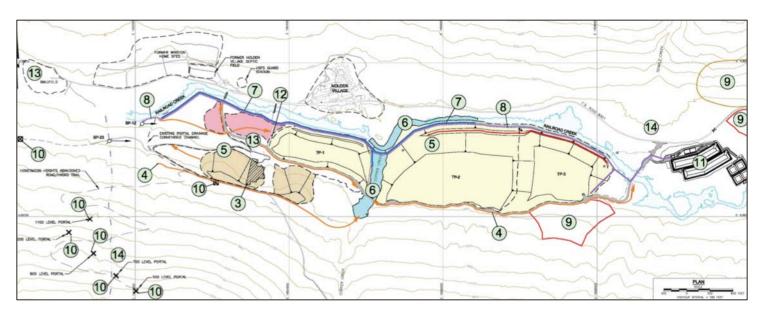
# 2014: a big and busy year

- -Cleanup work began in 2012
- -2013 first year of heavy construction
- -2014 bigger and busier:
  - Installing the below ground barrier wall to collect contaminated water
  - Re-grading and stabilizing tailings





#### Phase 1 Remediation Plan



Preliminary, under review by regulatory agencies

#### **Remediation Plan**



Cap regraded tailings with crushed stone and growing medium, then plant



Demolish mill building



Regrade tailings to prevent leaching into Railroad Creek



Iron staining in creek will eventually dissipate after cleanup

#### Timeline

2011 Early Works

- •Bypass bridge around Railroad Creek (2011-2012)
- •Bypass around Holden Village (2011-2012)
- •Quarry and borrow

2012

Early Works

- site
   Contractor staging area
  - •Underground cleanup
  - beginsBarging from Chelan
  - Boat Company beginsCommunity outreach
  - Safety improvements on roads (ongoing)

 Realign 900 feet of Railroad Creek.

2013

**Major Construction** 

- Temporary diversion of Copper Creek
   Demolish mill
- •Demoilsh mill building/ Holden Village museum
- Site prep/monitoring:
  Platform for barrier
- wall constructionSediment controls
- Water quality monitoring
- •Quarries for rock (erosion protection) and soil (cover)
- •Temp. staging areas for equipment/supplies at Lucerne and Chelan
- Barge ramp improvements

#### •Install barrier wall to collect contaminated water.

**Major Construction** 

2014

- •Begin construction of groundwater collection system.
- •Reshape and cover the tailings and waste rock piles with soil to restore vegetation
- •Consolidate tailings or cover contaminated soils and restore vegetation

 Complete ground water collection system

Finish Construction:

**On-going Monitoring** 

2015 +

- •Complete re-grade of tailings and waste rock piles
- •Construction and startup of water treatment plant
- Monitoring
- •Ongoing barge activity
- Monitoring of ground and surface water

## **Railroad Creek Alignment**



### **Copper Creek Diversion**



## Mill Building Demolition







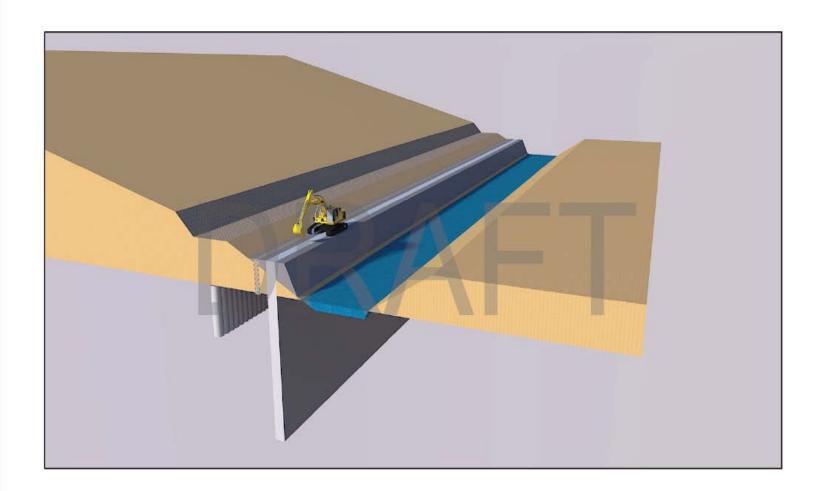
## Initial Tailings Re-grading



## **Barrier Wall Platform**



### Barrier Walls to Improve Water Quality



## **Chelan Boat Company Parking Lot**



#### Lucerne Barge Ramp



# Barge Safety, Schedule & Cargo

#### Safety

- Barges have been operated safely on Lake Chelan for decades
- Operators trained extensively; protocol is in place to deal with emergency situations
- Barges scheduled to avoid highest-use times on lake

#### Schedule

- Average of three barge trips a week between the Boat Company and Lucerne in 2014.
- Barges leave early morning and return in the afternoon or evening barges run seven days a week
- After the cleanup is complete in 2016, a monthly shipment of lime for the water treatment system will be required for many years to come.

#### Cargo

- Barges transport all equipment and supplies needed for cleanup project, including backhoes, dump trucks, pickup trucks, cement, etc.
- Special precautions are taken for the storage and transportation of fuel for vehicles and explosives for blasting of rock

## **Underground Portal**



#### Temporary Maintenance Bldg for Holden Village







## **Dining Hall and Catering Services**



## Economy and the Community

- 370 jobs over the life of the project; 60% from Central Washington.
- 30+ million in local expenditures
  - Camp support and leasing
  - Ferry services, storage area rental, marine transport
  - Equipment rental
  - Fuel
  - Subcontracted and professional services
  - Local lodging
  - Construction related goods and services
- Additional 50% in value will be generated in the community through the multiplier effect



#### **Community Partners**







# What's Ahead: 2014-2015+

- -Complete barrier Wall, if necessary
- -Complete ground water collection system, if necessary
- -Re-grade tailings and waste rock piles
- -Complete all of Railroad Creek Relocation
- -Startup of water treatment plant
- -Permitting/environmental studies/licensing for hydropower plant
- -Monitoring
- -On-going barge activity

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