

THE POWER OF MOLY

Development of Colorado's Water Quality Standard for Molybdenum

July 25, 2023

Agenda

- Introductions and background
- Recap of Stakeholder Meetings
- Reference Dose
- Relative Source Contribution
- Temporary Modification Update
- Molybdenum Removal Water Treatment Plant (MRWTP) Construction Progress
- Next Steps

Recap of Stakeholder Meetings

- Stakeholder meetings have been held routinely since the 2017 Molybdenum Rulemaking/January 2018 Temporary Modification extension; topics have included:
 - Calculation of a water supply standard under WQCC Policy 96-2
 - ATSDR's Toxicological Profile for Molybdenum
 - Uncertainty Factors (UFs) and Modifying Factors (MFs)
 - Relative source contribution
 - Updates on temporary modification
 - MRWTP construction progress

Areas of Agreement

- ATSDR's recommended NOAEL of 17 mg/kg-day based on Murray et al. (2014) should be used in calculating Colorado's water quality standard for molybdenum
- ATSDR's recommended total UF of 100 (10 for intraspecies, 10 for interspecies) acceptable to calculate Colorado's water quality standard
- EPA's updated input factors for body weight and drinking water intake should apply instead of outdated factors in Policy 96-2

THE POWER OF MOLY

Reference Dose and Relative Source Contribution

Temporary Modification Update

- Progress Update shared with Molybdenum Standards Stakeholders on June 30, 2023
- 2023 Progress Update available online:
<https://drive.google.com/file/d/1LSzj6MEjESobEmfKjcrDwRS6hxperlSd/view>
- 2019-2022 Updates also available online:
<https://drive.google.com/drive/folders/1KTn4sbJ8GStQTY2APpTGhDD5ipvZfY9R>

Key Points from 2023 Temp Mod Update



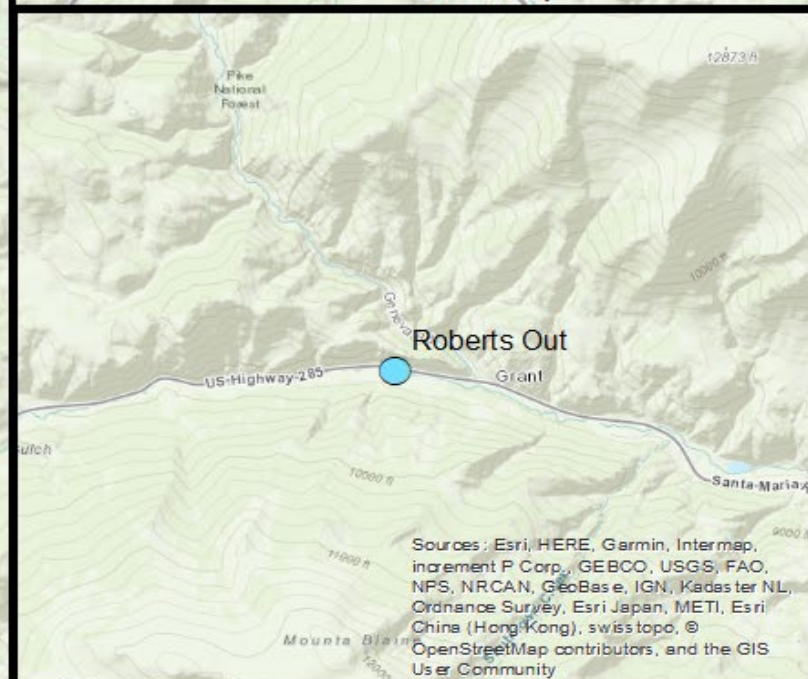
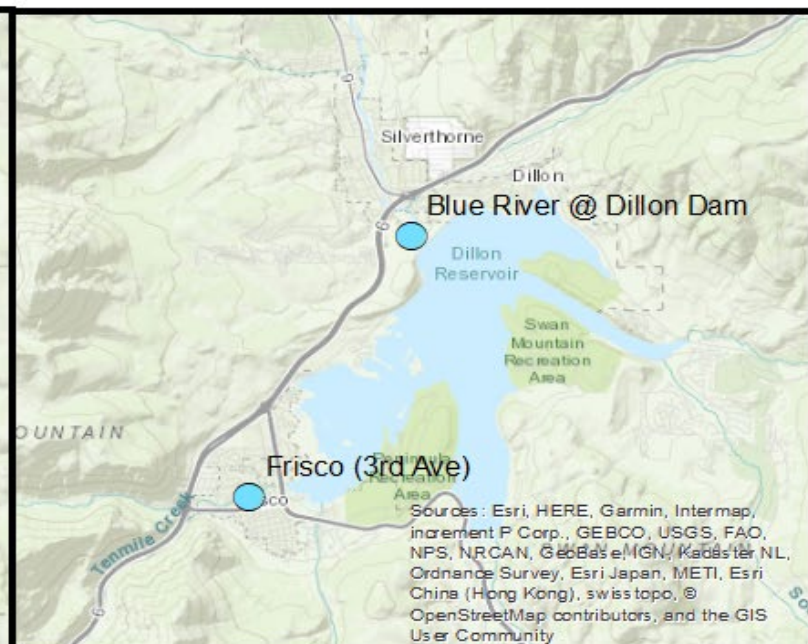
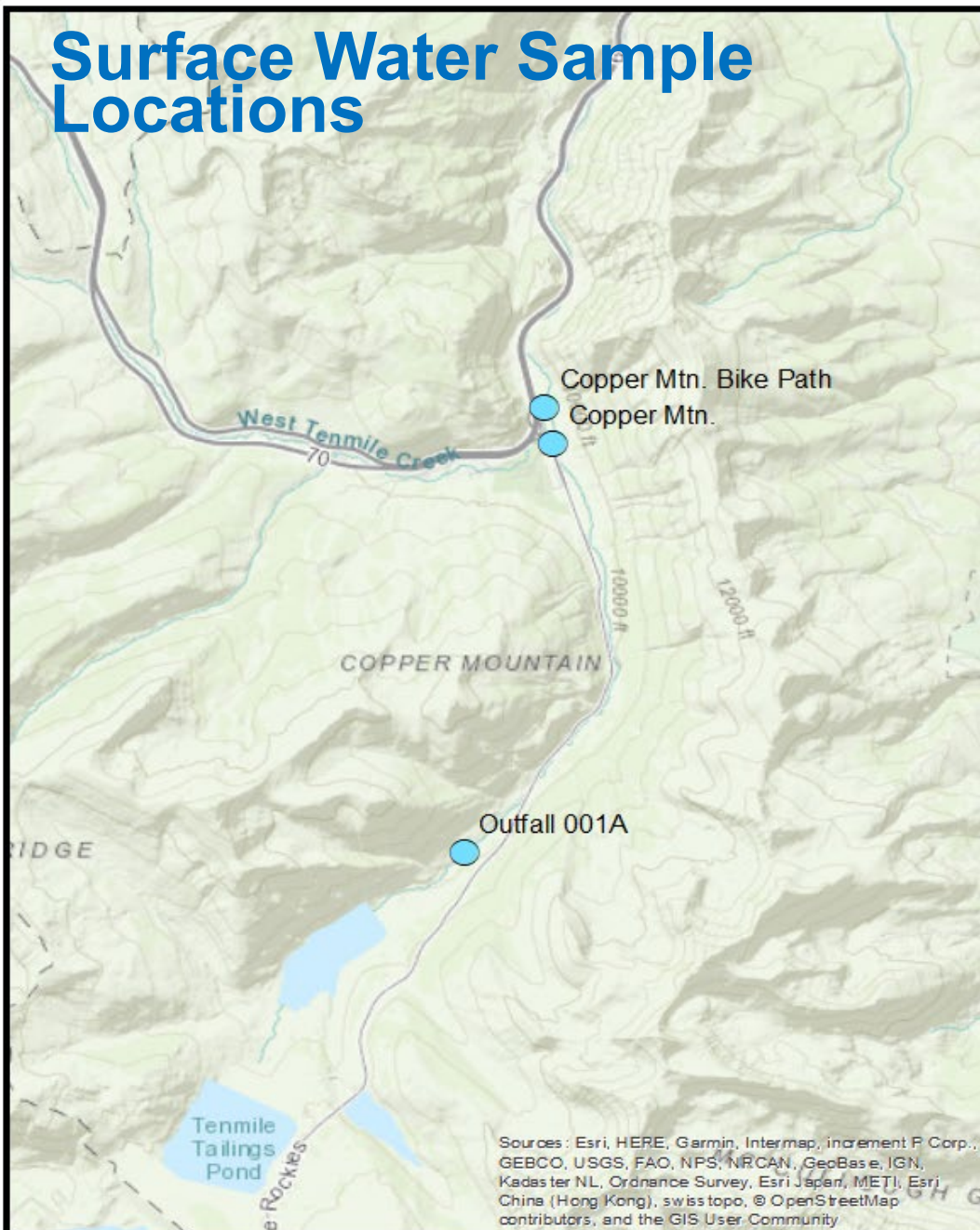
- Climax continues to maintain current conditions
- Climax is currently constructing an additional water treatment plant to reduce molybdenum concentrations in its effluent so that it can maintain current conditions and meet market demand for a product critical to our clean energy future. Construction is anticipated to be complete by the first quarter of 2025.
- New scientific information is available regarding the interaction of copper and molybdenum, providing further rationale to depart from Fungwe et al. (1990), the discredited study that forms the basis for Colorado's current molybdenum standard.

Water Quality Data

Climax Mine has been monitoring molybdenum concentrations in Tenmile Creek downstream of Climax since 2011 to characterize trends over time

- Copper Mountain. (Near Gas Station)
 - Copper Mountain. Bike Path (Downstream of confluence with W. Tenmile)
 - Frisco 3rd Ave. (At 3rd Avenue footbridge)
 - Blue River @ Dillon Dam
-
- Data made available to the public on ClimaxMOinCO.com

Surface Water Sample Locations



Maintaining Current Conditions

Outfall 001A		Tenmile Creek	
Baseline Values		Baseline Values	
50 th Percentile	490 ug/L	50 th Percentile	170 ug/L
95 th Percentile	1610 ug/L	--	--
LCL Values for Evaluation Period		LCL Values for Evaluation Period	
50 th Percentile	431 ug/L	50 th Percentile	156 ug/L
95 th Percentile	1360 ug/L	--	--

Molybdenum Removal Water Treatment Plant Construction Progress



Climax initiated construction on the Molybdenum Removal Water Treatment Plant (MRWTP) in July 2022.

- The MRWTP will ensure Climax can continue to meet the current conditions criteria
- Initial construction activities focused primarily on Moly Removal Building (MRB) sub-grade concrete including column support slabs, sumps, wall footings and walls, and underground piping. As of early June 2023, MRB sub-grade concrete is approximately 80% complete. Once complete the focus will shift to above grade concrete including floors, trench drains, and equipment pads with final placements scheduled for September 2023. Building steel installation will begin in early October 2023 and will be substantially complete by year end.
- Construction completion and plant commissioning is anticipated for Q1 2025

Molybdenum Removal Water Treatment Plant Construction Progress



Rendition of site upon completion

Molybdenum Removal Water Treatment Plant Construction Progress



Foundation and vault work

Molybdenum Removal Water Treatment Plant Construction Progress



Site aerial

Molybdenum Standard Path Forward



- Next steps:
 - Climax accepting feedback from stakeholders on information discussed at stakeholder meetings and other written materials as we aim to develop a consensus proposal
 - Formal proposal due to the Commission mid-January 2024
 - Projected schedule for June 2024 hearing:
 - February: Hearing Notice available
 - March: Proponent Prehearing Statement
 - April: Responsive Prehearing Statements
 - May: Rebuttal Statement

THE POWER OF MOLY

Questions?