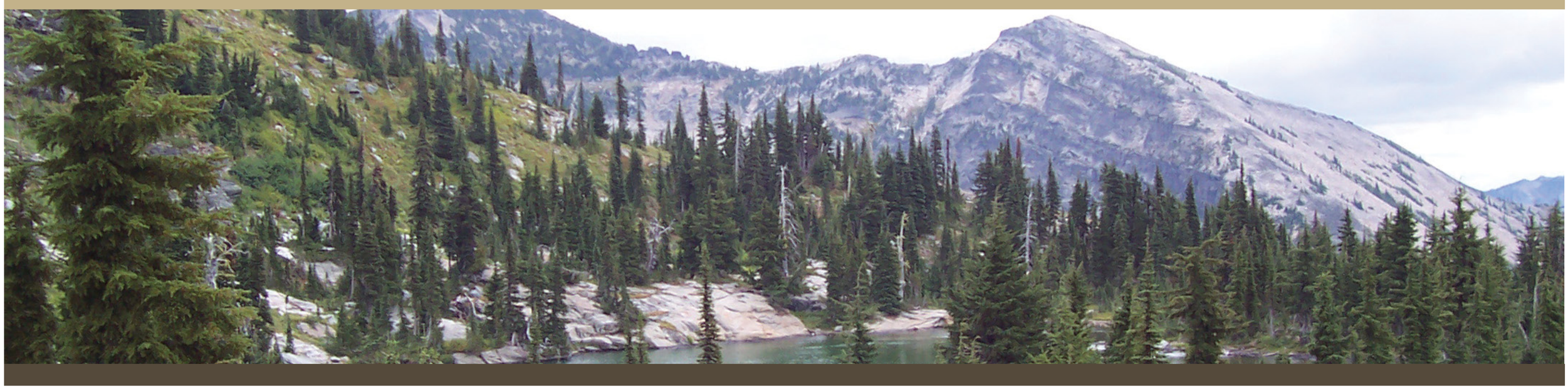
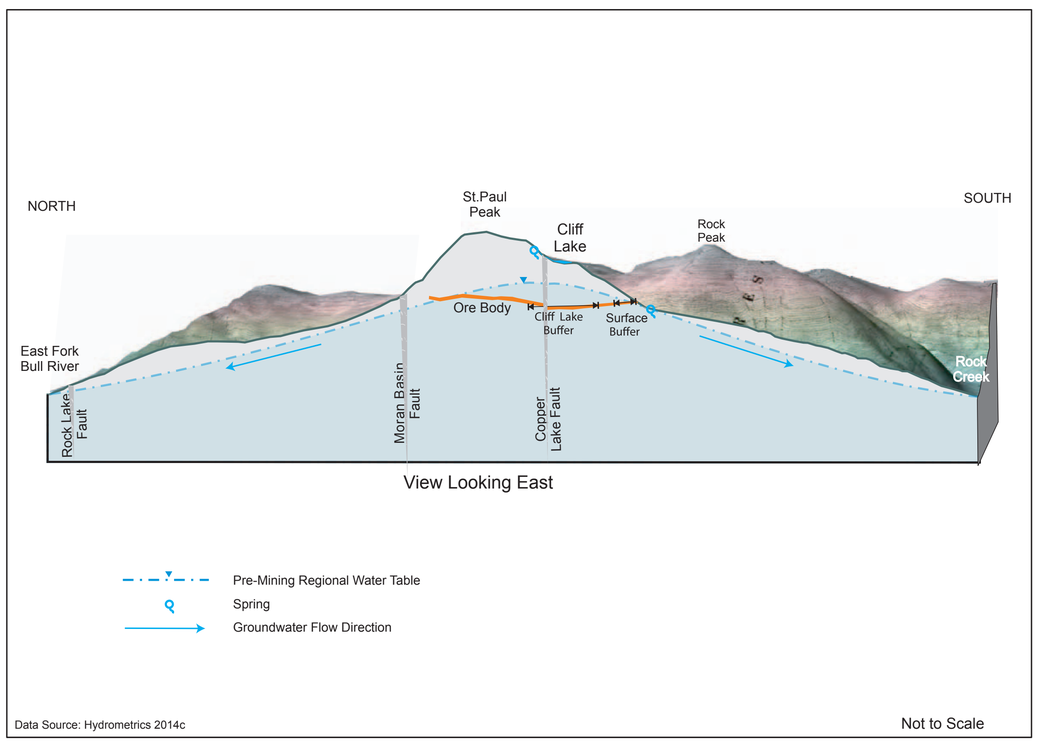


Groundwater Quantity

3D Hydrogeological Model and Effects to Groundwater

- The 3D hydrogeological model was used to estimate:
  - groundwater inflow to the mine and adits,
  - predict where and to what degree groundwater drawdown from mine and adit dewatering would occur, and
  - estimate changes in baseflow for drainages at the basin-wide scale.
- Model predicted the average mine inflow would reach a maximum value of 531 gpm in Year 23.
- Drawdown and related changes in stream baseflow are predicted by the 3D model to reach a maximum within about 35 years after mine closure.
- Following additional data collection during the Phase I Evaluation, the model would be refined and rerun.
- The 3D model and more detailed 2D model predicted no impact on Cliff Lake from Alternative V.
- Springs located above the regional groundwater table (about 5,000 to 5,500 feet) would not be affected by mine dewatering.



Cross-Section of Ore Body and Regional Water Table

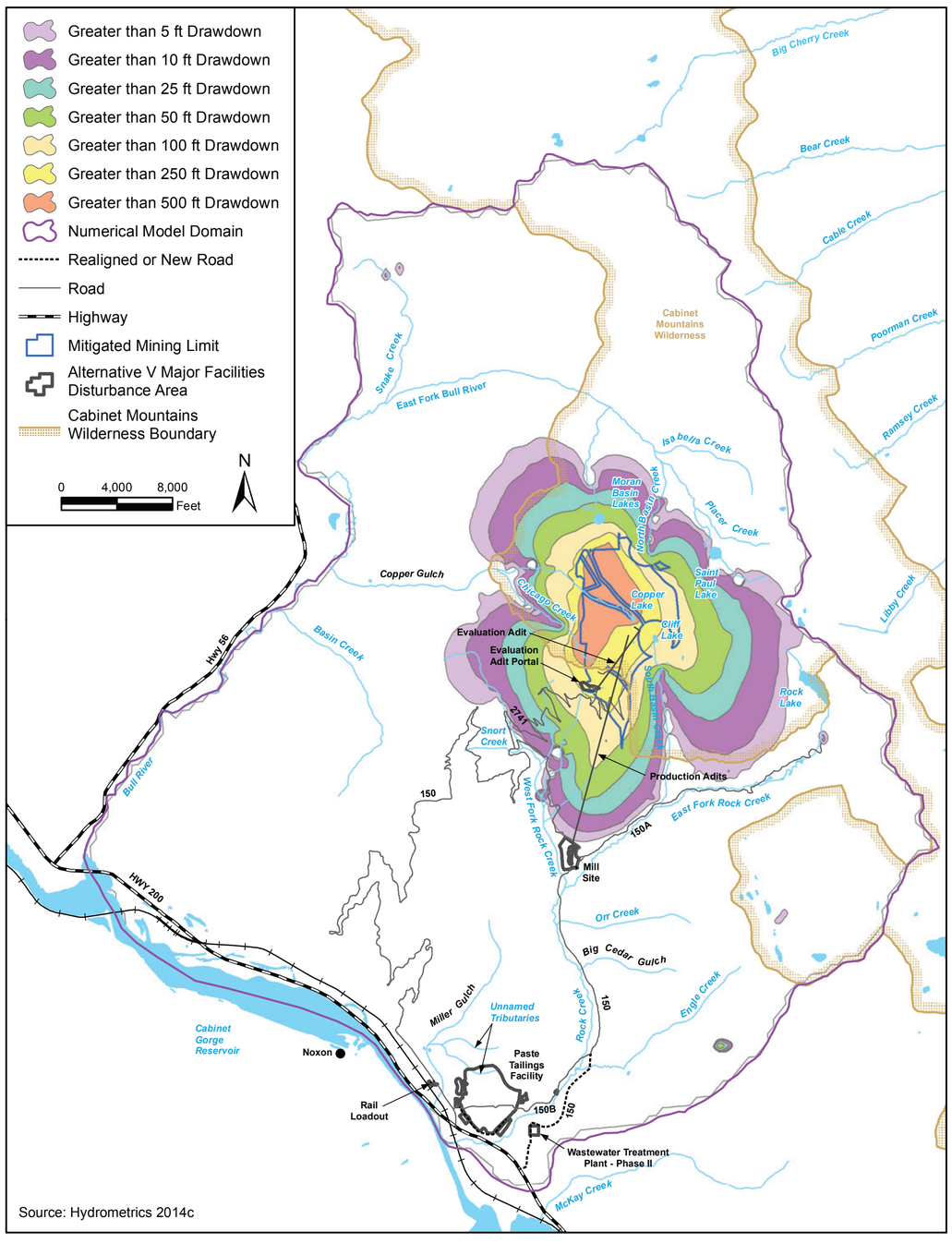
Groundwater Dependent Ecosystem (GDE) Monitoring and Mitigation

- Objective - to effectively detect stress to flora and fauna from effects on surface water or groundwater due to mine dewatering so that mitigation can be implemented to minimize such stress.
- Third-party contractor would complete a Level 2 GDE inventory of wetlands and springs following US Forest Service protocol on areas potentially affected by mine or adit dewatering. Inventory would include the collection of water samples to determine general water chemistry and isotopes to establish the source of the groundwater supply to wetlands and springs.

Mitigation

RCR would:

- Maintain buffers between mine void and water-bearing faults and Cliff Lake.
- Grout ahead of blasting to minimize groundwater inflows to the mine and adits.
- Leave a minimum of 450 feet of overburden to protect against leakage from the mine void to the surface.
- Install and operate pumpback wells to capture affected groundwater, if needed.
- Minimize residual nitrate/ammonia in waste rock by using explosive techniques and management selected for this purpose.
- Remove snow accumulation and divert all stormwater runoff from evaluation pad.
- Install lined collection ditch around toe of evaluation pad.



Predicted Maximum Groundwater Drawdown Extent, Year 70