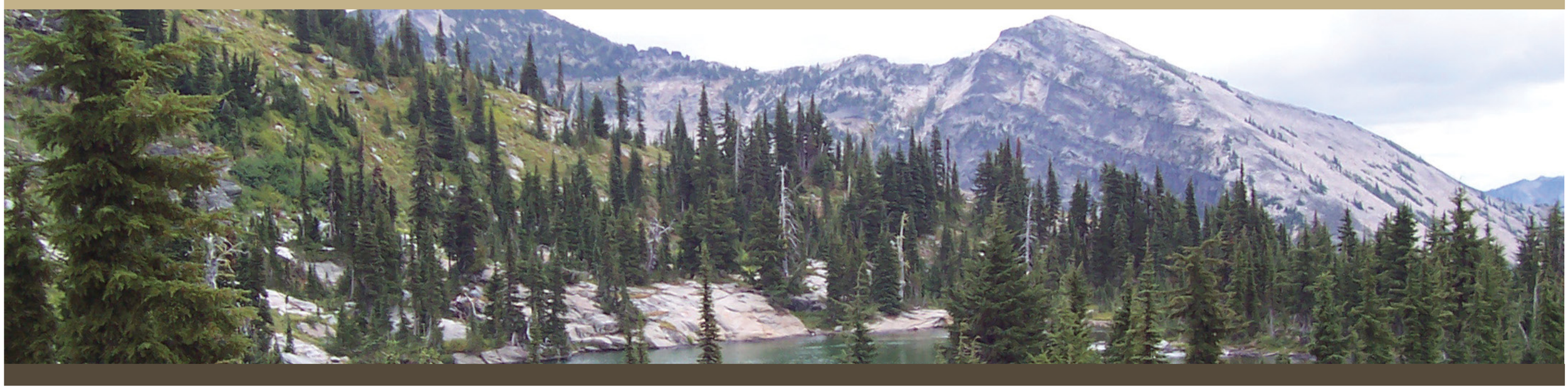
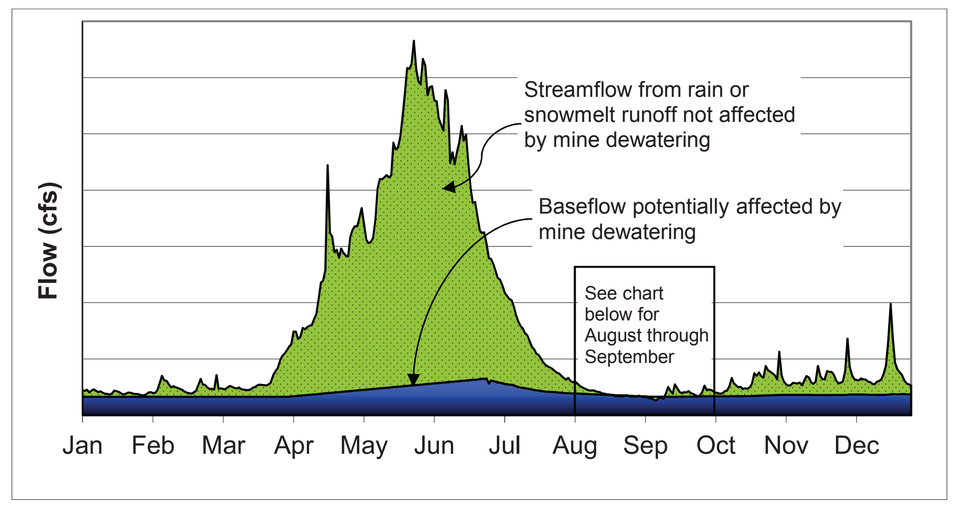
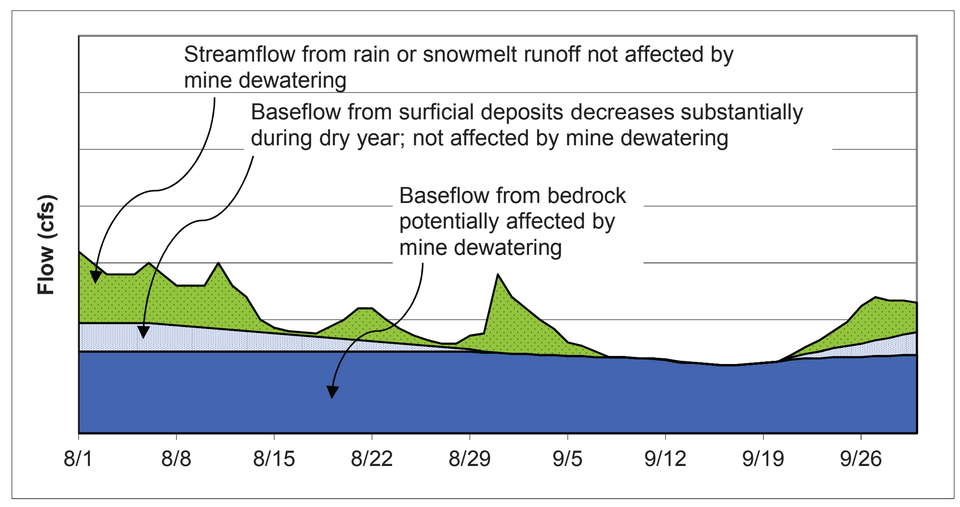


Surface Water Hydrology

Baseflow Changes due to Mine Dewatering:

- "Baseflow" is the flow in a stream channel that is not derived from surface runoff, but rather from groundwater seepage into the channel.
- In stream reaches where surface flow is intermittent, baseflow reduction may result in periods with no surface flow occurring more frequently and lasting longer.
- Mine and adit dewatering may result in perennial flow beginning at a lower elevation in the affected drainages.
- Effects on baseflows would not be measurable when streamflows are dominated by snowmelt runoff or large runoff-producing rain events.
- The 3D model predicted that during Phase I Evaluation, baseflow would not be affected.
- The project area geology, topography, and hydrology suggest that most, if not all, of the reduction in baseflow would occur in the upper watersheds that drain the mine area.
- The 3D model would be refined and rerun after data that can only be obtained underground during the Evaluation Phase were incorporated into the model. Following additional data collection and modeling, the predicted impacts on surface water resources in the study area, including effectiveness of mitigation measures, would be refined and the model uncertainty would decrease.





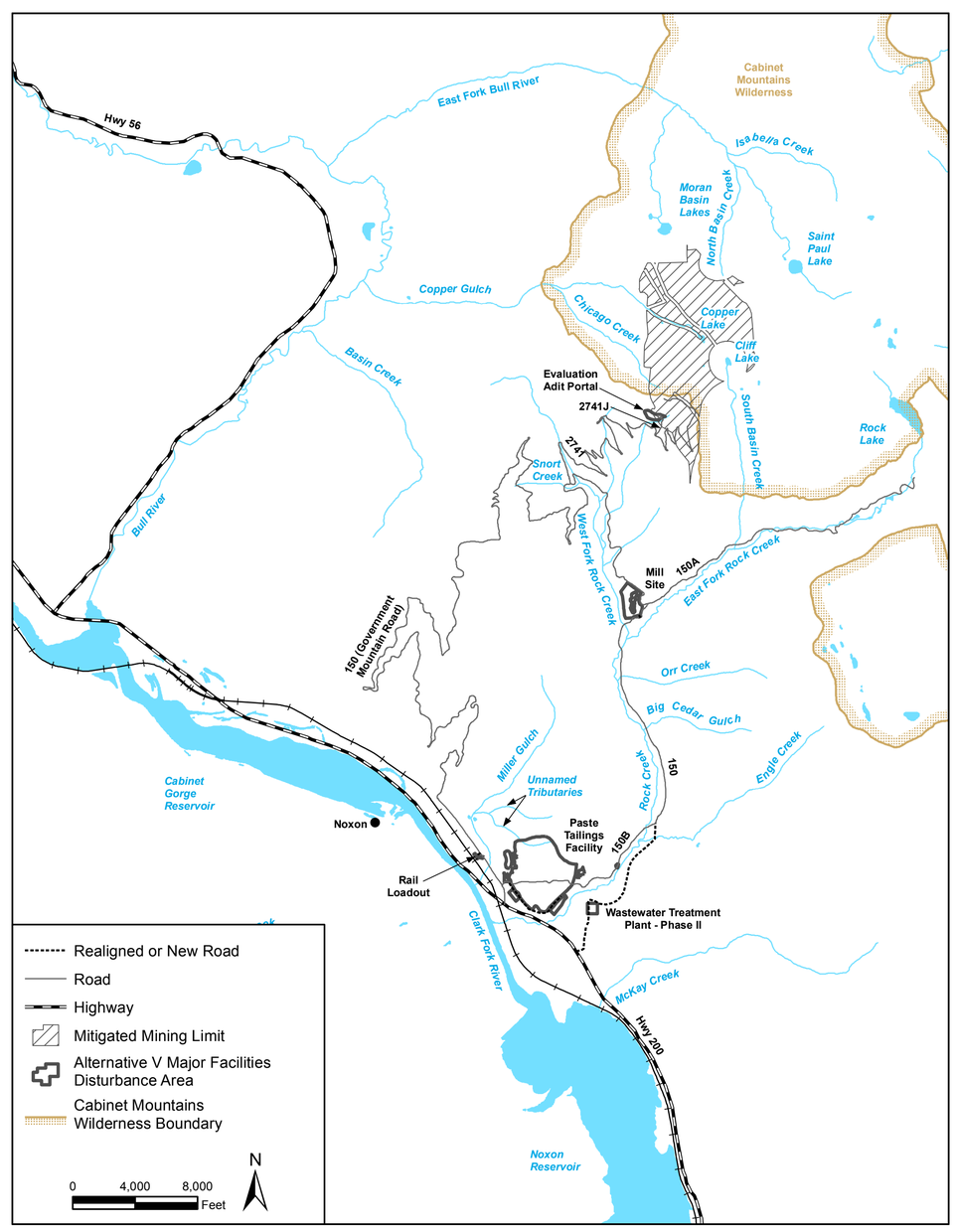
Monitoring:

- Streamflow data would be collected to characterize pre-mining hydrologic conditions.
- Frequent or continuous streamflow monitoring would continue during all mining periods, and after mine closure.
- Streamflows would be measured seasonally, during high and low flows, and during storm events.
- The long-term water monitoring plan would include monitoring the water balance of Cliff, Copper, St. Paul, and Moran Basin lakes.

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.



Surface Water Features