Rapid Infiltration Basins (RIBs)

Mining pits and underground declines often intersect the water table. This water, called "dewatering water", is usually collected in underground sumps before being pumped to the surface and stored in lined ponds. Permittees are required to analyze (characterize) this water before it is returned (infiltrated) back into the water table. The dewatering water quality must meet drinking water standards or be equivalent in chemistry to the natural groundwater in the area. It must not be mine-impacted with contaminants or treatment will be required before it is infiltrated.

Infiltration is accomplished by constructing basins in alluvial soil near the base of a mountain range where eroded material (alluvium) provides good infiltration zones. The basins are usually less than 20 feet deep, though larger ones can be constructed if the dewatering rate is high.

The RIBs are often constructed in pairs or multiples to allow for rest periods and maintenance. The basins must be serviced periodically by ripping the floor (called scarifying) to break up crusts formed by fine-grained material suspended in the dewatering water. The basin must also be weed-free so that plant roots can't trap fine-grained material and cause the basin to "blind off" and form a pond. Ponds may be great for wildlife but the object is to return water to the aquifer and not provide duck habitat.

Permittees are required in their RIB permit to install monitoring wells to ensure the infiltration is not degrading groundwater. Two wells are usually dug fairly close to each other: one is screened in the local aquifer and another that monitors the infiltration mound. If any anomalous data indicate a potential problem, the Permittee is required to cease the infiltration and investigate. However, infiltration water is always required to be characterized before it is released to the RIB. Infiltration mounds showing any degradation are very rare.