

ITEM: 6

SUBJECT: Staff Report on the Impacts, Regulation, and Remediation of Legacy Mines within the Central Valley Region

BOARD ACTION: Informational Item Only

BACKGROUND: The discharge of pollutants from legacy or abandoned mines has significant impacts on surface and ground water quality throughout the state. The Central Valley Region contains an abundance of mines impacting water quality due to its geographic position between the Coast Range on the west, the Sierra Nevada to the east, and Klamath Mountains to the northeast; the high degree of mineralization contained within the three mountainous provinces; and the high rainfall experienced in the area.

The discharge of pollutants from a mine portal commonly originates from the infiltration of precipitation into the subsurface where it contacts and dissolves mineralized native material. This mineralized water collects in the underground workings from where it flows out the mine opening. Other sources of pollutants include runoff from tailings piles and reactive waste rock disposal areas. Pollutants can include heavy metals such as arsenic, cadmium, copper, lead, mercury and zinc, acidic water, and significant sediment discharges from the larger hydraulic gold mines. The discharge is commonly highly variable in both volume and concentration due to recent rainfall events.

The most problematic mines discharge metals in concentrations that are toxic to aquatic life and/or threaten human health. Due to their large physical size and complexity, remediation of these mines can be very costly and can take many years. At some sites it may be impossible with today's technology to reduce metal concentration sufficiently to be protective of all beneficial uses or meet the water quality objectives designated for the receiving waters.

U.S. EPA considers discharges from mine portals, tailings facilities, or other mining conveyance structures that enter surface waters as point source discharges and are susceptible to regulation under the National Pollutant Discharge Elimination System (NPDES).

The State Implementation Policy (SIP) requires NPDES permits to contain numeric effluent limits for priority pollutants, including many metals. Numeric effluent limits for pollutant discharges associated with the control of drainage from abandoned, inactive mines in remote regions with highly variable discharge rates and waste constituent concentrations, often cannot be achieved.

The abatement of mine drainage in remote locations with limited access and infrastructure is difficult. Methodologies may include the installation of concrete bulkhead seals, surface water drainage controls, active or passive treatment systems, isolation and capping tailings and reactive waste rock to prevent infiltration of precipitation, all collectively referred to as best management practices (BMPs). While BMPs can be effective, eliminating

over 90 percent of the pollutants discharged, they still may not be adequate to protect the designated beneficial uses of a given watercourse.

The staff report describes past and on-going remedial activities at abandoned mines in the Central Valley Region, the results of these activities, and describes activities at abandoned mines that have resulted in significant reductions in the discharge of pollutants surface and ground waters.

RECOMMENDATION: This is an information item only; no recommendations are provided.

Mgmt. Review _____
Legal Review _____

May 16, 2014