

Water Quality Report Card

Selenium in Permanente Creek

Regional Water Board: San Francisco Bay, Region 2

Beneficial Uses Affected: COLD, GWR, RARE, REC-1, REC-2, SPWN, WARM, WILD

Implemented Through: NPDES Wastewater Permit

Effective Date: July, 2017

Attainment Date: not declared

STATUS Conditions Improving

Pollutant Type: Point Source Nonpoint Source

Pollutant Source: Naturally occurring
Gravel mining operation

Water Quality Improvement Strategy

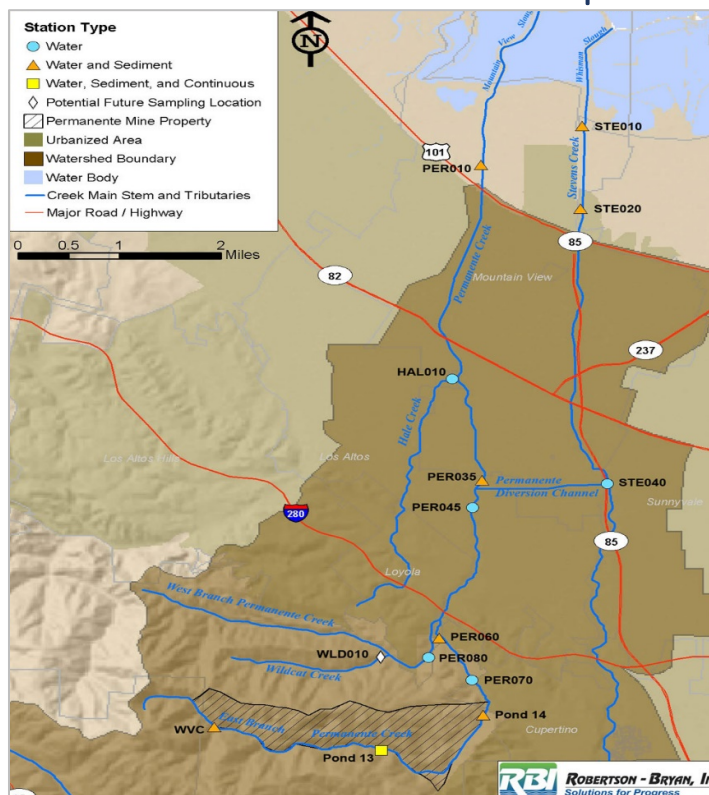
Permanente Creek, in Santa Clara County, discharges to lower San Francisco Bay. The 13-mile long creek was listed on the federal Clean Water Act 303(d) list as impaired for selenium because observed total selenium concentrations in the water column exceeded the chronic water quality objective of 5.0 micrograms per liter. Selenium leaches into the creek from the limestone rock formation in this area. Gravel mining at Lehigh Quarry in the upper watershed increases rocks surface area, thereby increasing the selenium leaching rate. At elevated levels, selenium is toxic to aquatic life.

In 2017 the San Francisco Water Board amended Lehigh Quarry's wastewater treatment permit (Order No. R2-2017-0030) requiring quarry operators to construct a final treatment system to treat all quarry pit water, process wastewater, and stormwater that mixes with process wastewater. The final treatment system uses biological treatment, ultra-filtration, and reverse osmosis to remove metals from these flows before discharge to Permanente Creek. To date this system has successfully decreased selenium concentrations in Permanente Creek downstream of the mine. However, changes in precipitation and quarry operations have the potential to change discharge quality. The Water Board will evaluate water quality for five years to determine whether the impairment has been resolved. [Permanente Creek selenium TMDL](#).

TMDL Waste Load Allocations/Load Allocations

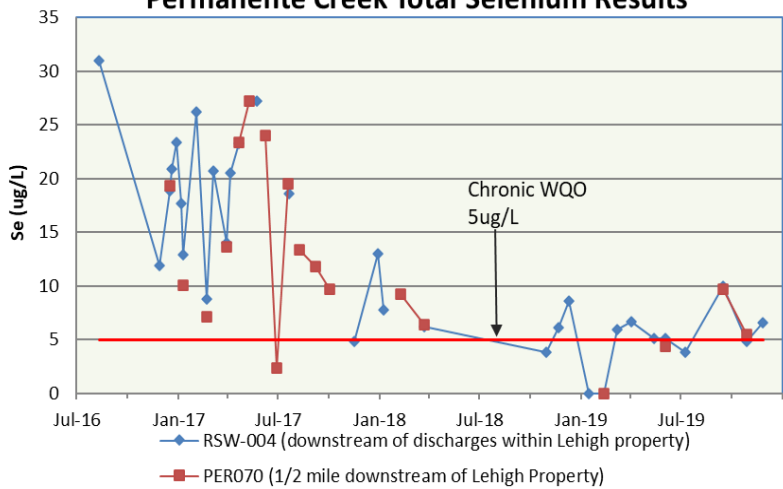
Alternative pollution control requirements were employed to address the impairment. If these requirements prove effective in achieving and sustaining selenium water quality standards, the Water Board will propose delisting or reclassifying Permanente Creek regarding selenium.

Permanente Creek Watershed Map



Water Quality

Permanente Creek Total Selenium Results



Water Quality Outcomes

- Selenium concentrations in Lehigh Quarry's discharges have decreased since full treatment was implemented in December 2017.
- Selenium concentrations in the creek have decreased; on occasion selenium concentrations are higher than the current target concentration.
- Water Board staff will continue to evaluate monitoring data to determine effectiveness of NPDES permit requirements and adjust as needed, or to implement additional corrective actions.