

NORTHERN CALIFORNIA GEOLOGICAL SOCIETY



“GEOLOGY OF THE ABANDONED MOUNT DIABLO MINE”

NCGS FIELD TRIP - Saturday November 13, 2010

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ABSTRACT

The Mt Diablo Mine is located about 5 miles southeast of Clayton, California at the northeast base of Mt. Diablo's North Peak. In 1863, cinnabar was discovered here and the first claim was filed in a flurry of prospecting activity that enveloped the Clayton area in the early 1860's. Subsequently, two mines, the Mount Diablo and the Ryne, were producing quicksilver (mercury) from geologically cogenetic deposits of cinnabar and metacinnabar. Only the Mt. Diablo Mine will be visited on this field trip.

The Mt. Diablo Mine is located in a 2,000 foot long lenticular body of silica-carbonate rock and serpentine that strikes northwest and dips 35 to 74 degrees northeast. This body lies in the boundary fault zone separating Franciscan Formation greywacke, with minor chert and shale, on the fault footwall from well-bedded mudstone and sandstone of Cretaceous age, on the hanging wall. The boundary fault surrounds the Franciscan core of Mt. Diablo and defines a more extensive thrust fault sequence that has uplifted subducted oceanic seafloor by a process known as cold intrusion. Tectonic activity along this and other regional faults has formed Mt. Diablo in the last 5 million years. Hydrothermally altered portions of the boundary fault serpentine yield the mineral deposits that enrich this area. The quicksilver formed by hydrothermal alteration of cinnabar and metacinnabar in the silica-rich rock. The Mt. Diablo mine produced both metacinnabar and cinnabar ore for smelting.

The Mt Diablo Mine had a series of owners before operations ceased in the 1950's. At the Mt. Diablo Mine, extensive tunnels and shafts were worked at five levels, or benches, until the area was open pit mined. Presently the quicksilver ore is exposed in open cut seams.

The current owner, Jack Wessman, purchased both the Ryne and the Mt. Diablo Mine properties in 1973, long after the mines had ceased operation. Shortly thereafter, the Mt. Diablo mine site was placed on the priority pollutants list for releasing mercury into the Marsh Creek Watershed. Mr. Wessman has spent a substantial sum of his own money to mitigate the mercury contamination associated with the abandoned mercury mines and their tailings.

In 2008, as part of the Federal Government's, Stimulus Package, Contra Costa County was funded \$517,000 through the Army Corps of Engineers to help curtail mercury release into the watershed. Congressman George Miller's website indicates the Army Corps has completed Phase I of their Technical Planning Process under the Remediation of Abandoned Mine Sites (RAMS) program, and that the funding request will allow completion of the clean-up process.

THIS FIELD TRIP WILL BE LIMITED TO 30 PEOPLE. Hiking is required. Carpooling is required.

***** **Field Trip Logistics** *****

Time & Departure: November 13, 2010, 8:30 am (sharp), meeting place will be notified

Cost: \$20/person includes, morning coffee and pastries, lunch and a guidebook (no refund for no show)

*******REGISTRATION FORM (Mount Diablo Mine Field Trip)*******

Name: _____ E-mail: _____

Address: _____ Phone: _____ Cell/Alternate: _____

Lunch: Regular: _____ Vegetarian: _____ (Please check one) Check Amount: _____

Please mail a check made out to **NCGS** to: **Tridib Guha, 5016 Gloucester Lane, Martinez, CA 94553**

Questions: e-mail: tridibguha@sbcglobal.net Phone: (925) 370-0685 (evening) (925) 451-1999 (day)