

GEOPHYSICAL AND GEOLOGICAL EVIDENCE FOR STRIKE-SLIP FAULTING ON THE CARRARA FAULT IN SOUTHWEST NEVADA, USA.

1STAMATAKOS, J.A., 1CONNOR, C.B., 2KODAMA, K.P., and 1LAFEMINA, P. 1CNWRA*, Southwest Research Institute, San Antonio, TX 78238, USA. 2Lehigh University, Bethlehem, PA 18015, USA.

Recent geological and geophysical mapping in southeastern Nevada reveal an active strike-slip or transfer fault (named the Carrara fault) within the northwestern arm of the Amargosa Desert in southwestern Nevada, USA. The fault is recognized from the alignment of surficial features in Quaternary alluvium, including possible fault scarps, push-up ridges, truncated alluvial fans, and fault-parallel folds. Detailed geophysical surveys also show a pattern of anomalies indicative of both dextral strike-slip and down-to-the-southwest dip-slip faulting that is consistent with the surficial features. Total offset is presently unknown, but preliminary values based on a 2.5 mgal. anomaly across the fault and offset magnetic anomalies suggest a minimum of 300 m vertical and 3 km horizontal displacement. Best geophysical definition of its subsurface configuration is in an 8 km² area of the Amargosa Desert, where the Carrara fault truncates two north-south curvilinear magnetic anomalies. These curvilinear anomalies appear to be edges of a faulted block of magnetic buried Miocene silicic tuffs or porphyry flows. The magnetic map also shows two high-amplitude (~2000 nT), reversed-polarity magnetic anomalies indicative of buried basaltic lavas. These lavas are situated where the Carrara fault truncates the faulted Miocene block. Recognition of the Carrara fault helps resolve tectonic uncertainties associated with the transition between the Basin and Range and Walker Lane tectonic provinces.* Work supported by the U.S. NRC (Contract NRC-02-93-005). This work is an independent product of the CNWRA and does not necessarily reflect the views or regulatory position of the NRC.