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**Subject:** Nevada County Safety Element  
**Date:** Friday, January 9, 2026 1:59:35 PM  
**Attachments:** [image001.png](#)

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Dear Zachary Ruybal,

The California Geological Survey (CGS) has received the Draft Safety Element (DSE) for Nevada County. We find the DSE to be largely adequate for addressing issues related to geology and specifically geologic hazards. However, we have a few suggestions. This email conveys recommendations from CGS concerning geologic issues related to the project area as addressed in the DSE.

#### Earthquake Faults and Ground Shaking Hazard

The DSE discusses active faults and earthquake hazards in the County, correctly noting that the hazard is greater in the eastern part of the county near Truckee. However, the DSE appears to rely almost entirely on historical earthquakes in concluding, regarding unreinforced masonry buildings in Truckee, that “the previous earthquake history has not shown these structures to be at significant risk during normal events.” If “normal events” are defined as those similar in magnitude, distance, and effect to earthquakes that have occurred in the last ~150 years of historical record, that may be true. However, it would be worthwhile to include a discussion of the faults mapped through Truckee that have documented latest Pleistocene to Holocene activity, including the Polaris and Dog Valley faults, and that have a record of surface rupture associated with significantly larger earthquakes than historically observed. Unreinforced masonry buildings could be at noticeably greater risk from such earthquakes. We should note that although the Polaris and Dog Valley faults have not yet been evaluated for zoning under the Alquist-Priolo Earthquake Fault Zoning Act, they are on CGS’s list and are likely to be evaluated soon.

Further information regarding Holocene surface faults in the Truckee region can be found at:

Polaris fault:

- L. E. Hunter, J. F. Howle, R. S. Rose, and G. W. Bawden, LiDAR-Assisted Identification of an Active Fault near Truckee, California, Bulletin of the Seismological Society of America, Vol. 101, No. 3, pp. 1162–1181, June 2011, doi: 10.1785/0120090261

- Lewis E. Hunter, Ronn S. Rose, Bruce Hilton, William McCormick, Todd Crampton; Discovering the Polaris Fault, Martis Creek Dam, Truckee, California. *Environmental & Engineering Geoscience* 2018; 24 (1): 111–120. doi: <https://doi.org/10.2113/gseegeosci.24.1.111>

Dog Valley fault:

- Pierce, I., & Koehler, R. (2023). 3D Paleoseismology from iOS Lidar and Structure from Motion Photogrammetry: a case study on the Dog Valley fault, California. *Seismica*, 2(1). <https://doi.org/10.26443/seismica.v2i1.208>

If you have any additional comments or questions, please feel free to call or email.

Thank you,

Judy Zachariasen



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