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# USING GIS TO HELP DEFINE THE FISSURE HAZARD FOR SITES IN SOUTHERN NEVADA

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## ABSTRACT

A simple method was developed to help further define the risk for fissuring within Las Vegas Valley, Nevada (Werle et al, 1998). This method evaluates and weighs several site aspects and conditions related to the formation of fissures in the valley. These include: 1) shallow groundwater conditions (depth to), 2) near surface soil conditions at the site, 3) distance to the nearest fault and high capacity pumping well(s), 4) location within land subsidence bowl(s) in the valley, 5) presence of intervening faults and the center of each subsidence bowl, and 6) orientation of nearest fault(s) with center of subsidence bowl.

To refine the method above, we have incorporated the use of Geographic Information System (GIS) applications to evaluate and adjust the relative "weight" of each of these site parameters by comparison to existing fissure maps of Las Vegas Valley. ARCGIS 8.3 using Spatial Analyst software was used for these purposes on selected sites in the valley. After calibrations in this manner, the GIS supported method could be further developed to evaluate other sites or areas within the Las Vegas Valley as well as nearby Pahrump Valley for the potential for fissure development.