

WSSPC Awards in Excellence 2002

Award Category: Mitigation Efforts

Mitigation of Fault Related Hazards

Clark County Building Department & Nevada Bureau of Mines and Geology

Ronald Lynn, Acting Director, Clark County Building Department &
Jonathan Price, Director and State Geologist, NBMG

4701 Russell Rd, Las Vegas, NV 89118 (*Clark Co.*) &
University of Nevada/MS178, Reno, NV 89557-0088 (*NBMG*)

Tel: 702-445-8039 (*Lynn*) & 702-784-6691 ext 126 (*Price*)

Fax: 702-221-0630 (*Lynn*) & 702-784-1709 (*Price*)

From 1977 through 2000, the Nevada Bureau of Mines and Geology (NBMG), often in collaboration with geologists from the U.S. Geological Survey and the University of Nevada, Las Vegas, produced detailed, 1:24,000-scale geologic maps of Las Vegas Valley, the fastest growing urban area in the country. These maps show the locations of major Quaternary faults in the Valley. In the late 1970s, John W. Bell of NBMG began studies of land subsidence due to groundwater withdrawal in the valley. He and colleagues published NBMG reports on this phenomenon in 1981, 1993, and 2001, and they have published several related papers in refereed journals. Many fissures related to subsidence occur near mapped Quaternary faults.

In 1996, the Nevada Earthquake Safety Council (NESC) issued "Guidelines for Evaluating Potential Surface Rupture/Land Subsidence Hazards in Nevada." These guidelines were developed by members of the Great Basin Section (Reno) and the Southwestern Section (Las Vegas) of the Association of Engineering Geologists, in conjunction with the Nevada Bureau of Mines and Geology and other Nevada professional geological organizations and the private geological consulting community. They were based in part on professional geological practice in Nevada and California, the Alquist-Priolo legislation in California, and WSSPC Policy Recommendation 97-1 on the definition of active faults for the Basin and Range Province. In 1998, the Nevada Earthquake Safety Council issued Revision 1 of these guidelines, which incorporated necessary changes after two years of use. These guidelines have helped to ensure that mapped faults and fissures are being recognized as significant hazards.

In 1991, the Clark County Building Department, using the mapped faults and fissures from NBMG and a draft of the 1993 NBMG subsidence report, implemented regulations that call for "special geotechnical consideration areas." Special geotechnical studies are required in areas within 2,000 feet of mapped faults, because most fissures occur within that distance. In 1995, following the philosophy behind the guidelines from NESC, which were being developed and discussed at the time, the Clark County Building Department implemented regulations that called for setbacks from faults. While dealing primarily with construction difficulties in areas of subsidence-related fissures, these two sets of regulations have also helped to mitigate future earthquake losses in Las Vegas Valley. Clark County has taken the mapping done by NBMG and put it into public policy through building codes that are used on a day-to-day basis.