STRUCTURAL GEOLOGY OF THE GASS PEAK AREA, LAS VEGAS RANGE, NEVADA

by

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ABSTRACT

A field-mapping study of the area around Gass Peak, Las Vegas Range, Clark County, Nevada, has demonstrated the presence of a thick sequence of Paleozoic and Precambrian rocks overthrust on younger, Upper Paleozoic beds along the Gass Peak Thrust.

Formations recognized in the upper plate of the thrust are the Precambrian Stirling Quartzite, the Precambrian Stirling Quartzite, the Precambrian and Cambrian Wood Canyon Fomation, the Cambrian, Carrara, Bonanza King, and Nopah Formations, and the Ordovician lowermost Pogonip Group. Rocks in the lower plate are the Devonian Sultan Limestone, Mississippian Monte Cristo Limestone, and the Permo-Carboniferous Bird Spring Formation. The Miocene Horse Spring Formation unconformably overlies the Paleozoic rocks.

Faulting on the Gass Peak Thrust resulted in approximately 18,000 feet of stratigraphic displacement from west-to-east. Several large folds and many high angle reverse faults are associated with the thrust fault.

All of these features, the major thrust and smaller related structures, have been rotated westward through 90 degrees by right-lateral strike-slip movement on the adjacent Las Vegas Valley Shear Zone. The "drag" structure and a unique set of faults in the Gass Peak area are related to east-west extension and north-south compression caused by the rotation.

Strata above and below the Gass Peak Thrust are similar to strata in the Wheeler Pass Thrust, suggesting the two thrusts are offset equivalents. This implies more than 25 miles of relative horizontal shift between the two faults. Many details of structure are dissimilar between the Wheeler Pass and Gass Peak Thrusts, and if they were once the same feature, they have developed independently after being separated. Structural evidence indicated that displacement on the Gass Peak Thrust occurred before movement along the Las Vegas Valley Shear Zone.

There is little evidence in the mapped area for Tertiary block faulting.