

Harvey Ranch Quadrangle Unit Descriptions:

Permian Rocks

Py: Permian Yeso Formation

A heterogeneous unit of mudstone, limestone, dolomite, and evaporates, the Yeso occurs mainly in canyon bottoms and lower slopes in the eastern part of the map area. The Yeso is best recognized by pinkish-red to yellow claystones and siltstones. Evaporite lithologies, mainly gypsum in surface exposures, are less common in the upper part of the Yeso exposed in the Harvey Ranch quadrangle. Carbonate occurs throughout the Yeso, yet is more common near the top of the Yeso, generally above a thick package of mudstones. Yeso carbonate is generally more tan in color and more thinly bedded than the gray carbonates of the San Andres formation. Measured sections of the Yeso range from ~ 1200 to 1500 feet in thickness (Pray, 1961)

Ps: Permian San Andres Formation

The San Andres formation is a gray to brownish gray locally fossiliferous micritic limestone and dolomite. This unit occurs on slopes and ridgetops across map area. Near the base of the San Andres Formation occur lenses of fine-medium grained rusty quartz arenite sandstone, believed to be equivalent to the Glorieta sandstone (Kelly, 1978). The Glorieta sandstone is not entirely continuous, but it can generally be found along strike within 500 feet of where it pinches out. As this is the only documented and recognized non-carbonate lithology within the San Andres formation, it was generally utilized to map the contact between San Andres and carbonate-bearing Yeso formation. The Glorieta sandstone commonly occurs 60-120 feet above the base of the San Andres formation (Pray, 1961). As little or no outcrop occurs in much of the map area, the location of this contact was generally estimated relative to the highest float blocks of Glorieta sandstone. The entire section of the San Andres formation is not exposed in the Harvey ranch quadrangle, yet its thickness is estimated at ~700 feet (Kelley, 1978).

Cenozoic Surficial Deposits

Qal: Quaternary Alluvium

Holocene and older stream and minor terrace deposits. This unit fills valley floors and is characterized as a sandy gravel composed of mainly carbonate clasts and minor quartz sandstone (Glorieta).

QTa: Older Alluvium

Terrace and alluvial fan deposits. This unit occurs mainly at the mouths of smaller side canyons where they run into James Canyon. Composed of fine to coarse subrounded carbonate pebbles, most with calcic rinds, in a reddish silty sand matrix. Layers often alternate between more fine and more coarse, and commonly show clast imbrication. QTa is moderately consolidated and generally at a higher level than Qal.