

STRUCTURAL INVESTIGATION OF DEFORMATION PROCESSES ALONG THE KANARRA FOLD AT THE LEADING EDGE OF THE SEVIER THRUST BELT, SOUTHWEST UTAH

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ABSTRACT

Deformation processes along the leading edge of the Sevier fold and thrust belt are investigated near Kanarraville, Utah through construction of a detailed geologic map and cross-section along Spring Creek. Here the Kanarra fold, a Sevier structure, is well exposed due to uplift and erosion. The Kanarra fold changes from upright to overturned within Spring Creek. Within the fold limb, compressional tectonic structures result in local tectonic overthickening of units and demonstrate overall east-directed tectonic transport. Results indicate the Kanarra fold is a fault propagation fold forming above a thrust fault – the “Kanarra thrust”. The Taylor Creek thrust, a west-directed thrust fault, is inferred to be folded and overturned within the field area. A combination of east-directed fault-related folding, a west-directed major backthrust, and tectonic overthickening represent basic structural elements of a nascent “triangle zone”. This triangle zone appears to have been abandoned prior to becoming fully developed. Merging of the Kanarra thrust and folded Taylor Creek backthrust circumvented development of the triangle zone by enabling the Kanarra thrust to cut up through the Navajo Sandstone. These results suggest triangle zones may be less likely to fully develop in association with fault-propagation folds in comparison to fault bend folds.

AAPG Search and Discovery Article #90298 © 2017 AAPG Foundation 2016 Grants-in-Aid Projects