

**Paper No. 106-9**

**Presentation Time:** 3:50 PM-4:05 PM

## **HYDROGEOLOGIC SIGNIFICANCE OF REVERSE FAULTS, RIDGE AND VALLEY PROVINCE, PA**

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Few published data document the hydraulic significance of reverse faults within the Ridge and Valley province. Displacement and juxtaposition of aquifers and confining beds is one obvious consequence. Fault gauge can serve as a hydraulic barrier and the maze of tiny fault-related fractures is commonly sealed with secondary minerals.

The abundance of joints, fractures and solution openings was examined within hanging and foot walls of selected reverse faults within carbonate rocks, Central PA. The frequency and size of cavities were more than three times greater within hanging walls than foot walls. Numerous low angle intersecting shear planes together with bedding plane partings, joints, fractures and petrographic differences account for enhance permeability observed.

Mood's Median, Kruskal-Wallis and Mann-Whitney tests were conducted on two data sets containing information derived from 2327 and 66 water wells. Fracture-enhances permeability was found to extend in hanging walls up to 1500m of mapped fault traces. Major thrusts are part of an entire fault system that must contain a network of other minor and blind faults and fractures important to groundwater investigations and numerical flow and transport models.

[2005 Salt Lake City Annual Meeting \(October 16–19, 2005\)](#)  
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Session No. 106

[Fault Zone Controls on Fluid Movement, Earth Resources and Processes: Perspectives from Field, Laboratory, and Modeling Studies II](#)

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