

Improving structural and target definition with deviated well VSP

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Using explosives as a source, a vertical seismic profile (VSP), was obtained in a deviated well in Colombia. Shots were clustered at four positions along the track of the well to provide lateral subsurface coverage. Since ray paths were not truly vertical, due to the clustering of shots, processing included normal moveout time corrections, and ray trace migration. The VSP defined the position of an important fault. Two way times and depths to several key reflectors, interpreted from surface seismic sections, were modified after interpretation of the VSP. The results demonstrate that the explosive source can be successfully used in borehole seismic profiling. The deviated well VSP is a simple and effective method of obtaining lateral seismic coverage, tied to the borehole information.