

High-Resolution Seismic Reflection Surveys Offer Best Geophysical Procedure for Fault Investigations

Typical Survey Objectives Realized:

- Delineation of Fault Planes- Fault Plane Subsurface Orientation and Trend Across Site
- Evaluation of “Possible” Holocene Deformation-Project Fault Planes Upward Near Surface where Recency of Faulting can be Investigated by Direct Geologic Data
- Determine Best Locations for Trenching or Positioning Exploratory Borings and CPTs
- Finalize Fault Investigation with Reviewing Agency- Integrate Subsurface Geologic Data into Seismic Profile Interpretation for More Complete Evaluation of Subsurface Faulting

Requirements for Higher-Resolution Reflection Surveys:

- Use Survey Lines Set up with Single Geophones- 10 to 40-Hertz Cut-Off Frequency Phones Securely Mounted to the Ground Surface
- Use Multi-Channel 24+ db Seismic Acquisition System to Record 60+ Channel Field Records from Closely-Spaced Geophone Positions
- Use Higher-Frequency Seismic Energy Sources (such as Sledge Hammers, Seisgun, or Accelerated Weight Drops) with Triggering for Very Precise Positioning of Time=0 on Field Records
- Conduct Specialized “Near-Surface” Seismic Reflection Data Processing with Knowledge of Local Geologic Conditions- Don’t Send Data to Houston or Denver for Oil and Gas Exploration Scale Processing

