

Optimizing the Field Parameter to Detect Shallow Shale Layer Using High-Resolution Seismic Reflection Method

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Abstract

High-resolution seismic method is commonly used to recover shallow geological features. This study was carried out in the city of Tabuke in the northern part of Saudi Arabia using seismic reflection technique. The primary objective of this study was to optimize and determine acquisition parameters to investigate shallow reservoir. Among other seismic parameters, we used multiple source sources to examine signal-to-noise ratio including hummer, weight drop, and mini-vib source . The frequency content using mini-vib was slightly lower when compared with other source. The preliminary analysis of the data shows that the final stack section was improved using mini-vibro-seis source, which provides frequencies content between 20 to 200 Hz.