

INTERPRETIVE SEISMIC DATA PROCESSING ON OPI PHASE-III 2003 DATA

Azhar Jamil Siddiqui¹ and Muhammad Haneef²

¹*Orient Petroleum Incorporation, Hayat Hall Block No # 02, Diplomatic Enclave, G-5 Islamabad. azhar.jamil@opi.com.pk*

²*LMK Resources, 300 ETC, F-5/1, Islamabad*

OPI acquired about 360 Line Kms. of 2D seismic data in Mirpurkhas and Khipro blocks. Seismic data was acquired with split spread 360 channels, 90 CDP fold, and 4537.5 meters far offset and using dynamite as a energy source.

The objectives were to confirm some of the important leads into the drillable prospect by incorporating newly acquired seismic data. Due to faster turn around requirements without compromising on quality and international security reasons, LMK Resources Islamabad was selected to process the data through and up to post stack time migration processing sequence.

This paper will discuss the interaction and choices of operate, processing sequence to delineate the prospect.

The Key Processing Sequence Selected is as under:

- True Amplitude Recovery to compensate the loss of amplitudes using spherical divergence correction.
- FK Filtering to remove source-generated noise like Air waves, Ground Role etc.
- Surface Consistent Gap Deconvolution was applied to predict & remove the reverberations and to improve the temporal resolution of the data.
- Advanced Refraction Statics Modeling using Hampson & Russell GLI3D Inversion Method to remove long/shot wavelength Statics from data.
- Surface Consistent Residual Statics.
- Radon Multiple Attenuation technique for Velocity analysis.
- A target oriented Interactive and Interpretative Velocity Analysis helps tremendously to pick/resolve the primary objectives.
- DMO application in order to pick the correct RMS velocities, which were hindered by apparent noise at far offsets and to reduce the CMP scattering.
- Explicit Finite Difference Time Migration method was selected to move data to appropriate geological locations.

- Post Stack Processing includes Tau_P filtering, FX Deconvolution, TVF, TVS to further enhance the quality of seismic section.

The whole processing project was finalized in a record one month time on completion of acquisition on last seismic line at field and the interpreters were able to deliver the results to keep its hectic drilling program (03 rigs operations) busy.