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ABSTRACT

SEISMIC RE-PROCESSING ADDING VALUE AT THE PARANG FIELD, OFFSHORE TRINIDAD

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The Parang field, offshore Trinidad contains numerous stacked pay sands. The deeper reservoirs are poorly imaged due to overlying shallow gas accumulations. Recent advancements in seismic imaging have allowed for a re-evaluation of the field and have led to the realization that we have significantly underestimated the prize at Parang.

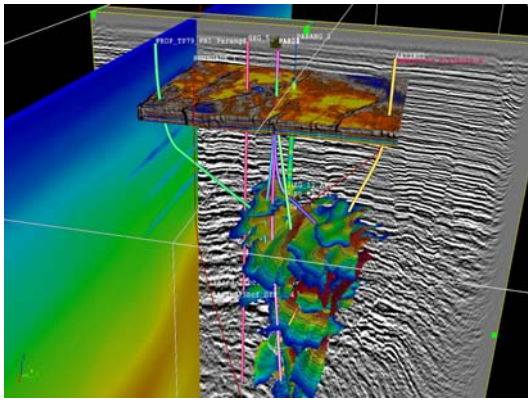
It's a problem that's not unique to Trinidad, shallow gas accumulations cause seismic waves to be distorted. The result is an unclear structural image of the reservoirs below, resulting in possibly inaccurate resource estimates.
In 2005, a number of technical projects and R&D themes were brought together as a joint seismic R&D effort between BP and Western Geco. The aim was to investigate a range of new and existing technologies that could be developed and tailored into a set of workflows specifically for imaging beneath shallow gas.

The result was a significant improvement over the previous time and depth processing outputs. The new seismic volumes have been evaluated and have revealed that we had significantly underestimated the resource potential in the Parang field due to shallow gas pushdown on our deeper reservoirs. The detailed velocity analysis done in the seismic reprocessing enabled the subsurface team to re-build a new velocity model for depth conversion. New structure maps were generated and the reserves/resources were updated for the entire field. The outcome was that the total resource potential for the Parang field was increased significantly…..a big win for bpTT and Trinidad. The evaluation also resulted in two exciting new drilling opportunities from a nearby platform. This net increase at Parang has led to an evaluation for the installation of a new production facility. This also allows smaller segments that might have potentially been stranded to now be developed and demonstrates our commitment to excellence in terms of proper reservoir management. It also provides bpTT with another quality option in terms of selecting the most appropriate new field development.

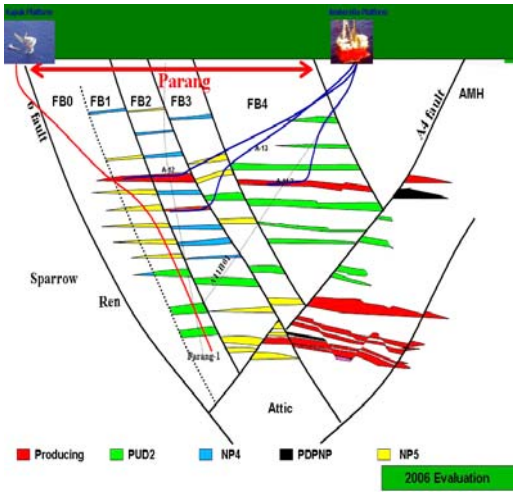
The project is an example of technical collaboration between BPTT, EPTG and a processing contractor with staff based in 3 global locations. Early project management, integration, communication and technology development have all contributed to a successful outcome. It's a project that has evolved from seismic reprocessing to improved imaging to increased resources to new drilling opportunities and ultimately increased production.

The field is now being evaluated as a possible new field development and offers bpTT some options with regards to selecting the most cost effective and attractive future development.

It demonstrates that as we plan for the next century, a good place to start looking is for upside potential in our existing fields.



Left: Geoprobe model showing 3D View of the Parang field: Notice the distribution of the pay segments and some possible development scenarios from different platform locations.



Left: X-Section through the Parang Field. Notice the numerous segments and complex faulting. Also shown is a potential well (red) from the Kapok Platform. The wells in blue are horizontal producers from the Amherstia platform.

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