case study

The secret behind successful oil and gas explorations

PT Saka Energi, one of Indonesia's leading oil and gas companies, has been using Geographic Information System (GIS) technology to support its large-scale oil and gas exploration activities.

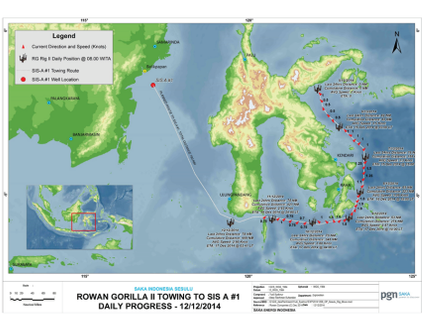
Acquiring the operatorship of South Sesulu PSC from Hess Indonesia in early 2014, Saka Energi had less than a year to fulfil its commitment with SKK MIGAS to undertake well exploration.

Given the limited time, Saka Energi worked closely with specialists from leading geospatial solutions provider, Esri Indonesia, to support their exploration in South Sesulu.

This included the planning and exploration of a 550 square kilometre area, a 2D hi-res seismic survey and the monitoring of rig move activities.

By using the ArcGIS platform, Saka Energi decision-makers were equipped with greater operational awareness of their projects.

The web-based platform featured information on shore lines, restricted areas, existing platform or pipelines, fish-trap locations and environmentally sensitive areas among others.



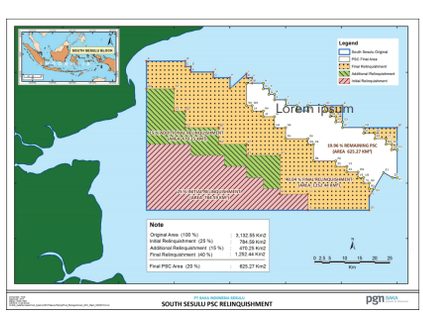
This allowed users to effectively identify trends, patterns and anomalies in surface and subsurface structures and most importantly prevent costly errors such as drilling at wrong locations and wrong datum shifting.

The technology contributed to successful exploration in South Sesulu PSC, most notably by:

- Mapping Play fairway: Geologists used GIS extensively to conduct Post Drill Analysis in and around the PSC area. The technology was also used to capture the Play components such as reservoir, seal, charge and source. It also provided an analytical approach to combine risk segments into a composite risk map based on the intersection and weighting of risks.
- Identifying shallow-gas hazard potentials: It is compulsory to drill offshore wells in areas with minimal shallow-gas hazard potential. ArcGIS desktop was used extensively to accurately identify areas with shallow-gas hazard potential by designing the path – in-lines and cross-lines – of 2x6 square kilometres of high-resolution seismic surveys.
- Improving data interoperability: With spatial data being produced at every cycle of the oil and gas upstream business, datasets were often inaccurate. Saka Energi's use of ArcGIS Desktop allowed for efficient investigation data inaccuracy and resolution of data integrity issues.
- Enhancing local government and community engagement: The use of ArcGIS not only contributed to greater efficiency in Saka Energi's operations, but was also used extensively by the company's local community programs.
- Enhancing local government and community engagement: The use of ArcGIS not only contributed to greater efficiency in Saka Energi's operations, but was also used extensively by the company's local community programs. ArcGIS was used to locate and verify fish traps located within 500 metres from any drilling operations. Once the information is validated, the owners of the fish traps were appropriately compensated and their fish traps removed.
- Monitoring of rig move activities: ArcGIS desktop was used to track the daily progress of rig move activities.

Saka Energi's commitment to enhance their exploration activities has earned the company numerous accolades and industry recognition. In fact, SKK MIGAS (Special Task Force on Upstream Oil & Gas) awarded Saka Energi with Exploration Gold Award for "Performance Exploration Category" in 2015.

With GIS technology in the hands of Saka Energi's decision-makers, the company will continue to set the benchmark for industry best practices and performance in Indonesia.



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