

CASE STUDY

GSPC — KG FIELD



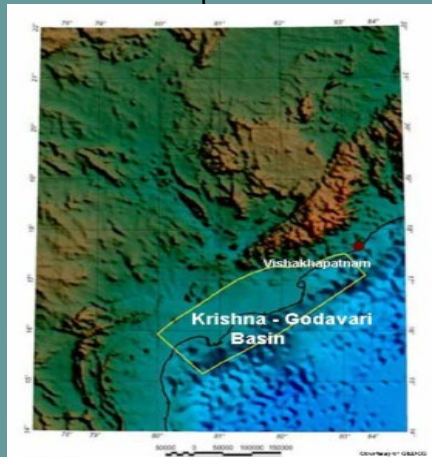
AWT Disciplines

Drilling Engineering
Completions Engineering
Production Technology

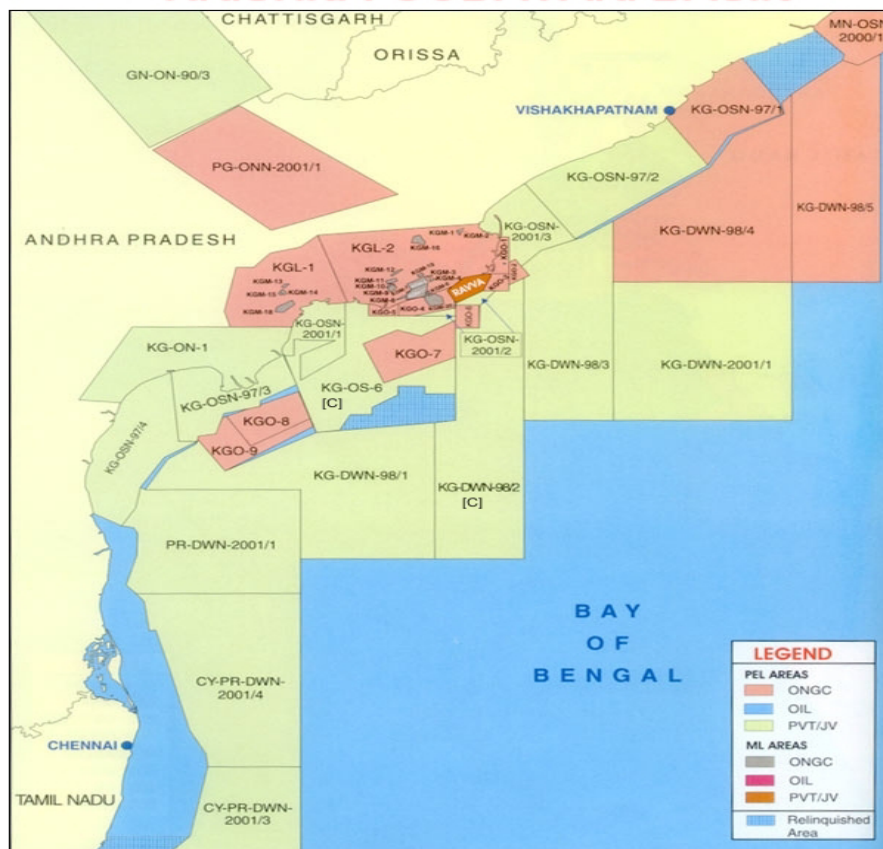
Background

KG field is a HPHT field in the Krishna Godavari basin in the Bay of Bengal offshore north east India. The Field has been extensively appraised by 15 wells to date.

The field is characterized as extremely tight ($k < 1\text{mD}$), with an overpressured gas bearing sandstone formation with bottomhole pressure and temperature of 12,000 psi and 400°F at 4,500m TVDSS containing corrosive, relatively dry gas (CO_2 and H_2S content of 7% and 100 ppm respectively) with a condensate gas ratio (CGR) of 10 bbl/MMSCF. 120 km offshore in 100m water depth.



KRISHNA-GODAVARI BASIN



Workscope

AWT was contracted to provide the detailed well construction and completion design for the HPHT development wells.

This work included:

- Selection and specification of production casing & tubing metallurgy and downhole completion equipment.
- Preparation of forward activity workscope required to mature the development of any deep water discoveries in the block, including; scoping schedule, cost forecasts for subsea well construction, activity Integration of well construction activity with surface facilities/product export options into an overall field development plan.



INNOVATIVE FIELD DEVELOPMENT AND REFURBISHMENT SOLUTIONS

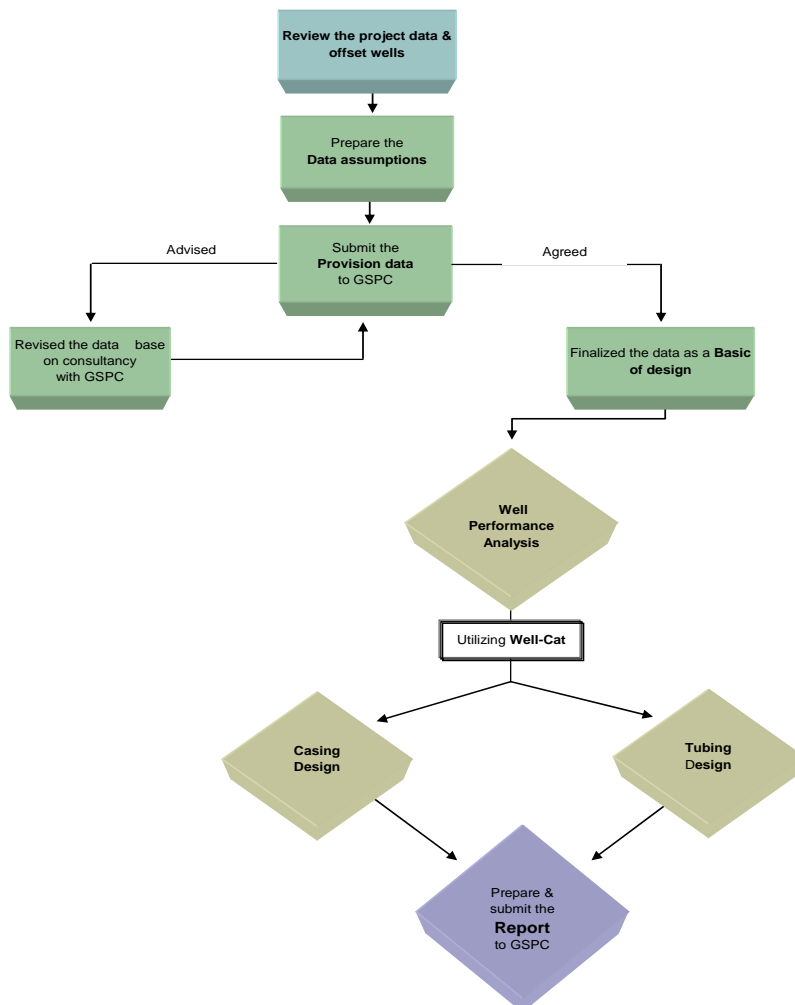


Technical Issue

The HPHT conditions combined with corrosive reservoir fluid demands use of high strength alloy steels for well tubulars, especially the production casing and tubing.

The reservoir low permeability is offset by high pressure, however sustainable commercial rates (minimum 30 MMSCFD) will likely require high angle/horizontal wells through the reservoir to achieve rates without requirement for hydraulic fracturing.

To meet the required well productivity, long sections through the reservoir provide the most cost effective method, however if this does not achieve the desired results, fracture stimulation may be required. Treating pressures for such operations become extremely high and well costs will increase significantly.



Innovation

AWT will potentially deliver a completion design using proprietary metallurgy for well tubulars.

Added Value

Well configuration ie high angle/horizontal vs low inclination has the potential to reduce the number of wells required to develop field. High angle/horizontal wells achieve this due to the potential provision of acceleration economics benefit without compromising ultimate recovery.

References

<http://www.gujaratpetro.com/operationmilestones.php>

