

Claim 6 Identify, Assess and Manage Risk

The gas deliverability of a CSG field is the responsibility of the Reservoir Engineer. Failure to deliver gas to the customer may breach contracts and financial penalties may apply. To maintain delivery from CSG fields require continual drilling throughout the contract period. Management of capital expenditure is essential for profitability. These two competing risks require thoughtful analysis.

I was responsible for the petroleum and reservoir engineering of a CSG field where an additional tranche was introduced to the gas contract. Identifying and managing the production risks is fundamental to the operations of CSG gas production.

Identification of the Risks:

As CSG production declines additional wells are required to maintain gas contract rates. CSG has its unique challenges, for example, forecasting CSG gas production generates a wide range of outcomes. Predicting dewatering times and peak production rates are often unreliable. The common practice of drilling wells when required implies drilling can occur anytime during the year and often with urgency. Once a CSG well is commissioned, the well has to go through a de-watering period before gas production occurs. The time it takes before gas production commences and peaks is very difficult to predict. If the dewatering period takes too long pressure is often applied to field personnel to speed up the process. This inevitably increases the risk of damaging the downhole pump which can add further costs and delays to the project. In addition, landowners prefer land access agreements to be done in a timely manner. Overcompensating production risks by drilling more wells than required affects the profitability of the CSG project. The goal is to find the right balance.

Assessment of the Risks:

A review was undertaken to determine the optimal frequency and number of wells to be drilled during the gas contract period. Through statistical analysis of well performance, it is evident that there is difficulty in determining the optimal number of wells required per campaign to maintain deliverability.

Drilling wells when required highlighted the financial exposure of operating in the wet season. The Drilling Engineer on the project made it very clear that if I wanted any control on the project's budget I was not to drill in the wet season. If the project is suspended due to weather often idle equipment and service charges apply.

Stakeholder management also played a role. To maintain good relations with the landowners, we required access agreements to be negotiated in a relaxed manner.

Management of the Risks:

A definitive drilling schedule could not be delivered with the required accuracy. The budgetary controls on the project were the main driving force. The Drilling Engineer and I presented our recommendations to management for the next drilling campaign to be initiated in the following dry season. Management accepted our recommendation but highlighted the requirement of continually revising the capital requirements for the project. This review highlighted the importance of geosciences in optimising opportunities. Conversely, neglect would escalate the project's risk.

The project proceeded on time and on budget. A successful production outcome improved the confidence in the project generating impetus for expansion.