

## Extending Existing Infrastructure to Increase Gas Sales

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In the harvest stages of many gas and oil reservoirs, local gas plants may have excess capacity for handling and treating of natural gas. APA Petroleum Engineering was presented with the opportunity of increasing gas sales 33% based on local gas plant excess capacity and a spot sales contract option in late 2000. The operator gave existing well, gathering, and disposal information to APA requesting three major objectives:

- 1) Define the uplift potential in existing producing wells;
- 2) Review the gas gathering system and the impact from additional production from new wells and workovers; and
- 3) Assess the impact of additional water production from new wells and workovers to the waste water disposal system.

This project afforded the client some unusual business opportunities and APA some unusual technical design challenges:

- spot price of gas allowed client to sell an additional 15 MMSCFPD on a contract option at an enhanced price
- client had a waterflood in the area that they could dispose of some of the water associated with the gas production at virtually no cost
- the more water produced from the wells, the better the gas rate
- disposal pumps were designed for peak water production rate rather than an average daily disposal rate
- the existing infrastructure was originally designed for less than half of the producers and water disposal capacity
- separators, pipelines, looped injection lines of polypropylene, and disposal wells were added as temporary upgrades but are now permanent equipment
- elevation changes in the area were critical in the design of gathering and disposal lines
- optimization of the water disposal network and the gas gathering and compression systems required integrated production system solutions (APA used this project as an opportunity to evaluate existing production modeling software packages)
- sales line to the gas plant is used by three other operators adding measurement and de-bottlenecking challenges

APA's presentation at the PTAC forum and workshop will discuss methods of handling these challenges and opportunities, and inform attendees of the solutions reached.