

Domestic Gas Field Formation Water Repository Establish And Improved Production Feasibility Study

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Most of the major gas fields inland in Taiwan are in the late production stage. Those fields approach declining production rate. Moreover, some gas fields stop production due to the excessive water production problem. Especially for the commingled gas production well, their water layers cannot be clarified and leading to loss the production capacity of the non-produced water layer. If the water level could be clarified and preventing the formation water flowing into the wells, the operator will enable to resume the production of this well.

To keep domestic gas production, CPC actively goes on the improving recovery of those major gas fields. This study established formation water analysis techniques, using water hydrogen and oxygen isotope combined with trace element analysis method to establish domestic gas formation water firsthand repository. Equipped this database, we could identify the formation water sources of the domestic gas fields. The commingled gas production well that high possibility to be resumed the production will be chosen to clarify its water source.

Then, we also developed possible typical geological model for the commingled gas production wells, according to the differences produce layers to carry out simulation analysis for plugging water flowing. According to different simulation results based on different geological models, we are able to investigate the trends of gas production and water variations. A series of feasibility evaluation conducted, and base on the evaluation the field operation procedure can be established for such practice.