

ABSTRACT

REMOVAL OF ACID GASES FROM A GAS STREAM, WITH CO₂ CAPTURE AND SEQUESTRATION

A gas processing facility for processing a hydrocarbon gas stream is provided. The hydrocarbon gas stream comprises sulfurous components and carbon dioxide. The gas processing facility includes an acid gas removal facility for separating the hydrocarbon gas stream into (i) a sweetened gas stream, and (ii) an acid gas stream comprised primarily of hydrogen sulfide and carbon dioxide. The gas processing facility also includes a Claus sulfur recovery unit that generates a tail gas, and a tail gas treating unit for receiving the tail gas. In various embodiments, the gas processing facility captures CO₂ from the tail gas and injects it under pressure into a subsurface reservoir. A method for processing a hydrocarbon gas stream such that additional CO₂ is captured and injected into a subsurface reservoir is also provided.

Fig. 5B