Coal Seam Gas: Water Treatment Innovation

The challenge
In treating Coal Seam Gas (CSG) Associated Water (AW) streams, scaling due to hardness and silica is a key issue and places a constraint on further treatment or disposal.

This results in larger brine volumes than would exist if silica was capable of being removed economically.

There are no commercially proven methods for the removal of silica but GHD has now developed a unique solution to overcome this challenge.

GHD's solution
GHD has developed a unique solution for the removal of silica from CSG brine. The novel continuous adsorption system makes use of the well-known adsorptive properties of activated alumina and applies it in a new way to allow the economic removal of silica.

Key commercial and technical features include:
- Continuous process with high availability of materials
- Low brine effluent volumes
- Ability to handle suspended solids in the feed
- Variable silica removal rates
- Media top-up without plant downtime
- Cost effective solution with maximum chemical efficiency
- Scalable design

Performance Expectations
The concentration of silica in brine treated with GHD’s system is expected to typically be 50 – 100 mg/L (depending on the degree of removal required) in contrast to the existing typical range of 50 - 250 mg/L. Loss of media due to attrition is expected to be less than 10% per annum.

Current Development Status
GHD has filed Australian Patent Application Number 2013901140 in relation to this concept and is currently entering the proof of concept stage.

Contacts
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About GHD and Innovations
Established in 1928, GHD is one of the world’s leading engineering, architecture and environmental consulting firms.

GHD’s award winning innovation program brings together our 6000 people around the globe to create, collaborate on and deliver new ideas.