CoalStim℠ Service
Helps Boost Cash Flow From CBM Assets

This post-fracture service has been used to reverse production declines in over 500 coalbed methane wells in the Western United States.

- Helps increase CBM production.
- Helps extend the life of the well.
- Entire fields have been treated with fast treatment payout—some in as little as 9 days.
- Reserves may be added to existing assets.

CoalStim Service Works Through Several Mechanisms

1. Helps remove wellbore damage and coal fines blockage through a powerful backflush.
2. Restricts mobility of formation fines (coal, shales, clays).
3. Degrades polymer remaining from fracturing operations.
4. Helps dissolve in-situ precipitates or carbonate scales.

CoalStim service agents initially act as “clot busters,” helping break apart the internal bridges and agglomerates. Then, the agents act as “clot formers,” making coal particle surfaces “tacky.” The tacky coal particles then stick together, and the resulting clots adhere to formation features and proppant grains away from the fluid flow paths. The result: a highly conductive flow path from the coal matrix to fractures and to the wellbore. Plus, replugging can be significantly reduced or eliminated.

Figure 1a illustrates blockage formed by clots of migrating coal fines within the propped fracture. The fines are carried toward the wellbore during CBM production. To remediate the damage and prepare the well for a longer productive lifespan, the thin CoalStim carrier fluid is pumped under high pressure into the damaged fractures, helping break down the clots of coal fines and displacing the blockage to the outer limits of the fracture system. The well is shut-in to allow the chemical process to alter the surface of the fines. Finally, pump pressure is released to allow fluid in the well to rush out, flushing solids out of the wellbore area. Material that had previously blocked the wellbore is held immobile at the extremes of the fracture so that gas can now more easily enter the wellbore (Figure 1b).

Figure 1 – CoalStim service forces fines away from the wellbore and then binds the fines in place to open a flow path and help prevent replugging.

Figure 2 – The beakers contain identical proportions of water, coal fines, and proppant. The CoalStim treatment makes the coal fines tacky and able to separate from the proppant and water.
CoalStim Service is Providing Good Results for CBM Producers

Case History One

An operator producing from a mature CBM basin implemented the CoalStim process to help extend the life of the field. The graph shows a typical treatment production response: a 17.5% increase in gas production rate. Over the long period of a typical CBM well, such an increase can add up to a significant increase in cash flow and production. Average payout for these treatments was 9 days.

Case History Two

Results of a 30-Well Program Using CoalStim Service
Average incremental production: 66 MCF
Average payout of work: 32 days
Incremental production: 250,700 MCF
Incremental cash flow after treatment cost @ 1.90/MCF: $340,100
Success rate: 50% payout in under 90 days
Success rate: 66% showed increases in production by at least 7%