ARID

Aquifer Recharge Injection System

The Water Management Solution for Coal Seam Natural Gas Producers

BIG CAT ENERGY CORP.

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Maximize Gas Production While Reducing Water Disposal Costs:

There are trillions of cubic feet of Coal Seam Natural Gas (CSNG) / Coal Bed Methane (CBM) available for exploration and production worldwide.

1. Current and new development of these unconventional natural gas resources is limited only by the cost and environmental impact of removing the water from these gas rich coal seams in order to produce this abundant natural gas.
2. Our goal is to help Coal Seam Gas Producers to maximize their natural gas production while at the same time they dramatically reduce their water handling costs and environmental footprint.

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The Water Management Problem for Gas Producers:

The initial investment and long term cost per barrel of surface water discharge and disposal are NO longer economical. Surface discharge of produced water is quickly being eliminated as an option.

1. Environmental permits for surface discharge are disappearing.
2. Containment impoundments are costly and have limited capacity.
3. Treatment facilities have proven to be un-economical.
4. Surface discharge methods and infrastructure are environmentally unfriendly.
5. Deep Injection disposal is expensive, risky, and often ineffective.

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The Advantages of the ARID Aquifer Recharge System:

1. Cuts the cost of removing water from the coal seam by more than two thirds.
2. Increases gas production in stranded wells that otherwise would not produce.
3. Allows companies to quickly get well permits eliminating production delays.
4. Eliminates high reclamation bonding costs and long term reclamation costs.
5. Enhances long term gas production and long term asset value.
6. Environmentally and landowner friendly.

Why is an ARID Aquifer Recharge System so cost effective?

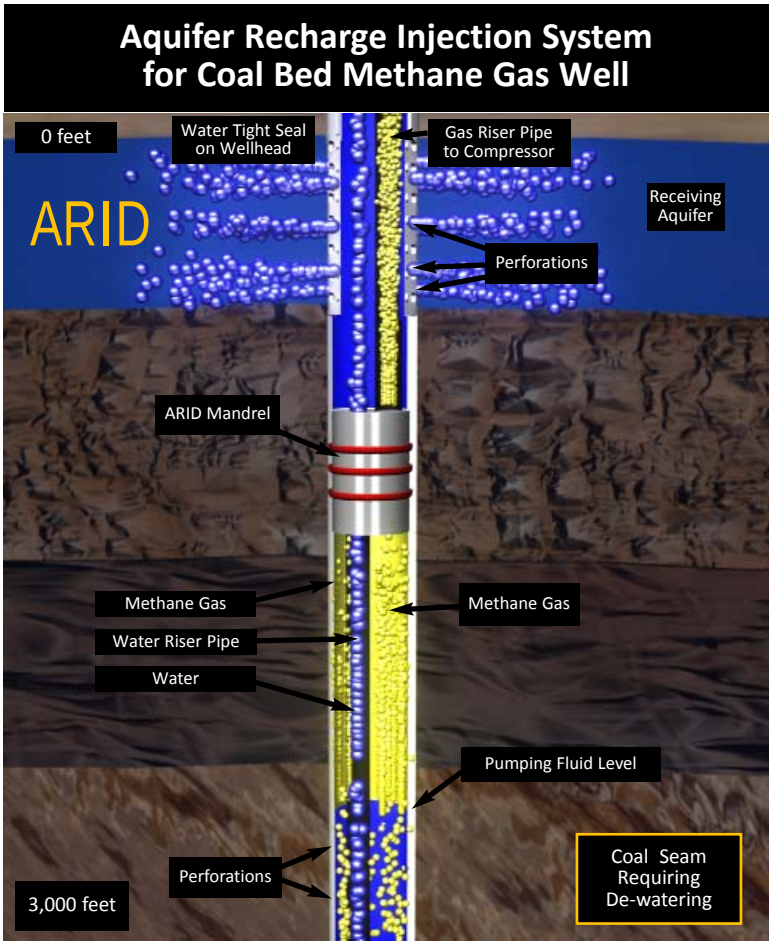
With the ARID System, water is pumped out of the coal seam and into an available shallower aquifer with like water quality in the same well bore. **1.** Rapid permitting in most areas in less than 60 days. **2.** The produced water NEVER comes to the surface. **3.** Each injection well operates independently and at a relatively low pressure. **4.** Recharge zones will often handle discharge rates of over 75 gpm. **5.** Recharges local landowner's aquifers while eliminating infrastructure costs.

Save Time and Money with the ARID Aquifer Recharge System

How does the ARID Aquifer Recharge System work?

The ARID System has been developed to work in well casings of 5.5" and greater. The specialized ARID Mandrel is a critical component of the ARID System, and usually sits above the Pumping Fluid / Gas breakout level and below the Aquifer Recharge zone. A pipe string from the water pump is attached to the bottom of the water port hole on the ARID Mandrel. A gas riser pipe is attached to the top of the Mandrel on the gas port and extends out through the watertight well head to the compressor. The pump cable is run from the pump up through the Mandrel and through the wellhead to the power supply. During the installation process, transducers are positioned at the top of the pump and on the top of the Mandrel in order to monitor water pressures in the pumping zone and the receiving zone.

A pre-selected recharge aquifer is perforated and tested for water yield and water quality and compared to the quality of the water from the producing coal seam. When water quality criteria are met, the ARID Mandrel is set below the lowest perforation in the injection zone but well above the static fluid level of the producing coal zone. The pump, which in this example sits below the ARID Mandrel, brings water up the water riser pipe and through the Mandrel to fill the void between the ARID Mandrel and the watertight well head. As hydrostatic pressure builds, the water is forced through the perforations in the casing wall and into the selected zone, beginning the aquifer recharge process. Normal gas separation occurs at the bottom of the well at the pumping fluid level. As gas is released from the coal



seam, it flows up through the gas riser pipe and out through the water tight well head to the compressor. While it is most advantageous to pump the produced water to a shallower aquifer recharge zone, the ARID System may also be configured to pump water to a recharge zone below the coal seam. This configuration is most commonly used to eliminate surface discharge when de-watering coal mines, but it is also applied to CBM wells when shallower recharge zones are not available.

Save Time and Money with the ARID Aquifer Recharge System

Identify Production Wells that would immediately benefit from the ARID System:

1) Capacity Limitations - limited surface discharge.
2) Stranded - no current water handling infrastructure in place.
3) Shut in - well can't be energized because of water balancing issues limiting discharge.
4) Landowner Locked - surface discharge is an issue with landowner or environmental group.
5) Lease at Risk - leased areas without infrastructure that require initial CBM well or production obligation to hold lease.
6) Un-Economical - CBM wells encumbered with un-economical water management costs. (high cost per barrel)

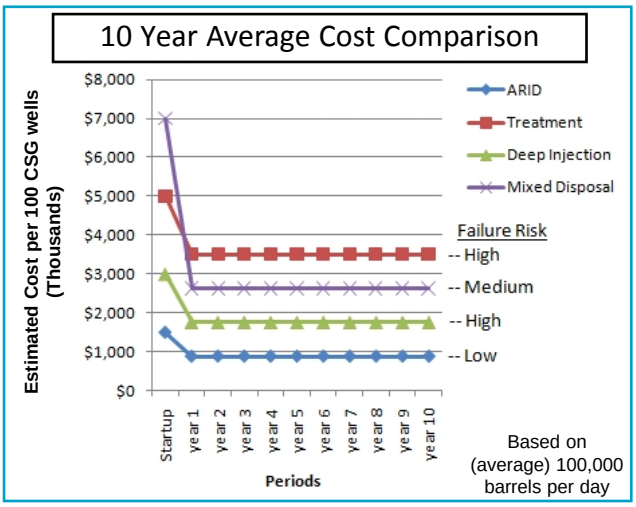
Big Cat Energy delivers a complete Water Management Solution:

Big Cat personnel have the knowledge and experience to:

1) Evaluate your well geology to identify optimum well recharge zones.
2) Identify new or existing wells for optimum water re-injection performance.
3) Apply and obtain the permits required for an ARID implementation.
4) Coordinate and train Operator's Crews for an ARID system installation.
5) Ongoing troubleshooting to insure maximum water mitigation and optimal gas production.

The Return On Investment from ARID Aquifer Recharge:

The ARID Aquifer Recharge System will dramatically reduce ongoing water mitigation cost. With ARID water handling costs average $0.02 to $0.08 per barrel, while dramatically reducing permitting, bonding, infrastructure, operational, and long term reclamation costs. Big Cat's ARID System will achieve gas production in wells that would not otherwise be economically viable to produce. If you are interested in reducing your produced water handling problems and costs, then contact Big Cat Energy Corporation.



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