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PRODUCED WATER - A NEW WATER RESOURCE FOR THE ARID WESTERN STATES

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ABSTRACT: Produced water generated during the extraction of oil and gas represents a new source of water in New Mexico and other arid western states. Many states like New Mexico and Colorado are ‘fully appropriated’ water states, meaning that a new commitment of water to a new entity must come from an existing entity. Although the water co-produced with oil and gas extraction is usually brackish and contaminated with other constituents as well, if treatable, this water represents the first truly ‘new source of water’ in these states in decades. This naturally occurring water is also very ‘deep water’, but the energy production companies have already paid for its otherwise cost-prohibitive ‘lifting cost’ in the production of their oil and/or gas, so that economic beneficial use of this water is dictated largely by development of new low-cost treatment technologies.

There are approximately 80,000 acre feet of produced water generated each year in New Mexico, associated with traditional natural gas, coal-bed methane, crude oil, and unconventional gas wells. Hydrofracking and other well completion activities generate still more volumes of salty contaminated oilfield water. This highly-challenged mixed-contaminant water is presently a liability and cost to the E&P companies, but low-cost treatment has now been developed and shown to convert the liability into an asset – especially in the arid west. In the past several years, precedent-setting permits have been granted by state water authorities in both New Mexico and Colorado for beneficial use of treated produced water and frac flowback waters, as well as first-ever surface discharge permits. In one instance, Colorado even issued a ‘new water right’ to an energy producer and treatment company – in essence acknowledging for the first time this ‘new source of water’ in the state. The treated water was so clean in fact, that CO granted them the right to also discharge it into the most pristine and ecologically-sensitive part of the Colorado River, for re-sale downriver.

In addition, the increasing use of ‘fracking’ in horizontal directional drilling (up to 5 million gallons per frac) has placed new strain on water sources in these western states. The new recently-developed economically-viable treatment technologies are therefore seen to be the solution to two problems, not just one: clean distilled water for the ‘next frac job’, as well as elimination of disposal costs and water wasted by reinjection deep underground, never to be seen again.

Recent progress in reducing the obstacles to development of beneficial re-use of oilfield produced water – both technological developments and new permitting / regulatory successes – will be discussed.