Water Management
Associated with Oil and Gas Development and Production

A look at the complex issue of managing water use associated oil and gas production.
The production of oil and gas also produces water, in some cases in greater volume than the oil or gas itself. As referenced in one of the articles in this issue of EM, recent studies have estimated that nearly 900 billion gallons per year of wastewater from oil and gas production is generated in the United States. That’s a lot of water—using a U.S. population of roughly 326 million people, this equates to 7.5 gallons of produced water generated per person per day. Therefore, oil and gas production is as much about water as it is about energy production.

In the second article, Emily Nicholas, a graduate student at the Colorado School of Mines, offers an excellent perspective on the trends and challenges for the management of produced water. Her discussion draws on both relevant and recent studies that have been conducted in this area.

Next, Daniel Ertel of Eureka Resources and Jerel Bogdan of C&S Engineers detail first-hand knowledge and experience in the design and permitting of a wastewater treatment facility specifically tailored to treat produced water for discharge.

The vast majority of oil and gas wastewater (produced water) is currently being disposed by injection into disposal wells. However a number of issues, including drought, lack of disposal wells, induced seismicity potentially associated with disposal well operations, and competing water demands, are driving the consideration of other means for use or disposal. A range of topics related to potentially doing something else with this water are presented in the articles that follow. This is a complicated issue with various thoughts and perspectives. A&WMA’s core purpose to improve environmental knowledge and decisions by providing a neutral forum for exchanging information makes this the perfect forum for exploring these varied positions.

In the first article, Rick McCurdy with Chesapeake Energy provides a great analysis of issues critical to the evaluation of using produced water for uses outside the oil and gas operations. He discusses issues such as composition of the fluids, operations and conditions that impact the composition, treatment technologies, and cost vs. benefit.

Both the robust treatment processes as well as permitting drivers are discussed.

In the fourth and final article, Dominic DiGiulio and Seth Shonkoff, both with PSE Healthy Energy, address issues currently being evaluated and discussed related to using produced water for purposes, including irrigation of food crops, watering livestock, and aquifer recharge among others. Factoring into the evaluation is what is known and unknown about the constituents potentially present in produced water and the need for more information to better assess risks presented by the varied end uses.

This month’s featured topic provides excellent reading and a presentation of the different aspects and perspectives of this emerging and complicated topic. em

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