Dandina N Rao, J Pet Environ Biotechnol 2016, 7:3 (Suppl)
http://dx.doi.org/10.4172/2157-7463.C1.016

Gas injection enhanced oil recovery – A profitable path for emissions control

Dandina N Rao
Louisiana State University, USA

The current commercial practice of gas-based enhanced oil recovery processes involves either continuous gas injection (CGI) or Water-Alternating-Gas (WAG) injection. Over 60 commercial projects in West Texas and other parts of the world have amply demonstrated that these CGI and WAG processes have been technically successful and commercially profitable. However, the oil recoveries from the CGI and WAG processes fall in the range of 5-15% of the remaining oil. The Gas-Assisted Gravity Drainage (GAGD) process, invented and patented at LSU, has yielded oil recoveries in the range of 65-95% in laboratory experiments conducted at realistic reservoir conditions. The GAGD process involves utilizing several vertical wells for injection of CO_2 in addition to drilling long horizontal wells for production. Injected CO_2 accumulates at the top of the payzone due to gravity segregation and displaces oil, which drains to the horizontal producer. This maximizes the volumetric sweep efficiency. The gravity segregation of CO2 also helps in delaying, or even eliminating, CO_2 breakthrough to the producer as well as preventing the gas phase from competing for flow with oil. GAGD enables sequestering injected CO_2 in addition to yielding much higher recoveries of trapped oil from depleted reservoirs. This presents a unique opportunity for CO_2 emitters and oil companies to synergize their resources to enable higher profits in the form of improved oil recoveries in addition to sequestering CO2 to ensure a cleaner environment. This workshop will focus on the development of the new GAGD process through laboratory experimentation and reservoir simulation of actual field case applications in addition to prersenting its carbon sequestration potential.

Biography

Dandina N Rao is Emmett-Wells-Distinguished-Professor in the Craft and Hawkins Department of Petroleum Engineering at Louisiana State University, Baton Rouge, USA. He has been involved in enhanced oil recovery research and field project implementations for over 3 decades. He holds a BTech with Distinction from India, an MSc from the University of Saskatchewan (Canada) and a PhD from the University of Calgary (Canada). He was recently recognized by the Louisiana State University with the Rainmaker Award given to faculty who are nationally and internationally recognized for innovative research and creative scholarship.

dnrao@lsu.edu

Notes: