EHR News Room

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August 31, 2011

EHR Completes Collaborative Engineering Project with PetroChina

EHR Enhanced Hydrocarbon Recovery Inc. ("EHR") has recently completed an 18-month engineering project pertaining to CO_2 enhanced oil recovery (EOR) for the Jilin Oilfield through the Research Institute of Petroleum Exploration and Development (RIPED), PetroChina. Although CO_2 EOR has been used as a commercial process for enhancing oil recovery since the 1970's in North America, the successful application of these techniques has not been demonstrated in China's oilfields. It has been estimated that about 80% of oil reservoirs worldwide might be suitable for CO_2 injection based on oil recovery criteria alone. EHR secured the engineering project to verify and simulate the CO_2 EOR performance in the Jilin Oilfield.

Based on the comprehensive data and oil samples provided by RIPED, EHR has successfully completed the thorough technical validation requested by PetroChina. An accurate and pragmatic correlation has been developed to determine the minimum miscibility pressure (MMP) for the Chinese crude oil in a CO_2 flooding process, while the miscible mechanisms have been correctly identified by incorporating the interfacial tension measurements with determination of multi-contact phase diagram. Through the modified Paraffins, Oleffins, Naphthalenes and Aromatics (PONA) analysis, the factors that result in a higher MMP for the continental-deposited oil have been identified in comparison with that of the marine-deposited oil. EHR's engineering report provides a solid basis for enhancing CO_2 EOR performance in this oilfield. PetroChina's technical experts have thoroughly evaluated the comprehensive data supplied by EHR and endorse it as a pragmatic and relevant solution that can be used in a variety of other CO_2 EOR projects in China.

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Currently, China needs to import at least 50% of its crude oil to meet the consumption demand every year. China National Petroleum Corporation (CNPC), China Petroleum & Chemical Corporation (SINOPEC), and China National Offshore Oil Corporation (CNOOC) have decided to gradually reduce chemical flooding in their oil assets because chemical flooding has reached its recovery limits. CO_2 EOR will be a dominant tertiary recovery technique in the near future, provided that sufficient and affordable CO_2 can be captured from various industrial emitters. The carbon mitigation target pledged by China in Copenhagen in December 2009 would cut its carbon intensity (i.e., the measure of carbon dioxide emissions per unit of GDP) by 40-45% compared to 2005 levels. This will accelerate the growth of both CO_2 EOR and CO_2 Capture in China moving forward.

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