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THE GEO-SEQ PROJECT: A STATUS REPORT

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The GEO-SEQ Project is a public-private applied R&D partnership, formed with the goal of developing the technology and information needed to enable safe and cost-effective geologic sequestration of CO_2 by the year 2015. The effort is supported by the U.S. Department of Energy, Fossil Energy (DOE FE) Carbon Sequestration Program through the National Energy Technology Laboratory. The partnership includes five research institutions in the United States, one in Canada and one in Europe, working with four private-sector partners: BP, ChevronTexaco, Pan Canadian Resources, and Statoil. The partnership conducts applied research and development focused on three broad goals: (1) reducing the cost of sequestration, (2) decreasing the risk of sequestration, and (3) decreasing the time to implementation. To achieve these goals, nine individual subtasks are currently underway which have produced significant accomplishments since work began in May of 2000. Accomplishments which will help reduce costs include: demonstration of the technical feasibility of enhanced gas recovery (EGR) which can offset CO_2 sequestration costs in partially depleted gas reservoirs; development of screening criteria for reservoirs optimally suited for CO_2 sequestration and enhanced oil recovery (EOR), followed by development of engineering approaches to increase CO_2 storage during EOR; and evaluation of the effects of SO_x and NO_x on geochemical reactions between CO_2, water, and reservoir rocks, needed for evaluating the use of impure waste streams as a means to reduce overall sequestration costs. Work related reduction of the risk of geologic sequestration has resulted in: development and demonstration of a methodology for site-specific selection of subsurface monitoring technologies; development of baseline data needed for interpretation of isotopic tracers used to monitor reservoir processes; new definition of a formation capacity factor for use in assessing sequestration efficiency; and initiation of code comparison studies for oil, gas, brine and coalbed reservoir simulators for predicting the fate of CO_2 in the subsurface. Pilot tests decrease the time to implementation through field tests of technologies. The GEO-SEQ Project has conducted field tests of monitoring technology at the ChevronTexaco CO_2 EOR pilot in the Lost Hills field in California and the ongoing CO_2 EOR operation in the Vacuum field, New Mexico. Capacity assessment studies have been performed in California and at potential pilot sequestration sites in the Frio formation in Texas.