Injecting Carbon Dioxide Underground

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As the global climate change issues debate grows stronger, governments and companies are seeking new methods to reduce their greenhouse gas (GHG) emissions to meet the Kyoto protocol. Carbon dioxide sequestration in deep seabed Formations can provide greater than 90% reduction in CO2 emissions. Before CO2 gas can be sequestered from power plants or industrial sources, it must be captured as a relatively pure gas. The most likely options currently identifiable for CO2 separation and capture include the following: absorption, adsorption, low-temperature distillation, gas separation membranes, and mineralization and biomineralization. However, existing capture technologies are not cost-effective for widespread CO2 sequestration. Carbon dioxide sequestration into seabed Formations includes injection in site such as depleted oil and gas reservoirs, unmineable coal seams, and underground saline formations. In some cases production of methane or oil can be enhanced by pumping CO2 into unmineable coal seams or depleted oil and gas reservoirs, a process called respectively enhanced coal bed methane and enhanced oil recovery. The first successful CO2 sub-seabed sequestration project was carried out by the Norwegian energy firm Statoils in Utsira Formation, Sleipner Vest project, North sea. It has now been underway for nearly 8 years with up to nearly 5 million tonnes of CO2 have been injected without any significant operational problems observed in the capture plant or in the injection well. Ocean Drilling, which revolutionized our view of earth history and global processes such as the deep biosphere and the subseafloor ocean, environmental change, and solid earth cycles through ocean basin exploration can greatly expands the reach of CO2 sub-sea sequestration projects by using multiple drilling vessels.