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Injection and storage of carbon dioxide gas in depleted oil and gas reservoirs in order to enhance oil recovery and preserve the environment

Lately, the increasing discharge of greenhouse gases from burning fossil fuels has brought irreversible environmental damage, and global warming has been triggered by this environmental problem. The greenhouse gases, particularly carbon dioxide, have become the primary reason for global warming. Consequently, carbon dioxide has become an environmental pollutant of a grave nature and deserves careful analysis, as it has such an important role in the climate change processes. As a result, researchers have come up with a number of potential strategies, one of which is injecting carbon dioxide into depleted oil and gas reservoirs. Research projects have identified that the rock cap used for containing oil and gas in past events can be re-used to restrain the newly introduced carbon dioxide and would stop upward migration. Depleted oil and gas reservoirs offer superior geologic storage opportunities compared to deep saline reservoirs. A key component to the potential storage capacity of the reservoirs is to understand the ideal pressure to inject carbon dioxide, a matter pertinent to reservoir engineers. In fact, the injection and storage of carbon dioxide in depleted oil and gas reservoirs not only contributes to reducing greenhouse gases but can also potentially benefit in enhancing oil recovery from depleted reservoirs, ultimately achieving a profitable economic level for the oil-producing country.

Keywords: greenhouse gases, carbon dioxide, depleted reservoirs, storage, enhancing oil recovery

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