



ISO 27916

Carbon dioxide capture, transportation and storage — Carbon dioxide storage using enhanced oil recovery (CO₂-EOR)

*Captage, transport et stockage du dioxyde de carbone —
Stockage du dioxyde de carbone au moyen de la récupération
assistée du pétrole (RAP-CO₂)*

**Second edition
2026-06**

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 265, *Carbon dioxide capture, transportation, and storage*.

This second edition cancels and replaces the first edition (ISO 27916:2019), which has been technically revised.

The main changes are as follows:

- [Clause 3](#) clarifies distinctions between definitions of “loss” and “leakage”;
- [Clause 4](#) has been reorganized to reflect observed actual practices;
- [Clause 5](#) has been reorganized to reflect observed actual practices;
- [Clause 7](#) has been reorganized to reflect observed actual practices;
- [Clause 8](#) has been updated and reorganized to better incorporate verification criteria, and graphics have been updated;
- [Annex A](#) has been reorganized, eliminating selected common EOR project description information found in other source documents and has been updated;
- the entire text has been editorially revised.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Carbon dioxide enhanced oil recovery (CO₂-EOR) is a technique for increasing the recovery of hydrocarbons through the injection of carbon dioxide (CO₂). At present, the technique is used principally for increased recovery of liquid hydrocarbons (i.e. oil) but can also be used for recovery of gaseous hydrocarbons. This document focuses primarily on the recovery of liquid hydrocarbons, but applies regardless of whether the production stream is predominantly liquid or gaseous.

The process involves using wells to inject volumes of CO₂ at pressures where the injected CO₂ usually mixes with the oil, changing the properties of the oil and enabling it to flow more freely to production wells. In most cases, a CO₂-EOR project is designed as a closed-loop system whereby some of the injected CO₂ is co-produced with the oil or other hydrocarbon and then separated in above-ground recycling facilities prior to being reinjected into the oil reservoir.

CO₂ that is injected into the project reservoir is contained as an inherent element of the injection and production operations, and this document requires that such containment be demonstrated. CO₂ that is injected and remains trapped in the “EOR complex” during and after oil production activities is referred to as “associated storage” when the CO₂ is not released to the atmosphere. Associated storage occurs as an intrinsic part of CO₂-EOR operations.

Although methane is often present in EOR project reservoirs, this document does not specifically address methane or other greenhouse gases. The demonstration requirements for safe, long-term containment, however, address assessment of trapping and potential leakage pathways that would likely assure containment of methane as well as CO₂. CO₂-EOR has been deployed internationally for several decades and has potential to expand. CO₂-EOR is commercially valuable today because it allows for the additional recovery of hydrocarbon resources while simultaneously trapping injected CO₂ for safe, long-term containment as a part of the process.

This document provides requirements for the quantification of the CO₂ (and optionally the portion of any anthropogenic CO₂) that is stored in association with CO₂-EOR operations. The purpose of this document is to facilitate the exchange of goods and services related to the increased use and emissions reductions through associated storage by providing methods for demonstrating the safe, long-term containment of, and determining the quantity of, CO₂ stored in association with CO₂-EOR. The document does not address any financial consequences that result from documenting storage of CO₂ in association with CO₂-EOR operations.

This document does not provide requirements for the selection, characterization, or permitting of sites for CO₂-EOR projects because those sites are selected, characterized, and permitted pursuant to requirements and standards applicable to oil and gas exploration and production. Likewise, this document does not specify environment, health and safety protections, or corrective action and mitigation requirements that are provided by the regulations and standards applicable to all hydrocarbon production operations. A list of many of the existing standards applicable to CO₂ injection wells and oil and gas operations is presented in the Bibliography.

The results of quantifications under this document can be used as input for calculations conducted according to a number of other standards, protocols, or programs for the quantification or reporting of greenhouse gas emissions, mitigation, or reductions, including those conforming with ISO 14064-1, ISO 14064-2 and ISO 14064-3. Specifically, this document provides methodology for the identification and quantification of CO₂ losses (including fugitive emissions) and quantification of the amount of CO₂ stored in association with CO₂-EOR projects. Such quantification can be used in a broader scheme for the quantification and verification of emissions and emission reductions over the entire carbon capture, transportation, and storage chain. The quantification of the storage associated with a CO₂-EOR project that occurs as part of a carbon capture and storage (CCS) project chain can be combined with the quantification of one or more capture, transportation, and geological storage systems to produce a total quantification for the entire CCS project chain. Under some emissions quantification and reporting regimes, CO₂ quantities stored in association with CO₂-EOR are either treated as not emitted and excluded from calculations or subtracted as offsets.