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CO_2CARE - Site Closure Assessment Research - Recent Results

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The EU project CO_2CARE, which started in January 2011, supports the large scale demonstration of CCS technology by addressing requirements of operators and regulators face in terms of CO_2 storage site abandonment. The CO_2CARE consortium, consisting of 24 project partners from universities, research institutes, and the industry, investigate technologies and procedures for abandonment and post-closure safety, satisfying the regulatory requirements for the transfer of responsibility.
Nine key injections sites in Europe, USA, Japan, and Australia, each with a specific (hydro) geological and environmental character, were selected for investigations. These sites can be divided into the CO_2 storage types on-shore, off-shore, natural CO_2 reservoir, depleted gas reservoirs, and saline aquifers.
The project mainly focuses on three key areas:
- well abandonment and long-term integrity;
- reservoir management and prediction from closure to the long-term;
- risk management methodologies for long-term safety.

These key areas are in turn closely linked to the three high-level requirements of the EU Directive 2009/31/EC, Article 18 for CO_2 storage which are: (i) absence of any detectable leakage, (ii) conformity of actual behaviour of the injected CO_2 with the modeled behaviour, and (iii) the storage site is evolving towards a situation of long-term stability.
The identification of criteria and the development of site abandonment procedures and technologies, which guarantee the fulfillment of the high-level requirements, are the major objectives in CO_2CARE. These criteria have to be fulfilled prior to subsequent transfer of responsibility to the competent authorities, typically 20 or 30 years after site closure.

Finally, the essential results of the different working groups in CO_2CARE will feed into overall guidelines for regulatory compliance and “Best Practice” for site abandonment. Dissemination of the results will show policy makers and the general public how site abandonment procedures for CO_2 storage sites can be undertaken sustainably, cost-effectively and with no adverse effect to the local population and the natural environment.

After more than two-thirds of the project‘s lifetime, an overview of the project‘s goals and the most relevant research findings are presented.