Abstract

In December 2020 and January 2022, the IEAGHG Risk Management Network held two webinars to engage with experts and a wider audience to discuss various aspects of risk management in CO₂ storage projects. The first webinar has been reported on in IEAGHG Technical Review number 2021-TR01.

The first webinar attracted 69 attendees and was on risk management over time at operating and future CCS projects, aimed primarily at those involved or interested in the risk management of projects. This webinar heard from the operators at Shell’s Quest project about their experiences with risk management at the project, which was followed by a panel discussion between representatives from leading CCS developers, as well as experts in the area of risk management.

The following key messages were drawn from the discussions:

- The bow-tie risk assessment framework is a trusted approach for containment management of CO₂ storage projects.
- As injection progresses, accumulated experience increases and uncertainties are reduced. Risk management is a process for evaluating uncertainties and developing mitigation plans. This approach reduces exposure to risk as a project evolves.
- The geomechanical integrity testing programme is critical to allow proper understanding of uncertainty in a storage complex.
- As projects increase in size and number, there is also an increase in exposure to risk, but with more data risk assessment can be improved and uncertainties reduced.
- Perceived risk can be equated with adverse events. Perception problems arise where people do not understand specific technologies or understand the complexity of risk management practices.
- It is critical that projects are transparent with their public stakeholders and information is readily available.
- It’s important to educate not only the local and wider public, but the regulatory and environmental community.
- The bow-tie approach is also a powerful communication tool.
- Collaboration and communication between the project and the regulator is an important concept that should be followed by all projects, from planning to implementation, operation and eventual closure.
- Discussion between different regulators is important to share experiences and learning. The Alberta regulators communicate with other regulatory authorities.
- MMV programmes can be adapted and evolve as projects progress.
- Better methods are needed for analysing the significant quantities of data generated from MMV programmes.
- Well integrity management is crucial.

The most recent webinar was held in January 2022 and attracted 138 participants in addition to 7 panellists. This sought-after event focused on the road to CCS project permitting, showcasing operators’ experiences with risk management during the permitting process. The aim was to provide an informal roundtable discussion to learn about the experiences that project operators have had during the permitting process and project developers and operators helped to provide an understanding of the challenges faced and explored potential ways to overcome such issues for future permits at other projects worldwide.
Speakers from industry and research backgrounds provided the attendees with insights on the technical risks faced by individual projects and how these were approached in the project permit process. The webinar discussed projects including Northern Lights (Europe), Porthos (Europe), and US perspectives looking at permitting under the Californian Low Carbon Fuel Standard and Underground Injection Control (UIC) Class VI rules.

*Keywords: risk management; storage; CCS*