

## Compilation of Best Practice Manuals toward CCS commercialization

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The first CO<sub>2</sub> aquifer storage project was started at Sleipner, Norway in 1996. Following after Sleipner, many CO<sub>2</sub> geological storage projects were started in the world. Various Best Practice Manuals or Guidelines are made to summarize the knowledge and experience obtained from the existence projects.

For example, the European Commission provided Guidance Document published in four. These Guidance Documents "CCS directive" present rules related to CCS implementation to the EU member countries. On the other hand, the United States EPA (Environmental Protection Agency) provided many "UIC Class VI Well Guidance". DOE (The United States Department of Energy) was promoting preparation of a BPM (Best Practice Manuals) based on the knowledge experience of the CCS projects. As described above, accumulated experience and knowledge of pilot-scale tests involving CCS projects are analyzed and reviewed and adopted, and preparations are being made overseas for full-scale implementation of CO<sub>2</sub> storage subsurface.

Foreseeing domestic and global CCS deployment in future, RITE has been compiling "CCS Best Practice Manuals" as a technical reference for Japanese companies to carry out CCS projects. As best practices in Japan, we have been summarizing mainly various technical aspects of the CO<sub>2</sub> injection test carried out in Nagaoka from 2003 to 2005. We have also been collecting and sorting out best practices in the USA RCSP (Regional Carbon Sequestration Partnership) and Europe.

Standard process flow of the CCS project is shown below. We classify the whole CCS process flow it takes into 8 phases. It consists of 8 phases, i.e. basic planning, site screening & selection, site characterization, master planning, design & construction, operation, injection cessation & well plug and abandon, post injection monitoring, post closure monitoring, and post closure liability transfer. Each phase correspond to individual chapter. Chapter 1, first step design relevant information is collected from within Japan and overseas, sorted and analyzed, and key aspects and major data of the Nagaoka CO<sub>2</sub> Pilot-Scale Injection Test are sorted out and summarized in parallel. Then, based on results from research and development conducted by RITE, a RITE version of the CCS best practice manual is compiled, and as a final step, a Japanese version of the CCS best practices manual is to be developed, incorporating the large-scale demonstration project in Japan.

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