NOT LIMITED TO STORAGES ALONE

DEEP.KBB specialises in the planning, construction, and operation of underground energy storages, as well as brine and salt extraction.

The Reservoir Engineering division not only makes a contribution to underground storage activities, but also boasts a much broader spectrum of services as well. With respect to every reservoir engineering aspect, DEEP.KBB offers the following services amongst others:

- Geological studies
- Technical due diligence studies
- Elaboration of digital geological models
- Evaluation of thermodynamic analysis (PVT)
- Petrophysics (log analysis)
- Well test planning and interpretation
- Well flow performance analysis, pressure drop and temperature calculations
- Material balance calculations
- Numerical reservoir simulations
- Processing and structuring of old production data
- Review and processing of drilling and field work documentation including determining action and problem points
- Needs analysis with identification of the relevant technology / service provider and/or their co-ordination
- General data management
- Seismic data processing consulting

DEEP.KBB uses the following special software amongst others when providing the aforementioned services:

PETREL, ECLIPSE, FAST WellTest, WellCAD, as well as DEEP.KBB developed software. The spectrum of services is rounded off by experience in using other software applications, e.g. for seismic processing, geological modelling, log analysis, well test interpretation, and fluid analysis.

DEEP.KBB GmbH

Convincing Competence

DEEP.KBB GmbH specialises in engineering and geoscientific services involving consulting, planning, construction and the operation of underground energy storages, as well as brine/salt extraction. As an all-round provider for these sectors, DEEP.KBB covers all of the necessary services. Extensive expertise in all disciplines (such as drilling and completion technology, geology, rock mechanics and reservoir engineering) qualify DEEP.KBB not only for underground storage projects, but also as a competent partner for all kinds of underground projects, and all drilling and reservoir engineering questions and problems.

DEEP. KBB

Office Bad Zwischenahn

Eyhauser Allee 2a
26160 Bad Zwischenahn
Germany

Phone: +49 4403 9322-0
Fax: +49 4403 9322-11

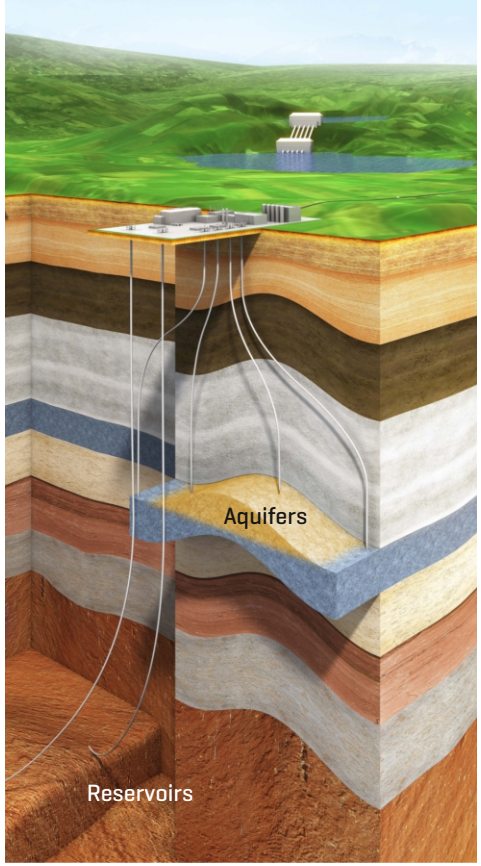
Office Hannover

Baumschulenallee 16
30625 Hannover
Germany

Phone: +49 511 542817-0
Fax: +49 511 542817-11

DEEP. KBB

RESERVOIR ENGINEERING

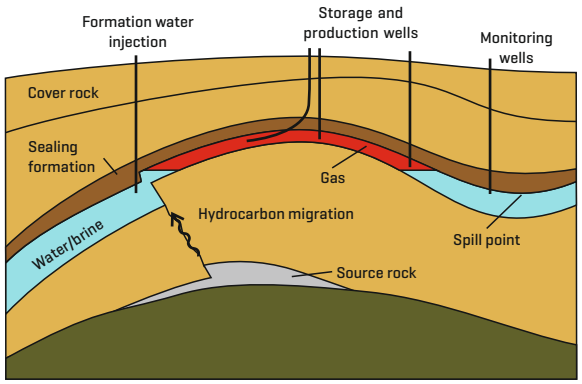


INNOVATIVE ENERGY STORAGE.

DEEP.KBB GmbH | www.deep-kbb.de | info@deep-kbb.de

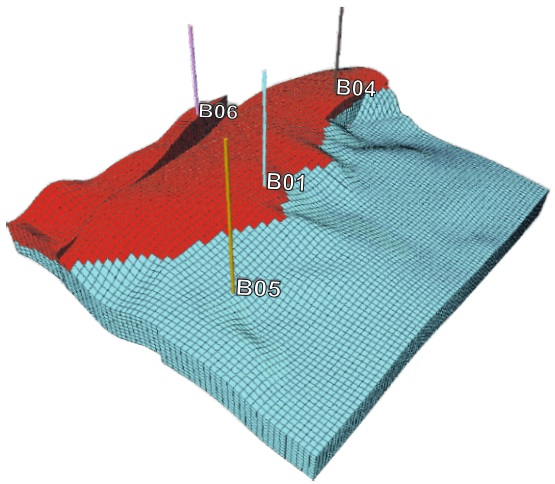
UTILISING DEPLETED OIL AND GAS FIELDS AND AQUIFER STRUCTURES

Reservoir engineering is about analysing and understanding the flow properties and flow potential of gases and liquids in porous underground rock formations. The work primarily focuses on determining the size of the reservoir, and the volumes that can be produced from natural fields. The properties of the reservoir and the associated conditions (e.g. pressure and temperature) play a vital role here, and usually also need to be determined. To do this, reservoir engineers apply basic physical and chemical principles concerning the behaviour of liquids and gases in porous and permeable underground rock formations.



The focus in oil and gas production fields is to make the most accurate assessment of the volume of producible reserves, and to achieve the maximum production rate. In the case of natural gas storage projects, the main focus is on the optimal utilisation of the available capacities. The technologies originally developed for analysing oil and gas fields can also be used for designing underground storages in depleted oil and gas fields, and in aquifer formations (water-bearing horizons).

In the case of storage projects in depleted oil and gas fields, the reservoir engineering characteristics are already very well known from the exploration and production phases of the fields. Moreover, their tightness has already been proven at a geological timescale so that the work involved in converting the depleted fields into a gas storage are limited to the necessary simulation calculations.



In contrast, the utilisation of an aquifer requires much more comprehensive investigations to be carried out. The main objectives here are confirming the tightness of the overlying rock formations, determining the storage capacity, as well as assessing the potential injection and/or production rates. This is done by drilling wells and cutting cores to measure the necessary tightness of the cover rock, and the permeability and porosity of the storage rock. Such wells can subsequently be used for injection and/or production tests to assess the properties of the planned storage.

Reservoir engineers use numerical methods to simulate the capacity and dynamic potential as part of the final assessment of porous rock formations to determine their suitability as storages.

SPECIAL DISCIPLINE „SEISMIC DATA PROCESSING CONSULTING“

An essential part of the exploration of a reservoir is the analysis and interpretation of seismic data because seismics is the most powerful and most accurate of all of the geophysical exploration methods. However, the strength and precision of seismic analysis not only depends on the seismic survey itself, but also to a large extent on the data processing.

Seismic data processing is usually continuously monitored and examined by the client so that their definition of the primary objectives as well as already established interpretations or ideas can be incorporated when making important parameter decisions. If the client does not have expertise of this kind in house, DEEP.KBB can be engaged as a consultant to monitor and supervise the seismic data processing. We provide assistance on parameter decision making, and check the quality assurance aspects. Our repertoire also includes evaluating old seismic surveys and estimating the potential of a reprocessing.

Trust is good – control is better

DEEP.KBB provides the following services amongst others as part of its consulting activities for reflection seismic data processing:

- General and customised consulting on reflection seismic data processing
- Monitoring the field processing of new surveys and if necessary, also conducting the surveys
- Monitoring the main processing (new and reprocessing)
- Checking and/or elaborating quality control methods
- Supporting and advising on parameter decision making
- Assessing and evaluating the processing of old seismic
- Assessing the potential of a reprocessing
- Reviewing and analysing processing reports and checking their plausibility