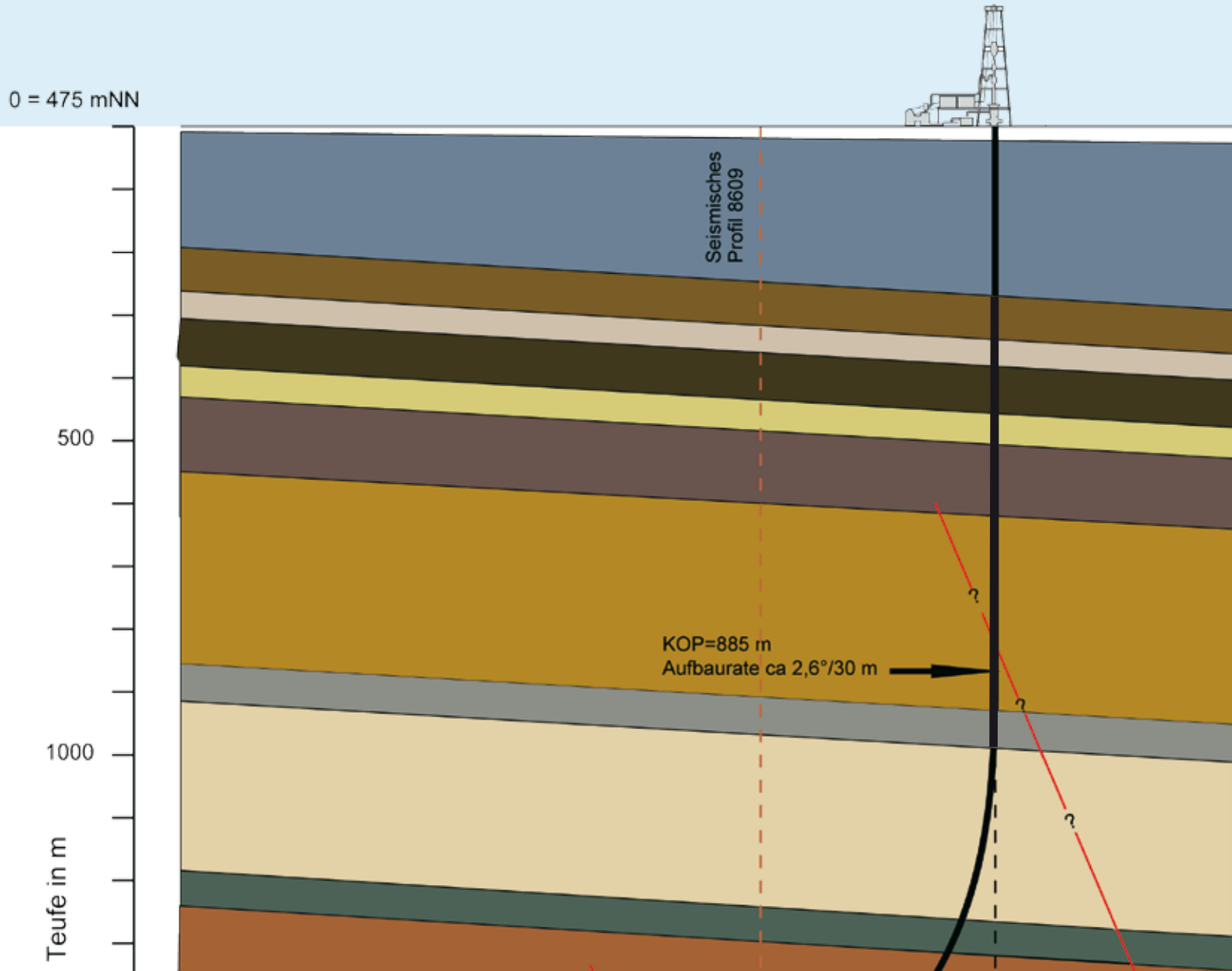
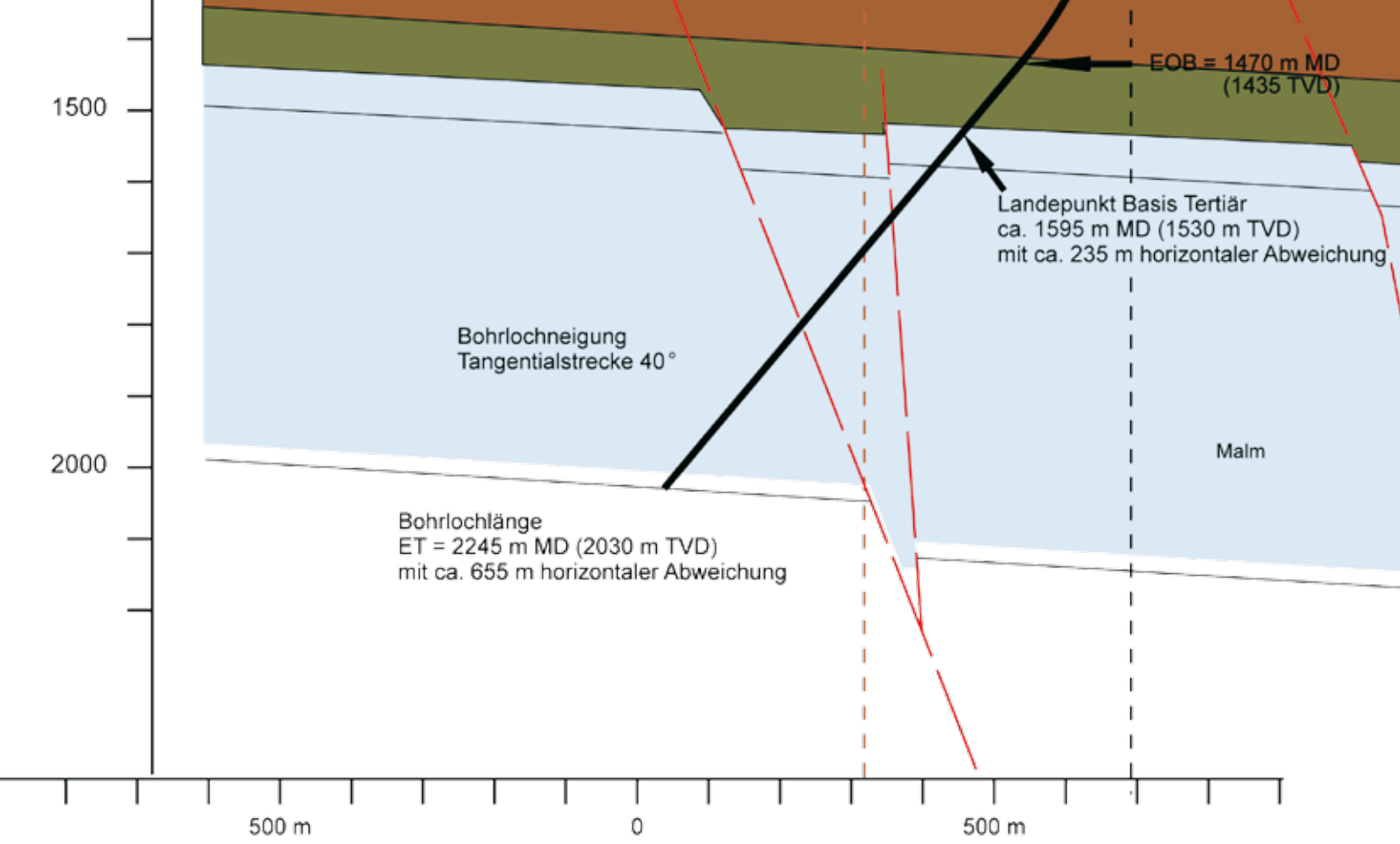
Daldrup & Söhne AG
Bohrtechnik



High-tech with depth

deeply alternative, **deeply** regenerative, **deeply** innovative





TVD = True vertical depth (Vertikaltiefe)
MD = Measured depth (Bohrmeter)
KOP = Kick off point (Beginn der Ablenkung)
EOB = End of build (Ende der Aufbaustrecke)

Thinking outside the box. With our modern high-tech drilling rigs we provide solutions for a wide range of different requirements, including angled drilling, projects in densely populated areas with extreme noise protection or boreholes up to 6,000 metres deep. Our many years of experience and our high levels of innovation are combined in a variety of different drilling techniques and specialist knowledge with one goal in mind – the success of our customers.

1946
Predecessor company founded by Karl Daldrup senior.



1976
Arrival of Josef Daldrup, the current CEO

1994
First borehole over 1,000 m to access CO_2 for the drinks industry

1995
First use of deep drilling technology to access hot water/thermal brine for a spa resort

2001
Restructuring leads to the company being established as a public limited company (AG)

First use of directional drilling systems to access mine gas in the Ruhr area

2005
Deepest tap hole in Austria (ca. 1,200 m / Ø 101 mm)
Exploratory drilling for tunnel construction

Innovative drilling technology has a name: Daldrup



Technology with depth has always been the hallmark of Daldrup & Söhne AG. Drawing on our many decades of experience in drilling technology, we focus on forward-looking high-tech applications. All our projects have one thing in common: gaining access to hidden natural resources – such as geothermic power, water or valuable raw materials – in a commercially viable and environmentally friendly way.

As a drilling technology specialist and environmental service provider our four divisions operate in dynamic growth markets. We satisfy the sophisticated demands of our customers with technical creativity, comprehensive service and great flexibility. Our expertise in specialist extraction methods and foundation engineering is combined with cutting edge deep drilling technology.

2006

Work starts on the first deep geothermic borehole in Arnsberg for the installation of a deep ground source heat pump (TEWS) designed to heat a swimming pool.

2007

Stock market launch (IPO)

1st and 2nd deep boreholes in Bleiswijk, Netherlands / Heat supply for industrial greenhouses

2008

Completion of the deep ground source heat pump borehole in Arnsberg (2,800 m, deepest drill hole in the state of NRW)

Operation of high-tech drill systems DS 10 and DS 20

2009

Joint Venture with RWE Innogy and majority shareholding in Geysir / Exorka Group for the development of geothermic power plant projects

Completion of deep geothermic boreholes in Aschheim and Garching (both in Bavaria) as well as the 3rd and 4th boreholes in Bleiswijk, Netherlands

2010

Completion of numerous geothermic boreholes in Germany, Switzerland and the Netherlands in order to supply geothermic heat to the population

2011

Development of geothermic activities in Austria and Italy; systematic advance of the drilling phase of two geothermic wells in the reference project in Taufkirchen (combined heat and power geothermic plant)

2012

The increase in the feed-in compensation to 25ct/kWh following an amendment to the Renewable Energy Act means that geothermic energy is one of the winners thanks to the improved funding conditions

The drilling phase in Taufkirchen is successfully concluded and the results far exceed expectations.

Our powers of innovation are always based on one key ingredient: experience. With a company history stretching back over three generations we have amassed many years of know-how and specialist expertise in a wide range of drilling techniques – and have learnt how to combine these techniques together in an intelligent manner.

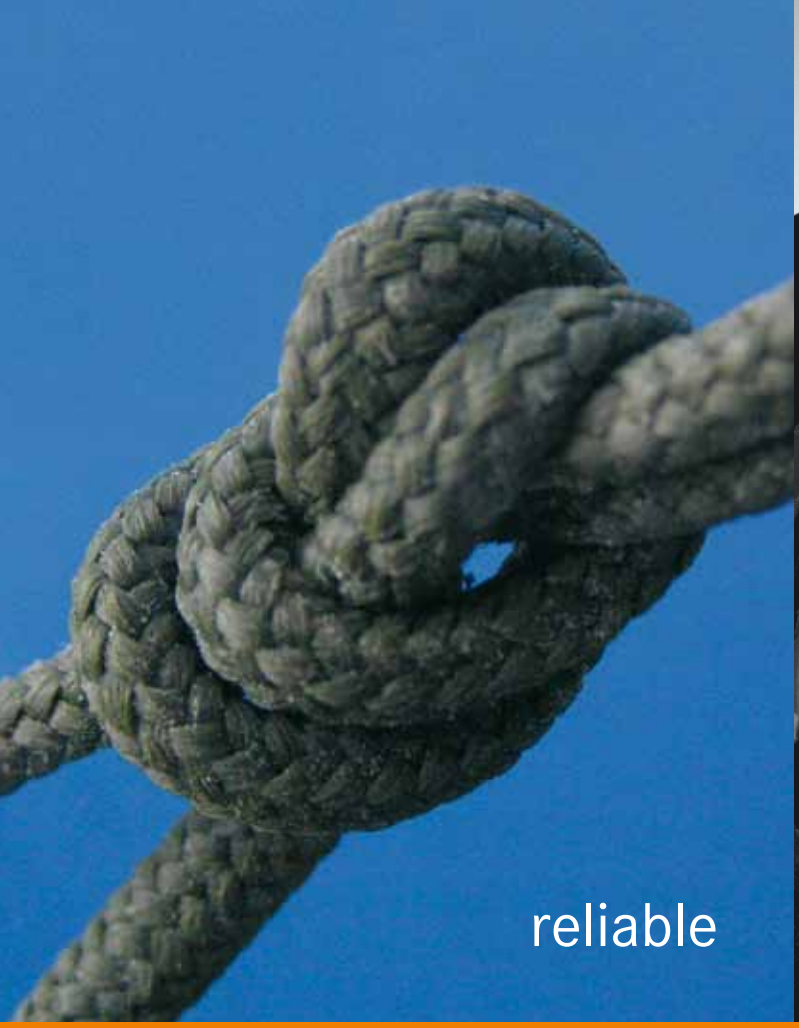


Quality is a crucial factor in all areas of our work in order to ensure the success and satisfaction of our customers. The SCC (Safety Certificate Contractors) certification is therefore an integral part of our business and we comply fully with quality management systems in accordance with DIN ISO 9001.
These high standards are also reflected in our skilled construction teams and our cutting edge specialist equipment. Our comprehensive inventory of around 40 drilling rigs with hook loads of up to 350 t gives us the flexibility to find solutions for a wide variety of tasks as well as offering increased speed, precision and cost-effectiveness.





The following pages present the many different capabilities of modern drilling technology – divided into our four areas of business: Geothermic Power, Raw Materials and Exploration, Water Recovery and EDS – Environment, Development and Services.

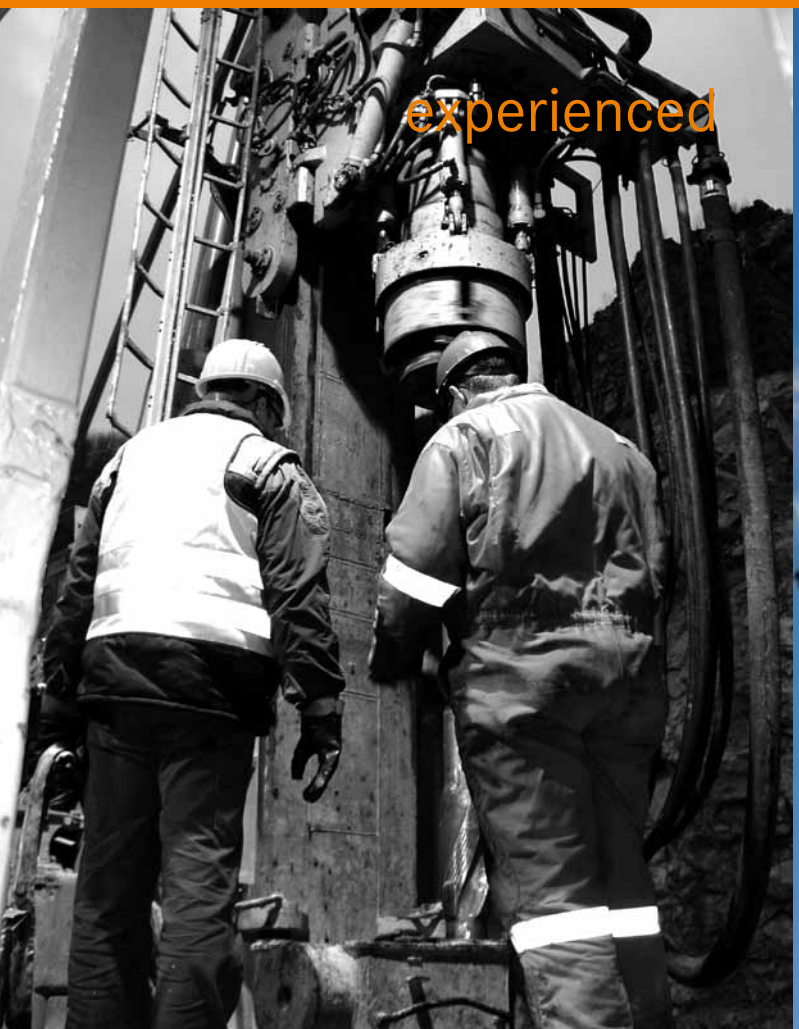


reliable



precise

Success is the result of a combination of factors: cutting edge technology, a skilled workforce, reliability and a customer service provision that is tailored to suit particular requirements. Tell us what you need: service is a key part of our business.



experienced

environmentally friendly



On the road to success

The management team of Daldrup & Söhne AG is moving the company from being a pure drilling service provider to a medium-sized energy producer.

The construction and operation of the geothermic heat and power station in Taufkirchen will mark the company's first significant milestone within its strategic development process.

The value creation process begins when the company obtains permission to search for geothermic energy in a specific area then continues through the development stage and the initial drilling phase to the eventual construction of the power station.

The process reaches its completion when the energy produced is sold in the form of electricity and heat, along with the operation of the power station.



Advantages of geothermic energy

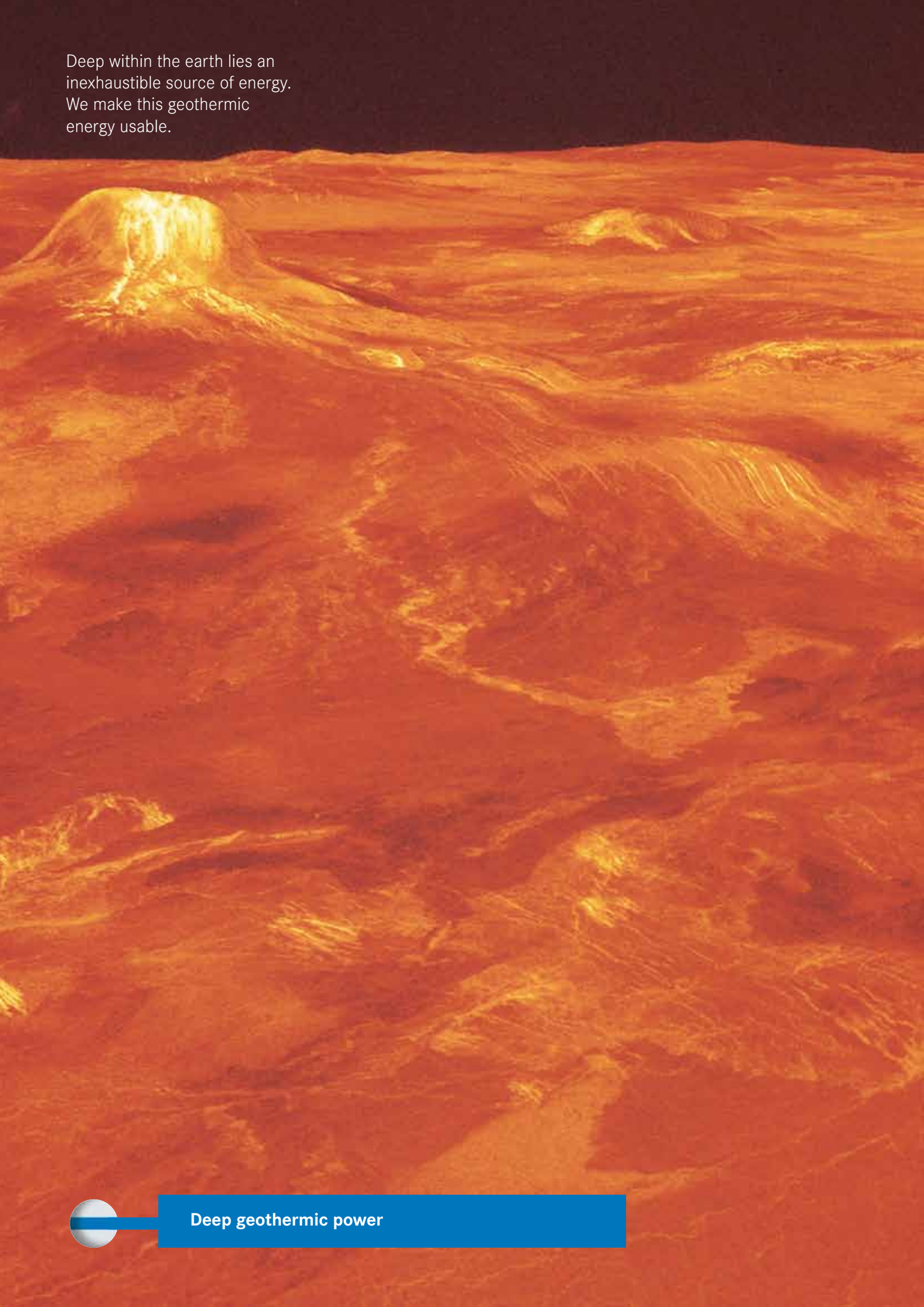
Geothermic energy is a multitalented player in the field of renewable energy. Whether the demand is for heating, cooling or electricity, geothermic power can be used to provide energy in a variety of different power station projects as well as smaller individual applications. The ground heat source can be used as a seasonal or temporary buffer store and therefore balance out any short-term discrepancies between energy supply and demand. As the actual energy recovery takes place underground the ecological and visual disturbances are minimal, as are the noise pollution and land usage.

Using specialist geothermic drilling technology and project development expertise, Daldrup & Söhne AG is well on the way to becoming a vertically integrated, medium-sized energy producer.

This kind of venture does not require any expensive development of the existing power grid.

- Inexhaustible resource
- Outstanding carbon footprint
- Unlimited load capacity – i.e. not weather-dependent
- Percentage of full load hours >91 %
- Very low land use
- Active contribution to environmental and climate protection
- Favourable regulatory terms and conditions, EEG 2012

Deep within the earth lies an inexhaustible source of energy. We make this geothermic energy usable.



Deep geothermic power

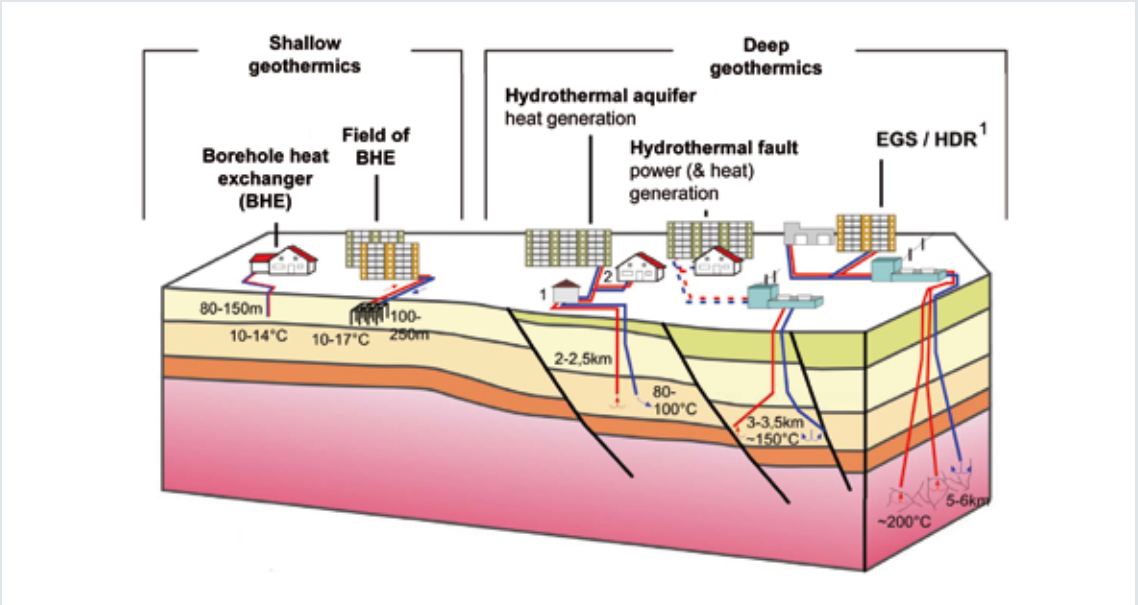
An inexhaustible source of energy

The use of geothermic energy for heating or generating electricity represents one of the most attractive sources of renewable energy.

Geothermic power combines a number of benefits: it is base loadable, which means that it is not dependent on external factors such as weather, time of day, seasons etc, it is available everywhere and it is inexhaustible.
The use of this constant source of natural energy is supported by EEG 2012, public funding programmes and intelligent insurance solutions. Furthermore it offers an outstanding carbon footprint. We differentiate between shallow and deep geothermic energy.

Deep geothermic energy poses particular challenges to drilling technology: we create boreholes of up to 6,000 metres deep in order to access the ground heat for generating electricity and/or heat. Our domestic focus is on the Molasse basin in Bavaria and in future on Oberrheingraben. Across Europe we are much in demand as a partner; in the Netherlands and also in Southern and Eastern Europe.

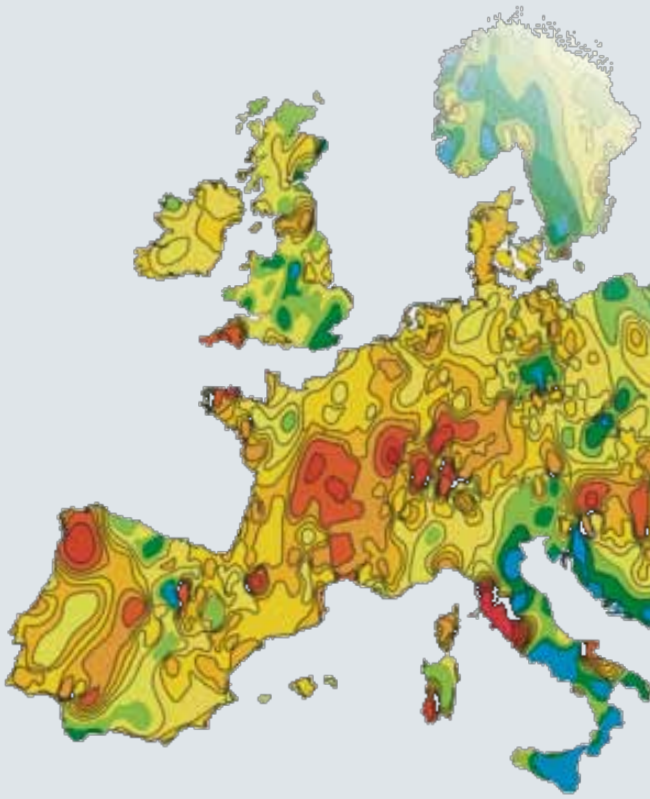
We operate deep ground source heat pumps for heat recovery as well as hydrothermal and petrothermal systems for generating heat and electricity. The deep hydrothermal energy extraction process taps into the hot water held in layers of rock. The deep petrothermal energy process, in comparison, extracts heat from crystalline rock by using water to expand existing cracks and fissures to create a natural heat exchange process. Injection wells are used to force water into the rocks and this is then brought up to the surface through boreholes.



We drill down to depths of 6,000 metres. Our aim is to access energy in an environmentally friendly way that protects natural resources.



Deep geothermic power



Regardless of what actual technology is the most appropriate in each case, for all projects involving access to geothermic power our decades of expertise in combining different drilling techniques is invaluable, as is our proved experience in specialist drilling work.
Our motto says it all: “**deeply** alternative - **deeply** regenerative – **deeply** innovative”.

For us, however, innovation means more than simply constantly optimising our drilling technology. It also involves setting new standards in environmental protection and emission protection. For example, we have developed drilling rigs that have been specially made for us to reduce noise levels and space requirements to an absolute minimum. This means that our cutting edge high-tech drilling rigs are not just perfectly suited for drilling at great depths but they are also ideal for use in densely populated areas.

Quality across the board: our high standards are reinforced with certificates such as the SCC certificate and our quality management approach is in line with DIN ISO 9001.

High-tech with customer benefits: thanks to strategic involvements and collaborations we can now offer all elements of the value creation chain for geothermic projects and provide a one-stop shop for solutions all the way from project planning through the actual drilling to the construction of the power plant. At each phase of the project we take a flexible approach and deal with individual customer requirements from a technical, contractual and personal point of view.









Close to the surface and climate-friendly: geothermic energy is the perfect solution for heating and cooling buildings.

Shallow geothermic power

Heating and cooling using geothermic power

There is enormous potential, even just below the surface: shallow geothermic power is ideal for heating and cooling indoor spaces.





More and more building contractors, architects and developers are taking advantage of the possibilities offered by this source of renewable energy: attractive savings potentials are a strong argument for the technology of the future while the carbon footprint represents a personal contribution to climate protection and emission reduction. By making it compulsory to use renewable energy for new building projects, legislators have also created the regulatory terms and conditions for the technology of the future: “Geothermic power”.

Ground source heat pumps and ground source heat collectors are some of the most popular systems available. Combined with modern and efficient heat pumps this represents an optimum degree of efficiency when it comes to modern energy supplies for buildings. The autonomous system makes it possible to keep a building warm or cool according to demand and season while preserving natural resources.

Two key factors in the profitability of such projects are appropriate planning and a professional approach. We offer building contractors a solid package that covers every stage of the process, from an individual consultation and dimensioning of the ground source heat pump system through the entire official order handling process to the specialist drilling operation (up to 200 m deep with the appropriate permissions) and the provision and installation of heat pumps.



Minerals and fossil fuels are highly coveted raw materials.
We use special drilling technologies to gain access to these natural resources.

Raw Materials · Exploration

A real flair for raw materials

Boreholes for the exploration of fossil fuels and mineral raw materials are among our traditional areas of business – with highly promising prospects. Good instincts are needed when sinking boreholes in new deposits.

As a partner for national and international mining companies we have built up a good reputation over many years – resulting in specific expertise that will be much in demand in the future. The need to tap into previously unused deposits of fossil fuels such as coal, oil and gas as well as mineral substances is essential on a global scale. Ores are every bit as much in demand as nickel, zinc or rock salt and potash. Thanks to our specialist expertise we can provide the mining and steel industries with skilled and targeted support in the exploration and exploitation of commercially viable deposits. And that is not all: mine gas companies and energy providers commission us to build extraction wells for the purpose of accessing mine gas.

And when specialist expertise is required, our qualified engineers and drill technicians are on hand: special care must be taken when investigating and securing discontinued mining activities.







Water Recovery

Every drop is precious

Water is a very special commodity. It may appear to be present in excessive quantities but clean drinking water is still in short supply in many parts of the world and is therefore highly precious.

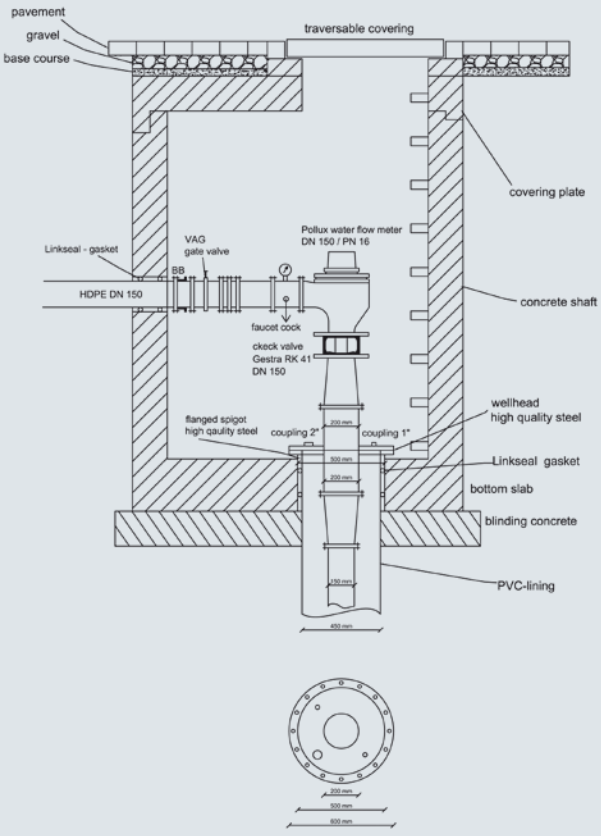
There is no life without water – which makes it all the more important to be able to tap into new sources of clean, harmless water. With special drilling technology and our well engineering capabilities we make underground water reservoirs usable. Here, too, we can call on a great deal of expertise and experience from numerous successful projects at home and abroad. Whether we are accessing drinking water, industrial water, spa and mineral water or cold water, with our well engineering capabilities we are perfectly equipped to operate in this wide-ranging area of application. We have even carried out successful drilling projects to access thermal waters for therapeutic purposes.

The search for water sources requires many years of experience. We can offer a great deal of expertise in this field – and can create intelligent combinations of different drilling techniques. Our qualified teams proceed with caution and develop an individually tailored, economically successful and environmentally sound approach for every project.

Alongside the actual drilling activity we also employ special construction techniques when accessing water resources: from stainless steel piping and the extraction of drinking and spa water through to the professional development of wells and the installation of modern filter and pump systems.









The most important commodity of all: a pristine environment. Our environmental services keep sites pure and clean.

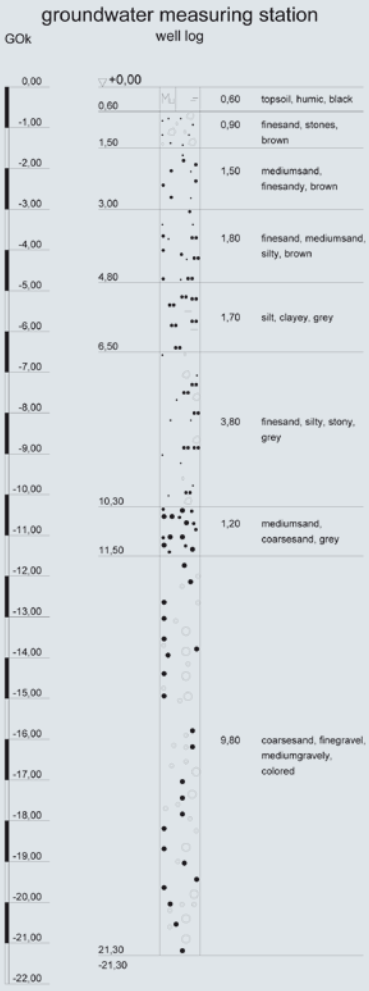
Environment · Development · Services

We create clean conditions

Decontamination of polluted locations, monitoring of water quality, mobile environmental analysis and much more.

In our Environment, Development and Services (EDS) division we have brought together a range of special environmental services for our clients. Again and again we have proved our expertise in the hydraulic decontamination of polluted locations. Whether we are dealing with former landfill sites or old mining operations, we make a significant contribution to each specific challenge.

The same applies to the planning and construction of gas extraction wells designed to access landfill gas.





We are just as committed when it comes to the area of permanent water monitoring: the creation of ground water measurement sites is every bit as important in this respect as the establishment of water purification plants or regular water sample testing. With our mobile environmental analysis we once again satisfy the demand among our customers for flexible and individual solutions.

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