DMT

Quality

Innovation

Future

Table of contents

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Quality is our foundation, innovation our future

Esteemed clients and partners,

For decades now, DMT has been the provider of choice wherever innovative engineering services are required. Examples of such fields include natural resources exploration and extraction, construction and real estate. It is here that everything technically feasible is employed to satisfy client needs. In so doing we give our clients access to the latest and most efficient technologies – to make their operations safer and more profitable.

The DMT spectrum of activities is divided into three main areas: (a) services for active mining operations, (b) engineering surveys with primary emphasis on the construction industry, real estate trade and mechanical engineering and (c) natural resources, with a broad range of services worldwide, for investors in the raw materials industry, for operators of mines and coking plants, and for oil and gas production companies.

We are growing in every field to meet new assignments we encounter daily. Our range of capabilities continues to expand. That lets us continue to support our clients even as their needs evolve. But we will nonetheless hold true to the unique factors that have always distinguished DMT and that today, more than ever before, enhance our clients' success: innovative engineering services with maximum contribution to the client's corporate value.

In this brochure we are presenting a selection of current projects by way of example, since real-world results best illustrate the excellence of our services. We hope you will obtain interesting and exciting insights as you read. And we hope you will find ways to put DMT expertise to work for you.

Sincerely yours,

Heinz-Gerd Körner
Chief Executive Officer

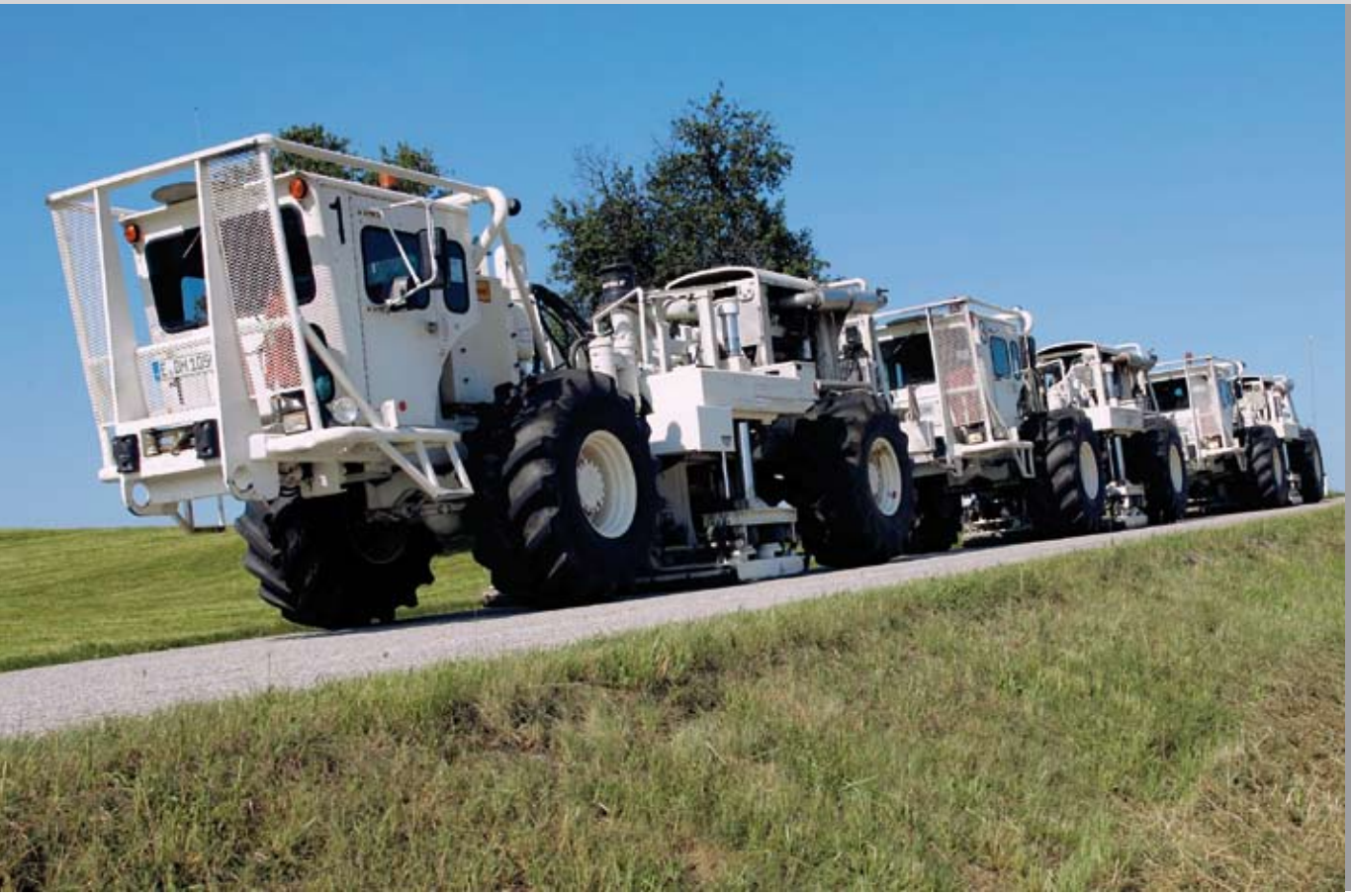
Wherever you need us — we're already there

Natural resources are the basis for the future. Anyone who knows today where resources are located and exactly what they contain, is well prepared for tomorrow. We explore and evaluate natural resource deposits and extraction operations around the world and thus give our clients a reliable basis for decisions. Our expertise is based on our wide-ranging background of activities. We have been active in exploration, mining consulting and coking technology for more than 100 years. This enables us to carry out projects of almost any size as quickly and flexibly as possible.

In addition to modern equipment, we bring with us the actual expertise in our interdisciplinary teams, trained for on-site deployment. The team members include geologists, physicists, mathematicians and business specialists, mining engineers, mechanical engineers, process engineers and plant builders, electrical and surveying engineers and, of course, geophysicists. They all put their expertise and practical experience at the customer's disposal. And they are on the job all around the world, whether in the tropical climes of Papua New Guinea or in the icy wastes of the Antarctic.

Our expertise makes it possible to locate exploration and production wells at exactly the right location.

Raw materials — A topic with a future



When exploring for oil, natural gas and minerals, vibrators send shock waves several kilometers deep into the ground…

…and the SUMMIT system, developed by DMT, registers the reflected echoes, in order to depict an image of the underground.

Natural resource exploration enjoys a long tradition at DMT. Ludger Mintrop, co-founder of modern geophysics, was an employee at our main offices in the early part of the last century and is considered a pioneer in refraction seismics.

Today we achieve superior results in resource exploration and underground construction using time-tested, high-resolution exploration and geomeasuring techniques, some of which were developed and patented by DMT. We are research partners for hard coal mining companies as well as corporations such as Shell and Eni.

Our competence in the fields of remote sensing and geomonitoring, as well as in engineering geological measurement systems, makes DMT an esteemed service provider all around the world. Our customers in this field include international mining companies, developers for geothermal projects, resource extraction firms, construction companies, planners, development financing banks and research institutes — and we give them the reliability they need in planning, construction and operation. The projects reviewed below serve as examples of our involvement in international markets.

A practical example: 3-D seismics in Austria

Drilling test wells for crude oil and natural gas deposits is both expensive and time-consuming. Exact information about the deposit is essential to maximizing the success of such efforts. This is where environment-friendly 3-D seismic technology comes into play. The soil is “sounded” with the seismic waves, rendering a three-dimensional representation of the subsurface structures. That makes it possible to assess the geological situation in the deposits.

In the course of the “Weizberg-Klöpfing” project, DMT explored a region north of Salzburg, covering about 650 square kilometers, on behalf of an Austrian hydrocarbon exploration company. This is currently the most ambitious onshore seismics project in progress in Western Europe, with approx. 100 employees and a total of 425 tons of equipment that has to be moved day in and day out, regardless of the weather, over a nine-month period. 72,000 geophones have to be laid out over distances of many kilometers and joined to one another in order to pick up the reflected waves at the surface. The signals representing the waves sent into the soil by the vibrators and reflected by subterranean structures are recorded on digital data storage media. Subsequent data processing makes potential oil and gas deposits visible. Ultimately, this makes a contribution to reliable supplies of energy and raw materials in Europe.

A practical example: Exploration seismics in the Congo

We are active around the world in the reconnaissance and assessment of raw material deposits, one example being the potassium deposits in the Congo, near the port of Pointe Noire. In order to obtain more precise information on these deposits and particularly on inclusions of carnallite, a fertilizer, the Canadian company MagIndustries International Inc. made use of DMT's services. The geological situation was ascertained, at high resolution and at depths of up to 1,000 meters, by way of seismic investigations using the SUMMIT system, developed by us. Operating over distances of 21 kilometers and in two drill holes of 800 meters depth, our associates and local field workers carried out eight weeks of exploration work at tropical conditions in the jungle. That was our mission. But over and above that, a contribution was made to farmers reaping good yields on meager soils in the future, thanks to the use of effective fertilizers.

A practical example: Coking technology for Korea

The technology used to convert coal into coke is another primary focus in our work. During the coking process, coal components will be released as "coke oven gas". This gas contains components such as ammonia, hydrogen sulphide and hydrogen cyanide. These have to be separated by using washing and stripping processes at the "by product plant". The toxins will be converted into elemental sulphur, nitrogen and water in so called Claus catalysts, by means of partial combustion and catalytic processes. Thus the Claus process makes an important contribution to the environment-friendly production of coke. In the summer of 2005, DMT signed a contract to design four Claus systems for installation at two POSCO steelwork sites in Korea and to deliver key components for the assembly of the plants. Construction supervision and commissioning of the plants are also to be carried out by DMT staff. A particular challenge here is the specific operating concept required by the operator and local authorities.

In our semi-technical coking plant in Essen we convert and analyze a variety of coal types and blends in response to customer commissions.

Our interdisciplinary teams offer our clients, both in Germany and elsewhere, competent advice and professional service in exploration and in recovering and processing raw materials.

Two plants each will normally be operated at half capacity so that either of the units can take over the entire load immediately in case of a malfunction or during maintenance downtime. Thus there can be no interruption in the desulphurization of the gas. It was possible to shut down and dismantle the afterburner units that had formerly been used for emergency situations.

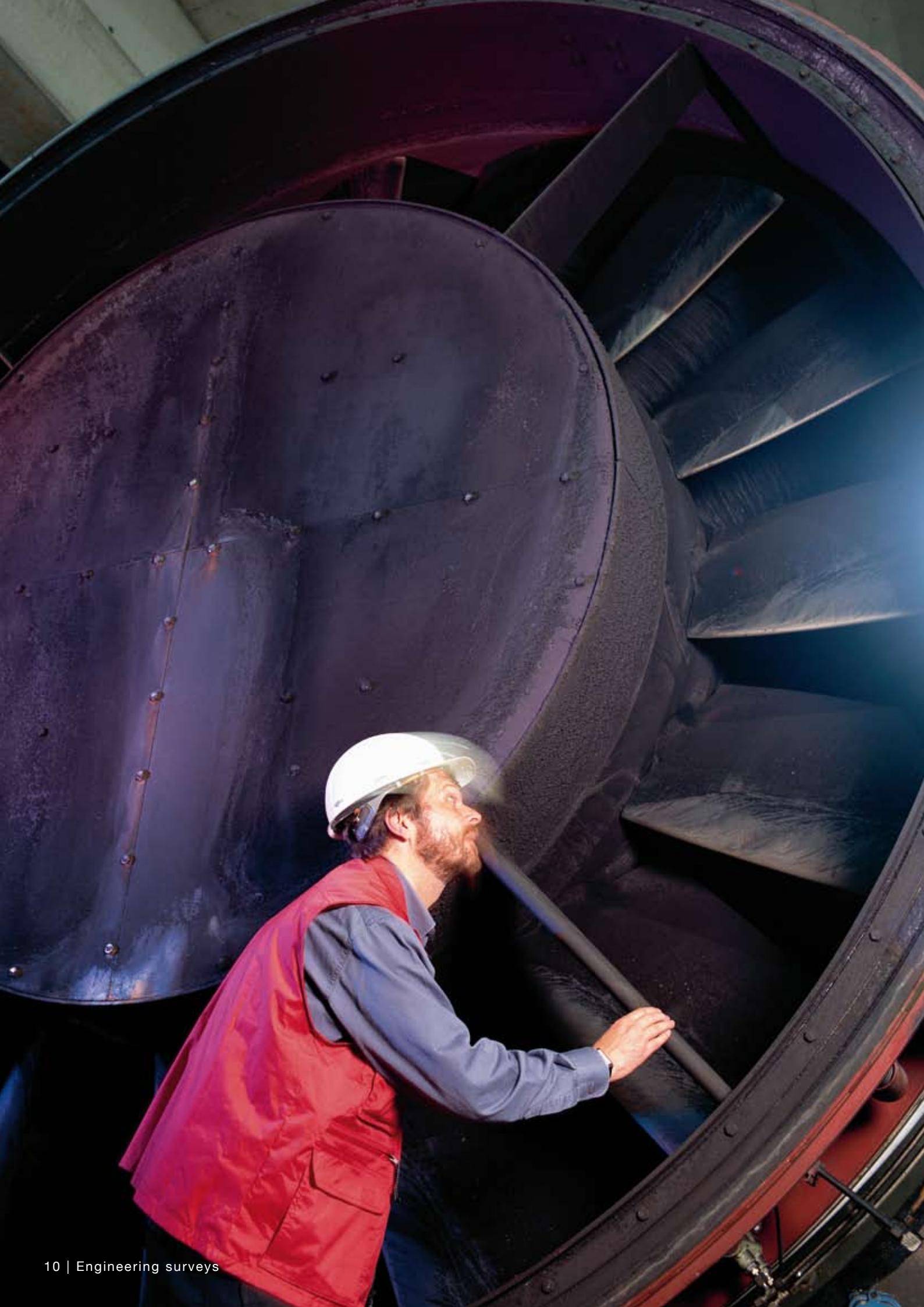
Mining consulting — A global growth market

Since the beginning of the 1970s our consulting services to international mining clients have been pooled under the name “Montan Consulting”. In the summer of 2006 we were able to further expand our international consulting business thanks to the takeover of the British company “IMC International Mining Consultants”.

A typical example of our consulting activities is the Yayu Coalmine project in Ethiopia, where a coal-fired power plant is to be built.

In support of this project, DMT will examine and assess a feasibility study prepared by a Chinese company. Experts from a wide variety of fields will be utilized, including specialists in exploration, rock mechanics and support technology, ventilation and safety. Further major projects that we are overseeing during the implementation phase are the Tabas coal mine in Iran and the Barapukuria mine in Bangladesh.

Pooling activities at Montan Consulting and IMC has made DMT one of the world’s leading independent consulting companies in the natural resource industry, enjoying excellent relations with banks and investors for privately financed mining operations on the London Stock Exchange.



In the end, it's your safety that counts

There are some situations in which personal judgment and a sense of proportion along with experience in estimating a situation are enough to reach a decision. In complex technical systems, however, this will usually not suffice. There are good reasons why reports of accidents resulting from structural or technical deficiencies are extremely rare here at home; "Made in Germany" still has an excellent reputation. Mandatory standards ensure a high degree of safety and security: operational safety during construction or for the finished plant, planning confidence for the operator, operating reliability for the investor or financier.

Heightened awareness of safety issues among the public has made the maintenance of quality standards a must, even in the face of continuously rising cost pressures. Anyone who disregards safety standards assumes major risks. DMT has made a good name for itself as an advisor, trainer and testing agency in all the questions associated with construction and building safety, as well as in the examination and inspection of industrial systems and machines. Here, too, the safety aspect has quite naturally become linked with economic returns. Planning certainty and avoiding unnecessary costs are aspects we always keep in mind, this being in our clients' best interests.

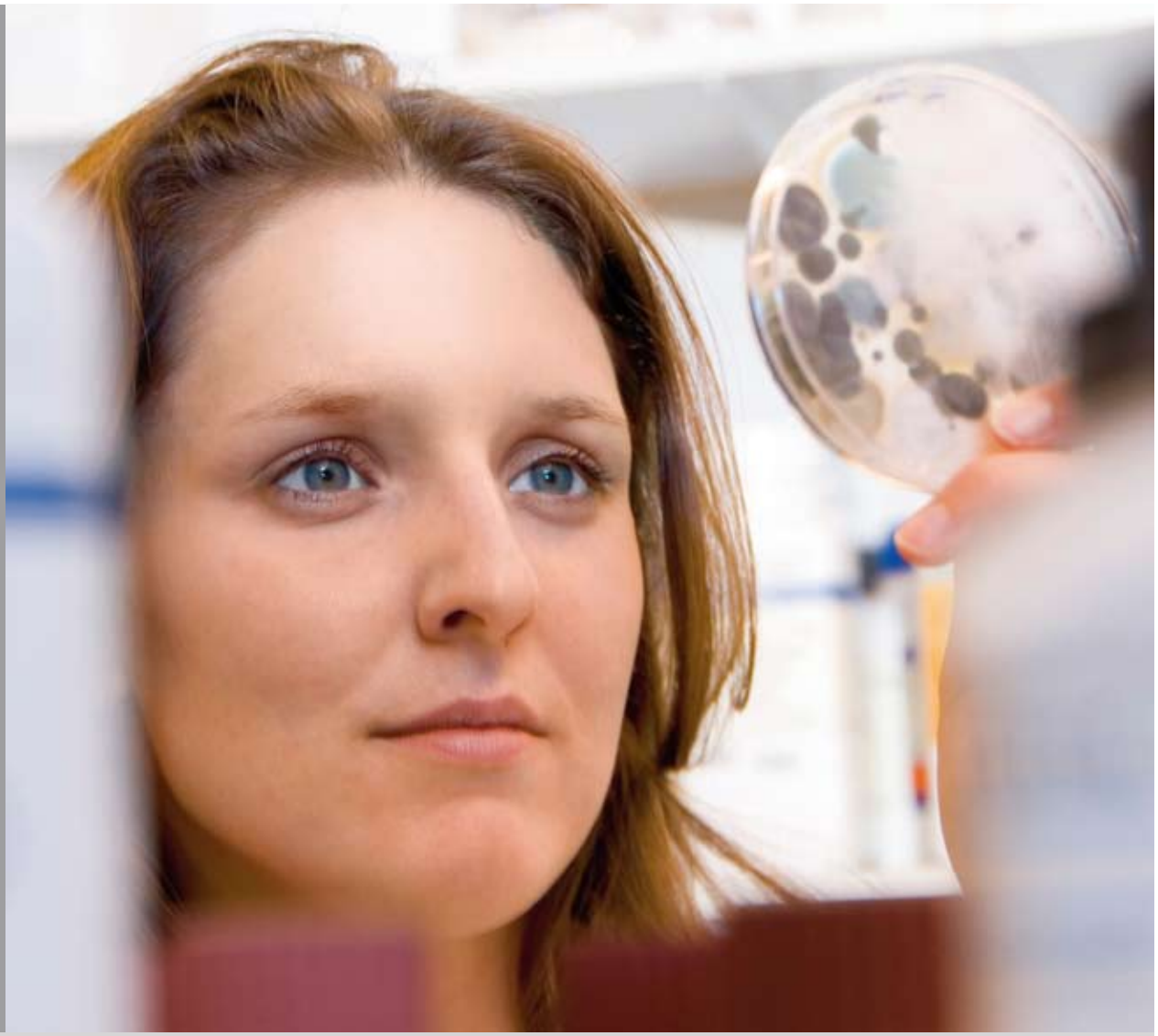
We examine large technical plants for our customers.

Page 10:
Large mine ventilation fan

Page 11:
A part of the ventilation system for the Sevens downtown mall in Düsseldorf, Germany

Dependability that can be documented

Microbiological examinations of room air samples to identify health-threatening substances, such as mold spores, are carried out in DMT's own laboratories.



A wide variety of materials and substances can undergo comprehensive testing in the DMT laboratories.

Measuring, inspecting, evaluating, training and certifying: DMT is a partner much in demand and much respected where the expertise of engineers acting as assessors is required.

Conducting subsoil analyses for construction sites and for land recycling and site rehabilitation projects, or responding to questions associated with hydrogeology and water resources management, fire prevention and the safety and functionality of technical systems and components — all these are among the tasks that DMT carries out for its customers. Planners, architects and real estate owners and developers make up the target group for our spectrum of services centered on the fields of construction consulting and building safety. Over and above that, examinations conducted in our testing center support transmission manufacturers as they develop innovative products.

A practical example: Building safety technology

Ever more entrepreneurs outsource their real estate management to facility management companies. Since the owners are obliged by law and by regulations to have certain technical plants inspected for functionality and hygiene at regular and fixed intervals, this responsibility is often delegated to the service providers. Among the units requiring examination in this context are ventilation and fire alarm systems, smoke and heat exhaust systems and fire isolation boxes.

Not only does DMT have the required know-how but also the entrepreneurial insights needed to monitor buildings with respect to technical safety. On behalf of our clients, we will analyze all the available documentation on a building, identify inspection cycles, examine existing inspection logs, prepare inspection plans and harmonize these with the facility management company. Our customers, such as RIAG Gebäudemanagement GmbH, thus minimize their administrative overheads. At the same time the safety level required by law is ensured for everyone involved.

Noise generation by a wind turbine transmission is examined at the DMT test facility to determine compliance with specifications.

Gear and transmission testing

DMT's specialist know-how is also being increasingly demanded in the field of industrial systems. In addition to developing sophisticated solutions in optical measurement technology or systems to support status-oriented maintenance, one focus of our capacities can be found in the field of gearbox inspections. Our capabilities in the drive technology engineering sector range from development testing and various component tests, through to expert assessments. We undertake various types of examinations at our own test facility. Numerous mechanical and hydraulic test beds are available for this purpose. Their modular concept and the use of the latest in measurement technology and evaluation processes guarantee dependable results, tailored exactly to the customer's needs in every respect. Our clients charge us with examinations of hydraulic pumps, motors and fluids, gearboxes and geared motors, rolling bearings, clutches and couplings and other drive technology systems. Thus, for example, inspecting transmissions for wind turbines represents a major activity at our test facility.

A practical example: Gas emissions at the surface

Mine gas represents a threat not only in active mining operations. Gas will continue to be released in abandoned mines and it ultimately finds its way to the surface. These hazardous emissions can represent a considerable risk, particularly within enclosed structures. In such cases our experts first determine the degree of danger by measuring and assessing the gas discharged at the surface. Protective concepts are prepared for the affected buildings. The planning of gas extraction systems is just as much a part of our range of services as is the installation of devices to monitor indoor air quality.

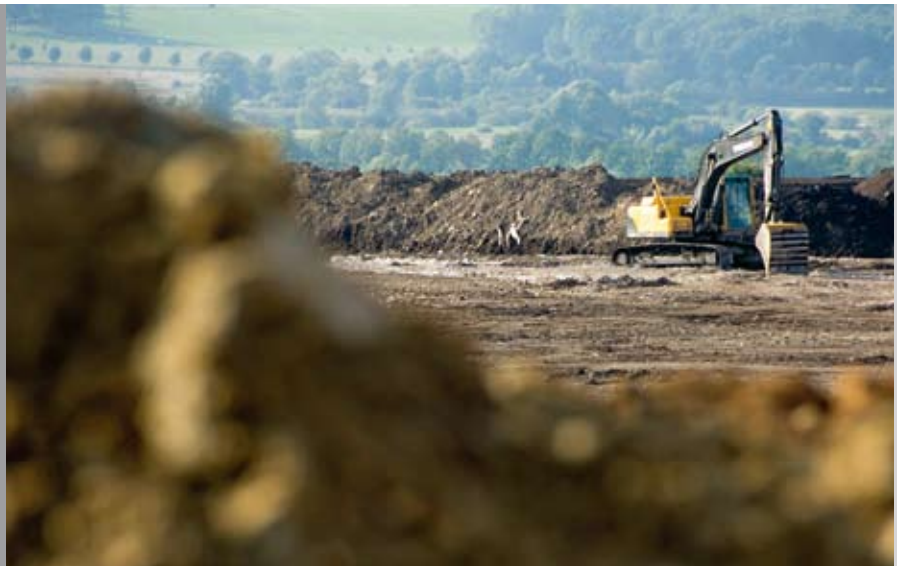
Moreover, in the case of an actual hazard being present, we will launch immediate corrective measures and also act as the agency qualified to conduct all the investigations which might be required following an incident.

Since 2001, DMT has worked closely with Minegas GmbH and Mingas-Power GmbH, two of the leading gas recovery and utilization companies in the state of North Rhine-Westphalia, Germany. Our clientele also includes further regional gas recovery firms as well as foreign clients. Thus we undertook extensive analyses and evaluations for the Australian company European Gas Ltd. and are backing up exploratory drilling in the French province of Lorraine. Projects in Russia, to be carried out on behalf of RWE Power AG, and further projects in Africa are in the planning stage.

Good prospects for assessment and review activities

Demand for DMT know-how in the preparation of expert surveys is growing rapidly. At present, we are heavily engaged in the building safety segment, having already attained the number three position in the German market. We are continuously expanding our service spectrum to promote further growth in this sector. Thus, since the summer of 2006, we have operated in Leipzig, Germany's only accredited testing facility for domestic potable water systems. Jurisdiction requires building owners to provide flawless potable water. We have responded to this development by expanding our competence in the field of water hygiene.

Whenever landscape features are being created — during mining dump reclamation projects, for example — we will handle construction supervision and geotechnical monitoring.



Our roots are in your field of work

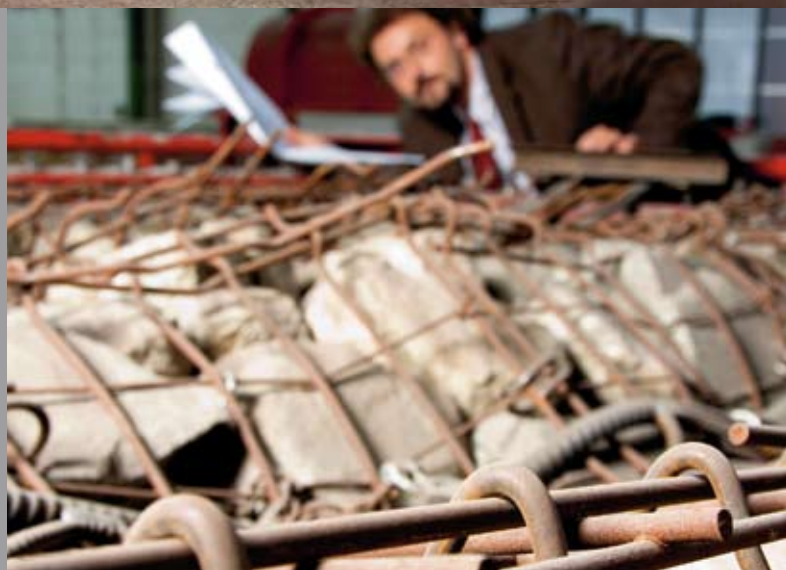
Just imagine a building 1,500 meters tall, where people had to be moved safely to their workplaces in groups of more than 100 at a time. Construction projects of this type are conceivable today, at least in theory, but they would be far more than merely spectacular. Scenarios such as this, found in underground mining operations, are among the challenges that our associates often have to master in their planning and inspection efforts.

The pooling of competencies associated both with mining and with the development of new processes, products and services is rooted in DMT's corporate history. This background is the reason why our spectrum of services is unique around the world — in both breadth and specialization. We offer our clients highly qualified engineering services and diverse know-how from a single source whenever they seek sophisticated solutions to demanding problems. Ongoing cooperation among the teams within DMT and close cooperation with universities and research establishments ensure the very best and most entrepreneurially sound solution for the customer. Innovation in the service of efficiency and safety. Safety for people. That is what DMT is all about.

Hard coal is mined in the Ruhr region, in Saarland and at Ibbenbüren. Comprehensive support of mining activities forms one pillar of DMT's core business.

More than 100 years of safety technology

Working under pressures near to real-world conditions, we simulate the behavior of the surrounding strata during the course of underground mining.



In the gas emissions laboratory we determine the methane content of coal. This value is of particular significance when assessing the safety and production situation.

DMT, as a service provider to mining operations, can draw upon its own experience, derived from almost 150 years of corporate history. Today we render essential services to various companies including RAG Deutsche Steinkohle AG, the leading German hardcoal producer.

The topic of safety, for both people and property, has always been of special importance. Our customers and their target groups profit from our first-hand knowledge, continuously advanced and adapted to meet current demands as expressed by our clients. Almost all of DMT's mining-related services are found in this sector. This includes wire rope hoisting and transport technology, subterranean gas emissions and mine ventilation, strata control of all underground cavities, extraction and processing, as well as testing components used underground. By applying mining technologies to other fields, we have penetrated additional markets. Markets in which our know-how is put to good use.

A practical example: Subterranean gas emissions

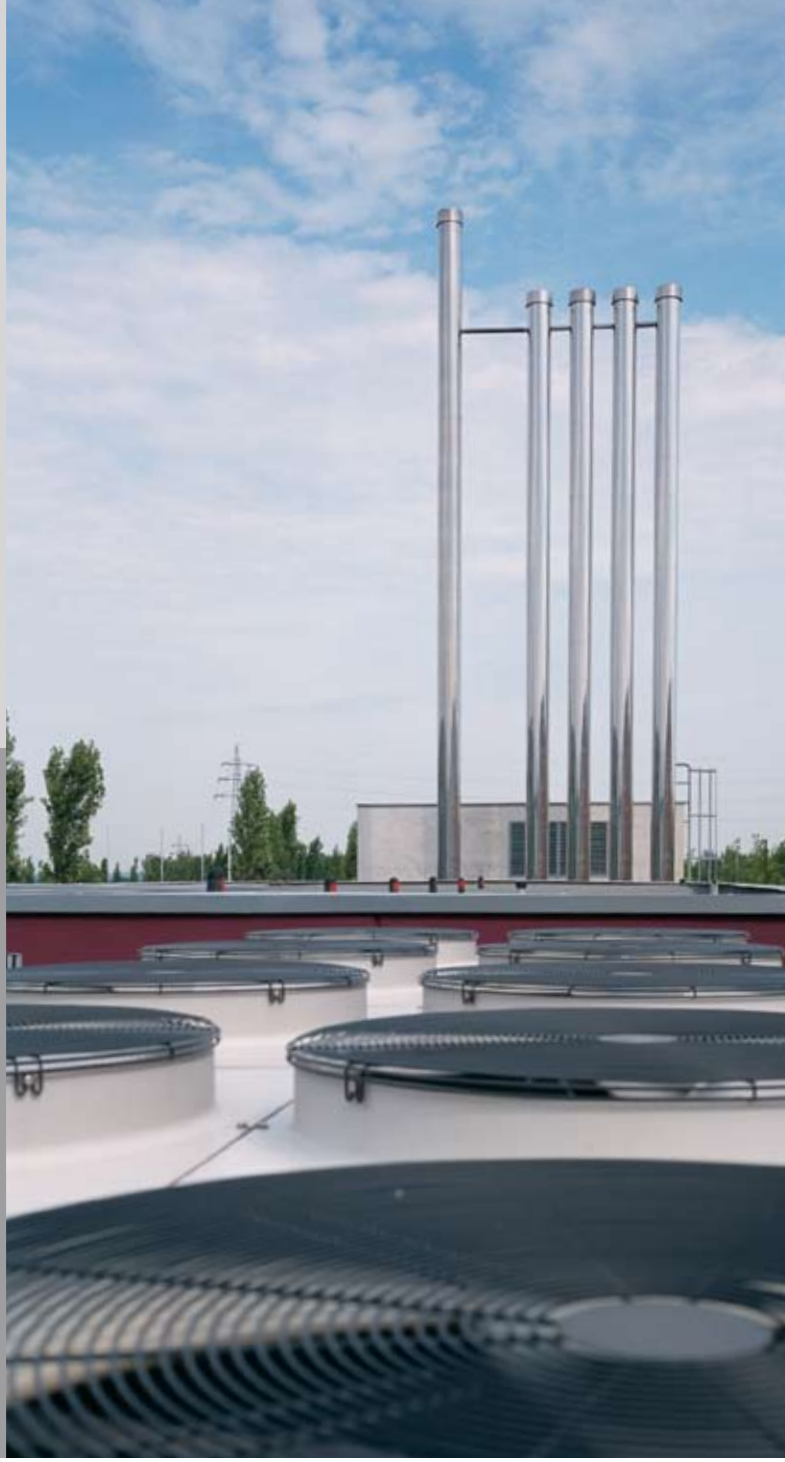
Mine gas explosions that regrettably occur time and again, especially in developing countries, demonstrate the critical role played by professional safety technology such as that supplied by DMT, particularly in underground operations. Applying appropriate safety measures could have averted the extensive loss of life suffered. Employing our know-how in ventilation and in mine gas extraction and utilization not only plays a vital part in reducing explosion hazards, but also displays interesting potentials from an economic point of view. Therefore our capabilities in the sector generally have multiple benefits to clients which is why they are being requested more and more frequently.

Rope and cable testing is a DMT service which grew out of hoisting and transport technology, a technology we have successfully transferred to other sectors, including architecture and bridge building.

A practical example: Rope and cable testing

One interesting example of a successful transfer of mining know-how is found in our testing and advisory services for planners, builders and operators of cable-stayed structures — such as bridges and stadiums — and for the manufacturers of such tension elements. Beginning with destructive testing of tensile members during the production phase, providing back-up for acceptance testing, and continuing through to non-destructive testing of the tension elements and their end connectors during operation — we will accompany the structure throughout its entire life cycle. Among the clients that make use of the DMT rope testing centre is the operator of Europe's largest Ferris wheel, the British Airways London Eye.

Given a sufficiently high methane content of the coal deposit, it may be worthwhile for our customers to invest in power generation equipment. Mine gas can be used to operate engines such as those used to generate electricity and heat.



Services with a future

Companies dealing with the planning and operation of subterranean structures and systems such as tunnels and sewer networks are ever more frequently making use of our capacities. Included in the services rendered here are, for example, tunnel ventilation concepts that take fire safety needs into account, or deal with questions on concrete carbonatation in sewer systems.

Ultimately, however, the services we render parallel to operations, applying recognized specialist competence, have been the basis for our excellent reputation among manufacturers, operators and public authorities. Around the clock, and on weekends and holidays, too — whenever our clients' production operations are shut down — that's when we're available. The superb safety standards that German mining operations have reached have made our services increasingly attractive to foreign mining companies, as well.

The DMT business units

Mining Service

Here lie the roots of DMT. Both in active mining operations and in dealing with former extraction fields, our services help our customers act in a safe and profitable fashion. The services portfolio covers the entire life cycle of a mine and includes consulting, inspection, assessment, planning and engineering.

Our capabilities:

- Wire rope hoisting and transport technology
- Ventilation technology
- Strata control
- Extraction and processing
- Technical software engineering
- Abandoned mines and surveying
- Brownfield recycling and real estate consulting

Exploration & Geosurvey

Employing geological, geophysical and geodetic measurements and surveys, we conduct exploration work for mining, oil and gas production, and underground construction. Using intelligent precision instruments, some of which were developed in-house and are being marketed around the world, an interdisciplinary team measures, processes, interprets, monitors, assesses and documents geodata. We deliver solid and reliable findings about the subsoil.

Our capabilities:

- Exploration and engineering geophysics
- Geology and borehole surveying
- Surveying and geomonitoring
- Geoinstruments
- Exploration seismics
- Gas emissions and gas utilization
- Hydrogeology and water resources management

Building Safety

We build technical safety into structures and tunnels. Fire prevention, refrigeration, climate control and filter system technology, air and potable water hygiene, and fire brigade training are our areas of expertise. Here we offer systematic solutions for architects, general contractors and planners in the fields of building fittings for building operators and fire brigades.

Our capabilities:

- Consulting, assessment and testing in the fields of fire prevention, refrigeration, climate control and hygiene
- Seminars and training in fire prevention, fire fighting and hygiene technology
- Product testing and certification in the fields of fire prevention, filter and hygiene technology, and refrigeration technology

Industry Systems

We measure, test and optimize machinery, products and processes. Wherever technical processes can be monitored and improved, that's where we will support our clients with know-how and technical solutions. As a systems supplier we ensure that components, machines and complete and complex plants function perfectly.

Our capabilities:

- Optical measurement systems to monitor product quality in the metals industry
- Machine monitoring systems used, among other, in the mining, printing, energy generation, petrochemicals and metals industries
- Control systems in mining and mechanical engineering
- Component testing and engineering for drive technology
- Test bed construction and automation

International Mining

The knowledge and experience of DMT are held in high regard by mining companies, banks and institutions all around the world. We support our clients in all facets of mining — from exploration to socially responsible mine closure and rehabilitation. Our interdisciplinary team prepares feasibility studies in a form acceptable to banks and needed as a prerequisite for financing private mining projects. Over and above that, we evaluate the profitability of ore and coal mining projects.

Our capabilities:

- Feasibility studies
- Due diligence examinations
- Restructuring
- Mining planning
- Evaluation of resources and reserves
- Environmental studies
- Institutional and technical consulting

Cokemaking Technology

Our capabilities range from consulting, testing, evaluation and assessment, to planning and construction of plant units. We analyze operational statuses and emissions from coking plants in order to identify optimization potentials. We own numerous patents for innovative emission-reduction concepts. In the field of by-product processing plants, we have access to the processes required for gas scrubbing and water treatment. We are thus able to plan them in their entirety as well as to construct them in cooperation with our expert partners.

Our capabilities:

- Coal and coke analyses
- Operational measurements and consulting
- Emission reduction components
- Process engineering for by-product recovery and processing

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