1. Tauw’s capabilities

Tauw Group is an independent European environmental consulting and engineering firm specialized in the design, improvement and management of the natural environment, built-up environment and infrastructure. Tauw Group is one of the larger, broad-based environmental specialists in Europe and Tauw is placed in the top-3 environmental consulting firms for industry in The Netherlands.

Since our founding in 1928, Tauw has evolved into a multidisciplinary environmental consulting and engineering firm with offices in 6 countries in Western Europe: The Netherlands, Belgium, France, Germany, Spain and Italy. Our geographic coverage ensures an intimate knowledge of the international and local institutional frameworks, authorities and requirements. Chapter 4 provides more insight into our international presence. Specific areas of activity include environmental management services to industry, environmental auditing, waste water treatment, water management, waste management and landfill design, soil and groundwater investigation and remediation, air emission monitoring, noise monitoring, air pollution abatement, asbestos investigations, permitting and compliance management, environmental impact assessment and ecology. We provide these services to a broad range of clients: public authorities, multinational industries, private companies and non-governmental organizations.

Environmental services

We provide our environmental services to industrial clients who operate in and across many sectors. For instance, Tauw is an important soil and groundwater consultant for the chemical and petrochemical industry (see Appendix 1). During the past 25 years we have served the multinational industry in numerous environmental projects. We work for over 25% of the top-100 industries in Europe. Our experience, knowledge and understanding extend to the following industries:

- Energy, oil and gas
- Waste management and recycling
- Chemical, pharmaceutical, consumer care products
- Food and drinks
- Packaging, storage, logistics
- Construction

This capability statement focuses on advanced soil and groundwater consulting services for the Industry. For information on other fields of expertise (and contact details), please visit tauwtakescare.com.
2. Advanced soil & groundwater consulting services

Human health, environmental quality and integrity are at risk with increasing pollution of the environment. They can for instance inhibit development ambitions of industry or government, can result in decreased property value, or form a threat to groundwater resources.

Tauw has extensive experience in site-specific risk assessment and remediation technologies on-site, in-situ and off-site. Sustainability is continuously improved through our innovation program. The long track record of Tauw’s soil-related services include soil surveys, soil policy studies, risk assessments, remediation planning, design, licensing, health and safety, and soil quality management. Based on risk assessments, environmental & societal merits and costs, Tauw advises clients on the optimum combination of management and remediation technologies. Tauw performs these services at refineries, terminals and retail stations for a wide variety of clients in the Oil & Gas industry. Often, we provide these services in the contexts of transactions.

Tauw is an active partner in NICOLE (Network for Industrially Contaminated Land in Europe), international (ISO/CEN) and national standardisation institutes, the International Sustainable Remediation Forum (SuRF), in networks of branch organizations, and export and governmental expertise platforms. Moreover, Tauw has more than 30 years of experience in contributing to Soil Policy and Legislation development in The Netherlands and countries like Germany, Brazil, Japan, Spain and Belgium.
2.1 Management of soil and groundwater resources
Soil, sediment and groundwater contaminations can have severe adverse impacts on human health and environmental quality. It may lead to important financial impacts and restrictions in land use. On the basis of investigations, we at Tauw, after assessing the risks, environmental performance and costs, advise our clients on the optimal combination of remedial measures and (long-term) monitoring and/or control measures for sustainable solutions.

2.2 Soil and groundwater investigations: Sampling and analysis
Tauw has extensive experience with soil and groundwater investigations. Each investigation is tailor made to suit the client’s requirements, the size, complexity, local context and ensures compliance with valid regulations for the project. Constant innovation and research help us to understand and implement technical and policy developments. We execute each investigation in the most efficient and effective manner using the best and latest technology. Our wide client base, from a variety of industries, has helped us to develop extensive experience with many contamination types and situations.

2.3 Conceptual Site Models
In order to identify environmental impacts, Tauw develops conceptual site models (CSMs). The objective of a CSM is to visualize sources of contamination, potential pathways for migration and potential receptors (e.g. people, nature and groundwater resources). This enhances the understanding of the contamination in relation to former, current and future site use. Input for a CSM comes from site assessments and intrusive investigations. In order to visualize complex soil and groundwater contaminations, Tauw uses 3D techniques to observe the contamination from various angles. This generates additional insights when compared to only assessing figures and floor plans. 3D models also help in uncovering and presenting the consequences of different remedial measures applied to a contamination.

2.4 Risk assessment and management
Soil and groundwater contamination and remediation is a matter of managing risks, be it the human risks or environmental risks. There are challenges like dealing with contaminations that extend beyond site boundaries, or contaminations can have multiple sources. In this case responsibilities and liabilities for site users, site owners, governments, vendors or buyers may be unclear but can have a large effect on risks and (financial) resources. Tauw will assist its clients with sound risk assessments, adequate management plans for risk control and with selecting appropriate remediation approaches and techniques.
2.5 Soil and groundwater remediation

We offer professional advice across the entire spectrum of remediation services; i.e. site assessments, preliminary investigations, advanced soil and groundwater investigations, comparison of best available remedial options, remedial planning and costing, contracting and supervision.

Tauw is a reputable expert in development and implementation of innovative remediation technology. We are committed to increasing awareness about the importance of clean soils. We are experts in preparing, designing and tailoring clean-up and pollution prevention solutions. Apart from the direct benefits of remediation, like a cleaner and healthier environment, it also recreates room for infrastructural and other site developments.

The size and nature of remedial measures will depend on the contaminants, the extent of contamination, location specific legislation and regulation, intended or actual land use, and other factors. We consider the broad range of these factors in order to develop sustainable solutions such as sustainable landfill solutions, constructed natural barriers for groundwater contamination, soil remediation with sustainable technologies making use of solar energy and aquifer thermal energy, sustainable groundwater treatment and waste water treatment with helophyte filters.
2.6 Management of soil and groundwater data & information: TEGSIS®

Tauw has developed TEGSIS (Tauw Enterprise Geographic Site Information System). This web based system provides our clients with safe and simple access to information about site locations and facilities.

All kinds of information regarding real estate, permits, soil and groundwater investigations and soil and groundwater remediation are stored in a clear and structured way and can easily be retrieved through TEGSIS. The information thus stored in the system can be recalled via internet anywhere, at any time. TEGSIS is secured through a login and password, and is an ideal tool for storing and reporting data and information.

Large multinational industries currently use TEGSIS to obtain a quick and global insight into soil and groundwater related matters at their industrial plants. Whereas in the past large stacks of reports had to be studied, with TEGSIS the information is just a few clicks away (www.tegsis.com).
3. Performance

3.1 Our added value

- Building on solid technical expertise and decades of experience
- Professional project management practices
- Effective communication for good mutual understanding
- Timely delivery of reports with summaries on business consequences
- Sound understanding of risks and liabilities and their effective control
- Advanced software for the registration and reporting of relevant HSE and compliance data

View on consulting for industry

Tauw consultants are environmental specialists that are interested in your business. We are always eager to learn more about it and will think along with you in order to ensure appropriate tailor made solutions. Tauw will assume responsibility in arriving at these solutions and we invest in innovative capacity and creative solutions. Tauw deploys practical experience and moves beyond theory.

Tauw’s approach to projects and processes will be tuned in line with your organizational realities in order to ensure effective communication and achieving planning goals. Tauw will reduce the external pressure on your internal processes, because findings, conclusions and recommendations will be reported in line with your demands as well as those of the relevant authorities. Tauw cares for smooth acceptance of reports by those authorities through our knowledge of their specific concerns, priorities and goals as well as timely and targeted communication. This facilitates good working relationships and lubricates decision-making and planning processes.
3.2 Quality Assurance
Tauw has built up a reputation for quality and consistency of deliverables, regardless of project complexity, locations and transactional deadlines. This requires frequent network communication, transfer of technical information and knowledge of how developments in one part of the world might affect a client’s operations in another part of the world, now or in the future.

In order to improve our performance and quality, Tauw has an R&D program for product and knowledge development. We organize internal courses for juniors as well as for senior consultants (master classes).

3.3 Health & Safety
Tauw implements a Group wide safety system based on 10 rules (see below). The system includes the development of safety plans and procedures for among others Task Risk Analysis and systematic Last Minute Risk Assessment and toolbox meetings before executing any new task. Behaviour based safety is at the core of our safety vision.

**Tauw Group Safety Rules**

1. Always follow legal requirements
2. Always follow client requirements
3. Always follow Standard Operating Procedures
4. Always prepare a work properly
5. Always ensure third parties work safely
6. Always check the safety of your workplace before starting your work
7. Always address unexpected occurrences
8. Always give feedback
9. Always follow road safety principles
10. Always follow alcohol and drugs policy
4. International presence

Global enterprise requires a local touch. Tauw Group offers a worldwide network through the CAT Alliance that ensures targeted combinations of international and local expertise and experience to ensure effective tailor-made solutions for our clients. Every project is managed by a highly experienced professional, who also acts as the primary contact person for the client. Our solutions focus on intended future site use, location-specific circumstances and (local) policies. Moreover, Tauw has offices in 6 European countries; Netherlands, Belgium, Germany, Italy, France and Spain.

Global coverage through CAT Alliance

CAT Alliance is one of the world’s largest providers of cross-border environmental and related due diligence services, and combines the resources and strengths of three of Europe’s best known consultancies: COWI (DK), Geosyntec (US/UK) and Tauw (NL), drawing on the experience and cross-fertilization of more than 15,000 professionals around the world. Wherever clients want us to perform, we will get the job done.
Appendix 1

Services to Industry

TRANSACTIONAL SERVICES
• Pre-transaction consulting
• Phase I EDD
• Phase II EDD
• Post-transaction consulting

SOIL & GROUNDWATER CONTAMINATION
• Soil policy & risk assessment
• Innovations in Soil and Groundwater Quality Management
• Soil and Groundwater Quality Management
• Sustainable remediation

COMPLIANCE
• Compliance consulting
• Compliance management
• Health & safety
• Measuring and monitoring
• Permitting

SITE (RE-) DEVELOPMENT
• Asset management
• Design and construction
• Underground utility services
• Dismantling and demolition
• Project and process management
• Risk management & contract management

SUSTAINABILITY
• Strategic planning
• Raw materials and waste
• Mitigation study
• Green House Gas
• Cradle to cradle
• Sustainability compass
• Energy
### Oil & Gas Clients include:

- Agip
- Argos Group
- BP
- Chevron Oronite Technology
- Kuwait Petroleum
- North Refinery
- Odjfell
- Repsol
- Royal Vopak
- Shell
- Staatsolie Suriname
- Tamoil
- Texaco
- Total
- Vesta Terminals

### Our chemical (including pharmaceutical) clients include:

- Abbott
- AkzoNobel
- BASF
- DSM
- DuPont
- Givaudan
- Huntsman
- LyondellBasell
- PPG
- Solvay
- The DOW Chemical Company
- Univar

### Other clients include:

- ABB
- Aéroports de Paris
- AIG
- AON
- ASML
- Assa Abloy
- Attero
- Aurubis
- Continental
- CSM
- Friesland Campina
- GDF-SUEZ
- General Electric
- Heineken
- Magneti Marelli
- Michelin
- Philips
- Prysmian Group
- Rio Tinto Alcan
- Saint Gobain
- Siemens
- Stork / SPG Prints
- Tata Steel
- ThyssenKrupp
- Umicore
- Van Gansewinkel
- Vattenfall
- Whirlpool
Tauw Takes Care!