



## External and Integral Safety

### The challenge

Safety is a critical factor in the growth and sustainable development of every enterprise. The risks of storing, processing and transporting dangerous goods are all important factors in 'external and integral safety'.

Safety issues involve corporate policy as well as stakeholders, such as the government, NGOs, staff and the general public. Hazard norms to protect people working with or near dangerous substances have been specified in policies and regulations and may vary between different countries. These have to be considered at an early stage in the context of spatial planning, the relationship between government and corporate plans, and the expected risks for surrounding areas.

Explanation of possible risks plays a key role in developing public awareness, and is increasingly important for activities related to dangerous goods.

### Our solutions

Royal HaskoningDHV has extensive experience in industrial safety compliance, including the processing of dangerous substances and their transportation by rail, road, air, water or pipelines.

Our strength lies in our combination of a solid technical background and knowledge of the chemical, oil and gas, and mining industries. Our expertise spans industry sectors, and our multidisciplinary professionals deliver both specific and integrated safety consultancy services. We provide advice on safety issues at all levels, and from every perspective, whether for storing large quantities of dangerous substances, undertaking hazardous processes or fire and explosive risks. We also understand the specific issues involved in the permit regimes for the industry.

Royal HaskoningDHV facilitates open communication between all stakeholders and helps to identify the best solution to achieve an acceptable risk level. Our services include law and legislation, process safety, health, transport or work safety. Working closely with you, we translate safety issues and requirements into clear input for your vision and strategy.

### The outcome

We use our expert knowledge and extensive international experience to consider every aspect of safety management across all industrial and governmental sectors. Our skilled and multidisciplinary professionals keep abreast of the latest developments in safety, and work as one fully integrated team to deliver anywhere in the world.



Our services include safety policy and safety management, process and occupational safety studies, safety culture and behaviour based safety consultancy, safety engineering and major hazard consultancy. We also provide incident training and incident investigation services.

#### Client and scope of services

Royal HaskoningDHV is a leading independent, international project management and engineering consultancy service provider. Each year we deliver a wide range of multidisciplinary services for aviation, buildings, industry, energy and mining, maritime, infrastructure, planning and transport, and water.

Safety in all aspects of living, working, travelling or leisure is becoming increasingly important, and the public has high safety expectations for its houses, schools and infrastructure generally. Using our extensive international experience with external and integral safety in many industrial sectors and organisations, we work with our clients to increase the safety of our environment and enhance society together.

#### We deliver products and services including:

- Safety Reports: on the basis of the EU Seveso II Directive (from June the 1st 2015: the Seveso III Directive)
- Quantitative Risk Assessments (QRA): e.g. using Safeti(NL), Phast Risk, Carola (pipelines), GEVERS (airports), RBMII (transport by road, railway, water)
- Risk inventories
- Fire safety plans

- Environmental risk assessment (e.g. MRA using Proteus II for calculating risks of dangerous goods for water)
- Safety policies for industries (and for national and local authorities)
- Advice concerning risks related to spatial planning
- Safety advice related to licenses (license to operate)
- Modeling and assessment of Explosion and fire (Atex-related)
- Process safety studies: e.g. HAZID and HAZOP
- Layer of Protection Analysis: LOPA
- SIL (Safety Integrity Level) assessment and verification
- BowTie analysis
- Explosion safety studies
- PHA (Process Hazard Analysis)
- Incident investigation
- Project/process management
- Fact finding (Kelvin TopSet)
- Time line analyses
- Interviews
- Incident analyses (Tripod Beta)
- Training and coaching
- Second opinion
- Management consultancy.

For more information please contact our experts:

**Simone van Dijk**

T: +31 6 15 09 30 48

E: [simone.van.dijk@rhdhv.com](mailto:simone.van.dijk@rhdhv.com)

[royalhaskoningdhv.com](http://royalhaskoningdhv.com)