

PROTECTING OUR PORTS

Joint Fire Brigade Rotterdam sets new standard for firefighting in port and industrial areas worldwide, writes Kees Kappetijn, Kappetijn Safety Specialists

For more than 11 years, Director Jan Waals led the Rotterdam Joint Fire Brigade. Under his leadership, the force developed into a powerful and specialised fire brigade organisation that is firmly anchored administratively within the cooperating stakeholders: the Rotterdam-Rijnmond Safety Region, Rotterdam municipality and a cooperation of companies with a high risk profile.

These parties were pioneers in 1998 when they took the bold initiative to join forces and establish a public-private fire brigade. This led, both for the Netherlands and internationally, to a unique organisational model. Public-privately organised, under one joint board, majority budgeted from industry, with a public legal status.



THE JOINT FIRE BRIGADE WAS FORMED TO ENHANCE THE QUALITY AND RELIABILITY OF INDUSTRIAL FIREFIGHTING IN ROTTERDAM'S BUSTLING PORT AREA.”

Waals, soon to retire, considers the innovations and safety gains his organisation has brought to Rotterdam's dynamic port area.

The power of the collective

The Joint Fire Brigade was formed to enhance the quality and reliability of industrial firefighting in Rotterdam's bustling port area. Previously, each high-risk (petro)chemical and tank storage company had its own fire brigade, often well-equipped but inconsistent in quality and efficiency.

This resulted in excessive, seldom-used equipment and high costs for maintaining expertise and technology. In response, local authorities and industry leaders developed a unified fire brigade for the entire port, ensuring effective coverage for all realistic scenarios and rapid response times. The government-backed organisation also extends basic firefighting services to public areas, including residential zones and transport infrastructures.

The industrial partners, over 60 companies in total, united in a cooperation called 'CIBUA'. Some of these are companies with a statutory company fire brigade designation,





such as refineries, tank storage terminals and container companies, and some are companies that have joined voluntarily. From CIBUA, the industry delegates board members to the joint public authorities-industry board committee. There, the interests of all stakeholders are discussed and weighed and decisions are taken on the operation of the joint corps.

The Joint Fire Brigade, or GB, serves multiple stakeholders by offering a unified fire brigade. Companies benefit by meeting public authorities' required incident coverage. Authorities depend on the well-equipped GB for public risk management. The Port of Rotterdam, as area manager, gains from effective incident response, ensuring smooth logistical operations. Additionally, the GB enhances the area's business safety climate through shared investments in facilities, equipment, and training, reducing costs for all involved.

The Joint Fire Brigade in 2024

As of 2024, the Joint Fire Service robustly operates with eight fire stations—two in urban Hoogvliet and Rozenburg, and six throughout



Jan Waals, Director Unified Fire Service since 2012

the extensive port and industrial sectors. The service employs around 320 personnel, comprising 190 professional incident responders, 60 volunteer firefighters, and 12 logistics professionals, who also manage the combined headquarters. An additional staff of 55 handles preparation, management, and relationship operations.

Each of the industrial area's six stations is equipped with a basic fire engine and an industrial foam tender, emphasising rapid response and operational capability. Specialisations include marine firefighting, high-altitude rescues, and hazardous materials management. The service's core mission focuses on industrial fire and incident response. ▶

New equipment for tank and bund firefighting: robots for safety



Important specialty for Unified Fire Service: Rescue from heights

Additionally, the Joint Fire Service maintains a 'Collective Fire Fighting Pool' for major incidents, equipped with heavy-duty gear for large-scale fires. This includes two high-capacity pumps, foam boosters, extensive hose lines, two mobile fire monitors, and trailers carrying significant foam supplies.

Four unmanned ground vehicles enhance safety and efficiency in tank pit fires. This specialised equipment pool, critical for handling major industrial fires, is funded collectively by 23 member companies, emphasising shared responsibility and resource efficiency in firefighting operations.

Innovations

The Collective Fire Fighting Pool is one of the innovations that came about in recent years under Waals' leadership. As in the overall organisation of the GB, efficiency was also a key 'driver' for the tank and tank pit firefighting specialisation. Tank and pit fires could already be tackled with special high-volume equipment, but the new CBP is even safer for operating firefighting personnel due to remotely controlled robot equipment.

Waals says: "In 2016, the PGS-29 directive, based on the Seveso regulations, was updated and

supplemented in the Netherlands. The directive requires tank storage companies to have a firefighting system that allows them to effectively control and fight tank pit fires.

"Given the large number of tank terminals and chemical companies with tank storage in our region, it would require immense investments if every company with this risk profile had to invest individually in a stationary extinguishing system based on the largest possible fire scenario. As tank and tank pit fires are extremely rare in the industry, this would be a huge waste of capital.



WE DEVELOPED A PROPOSAL FOR A COLLECTIVE MOBILE SOLUTION, GUARANTEED TO BE AVAILABLE TO ALL COMPANIES WITH TANK STORAGE AT THE TIME OF NEED. ”

"With this in mind, we developed a proposal for a collective mobile solution, guaranteed to be available to all companies with tank storage at the time of need. The conditions, rapid

response and sufficient operational power, we can fulfil for all those companies with our ready and trained organisation, with fire stations throughout the operating area'."

In 2020, the Rotterdam-Rijnmond Safety Region authorised the development of a mobile firefighting solution, which was built, tested, and commissioned by summer 2022. According to Waals, "With the collective equipment pool, funded by 23 companies with a high risk profile for tank (well) fires, we have set a new standard for this specialist industrial firefighting task."

This initiative meets regulations for tank pit fires but also redefines the existing system for tank fires. Previously complex and slow to deploy, the new unified equipment pool allows for quicker responses. It incorporates "four remotely controlled monitors," enhancing safety by enabling firefighters to tackle tank pit fires without exposure to dangerous heat radiation.

Digital Reconnaissance

The Joint Fire Service has innovated with a Digital Reconnaissance Team, established with the Rotterdam-Rijnmond public fire brigade. This team uses a robot and various drones, including indoor and underwater models, enhancing imaging and decision-making in complex incidents.

Waals notes the significant challenge of quickly assessing large structures and identifying risks in their service area. This "digital toolbox" of camera and sensor-equipped drones provides essential operational imaging, increasing firefighter safety. Waals recalls a 2019 incident in Vlaardingen where a thermal drone camera located and guided disoriented firefighters to safety, demonstrating how technology can save lives.

Further drone advancements include trials of compact 'Smart

balls' for use in fires and 'wing drones' that fly autonomously from fixed docking stations, providing crucial information and aerial views to responders en route. The team is also developing the technical and legal framework for autonomous drone operations.

Keys to success

Looking back on the period during which he led the Joint Fire Service, Waals says he will bid farewell as a proud man when he retires in June. The organisation and finances are in order after an internal reorganisation of operations and the specialised force, 26 years after its establishment, stands firmly. With that, the Joint Fire Brigade proves that public-private industrial firefighting works, if you know how to organise it properly. But what are the keys to that success?

"First of all, you have to get the governance of the participating stakeholders right and invest in relationship management with the member companies that are our 'customers'," says Waals. "But also a good relationship with industrial business umbrella organisations, such as The Royal Association of the Dutch Chemical Industry (VNCI) and the Rotterdam business platform Deltalinqs, is important.

"We have continuously invested in that relationship management since our establishment in 1998, with the jointly felt safety interests and goals as our starting point. Short lines of communication with the principals of authorities and industry are vital, because it is at that administrative

level that decisions are taken on the services the organisation performs for private and public partners."

And just as important as the relationship with industrial customers, says Waals, is the relationship with public stakeholders: the safety region and city hall. He adds: "We also provide an important part of public firefighting services in urban areas and on the vital traffic arteries around the Rotterdam port area.

"On these infrastructures the interests of government and industry also join, because a major calamity on the motorway or in one of the three traffic tunnels in our service area can have major consequences for the logistics in the port area. In addition, any incident response takes place under the responsibility of the security safety region; they make the decisions. That should not be in question."

Office and fire stations: always dynamic

During Waals' management period, the Joint Fire Brigade moved to a new headquarters with logistics centre in Europoort and also opened its sixth industrial fire station in the newest part of the Rotterdam port area, the Second Maasvlakte.

ProRail: a special partner

The Joint Fire Brigade collaborates closely with ProRail, the rail operator, at the Don Berghuiskazerne, their largest operational station. ProRail, managing five shunting yards handling hazardous materials, is the



Kees Kappetijn

Brigade's largest partner. ProRail also maintains its technical emergency response and hazmat team.

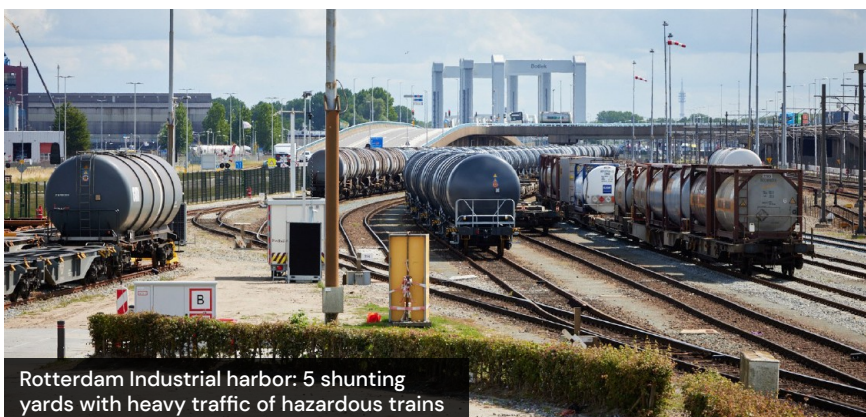
ProRail, leveraging this partnership, developed a firefighting train and requested a specialised fire engine with a firefighting arm for elevated foam deployment, crucial for its elevated port yards. Two new industrial fire engines, out of ten planned over six years, will include this technology, serving both rail and other high installations.



A MAJOR CALAMITY ON THE MOTORWAY OR IN ONE OF THE THREE TRAFFIC TUNNELS IN OUR SERVICE AREA CAN HAVE MAJOR CONSEQUENCES FOR THE LOGISTICS IN THE PORT AREA.

"All Joint Fire Service partners recognise this shared interest," says Waals "The success of the Joint Fire Service? Responsible together, organised together, governed together, paid together."

To find out more about the Joint Fire Brigade, visit www.gezamenlijke-brandweer.nl, and for Kappetijn Safety Specialists, go to www.kappetijn.eu ■



Rotterdam Industrial harbor: 5 shunting yards with heavy traffic of hazardous trains