FIRST FOR FIRE PROTECTION
VIPOND
a subsidiary of API Group, Inc.

PROJECT
Versalis

LOCATION
Grangemouth

INDUSTRY SECTOR
Petrochem, Oil & Gas

PARTNERS
Jacobs Engineering Consultants

SOLUTIONS
Water Spray and Deluge activated by Flame Detection

BENEFITS
• Fire Suppression within High Risk areas

PRODUCTS
Water Deluge, Sprinkler System, Water Spray, Pneumatic Heat Detection

THE CHALLENGE

The Italian chemical firm, Versalis recently invested in the region of £45m at its plant in Grangemouth to expand elastomer production. Versalis is the leading chemical company in Italy and one of the largest in Europe, manufacturing a wide range of petrochemical products including polyethylene, polystyrene and elastomers.

Grangemouth was the site of the UK's second oldest crude oil refinery and is an ideal location for elastomer production being on the site of the UKs second oldest crude oil refinery. The refinery was established in the 1920's. It was ideally located near to the Grangemouth docks on the river Forth which supported imports of crude oil from the Middle East. The UK government had helped to develop new oil fields in Saudi Arabia and Grangemouth provided a suitable location for this industry.

The Versalis site at Grangemouth produces synthetic elastomers and lattices which serve the automotive tyre industry and the objective of the new investment was to increase production by 25%. Tyre technology is constantly evolving and new European legislation requires that all tyres carry labels indicating performance levels. It is envisaged that this new requirement will increase demand for tyres. The expansion to the plant included a 4th Finishing Line.

The fire engineering solution established that water spray and deluge would be required to the associated fourth finishing line plant. All systems were required to be UL approved and to NFPA standards.

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THE SOLUTION

"that the fabricated lengths matched the curvature of the tank"

The systems were to be designed in accordance with NFPA 13. One work package was dedicated to the conventional sprinkler system and a further four work packages outlined the requirements for water deluge systems to provide protection to external chemical plant areas.

Careful planning is pivotal to fixed fire systems and Vipond provided key lead-in dates. This included a six week design phase, a window of two weeks for design approval, followed by a two week fabrication period. The design/approval/fabrication stages were integrated into the overall construction sequence programme as each phase of works took place on a separate timescale. Right at the outset of the project due consideration was noted for long lead time items, and the programme coordinated accordingly.

Water supplies existed, from 150mm/ 200mm / 300mm flanged connections, varying from existing and new valve stations. Details of the existing water supplies to allow the extension to the overall scheme were supplied by the client.

One of the more unusual requirements in one of the water deluge works packages was to bend the pipework to follow the contour of the tank to be protected. Close tolerances were required to ensure that the fabricated lengths matched the curvature of the tank. In the event of a fire, the pneumatic detector line provides a signal to open a pre-action valve and fill the pipework with water prior to the deluge nozzle actuating. The deluge systems also have a manual release device to provide means of operating the system should a fire be visually detected by a site operative.

THE OUTCOME

Installation of dedicated deluge protection ensures that the chemical storage tank is protected. Further to this essential localised protection, it also vitally safeguards the wider area. In a petro-chem facility which is also in the same complex as an oil refinery, mitigating against the potential effects of fire is unquestionably of the highest importance.

Conventional sprinkler protection throughout a five floor chemical processing plant to save the building and contain a fire situation must also form part of the complex fire strategy needed in such an environment. Vipond are capable of designing and providing any fire sprinkler system from a residential application to the highest industrial hazard site

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COMPANY STATEMENT

Vipond is proud to have completed this project. Versalis Grangemouth was a challenging site, however our expert team of designers, project managers, site crews, and safety professionals worked together as a team, to identify the challenges and provide solutions to deliver a sustainable and reliable installation.

COMPANY PROFILE

Vipond Fire Protection Ltd has its roots going back to 1969, when it was started as a small family owned business. In 1998 it was acquired by Vipond Inc of Canada. The company has since expanded and grown and now has 5 offices covering the whole of the UK and Ireland. Vipond Fire Protection Ltd is ultimately owned by API Group Inc.

APi Group Inc. is a multi-billion-dollar parent company for 38 independently managed construction companies in more than 200 locations worldwide. APi Group combines the personal attention of small-to-medium sized construction companies with the strength of a global industry leader to build a safer environment, develop leaders and bring innovation to the construction and fire protection and suppression industry. Since 1926, APi Group has grown by acquisition to become the stellar multi-billion-dollar company it is today.

The secret? Our subsidiaries maintain who they are. They keep the identity, reputation, customer relationships and culture they've worked hard to establish.

APi Group's subsidiaries have collectively served customers on all continents, including Antarctica.

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