

# The urban-industrial interface: where industrial fires meet communities



Gas pipeline explosion



Local authorities are faced with one or more of these petrochemical, oil and gas (POG) incidents

Effectively combating these emergencies demands an intimate knowledge of what triggers them, how they manifest and grow. Only once this is understood can the methodology and resources required to manage these events be truly appreciated.

POG fires can be broken down into three basic groups:

## Fires at depth

These events are largely confined to storage tanks where the fuel can be pre-heated for a long period before extinguishment commences. These incidents are technically difficult to control and are heavy on resources that need to be on site before a meaningful attack can be launched. It should be noted that tank fires involving crude oil may produce several dangerous phenomena in the form of boilover, slop-over and froth-over.

## Thin film fires

Thin film fires are as a rule much easier to control than tank and three-dimensional (3-D) fires. They do, though, have the potential to rapidly expand (running spill fires) or, if static, expose other risks that can result in collateral damage including BLEVEs, structural collapse or failure of pipelines.

## Pressure-fed (3-D) fires

Pressure-fed (3-D) fires involve fires where the fuel is fed under pressure. The fuels can be liquid or gas (liquid or gas phase). Managing these fires is best achieved by cutting off the fuel supply and allowing the residual fuel to burn off. However, if this cannot be achieved the means must be provided to knock the pressure-fed flame down and then rapidly perform leak sealing. Note that in instances where pressure-fed liquids are involved it is imperative that the spill component of the fire first needs to be controlled using foam before any consideration can be given to managing the pressure fed flame. ▶

**F**ire has no geographical, political or ideological borders. After all, a fuel tanker burning in New York City burns the same as a fuel tanker in Msukaligwa. The strategies, tactics, equipment and materials required to control the event are exactly the same. Successful extinguishment and containment will be dictated by knowledge, resources and preparation.

Many of our local authorities in South Africa might be faced with one or more of these petrochemical, oil and gas (POG) events that could exist within their jurisdiction:

- Single storage tank fires
- Multiple storage tank fires
- Spill fires

- Gas and manifold fires
- Boiling liquid expanding vapour explosion (BLEVE)
- Runaway polymerisation
- Dust explosions
- Marine fires
- Road transport fires
- Dike fires
- Process fires
- Gas and vapour releases

These incidents manifest themselves in any of number of ways, most of them highly destructive. Some of these incidents are static, ie they stay where they are; however, for the most, they rapidly expand in magnitude as well as expose other risks in the event's immediate proximity.



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Industrial Fire &  
Hazard Control

# Warehouse fires: strategies and tactics

By Colin Deiner, chief director, disaster management and fire brigade services, Western Cape Government



The concept of warehousing has seen a massive change over in recent years. The rise in the need for online ordering and ‘just-in-time’ delivery has seen a rapid increase in the number and size of warehousing and the frequency of activities within these structures. It has furthermore led to a more

diverse variety of products, with different physical properties, being stored and processed.

Depending on the type of construction, contents of the warehouse and the fixed fire protection, warehouse fires will generally be quickly detected and easily

- ▶ The elements required to successfully manage these POG emergencies can be listed as:
  1. Effective resources
  2. Proven methodologies
  3. Effective plans and procedures
  4. The correct training and competencies

Having stated that, we are reminded of the constant budget restraints under which our local authorities are required to operate, train and respond. In most instances, the resources and training required to effectively mitigate POG incidents in the urban-industrial interface, is highly specialised and expensive. Being aware of this, Industrial Fire and Hazard Control is

well positioned to partner with our local and provincial authorities to provide a response capability to assist when an urban-industrial interface (POG) incident occurs. Industrial Fire and Hazard Control deals effectively with all four points noted above and brings specialised knowledge and expertise to bear when faced with these unique challenges.

One of the most unique features of Industrial Fire and Hazard Control is our very close working relationship with Williams Fire and Hazard Control, who has successfully responded to more than 250 land and marine based flammable liquid fires around the world. These

responses, each one individually, allows the company to build a level of expertise that is unmatched in the industry and it is this level of experience, coupled with a solid in-house knowledge base that allows Industrial Fire and Hazard Control to offer a partnership with our local and provincial authorities that is totally unique when planning for the Urban-Industrial interface incidents.

Should you require more information, please do not hesitate to reach out Zarto Williams on 061 158 6941/Zarto@industrialfire.co.za or Trevor Fiford on 082 651 2580 / trevor@industrialfire.co.za or visit [www.industrialfire.co.za](http://www.industrialfire.co.za). ▲