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## H6-1 Bulk Flammable Gases (NCI 32)

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### ***Purpose***

This document provides for:

- safe and effective operations at incidents involving bulk flammable gases.

### **Requirements for Bulk Flammable Gases**

#### ***Executive Officers' responsibilities***

Chief Fire Officers will issue a procedure for incidents involving bulk flammable gases.

Fire Region Managers will ensure that every Fire District in the Fire Region has a procedure in accordance with this instruction.

#### ***Local procedures***

When applicable, local procedures will take into account:

- fires and leaks at flammable gas installations (including marine terminals)
- fires and leaks involving flammable gases in transit (including shipping and major supply pipelines)
- the notification of appropriate authorities, including:
  - local authority inspectors of dangerous goods
  - hazardous substances and new organisms enforcement officers
  - managers of any property or equipment involved
  - gas suppliers
  - police
  - HSTLC members
  - the Ambulance Service.

### **Procedure for Bulk Flammable Gases**

#### ***Operations***

Consider the following actions:

- approach from upwind where possible
- establish and evacuate the inner cordon and other operational areas as required
- eliminate all sources of ignition in the inner cordon
- identify the gas and its properties
- monitor levels of flammability
- notify air traffic control authorities to keep air space clear in the vicinity of large leaks
- media statements.

## **Liaison**

Liaise with site management to:

- account for all NZFS personnel
- help determine the size of the inner cordon
- operate fixed protection systems
- identify and manage further hazards
- seek advice on the shutdown or control of leaks, systems or plant.

## **Cooling**

Gas tanks or pipe-work, that have been subjected to direct flame should be cooled at the rate of 32 l/s/m<sup>2</sup> in the areas of flame impingement.

Preference should be given to the use of unmanned monitors or branches for such cooling.

## **Hazard Identification and Control: Bulk Flammable Gases**

### **Hazard control**

All hazards will be controlled by eliminating, isolating where elimination is impracticable, or minimising, using one or more of the control methods in the following table:

<b>Hazards</b>	<b>Control measures</b>
<b>Firefighting</b>	
<i>Significant hazards:</i> <ul style="list-style-type: none"> <li>• BLEVE</li> <li>• explosion</li> </ul>	<ul style="list-style-type: none"> <li>• all personnel will be trained in the conditions to be encountered and the safe practices required when working at incidents involving bulk flammable gases</li> <li>• pre-planning and risk assessment</li> <li>• brief crews on plan of action and safety measures</li> <li>• use only the minimum number of NZFS personnel needed to conduct operations safely</li> <li>• establish an inner cordon with a radius of 500 m from the fire</li> <li>• cool tanks and pipe work, taking care not to freeze up relief valves if cooling water is applied during operation</li> <li>• evacuate all unnecessary personnel, other service personnel and members of the public from the inner cordon</li> <li>• wear structural firefighting uniform and BA</li> </ul>
<b>Gas leaks</b>	
<i>Significant hazards:</i> <ul style="list-style-type: none"> <li>• ignition of gas cloud</li> <li>• cold burns</li> </ul>	As above, AND: <ul style="list-style-type: none"> <li>• personnel will not enter gas cloud</li> <li>• establish inner cordon (consider wind direction)</li> <li>• awareness of dangers of liquid leaks</li> </ul>