

**Explosives and Dangerous Goods Act 1961**

# **SUMMARY OF ACCIDENT REPORTS**

**1993**

ISSN 1038-6254



**Explosives and Dangerous Goods Division**

Mineral House, 100 Plain Street, East Perth, Western Australia, 6004

## **Contents**

|   |           |
|---|-----------|
| <b>Summary of Accident Reports 1993</b>                   | <b>1</b>  |
| <b>Explosives and Dangerous Goods Accident Statistics</b> | <b>2</b>  |
| <b>Explosives Accidents - Introduction</b>                | <b>3</b>  |
| <b>Explosives Accidents Summary Report</b>                | <b>4</b>  |
| <b>Explosives Accidents Report</b>                        | <b>5</b>  |
| <b>Dangerous Goods Storage Accidents - Introduction</b>   | <b>6</b>  |
| <b>Selected Storage Accident Statistics</b>               | <b>7</b>  |
| <b>Dangerous Goods Storage Accidents Summary Report</b>   | <b>9</b>  |
| <b>Dangerous Goods Storage Accidents Report</b>           | <b>11</b> |
| <b>Dangerous Goods Transport Accidents - Introduction</b> | <b>28</b> |
| <b>Selected Road Transport Accident Statistics</b>        | <b>29</b> |
| <b>Dangerous Goods Transport Accidents Summary Report</b> | <b>30</b> |
| <b>Dangerous Goods Transport Accidents Report</b>         | <b>33</b> |

# Summary of Accident Reports 1993

## Overview

Despite a slight increase in accidents involving the transport of dangerous goods, accident numbers in all other areas and the total for 1993 showed significant reductions from 1992.

In depth recording of accidents involving the storage of dangerous goods has now been in progress for 5 years enabling some preliminary statistics to be documented for the first time in this report.

The dominant causal factor for storage accidents has emerged as "human error" contributing to the cause of 37% of all accidents. This is significantly less than that observed for transport accidents (60%) probably a reflection of emphasized training responsibilities in the Dangerous Goods Regulations 1992.

The storage accident statistics also give support to the effectiveness of the Division in maintaining public safety. Accidents involving flammable liquids numbered less than one third of total accidents yet flammable liquids comprise more than two thirds of the volume of dangerous goods handled in the State. Such a statistic must bear relevance to the fact that the storage of flammable liquids has been regulated since 1969 whilst regulations covering other classes of dangerous goods have only recently been promulgated.

Many of the statistics developed from detailed accident recordings are combined with targeted inspection programs and on-road enforcement activities to enable the Division to provide an effective and efficient means of assuring the public that the storage, transport and handling of explosives and dangerous goods is being conducted safely in Western Australia.

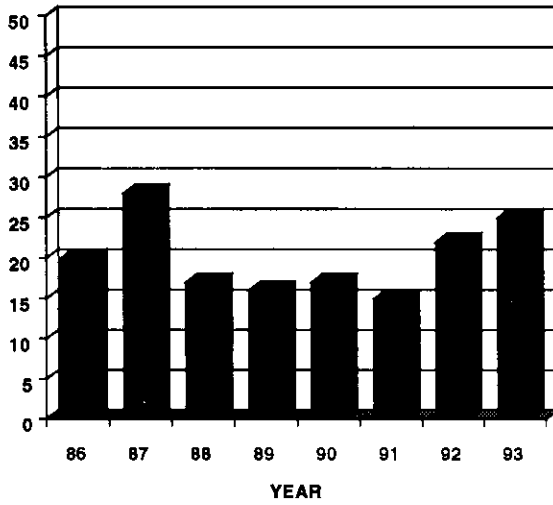


**K Price**  
**Chief Inspector**

11 February 1994

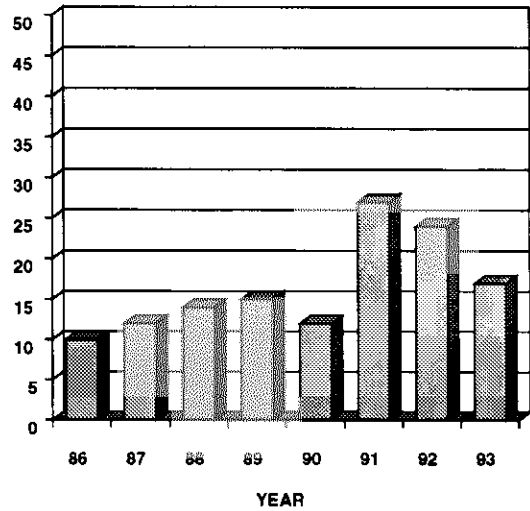
# Explosives and Dangerous Goods Accident Statistics

**ROAD TRANSPORT ACCIDENTS**



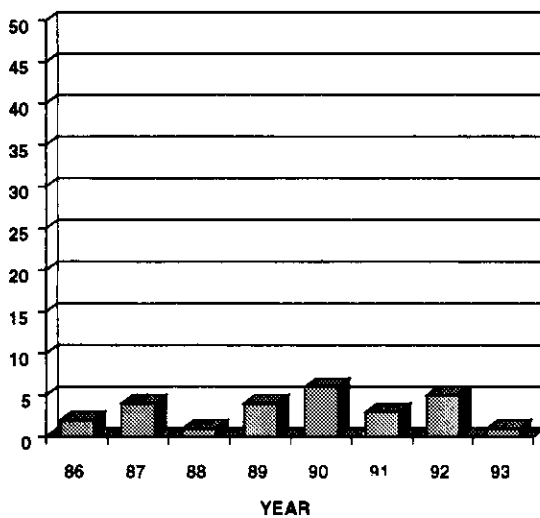
A slight rise in road transport accidents for 1993 was observed with a uniform spread of accidents throughout the year.

**STORAGE ACCIDENTS**



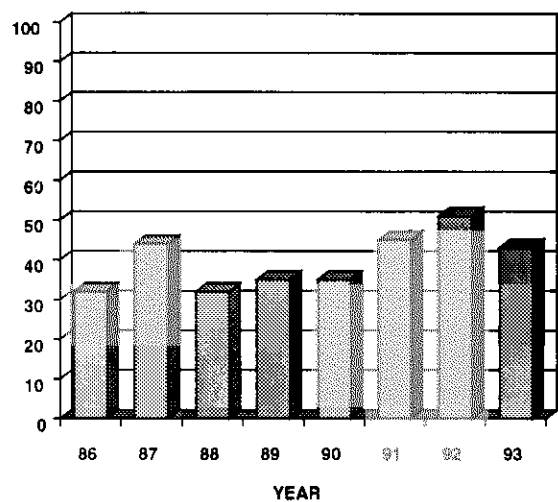
The trend of reduced accidents from "Major Hazards Sites" continued in 1993 giving a total consistent with the recorded average.

**EXPLOSIVES ACCIDENTS**



A single accident for 1993 is favourable when compared to recent years' statistics, however, the low overall numbers do not allow for accurate trends to be drawn.

**TOTAL ACCIDENTS**



The total accidents reported for 1993 was significantly less than that for 1992 and slightly in excess of the overall recorded averaged.

# **Explosives Accidents**

## **Introduction**

Only one accident involving explosives was reported to the Division during 1993, compared with five in 1992.

The accident involved a youth grinding a detonator believing it was an empty shotgun cartridge.

Unfortunately the incident resulted in injuries to the youth's hand and again highlights the importance for shotfirers and others who are in the possession of explosives to keep them out of children's reach.

A successful Explosives Amnesty was conducted in the Goldfields Area from August to November to encourage people to dispose of unwanted explosives, and to raise public awareness on the dangers of explosives. Campaigns like this will hopefully reduce the number of incidents of people with little knowledge of explosives fooling around with these potentially lethal devices.

# Explosives Accidents Summary Report

## For the Year 1993

|       | Date     | Location | Goods                      | Class | Comments  |
|-------|----------|----------|----------------------------|-------|---|
| W1/93 | 16/10/93 | Boyanup  | Detonators<br>Non Electric | 1.1   | Explosion occurred after children applied a plain detonator to a bench grinder. One child sustained serious hand injuries |

## **Explosives Accident Report**

Date : 16 October 1993                      Time : 1500 hrs  
Location : Trigwell Road  
            BOYANUP  
Explosives    DETONATORS NON ELECTRIC  
Involved :    Class 1.1  
                Compatibility Group B  
                UN No. 0029  
                Quantity Present : 250  
                Quantity Involved : 1

### **Scenario :**

Two children discovered approximately 250 plain detonators at a disused farm building. Several detonators were taken to one child's residence where the children, believing the items to be spent small arms cartridges, proceeded to use them as projectiles in a modified slingshot device.

The injured child's mother confiscated the detonators on two occasions also believing them to be cartridges. However on each occasion the children regained possession.

After a period of play, one child decided that the "projectiles" would perform better if one end was sharpened to a point. He applied a detonator to a bench grinder, whereupon it exploded.

The child sustained the loss of the first thumb knuckle and the tips of the first and second fingers on his right hand.

The remaining detonators were handed in to the police and were subsequently collected and destroyed by a Divisional inspector.

**EX : W1/93            File No. : 185/93**

# **Dangerous Goods Storage Accidents**

## **Introduction**

Seventeen incidents involving dangerous goods in storage were reported to the Division in 1993, compared to twenty four incidents in 1992. Ten of the incidents involved liquefied gases and the majority of these were of minor severity.

There has been another decrease in the number of incidents from chemical plants classified as "Major Hazards Sites". The decrease from twelve in 1991, four in 1992, down to two in 1993 is a pleasing trend.

Arsonists were responsible for a fire at a bulk fuel terminal in Albany. Although three tankers parked in the terminal were destroyed, emergency response personnel were able to control the fire before it could spread to the aboveground storage tanks which had a large inventory of flammable and combustible liquids.

A person was burnt while filling 9kg LPG cylinders from a 190 kg cylinder. Investigations pointed to static electricity being the most likely source of ignition. However, a combination of other factors, including failure to follow correct filling procedures, is believed to have contributed to the incident.

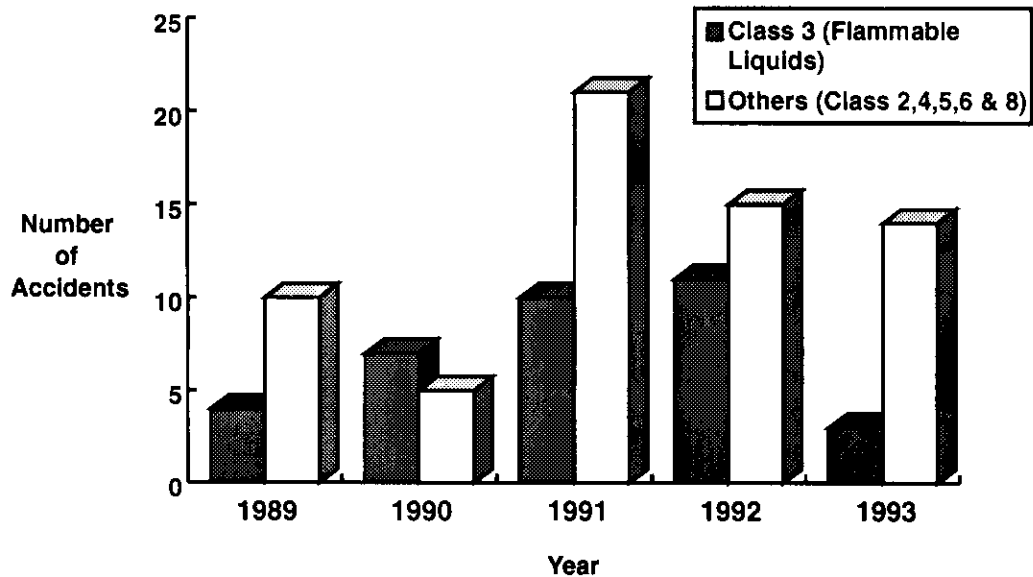
In another incident 232000 litres of hot ammonium nitrate solution spilled from a pipeline at a chemical works in Kwinana after maintenance work on the line. The spill was satisfactorily retained in a collection pond and recovered.

Deviation from standard practices, commonly reported as human error, accounted for only 17 % of incidents reported in 1993 as compared to the recorded average of 35 % over past years. This result indicates increased awareness and improved training in the storage and handling of dangerous goods, an area the Division had previously identified as requiring attention.



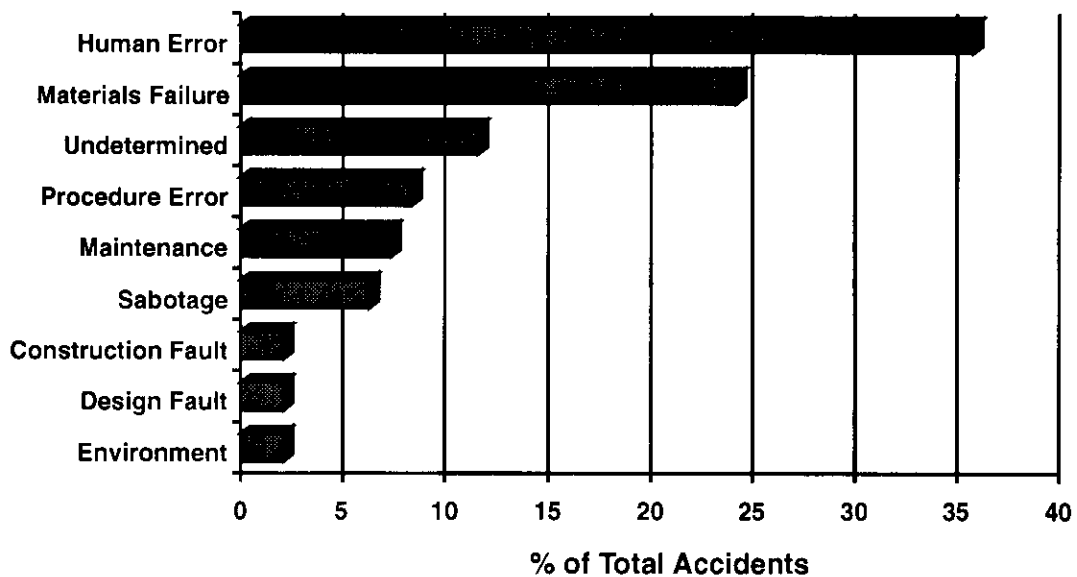
## Selected Storage Accident Statistics

Storage Accidents Distribution by Class of Dangerous Goods



Although the quantity of flammable liquids handled in the State greatly exceeds the combined quantity of all other classes of dangerous goods, storage accidents involving flammable liquids are significantly lower. Storage and handling of flammable liquids has been regulated since 1967 whereas new regulations just recently extended to all other classes.

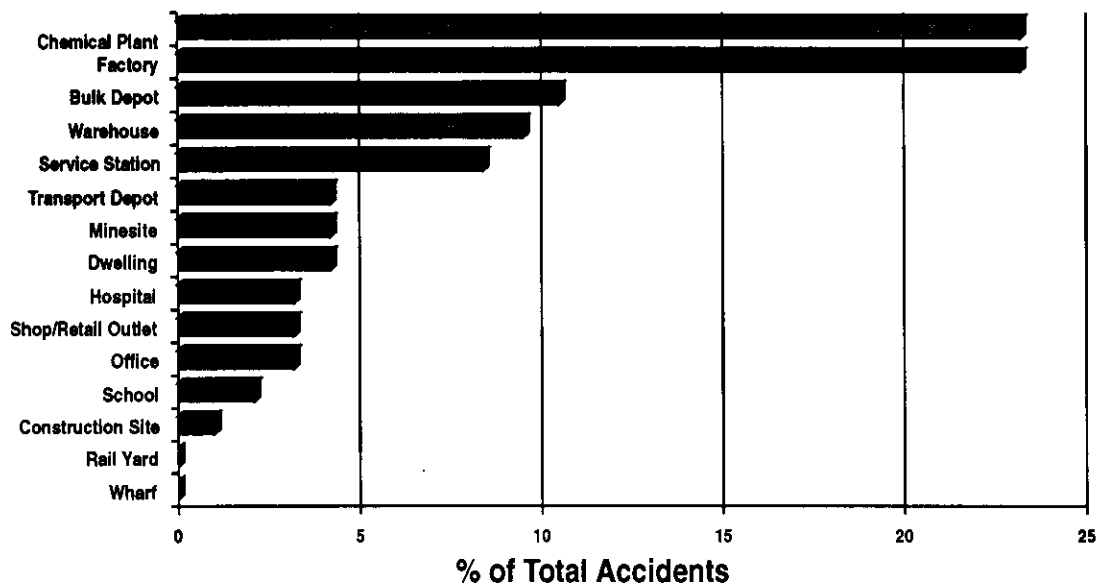
Causes of Storage Accidents 1989-1993



As with transport accidents, deviation from standard operating procedures (reported as Human Error) is the largest causal group.

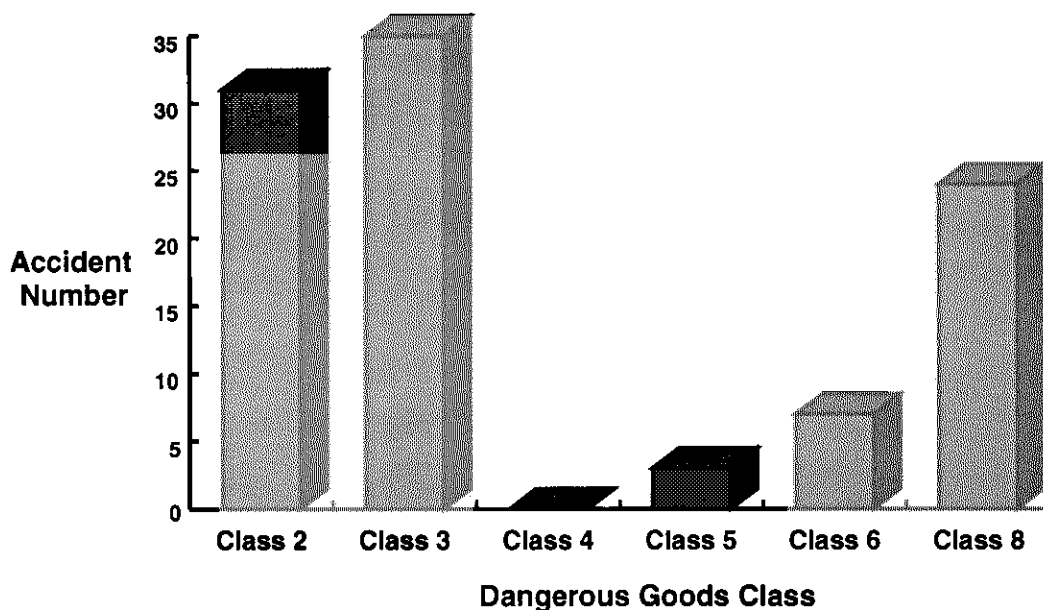
## Selected Storage Accident Statistics (Continued)

Occurrence of Storage Accidents by Premises Type (1989 - 1993)



The "Chemical Plant" result is considered non-representative as it suffers a significant contribution from one particular plant experiencing start-up problems. A representative figure is estimated to lie between "Service Station" and "Transport Depot".

Storage Accidents by Dangerous Goods Class (1989-1993)



Expectedly, Class 2 (Gases) and Class 3 (Flammable Liquids) feature prominently in accident reports as they represent the dangerous goods most commonly handled in the State.

# Dangerous Goods Storage Accidents Summary Report

## For the Year 1993

|        | Date    | Location     | Goods                           | Class | Comments  |
|--------|---------|--------------|---------------------------------|-------|---|
| W1/93  | 12/1/93 | Merredin     | Liquefied Petroleum Gas         |       | Vandals broke off the vapour line of a storage tank causing a gas leak. Residents and people at a nearby hall were evacuated.                                 |
| W4/93  | 29/1/93 | Bodallin     | Petrol                          | 3     | Fire at a petrol bowser on a farming property whilst an employee was dispensing petrol into a small container. Bowser electrical fault suspected.             |
| W2/93  | 5/2/93  | Carlisle     | Acetylene                       | 2.1   | Acetylene gas leak near cylinder occurred a cutting operation. The acetylene was ignited and cylinder equipment destroyed by fire.                            |
| W3/93  | 29/3/93 | Osborne Park | Liquefied Anhydrous Ammonia     | 2.3   | Leaking pipework at a disused coldstore vented gas from inactive refrigeration equipment.   |
| W5/93  | 31/3/93 | Palmyra      | Batteries, wet filled with acid | 8     | An unattended truck collided with a telephone substation and ruptured batteries located inside.   |
| W6/93  | 1/5/93  | City Beach   | Petrol                          | 3     | Service station petrol bowser ignited after lightning strike.   |
| W17/93 | 26/5/93 | Kemerton     | Chlorine                        | 2.3   | During plant operation, process equipment failed resulting in an emission of process gas which contained chlorine.  |
| W7/93  | 10/7/93 | Osborne Park | Liquefied Anhydrous Ammonia     | 2.3   | A pressure relief valve on a coldstore refrigeration system vented during a routine maintenance operation.  |
| W8/93  | 3/8/93  | Bibra Lake   | Formaldehyde Solutions          | 8     | Incorrect operating procedures allowed mixing of incompatible chemicals (sodium hypochlorite and formaldehyde) resulting in vapour release.                   |
| W10/93 | 20/8/93 | Canning Vale | Poisonous Liquid N.O.S.         | 6.1   | Thermostat failure caused over heating of the boil sump heating elements in a vapour degreasing unit and combustion of degreaser vapours and residual sludge. |

## Dangerous Goods Storage Accidents Summary Report (continued)

|        | Date     | Location     | Goods                       | Class | Comments   |
|--------|----------|--------------|-----------------------------|-------|--|
| W13/93 | 8/10/93  | Spearwood    | Liquefied Petroleum Gas     | 2.1   | A person received cold burns to the hands while refuelling their car with LP Gas at a service station.   |
| W9/93  | 13/10/93 | Boulder      | Liquefied Petroleum Gas     | 2.1   | Filling of a 9 kg LPG cylinder by decanting at a caravan park kiosk resulted in a fire. Static electricity was the most likely ignition source.                            |
| W16/93 | 29/10/93 | Kwinana      | Ammonium Nitrate Solution   | 5.1   | An ammonium nitrate solution pipeline leaked after a repair. The leak flowed to an open drain and containment pond and subsequently recovered.                             |
| W11/93 | 29/11/93 | Osborne Park | Liquefied Anhydrous Ammonia | 2.3   | Poor disposal procedures while purging ammonia from a disused refrigeration plant resulted in the release of ammonia and subsequent evacuation in a light industrial area. |
| W12/93 | 2/12/93  | Albany       | Petrol                      | 3     | Fire started by arsonists at a fuel terminal destroyed 3 road tankers and damaged a lube oil store.  |
| W14/93 | 10/12/93 | Fremantle    | Liquefied Anhydrous Ammonia | 2.3   | 150 kg of ammonia was released when a pump seal on refrigeration plant failed catastrophically. Incident rendered safe by isolating pump.                                  |
| W15/93 | 15/12/93 | Derby        | Liquefied Petroleum Gas     | 2.1   | A cracked pressure gauge fitting caused the leakage of liquefied petroleum gas at a service station site. Vandalism suspected.   |

# Dangerous Goods Storage Accident Report

Date : 12 January 1993                      Time : 1912 hrs  
Location : High School  
                    MERREDIN  
Dangerous Goods      LIQUEFIED PETROLEUM GAS  
                    Class 2.1  
Involved:              Sub-Risk -  
                    UN No. 1075  
                    Packaging Group : -  
                    Quantity Involved : 2750 litres  
                    Quantity Spilled : Unknown

## Scenario :

Police received a report from a pedestrian of a leaking gas tank at the local high school. The fire brigade was advised of the incident and attended the scene.

Fire brigade personnel discovered that the vapour line of the tank had been tampered with and had been broken close to ground level. The escaping gas created a dust cloud around the base of the tank which made visibility poor.

Roads in the vicinity of the gas leak were closed and traffic diverted. People in the nearby church hall (about 30 metres from the school) and 30 houses were evacuated by the police.

A SECWA gas inspector and the local gas agent also attended the site and assisted in stopping the gas flow.

Vandals were suspected to have caused the incident.

**DGAS : W1/93      File No. : 5/93**

## **Dangerous Goods Storage Accident Report**

Date : 29 January 1993 Time : 1630 hrs

Location : North Bodallin Road  
BODALLIN  
Dangerous Goods : PETROL  
Class 3  
Involved: Sub-Risk -  
UN No. 1203  
Packaging Group : II  
Quantity Involved : 7500 litres  
Quantity Spilled : 5 litres

### **Scenario :**

An employee at a farming property was intending to fill a container of approximately 5 litres from a petrol bowser. In order to operate the bowser he had to turn on the power at a switch some 20 metres from the bowser. He returned to the bowser and pulled the lever to commence pumping and petrol was ignited.

The force of the explosion threw the employee into a wall injuring his lower back. He was able to seek assistance by CB radio. The fire brigade attended and covered the bowser with foam, extinguishing the fire.

An electrical fault in the bowser was the suspected cause of this incident - an outcome arising possibly from inadequate maintenance.

**DGAS : W4/93 File No. : 41/93**

# Dangerous Goods Storage Accident Report

Date . 05 February 1993 Time : 1000 hrs  
Location : Downing Street  
CARLISLE  
Dangerous ACETYLENE  
Goods Class 2.1  
Involved: Sub-Risk -  
UN No. 1001  
Packaging Group : -  
Quantity Involved : 7 cubic metres  
Quantity Spilled : 7 cubic metres

## Scenario :

A fitter was operating an oxy-acetylene set on top of an asphalt plant 10 metres above ground level when the acetylene bottle caught fire.

The work was being carried out approximately 3 metres vertically above the gas bottles. The cutting operation using the oxy-acetylene set was of a very short duration before the incident took place.

The fire brigade attended and rendered the situation safe.

Investigations by the gas supplier revealed that the fire was most likely the result of leaking acetylene somewhere in the vicinity of the regulator or the cylinder valve. The source of ignition was most probably the cutting operation being carried out overhead.

The resultant heat from the initial fire would have been sufficient to melt the fuse plugs in the top of the acetylene cylinder adding more fuel to the fire, causing large flames and damage to equipment.

Routine pressure drop tests on oxy-acetylene sets could reduce the potential for this type of incident.

**DGAS : W2/93 File No. : 19/93**

## **Dangerous Goods Storage Accident Report**

Date : 29 March 1993 Time : 1700 hrs  
Location : Donovan Street  
OSBORNE PARK  
Dangerous Goods LIQUEFIED ANHYDROUS AMMONIA  
Class 2.3  
Involved: Sub-Risk -  
UN No. 1005  
Packaging Group : -  
Quantity Involved : Unknown  
Quantity Spilled : Unknown

### **Scenario :**

Residual ammonia gas in the refrigeration piping at a disused cold store vented to atmosphere through a malfunction in an oil trap. The gas was evident outside the factory premises and the emergency services were called in to stop the leak.

Valves in proximity of the oil trap were closed but the leak persisted. The flow of gas was eventually stopped when the owner arrived and refrigeration mechanics were able to stem the flow of escaping gas.

**DGAS : W3/93 File No. : 40/93**



## **Dangerous Goods Storage Accident Report**

Date                    31 March 1993                    Time : 1430 hrs  
Location :            Absolon Street  
                         PALMYRA  
Dangerous            BATTERIES, WET FILLED WITH ACID  
Goods                Class 8  
Involved:            Sub-Risk -  
                         UN No. 2794  
                         Packaging Group : III  
                         Quantity Involved : 100 litres  
                         Quantity Spilled : 50 litres

### **Scenario :**

An unattended garbage compactor rolled down a hill and collided with a telephone sub-station. Some batteries inside the station ruptured and approximately 50 litres of acid was spilled.

The spill was contained on the premises and the road was closed during the cleanup operation.

**DGAS : W5/93      File No. : 42/93**

## **Dangerous Goods Storage Accident Report**

Date : 01 May 1993 Time : 1600 hrs  
Location : The Boulevard  
CITY BEACH  
Dangerous Goods : PETROL  
Class 3  
Involved: Sub-Risk -  
UN No. 1203  
Packaging Group : II  
Quantity Involved : 30000 litres  
Quantity Spilled : Unknown

### **Scenario :**

During a severe electrical storm a service station fuel bowser was ignited after a lightning strike. It is unknown whether the lightning directly hit the bowser or the building. All the electrics in the building were cut out. The bowser, which was not in use at the time of the incident, was located underneath the edge of the forecourt canopy.

Two employees used fire extinguishers to extinguish the fire. Damage was limited to the bowser.

**DGAS : W6/93 File No. : 61/93**

# Dangerous Goods Storage Accident Report

Date : 26 May 1993 Time : 2324 hrs  
Location : Titanium dioxide plant  
KEMERTON  
Dangerous Goods : CHLORINE  
Class 2.3  
Involved: Sub-Risk 5.1  
UN No. 1017  
Packaging Group :  
Quantity Involved :  
Quantity Spilled : 50 litres

## Scenario :

During normal operation of the plant, process gas was released when a barrel union on process equipment failed.

The plant was shut down immediately using the automatic shutdown system and process gas was vented to a recycle gas line. However, the residual plant pressure continued to depressurise through the failed union. The incident was investigated and engineering improvements made to the system to minimise the potential for recurrence.

**DGAS : W17/93 File No. : 244/93**

## **Dangerous Goods Storage Accident Report**

Date : 10 July 1993 Time : 2300 hrs  
Location : Neil Street  
OSBORNE PARK  
Dangerous LIQUEFIED ANHYDROUS AMMONIA  
Goods Class 2.3  
Involved: Sub-Risk -  
UN No. 1005  
Packaging Group : -  
Quantity Involved : 1200 litres  
Quantity Spilled : 30 litres

### **Scenario :**

A faulty plate freezer at a cold store was being emptied of ammonia to allow maintenance work to be performed. During the six hour transfer to the main liquid receiver the pressure relief valve malfunctioned and ammonia gas was released.

A road and rail line were closed while refrigeration mechanics attended the site and repaired the leak.

**DGAS : W7/93 File No. : 101/93**

# Dangerous Goods Storage Accident Report

Date , 03 August 1993 Time : 1400 hrs  
Location : Phoenix Rodd  
BIBRA LAKE  
Dangerous Goods FORMALDEHYDE SOLUTIONS  
Class 8  
Involved: Sub-Risk -  
UN No. 2209  
Packaging Group : III  
Quantity Involved : 5 litres  
Quantity Spilled : 5 litres

SODIUM HYPOCHLORITE  
Class 8  
Sub-Risk -  
UN No. 1791  
Packaging Group: III  
Quantity Present : 100 litres  
Quantity Involved : 40 litres

## Scenario :

A pump used to transfer a 12.5% sodium hypochlorite solution from 200 litre drums to a sanitising plant failed. A similar pump used for pumping formalin (37% formaldehyde) was substituted using the existing pipework.

The plant operator flushed the lines of the formalin pump with water but did not redirect the flow of solution to the sanitising plant. A reaction occurred in the pipes and formalin dosing vessel releasing vapour. The plant operator immediately activated a dead-man switch stopping the pump. The pipework was then redirected to the sanitising plant emptying the pipe contents into a tank of water.

The manufacturers of the chemicals advised that the vapours generated may have been phosgene or hydrochloric acid produced during the reaction of hypochlorite solution and formalin. Exhaust fans were operated in the plant and the site evacuated. The fire brigade attended the site and while wearing breathing equipment flushed all associated pipework with water.

**DGAS : W8/93      File No. : 112/93**

## **Dangerous Goods Storage Accident Report**

Date : 20 August 1993 Time : 1100 hrs  
Location : Vulcan Road  
CANNING VALE  
Dangerous Goods : POISONOUS LIQUID N.O.S.  
Class 6.1  
Involved: Sub-Risk -  
UN No. 2810  
Packaging Group : III  
Quantity Involved : 500 litres  
Quantity Spilled : 500 litres

### **Scenario :**

Fire broke out in a vapour degreaser unit at a factory, generating thick black smoke leading to evacuation of the building and a call for emergency assistance. The fire was limited to combustion of vapour within the degreaser and around the outside of its base. The inside of the wave soldering room where the fire occurred, and equipment and product within the room, were affected by smoke and fumes.

The fire is thought to have resulted from failure of a thermostat. This caused the heating elements in the degreaser's boil sump to glow red hot leading to combustion of vapour and residual combustible sludge (oil, grease, etc) from cleaned product.

**DGAS : W10/93 File No. : 186/93**

## **Dangerous Goods Storage Accident Report**

Date : 08 October 1993                      Time : 1430 hrs  
Location : Stock Road  
            SPEARWOOD  
Dangerous      LIQUEFIED PETROLEUM GAS  
Goods            Class 2.1  
Involved:        Sub-Risk  
                    UN No. 1075  
                    Packaging Group :  
                    Quantity Involved : 6500 litres  
                    Quantity Spilled : < 1 litre

### **Scenario :**

A person received cold burns to the back of the right hand following a gas release from an LP Gas dispenser while refuelling at a "self serve" service station outlet.

The LP Gas dispenser nozzle was fitted with a retaining clip for the nozzle lever so that the filling could take place "hands free".

After the fuel tank was filled, the person should have depressed the nozzle lever to unlatch the retaining clip. Instead, the hose assembly was rotated in an effort to disconnect the nozzle piece from the fuel tank's fill point. This action resulted in a gas release.

The person did not follow the correct vehicle filling procedure, which was clearly displayed on the dispenser unit.

The retaining clip was immediately removed following the incident.

The LP Gas Industry Association have recently issued an instruction to service station operators to remove the retaining clips on LP Gas dispenser nozzles to prevent the recurrence of this type of incident.

The relevant Australian Standard for LP Gas handling is likely to be amended to adopt this recommendation by the LP Gas industry.

**DGAS : W13/93    File No. : 234/93**

## Dangerous Goods Storage Accident Report

Date . 13 October 1993 Time : 1330 hrs  
Location : Burt Street  
BOULDER  
Dangerous LIQUEFIED PETROLEUM GAS  
Goods Class 2.1  
Involved: Sub-Risk -  
UN No. 1075  
Packaging Group : -  
Quantity Involved : 470 litres  
Quantity Spilled : 470 litres

### Scenario :

A caravan park operator was filling a 9 kg (22 litre) LP Gas cylinder by decanting from a 190 kg (454 litre water capacity) cylinder when a fire started in the vicinity of the 9 kg cylinder. The fire destroyed the decanting hose and subsequently led to a jet fire at the outlet of the liquid withdrawal valve of the 190 kg cylinder.

As the liquid withdrawal valve outlet was directly pointing at an adjacent metal shed, the jet impinged on the shed which in turn directed the flame and heat onto the vapour space of the 190 kg cylinder. A gas discharge from the relief valve of the 190 kg cylinder eventuated and ignited, resulting in a vertical jet flame about 10 metres high. The fire continued for approximately 20 minutes until all the LP Gas in the cylinder was consumed.

Investigations into the incident found that static electricity was the most likely ignition source for the fire. However, a combination of other factors is believed to have contributed to this incident:

- use of a plastic milk crate as a stand for the 9kg bottle;
- use of a wire clip to hold the decanting nozzle in the open position;
- operator not wearing gloves;
- operator not strictly adhering to the decanting procedure; and
- poor ventilation in the vicinity of the operation.

**DGAS : W9/93 File No. : 183/93**



## **Dangerous Goods Storage Accident Report**

Date : 29 October 1993                      Time : 0100 hrs  
Location : Kwinana Beach Road  
            KWINANA  
Dangerous Goods    AMMONIUM NITRATE SOLUTION  
                          Class 5.1  
Involved:            Sub-Risk -  
                          UN No. 2426  
                          Packaging Group : II  
                          Quantity Involved : 360,000 litres  
                          Quantity Spilled : 232,000 litres

### **Scenario :**

The ammonium nitrate pipeline (loop) on a manufacturing plant was shut down for repair the previous day. On commissioning, the operator inspected the loop on the ammonium nitrate plant side of the fence and did not observe a leak.

The dayshift operators on 29 October noticed that the tank level was low compared to the previous day. An inspection of the loop revealed a leak in the system. The line was then decommissioned for repairs. On investigation it was revealed that the gasket had blown out at the bottom of the flange.

The ammonium nitrate solution flowed out and went into the nearby open drain ending up in the containment pond. The solid ammonium nitrate was recovered and stored in a porous prill storage bin. The contents of the containment pond included a large amount of ammonium nitrate which was later transferred via tankers to a storage tank.

**DGAS : W16/93    File No. : 243/93**

## **Dangerous Goods Storage Accident Report**

Date : 29 November 1993                      Time : 0900 hrs  
Location : Scarborough Beach Road  
                  OSBORNE PARK  
Dangerous Goods    LIQUEFIED ANHYDROUS AMMONIA  
                  Class 2.3  
Involved:            Sub-Risk 8  
                  UN No. 1005  
                  Packaging Group :  
                  Quantity Involved : 20 litres  
                  Quantity Spilled : 20 litres

### **Scenario :**

Workers at adjacent premises detected the smell of ammonia gas emanating from a disused refrigeration plant when they arrived at work on Monday morning.

The fire brigade was contacted and emergency service agencies were activated.

Ammonia was being purged through the pipework of the disused refrigeration plant and the ammonia was bubbled into water in a 200 litre drum. Liquid ammonia gas had been removed from the storage tank five days earlier. The purging of ammonia through the water over the weekend probably saturated the solution and excess ammonia vapour was released to the atmosphere.

Fire brigade personnel sprayed water in the vicinity of the 200 litre drum until the ammonia odour was diluted sufficiently to no longer be detected. The area around the premises was evacuated while clean up operations were being carried out.

**DGAS : W11/93    File No. : 221/93**

## Dangerous Goods Storage Accident Report

Date : 02 December 1993                      Time : 0330 hrs  
Location : Brunswick Road  
                    ALBANY  
Dangerous      PETROL  
Goods            Class 3  
Involved:        Sub-Risk -  
                    UN No. 1203  
                    Packaging Group : II  
                    Quantity Involved : 8200 litres  
                    Quantity Spilled : 8200 litres

### COMBUSTIBLE LIQUIDS

Class 3  
Sub-Risk -  
UN No. 1270  
Packaging Group:  
Quantity Present : 1000 litres  
Quantity Involved : 1000 litres

### Scenario :

A tanker driver returned to his base fuel terminal at approximately 0240hrs after completing deliveries. He parked his tanker alongside two other tankers adjacent to a lube oil store and left the premises.

Approximately 40 minutes later a security patrol man noticed fire at the fuel terminal. The fire brigade was notified and took more than an hour to extinguish the blaze.

The three tankers were completely destroyed and the lube oil store was extensively damaged.

Arson was suspected immediately after police investigations, with two suspects subsequently being charged with the offence.

**DGAS : W12/93    File No. : 222/93**

## **Dangerous Goods Storage Accident Report**

Date : 10 December 1993                      Time : 2000 hrs  
Location : Suffolk Street  
              FREMANTLE  
Dangerous Goods    LIQUEFIED ANHYDROUS AMMONIA  
Class                Class 2.3  
Involved:            Sub-Risk -  
                          UN No. 1005  
                          Packaging Group : -  
                          Quantity Involved : 1000 kg  
                          Quantity Spilled : 150 kg

### **Scenario :**

A pump seal on a cold store refrigeration unit failed catastrophically, releasing 150 kg of ammonia.

The plant engineer attended and using on site personnel protective equipment (PPE) entered the vapour cloud, located the leak and subsequently repaired it.

A residual odour prompted a second callout at 0100 hrs the following day.

**DGAS : W14/93    File No. : 235/93**

## **Dangerous Goods Storage Accident Report**

Date : 15 December 199                      Time : 1130 hrs  
Location : Loch Street  
            DERBY  
Dangerous Goods    LIQUEFIED PETROLEUM GAS  
                          Class 2.1  
Involved:            Sub-Risk -  
                          UN No. 1075  
                          Packaging Group : -  
                          Quantity Involved : 3750 litres  
                          Quantity Spilled : 100 litres

### **Scenario :**

A staff member detected a gas leak originating from the pressure gauge of the aboveground autogas tank installation at a service station site.

The "Emergency Stop" button was activated which closed off the valves to the 7500 litre vessel and cut the power to the pump and bowser.

The service station owner dispersed the gas leak with a water spray.

A gas fitter attended and replaced the cracked pressure gauge after bleeding gas from the bowser, pump and pipework.

Vandals were suspected to have caused the damage to the pressure gauge.

**DGAS : W15/9    File No. : 237/93**

# **Dangerous Goods Transport Accident Report**

## **Introduction**

Twenty seven transport accidents were recorded in 1993. Of these, two involved substances which were not classified as dangerous goods and in effect 25 dangerous goods accidents occurred in 1993. This compares with 22 in 1992 and a nine year average of 19.6. Progressive deregulation of road transport has resulted in increased vehicle movements, particularly of petroleum products and may account for the observed increase. This may also be a factor in accounting for the absence of any reported rail accidents involving dangerous goods.

One traffic accident resulted in two fatalities, however the dangerous goods transported did not contribute to the severity of the accident. This accident remains in the accident log as the bulk container was damaged and required recovery.

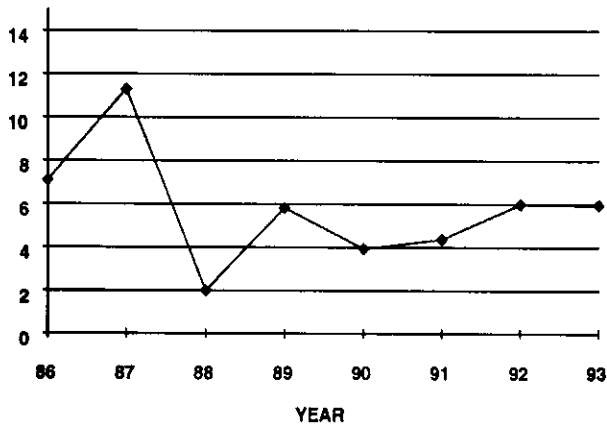
Again, no accidents involving sodium cyanide occurred and this material continues to be moved safely to the gold mining centres. Eight accidents involved petroleum fuel, the most severe of these requiring portions of Midland to be evacuated while a considerable volume of spilt motor spirit was recovered. Of particular concern were the four accidents resulting in spills of petroleum products from incorrect transfer procedures, notably the overfilling of the receival tank. Accidents such as these are readily preventable and where breaches of the Australian Dangerous Goods Code can be identified, prosecution of the offender is pursued.

Another substance involved in several incidents was ammonium nitrate which accounted for five of the accidents occurring in 1993. The nature of this material makes it easy to recover and clean up, except when it is involved in a fire as occurred near Telfer. In this situation the real hazard of this oxidising agent becomes all too apparent and the advice "let it burn" is appropriate. Fortunately, the remoteness of the accident site was of advantage here.

The plethora of accidents observed before and after the Christmas/New Year break in 1992 was not repeated in 1993 and suggests it to be an anomaly. Accidents in 1993 were distributed evenly throughout the year. The divisional newsletter 'Explosay' continues to highlight hazards associated with the transport of dangerous goods where such advice may be of assistance to industry in preventing the recurrence of accidents.

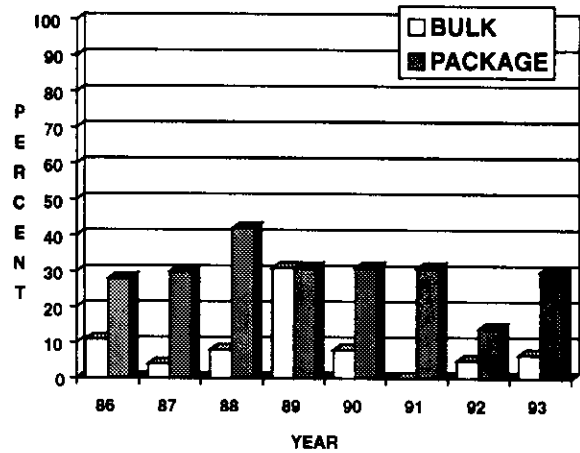
# Selected Road Transport Accident Statistics

NUMBER OF ACCIDENTS PER 1000 LICENSED VEHICLES (BULK ONLY)



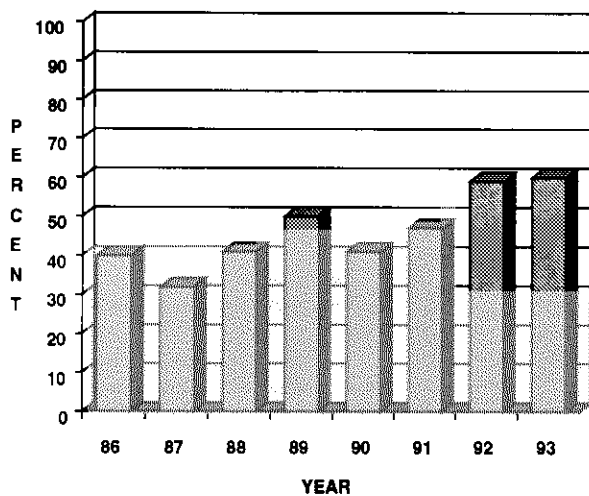
The 1993 value again corresponds with the overall average of approximately 6 accidents per 1000 licensed vehicles

NON COMPLYING VEHICLES IN ACCIDENTS - BULK / PACKAGE



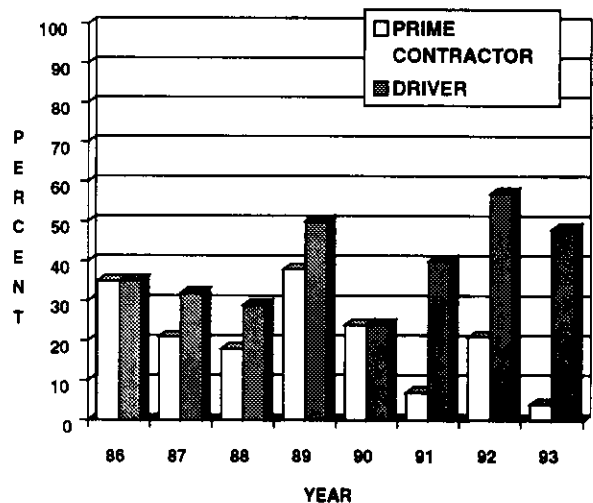
The percentage of non-complying vehicles involved in accidents returned to the benchmark levels observed from previous years.

PERCENTAGE OF ACCIDENTS CAUSED BY OPERATOR DEVIATION FROM STANDARD PROCEDURES



Deviation from the regulations continues to contribute significantly to overall deviation from standard procedures. Shortcuts cannot be justified.

DRIVER AND PRIME CONTRACTOR CONTRIBUTION TO ACCIDENTS ATTRIBUTED TO OPERATOR DEVIATION



Culpability again rests strongly with the driver, while blame apportioned to prime contractors continues to diminish.

## Dangerous Goods Transport Accident Summary Report

### For the Year 1993

|        | Date    | Location       | Goods                               | Class | Comments   |
|--------|---------|----------------|-------------------------------------|-------|--|
| W1/93  | 6/1/93  | Paraburdoo     | Ammonium Nitrate                    | 5.1   | A triple road train transporting ammonium nitrate overturned while swerving to avoid cattle which had strayed on to the road. The rollover resulted in the spill of product. |
| W2/93  | 17/1/93 | Southern Cross | Oxygen, Refrigerated Liquid         | 2.2   | A tanker transporting liquid oxygen rolled over spilling product through damaged pipework at the rear of the vehicle.  |
| W3/93  | 5/2/93  | Welshpool      | Hypochlorite Solutions              | 8     | A plastic drum of liquid chlorine split open when it fell from a forklift which was in the process of loading the drum onto a trailer.                                       |
| W4/93  | 18/2/93 | Geraldton      | Poisonous Liquid, Corrosive, N.O.S. | 6.1   | Toxic fumes emanating from a leaking drum which was unloaded at a transport yard affected several staff arriving at the yard a short time later.                             |
| W6/93  | 7/4/93  | Fremantle      | Ammonia, Anhydrous, Liquefied       | 2.3   | A truck lost its load of cylinders through a side gate while swerving to avoid an on-coming vehicle.   |
| W5/93  | 21/4/93 | Katanning      | Petrol                              | 3     | Failure to check the ullage in an under-ground storage tank, prior to filling, resulted in an overflow of petrol.  |
| W7/93  | 22/4/93 | Dongara        | Flammable Liquid, N.O.S.            | 3     | A fire originating in a refrigeration unit containing herbicide engulfed engulfed a trailer and prime mover.   |
| W8/93  | 17/5/93 | Burracoppin    | Acrylic Acid                        | 8     | A semi trailer overturned and lost its load of acid when the driver swerved to avoid debris on the road.   |
| W9/93  | 25/5/93 | Broome         | Aviation Turbine Engine Fuel        | 3     | Poorly maintained stock records resulted in an employee overfilling a receival tank with aviation fuel.  |
| W10/93 | 4/6/93  | Welshpool      | Formic Acid                         | 8     | Drums of formic acid were found to be leaking due to package failure.  |
| W11/93 | 5/6/93  | Lenonora       | Hydrochloric Acid                   | 8     | A vehicle overturned losing an IBC of hydrochloric acid which broke open on impact spilling its contents onto the road verge.  |
| W13/93 | 7/7/93  | Warmun         | Petroleum Fuel                      | 3     | The rear trailer of a triple road train overturned while swerving to avoid an oncoming vehicle. Part of its load of diesel was spilt.  |



## Dangerous Goods Transport Accident Summary Report (Continued)

|        | Date     | Location     | Goods                                  | Class | Comments   |
|--------|----------|--------------|--|-------|--|
| W12/93 | 21/7/93  | Exmouth      | Batteries,<br>Wet, Filled<br>with Acid | 8     | A battery which exploded while being transported caused a number of surrounding batteries to fall from the vehicle spilling acid on to the roadway.                          |
| W14/93 | 14/8/93  | Kalgoorlie   | Ammonium<br>Nitrate                    | 5.1   | An inadequately secured freight container of ammonium nitrate fell from a side loader whilst it was negotiating a bend resulting in the spill of product.                    |
| W16/93 | 20/8/93  | Boulder      | Petrol                                 | 3     | A tanker driver delivering fuel into an underground tank at a service station failed to check the ullage in the receiving tank resulting in an overflow and spill of petrol. |
| W15/93 | 22/8/93  | Kununarra    | Nitric Acid                            | 8     | The combination of a product overfill and the failure to secure fittings on a bulk nitric acid tank resulted in a spillage of product during transport.                      |
| W17/93 | 31/8/93  | Beckenham    | HFP<br>Bitumen<br>Cutter               | NDG   | Sparks from a welder being used to make modifications to a bitumen tanker caused an explosion injuring two people.   |
| W18/93 | 8/9/93   | Midland      | Petrol                                 | 3     | Petrol escaped from a semi trailer tanker after it was involved in a collision with a reversing rubbish truck.   |
| W19/93 | 1/10/93  | Wiluna       | Diesel                                 | NDG   | The driver of a diesel fuel tanker failed to disconnect a delivery hose before moving the vehicle forward. The outlet valve sheared off resulting in a spill of fuel.        |
| W20/93 | 7/10/93  | Forrestfield | Nitric Acid                            | 8     | A pallet board which was being lifted on to a tray top vehicle broke under the weight causing a drum of nitric acid to fall and split, spilling its contents.                |
| W21/93 | 19/10/93 | Naval Base   | Ammonium<br>Nitrate                    | 5.1   | An incorrectly restrained IBC of ammonium nitrate toppled over spilling product on the roadway when the vehicle braked suddenly.   |
| W25/93 | 2/11/93  | Nanutarra    | Ammonium<br>Nitrate                    | 5.1   | A triple road train transporting packages of ammonium nitrate overturned while the driver was trying to correct the vehicle  |

Legend:  
NDG = Not Dangerous Goods

## Dangerous Goods Transport Accident Summary Report (Continued)

|        | Date     | Location      | Goods                         | Class | Comments   |
|--------|----------|---------------|-------------------------------|-------|--|
| W22/93 | 3/11/93  | Telfer        | Ammonium Nitrate              | 5.1   | A trailer load of ammonium nitrate enroute from Telfer to Kalgoorlie for salvage caught fire and burnt. The cause of the fire remains unknown.     |
| W26/93 | 13/11/93 | Corrigin      | Sodium Ethyl Xanthate         | 4.3   | A vehicle transporting incompatible packaged dangerous goods rolled over resulting in a spill of material.   |
| W27/93 | 24/11/93 | Newdegate     | Petrol                        | 3     | A trailer rolled over when the driver swerved to avoid a pot hole in the road. There was no loss of product.                                       |
| W23/93 | 30/11/93 | Nerren Nerren | Nitrogen, Refrigerated Liquid | 2.2   | Two people were killed when a car collided with a road train carrying a bulk container of liquid nitrogen.   |
| W24/93 | 2/12/93  | York          | Petrol                        | 3     | An axle failure on a fuel tanker resulted in a tyre fire which spread to the tank and its contents, destroying the vehicle and consuming its load. |

Legend:  
NDG= Not Dangerous Goods

## **Dangerous Goods Transport Accident Report**

Date : 06 January 1993                      Time : 0330 hrs  
Location : Nanutarra-Wittenoom Road  
            PARABURDOO  
Dangerous Goods    AMMONIUM NITRATE  
                          Class 5.1  
Involved:            Sub-Risk  
                          UN No. 1942  
                          Packaging Group : III  
                          Quantity Involved : 75 tonnes  
                          Quantity Spilled : 50 tonnes

### **Scenario :**

The driver of a triple road train transporting ammonium nitrate to Tom Price swerved to avoid a cow which had strayed onto the roadway. The middle and rear trailers slid off onto the gravel by the side of the road and rolled over, with the rear trailer breaking free from the dolly.

The impact caused the tarpaulins covering the loads to tear, spilling 50 tonnes of product onto the road. The lead trailer received minor damage while the two dollies under the middle and rear trailers suffered considerable damage.

Emergency services personnel were called and carried out the clean-up operations.

**DGAT : W1/93    File No. : 2/93**

## **Dangerous Goods Transport Accident Report**

Date . 17 January 1993 Time : 0830 hrs  
Location : Great Eastern Highway  
SOUTHERN CROSS  
Dangerous Goods OXYGEN, REFRIGERATED LIQUID  
Class 2.2  
Involved: Sub-Risk 5.1  
UN No. 1073  
Packaging Group :  
Quantity Involved : 20000 litres  
Quantity Spilled : 2000 litres

### **Scenario :**

The driver of a tanker filled with liquid oxygen ran off the road into the gravel verge and lost control of the vehicle. The trailer sheared off the turntable and rolled over, coming to rest on the side of the road.

Although the tank itself was not damaged, product was lost through damaged pipework at the rear of the tank within the piping cabinet.

A recovery vehicle was arranged and the remaining product was transferred into that vehicle for return to Perth. Traffic on the highway was delayed while the recovery was effected. No one was injured during the incident.

**DGAT : W2/93**

**File No. : 14/93**

# Dangerous Goods Transport Accident Report

Date : 05 February 1993 Time : 1300 hrs  
Location : Kumall Road  
WELSHPOOL  
Dangerous Goods : HYPOCHLORITE SOLUTIONS  
Class 8  
Involved: Sub-Risk  
UN No. 1791  
Packaging Group : II  
Quantity Involved : 200 litres  
Quantity Spilled : 200 litres

## Scenario :

A forklift loading a 200 litre plastic drum of sodium hypochlorite solution onto an open trailer lost control of the drum during the lifting process.

The drum fell to the ground and split open, spilling the contents.

The spill was diluted with water and the site was declared safe.

**DGAT : W3/93 File No. : 24/93**

## **Dangerous Goods Transport Accident Report**

Date : 18 February 1993                      Time : 1400 hrs  
Location : North West Coastal Highway  
                 GERALDTON  
Dangerous Goods : POISONOUS LIQUID, CORROSIVE, N.O.S.  
Class 6.1  
Involved: Sub-Risk 8  
                 UN No. 2927  
                 Packaging Group : 1  
                 Quantity Involved : 400 litres  
                 Quantity Spilled : 200 litres

### **Scenario :**

The driver of a pantechnicon transporting two drums of poisonous, corrosive liquid noticed acidic fumes emanating from the rear of his vehicle while enroute to Geraldton from Port Hedland. The driver was of the opinion that the load was not hazardous and therefore did not stop to check its condition.

On arrival at the transport company's premises in Geraldton, the driver unloaded the leaking drums and left the premises.

Several people arriving at the premises at a later time became dizzy and nauseous as a result of the fumes and were taken to hospital for observation.

The police and fire brigade were contacted and attended the scene. Police blocked off access to the area while fire brigade personnel with full protective clothing and breathing apparatus covered the spillage with sand and disposed of the drums and contaminated soil.

**DGAT : W4/93      File No. : 27/93**

## Dangerous Goods Transport Accident Report

Date : 07 April 1993 Time : 1630 hrs  
Location : Cnr Ord and Stirling Streets  
FREMANTLE  
Dangerous Goods : AMMONIA, ANHYDROUS, LIQUEFIED  
Class 2.3  
Involved: Sub-Risk  
UN No. 1005  
Packaging Group : I  
Quantity Involved : 4320 litres  
Quantity Spilled : 0 litres

### Scenario :

A truck loaded with cylinders of liquefied anhydrous ammonia lost part of its load while attempting to avoid a collision with an oncoming vehicle. As the vehicle approached the intersection of Ord and Stirling Streets in Fremantle, another vehicle travelling in the opposite direction overtaking in the wrong lane caused the truck to swerve to avoid an accident.

A combination of the swerving action and the camber in the road caused the load of cylinders on board to shift, placing pressure on a side gate. The impact on the side gate caused a retaining pin to shear and despite the restraining strap around the cylinders, twelve full bottles of ammonia gas fell from the vehicle.

The cylinders came to rest in the forecourt of a nearby service station causing minor damage to equipment on those premises. The cylinders were slightly damaged, however no leakage of product occurred. After the cylinders were re-loaded and secured on the truck, the truck returned to its base in Subiaco

**DGAT : W6/93 File No. : 57/93**

## **Dangerous Goods Transport Accident Report**

Date : 21 April 1993 Time : 2130 hrs  
Location : Dore Street  
KATANNING  
Dangerous Goods : PETROL  
Class 3  
Involved: Sub-Risk  
UN No. 1203  
Packaging Group : II  
Quantity Involved : 5000 litres  
Quantity Spilled : 300 litres

### **Scenario :**

The driver of a tanker transferring petrol into an underground bulk tank at a fuel depot failed to dip the tank prior to the commencement of transfer, opting instead to estimate the available free space in the tank from a delivery authorisation slip. This stated that the tank could accept 17000 litres of fuel. Unfortunately, there was only 7000 litres of ullage in the tank.

A short time after the transfer began, fuel began to flow out of the tank via the diptube and onto the ground. The spill was contained within a bunded area and soaked into the soil.

The police and fire brigade were requested to attend the site and upon arrival proceeded to cover the affected area with foam. Clean-up was effected by the fire brigade and the site was declared safe.

**DGAT : W5/93**

**File No. : 57/93**





## **Dangerous Goods Transport Accident Report**

Date : 17 May 1993 Time : 0450 hrs  
Location : Great Eastern Hwy  
BURRACOPPIN  
Dangerous Goods : ACRYLIC ACID  
Class 8  
Involved: Sub-Risk 3  
UN No. 2218  
Packaging Group : II  
Quantity Involved : 5000 litres  
Quantity Spilled : 400 litres

### **Scenario :**

A prime mover and semi trailer overturned when the driver swerved to avoid debris on the road. The trailer lost its load and drums of acid were thrown up to one hundred metres

from the crash site.

Volunteer fire fighters were contacted and contained the spill, a mixture of acrylic acid, diesel fuel, lubricating oil and ingredients for paint manufacture. Traffic was diverted onto local roads until the wreckage was removed and the area made safe.

A heavy vehicle tow truck arrived from Perth and righted the overturned vehicles. The highway was reopened to traffic some 17 hours after the incident occurred, following the removal of chemical residue and decontamination of the area.

**DGAT : W8/93 File No. : 63/93**

# Dangerous Goods Transport Accident Report

Date : 25 May 1993 Time : 0830 hrs  
Location : Broome Airport  
BROOME  
Dangerous Goods : AVIATION TURBINE ENGINE FUEL  
Class 3  
Involved: Sub-Risk  
UN No. Packaging Group : II  
Quantity Involved : 30000 litres  
Quantity Spilled : 2650 litres

## Scenario :

An employee of the fuel depot at Broome Airport was asked to unload a tanker filled with aviation turbine engine fuel into a storage tank. The employee checked the stock control sheet which indicated that one of the tanks was almost empty (1200 litres). Unfortunately, the stock control records were maintained incorrectly and the tank chosen to be filled was already near full.

The filling operation caused the receiver tank to overflow, allowing fuel to escape from the dip vent, resulting in the spillage of approximately 2650 litres of product into the bunded area surrounding the tanks.

The local fire brigade attended the site to render assistance and the police and water authority were notified of the spill. The contaminated topsoil within the bunded area was excavated and removed from the site for disposal.

**DGAT : W9/93 File No. : 68/93**



# Dangerous Goods Transport Accident Report

Date . 05 June 1993 Time : 0530 hrs  
Location : Leonora-Kalgoorlie Road  
LEONORA  
Dangerous Goods HYDROCHLORIC ACID  
Class 8  
Involved: Sub-Risk  
UN No. 1789  
Packaging Group : II  
Quantity Involved : 1000 litres  
Quantity Spilled : 1000 litres

## Scenario :

A vehicle transporting an intermediate bulk container (IBC) of hydrochloric acid left the road and overturned. During the roll-over the IBC came free from the vehicle and rolled into the bush by the side of the road. The impact caused the container to break open, spilling its contents onto the ground.

The driver contacted the prime contractor who in turn contacted the local police who attended the scene. The local volunteer fire brigade also attended and proceeded to dilute the spill with water. The contaminated soil was later recovered for disposal.

DGAT : W11/93 File No. : 72/93

## **Dangerous Goods Transport Accident Report**

Date                    07 July 1993                    Time : 0530 hrs  
Location :            Great Northern Highway  
                          WARMUN  
Dangerous            PETROLEUM FUEL  
Goods                Class 3  
Involved:            Sub-Risk  
                          UN No. 1270  
                          Packaging Group : III  
                          Quantity Involved : 70000 litres  
                          Quantity Spilled : 24000 litres

### **Scenario :**

The rear trailer of a triple road train, overturned 50 km south of Warmun when the driver moved onto the shoulder of the road to avoid an oncoming coach.

The trailer was transporting diesel in demountable tanks which were damaged as a result of the rollover allowing diesel to leak out onto the road verge.

The driver uncoupled the overturned trailer and proceeded to a nearby property to call for assistance. A recovery crew attended and salvaged the remainder of the load. The tanks and the trailer were righted and taken away for repairs.

**DGAT : W13/93    File No. : 121/93**

## **Dangerous Goods Transport Accident Report**

Date : 21 July 1993                      Time : 1045 hrs  
Location : Murat Road  
            EXMOUTH  
Dangerous Goods      BATTERIES, WET, FILLED WITH ACID  
                            Class 8  
Involved:              Sub-Risk  
                            UN No. 2794  
                            Packaging Group : III  
                            Quantity Involved : 4000 kilograms  
                            Quantity Spilled : 80 kilograms

### **Scenario :**

A battery on a tray top vehicle exploded during transit causing surrounding batteries to be dislodged and fall from the vehicle. The impact with the ground caused some of the batteries to break open spilling battery acid onto the roadway.

The driver immediately stopped the vehicle, disconnected the trailer from the prime mover and notified the police. The local volunteer fire brigade attended the scene and proceeded to load all the damaged batteries into a 200 litre

drum for disposal. The acid which had been spilled on the road side was neutralised with lime.

All undamaged batteries were transferred to another trailer and returned to the naval base.

**DGAT : W12/93    File No. : 113/93**

## **Dangerous Goods Transport Accident Report**

Date : 14 August 1993                      Time : 1030 hrs  
Location : Rail Yard  
                    KALGOORLIE  
Dangerous Goods : AMMONIUM NITRATE  
                    Class 5.1  
Involved: Sub-Risk  
                    UN No. 1942  
                    Packaging Group : III  
                    Quantity Involved : 23000 kg  
                    Quantity Spilled : 12000 kg

### **Scenario :**

A fully loaded freight container of ammonium nitrate prill fell from a vehicle while being transported from a premises in West Kalgoorlie to the rail yard for transfer onto a tipper trailer.

The freight container was being transported on a side loader semi trailer, however the twist locks on the trailer had not been engaged because the side loader design did not accommodate the dimensions of the container. Subsequently, there was no restraint of the container.

When entering the rail yard, the container fell from the side loader and rolled onto its roof. The doors were forced open by the impact allowing ammonium nitrate to spill out onto the ground.

A quantity of the ammonium nitrate was salvaged while the remaining product, contaminated with soil and gravel, was recovered by a front end loader and transferred into a recovery freight container.

**DGAT : W14/93    File No. : 125/93**



# Dangerous Goods Transport Accident Report

Date . 20 August 1993 Time : 1730 hrs  
Location : Boulder Road  
BOULDER  
Dangerous PETROL  
Goods Class 3  
Involved: Sub-Risk  
UN No 1203  
Packaging Group : II  
Quantity Involved : 20000 litres  
Quantity Spilled : 100 litres

## Scenario :

The driver of a fuel tanker, who was transferring unleaded petrol from his vehicle into an underground storage tank, failed to check the free space available in that tank before beginning the fuel transfer.

Near the end of the transfer the driver noticed petrol coming out of the dip tube and running down the forecourt of the service station towards the street. The driver shut off the supply line and then used a hose and detergent to dilute the spill.

The service station proprietor emptied the fuel that remained in the transfer hose into two jerry cans and then assisted the driver in hosing away the spill.

**DGAT : W16/93 File No. : 136/93**



# Dangerous Goods Transport Accident Report

Date : 31 August 1993 Time : 1530 hrs  
Location : Clapham Road  
BECKENHAM  
Dangerous Goods : HFP BITUMEN CUTTER  
Class NDG  
Involved: Sub-Risk  
UN No.  
Packaging Group :  
Quantity Involved : 30 LITRES  
Quantity Spilled : 30 LITRES

## Scenario :

A bitumen tanker, requiring modifications to a dip tube was taken to an engineering firm for the repair work to be carried out. The tanker had recently been used to transport bitumen and on return to the works depot had been rinsed out with a high flashpoint cutter.

On the commencement of welding to the tank shell, an explosion occurred which resulted in damage to the tank and a fire involving one of the LPG cylinders mounted on the vehicle and utilised for the heating of the cargo. The fire was extinguished and the tanker was reversed out of the workshop.

Damage to the workshop was extensive and an employee and the tanker driver both sustained minor injuries as a result of the explosion. It is thought that residual heat in the tanker raised the temperature of the cutter to above its flashpoint and a spark from the welding operation was sufficient to cause the explosion.

**DGAT : W17/93 File No. : 140/93**

Legend:  
NDG= Not Dangerous Goods



# Dangerous Goods Transport Accident Report

Date : 01 October 1993                      Time : 1200 hrs  
Location : Minesite  
            WILUNA  
Dangerous     DIESEL FUEL  
Goods        Class NDG  
Involved:     Sub-Risk  
                  UN No.  
                  Packaging Group :  
                  Quantity Involved : 7000 litres  
                  Quantity Spilled : 1000 litres

## Scenario :

A driver unloading fuel at a tank farm failed to disconnect a hose from the diesel tank after he had completed the fuel transfer. The driver closed the outlet valve and then moved the vehicle forward to allow for the final compartment to be drained. The vehicle ran over the hose which caused the outlet valve section of the discharge pipe to break away from the tanker.

The fracture of a section of piping allowed approximately 1000 litres of product to spill. The Minesite staff assisted in containing the spill and then covered the fuel with sand. The contaminated soil was then removed and disposed of at an approved site. The Wiluna Shire later replaced the contaminated soil with clean soil.

**DGAT : W19/93    File No. : 167/93**

Legend:  
NDG = Not Dangerous Goods



## **Dangerous Goods Transport Accident Report**

Date : 19 October 1993                      Time : 1620 hrs  
Location : Rockingham Road  
            NAVAL BASE  
Dangerous Goods    AMMONIUM NITRATE  
                          Class 5.1  
Involved:            Sub-Risk  
                          UN No. 1942  
                          Packaging Group : III  
                          Quantity Involved : 20600 kg  
                          Quantity Spilled : 1200 kg

### **Scenario :**

An intermediate bulk container (IBC) of ammonium nitrate being transported on a semi-trailer, fell over and split open when the semi-trailer was forced to brake suddenly at traffic lights.

The loading arrangement on the trailer allowed for a space between the IBCs at the front and those at the rear of the tray. No restraint was provided to prevent forward movement of the IBCs loaded at the rear of the vehicle.

Product spilled out of the tear in the top of the IBC and onto the road blocking one lane to traffic. The fire brigade was contacted and attended the scene. A spill recovery firm also attended the scene and clean up was effected.

**DGAT : W21/93    File No. : 193/93**

## **Dangerous Goods Transport Accident Report**

Date : 02 November 1993                      Time : 0100 hrs  
Location : North West Coastal Highway  
                  NANUTARRA  
Dangerous    AMMONIUM NITRATE  
Goods        Class 5.1  
Involved:    Sub-Risk  
                  UN No. 1942  
                  Packaging Group : II  
                  Quantity Involved : 34000 kg  
                  Quantity Spilled : 26000 kg

### **Scenario :**

A triple road train transporting bags of ammonium nitrate overturned near Nanutarra. After taking his eyes off the road and reaching for an object on the floor of the vehicle, the driver looked up and found his vehicle on the wrong side of the road. In an effort to correct the vehicle, the rear trailer clipped a culvert on the side of the road causing the vehicle to swing uncontrollably and resulted in the second and rear trailers overturning.

The ammonium nitrate was in 25kg packages stacked on pallets in one tonne lots. Eight tonnes of ammonium nitrate remained on the lead trailer, which was undamaged in the incident, however twenty six tonnes of ammonium nitrate on the second trailer was scattered along the road side with many of the bags broken from the impact.

Karratha Police were contacted and attended the scene along with clean-up personnel. The majority of the ammonium nitrate was salvaged while the rest was disposed of at a chemical pit organised through the local shire. Clean-up of the area was achieved more than 16 hours after the incident occurred.

**DGAT : W25/93   File No. : 230/93**



# Dangerous Goods Transport Accident Report

Date : 03 November 1993                      Time : 1030 hrs  
Location : Woodie Woodie Road  
            TELFER  
Dangerous Goods : AMMONIUM NITRATE  
                    Class 5.1  
Involved: Sub-Risk  
                    UN No. 1942  
                    Packaging Group : III  
                    Quantity Involved : 75 tonnes  
                    Quantity Spilled : 24 tonnes

## Scenario :

A contractor driving a triple road-train of ammonium nitrate in IBCs from Telfer to Kalgoorlie, stopped to check his load and noticed one of the bags which was positioned second last on the right hand side of the first trailer was on fire.

The driver attempted to control the fire without success so he disconnected the rear two trailers and pulled the front trailer clear. The driver then disconnected the prime mover from the first trailer and drove the prime mover clear.

The fire spread and destroyed all of the cargo on the first trailer as well as the trailer itself. The cause of the fire remains unknown.

**DGAT : W22/93    File No. : 199/93**

## **Dangerous Goods Transport Accident Report**

Date : 13 November 1993 Time : 0445 hrs  
Location : Brookton Highway  
CORRIGIN  
Dangerous Goods : SODIUM ETHYL XANTHATE  
Class 4.3  
Involved: Sub-Risk  
UN No. 2813  
Packaging Group : II  
Quantity Involved : 8200 kilograms  
Quantity Spilled : 1760 kilograms

SODIUM HYPOCHLORITE  
Class 8  
Sub-Risk  
UN No. 1791  
Packaging Group: II  
Quantity Present : 205 litres  
Quantity Involved :

OXYGEN, COMPRESSED  
Class 2.2  
Sub-Risk 5.1  
UN No. 1072  
Packaging Group:  
Quantity Present : 50 litres  
Quantity Involved :

### **Scenario :**

A traytop vehicle transporting packaged dangerous goods failed to negotiate a bend in the Brookton Highway, approximately 2.5km west of Corrigin, and rolled onto its side. The load comprised of a variety of incompatible dangerous goods. As a result of the rollover, several drums of sodium ethyl xanthate which produces flammable vapour when mixed with water, were spilled on the side of the road.

The local volunteer fire brigade attended the scene and repackaged the spilt product into drums for consignment to the original destination. Police investigating the incident believe that it was caused due to a combination of speed, driver fatigue and a blown tyre. The vehicle was also carrying in excess of the weight limit for which it was licensed. Investigations into the incident for breaches of the Dangerous Goods Regulations 1992 are continuing.

**DGAT : W26/934 File No. : 233/93**

## **Dangerous Goods Transport Accident Report**

Date . 24 November 1993 Time : 1200 hrs  
Location : Mallee Hill Road  
NEWDEGATE  
Dangerous PETROL  
Goods Class 3  
Involved: Sub-Risk  
UN No. 1203  
Packaging Group : II  
Quantity Involved : 10000 litres  
Quantity Spilled : 0 litres

### **Scenario :**

A trailer loaded with fuel broke away from a towing hitch and overturned after the driver of the vehicle swerved to avoid a large pot hole in the middle of the road.

After checking the overturned tank for leaks, the driver of the vehicle drove to a nearby farming property to call for assistance. A recovery tanker was organised and proceeded to the site.

Police and fire brigade personnel attended to oversee recovery operations and to ensure that the safety precautions taken were satisfactory. A tractor was used to right the trailer and the fuel was then transferred into the recovery tanker with no loss of product.

The damaged trailer was later towed to Albany for repairs.

**DGAT : W27/93 File No. : 238/93**

## **Dangerous Goods Transport Accident Report**

Date : 30 November 1993                      Time : 0500 hrs  
Location : North West Coastal Highway  
                  NERREN NERREN  
Dangerous Goods : NITROGEN, REFRIGERATED LIQUID  
                  Class 2.2  
Involved: Sub-Risk  
                  UN No. 1977  
                  Packaging Group :  
                  Quantity Involved : 17000 litres  
                  Quantity Spilled : 0 litres

### **Scenario :**

A car travelling south on the North West Coastal Highway approximately 160 kilometres north of Geraldton veered to the wrong side of the road and collided with a road train transporting a tank container of liquid nitrogen.

The liquid nitrogen tanker overturned but lost none of its product.

The car burst into flames on impact incinerating the two occupants. The two occupants in the prime mover sustained only minor injuries however the prime mover and lead trailer were destroyed by fire.

Police attended the scene and salvage crews cleaned up the area. The damaged vehicles were taken to a transport yard in Geraldton.

**DGAT : W23/93    File No. : 220/93**

# Dangerous Goods Transport Accident Report

Date : 02 December 1993                      Time : 1545 hrs  
Location : York-Meckering Road  
                    YORK  
Dangerous Goods      PETROL  
                    Class 3  
Involved:              Sub-Risk  
                    UN No. 1203  
                    Packaging Group : II  
                    Quantity Involved : 10680 litres  
                    Quantity Spilled : 10680 litres

DIESEL FUEL  
Class 3  
Sub-Risk  
UN No. 1270  
Packaging Group: III  
Quantity Present : 23500 litres  
Quantity Involved : 23500 litres

## Scenario :

A semi trailer was transporting 34180 litres of fuel enroute to Meckering when a fire developed at the rear of the vehicle. The central axle on the trailer had failed resulting in a build up of heat and subsequent tyre fire.

The driver stopped the vehicle on noticing the fire, and attempted to extinguish the blaze with the vehicle's fire extinguishers which failed to operate. The driver moved the vehicle away from an adjacent farming property.

Unable to extinguish the fire, the driver diverted traffic until emergency services personnel arrived. The fire had spread to the load and it was decided to let it burn out due to the remote location. The vehicle was pushed off the road once the fire was extinguished so as to allow traffic to pass.

The vehicle combination was completely destroyed in the fire and the driver was later taken to hospital for observation.

**DGAT : W24/93    File No. : 225/93**