



DEPARTMENT OF
MINERALS AND ENERGY
WESTERN AUSTRALIA



GOVERNMENT OF
WESTERN AUSTRALIA

Explosives and Dangerous Goods Act 1961
SUMMARY OF ACCIDENT REPORTS
1997

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EXPLOSIVES AND DANGEROUS GOODS DIVISION
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Summary of Accident Reports 1997

Summary Overview

This Summary of Accident Reports contains information and analysis on accidents which involved Dangerous Goods and presented a public safety threat in Western Australia in 1997.

The sixteen storage and nineteen transport accidents reported in the year are reviewed in the context of past years' accidents.

It is pleasing to report that there were no explosives accidents reported in 1997.

Accident trends in Western Australia continued to be flat through 1997, which indicates that the dangerous goods safety program is having the desired effect. In a growing market, the accident rate is not increasing.

None the less, the Division continues its search for a lever for industry to make a significant stepwise improvement in safety and a reduction in accidents.

The long-term strategies commenced in the transport industry several years ago, of fostering training and encouraging industry to take responsibility for its activities, have resulted in a slight diminution in the number of transport accidents in the category of "human error". This gives some hope that the same strategy, which is now being applied to the rest of the chemicals industry, will improve accident performance there also.

Unfortunately very few jurisdictions regulating public safety maintain any meaningful measures of their performance so the opportunities for benchmarking are limited.

Work continues with the Western Australian Fire and Rescue Service and various Eastern States' groups to try to develop a national reporting system for Dangerous Goods accidents based on Western Australia's Operating System for Computerised Accident Reporting (OSCAR), with the ultimate aim of benchmarking performance with another Australian public safety jurisdiction.



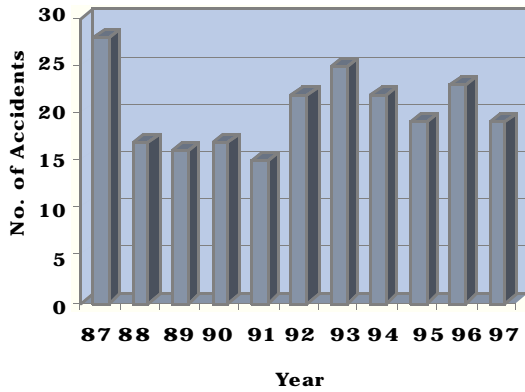
K Price

**Director
Explosives and Dangerous Goods Division**

3 March, 1998

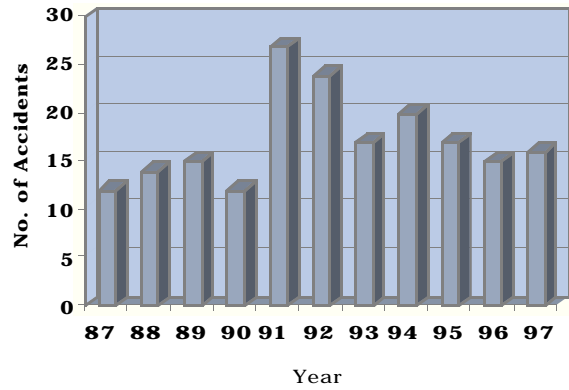
Explosives and Dangerous Goods Accident Statistics

Transport Accidents



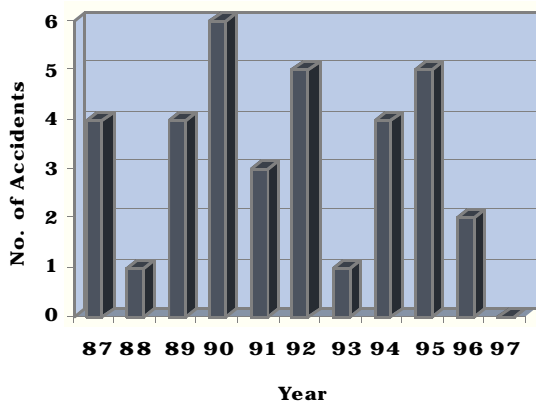
The number of dangerous goods transport accidents recorded in 1997 was less than the number recorded in 1996. However, this number is in line with the ten year average of approximately 20.

Storage Accidents



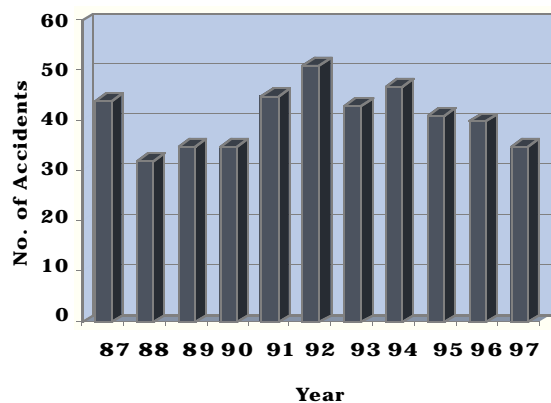
The number of storage accidents recorded in 1997 was one more than recorded in the previous year and consistent with a general healthy trend of a decreasing number of accidents over the past 6 years.

Explosives Accidents



No accidents were recorded in 1997; this indicates that the use of explosives is handled in a safe manner in Western Australia.

Total Accidents



The total number of accidents recorded in 1997 is less than the number recorded in the previous years.

Explosives Accidents

Introduction

Pleasingly, there were no incidents involving explosives reported to the Division in 1997 compared to two incidents in 1996 and five incidents in 1995.

One incident, that did not meet the criteria for the recording of an accident, involved a licensed fireworks operator at the Cannington Greyhound Track premises. The operator received minor burns after a firework misfired. There were no breaches of the regulations governing the handling of fireworks.

Several minor fires in Kings Park during the 1997 Australia Day Lotto Skyworks fireworks display were attributed to sparklers and sparklers were prohibited from Kings Park for the following year's display.

Dangerous Goods Storage Accidents

Introduction

Sixteen accidents involving the storage of dangerous goods were reported to the Division in 1997 compared with fifteen in 1996 and seventeen in 1995.

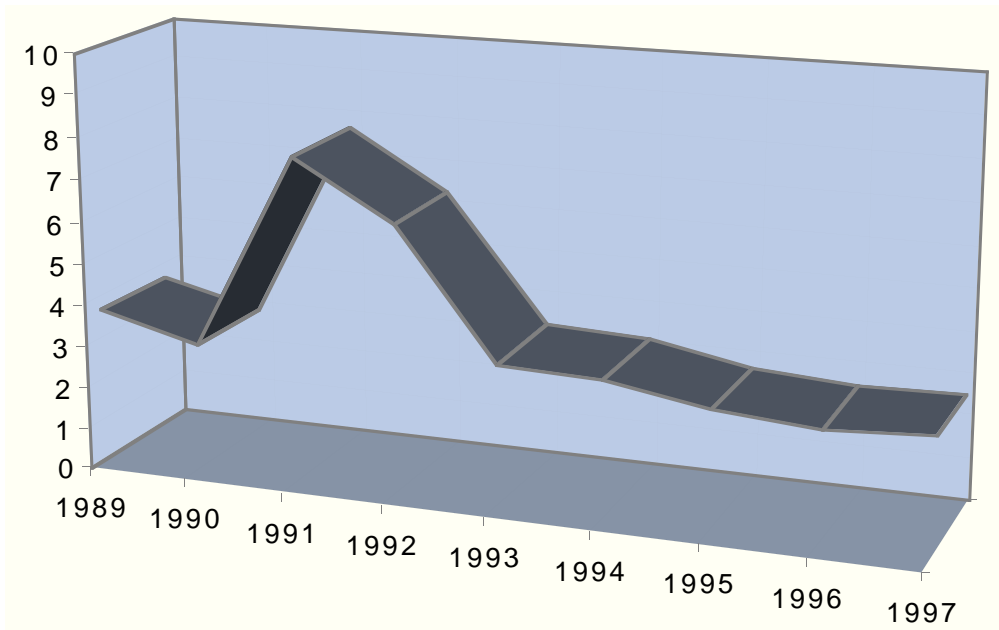
The most significant incident for the year occurred at the Fremantle Leisure Centre where a hydrogen gas explosion forced the evacuation of approximately 600 people from the premises during the busy summer holiday period. The chlorination plant has been rebuilt and the design fault that caused the explosion has been corrected.

There were two other incidents of note, both of which resulted in fires. One was an illegal backyard 'xylene distillation plant' in a residential area that caught fire after an explosion; the business was not permitted to recommence in the same location. The other involved 1.7 tonnes of magnesium and aluminum powders that ignited after welding activities were performed adjacent to the powders. The Division is still investigating the incident and prosecution is being considered for unsafe storage practices.

As in previous years the major causal group of accidents is human error. To continue to address this, the Division's activities are focused on raising the awareness and education of people in the industry and the community. The partnership with the Fire and Rescue Service (FRS), a key component in raising the awareness in the industry, entered its second year (partnership started 20 May 1996). An extensive training program of the FRS officers was conducted from May to October 1997 by the Division's Storage Branch Inspectors covering the requirements for premises storing dangerous goods. During 1998 FRS officers will conduct dangerous goods inspections and significant problems will be brought to the Division's attention for investigation.

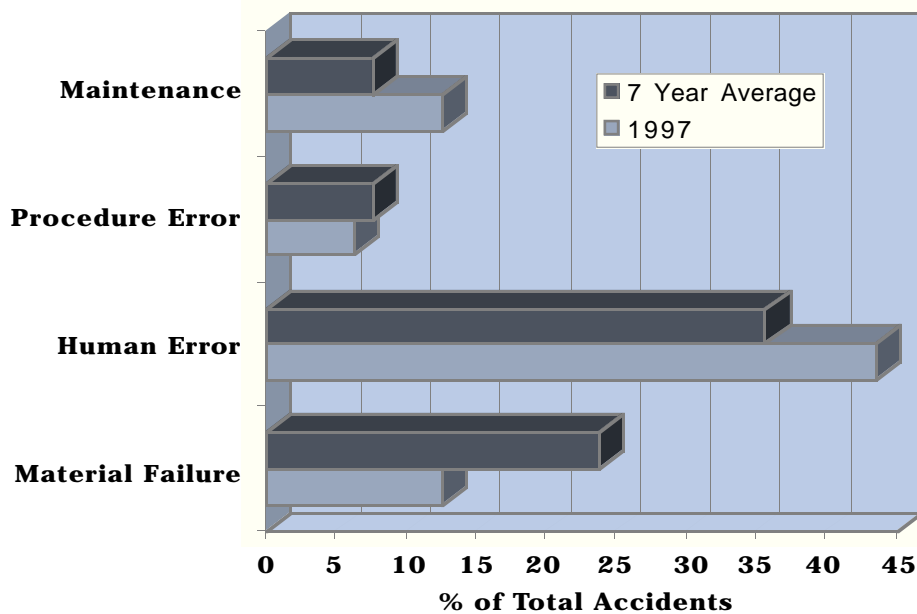
The Division plays a key role in the participation of the Western Australian Hazardous Materials Emergency Management Scheme and ensures all accident data is forwarded to the Division. It is intended that all Western Australia data will become part of a national data system to provide meaningful analysis and the opportunity of benchmark with the view to improve public safety.

Selected Storage Accident Statistics



Number of Accidents per 1000 licensed Premises

The 1997 figure is similar to that recorded for the last 2 years, suggesting a trend of just under 3 accidents per 1000 licensed premises. There are almost 6000 premises licensed to store dangerous goods in Western Australia.



Causes of Storage Accidents - (1997 vs 7 Year Average)

In line with previous years, the major casual group of storage accidents is the failure of people to follow standard operating procedures (reported as human error).

Dangerous Goods Storage Accident Summary Report

	Date	Location	Goods	Class	Comments
W16/97	16/01/97	FREMANTLE	Hydrogen	2.1	A hydrogen gas explosion at a swimming pool complex forced the evacuation of 600 people during the busy summer holiday period.
W5/97	04/02/97	KWINANA	Ammonia, Anhydrous, Liquefied	2.3	The failure of level control and block valves to restrict ammonia flow resulted in ammonia venting to atmosphere following a buildup of pressure in a major storage tank.
W4/97	11/02/97	KWINANA	Phosphoric Acid	8	A truck with a raised tipping body collided with an overhead gantry supporting a phosphoric acid import line and acid leaked through a damaged flange.
W1/97	21/03/97	EAST VICTORIA PARK	LP Gas	2.1	LP Gas fire involving a 450 litre cylinder. Vandalism suspected.
W6/97	24/03/97	KALGOORLIE	Chlorine	2.3	Operator error caused the leakage of chlorine gas at an aquatic centre.
W2/97	03/04/97	WELSHPOOL	Hydrazine Hydrate	8	Spill of hydrazine hydrate took place after a plastics drum was damaged by a faulty drum clamp of a forklift.
W9/97	17/04/97	MENZIES	Diesel Fuel	C1	Daily service tanks were refuelled with diesel fuel contrary to work procedures. This coupled with a ball float valve being out of order caused 16750 litres of diesel fuel to overflow.
W3/97	25/04/97	MUCHEA	Sulfur	4.1	A fire broke out in a sulfur bin. The suspected origin of the fire is the ignition of sulfur and coal dust through discharge of static electricity during dust vacuum cleaning operation. The fire was rapidly brought under control by the operator of the premises.

Dangerous Goods Storage Accident Summary Report

	Date	Location	Goods	Class	Comments
W7/97	12/05/97	CARNARVON	LP Gas	2.1	Vapour was released from a 110 litre LP Gas cylinder due to the cylinder being overfilled.
W8/97	13/06/97	WILLETTON	Xylene	3	An unsupervised backyard "xylene distillation plant" in a residential area caught fire with flames up to 20 metres high.
W11/97	01/09/97	MILLENDON	Magnesium Powder	N/A	Ignition source in close proximity to flammable dangerous goods resulted in those goods catching fire with the subsequent destruction of the building in which they were being stored.
W14/97	02/09/97	FORRESTFIELD	Diesel Fuel	C1	A leaking tank resulted in a minor diesel spill. After the clean-up operation the old tank was decommissioned.
W13/97	07/11/97	DONGARA	Petrol	3	Unauthorised hot work carried out in a hazardous zone resulted in a vapour flare off.
W12/97	13/11/97	KWINANA	Nitric Acid	8	Nitric acid was spilt into a tank bund after an operator failed to close a drain valve before recommissioning the tank after inspection.
W15/97	08/12/97	WELSHPOOL	Ammonia, Anhydrous, Liquefied	2.3	Ammonia stored in a bulk tank leaked from a faulty safety relief valve.
W10/97	18/12/97	NORTH FREMANTLE	Flammable Liquid, N.O.S.	3	A drum containing a flammable liquid was punctured by forklift tines resulting in a minor spill.

Dangerous Goods Storage Accident Report

Date : 16 January 1997 **Time** : 1250 hours

Location : Shuffrey St
FREMANTLE

Dangerous Goods Involved : **HYDROGEN**

Class : 2.1

Sub-Risk : -

UN No. : -

Packaging Group : -

Quantity Present : 2 000 litres

Quantity Involved : 2 000 litres

Incident

A hydrogen gas explosion at a Fremantle swimming pool complex forced the evacuation of approximately 600 people during the busy summer holiday period. One of the employees was badly injured in the explosion, however no other people were injured.

The pools at the complex are chlorinated by the electrolysis of salt water, which produces hydrogen gas as a by-product. During the routine bleeding of air from the filter system a hydrogen/air mixture built up in the pit area of the filter room. An ignition source close to the pit area initiated the explosion.

Cause

The bleed valve for the filter vented into a semi-enclosed pit and the vented gases contained hydrogen. The gas in the pit was within the explosive limits and exploded when ignited.

Consequences

The filter room has been rebuilt. Hydrogen gas generated now collects at the top of the filter tanks and escapes to the atmosphere through two vents located away from ignition sources.

DGAS : W16/97

FILE No. : 7/97

Dangerous Goods Storage Accident Report

Date : 4 February 1997 **Time** : 1320 hours

Location : Rockingham Road
KWINANA

Dangerous Goods Involved : **AMMONIA, ANHYDROUS, LIQUEFIED**

Class : 2.3

Sub-Risk : 8

UN No. : 1005

Packing Group : -

Quantity Present : 14 300 litres

Quantity Involved : 700 litres

Incident

Repairs required to an ammonia rundown line necessitated the shutdown of an ammonia plant. During the shutdown procedure, liquid levels in three process vessels were reduced.

During this level reduction, control valves and block valves failed to adequately restrict the flow of ammonia and high pressure resulted in an ammonia storage tank.

Ammonia gas was released into the atmosphere through the pressure relief valve for a period of approximately fifteen minutes, relieving the excess pressure in the storage tank.

Cause

Investigation into the release indicated that the failure of level control valves and block valves to properly seal caused the pressure build-up in the tank and subsequent release of ammonia.

Consequences

There were no injuries as a result of this release. Remedial action resulted in the faulty valves being replaced and the procedure for plant shut-down being reviewed.

DGAS : W5/97

FILE No. : 58/97

Dangerous Goods Storage Accident Report

Date : 11 February 1997 **Time** : 2200 hours
Location : Rockingham Road
KWINANA
Dangerous Goods Involved : **PHOSPHORIC ACID**
Class : 8
Sub-Risk : -
UN No. : 1805
Packing Group : III
Quantity Present : 5 000 kg
Quantity Involved : 5 000 kg

Incident

A spill of phosphoric acid occurred when a vehicle, leaving a washdown bay, struck a support gantry for a phosphoric acid import pipeline.

The incident occurred when a vehicle was driven with the tipping hoist of the vehicle still raised, resulting in the tipper body colliding with the gantry. The impact with the gantry was sufficient to deform the pipe and cause acid to leak from a flange. The head of acid remaining in the pipe allowed phosphoric acid to spray onto the road and run under ground level pipe racks.

Alumina and pulverised limestone was used to absorb and neutralise the acid and the acid was then recovered and stored for subsequent use.

Cause

Investigations into the incident identified that the hoist alarm on the vehicle was damaged and did not warn the driver that the tipper body was still raised.

Consequences

Remedial action resulted in the import pipeline being sunk below ground level in a culvert under the roadway. Also, drivers will now have job and area specific inductions, and trucks will be required to have 'tipper body raised' alarms before being allowed on site.

DGAS : W4/97

FILE No. : 59/97

Dangerous Goods Storage Accident Report

Date : 21 March 1997 **Time:** 0700 hours

Location : Albany Highway
EAST VICTORIA PARK

Dangerous Goods Involved : **LP GAS**

Class : 2.1

Sub-Risk : -

UN No. : 1075

Packing Group : -

Quantity Present : 450 litres

Quantity Involved : 450 litres

Incident

A retail outlet operator arrived at his shop one morning to find that the 450 litre LP Gas decanting cylinder was on fire.

The Police and Fire Brigade attended and extinguished the fire. All the LP Gas in the cylinder was consumed in the fire.

Examination of the cylinder revealed that the main LP Gas vapour outlet valve had been tampered with. It was found to be open approximately one turn. No one was injured in the fire.

Cause

It was concluded that vandals deliberately opened the valve.

Consequences

As the incident appeared to be a deliberate isolated act of vandalism, no remedial action was taken.

DGAS : W1/97

FILE No. : 36/97

Dangerous Goods Storage Accident Report

Date : 24 March 1997 **Time** : 1800 hours
Location : McDonald Street
 KALGOORLIE
Dangerous Goods Involved : **CHLORINE**
 Class : 2.3
 Sub-Risk : 5.1
 UN No. : 1017
 Packing Group : -
 Quantity Present : 150 litres
 Quantity Involved : 50 litres

Incident

An Employee of the local aquatic centre was affected by chlorine gas when he was changing over some cylinders in the chlorine shed.

The operator had just completed changing 2 of the 3 cylinders inside the chlorine shed when the whistle of his Breathing Apparatus (BA) unit sounded. This meant that he only had 3-5 minutes left of air. He exited the room and told an assistant that he needed more air for the BA but then decided to go back into the shed without the BA to finish changing the 3rd cylinder. He was unaware that he had left one of the valves of the 2 previous cylinders open and was affected by a rush of chlorine gas to his face. He started coughing and ran out of the room.

He ran up to the office to get a spare BA but realised that the unit (and spares) was also close to empty. Realising that one of the cylinders may still be leaking, he decided to return to the chlorination room to shut off the leak.

He put on a mask, held his breath and went inside to shut off the cylinder which was left open.

Although the cylinder installation was equipped with a leak detector and a shut-off system for the cylinders neither the alarm nor shut-off system was activated.

Cause

Operator error in the changeover procedure was found to be the primary cause of the incident

Consequences

The operating environment of the leak detector/shut-off unit is being evaluated to assess if improvements could be made.

Emergency and operating procedures are being reviewed to ensure that similar incidents do not recur.

DGAS : W6/97

FILE No. : 65/97

Dangerous Goods Storage Accident Report

Date : 3 April 1997 **Time** : 0930 hours

Location : Sheffield Road
WELSHPOOL

Dangerous Goods Involved **HYDRAZINE HYDRATE**

Class : 8
Sub-Risk : 6.1
UN No. : 2030
Packing Group : II
Quantity Present : 16 000 litres
Quantity Involved : 150 litres

Incident

A 200 litre plastic drum was damaged whilst a freight container was being unloaded at a warehouse facility.

A storeman at the site was unloading the container using a forklift fitted with a drum clamp. As the storeman was moving into the container to remove a drum, a spring on the drum clamp broke and punctured the plastic drum.

Given the nature of the product, staff and tenants in the vicinity were moved upwind in accordance with the MSDS.

The spillage was contained and the damaged container was placed in an overdrum for recovery and disposal.

Cause

The drum clamp spring failure was found to be the main cause of the incident.

Consequences

The operator of the site has placed these drum clamps on a regular inspection and maintenance program.

DGAS : W2/97

FILE No. : 38/97

Dangerous Goods Storage Accident Report

Date : 25 April 1997 **Time** : 1325 hours

Location : Brand Highway
MUCHEA

Dangerous Goods Involved : **SULFUR**

Class : 4.1

Sub-Risk : -

UN No. : 1350

Packing Group : III

Quantity Present : 20 000 kg

Quantity Involved : 20 000 kg

Incident

Sulfur dust ignited during vacuum cleaning operations at a Synthetic Rutile plant. The fire spread to a nearby sulfur storage bin and the situation was brought under control by the site Emergency Response team. Outside emergency services attended the site in a monitoring role only. Liquids resulting from fire suppression were contained within sand bunds. No personal injury was sustained.

Cause

The presence of combustible dust (coal and sulfur) in the atmosphere due to spillage is inherent to the process and difficult to suppress. Static electricity build-up in the hoses used to vacuum the plant is suspected to be the triggering cause of the fire, however smoking was also suspected. The emergency was compounded by a lack of fire fighting equipment in the vicinity.

Consequences

Anti-static hoses for vacuum cleaning work have been purchased. Fire fighting equipment and non-smoking signs have been installed, and the non-smoking area has been extended. The manufacturing process and equipment are being reviewed by the operator to minimise the risk of a recurrence. Corrective action taken by the operator is considered satisfactory by the Division. Consideration is being given to include this site in the list of the premises targeted for inspection by the Division in 1997-1998.

DGAS : W3/97

FILE No. : 44/97

Dangerous Goods Storage Accident Report

Date : 12 May 1997 **Time** : 1350 hours
Location : Maslen Street
CARNARVON
Dangerous Goods Involved : **LP GAS**
Class : 2.1
Sub-Risk : -
UN No. : 1075
Packing Group : -
Quantity Present : 110 litres
Quantity Involved : 1 litre

Incident

A vapour release was detected on a 110 litre LP Gas cylinder located at a residence. A resident attempted to tighten the pigtail connection to stop the release and the jolt of the spanner caused the relief valve to open and discharge approximately 1 litre of LP gas. The resident suffered cold burns on his chest due to the sudden release of LP gas.

Cause

The relief valve conformed to manufacturer's specifications and therefore would have been activated if the cylinder was under excessive pressure or subjected to excessive temperature. As there was no record of any drastic increase in temperature that day it was determined that the cause was due to excessive pressure caused by overfilling the cylinder leaving insufficient ullage space.

Consequences

The Gas supplier counselled their operator on the dangers of overfilling LP Gas containers.

DGAS : W7/97

FILE No. : 77/97

Dangerous Goods Storage Accident Report

Date : 13 June 1997 **Time** : 1050 hours

Location : Chancery Street
WILLETTON

Dangerous Goods Involved : **XYLENE**

Class : 3

Sub-Risk : -

UN No. : 1307

Packing Group : II

Quantity Present : 565 litres

Quantity Involved : 565 litres

Incident

Recycling of waste xylene in a small galvanised iron shed was being carried out in a residential area. The process involved distilling xylene contaminated with alcohol and water by heating it in 15 litre glass flasks on electric mantles. The boiling vapours passed through a cooling tube which separated the water and the alcohol leaving clarified xylene in the flask. This whole process normally took 3 hours. In this instance the operator started the process and an hour and a half later there was a loud explosion and the shed caught on fire. The emergency services attended and extinguished the fire. There were no injuries to people. Property damage included charred xylene containers, burnt out electric mantles, a cracked bedroom window, trees singed to about 20 metres in height and a melted compost bin.

Cause

The process needed to be monitored to ascertain that the distilling flasks did not run dry while the heating elements were on. In this case the operator left the process unattended for a considerable length of time and though the exact cause was not determined, better working practices and compliance with the Dangerous Goods Regulations could have prevented the incident.

Consequences

The business was closed down and not permitted to restart in the same location.

DGAS : W8/97

FILE No. : 78/97

Dangerous Goods Storage Accident Report

Date : 1 September 1997 **Time** : 1528 hours

Location : Hardwick Road
MILLENDON

Dangerous Goods Involved : **MAGNESIUM POWDER**

Class : Undetermined

Sub-Risk : Undetermined

UN No. : Undetermined

Packing Group : Undetermined

Quantity Present : 1000 kg

Quantity Involved : 1000 kg

ALUMINIUM POWDER

Class : Undetermined

Sub-Risk : Undetermined

UN No. : Undetermined

Packing Group : Undetermined

Quantity Present : 700 kg

Quantity Involved : 700 kg

Incident

Approximately 1.7 tonnes (aggregate) of magnesium and aluminium powders were being stored in cardboard boxes inside a workshop on a large residential block.

After performing welding or grinding inside the workshop the owner noticed one of the boxes smouldering and when he tried to remove it from the building it violently burst into flames.

This resulted in him receiving minor injuries and in an escalation of the fire to all the boxes containing metal powders and to gas cylinders, paints, oils etc. The fire was brought under control by the FRS however the shed and most of its contents were destroyed.

Cause

Welding or grinding by the owner inside the workshop appears to have caused one of the boxes of metal powders to start smouldering and then to catch alight.

Consequences

Prosecution is being considered. Follow-up still continuing.

DGAS : W11/97

FILE No. : 126/97

Dangerous Goods Storage Accident Report

Date : 2 September 1997 **Time** : 1830 hours

Location : Lewis Rd
FORRESTFIELD

Dangerous Goods Involved : **DIESEL FUEL**

Class : C1

Sub-Risk : -

UN No. : -

Packing Group : -

Quantity Present : 2 700 litres

Quantity Involved : 200 litres

Incident

Approximately 200 litres of diesel fuel leaked from an old elevated diesel fuel tank.

Emergency personnel attended and sealed the leaking tank. A temporary bund was constructed and diesel fuel was pumped into a road tanker.

Cause

Corrosion at the bottom of the tank was significant enough to form a hole.

Consequences

The tank has been removed from the premises and the boiler, previously fuelled by diesel fuel, is now fuelled by natural gas.

Dangerous Goods Storage Accident Report

Date : 7 November 1997 **Time** : 1120 hours

Location : Brady Street
DONGARA

Dangerous Goods Involved : **PETROL**

Class : 3

Sub-Risk : -

UN No. : 1203

Packing Group : II

Quantity Present : Vapour Only

Quantity Involved : Vapour Only

Incident

Petrol vapour inside a disused underground petroleum tank ignited when a worker attempted to cut a hole in the tank shell using an electric angle grinder. Two workers sustained minor burns and abrasions.

Cause

Introduction of an ignition source into a hazardous zone as a result of inadequate training and failure to follow work procedures.

Consequences

The organisation responsible for the site will review its operating procedures in order to ensure that training and job allocation processes are adequate. Also, job instructions will be reviewed particularly for un-supervised works. The Division is considering prosecution.

DGAS : W13/97

FILE No. : 179/97

Dangerous Goods Storage Accident Report

Date : 13 November 1997 **Time** : 1600 hours

Location : Kwinana Beach Road
KWINANA

Dangerous Goods Involved : **NITRIC ACID**

Class : 8

Sub-Risk : -

UN No. : 2031

Packing Group : II

Quantity Present : 40 000 litres

Quantity Involved : 40 000 litres

Incident

A release of nitric acid occurred during regular maintenance of a nitric acid tank at a chemical plant. An inspection of the nitric acid tank had just been completed and product was being transferred back into the tank from another nitric acid tank when fumes were noticed by a project engineer. The project engineer immediately alerted the plant operators who stopped the transfer. 40000 litres of nitric acid escaped from the drain valve before the flow could be stemmed, all of which was contained within the tank bund. The drain valve was closed and the spilled nitric acid was diluted before being neutralised with lime sand. The neutralised product was then transferred to another section of the plant for re-use.

Cause

The release of nitric acid occurred when an operator failed to close a drain valve of a nitric acid tank before recommissioning the tank after inspection.

Consequences

The procedures for tank inspection have now been upgraded to ensure that this drain valve is checked prior to the commencement of product transfer. Operators have also been trained in these procedures.

DGAS : W12/97

FILE No. : 15/98

Dangerous Goods Storage Accident Report

Date : 8 December 1997 **Time** : 1930 hours

Location : Division Street
WELSHPOOL

Dangerous Goods Involved : **AMMONIA, ANHYDROUS, LIQUEFIED**

Class : 2.3

Sub-Risk : 8

UN No. : 1005

Packing Group : -

Quantity Present : 1 400 litres

Quantity Involved : 140 litres

Incident

A 1400 litre ammonia tank was returned to a chemical formulator's premises after being refilled in Kwinana. Later that evening, neighbours notified the licensee that ammonia was leaking from the tank.

FRS personnel and one of the licensee's chemists attended. A leaking safety relief valve was adjusted and the leak was reduced. The contents of the ammonia anhydrous liquefied tank were transferred to an aqueous ammonia tank.

Cause

The ammonia leak emanated from a faulty safety relief valve.

Consequences

The nylon seat of the safety relief valve has been replaced with a teflon seat. The percentage fill of the tank is now checked after each refill.

DGAS : W15/97

FILE No. : 9/98

Dangerous Goods Storage Accident Report

Date : 18 December 1997 **Time** : 1545 hours

Location : Rudderham Drive
NORTH FREMANTLE

Dangerous Goods Involved : **FLAMMABLE LIQUID, N.O.S.**

Class : 3

Sub-Risk : -

UN No. : 1993

Packing Group : II

Quantity Present : 200 litres

Quantity Involved : 20 litres

Incident

A forklift driver was unloading the contents of a shipping container containing 'oilfield equipment' when a 200 litre drum containing a liquid substance was punctured. The shipping manifest did not indicate the presence of dangerous goods inside the container. The driver only suspected that dangerous goods was involved when he saw a warning label on the drum.

Initially, it was thought that a poisonous substance was involved. However, it was confirmed the following day during the cleanup that a flammable liquid was involved.

Nevertheless, the spill was contained and covered with sand and the damaged container transferred to an overdrum.

Cause

Operator error caused the spillage of dangerous goods, when the forklift tines punctured a 200 litre drum.

Consequences

The unloading contractor has developed safety procedures that will be followed if they suspect a problem with the contents of any shipping container. Additional spillage response equipment has been purchased and all clients have been advised of their requirement to detail all dangerous goods in the container's manifest.

Dangerous Goods Transport Accidents

Introduction

Nineteen transport incidents were reported to the Division during 1997, four during rail transport and fifteen on road. This is less than last year and slightly below the ten year average of approximately twenty. Five road incidents involved packaged dangerous goods and ten road incidents involved transport of bulk dangerous goods.

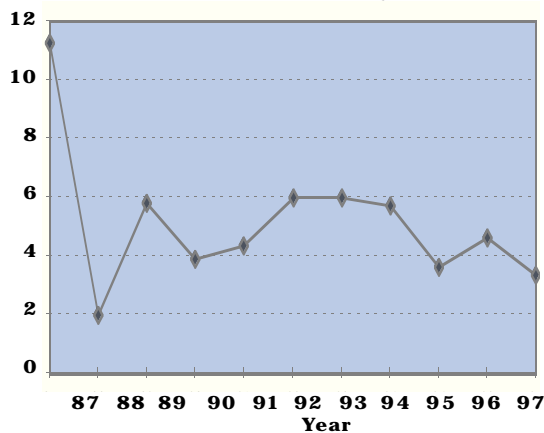
Eight of the fifteen road incidents were single vehicle road crashes. No serious injuries resulted from these incidents and from this point of view it has been a good year.

In five out of the eight single vehicle road crashes a combination of driver fatigue/inattention and inappropriate speed was the major cause. The root cause of these "driver-unsafe-acts" lie in the work environment that industry and management create.

The implementation of a Safety Management System would allow management to take a direct role in improving the safety of the work environment of drivers. This Division is very supportive of transport companies who implement safety management systems and is particularly encouraged by the Plastics and Chemical Industries Association's initiative of accrediting transporters of dangerous goods to improve safety standards.

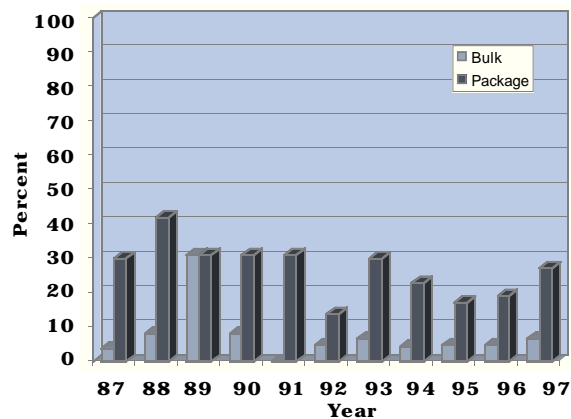
Selected Road Transport Accident Statistics

Number of Accidents per 1000 licensed Vehicles (Bulk Only)



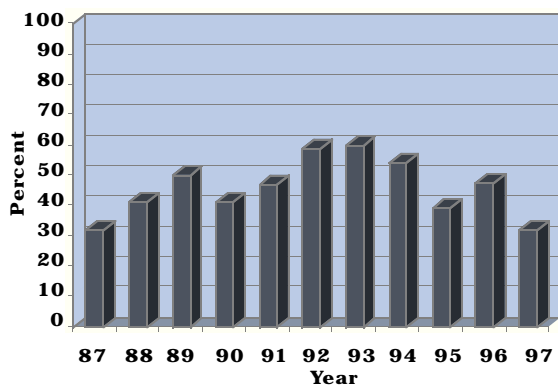
The 1997 value is slightly lower than in 1996 due to a lower number of bulk vehicle incidents. In the last 9 years, the accident rate has been between 3 and 6.

Non Complying Vehicles in Accidents (Bulk/Package)



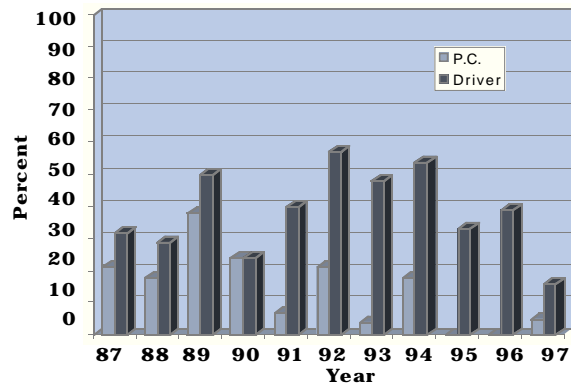
The 1997 value is similar to previous years. While bulk vehicles have very good compliance with the ADG Code, there is room for improvement for packaged vehicles; substandard stowage is the main problem.

Percentage of Accidents Caused By Operator Deviation From Standard Procedures



The above figure includes only deviation from dangerous goods legislation: it does not include deviation from other road safety legislation or company rules. Not following standard procedure was still a major problem in 1997 and no significant improvement can be seen over the last ten years.

Driver and Prime Contractor Contribution to Operator Deviation Caused Accidents



In 1997, the driver value is substantially lower than in the previous 6 years. As was predicted in the 1996 Report, the introduction of compulsory refresher driving course in January 1997 did improve the situation.

Dangerous Goods Transport Accident Summary Report

	Date	Location	Goods	Class	Comments
W1/97	24/01/97	FORRESTFIELD	Sulfuric Acid	8	A combination of hot weather and high internal air pressure within a sulfuric acid rail tanker apparently forced acid up through the loading pipe. The unsecured camlocks allowed sulfuric acid to spill onto the ground.
W2/97	02/02/97	FORRESTFIELD	Sulfuric Acid	8	Open valves on two rail tankers loaded with sulfuric acid resulted in leakage, which was detected during a stopover. Both containers were repaired and the spilled acid was neutralised with lime and water.
W10/97	16/02/97	FORRESTFIELD	Sulfuric Acid	8	A bulk container on a rail wagon leaked sulfuric acid while at the Forrestfield marshalling yard. The spill was neutralised with lime and water.
W3/97	17/02/97	BULLA BULLING	Sodium Hydroxide	8	A B-double vehicle carrying six tanks loaded with sodium hydroxide veered off the road causing the two trailers to rollover. Two full tanks were ruptured causing the product to spill.
W4/97	03/03/97	CARNARVON	Ammonium Nitrate	5.1	A road train transporting ammonium nitrate overturned spilling its load. The prime mover was destroyed by fire.
W7/97	01/04/97	BURRACOPPIN	Flammable Liquid, N.O.S.	3	As a result of misjudgement by the driver, a semi trailer ran off the road and overturned, spilling its load of flammable liquids and forcing the closure of the highway.
W9/97	24/04/97	NANUTARRA	Motor Spirit	3	The driver of a triple road train allegedly veered to avoid hitting a kangaroo, causing the two rear trailers to leave the road and overturn spilling 47000 litres of fuel.
W6/97	29/04/97	BINDOON	Pesticides, Liquid, Toxic Flammable, N.O.S.	6.1	As a truck came around a bend in the road, the load moved, causing the restraining gates to come off, and the load to spill onto the road.
W8/97	01/05/97	CUE	Ammonium Nitrate	5.1	The third trailer of a triple road train left the road, spilling the load and contaminating the product.
W11/97	27/05/97	CONDINGUP	Bipyridilium Pesticide, Liquid, Toxic, N.O.S.	6.1	Pesticide was being transported on a trailer towed by a motor car. The trailer lost its wheels causing the load to become dislodged and spill onto the road.

Dangerous Goods Transport Accident Summary Report

	Date	Location	Goods	Class	Comments
W12/97	23/06/97	COLLIE	Sulfuric Acid	8	Approximately 6100 litres of sulfuric acid siphoned from a bulk storage tank into the containment bund via a fill line drain valve which was inadvertently left open.
W13/97	02/07/97	CLACKLINE	Motor Spirit	3	A single axle trailer with a demountable 8000 litre tank and four loaded pallets, separated from its towing vehicle and left the road. The trailer rolled over and 4000 litres of fuel spilt from the tank.
W5/97	24/07/97	MEEKATHARRA	Sulfuric Acid	8	The rear trailer of a triple road train transporting sulfuric acid rolled over causing an ISO tank to separate from the trailer. There was no spillage.
W16/97	04/08/97	BALGA	Corrosive Liquid, 8 Toxic, N.O.S.	8	A plastics drum containing corrosive liquid was punctured on impact with the road surface when it was dislodged in transit. Approximately 3 litres spilled.
W14/97	08/08/97	MADDINGTON	Ethyl Mercaptan	3	A small crack in the base of a 60 litre steel drum caused a slow leak of ethyl mercaptan during interstate transport.
W15/97	21/08/97	BUNBURY	Sulfuric Acid	8	10 litres of sulfuric acid spilled onto Picton Road, Picton. A loose fitting on the 30 tonne tanker allowed the acid to escape into the tanker coaming through an overflow pipe and onto the road.
W19/97	16/10/97	ROCKINGHAM	Hydrochloric Acid	8	A tanker trailer containing hydrochloric acid was left parked facing downhill. Due to the slope the product contacted a rollover valve which leaked 10 litres of product onto the ground. The fumes from the spilt acid overcame a security guard on the site. The spill was cleaned up by the prime contractor.
W18/97	07/11/97	KALGOORLIE	Potassium Amyl xanthate	4.2	Fire destroyed a semi trailer and its load of Potassium Amyl Xanthate. The triple road train was being driven north from Kalgoorlie.
W20/97	27/12/97	MERREDIN	Cyanide Solutions	6.1	A rail wagon having two demountable tanks of sodium cyanide solution was derailed over points at the railway yard. A rollover occurred but there was no spillage.

Dangerous Goods Transport Accident Report

Date : 24 January 1997 **Time** : 1530 hours
Location : Westrail Marshalling Yards
FORRESTFIELD
Dangerous Goods Involved : **SULFURIC ACID**
Class : 8
Sub-Risk : -
UN No. : 1830
Packing Group : II
Quantity Present : 29 600 litres
Quantity Spilled : 50 litres

Incident

A sulfuric acid bulk container loaded on a rail wagon was travelling from West Kalgoorlie to Kwinana. During a stopover at Forrestfield, acid from the container was found to be leaking onto the ground.

Cause

The camlocks for the loading valve of the tanker had not been properly secured after acid loading. A combination of hot weather and high internal air pressure within the container apparently forced acid up through the loading pipe. The unsecured camlocks allowed the acid to spill into the coaming area, down the overflow pipe, onto the rail wagon and then the ground.

Consequences

The consignor's specialist emergency team attended this incident, rectified the problem with the tanker and cleaned up the spill. The rail wagon was decontaminated before receiving the next cargo and the contaminated ground was neutralised with lime.

The consignor will review loading procedures in order to prevent further spills.

Dangerous Goods Transport Accident Report

Date : 2 February 1997 **Time** : 1200 hours

Location : Westrail Marshalling Yards
FORRESTFIELD

Dangerous Goods Involved : **SULFURIC ACID**

Class : 8

Sub-Risk : -

UN No. : 1830

Packing Group : II

Quantity Present : 29 600 litres

Quantity Spilled : UNDETERMINED

Incident

Two sulfuric acid bulk containers loaded on rail wagons were travelling from Kalgoorlie to Forrestfield. During a stopover at Forrestfield, acid from the containers was found to be leaking onto the ground.

Cause

Inspection revealed that:

- 1) the camlocks, on the filling pipe cap, of the first container were found to be in the unlocked position; and
- 2) on the second container the cock valve on the drain hose from the valve box was in open position.

Consequences

The consignor's specialist emergency team attended this incident, repaired the containers and neutralised the acid spilled with calcium hydroxide solution.

In order to prevent further spills the consignor will replace container valves and review loading procedures currently in place.

DGAT : W2/97

FILE No. : 19/97

Dangerous Goods Transport Accident Report

Date : 16 February 1997 **Time** : 1020 hours
Location : Westrail Marshalling Yards
FORRESTFIELD
Dangerous Goods Involved : **SULFURIC ACID**
Class : 8
Sub-Risk : -
UN No. : 1830
Packing Group : II
Quantity Present : 29 600 litres
Quantity Spilled : UNDETERMINED

Incident

During a stopover at Forrestfield, a bulk container loaded on a rail wagon was found to be leaking sulfuric acid onto the ground at the marshalling yard.

Cause

Container was found to be leaking from a joint in the overflow vent pipe.

Consequences

A private emergency cleanup contractor attended immediately to repair the container and neutralise the spilt acid with lime and water. The consignor attended the incident to ensure the leak was contained, the spill neutralised and the site was satisfactorily cleaned up.

DGAT : W10/97

FILE No. : 29/97

Dangerous Goods Transport Accident Report

Date : 17 February 1997 **Time** : 2025 hours

Location : Great Eastern Highway
BULLA BULLING

Dangerous Goods Involved : **SODIUM HYDROXIDE**

Class : 8

Sub-Risk : -

UN No. : 1824

Packing Group : III

Quantity Present : 24 183 litres

Quantity Spilled : 9 150 litres

Incident

While travelling on a straight section of road at 100kmh, the driver of a B-double truck carrying sodium hydroxide in six plastic-lined corrosive tanks veered off to the right hand side of the road. When the vehicle hit the drain the trailers separated from the prime mover and the trailers rolled onto the left side. The impact of the trailers hitting the ground ruptured two of the four full tanks. The driver was not seriously injured.

Cause

It would appear that driver inattention was the most likely cause of the accident.

Consequences

The consignor's emergency team attended to arrange recovery and cleanup including removal of contaminated soil.

Dangerous Goods Transport Accident Report

Date : 3 March 1997 **Time** : 0030 hours

Location : North West Coastal Highway
CARNARVON

Dangerous Goods Involved : **AMMONIUM NITRATE**

Class : 5.1

Sub-Risk : -

UN No. : 1942

Packing Group : III

Quantity Present : 52 000 kg

Quantity Spilled : 52 000 kg

Incident

A double road train was separated from the prime mover at the turntable with both trailers losing their load and suffering extensive damage. The prime mover came to rest approximately 50 metres from the trailers and was completely gutted by fire.

Cause

The left front steer tyre on the prime mover of a double road train of tippers lost its tread. The loose tread ripped out the wiring harness to the headlights and driving lights leaving the driver in total darkness. Despite the driver's effort to keep the vehicle on the road while braking, the vehicle left the road skidding on the gravel verge.

Consequences

Representatives of the prime contractor coordinated the cleanup and the removal of damaged vehicles.

DGAT : W4/97

FILE No. : 24/97

Dangerous Goods Transport Accident Report

Date : 1 April 1997 **Time** : 0600 hours

Location : Great Eastern Highway
BURRACOPPIN

Dangerous Goods Involved : **FLAMMABLE LIQUID, N.O.S**

Class : 3

Sub-Risk : -

UN No. : 1993

Packing Group : III

Quantity Present : 30 litres

Quantity Spilled : 0 litres

Incident

A semi trailer (tautliner) travelling west along the Great Eastern Highway ran off the road and overturned. The cargo of mixed chemicals was damaged and some non-dangerous goods leaked from the drums.

Cause

Driver misjudgement while negotiating a sweeping right hand bend caused the vehicle to run off the road.

Consequences

The manifest indicated that only 30 litres of dangerous goods were on the vehicle and these were identified to be undamaged. Concern was directed to the rest of the consignment of chemicals which were for use in foam generation. These materials had recently been afforded exemption from classification as dangerous goods but were not without hazard. Fire and Rescue volunteers wore protective clothing during the cleanup.

The highway remained closed for 24 hours until the accident scene was rendered safe.

Dangerous Goods Transport Accident Report

Date : 24 April 1997 **Time** : 0500 hours

Location : North West Coastal Highway
NANUTARRA

Dangerous Goods Involved : **MOTOR SPIRIT**

Class : 3
Sub-Risk : -
UN No. : 1203
Packing Group : II
Quantity Present : 43 810 litres
Quantity Spilled : 8 000 litres

AVIATION TURBINE FUEL

Class : 3
Sub-Risk : -
UN No. : 1863
Packing Group : III
Quantity Present : 36 700 litres
Quantity Spilled : 36 700 litres

DIESEL FUEL

Class : C1
Sub-Risk : -
UN No. : -
Packing Group : -
Quantity Present : 23 450 litres
Quantity Spilled : 2 000 litres

Incident

A triple road train was travelling up a slight incline on a road section leading into a right hand bend. It is alleged that a kangaroo was encountered in the middle of the road and the driver veered to the left, causing the back wheels of the rear trailer to move off the bitumen road surface and onto the gravel shoulder. At this point the road shoulder narrows into a culvert. The rear trailer dropped into the culvert causing it to roll over and pull the second trailer onto its side. The first trailer and prime mover remained on the bitumen section of the road.

Cause

The incident has been attributed to driver inattention.

Consequences

The third trailer landed upside down and lost its entire load of 36700 litres. The second trailer lost approximately 8000 litres of product. The spill was successfully cleaned up by emergency services. There was no fire or serious injuries.

DGAT : W9/97

FILE No. : 52/97

Dangerous Goods Transport Accident Report

Date : 29 April 1997 **Time** : 1927 hours

Location : Great Northern Highway
BINDOON

Dangerous Goods Involved : **PESTICIDES, LIQUID, TOXIC, FLAMMABLE, N.O.S**

Class	:	6.1
Sub-Risk	:	3
UN No.	:	2903
Packing Group	:	III
Quantity Present	:	160 litres
Quantity Spilled	:	160 litres

ORGANOPHOSPHORUS PESTICIDES, LIQUID, TOXIC, N.O.S

Class	:	6.1
Sub-Risk	:	-
UN No.	:	3018
Packing Group	:	III
Quantity Present	:	440 litres
Quantity Spilled	:	440 litres

BIPYRIDILIUM PESTICIDES, LIQUID, TOXIC, N.O.S

Class	:	6.1
Sub-Risk	:	-
UN No.	:	3016
Packing Group	:	III
Quantity Present	:	5 100 litres
Quantity Spilled	:	5 100 litres

Incident

While driving around a bend in the road, the driver of a dangerous goods package vehicle (semi trailer) noticed sparks from the restraining gates of the trailer which had come loose and were dragging on the road. The driver braked and pulled over to the left of the road and noticed that the gates had come off the front section of the trailer and several pallets of dangerous goods had fallen off the vehicle together with drums of engine oil.

Cause

When the vehicle rounded a bend in the road the load moved and the ropes around the restraining gates snapped causing the gates at the front of the trailer to come off and the drums to fall onto the road and spill.

Consequences

The Emergency Services attended and the spillage was cleaned up. Prosecution action is proceeding against the consignor/owner.

DGAT : W6/97

FILE No. : 43/97

Dangerous Goods Transport Accident Report

Date : 1 May 1997 **Time** : 2230 hours
Location : Great Northern Highway
CUE
Dangerous Goods Involved : **AMMONIUM NITRATE**
Class : 5.1
Sub-Risk : -
UN No. : 1942
Packing Group : III
Quantity Present : 84 000 kg
Quantity Spilled : 28 000 kg

Incident

The third trailer of a triple road train left the road 13km south of Cue on the Great Northern Highway while en route to Newman. The trailer rolled down the roadside embankment and the rear tipper trailer overturned.

Cause

The cause of the incident has been attributed to driver inattention.

Consequences

28000 kg of product was spilt and was cleaned up by emergency services, Main Roads, and Shire Staff under the direction of company representatives.

DGAT : W8/97

FILE No. : 47/97

Dangerous Goods Transport Accident Report

Date : 27 May 1997 **Time** : 1015 hours

Location : Fisheries Road
CONDINGUP

Dangerous Goods Involved : **BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC, N.O.S.**

Class : 6.1

Sub-Risk : -

UN No. : 3016

Packing Group : III

Quantity Present : 1280 litres

Quantity Spilled : 160 litres

Incident

Bipyridilium pesticide was being transported on a trailer towed by a motor car. Approximately 50km east of Esperance a wheel separated from the trailer, causing the driver to lose control and swerve across the roadway. At this time part of the load was dislodged from the trailer and spilt onto the road. The driver managed to control the vehicle and when he stopped, noticed that the trailer's other wheel had also detached itself.

Cause

The cause of the incident was failed wheel bearings on the trailer.

Consequences

Approximately 160 litres of product was lost in the incident, and was cleaned up by emergency services. Staff of the company have now been familiarised with the requirements of the Australian Code for the Transport of Dangerous Goods by Road and Rail.

DGAT : W11/97

FILE No. : 63/97

Dangerous Goods Transport Accident Report

Date : 23 June 1997 **Time:** 0900 hours
Location : Powerhouse Road
COLLIE
Dangerous Goods Involved : **SULFURIC ACID**
Class : 8
Sub-Risk : -
UN No. : 1830
Packing Group : II
Quantity Present : 10 000 litres
Quantity Spilled : 6 100 litres

Incident

On the morning of 23 June 1997, a delivery of 5000 litres of 98% sulfuric acid was made to the bottom ash dam water treatment plant at a power station. The unloading operation was performed by the a prime contractor's truck driver. No observer from the consignee or the plant operation contractors was present. Approximately three hours after completion of unloading, the plant operator noted an acid spillage in the storage containment bund, and the tank fill line drain valve was open.

Cause

Neither the driver nor the plant operator normally handles the drain valve during the transfer operation, however neither party physically checked that the valve was closed before commencement or on completion of transfer.

Consequences

The acid spillage was estimated to be in the order of 6100 litres and was cleaned up in a joint operation involving the prime contractor and consignee. The storage tank system has since been modified to prevent siphoning and new procedures have been instituted for transfer operations.

DGAT : W12/97

FILE No. : 81/97

Dangerous Goods Transport Accident Report

Date : 2 July 1997 **Time** : 2030 hours

Location : Great Eastern Highway
CLACKLINE

Dangerous Goods Involved : **MOTOR SPIRIT**

Class : 3

Sub-Risk : -

UN No. : 1203

Packing Group : II

Quantity Present : 8 000 litres

Quantity Spilled : 4 000 litres

Incident

A driver was operating a rigid tanker towing a single axle trailer with a demountable tank at approximately 2030hrs on 2 July 1997. The vehicle was travelling east on Great Eastern Highway just north of the township of Clackline, when the driver noticed sparks in his rear vision mirror. The single axle trailer separated from the towing vehicle, crossed the road, descended an embankment and collided with a large tree. The force of the impact caused the demountable tank to be torn from the trailer and come to rest upside down at the bottom of the embankment. One of the 4000 litre compartments was ruptured and five drums of oil and degreasing fluid were also spilt. The driver was shaken but unhurt. He alerted the emergency services and his company.

Cause

The incident was caused by failure of the trailer hitch to securely hold and retain the towing eye of the trailer. It is believed that the safety devices inherent in the design failed to operate due to lack of proper maintenance.

Consequences

The company involved has replaced all towing hitches of a similar design as a precautionary measure.

Dangerous Goods Transport Accident Report

Date : 24 July 1997 **Time** : 1030 hours

Location : Wiluna-Meekatharra Road
MEEKATHARRA

Dangerous Goods Involved : **SULFURIC ACID**

Class : 8

Sub-Risk : -

UN No. : 1830

Packing Group : II

Quantity Present : 13 800 litres

Quantity Spilled : 0 litres

Incident

A triple road train transporting mining equipment and an ISO tank of sulfuric acid was travelling in a westerly direction on the Wiluna-Meekatharra Road. The road surface was a graded gravel road, and the weather conditions were light rain and overcast. The driver was exiting a bitumised section at a creek crossing/floodway when the rear trailer rolled over, dislodging the ISO tank. There was no loss of sulfuric acid nor injury to the driver. Vehicle speed at the time of the incident was approximately 60kmh.

Cause

The incident was caused by the driver looking in his left hand rear vision mirror and not paying sufficient attention to the position of the vehicles in relation to the road edge. The vehicles were travelling on the wrong side of the road, and when the driver attempted to correct the alignment of the vehicles relative to the road edge, the rear trailer of the road train jack-knifed and rolled over causing the ISO tank to separate from its trailer.

Consequences

The company has reviewed the use of flat top trailers for the transport of ISO tanks, and in future will utilise drop deck trailers to provide better stability. The incident has been brought to the notice of all company drivers and is central to renewed driver education.

DGAT : W5/97

FILE No. : 128/97

Dangerous Goods Transport Accident Report

Date : 4 August 1997 **Time** : 0900 hours

Location : Cnr of Princess Road and Wilmington Road
BALGA

Dangerous Goods Involved : **CORROSIVE LIQUID, TOXIC, N.O.S.**

Class : 8

Sub-Risk : 6.1

UN No. : 2922

Packing Group : II

Quantity Present : 20 litres

Quantity Spilled : 3 litres

Incident

A 20 litre plastic drum containing 63 g/L hydrofluoric acid and 285 g/L sulphuric acid fell from a van travelling along Wilmington Road as it was turning left into Princess Road, Balga. The drum broke releasing approximately 3 litres of liquid onto the road.

Cause

The likely causes of the incident involved lack of securement of the drum, improperly engaged door latch and sudden breaking of the van.

Consequences

Emergency services (DEP, FRS, Police, DME and Cleanaway) attended the scene and cordoned off the area from the public for several hours. FRS organised the cleanup by Cleanaway. There was no property damage or injuries.

Apart from the proper securement of the load, the vehicle and the dangerous goods container complied with the ADG Code. The council was made aware of the regulations in regard to the load securement.

DGAT : W16/97

FILE No. : 124/97

Dangerous Goods Transport Accident Report

Date : 8 August 1997 **Time** : 0630 hours
Location : Davison Street
MADDINGTON
Dangerous Goods Involved : **ETHYL MERCAPTAN**
Class : 3
Sub-Risk : -
UN No. : 2363
Packing Group : I
Quantity Present : 60 litres
Quantity Spilled : 20 litres

Incident

A very strong odour was noticed from a trailer loaded with general freight and dangerous goods in packages. Further investigation indicated that the odour was caused by a leaking drum of ethyl mercaptan.

Fire Rescue Services personnel removed the leaking drum from the trailer and placed it in an over-drum with the residue and contaminated packaging.

Cause

Slow leakage of the drum occurred from a very small (1 cm) crack located in the base of the drum. Laboratory investigation of the drum showed that the crack in the base had occurred by a progressive fatigue mechanism during the journey from Melbourne to Perth. The drum was not an approved dangerous goods container.

Consequences

Investigations are determining the consignor of the product and the manufacturer of the drum.

DGAT : W14/97

FILE No. : 110/97

Dangerous Goods Transport Accident Report

Date : 21 August 1997 **Time** : 1100 hours

Location : Picton Rd
BUNBURY

Dangerous Goods Involved : **SULFURIC ACID**

Class : 8

Sub-Risk : -

UN No. : 1830

Packing Group : II

Quantity Present : 15 000 litres

Quantity Spilled : 10 litres

Incident

10 litres of sulfuric acid leaked through a vent onto Picton Rd, corner of Robertson Rd, Bunbury, from a double road train (comprised of a 30 tonne and 26 tonne tanker). The driver placed emergency signs at the spill area and contacted the Police and Wesfarmers Transport (who contacted CSBP's emergency response at CSBP Kwinana). Police redirected road traffic for nearly 2 hours. CSBP personnel (from Bunbury), Wesfarmers Transport and Emergency Services Staff neutralised the acid and cleaned up the spill. Fire and Rescue were also at the scene.

Cause

A loose (worn) camlock cap cam fitting on a vent allowed the seal of the vent to be breached by sulfuric acid. The sulfuric acid escaped into the tanker trapment area on the top of the tanker. This product then escaped down the overflow pipe onto the road.

Consequences

In response Wesfarmers Transport reported that it recalled all its tankers, within 24 hours and had all vents checked by an accredited company. This valve was found to be faulty (worn) and was replaced. All faulty valves throughout the fleet will be replaced. The vents had been checked as properly functioning at the last 2.5 yearly test and it is the driver's responsibility to routinely check that valves are functioning properly and these checks were expected to detect this type of problem. The Division was assured by Wesfarmers that its drivers were reminded to check for the proper functioning of valves and vents, and tanks etc are properly maintained.

DGAT : W15/97

FILE No. : 123/97

Dangerous Goods Transport Accident Report

Date : 16 October 1997 **Time** : 0400 hours
Location : Mandurah Rd
ROCKINGHAM
Dangerous Goods Involved : **HYDROCHLORIC ACID**
Class : 8
Sub-Risk : -
UN No. : 1789
Packing Group : II
Quantity Present : 16 500 litres
Quantity Spilled : 10 litres

Incident

10 litres of hydrochloric acid leaked through a vent on a tanker onto the ground in the parking area at CSBP. Above the leaked acid a vapour mist cloud formed (acid vapour mixing with water vapour in the night air) attracting the attention of the security guard who was overcome by the effect of the vapour cloud. The security guard was evacuated to a safe distance by a person on site. This person phoned for an ambulance. The ambulance staff determined the security guard didn't require any treatment. Wesfarmers CSBP emergency response system and Wesfarmers Transport emergency response systems were activated.

Cause

The tanker was parked on enough of a slope to allow the contents of the tanker to be in contact with a roll over vent. The product passed the vent allowing some of the contents of the tank to leak into the coaming of the tanker and subsequently to the ground via overflow lines.

Consequences

Wesfarmers Transport redefined the parking area for tankers at its yard so drivers wouldn't park vehicles on slopes at the CSBP parking area, and informed its staff of the problem. It also had the valve that leaked, tested by a accredited company; it was resolved the valve was functioning as designed so no further action was taken. It seems the liquid leaked through the breather hole of the roll over vent.

DGAT : W19/97

FILE No. : 189/97

Dangerous Goods Transport Accident Report

Date : 7 November 1997 **Time** : 0130 hours

Location : Menzies Road
KALGOORLIE

Dangeorus Goods Involved : **POTASSIUM AMYL XANTHATE**

Class : 4.2

Sub-Risk : -

UN No. : 2813

Packing Group : II

Quantity Present : 64 000 kg

Quantity Spilled : 22 400 kg

Incident

At approximately 0130hrs on 7 November 1997, a triple road train transporting Potassium Amyl Xanthate, was being driven north from Kalgoorlie on the Menzies Road. The driver stopped his vehicle to check the trailers and load when he smelt something burning. As the driver approached the rear trailer he noticed that a wheel hub was glowing with heat, and then a tyre ignited and exploded. The driver unsuccessfully attempted to extinguish the fire with two extinguishers. The fire spread to the load, and so the trailer was unhitched and the other vehicles driven away. The driver contacted emergency services and his company as soon as he was able to do so. On the arrival of the emergency services at the scene, it was decided to block the highway and allow the fire to burn itself out.

Cause

The cause of the incident is still not known, however, it is suspected that either a faulty wheel bearing or brake system was to blame.

Consequences

22.4 tonnes of product, one converter dolly, one flat top trailer and tarpaulin were destroyed in the resulting fire. The company has instituted procedures to service and maintain vehicle wheel bearings at periods of no greater than three months.

DGAT : W18/97

FILE No. : 178/97

Dangerous Goods Transport Accident Report

Date : 27 December 1997 **Time** : 0045 hours

Location : West Merredin Railyard
MERREDIN

Dangerous Goods Involved : **CYANIDE SOLUTIONS**

Class : 6.1

Sub-Risk : -

UN No. : 1935

Packing Group : I

Quantity Present : 18 000 litres

Quantity Spilled : 0 litres

Incident

While departing the West Merredin Railyard, a wagon conveying two tanks of sodium cyanide solution became derailed over the east end motorised points (yard to loop) and the wagon rolled onto its side. There was no spillage.

Cause

At this stage, the cause of the accident has not been determined.

Consequences

Emergency procedures were implemented and Fire and Rescue, Police and Westrail staff attended promptly. Once it was determined that there was no leakage the tanks were lifted into a temporary bunded area.

DGAT : W20/97

FILE No. : 194/97

APPENDIX 1

ACCIDENT RECORDING POLICY

Purpose

To stipulate the criteria upon which incidents involving explosives or dangerous goods reported to the division are to be designated as Recorded Accidents.

Scope

All incidents involving the transport, storage and handling of explosives and dangerous goods where such transport, storage or handling is within the scope of the Explosives and Dangerous Goods Act 1961.

Criteria

Respective Branch Managers shall assess each reported incident to determine whether they are Recorded Accidents according to the following criteria.

1. Any incident involving explosives or dangerous goods that impacts on or presents a significant potential to impact on public safety.
2. Any unintentional fire or explosion (including sabotage) involving or impinging on explosives or dangerous goods containers or storage facilities
3. Any uncontrolled release of explosives or dangerous goods:
 - from a bulk container or pipeline;
 - that travels or impacts off the site where storage or handling occurs; or
 - that causes serious injury to any person or substantial damage to property;
4. Any incident where explosives or dangerous goods containers can be shown to have fallen from a vehicle whilst it is in transit.
5. Any incident where a bulk container carrying explosives or dangerous good is subjected to impact; typically through rollover or collision.

Examples of incidents that are not intended to be classified as Recorded Accidents are:

- packages falling from a forklift, sustaining damage and minor leakage with no subsequent injury, property damage or off-site effect.
- where small numbers of packages of dangerous goods are found on the roadside (with or without contents) and their origins remain undetermined.
- vehicle traffic accidents where the containers, their fittings and the dangerous goods remain intact and have not been subjected to impact, and where the dangerous goods are inconsequential to the incident.
- an escape of dangerous goods that is expected during normal operations, maintenance or transfers.
- incidents that involve substances not classified as dangerous goods but are captured by WAHMEMS due to uncertainty or misinformation.



K Price
Director
Explosives and Dangerous Goods Division

3 May, 1996

