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Overview of Accident Reports 2000

The year 2000 saw a disappointing increase in the number of reportable dangerous goods accidents. In particular, the increase in transport accidents involving bulk loads of dangerous goods is of concern and will be the subject of additional prevention strategies.

Efforts to minimise the frequency of these transport accidents will continue with the Division working with other Government agencies such as WorkSafe Western Australia, Main Roads Western Australia and Department of Transport, to investigate and mitigate the reasons for driver-fatigue, driver-error and rear-trailer roll-over.

In the storage area, there was a slight increase in the number of accidents recorded. However, there was a notable increase in those accidents involving a deficiency in maintenance and operational procedures, contributing to material or design failure. As part of its enforcement strategy, the Division will target these causal factors.

In explosives, one accident was recorded. However, there were no serious injuries and the accident was not due to experimentation, which has contributed to the accidents that have occurred in previous years. The Division is considering conducting an explosives amnesty in the second half of 2001, to allow for the safe disposal of unwanted explosives and this is expected to minimise access to explosives for persons not authorised to possess them.

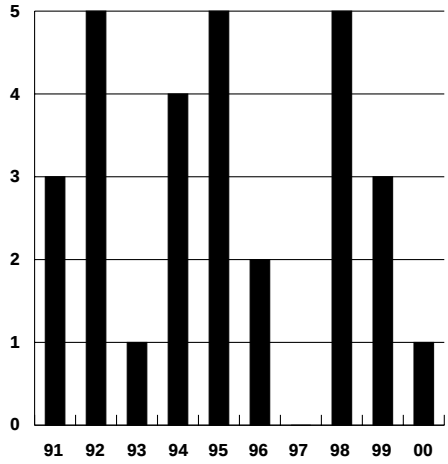
Malcolm P. Russell

Director
Explosives and Dangerous Goods Division

8 June, 2001

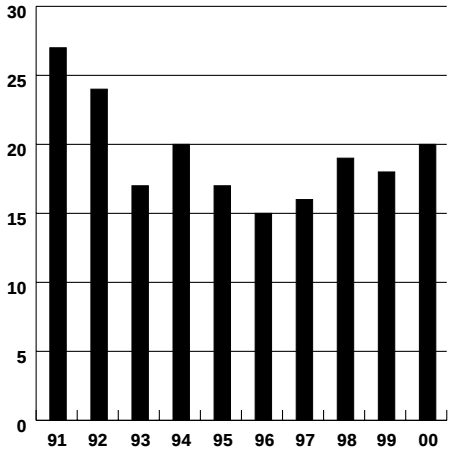
Explosives and Dangerous Goods Accident Statistics

Explosives Accidents



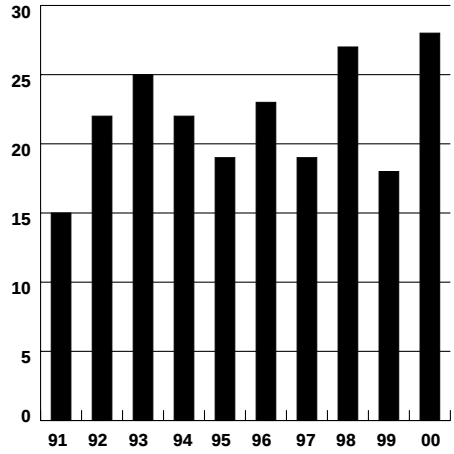
Only one accident was recorded in 2000, well under the ten-year average of three.

Storage Accidents



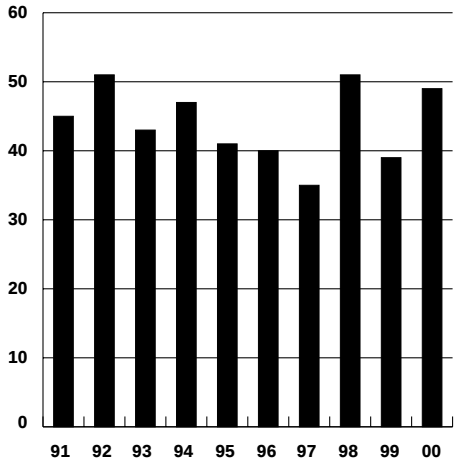
The number of storage accidents recorded in 2000 was two more than recorded in the previous year, and slightly greater than the average for the last ten years.

Transport Accidents



The number of dangerous goods transport accidents recorded in 2000 was more than the number recorded in 1999 and greater than the ten-year average of 22.

Total Accidents



The total number of accidents recorded in 2000 was greater than the number recorded in 1999 and is greater than the ten-year average of 44.

Introduction

During 2000 only one explosive accident was reported to the Division, which is a significant decrease from the ten-year average to 2000 (three).

The accident occurred on a farm near Esperance, when a farm hand and his assistant were grinding at a workbench, unaware that a box of No. 8 detonators was sitting on the bench. Sparks from the grinding operation initiated the detonators. Fortunately no serious injuries were sustained.

This accident highlights the need for proper storage and this explosion would have been avoided had the detonators been stored in a locked wooden receptacle as required by the Regulations.

The farmer has since been charged with the improper storage of explosives.

In the wake of this accident, the Division is considering conducting an explosives amnesty in the second half of 2001 to give people the opportunity to safely dispose of unwanted explosives.

Explosives Accident Summary Report

	DATE	LOCATION	GOODS	CLASS	COMMENTS
W01/00	30/10/00	ESPERANCE	Detonators, Non-Electric for blasting	1.1	Sparks from a grinding operation initiated a partially full box of plain detonators at a farm workshop. Two employees were injured as a result.

Explosives Accident Report

Date	30 October 2000	**Time**	1655 hours
Location	Speddingup Road ESPERANCE		

Explosives Involved **DETONATORS, NON-ELECTRIC FOR BLASTING**

Class	1.1
Compatibility Group	B
UN No.	0029
Quantity Present	Approximately 50
Quantity Involved	Approximately 50

Incident

An explosion occurred in a farm workshop when two employees were grinding a steel shaft at a work-bench. The grinding operation caused sparks to fly towards the rear of the work-bench which triggered the explosion of approximately 50 detonators.

The blast caused a corrugated iron sheet, forming part of the workshop wall, to be torn in two and caused extensive damage to the wooden work-bench.

Cause

The investigation found that a shotfirer, previously employed at the farm, had left a box of detonators on the work-bench near where the grinding operation took place and that the employees doing the grinding were unaware of the presence of the detonators.

Consequences

The employees sustained burns and lacerations to their hands, forearms and faces as well as damage to their eardrums. Both were taken to hospital for treatment and released a few hours later.

The investigation also revealed that the farmer was storing other explosives at another of his farms and as a consequence, the Division has initiated legal action for unlawful possession of explosives.

The Division is planning an explosives amnesty to allow those who are in unlawful possession of explosives the opportunity to hand them in without legal repercussions.

EX W01/00
File No. 251/00

Dangerous Goods Storage Accidents

Introduction

Twenty accidents involving the storage of dangerous goods, which are recorded as an accident in accordance with the criteria in Appendix 1, were notified to the Division in 2000, which is a slight increase in the number of incidents compared to 1999 (eighteen) and 1998 (nineteen).

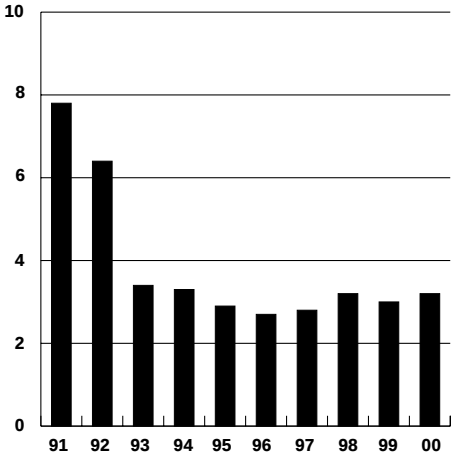
Eighteen of the twenty accidents recorded involved dangerous goods that are either corrosives or compressed gases. No one particular type of corrosive product or compressed gas was involved in the recorded accidents. However, it is interesting to note that the accidents that involved compressed gases occurred mostly during start-up or shut-down of a facility.

Two incidents caused serious injury but there were no fatalities. One of the incidents involved an unstable, impact-sensitive silver compound which resulted in injuries to two people. The other incident, caused by a number of deficiencies in the storage of sulfuric acid, resulted in serious burns for an employee. The company involved in the latter was successfully prosecuted, has since decommissioned the storage tank, provided additional training in the handling of dangerous goods and reviewed its emergency response procedures.

The main causes of the storage accidents were material or design failure (for eleven accidents) and human error (for seven accidents). This highlights the need for better maintenance procedures and operational procedures and the Division will focus on that aspect for future safety initiatives.

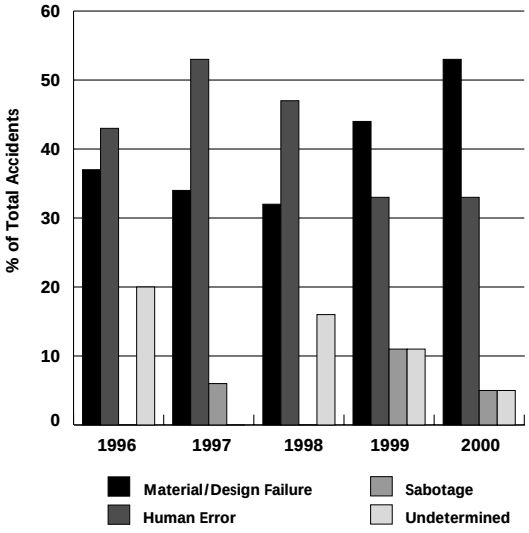
Selected Storage Accident Statistics

Number of Accidents per 1 000 Licensed Premises



The 2000 figure is similar to that recorded in recent years, confirming the trend of about three accidents per 1 000 licensed premises.

Causes of Storage Accidents



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

Dangerous Goods Storage Accident Summary Reports

	DATE	LOCATION	GOODS	CLASS	COMMENTS
W01/00	05/01/00	WANNEROO	Petroleum Gases, Liquefied	2.1	A fire occurred on a cylinder filling ramp when an employee was pump-filling a number of empty forklift cylinders.
W02/00	10/01/00	WELSHPOOL	Sulfuric Acid	8	Sulfuric acid was spilt from a storage tank after an employee dislodged a fitting on a product outlet pipe after mistaking it for a bund drainage line.
W12/00	28/02/00	KARRATHA	Natural Gas, Compressed	2.1	A lightning strike during an electrical storm affected control systems at a gas processing facility, resulting in a natural gas release.
W04/00	13/03/00	MANDURAH	Ammonia, Anhydrous	2.3	An ammonia leak was detected by a security guard during an after-hours patrol of a food processing plant.
W07/00	22/04/00	ROLEYSTONE	Petroleum Gases, Liquefied	2.1	A leak of LP Gas occurred from a decanting cylinder at an unoccupied service station after vandals gained access to a liquid valve.
W17/00	27/04/00	KWINANA	Phosphoric Acid	8	A spill of phosphoric acid occurred when a vehicle, leaving a wash-down bay, struck a gantry supporting a phosphoric acid pipeline.
W18/00	28/04/00	KWINANA	Ammonia, Anhydrous	2.3	A small release of ammonia droplets occurred from a chemical plant flare during a shut-down to correct plant commissioning problem.
W05/00	15/05/00	KWINANA	Titanium Tetrachloride	8	During preparation of a process vessel for maintenance, a small quantity of titanium tetrachloride spilt resulting in a gas cloud drifting off the site.
W11/00	26/05/00	KWINANA	Natural Gas, Compressed	2.1	Closure of an emergency shut-down valve, due to loss of instrument air, caused pressure safety relief valves to relieve natural gas to atmosphere.
W16/00	28/05/00	KWINANA	Hypochlorite Solution	8	During a routine plant inspection, an operator noted a leak of hypochlorite solution at a cooling tower dosing station.
W06/00	01/07/00	KEWDALE	Chromic Acid Solution	8	A spill of dilute chromic acid occurred when a tank overflowed after a cooling-water pipe broke, spraying water into a chromic acid bath.
W13/00	18/08/00	KWINANA	Diesel Fuel	3	Inappropriate isolation of valves on a pipeline resulted in a diesel fuel spill during the transfer of product from a ship to a bulk storage tank.
W09/00	29/08/00	KEMERTON	Titanium Tetrachloride	8	A small spill of titanium tetrachloride occurred while process equipment was being prepared for maintenance, resulting in release of hydrogen chloride which drifted off site.
W08/00	08/09/00	FREMANTLE	Nitric Acid	8	Nitric acid drums, damaged during shipping, spilt acid which reacted with pallets and the container floor to release toxic oxides of nitrogen.
W20/00	09/09/00	BUSSELTON	Hypochlorite Solution Hydrochloric Acid	8 8	A small quantity of chlorine gas was released at a leisure centre when an employee inadvertently mixed incompatible pool chemicals.
W10/00	15/9/00	KEMERTON	Chlorine	2.3	A process upset at a chemical plant resulted in a chlorine gas release by the introduction of a new raw material.
W15/00	25/09/00	KWINANA	Nitric Acid Dinitrogen Tetroxide	8 2.3	A plant operator investigating a low-level alarm on a process vessel found nitric acid and process gases leaking from a level indicator controller on the vessel.
W14/00	26/09/00	NEWBURN	Silver Nitrate	5.1	During an experiment at a laboratory, an unstable impact-sensitive silver compound was produced and this product was involved in two separate explosions, injuring two people.
W19/00	17/10/00	KWINANA	Propane	2.1	A release of propane occurred from a processing tower following the restart of a propane pump.
W21/00	27/12/00	BIBRA LAKE	Formic Acid	8	A drum of formic acid was punctured when thieves broke into a chemical storage warehouse and used a forklift to steal drums of chemicals.

Dangerous Goods Storage Accident Report

Date	5 January 2000	**Time**	1100 hours
Location	Finlay Place WANNEROO		
Dangerous Goods Involved	**PETROLEUM GASES, LIQUEFIED**		
	Class	2.1	
	Sub-Risk	-	
	UN No.	1075	
	Packing Group	-	
	Quantity Present	21 800 litres	
	Quantity Involved	130 litres	

Incident

A fire occurred on a cylinder filling ramp when an employee was pump-filling a number of empty forklift cylinders. After filling the first cylinder, the employee disconnected it and moved it to one side with the fixed ullage gauge slightly open. He then connected the second cylinder and commenced filling.

As he reached over to close the fixed ullage gauge on the first cylinder, he felt an electrical discharge between his hand and the valve protection ring. It was reported that the venting LP Gas ignited, which then ignited the fixed ullage discharge on the second cylinder.

An attempt was made to put out the fire with a powder extinguisher but this was unsuccessful. A second employee activated the emergency shut-off and pump-stop on the LP Gas storage tank before contacting the emergency services and evacuating the site. The emergency services brought the incident under control by approximately 1200 hours.

Cause

The cause of the incident was the ignition of an LP Gas-air mixture from a forklift LP Gas cylinder by an unknown ignition source. Static electricity was initially thought to be the likely ignition source but the evidence did not support this view.

Consequences

The LP Gas industry has been informed of the recent changes to the Australian Standard which require cylinders that are being pump-filled, by volume, to be fitted with an automatic shut-off device.

DGAS W01/00
File No. 266-00

Dangerous Goods Storage Accident Report

Date	10 January 2000	**Time**	1430 hours
Location	Division Street WELSHPOOL		
Dangerous Goods Involved	**SULFURIC ACID**		
	Class	8	
	Sub-Risk	-	
	UN No.	1830	
	Packing Group	II	
	Quantity Present	15 000 litres	
	Quantity Involved	1 500 litres	

Incident

An acid spill occurred from a product pipe connected to a storage tank after an employee attempted to fix a small leak in the pipe that he believed to be a bund drainage line.

During the repair, the pipe fitting broke free allowing acid to flow out over the employee, who suffered burns to his face, hands, feet and chest.

The operator of the premises was unable to contain the leak and attempted to transfer product from the tank into other vessels. Some of these vessels subsequently failed and this resulted in further spillage. The operator then enlisted the assistance of an emergency response team to stop the leak, neutralize the acid and clean up the site. The emergency services were not contacted until well after the incident.

Cause

The leak was caused by a combination of factors including inappropriate bund design, failure to provide a valve on the product outlet pipe between the tank and the bund wall, inappropriate use and positioning of the pipe fitting, and the failure to adequately label the product outlet pipe.

Consequences

The Division has successfully prosecuted the operator of the site for breaches relating to not taking all practical precautions to prevent a leak. As a result of the incident, the company has provided additional training for all personnel involved in the handling of dangerous goods and has reviewed its emergency response procedures. The acid tank has since been decommissioned.

DGAS W02/00
File No. 266/00

Dangerous Goods Storage Accident Report

Date	28 February 2000	**Time**	2231 hours
Location	Burrup Peninsula KARRATHA		

Dangerous Goods Involved **NATURAL GAS, COMPRESSED**

Class	2.1
Sub-Risk	-
UN No.	1971
Packing Group	-
Quantity Present	120 cubic metres
Quantity Involved	25 cubic metres

Incident

A lightning strike during a severe electrical storm partially disabled a plant's control system, resulting in a release of natural gas through seals on two gas compressors.

The control system was manually reset and the release stopped. There was no injury or damage resulting from the incident as the release dissipated and did not ignite.

Cause

The lightning strike affected the operation of the plant's control system resulting in safeguarding systems shutting down the plant, including two natural gas compressors. However, the partial disablement of the control system affected the seal oil systems, resulting in a loss of seal oil supply to the compressors. Consequently, a release of natural gas occurred through the seals due to ineffective sealing of the compressors.

Consequences

To prevent a recurrence of this type of incident, the company will upgrade the plant's earthing system, and install automatic and remote isolation, and depressurising systems on all similar natural gas compressors. In addition, the control system will be modified so that the compressors shut down safely in the event of loss of seal oil supply.

DGAS **W12/00**
File No. **-**

Dangerous Goods Storage Accident Report

Date	13 March 2000	**Time**	0435 hours
Location	Hampton Street MANDURAH		
Dangerous Goods Involved	**AMMONIA, ANHYDROUS**		
	Class	2.3	
	Sub-Risk	8	
	UN No.	1005	
	Packing Group	-	
	Quantity Present	250 litres	
	Quantity Involved	5 litres	

Incident

An ammonia leak was detected by a security guard during an after-hours patrol of a food processing plant. The manager of the plant was contacted and attended the scene. He contacted the emergency services as a precaution and then proceeded to repair the leak which was found to be coming from a gasket on an ammonia refrigeration pump. The leak was stopped prior to the arrival of the emergency services.

Cause

The cause of the ammonia leak was the failure of a gasket on an ammonia pump.

Consequences

The leak was found to be very minor and there were no off-site effects as a result of the incident. Investigation revealed that the facility had been in operation for only two weeks prior to the incident and that the site owner did not hold a dangerous goods storage licence. Both the site owner and the ammonia supplier were issued with a warning in relation to ensuring that the site be appropriately licensed.

The owner of the facility subsequently licensed the site and the ammonia supplier has put a system in place to ensure that in future, ammonia is not delivered to unlicensed sites.

DGAS W04/00
File No. 1138-00

Dangerous Goods Storage Accident Report

Date	22 April 2000	**Time**	2200 hours
Location	Wygonda Road ROLEYSTONE		
Dangerous Goods Involved	**PETROLEUM GASES, LIQUEFIED**		
	Class	2.1	
	Sub-Risk	-	
	UN No.	1075	
	Packing Group	-	
	Quantity Present	500 litres	
	Quantity Involved	170 litres	

Incident

A leak of LP Gas occurred from a decanting cylinder at an unoccupied service station after vandals gained access to the liquid valve. The emergency services attended and needed to cut off the lock on the security cover and defrost the valve before they could close the valve to stop the leak.

The gas release was not ignited and no injuries were reported.

Cause

The cause of the incident was a combination of vandalism and inadequate security provisions for the cylinder valve. Although the cylinder had a locked cover, a hole in the side of the cover, used for the connection of hoses, was big enough to allow access to a person with small hands. Also, a small section of pipe designed to fit over the valve between the cylinder and the security cover, to prevent access to the valve, was found to be too short. This allowed the person to push the pipe off the valve to gain access to it.

Consequences

The gas supplier has reviewed the length of the pipes used for security of cylinder valves and has replaced these pipes with longer sections to ensure that they cannot be pushed off to gain access to the valve.

DGAS W07/00
File No. 1138-00

Dangerous Goods Storage Accident Report

Date	27 April 2000	**Time**	1515 hours
Location	Kwinana Beach Road KWINANA		
Dangerous Goods Involved	**PHOSPHORIC ACID**		
	Class	8	
	Sub-Risk	-	
	UN No.	1805	
	Packing Group	III	
	Quantity Present	3 900 litres	
	Quantity Involved	60 litres	

Incident

A spill of phosphoric acid occurred when a vehicle, leaving a wash-down bay, struck a gantry supporting a phosphoric acid pipeline.

The incident occurred when the 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 damage the vehicle's hoist and puncture the pipeline. There was only residual phosphoric acid within the gantry pipeline, therefore only a small quantity of product was spilt.

Cause

Investigation into this incident found that the driver of the vehicle was distracted and did not hear or see the vehicle's flashing light alarm, positioned in the vehicle cab, indicating that the hoist was raised. The cause of the distraction was noise associated with the vehicle's air-operated windscreen wipers and the driver turning to greet another driver.

Consequences

The company has repositioned the flashing light on all similar vehicles to reflect off the windscreen of each cab. In addition, the company is investigating the use of ultrasonic or electronic beams, either side of the gantry to either create a visible or loud warning signal if a vehicle approaches with a raised hoist. This incident did not involve any non-compliances with the regulations.

DGAS **W17/00**
File No. **-**

Dangerous Goods Storage Accident Report

Date	28 April 2000	**Time**	1200 hours
Location	Kwinana Beach Road KWINANA		
Dangerous Goods Involved	**AMMONIA, ANHYDROUS**		
	Class	2.3	
	Sub-Risk	8	
	UN No.	1005	
	Packing Group	-	
	Quantity Present	7 000 litres	
	Quantity Involved	Less than 1 litre	

Incident

A release of ammonia droplets occurred from a flare at a chemical plant after the level of ammonia in a process vessel increased to a point where liquid ammonia droplets were entrained in a purge gas flow to the plant's flare.

The incident occurred during the commissioning of a new plant and some unburnt ammonia droplets came to ground downwind of the flare causing superficial skin irritation to two contract employees. Ammonia odour was detected off site.

Cause

During commissioning of the plant, two isolation valves that were configured in series, were found to be defective and allowed a small amount of liquid ammonia to pass to the process vessel.

The plant commissioning team was uncertain of the level in the process vessel and while the level was being verified, further ammonia collected in the vessel.

Following determination of the exact level, the plant was shut down in a slow and controlled manner to minimise the likelihood of a pressure surge occurring, which would result in ammonia being passed through the flare. However, a small pressure spike did occur during the shut-down resulting in some entrained ammonia droplets being released from the flare prior to the site emergency siren being activated.

Consequences

The passing isolating valves to the process vessel were blanked prior to the recommencement of commissioning and the company developed and communicated to plant operators response procedures for abnormal plant conditions. In addition, the issue of immediately raising the plant's emergency siren in the event of a gas release or potential release was reinforced with plant operators.

DGAS W18/00
File No. -

Dangerous Goods Storage Accident Report

Date	15 May 2000	**Time**	1217 hours
Location	Mason Road KWINANA		
Dangerous Goods Involved	**TITANIUM TETRACHLORIDE**		
	Class	8	
	Sub-Risk	-	
	UN No.	1838	
	Packing Group	II	
	Quantity Present	10 litres	
	Quantity Involved	10 litres	

Incident

A process vessel was being prepared for maintenance when a small quantity of residual titanium tetrachloride dislodged and liberated a cloud, containing hydrogen chloride, that drifted off the site.

Employees at the plant, and at a neighbouring site, took refuge while the cloud dispersed. Four employees at the neighbouring site experienced mild throat and eye irritation while enroute to the designated refuge area. They were examined by a medical practitioner and were reported to have suffered no ill-effects.

Cause

During the purging operation, a build-up within the vessel dislodged, resulting in some titanium tetrachloride entering the purge tank. The material reacted vigorously with the water in the purge tank, with the resultant pressure increase causing disconnection of the flexible line attaching the vessel to the tank. The remaining titanium tetrachloride in the vessels spilt into a bund.

Consequences

The company has modified its procedures to guard against the presence of residues within vessels to be purged. The procedures for use of the purge tank were also modified to prevent titanium tetrachloride coming into contact with the water in the tank.

DGAS W05/00
File No. 1138-00

Dangerous Goods Storage Accident Report

Date	26 May 2000	**Time**	0235 hours
Location	Mason Road KWINANA		
Dangerous Goods Involved	**NATURAL GAS, COMPRESSED**		
	Class	2.1	
	Sub-Risk	-	
	UN No.	1971	
	Packing Group	-	
	Quantity Present	67 000 kilograms	
	Quantity Involved	67 000 kilograms	

Incident

Natural gas was released to the atmosphere, at a gas extraction plant, through two elevated pressure safety relief valves.

The released gas was safely dispersed and no flammable gas was detected by monitors located throughout the plant.

Cause

The incident investigation concluded that the release was due to the failure of a solenoid controlling instrument air to an emergency shut-down valve. The fail-safe action of the valve, on loss of instrument air, was to close.

A compressor used to feed natural gas through a pipeline was in operation against the closed valve, which led to a high gas pressure in the pipeline causing the pressure safety relief valves to lift, as designed.

Consequences

There were no injuries or damage caused by the incident. No breaches of the *Explosives and Dangerous Goods Act 1961* were identified in the Division's investigation of the incident.

The company identified and implemented actions to prevent a recurrence of this event. The actions included the repair of the solenoid, and altering the pressure set-point on the compressor so that the compressor will shut down prior to pressure safety relief valves operating.

DGAS W11/00
File No. 101-00

Dangerous Goods Storage Accident Report

Date	28 May 2000	**Time**	1300 hours
Location	Kwinana Beach Road KWINANA		

Dangerous Goods Involved **HYPOCHLORITE SOLUTION**

Class	8
Sub-Risk	-
UN No.	1791
Packing Group	III
Quantity Present	2 000 litres
Quantity Involved	800 litres

Incident

During a routine plant inspection, an operator noted a leak of hypochlorite solution at a cooling tower dosing station.

The suction line from the hypochlorite solution storage tank had disconnected from the dosing pump, resulting in the spill. As the dosing pump was outside the tank's bund, the solution entered the plant's internal drainage system.

The hypochlorite solution was neutralized within the internal drainage system and there was no impact on the environment.

Cause

Investigation identified that the use of incompatible materials and lack of maintenance on the pump were the main causes of suction line disconnection. Additionally, the positioning of the dosing pump outside of the tank bund caused the solution to spill outside of the bunded area.

Consequences

To rectify these issues, a new pump has been installed inside the bund and alternative material used for the suction line and pump connection point. The supplier of the hypochlorite solution has also implemented an inspection and maintenance schedule. An audit has also been conducted across the plant to assess similar connections.

DGAS **W16/00**
File No. **102-01**

Dangerous Goods Storage Accident Report

Date	1 July 2000	**Time**	0530 hours
Location	Bell Street KEWDALE		
Dangerous Goods Involved	**CHROMIC ACID SOLUTION**		
	Class	8	
	Sub-Risk	-	
	UN No.	1755	
	Packing Group	II	
	Quantity Present	2 600 litres	
	Quantity Involved	Undetermined	

Incident

A spill of chromic acid solution occurred after a PVC cooling-water pipe broke, spraying water into the air and down into a chromic acid bath. The bath overflowed and a small amount of diluted chromic acid ran out through the workshop and out of the factory into the street. The spilled product was collected and treated via an on-site treatment plant.

Cause

The spill was caused by PVC piping, which was used to circulate cooling water, shearing off near a joint. The use of metal plates over the tank bund, to facilitate operator access, also contributed to the incident by reducing the effectiveness of the bund in capturing product overflow from the tank.

Consequences

The company has replaced the PVC pipe with titanium piping more suitable for the intended application. Also, the metal plate that was used to facilitate operator access to the chromic acid bath has been replaced with open grating to ensure that any overflow will run down into the bund.

DGAS W06/00
File No. 1138-00

Dangerous Goods Storage Accident Report

Date	18 August 2000	**Time**	0845 hours
Location	Kwinana Beach Road KWINANA		
Dangerous Goods Involved	**DIESEL FUEL**		
	Class	3	
	Sub-Risk	-	
	UN No.	1202	
	Packing Group	III	
	Quantity Present	400 litres	
	Quantity Involved	400 litres	

Incident

A release of fuel occurred from the flange of a jetty pipeline during a routine product transfer from a ship to a bulk storage tank. The leak was observed by Fremantle Port Authority (FPA) personnel who immediately contacted the company, and the transfer operation was stopped.

The FPA emergency response vessel was used to agitate the spill to promote dissipation. As diesel fuel is less dense than water and not soluble, it formed a layer on the surface. Agitation increased the rate of evaporation of the fuel into the atmosphere.

Cause

Investigation indicated that the leak was due to a flange gasket failure at the jetty. However, the cause of the leak was due to inappropriate isolation along the pipeline route, which allowed product to flow to the jetty flange.

Consequences

No injuries or environmental damage resulted from the incident and the FPA emergency response vessel successfully dissipated the spill.

Company employees were cautioned and the company supervisor, responsible for the transfer operation, resigned. The company also reviewed isolation and transfer procedures with employees to avoid any recurrence.

DGAS W13/00
File No. 1778-00

Dangerous Goods Storage Accident Report

Date	29 August 2000	**Time**	0800 hours
Location	Marriott Road KEMERTON		
Dangerous Goods Involved	**TITANIUM TETRACHLORIDE**		
	Class	8	
	Sub-Risk	-	
	UN No.	1838	
	Packing Group	II	
	Quantity Present	10 litres	
	Quantity Involved	10 litres	

Incident

An acidic cloud escaped from a purpose-built containment building following steam-purging of a heat exchanger. Residual titanium tetrachloride trapped within the heat exchanger drained and pooled on the floor of the building. Water was then used by an operator to disperse the evolving fumes, however this action resulted in a vigorous reaction between the water and titantium tetrachloride resulting in a release of hydrogen chloride, which exceeded the capacity of the building's extraction equipment.

The release drifted off site, across a public road and over vacant land.

Cause

Steam applied to the heat exchanger cleared a blockage allowing entrapped titanium tetrachloride to be released. Indequate procedures for cleaning of the heat exchanger and responding to titanium tetrachloride spills inside the containment building contributed to the release.

Consequences

Corrective actions put in place by the company to prevent a similar incident recurring include a planned upgrade of extraction equipment and upgrading procedures for steam-purging of heat exchangers and for titanium tetrachloride spill response.

There were no injuries or complaints due to the incident.

DGAS **W09/00**
File No. **1138-00**

Dangerous Goods Storage Accident Report

Date	8 September 2000	**Time**	0930 hours
Location	North Quay FREMANTLE		
Dangerous Goods Involved	**NITRIC ACID**		
	Class	8	
	Sub-Risk	5.1	
	UN No.	2031	
	Packing Group	II	
	Quantity Present	20 000 litres	
	Quantity Involved	Undetermined	

Incident

A spill of nitric acid was noticed from a shipping container unloaded at the Fremantle Port. The shipping container arrived at the port carrying 200-litre plastic drums of nitric acid. The container was unloaded at the berth and lime was placed around the container to neutralize the leaking product.

Upon the opening of the container door, no further leakage was noted, however the reaction of the acid with the container and wooden pallets resulted in the evolution of a brown gas, containing oxides of nitrogen, from the container and the door was resealed. The container was relocated to another area of the wharf to facilitate the continued operation of the port while the clean-up, removal and decontamination of leaking drums was conducted.

Cause

The drums used for the nitric acid were not suitable for the intended journey from Europe to Australia.

Consequences

Contact has been made with the Australian Maritime Safety Authority (AMSA) to follow up the packaging standard of the nitric acid with the shipper.

DGAS **W08/00**
File No. **-**

Dangerous Goods Storage Accident Report

Date	9 September 2000	**Time**	0830 hours
Location	Queen Elizabeth Avenue BUSSELTON		

Dangerous Goods Involved

HYPOCHLORITE SOLUTION

Class	8
Sub-Risk	-
UN No.	1791
Packing Group	III
Quantity Present	20 litres
Quantity Involved	5 litres

HYDROCHLORIC ACID

Class	8
Sub-Risk	-
UN No.	1789
Packing Group	II
Quantity Present	20 litres
Quantity Involved	5 litres

Incident

A reaction resulted in the release of chlorine gas at a leisure centre when a casual employee inadvertently mixed hypochlorite solution with hydrochloric acid.

The employee was asked to add water to about five litres of hydrochloric acid but added hypochlorite solution instead, resulting in the generation of chlorine gas in the plant room. The employee was wearing full personal protective equipment (PPE) while decanting the chemicals but removed his face mask when the reaction commenced. As a result, he began coughing and experienced some discomfort. He left the plant room to notify other staff, however he left the only available face-mask within the plant room. As a result, other staff were unable to enter the plant room to deal with the incident. The emergency services were contacted and about ten people were evacuated from the centre. No one else was injured as a result of the release.

Cause

The incident was caused by a lapse in concentration by the employee. The investigation found he had been clearly instructed on the task and yet mixed two incompatible pool chemicals together.

Consequences

A review of the centre's staffing arrangements has been made to ensure that chemical handling is only carried out by experienced people. Back-up PPE has also been purchased for emergency use.

DGAS W20/00
File No. -

Dangerous Goods Storage Accident Report

Date	15 September 2000	**Time**	0400 hours
Location	Marriott Road KEMERTON		
Dangerous Goods Involved	**CHLORINE**		
	Class	2.3	
	Sub-Risk	8	
	UN No.	1017	
	Packing Group	-	
	Quantity Present	13.5 kilograms	
	Quantity Involved	13.5 kilograms	

Incident

A chlorine gas release occurred at a chemical plant as a result of a process upset. Chlorine was detected by process chlorine analysers which initiated the plant's caustic scrubbing system. However, the chlorine gas generated from the process upset exceeded the scrubber capacity and some chlorine was released via a stack to the atmosphere.

Cause

The release was due to the composition of a new raw material used in the process. The high content of a non-reactive component in the raw material caused the process upset which resulted in the unexpected creation of excess chlorine.

Consequences

The company has implemented corrective actions to prevent recurrence of this event including development of procedures for dealing with potential process problems associated with the new raw material. In addition, the feasibility of modifying chlorine analysers to automatically shut down the source of a release is being investigated.

There were no injuries or reports of odour from neighbouring sites due to this release.

DGAS W10/00
File No. 1138-00

Dangerous Goods Storage Accident Report

Date	25 September 2000	**Time**	2115 hours
Location	Kwinana Beach Road KWINANA		

Dangerous Goods Involved

NITRIC ACID

Class	8
Sub-Risk	-
UN No.	2031
Packing Group	II
Quantity Present	1700 litres
Quantity Involved	1100 litres

DINITROGEN TETROXIDE

Class	2.3
Sub-Risk	5.1
UN No.	1067
Packing Group	-
Quantity Present	500 kilograms
Quantity Involved	300 kilograms

Incident

A plant operator investigating a low-level alarm on a process vessel found nitric acid and process gases, consisting of oxides of nitrogen, leaking from a level indicator controller on the vessel. The plant was immediately shut down and a neighbouring plant was notified of the situation. The site emergency response team assisted with the recovery of product. No injuries were sustained.

Cause

A root cause analysis of the incident was conducted and found that the material of the level controller was not compatible with the process fluids. It was found that supplied materials did not meet the correct specifications.

Consequences

The company has undertaken to audit plant components for compatibility and to investigate quality control checks of received materials against specifications. Also, the level controller has been replaced with one compatible with the process fluids.

DGAS W15/00
File No. 102-01

Dangerous Goods Storage Accident Report

Date	26 September 2000	**Time**	1210 hours
Location	Horrie-Miller Drive NEWBURN		
Dangerous Goods Involved	**SILVER NITRATE**		
	Class	5.1	
	Sub-Risk	-	
	UN No.	1493	
	Packing Group	II	
	Quantity Present	Undetermined	
	Quantity Involved	Undetermined	

Incident

A minor chemical explosion occurred at a laboratory during a test experiment resulting in minor injuries to an employee. A silver nitrate complex was unintentionally produced during an experiment and was found to be unstable and sensitive to impact. The emergency services were contacted, and while attending to the accident a second minor explosion occurred, resulting in an injury to an emergency services officer.

Cause

The investigation found that the incident was caused when substances were mixed in the wrong order. The reaction mixture produced an unstable silver compound which was sensitive to impact and exploded during handling.

Consequences

The incident has been investigated and no breaches of the regulations have been identified. The company has ceased all experiments and does not intend to proceed with any further trials.

DGAS W14/00
File No. 102-01

Dangerous Goods Storage Accident Report

Date	17 October 2000	**Time**	0645 hours
Location	Mason Road KWINANA		
Dangerous Goods Involved	**PROPANE**		
	Class	2.1	
	Sub-Risk	-	
	UN No.	1978	
	Packing Group	-	
	Quantity Present	26 000 kilograms	
	Quantity Involved	5 300 kilograms	

Incident

A release of propane occurred from a processing tower following the restart of a propane pump. The tower was subsequently depressurised by venting propane to a flare via a relief valve (RV) by-pass line. However, during this process the bellows on the RV failed, causing a further release of propane.

During the initial release, the emergency siren was sounded, and the unit emergency shut-down and deluge systems were activated to minimise the spread of gas. The company also requested emergency services to close the access road to the plant as a precautionary measure. The unit was sucessfully depressurised and the leak was isolated without ignition or injury.

Cause

Restart of the propane charge pump caused a pressure surge through the tower which resulted in a redundant instrumentation line, which was subsequently found to have external corrosion under insulation, to rupture and release propane in the vessel to atmosphere.

The second release occurred through cracked RV bellows due to the bellows not being capable of withstanding the back-pressure that was created through the by-pass line during the depressurisation process.

Consequences

As a result of the incident, a number of corrective actions have been identified for implementation by the company. These include modification of procedures to ensure that redundant equipment is isolated from live plant equipment, lines are inspected more frequently for corrosion under insulation, and that all required preventative maintenance is carried out. In additon, similar RV bellows were checked to ensure that they are appropriately pressure rated.

DGAS W19/00
File No. -

Dangerous Goods Storage Accident Report

Date	27 December 2000	**Time**	0500 hours
Location	Spearwood Avenue BIBRA LAKE		
Dangerous Goods Involved	**FORMIC ACID**		
	Class	8	
	Sub-Risk	-	
	UN No.	1779	
	Packing Group	II	
	Quantity Present	28 000 litres	
	Quantity Involved	210 litres	

Incident

A spill of formic acid occurred at a chemical storage warehouse after thieves broke in and damaged an acid drum. Warehouse staff became aware of a problem after the site security patrol, responding to an alarm, alerted the site manager. Staff arriving on site were unable to enter the warehouse due to the presence of noxious vapours. The emergency services attended to neutralize the acid using soda ash. The presence of corrosive vapour meant that full protective clothing and breathing apparatus had to be worn during the recovery phase. The neutralizing product was then placed into drums for disposal.

Cause

Investigation found the drum was damaged and subsequently ruptured by thieves using a forklift.

Consequences

The facility operator has conducted a review of security at the site and will increase site security.

DGAS **W21/00**
File No. **-**

Dangerous Goods Transport Accidents

Introduction

Twenty-eight transport accidents, which are recorded as an accident in accordance with the criteria in Appendix 1, were notified to the Division in 2000. This is a significant increase from that recorded in 1999 (eighteen) and more than the ten-year average to 2000 (twenty-three).

One fatality occurred as a result of a vehicle carrying agricultural chemicals colliding with a vehicle towing a caravan. As a result of the collision, a fire was triggered in the caravan which in turn engulfed the dangerous goods load.

Unlike previous years, the number of accidents involving bulk vehicles in comparison to package vehicles is significantly higher. Of the twenty-eight transport accidents, twenty-two involved bulk vehicles and six involved package vehicles.

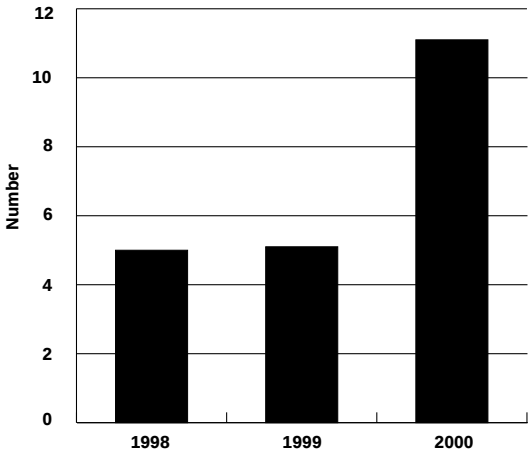
Only two of the six accidents involving package vehicles were caused by insufficient load restraint which is a great improvement compared to earlier years. It is disappointing, however, that in 2000 there was a significant increase in the number of bulk vehicles involved in accidents and these were mainly attributed to human error. This featured as the main cause in seventeen of the twenty-eight accidents. It is of concern that drivers are either not paying attention or failing to assess and negotiate road conditions, in some cases due to excessive speed. The Division will look at ways address these concerns through a mix of education and enforcement strategies.

Another area of particular concern is the high proportion of accidents caused where one or more of the trailers rolled over. For vehicles consisting of two or more trailers, it is not surprising that the last trailer is more likely to roll over, compared to the first or second trailer. However, it has highlighted the need for the Division to conduct further investigations into the causes to assess what factors could minimise the likelihood of a rollover.

One accident was reported for rail and after an initial large-scale response, it was scaled down when only a small leak of ammonia was detected.

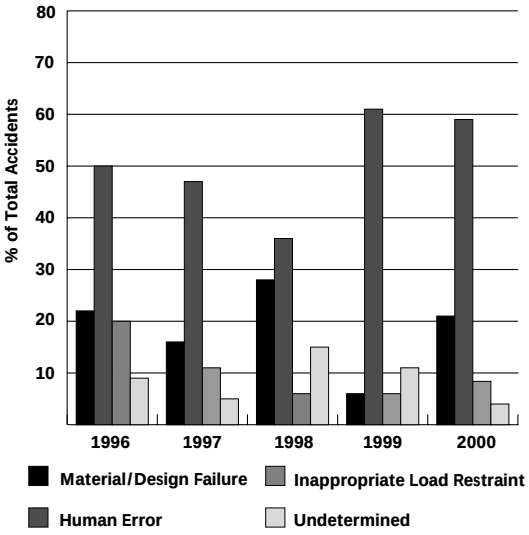
Selected Road Transport Accident Statistics

Number of Accidents per 1 000 Licensed Vehicles (Bulk Only)



The 2000 value is much higher than in 1999 and 1998 due to a higher number of bulk vehicle accidents.

Causes of Transport Accidents



As for the previous five years, human error continues to be the major causal group of dangerous goods transport accidents.

Dangerous Goods Transport Accident Summary Report

	DATE	LOCATION	GOODS	CLASS	COMMENTS
W01/00	14/01/00	BECKENHAM	Petroleum Fuel	3	A fuel tanker rolled over while making a right-hand turn at an intersection, resulting in significant fuel spillage.
W03/00	21/01/00	GERALDTON	Petroleum Fuel	3	A fuel tanker, left unattended at a roadhouse by the driver, rolled away causing extensive damage to a residential premises.
W02/00	24/01/00	ELLENBROOK	Petroleum Fuel	3	A fuel tanker rolled over onto its side while negotiating a roundabout, eventually coming to rest upside down and resulting in significant fuel spillage.
W05/00	28/01/00	CANNING VALE	Kerosene	3	An empty fuel tanker detatched from a tow-truck as the vehicle rounded a corner. The impact caused a delivery hose to break free resulting in a small spillage of kerosene onto the road.
W04/00	29/01/00	LEINSTER	Sulfuric Acid	8	The rear tanker of a triple road-train rolled over after hitting a deteriorated section of road, leading to a minor loss of product and extensive damage to the tanker.
W06/00	06/02/00	EUCLA	Phenoxyacetic Acid Derivative Pesticide, Liquid, Toxic	6.1	The driver of a vehicle transporting packaged dangerous goods noticed that a drum of pesticide had leaked when he stopped at a quarantine station.
W07/00	22/02/00	KWINANA	Ammonium Nitrate	5.1	A forklift transferring a freight container of ammonium nitrate from a road vehicle to the ground tipped forward when the driver applied the brakes. The incident resulted in a small spill of product.
W08/00	01/03/00	WALEBING	Corrosive Liquid, Toxic, N.O.S.	8	The rear trailer of a triple road-train, transporting sodium oxalate cake, rolled over after the driver swerved to avoid a collision with an oncoming vehicle on a narrow stretch of road.
W09/00	03/03/00	CORRIGIN	Oxidizing Liquid, N.O.S.	5.1	The driver of a semi-trailer tanker, carrying a load of ammonium nitrate emulsion, took a sharp bend on a detour route and rolled over, resulting in a significant product spill.
W10/00	03/03/00	AUSTRALIND	Petrol	3	An underground fuel tank at a service station was overfilled during a transfer operation from a fuel tanker, resulting in a small spill of product onto the service station forecourt.
W11/00	18/03/00	WIDGIE-MOLTHA	Turpentine Substitute Firelighters, Solid	3 4.1	A vehicle carrying mixed dangerous goods rolled over spilling a small quantity of flammble liquids after the driver's attention was distracted when he reached across the cabin for a cigarette.
W12/00	27/04/00	PORT HEDLAND	Hydrochloric Acid	8	Acid was found to be leaking from a tank on the second trailer of a triple road-train parked at a truck-stop after a valve seal failed.
W16/00	14/05/00	GERALDTON	Petroleum Fuel	3	A spill of petrol flowed into a stormwater drain after a car collided with a fuel tanker transfer hose during a fuel delivery at a service station.
W13/00	15/05/00	SUBIACO	Oxygen, Refrigerated Liquid	2.2	A fire occurred on a liquid oxygen tanker during a transfer operation at a hospital storage facility. The fire was extinguished and there was no loss of product.
W15/00	22/05/00	PITHARA	Toxic Liquid, Oxidizing, N.O.S.	6.1	A small quantity of lead nitrate solution leaked from a split in the top of an IBC that was being transported by road to a minesite.
W14/00	22/05/00	BOXWOOD HILL	Petroleum Fuel	3	A fuel tanker failed to round a bend on a highway and rolled over resulting in a significant product spill.
W17/00	22/06/00	ROTTNEST ISLAND	Petroleum Gases, Liquefied	2.1	A small leak of LP Gas occurred from a damaged fitting on a road tank vehicle during the transfer of product to a storage tank.
W18/00	25/07/00	WATTLE GROVE	Bipyridilium Pesticide, Liquid, Toxic	6.1	Two drums containing pesticide fell from a vehicle onto a highway resulting in spillage and major disruption to traffic while the chemical was recovered.

Dangerous Goods Transport Accident Summary Report

	DATE	LOCATION	GOODS	CLASS	COMMENTS
W20/00	12/09/00	DWELLINGUP	Sodium Hydroxide Solution	8	A spill of sodium hydroxide occurred after the rear tanker of a road-train rolled over when tyres on the vehicle blew-out.
W19/00	18/09/00	KWINANA	Sulfuric Acid	8	Acid leaked from a tanker valve during transit as a result of the failure of a flange gasket.
W21/00	20/09/00	NORSEMAN	Pesticide Liquid, Toxic, N.O.S. Organophos-phorus Pesticide, Liquid, Toxic, Flammable	6.1 6.1	A truck carrying a range of agricultural chemicals was involved in a collision with a car towing a caravan. The impact resulted in the death of the car driver and triggered a fire in the caravan which spread to the truck and engulfed the vehicle and most of its load. The incident is the subject of a Coronial Inquiry.
W23/00	02/11/00	KWINANA	Ammonia, Anhydrous	2.3	A large-scale emergency response was initiated after a rail worker detected a smell of ammonia at a marshalling yard. The investigation found a small vapour weep from a valve gland.
W24/00	13/11/00	GERALDTON	Petroleum Crude Oil	3	A crude oil tanker attached to the rear of a B-double road vehicle combination rolled over after clipping a stormwater drain, resulting in significant product loss.
W25/00	29/11/00	WILUNA	Ammonium Nitrate	5.1	A spill of ammonium nitrate occurred when the driver of a road-train lost control of the vehicle on a gravel road, resulting in a freight container and tipping frame breaking free from the rear trailer.
W26/00	09/12/00	KUNUNURRA	Methyl Isobutyl Carbinol	3	A small spill of flammable liquid occurred when the rear trailer of a triple road-train rolled over resulting in drums falling from the vehicle.
W28/00	14/12/00	NEWMAN	Fuel, Aviation, Turbine Engine	3	An empty fuel tanker at the rear of a triple road-train rolled over after the driver's attention was distracted while adjusting the windscreen-wiper speed.
W27/00	14/12/00	LANDSDALE	Nitric Acid	8	A small spill of nitric acid occurred when the rear door of a pantechnicon broke open and several small packages fell out onto the road.
W29/00	19/12/00	WIDGIE-MOOLTHA	Ammonium Nitrate	5.1	A spill of ammonium nitrate occurred when the driver of a B-triple road-train lost control of the vehicle when negotiating a right-hand bend, resulting in the vehicle rolling over and IBCs splitting open.

Dangerous Goods Transport Accident Report

Date	14 January 2000	**Time**	0210 hours
Location	Cnr Nicholson Road and Albany Highway BECKENHAM		

Dangerous Goods Involved **PETROLEUM FUEL**

Class	3
Sub-Risk	-
UN No.	1270
Packing Group	II
Quantity Present	36 000 litres
Quantity Involved	12 000 litres

Incident

While the driver of a petroleum fuel tanker was making a right-hand turn at an intersection, the trailer rolled over onto its side. The first compartment of the tanker, which contained petrol, was severely ruptured and its entire contents rapidly leaked into a drain on the side of the road. Several other compartments of the tanker leaked fuel either through damaged vents or through holes in the tank shell.

The emergency services attended the scene and cordoned off the area, later having to evacuate nearby residents when it was realised that fuel had flowed into nearby drains. Several roads were closed to traffic for over 12 hours while the emergency services recovered fuel, dug up contaminated soil and righted the vehicle.

Cause

The incident was caused by the driver choosing an inappropriate speed for the corner taken. A subsequent police investigation found no faults with the vehicle that would have contributed to the incident.

Consequences

The police are pursuing a charge of dangerous driving against the driver of the vehicle, and depending upon the results of this action, this Division may suspend or cancel the driver's *Bulk Driver Licence*.

DGAT W01/00
File No. V1 1701-00
& V2 1718-00

Dangerous Goods Transport Accident Report

Date	21 January 2000	**Time**	0730 hours
Location	North West Coastal Highway GERALDTON		
Dangerous Goods Involved	**PETROLEUM FUEL**		
	Class	3	
	Sub-Risk	-	
	UN No.	1270	
	Packing Group	II	
	Quantity Present	33 130 litres	
	Quantity Involved	Nil	

Incident

An unattended fuel tanker, that was left with its engine running, rolled away whilst its driver was inside a roadhouse. The tanker travelled about 400 metres, demolishing a brick wall, before finally crashing into an occupied residential property causing significant damage to the house, adjoining garage and car within.

The driver of the tanker suffered minor injuries after he noticed the vehicle start to roll away and gave chase. No fuel was lost from the tanker as a result of the incident. However, 800 litres of diesel fuel was spilt from the prime mover's fuel tanks. The emergency services evacuated nearby residents, applied foam, and then pulled the damaged vehicle free.

Cause

The cause of the incident was the inadequate application of the vehicle's park-brake.

Consequences

The fact that no fuel was lost from the tanker, considering the force of the impact, demonstrates the inherent safety in design and construction of modern fuel tankers. Investigation found insufficient evidence to support prosecution or other action against the driver.

DGAT W03/00
File No. 1840-00

Dangerous Goods Transport Accident Report

Date	24 January 2000	**Time**	0500 hours
Location	Cnr Gnangara Road and Pinaster Parade ELLENBROOK		
Dangerous Goods Involved	**PETROLEUM FUEL**		
	Class	3	
	Sub-Risk	-	
	UN No.	1270	
	Packing Group	II	
	Quantity Present	36 500 litres	
	Quantity Involved	2 500 litres	

Incident

While the driver of a petroleum fuel tanker was negotiating a roundabout the tanker rolled over onto its side, eventually coming to rest upside down. This resulted in fuel being lost through an emergency vent and dip-tube camlock fitting.

The emergency services attended the scene and closed off roads to traffic. Contractors were then used to transfer product from the upturned tanker into recovery tankers before the vehicle was righted.

Cause

The incident was caused by the driver selecting an inappropriate speed for the entry and proposed exit from the roundabout, and the road conditions at the time. A subsequent police investigation found no faults with the vehicle that would have contributed to the incident.

Consequences

It is not expected that the police will proceed with any charges against the driver due to conflicting witness evidence.

A series of recommendations came out of the Division's incident investigation with regard to driver training, emergency response procedures and the design of tanker fittings. The consignor and prime contractor are acting on these recommendations and regulatory changes are also being contemplated.

DGAT W02/00
File No. V1 250-00
& V2 1779-00

Dangerous Goods Transport Accident Report

Date	28 January 2000	**Time**	1314 hours
Location	Cnr Bannister and Nicholson Roads CANNING VALE		
Dangerous Goods Involved	**KEROSENE**		
	Class	3	
	Sub-Risk	-	
	UN No.	1223	
	Packing Group	III	
	Quantity Present	100 litres	
	Quantity Involved	100 litres	

Incident

A small spill of kerosene occurred when an empty fuel tanker detached from a tow-truck as the vehicle rounded a corner enroute to a repair shop. The impact resulted in a hose reel, which still contained product, breaking loose and spilling kerosene onto the road surface. The emergency services were contacted and the spill was cleaned up.

Cause

The cause of the incident was the failure of the tow-truck driver to adequately attach the fuel tanker to the tow-truck. It was found that the tanker had been towed from the front-end instead of the back-end, as instructed by the owner of the fuel tanker.

Consequences

Although minor breaches were detected, the Division does not intend to proceed with prosecution in this case. The vehicle owner has been advised of his obligation to comply with the regulations, even if fuel tankers are nominally empty. The towing company has also been reminded of its legal responsibilities when towing dangerous goods vehicles.

DGAT W05/00
File No. 1840-00

Dangerous Goods Transport Accident Report

Date	29 January 2000	**Time**	0750 hours
Location	Northern Goldfields Highway LEINSTER		
Dangerous Goods Involved	**SULFURIC ACID**		
	Class	8	
	Sub-Risk	-	
	UN No.	1830	
	Packing Group	II	
	Quantity Present	14 831 litres	
	Quantity Involved	411 litres	

Incident

The rear tanker of a triple road-train rolled over after it hit a deteriorated stretch of road, leading to a small spill of sulfuric acid. The incident occurred when the rear tanker engaged with a guttered section of road causing it to whip and roll over. The king-pin of the rear tanker snapped and the tanker became detached, rolling onto its left-hand side, while the prime mover and lead tankers remained upright and stopped on the road a short distance further on. The emergency services were contacted and the company's response unit attended and transferred product to a recovery tanker. There was a minor spill of product and the area was neutralised and cleaned up with minimal disruption to traffic. The spill occurred from a fitting on the tanker and there was no rupture of the tanker shell.

Cause

The incident appears to have been caused by a deteriorated road surface.

Consequences

No breaches of the regulations have been identified, however this Division will consider the safety of this type of vehicle configuration for transporting dangerous goods as part of a review of recorded dangerous goods transport accidents in Western Australia.

DGAT W04/00
File No. 1840-00

Dangerous Goods Transport Accident Report

Date	6 February 2000	**Time**	0900 hours
Location	Eyre Highway EUCLA		

Dangerous Goods Involved **PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC**

Class	6.1
Sub-Risk	-
UN No.	3348
Packing Group	III
Quantity Present	1 280 litres
Quantity Involved	20 litres

Incident

The driver of a vehicle transporting packaged dangerous goods noticed that a drum of pesticide had leaked when he stopped at the Eucla Quarantine Station.

The emergency services were contacted, and members then assessed the situation and instructed the driver to proceed on to a designated yard in Kalgoorlie where they removed the drum from the vehicle and transferred it into an over-drum for transport on to the consignor.

Cause

The leak appears to have been caused by rough package handling during loading.

Consequences

The consignor, prime contractor and loader have all been made aware of the incident and will review their loading procedures.

DGAT **W06/00**
File No. **1840-00**

Dangerous Goods Transport Accident Report

Date	22 February 2000	**Time**	1415 hours
Location	Rail Container Terminal KWINANA		
Dangerous Goods Involved	**AMMONIUM NITRATE**		
	Class	5.1	
	Sub-Risk	-	
	UN No.	1942	
	Packing Group	III	
	Quantity Present	24 000 kilograms	
	Quantity Involved	40 kilograms	

Incident

A forklift involved in the transfer of a freight container of ammonium nitrate tipped forward when the driver applied the brakes. The impact with the ground resulted in the container doors breaking open, resulting in approximately 40 kilograms of ammonium nitrate being spilt. The angle of the forklift also led to the spill of approximately 30 litres of diesel fuel from its fuel tank. The two spilt materials did not mix and were cleaned up by the emergency services.

Cause

The cause of the incident was the inappropriate strength of application of the brakes of the forklift for the speed it was travelling, and for the height of the container it was carrying. It was also reported that the driver was inexperienced in using this type of top-lifting forklift.

Consequences

The transport company involved has been advised of its training obligations under the regulations, and that everyone involved in the transfer or transport of dangerous goods requires adequate training to ensure operational safely.

DGAT W07/00
File No. 1840-00

Dangerous Goods Transport Accident Report

Date	1 March 2000	**Time**	1900 hours
Location	Great Northern Highway WALEBING		
Dangerous Goods Involved	**CORROSIVE LIQUID, TOXIC, N.O.S.**		
	Class	8	
	Sub-Risk	6.1	
	UN No.	2922	
	Packing Group	II	
	Quantity Present	60 550 litres	
	Quantity Involved	Nil	

Incident

The rear trailer of a triple road-train, transporting sodium oxalate cake, rolled over after the driver swerved to avoid a collision with an oncoming vehicle. The incident occurred while the vehicle was negotiating a bend at approximately 80 km/h on a narrow stretch of road. There were no injuries or loss of product as a result of the rollover.

Cause

The incident was caused by a combination of the driver swerving to avoid collision with an oncoming vehicle and inappropriate vehicle speed for the narrow stretch of road.

Consequences

The transport company incurred clean-up costs of approximately $60 000. The local shire has initiated road works in the area to build up the gravel drop on the shoulder of the road to prevent similar rollover incidents and to minimise the potential for chemical spills into a nearby creek.

DGAT W08/00
File No. 1840-00

Dangerous Goods Transport Accident Report

Date	3 March 2000	**Time**	1530 hours
Location	Hampton Road CORRIGIN		
Dangerous Goods Involved	**OXIDIZING LIQUID, N.O.S.**		
	Class	5.1	
	Sub-Risk	-	
	UN No.	3139	
	Packing Group	II	
	Quantity Present	24 000 litres	
	Quantity Involved	12 000 litres	

Incident

The driver of a semi-trailer tanker, carrying a load of ammonium nitrate emulsion, took a sharp bend on a detour route and rolled over. The vehicle was estimated to have been travelling at a speed of 90 km/h when the rollover occurred. The resulting damage allowed approximately half the tank's contents to spill, however the driver escaped with only minor injuries.

Cause

The incident was caused as a result of the driver choosing a speed inappropriate for the 90-degree corner and the road conditions at the time.

Consequences

The damage and clean-up cost the transport company over $200 000. The transport company and the driver have been alerted to their responsibilites under the provisions of the *Dangerous Goods (Transport) Act 1998.*

DGAT W09/00
File No. 1840-00

Dangerous Goods Transport Accident Report

Date	3 March 2000	**Time**	1630 hours
Location	Australind Drive AUSTRALIND		
Dangerous Goods Involved	**PETROL**		
	Class	3	
	Sub-Risk	-	
	UN No.	1203	
	Packing Group	II	
	Quantity Present	10 000 litres	
	Quantity Involved	50 litres	

Incident

An underground fuel tank at a service station was overfilled during a transfer operation from a fuel tanker. This resulted in a small petrol spill occurring prior to the driver noticing fuel running out of the test-fill inlet. He then stopped the transfer operation, contacted the emergency services and began the clean-up operation.

Cause

Investigation has found that the dip indicator in the tank was not the original dip indicator, and even though the correct fill level had been marked on it, the driver miscalculated the available ullage in the tank prior to discharging fuel.

Consequences

A new calibrated dip indicator has since been installed in the tank. Training records for the fuel tanker drivers were reviewed and found to be acceptable.

DGAT W10/00
File No. 1840-00

Dangerous Goods Transport Accident Report

Date	18 March 2000	**Time**	0430 hours
Location	Coolgardie-Esperance Road WIDGIEMOOLTHA		
Dangerous Goods Involved	**TURPENTINE SUBSTITUTE**		
	Class	3	
	Sub-Risk	-	
	UN No.	1300	
	Packing Group	III	
	Quantity Present	800 litres	
	Quantity Involved	1 litre	
	FIRELIGHTERS, SOLID		
	Class	4.1	
	Sub-Risk	-	
	UN No.	2623	
	Packing Group	III	
	Quantity Present	3 800 kilograms	
	Quantity Involved	Nil	

Incident

A vehicle transporting mixed packaged dangerous goods veered off the road and rolled over after the driver reached across the cabin for a cigarette. The impact resulted in a number of packages being strewn across the road, however it is estimated that only a small quantity of flammable liquid was spilt from a single 200-litre drum. It took the emergency services some time to sift through the wreckage to ascertain what was involved, and to determine the extent of the spill, before the road could be cleared.

Cause

The incident was caused by inattention by the driver.

Consequences

As a result of the incident, the police charged the driver with careless driving.

DGAT W11/00
File No. 103-01

Dangerous Goods Transport Accident Report

Date	27 April 2000	**Time**	0600 hours
Location	Great Northern Highway PORT HEDLAND		
Dangerous Goods Involved	**HYDROCHLORIC ACID**		
	Class	8	
	Sub-Risk	-	
	UN No.	1789	
	Packing Group	II	
	Quantity Present	19 000 litres	
	Quantity Involved	1 500 litres	

Incident

Hydrochloric acid was found to be leaking from a tank on the second trailer of a triple road-train parked at a truck-stop. The driver, who was asleep in the cabin of the vehicle at the time, was alerted to the leak by a passing motorist.

The leak was emanating from the rear valve of the tank and in order to stop the leak, the driver opened then closed the internal valve in an attempt to re-seal it, however this proved unsuccessful. He then notified the prime contractor who initiated emergency response action by contacting the emergency services and the local shire. Road-blocks were set-up in order to allow the safe decoupling and isolation of the leaking tanker, and a bund constructed to contain leaking product. The remaining contents of the tanker were transferred into a recovery tanker. The contaminated soil was then treated with hydrated lime and disposed of at a local landfill site.

Cause

Investigation found that an internal valve seal was faulty which allowed acid to leak down between the internal and external valves. The acid then attacked a loose stainless steel stud, used to hold the internal and external valves in place, leading to corrosion which resulted in the leak.

Consequences

The prime contractor incurred an expense of at least $40 000 and lost 40 person-hours as a result of the incident. Valves on the tanker and on others in the prime contractor's fleet have since been replaced with different valves. The prime contractor's tanker maintenance schedule was reviewed and found to be acceptable, however this schedule will be further reviewed and refined as a result of the incident.

DGAT W12/00
File No. 103-01

Dangerous Goods Transport Accident Report

Date	14 May 2000	**Time**	1630 hours
Location	Chapman Road GERALDTON		
Dangerous Goods Involved	**PETROLEUM FUEL**		
	Class	3	
	Sub-Risk	-	
	UN No.	1270	
	Packing Group	II	
	Quantity Present	34 000 litres	
	Quantity Involved	300 litres	

Incident

A petrol spill occurred from a fuel tanker at a service station when another motorist collided with the delivery hose during product transfer.

After the tanker had been discharging fuel for several minutes, a car turned into the service station, ran over the warning cones and crashed into the fill-point hydrant. The impact caused fuel to flow out onto the forecourt and towards the road. The tanker driver, who was in the vicinity of the tanker, reacted quickly to shut-off the tanker valving to prevent further spillage. At this point, the driver of the car responsible for the incident reversed off the hydrant and fled the scene.

The emergency services were contacted, whilst the tanker driver endeavoured to prevent the spilt fuel from flowing off-site into a storm-water drain. However, his efforts did not prevent some of the fuel from making its way into the drain.

Cause

The incident was caused by the careless driving of a third party.

Consequences

The owner of the service station has been requested to make improvements to on-site drainage to ensure that spills can be retained on the premises. The police are investigating breaches associated with the driver of the car leaving the scene of an incident.

DGAT W16/00
File No. 128-01

Dangerous Goods Transport Accident Report

Date	15 May 2000	**Time**	0700 hours
Location	Hamilton Street SUBIACO		
Dangerous Goods Involved	**OXYGEN, REFRIGERATED LIQUID**		
	Class	2.2	
	Sub-Risk	5.1	
	UN No.	1073	
	Packing Group	-	
	Quantity Present	18 500 litres	
	Quantity Involved	Nil	

Incident

A fire occurred on a liquid oxygen tanker during a transfer operation at a hospital storage facility. The driver of the liquid oxygen tanker connected up power and hosing in order to conduct a product transfer. However, when he started up the transfer pump on the tanker, it caught fire.

The emergency shut-down system was immediately activated by the driver who then extinguished the fire with one of the vehicle's fire extinguishers. While closing the auxiliary valving on the tanker, the fire re-started and a second fire extinguisher had to be used. The emergency services were contacted and attended the scene. The tanker was then driven clear of the liquid oxygen storage tank.

An inspection indicated that no damage had occurred to the tank, pipework or fittings, and there was no uncontrolled release of product. The tanker was then driven back to the owner's premises in order to conduct further investigations into the cause of the fire.

Cause

Investigation found that the fire was caused by the seizure of bearings within the transfer pump.

Consequences

The transfer pump was found to have been inspected and maintained in accordance with manufacturer's recommendations and no breaches of the regulations were detected. The owner of the tanker has examined other similiar units in their vehicle fleet to minimise the potential for a recurrence.

DGAT W13/00
File No. 103-01

Dangerous Goods Transport Accident Report

Date	22 May 2000	**Time**	2315 hours
Location	Great Northern Highway PITHARA		
Dangerous Goods Involved	**TOXIC LIQUID, OXIDIZING, N.O.S.**		
	Class	6.1	
	Sub-Risk	5.1	
	UN No.	3122	
	Packing Group	III	
	Quantity Present	1 000 litres	
	Quantity Involved	100 litres	

Incident

A spill of lead nitrate solution occurred after an Intermediate Bulk Container (IBC) split during transport. During a routine inspection of his load, the driver of a triple road-train noticed liquid leaking from an IBC located on the rear trailer of the vehicle. The driver contacted the prime contractor who in turn notified the emergency services. The consignor of the product was also notified and they arranged for transfer of the product into a recovery IBC.

Cause

A 25-mm split was found in the top of the plastic IBC. The prime contractor conducted an investigation which indicated that the IBC's plastic bladder had suffered degradation as a result of exposure to sunlight. Further consultation with an IBC specialist confirmed that the most likely cause of the split in the IBC was ultra-violet degradation. It is believed that plastics imported from some countries have only a small quantity of ultra-violet stabilizers present in the plastic due to milder climatic conditions.

Consequences

No breaches were identified as a result of this incident, however the consignor has withdrawn this type of IBC bladder from use. The Division has also contacted the bladder manufacturer regarding this failure and they have agreed to supply such bladders only for non-dangerous goods applications.

DGAT W15/00
File No. 103-01

Dangerous Goods Transport Accident Report

Date	22 May 2000	**Time**	1300 hours
Location	South Coast Highway BOXWOOD HILL		
Dangerous Goods Involved	**PETROLEUM FUEL**		
	Class	3	
	Sub-Risk	-	
	UN No.	1270	
	Packing Group	II	
	Quantity Present	19 800 litres	
	Quantity Involved	16 300 litres	

Incident

A petroleum fuel tanker rolled onto its side after it failed to round a bend on a highway, 160 kilometres east of Albany. The tanker skidded about 80 metres along the road before coming to rest and product then began leaking from a hole in the tank shell caused by abrasion with the road surface. A local government vehicle was the first on the scene and was able to provide sand for temporary bunding to contain the spill. The emergency services and other recovery personnel attended the scene and recovered approximately 3 500 litres of fuel from the tanker, however an estimated 16 300 litres was lost.

Cause

The incident was caused by a combination of inattention by the driver, poor road conditions and inappropriate speed.

Consequences

The prime contractor has instructed its drivers to ensure that they drive in accordance with the road conditions, especially when driving on the section of the South Coast Highway where the incident occurred. Police have confirmed that this section of road is a notorious 'black-spot' for traffic crashes and have indicated that they do not expect to proceed with any charges against the driver. The prime contractor has also made improvements to its communication systems for emergency situations.

DGAT W14/00
File No. 103-01

Dangerous Goods Transport Accident Report

Date	22 June 2000	**Time**	1100 hours
Location	Power Station ROTTNEST ISLAND		
Dangerous Goods Involved	**PETROLEUM GASES, LIQUEFIED**		
	Class	2.1	
	Sub-Risk	-	
	UN No.	1075	
	Packing Group	-	
	Quantity Present	17 000 litres	
	Quantity Involved	3 litres	

Incident

A small leak of LP Gas occurred during a transfer operation from a road tanker to a storage tank at a power station. The leak occurred from a crack in a tube on top of the metering unit on the tanker.

The driver shut-down the unit and contacted the consignor for advice. Meanwhile, the Rottnest Island authorities and emergency services decided to have the vehicle towed to an isolated location. A gas fitter was then contacted and replaced the faulty tube fitting.

Cause

The leak was caused by metal fatigue, resulting in a small crack in a stainless steel tube at a junction on the LP Gas meter.

Consequences

Although the incident was considered minor, the Division has requested that the transport company conduct checks of similar fittings on all its LP Gas tankers and incorporate these checks into its regular maintenance schedule to prevent a recurrence.

DGAT W17/00
File No. 103-01

Dangerous Goods Transport Accident Report

Date	25 July 2000	**Time**	1005 hours
Location	Tonkin Highway WATTLE GROVE		
Dangerous Goods Involved	**BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC**		
	Class	6.1	
	Sub-Risk	-	
	UN No.	3016	
	Packing Group	III	
	Quantity Present	160 litres	
	Quantity Involved	40 litres	

Incident

Two 20-litre drums of pesticide fell from a vehicle on a major road, resulting in a chemical spill. The driver was not aware the drums had fallen from the vehicle and proceeded to his destination. The spill was reported to the emergency services by a passing motorist and traffic was diverted for several hours while the spillage was treated and recovered by the emergency services.

Cause

It was reported that the incident was caused as a result of the drums breaking free of their shrink-wrapping and making their way through gaps in the vehicle's gates.

Consequences

The driver and prime contractor have modified their operating procedures so that all future transport of packaged dangerous goods will be conducted in caged pallets to ensure appropriate stowage and restraint.

Costs associated with the incident clean-up are being sought from the prime contractor by the emergency services.

An information campaign has also been launched by the loader and consignor of the goods to inform agricultural chemical suppliers and their prime contractors and drivers of their statutory obligations relating to the stowage and restraint of packaged dangerous goods during transport.

DGAT W18/00
File No. 103-01

Dangerous Goods Transport Accident Report

Date	12 September 2000	**Time**	1120 hours
Location	Williams Road DWELLINGUP		
Dangerous Goods Involved	**SODIUM HYDROXIDE SOLUTION**		
	Class	8	
	Sub-Risk	-	
	UN No.	1824	
	Packing Group	II	
	Quantity Present	14 000 litres	
	Quantity Involved	2 000 litres	

Incident

A spill of sodium hydroxide occurred after the rear tanker of a road-train rolled over. As the driver approached a right-hand bend, he felt the rear trailer pull to the left. The driver looked in his mirror to see the rear trailer swing around to the left and onto the shoulder of the road, where it rolled over. He got out of the vehicle to check for leaks and found product flowing out of a damaged hatch which had been struck by a splash guard during the incident. The driver then contacted the prime contractor who arranged for equipment to construct an earthen bund to contain the spill.

Cause

A vehicle examination indicated that the probable cause of the incident was a blow-out of the tyres on the dolly between the two trailers.

Consequences

There were no injuries as a result of the incident and no breaches detected. The prime contractor has reviewed its vehicle maintenance schedule and found that the vehicle had been serviced just two weeks prior to the incident. The design of the dolly was also reviewed and found to meet design standards.

DGAT W20/00
File No. -

Dangerous Goods Transport Accident Report

Date	18 September 2000	**Time**	0445 hours
Location	Kwinana Beach Road KWINANA		
Dangerous Goods Involved	**SULFURIC ACID**		
	Class	8	
	Sub-Risk	-	
	UN No.	1830	
	Packing Group	II	
	Quantity Present	5 000 litres	
	Quantity Involved	80 litres	

Incident

A spill of sulfuric acid occurred after a gasket on the tanker failed. Shortly after leaving the filling site, the driver noticed a noise in the vehicle braking system and so proceeded to the prime contractor's premises nearby. Upon arrival, the driver could see acid leaking from one of the tanker valves onto the braking system and then onto the ground. He immediately moved the tanker to a safe area on a limestone pad, notified the consignor and prime contractor, and transferred the contents of the leaking compartment into an empty one on the same vehicle. The consignor's emergency response team was activated and followed the route taken by the tanker in order to locate any spillage and cover any acid spills on the road with neutralizing agent.

Cause

Investigation identified that a recent change in the types of products transported, coupled with an increased frequency in the number of times that the compartments needed to be washed out, had contributed to the premature degradation of the gasket material - partially due to the heat created when sulfuric acid mixes with water during washing.

Consequences

The prime contractor has changed the gasket material used in these flanges. The prime contractor has also improved its tanker inspection schedule by requiring that all gaskets be removed from service after three months and returned to the manufacturer for testing to ascertain the level of degradation. This action will provide information on which to base an appropriate maintenance and replacement schedule for all gaskets used.

DGAT W19/00
File No. 103-01

Dangerous Goods Transport Accident Report

Date	20 September 2000	**Time**	1300 hours
Location	Eyre Highway NORSEMAN		

Dangerous Goods Involved

PESTICIDE, LIQUID, TOXIC, N.O.S.

Class	6.1
Sub-Risk	-
UN No.	2902
Packing Group	III
Quantity Involved	3 000 litres
Quantity Present	1 800 litres

ORGANOPHOSPHOROUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE

Class	6.1
Sub-Risk	3
UN No.	3017
Packing Group	III
Quantity Involved	2 020 litres
Quantity Present	2 020 litres

Incident

A truck carrying a range of agricultural chemicals was involved in a collision with a car towing a caravan. The impact resulted in the death of the car driver and triggered a fire in the caravan which spread to the truck and engulfed the vehicle and most of its load. The incident occurred when the driver of the truck attempted to overtake the car and caravan. It was reported that the driver of the car veered off the road onto the gravel verge while trying to give the truck room to pass, but lost control and swung across the road into the path of the truck.

Cause

The cause of the incident is under investigation and is the subject of a Coronial Inquiry.

Consequences

Most of the load of agricultural chemicals were burnt or leaked as a result of the incident. The driver of the car was killed on impact and the passenger of the car received serious injuries and died three weeks later. The driver of the truck was uninjured and tried to assist the occupants of the car.

DGAT W21/00
File No. -

Dangerous Goods Transport Accident Report

Date	2 November 2000	**Time**	1830 hours
Location	Freight Marshalling Yard KWINANA		
Dangerous Goods Involved	**AMMONIA, ANHYDROUS**		
	Class	2.3	
	Sub-Risk	8	
	UN No.	1005	
	Packing Group	-	
	Quantity Present	43 500 litres	
	Quantity Involved	Residual vapour only	

Incident

A small release of ammonia vapour occurred from the external valve of a fully loaded rail wagon at a marshalling yard. A rail employee discovered the leak during a regular check of loaded wagons when he noticed a slight smell of ammonia. He also could hear a hissing sound, which he assumed to be leaking ammonia. The employee immediately contacted the emergency services and the company's emergency response team, who attended the scene.

The company's duty site controller investigated the leak and found that the hissing sound was emanating from a compressed air leak on one of the rail wagons which had nothing to do with the ammonia.

Further investigation found that the gland of an external valve was weeping a small amount of residual ammonia vapour from a small section of pipe between the internal and external valves. The valve was found to be tightly closed, so the duty site controller tightened the gland nut to stop the leak. The rail wagon was then allowed to proceed to its destination.

Cause

The leak was caused by shrinkage of the valve gland-packing.

Consequences

The incident was found to be very minor, however the fact that a significant emergency response action was initiated has highlighted some deficiencies in the company's processes. As a result, the company has modified some of its procedures and will provide additional education to marshalling yard staff on the properties and hazards of ammonia.

DGAT W23/00
File No. -

Dangerous Goods Transport Accident Report

Date	13 November 2000	**Time**	0015 hours
Location	Brand Highway GERALDTON		
Dangerous Goods Involved	**PETROLEUM CRUDE OIL**		
	Class	3	
	Sub-Risk	-	
	UN No.	1267	
	Packing Group	II	
	Quantity Present	86 000 litres	
	Quantity Involved	25 530 litres	

Incident

A crude oil tanker attached to the rear of a B-double road vehicle combination rolled over onto its side after clipping a stormwater drain. The rollover resulted in product-loss through several damaged tank shell seams. The emergency services and the Department of Environmental Protection attended the scene to recover the spilt product, which had solidified. The damaged tanker was removed from the incident site using a low-loader.

Cause

It was reported that the incident was caused by the driver swerving to avoid a kangaroo on the road, which led to the tanker clipping a stormwater drain and rolling over.

Consequences

Although not a cause of the incident, the investigation found that two of the tankers in the vehicle combination had been modified without approval. The prime contractor was instructed to cease using all such modified tankers for the transport of dangerous goods until appropriately approved.

DGAT W24/00
File No. -

Dangerous Goods Transport Accident Report

Date	29 November 2000	**Time**	0645 hours
Location	Jundee Mine Site Road WILUNA		
Dangerous Goods Involved	**AMMONIUM NITRATE**		
	Class	5.1	
	Sub-Risk	-	
	UN No.	1942	
	Packing Group	III	
	Quantity Present	24 000 kilograms	
	Quantity Involved	200 kilograms	

Incident

A freight container of ammonium nitrate broke free from the rear trailer of a road-train travelling along a remote minesite road. The incident occurred when the driver of the vehicle unknowingly veered too close to the shoulder of the gravel-sand road allowing the rear trailer to slip into a spoon-drain. The driver noticed the vehicle pulling to the left as a result of the tyres on the rear trailer sinking into the soft ground, and tried to correct the vehicle. However, the trailer at the rear of the vehicle combination swung around to the point where the tipping-frame broke free from the trailer.

Cause

Investigation indicated that inattention by the driver was the most likely cause of the incident, however poor road conditions also contributed.

Consequences

No breaches of the regulations were identified, however the transport company involved in the incident has been asked to review the structural integrity of attachment systems used to secure freight containers to its vehicles.

DGAT W25/00
File No. -

Dangerous Goods Transport Accident Report

Date	9 December 2000	**Time**	1850 hours
Location	Victoria Highway KUNUNURRA		
Dangerous Goods Involved	**METHYL ISOBUTYL CARBINOL**		
	Class	3	
	Sub-Risk	-	
	UN No.	2053	
	Packing Group	III	
	Quantity Present	1 400 litres	
	Quantity Involved	1 litre	

Incident

The rear trailer of a triple road-train rolled over resulting in drums of flammable liquid and general freight being strewn across the road. The driver noticed the vehicle pulling to the left, immediately after crossing a bridge, and looked in the rear-vision mirror to see sparks coming from the rear of the vehicle. He stopped the vehicle and found that the rear trailer was upside-down. The rollover resulted in seven 200-litre drums of flammable liquid and a quantity of general freight falling from the vehicle.

The road was closed for about eight hours while the emergency services removed the drums and cleaned up the area. There were no injuries reported and only one drum was found to have a slight leak.

Cause

The cause of the accident is still unclear, however it would appear that reduced stability in the third trailer of the triple road-train contributed to this incident.

Consequences

As a result of this incident, and a number of similar ones in recent times, the Division will review the types of vehicle configurations currently permitted to transport dangerous goods and will liaise with Main Roads WA on the need for limits to be set in relation to the length of vehicles used for such transport operations.

On a positive note, the fact that only one drum suffered minor leakage as a result of the incident has highlighted the benefits of high construction standards for dangerous goods packaging.

DGAT W26/00
File No. -

Dangerous Goods Transport Accident Report

Date	14 December 2000	**Time**	0200 hours
Location	Great Northern Highway NEWMAN		
Dangerous Goods Involved	**FUEL, AVIATION, TURBINE ENGINE**		

Class	3
Sub-Risk	-
UN No.	1863
Packing Group	II
Quantity Present	Residue only
Quantity Involved	Nil

Incident

The driver of a triple road-train lost control of his vehicle while attempting to adjust his windscreen-wiper speed, causing the third trailer of the combination to roll over. The emergency services attended and a recovery team arrived to right the tanker and to arrange for it to be towed away. At the time of the incident, the tanker contained residues only and therefore there was no loss of product.

Cause

The cause of the incident was reported to be inattention by the driver.

Consequences

No breaches of the regulations have been identified, however this Division will consider the safety of this type of vehicle configuration for transporting dangerous goods as part of a review of recorded dangerous goods transport accidents in Western Australia.

DGAT W28/00
File No. -

Dangerous Goods Transport Accident Report

Date	14 December 2000	**Time**	1020 hours
Location	Cnr Attwell and Gnangara Roads LANDSDALE		
Dangerous Goods Involved	**NITRIC ACID**		
	Class	8	
	Sub-Risk	5.1	
	UN No.	2031	
	Packing Group	II	
	Quantity Present	45 litres	
	Quantity Involved	3 litres	

Incident

A spill of nitric acid occurred when a plastic drum was punctured after it fell from the back of a truck. During cornering, the rear door of the pantechnicon broke open resulting in several drums of nitric acid falling from the vehicle. One 15-litre drum of nitric acid was punctured on impact resulting in a small spill. The emergency services were contacted and nearby streets were then cordoned off. The spilt acid was covered with absorbent material and the leaking container placed in an over-drum.

Cause

Investigation found that the body of the pantechnicon had twisted sufficiently during cornering to allow the locking mechanism on the rear door to slip past the latch.

Consequences

The prime contractor has arranged for the latching mechanism on the vehicle's rear door to be adjusted to ensure that minor movements in the vehicle body during normal transport operations do not allow the door to open. No breaches of the regulations were detected.

DGAT W27/00
File No. -

Dangerous Goods Transport Accident Report

Date	19 December 2000	**Time**	0408 hours
Location	Great Eastern Highway WIDGIEMOOLTHA		
Dangerous Goods Involved	**AMMONIUM NITRATE**		
	Class	5.1	
	Sub-Risk	-	
	UN No.	1942	
	Packing Group	III	
	Quantity Present	48 000 kilograms	
	Quantity Involved	25 000 kilograms	

Incident

The driver of a B-triple road-train, transporting ammonium nitrate in Intermediate Bulk Containers (IBCs), was negotiating a right-hand bend when the IBCs shifted causing the driver to lose control. The vehicle then rolled over resulting in approximately 25 IBCs splitting open.

Cause

It has been reported that insufficient load restraint coupled with the sharp driving manoeuvre to negotiate the bend in the road could have caused the incident.

Consequences

The incident resulted in $150 000 of vehicle damage, recovery costs of $20 000 and a loss of approximately 108 workhours.

DGAT W29/00
File No. 250/00

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* and *Dangerous Goods (Transport) Act 1998*.

Criteria

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

Any incident involving explosives or dangerous goods that causes or presents a significant potential to cause injury to a person or harm to the environment or property.

Examples of incidents intended to be classified as Recorded Accidents are

1. Any unintentional fire or explosion (including sabotage) involving or impinging on explosives or dangerous goods containers or storage facilities.
2. Any uncontrolled release of explosives or dangerous goods
   - from a bulk container or pipeline; or
   - that travels or impacts off the site where storage or handling occurs.
3. Any incident where explosives or dangerous goods containers can be shown to have fallen from a vehicle whilst it is in transit.
4. Any incident where a bulk container carrying explosives or dangerous goods is subjected to impact; typically through roll over or collision.

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

1. Packages falling from a forklift, sustaining damage and minor leakage with no subsequent injury, property damage or off-site effect.
2. Where small numbers of packages of dangerous goods are found on the roadside (with or without contents) and their origins remain undetermined.
3. Vehicle traffic accidents where the containers, their fittings and the dangerous goods remain intact and have not been subjected to impact.
4. An escape of dangerous goods that is expected during normal operations, maintenance or transfers.
5. Incidents that involve substances not classified as dangerous goods but are captured by WA Hazardous Materials Emergency Management Plan (HAZMAT).