Darwin International Airport

SPILL MANAGEMENT

PREVENTING STORMWATER POLLUTION

Darwin
International Airport

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STORMWATER POLLUTION

INTRODUCTION

For the purpose of this handbook, the airport environment includes all land leased from the Commonwealth government by Darwin International Airport (DIA) which could potentially be impacted by airport equipment and operations including construction equipment and public vehicles.

This handbook contains information on what stormwater and a spill is; whether the spill is major or minor; what to do when a spill occurs; how to minimise the impact and prevent the spill happening in the future.

The handbook should be read in conjunction with your company's own spill response procedures. Encourage others in your company to read this handbook and be familiar with its contents.

Copies of this handbook are available on the Darwin International Airport website www.darwinairport.com.au/working-airport/environment

Water is a valuable resource and our use of water for drinking, farming, fishing and recreation can be threatened by discharge of contaminants.

The airport environment has large areas of hard surfaces such as parking areas, runways, taxiways and aprons where there is the potential for liquid spills and leaks of oil, fuel, effluent and other chemicals.

If these spills are not contained and cleaned up, then contaminants can pose a significant risk to groundwater and can flow into the stormwater drains and out into Rapid Creek, Ludmilla Creek (from part of the AXIS precinct development including the Bunning site) and into the harbour.

Liquid spills at the airport are not only harmful to the environment, but can also pose a serious risk to the safety of people and property and damage pavement.

Photo credit: Brian Wilson (www.flickr.com/hainanconnection)

Darwin International Airport (DIA) has prepared this handbook on spill response procedures for airport workers who use, handle, store or transport substances that could contaminate the airport environment.

WHAT IS STORMWATER?

The stormwater system is designed to prevent flooding by collecting rainwater from roofs and paved areas of ground.

On its way to the gutter and the stormwater drain outside your hangar, apron or building this rainwater picks up pollutants and contaminants including litter, cigarette butts, animal excrement, dust, plant materials, petrol, oil, lead and other metals or materials left behind on aprons, car parks and roads.

The water then travels through a system of underground pipes and open drains and is released directly and untreated into Rapid Creek (from airport operations), Ludmilla Creek (from part of the AXIS precinct development including the Bunning site) and eventually into Darwin Harbour. So whatever enters that drain outside your hangar, apron or building – whether it's poured in intentionally or washed down with rainwater – enters our natural waterways in virtually the same untreated condition.

HOW DOES STORMWATER POLLUTION AFFECT YOU?

Yes, stormwater pollution creates ecological damage. But it can also be a threat to public health – preventing us from taking part in and enjoying the recreational activities that we've all grown up with.

» Shellfish, eels and fish can become contaminated by toxins or die off completely –either way, that puts an end to fishing trips and seafood dinners.

» Water activities such as swimming, surfing or water skiing can become hazardous to our health because of the high levels of bacteria and poisons released into our lakes and harbour through polluted stormwater.

» Streams and beaches can become blocked or littered with rubbish carried down by stormwater. This makes them unsightly – and a breeding ground for disease and bacteria.

HOW DOES STORMWATER POLLUTION AFFECT THE ENVIRONMENT?

What we dump down our stormwater drains ends up in our natural waterways:

Fuels and solvents: These chemicals damage fish gills, poison animals and burn plants. They can contain carcinogenic chemicals, which build up in the tissues of aquatic animals.
Petrol is also a major fire hazard, particularly in small spaces like stormwater pipes.

Oil: The liquid wastes we get from draining radiators, bleeding brakes and changing vehicle and ground service equipment contain toxic substances – and these can dissolve in water and poison aquatic life.
Just one litre of oil can cover 100 square metres of surface water, preventing oxygen from entering the water. It can contaminate the equivalent of two Olympic-size pools of water, and smother birds and other animals that come into contact with it.

Paint, ink and dye: As well as being poisonous to all creatures living in and on the edge of the water, paints and dyes block light from entering the water. This kills off plant life and the animals that feed from it.

Food: As food breaks down in water it uses up the water's oxygen, suffocating any animals that live in the water.

Sediment: Clay, silt and sand wash down from construction sites and subdivisions – and smother streambeds, destroy habitats and choke the creatures that live there. Sediment is one of the most significant contaminants in our waterways.

Concrete, cement and lime: Lime is a major component of cement. When it's dissolved in water, it produces and alkaline solution that burns and kills any animals or plants that it comes into contact with.

Nutrients: The nutrients in fertilisers and domestic sewage can lead to the uncontrolled growth of aquatic weeds and micro-organisms, which choke the waterways and deplete the oxygen supply.

Corrosives: Liquids such as battery acid, some cleaning compounds and cement wastes can damage eyes, gills and skin of fish. They can also kill juvenile fish and burn other animals.

Cleaning products: Detergents and disinfectants can poison and burn aquatic animals, and irritate their sensitive tissues. Even products labelled "biodegradable" or "environmentally friendly" can suffocate fish by depleting the water's oxygen used in biochemical processes.

On average, it takes the oxygen from 70 litres of water from streams, lakes or the sea to completely break down just one litre of wash water.

Metals: Metals such as zinc, copper and lead don't break down in water. They inhibit aquatic plant growth, and they poison aquatic animals by building up in their bodies. These metals then accumulate through the food chain as the smaller animals get eaten by larger ones.

Chlorine: Even in concentrations safe to humans, chlorine can be toxic to fish, insects and bacteria.

Animal excrement: Dog faeces that aren't removed from footpaths and grassed areas can get washed into waterways and eventually into the sea. Once the excrement is in our waterways, it increases the levels of harmful bacteria and viruses.

Litter: Rubbish such as cigarette butts and drink cans take a very long time to break down, destroying habitats and disrupting ecosystems.

THE LAW AND WHAT THIS MEANS FOR YOU AT DARWIN INTERNATIONAL AIRPORT

The Airports Act 1996 makes it an offence for a person to directly or indirectly cause environmental pollution on an airport; significant penalties apply. The Airports (Environment Protection) Regulations 1997 require operators on airports to take all reasonable and practicable measures to prevent pollution and, if prevention is not possible, to minimise pollution.

The Work Health and Safety (National Uniform Legislation) Act and Regulations apply to the management of Hazardous Materials (i.e. fuels, oils, solvents and other chemicals) and require people using and storing these products to make provision for:

» containment of spills and
» response to, and clean-up of, spills that occur

Operators at Darwin International Airport must therefore:

» so far as is reasonably practicable, that where there is a risk of a hazardous chemical spill or leak, provision is made for a spill containment system that contains the spill or leak, and any resulting effluent
» the spill containment system does not create a hazard by bringing together different hazardous chemicals that are not compatible
» the spill containment system provides for the clean-up and disposal of a hazardous chemical that spills or leaks, and any resulting effluent
» so far as is reasonably practicable, that containers of hazardous chemicals and any associated pipe work or attachments are protected against damage caused by an impact or excessive loads

SPILL RESPONSE

WHAT IS A SPILL?

It is the spillage of any substance that is likely to contaminate stormwater or natural ground.

Substances may include, but are not restricted to:

- oils and fuels
- toxic metals
- chemicals (detergents)
- sediment (earthworks)
- organic wastes (domestic sewage and plant and animal products)

A minor spill – covers less than 2m^2 and can be contained and cleared up by the person who created the spill without the assistance of DIA Operations.

If you find a minor spill and did not create it, DIA expects you to report the spill immediately to DIA Operations Safety Officer on 0402 088 145 or 8920 1852.

The person who creates or finds a minor spill is expected to direct others away from the spill.

A major spill – is any spill which is greater than 2m^2 or that enters a below ground structure. A major spill should be reported immediately to the DIA Operations Safety Officer on 0402 088 145 or 8920 1852.

REMEMBER SAFETY COMES FIRST

Call the Operations Safety Officer (0402 088 145) immediately if you can't contain the spill, don't know what has been spilt, the spill material has entered a stormwater drain or if the material spilt is toxic.

Use appropriate Personal Protective Equipment (PPE) when managing spilt material and let experts deal with toxic materials.

PREVENTING A SPILL

Every facility at the airport that handles, stores, uses or transports substances that could contaminate the environment or endanger people and property needs to be proactive in preventing spills.

Prevent spills by:

- providing the correct storage equipment such as drip trays for collecting substances that may spill or leak into the environment
- ensuring all staff know how to handle, store, use and transport materials and substances properly
- knowing where the stormwater and sewer drains are and ensuring only rain goes into the stormwater drains
- at all times keeping your site clean and tidy
- being prepared to cope with a spill by providing equipment and staff training in the correct use of spill procedures and equipment
- setting up internal systems so that staff can protect our environment

SPILL RESPONSE PROCEDURES

All operators at Darwin International Airport must take the following action in the event of a spill:

- Ensure the safety of people – Move people, and equipment if it is safe to do so, from the immediate vicinity of the spill.
- Assess the spill – Establish whether you have the right equipment, and sufficient quantities of it, to deal with the material split.
- Assess the location – Establish whether there are any drains nearby that need protection and determine whether any material has entered the drains.
- Control the spill – Stop the spill from spreading by placing absorbent material in a down-slope position and by blocking stormwater inlets.
- Clean up the spill – Apply absorbent material, sweep up residue and place it in a container for disposal. If soil has been contaminated, dig up the affected soil and place it in a container for disposal.
- Dispose of contaminated spill response material or soil to an appropriately licensed waste facility. Retain a copy of the waste disposal certificates for your records.

REGULAR PUBLIC TRANSPORT APRON SPILL PROCEDURE

The Regular Public Transport (RPT) Apron accommodates the aircraft that use the main terminal building for passenger and cargo transport.

Controlling a spill
If possible, position yourself upwind of the spill. Ignition sources must be turned off as soon as possible, especially if you don't know the nature of the spill. Move away from the fuel source before switching any ignition sources off.

Examples of ignition sources are:
- cigarette lighters
- portable radios
- mobile phone/pager
- camera flashes
- safety matches
- motor vehicles

If it is safe to do so, turn leaking valves and pumps off to stop further leakage. **Emergency fuel stop buttons** are available to stop uncontrolled aircraft refuelling operations.
Should they be required emergency showers and eyewash stations are available along the length of the apron.

Containing the spill – Minor Spill
Absorbent materials absorb liquid spills to prevent or minimise the amount of spill entering stormwater drains, reduce pavement damage and to provide a safer working environment. Absorbent materials may include absorbent socks, booms, bunds and mats.

Emergency spill kits are available on each aircraft parking bay on the RPT apron and within the General Aviation area.

Airport users should have their own emergency spill kits for cleaning up minor spills. Gear that should be contained in a spill kit is listed on page 9.

Containing the spill – Major Spill
Contact ARFF Service and DIA Operations immediately

Sewage Spill
Major sewage spills should not be handled due to health reasons. These spills are to reported immediately to the DIA Operations who in turn arranges DIA Groundstaff who manage this issue.

Cleaning up a spill
Personal Protective Equipment (PPE) is to be worn when handling sewage, fuel, oil and hazardous substances. PPE includes gloves, goggles and disposable coveralls are available in the spill kits. All airport staff shall also comply with the airport minimal PPE requirements and their company's PPE Policy and/or procedures.

Uses absorbent material to contain the spill to prevent or minimise the amount of spill that will damage pavement, create a safety hazard or pollute stormwater drains.

Airport Groundstaff, via Airport Operations, must be called to clean the ground surface after the absorbent materials have absorbed most of the spill if the pavement is slippery.

Disposal of spill waste

Depending on the nature of the spill, it may produce hazardous waste. All saturated absorbent material must be put in purpose-built sealed plastic bags to prevent the material from leaking. Spill waste bins are located on each parking bay on the RPT apron. There are facilities also available within the General Aviation area.

All contaminated absorbent material requires disposal at an approved disposal facility. DIA Groundstaff must be notified if the spill waste bins are used so that the product can be removed.

REPORTING SPILLS

All spills MUST be reported.

Minor Spills - (less than $2m^2$) call the Operations Safety Officer on 0402 088 145

Major Spills - (greater than $2m^2$ or that enters a below ground structure) call the Aviation Rescue Fire Fighting Service on 8920 4899 and the Operations Safety Officer on 0402 088 145

An Environment Incident Form, available from Airport Operations, must be completed

SPILL RESPONSE EQUIPMENT

All operators on airport are required to maintain sufficient response equipment to manage the type and size of the spill that may occur at their premises, or in association with their work.

There is a variety of spill response equipment. The type and quantity of fuel, oil and chemicals you use and store at your facility will determine the type and quantity of spill response equipment you require.

Spill response material designed to target specific substances is commercially available. For example absorbent mats and booms designed to absorb hydrocarbons (fuel and oil) and allow water to pass through is available.

Spill Response Equipment can include:

- Personal Protective Equipment (PPE) – gloves, coveralls, goggles and boots
- Absorbent materials such as bunds and booms, socks and mats etc
- Absorbent Granules
- Stormwater Drain Caps
- Portable Bunds
- Disposal bags or containers
- Brush and dustpan

In facilities where small amounts (<20L) of Dangerous Goods and Chemicals are used and stored, absorbent substances such as chemsorb or saw dust are sufficient for spill response.

Make sure your emergency spill kits are in accessible places and everyone knows where they are. Place your emergency telephone contact sheet in places it will be needed e.g. with the kit or by the phone.

Make it one person's responsibility to maintain the kits and replace equipment after a spill. You can assemble your own emergency spill kits or buy standard kits by referring to the Yellow Pages under Safety Consultants and Safety Equipment.

To assemble your own spill kits you can buy a wheelie bin for each high risk area, fill it with what you need and put a copy of your spill procedure and emergency telephone numbers on it.

CONTACTS

TELEPHONE NUMBERS

- DIA Operations Officer – 0402 088 145
- DIA Airport Duty Manager – 0401 005 977 or 8920 1886
- DIA Maintenance – 8920 1890
- DIA Environment Manager – 89201820
- Airservices Aviation Rescue Fire Fighting Service – 8920 4899

Water is a valuable resource and our use of water for drinking, farming, fishing and recreation can be threatened by discharge of contaminants.

GLOSSARY

Airport – the airport owned and operated by Darwin International Airport at Darwin, Northern Territory

Apron – the hard surface area in which the aircraft park, unload and reload passengers and cargo as well as refuel, refill water, remove wastes and carry out maintenance on aircraft

Bunding – a constructed impervious embankment or wall, either permanent or temporary, which may surround storage areas, drains etc which is designed to prevent migration of any spill or leak to the surrounding drains or the ground

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Environmental Incident – the release of anything that has the potential to contaminate the airport environment e.g. air, water and soil

Hazardous Material – materials which, without adequate safeguards, may contaminate and harm the environment. This includes dangerous goods and many industrial chemicals

PPE – Personal Protective Equipment – includes gloves, coveralls, goggles and boots which should be worn when attending a spill

Shall[1] – indicates a mandatory requirement

Should[1] – indicates a recommendation or that which is advised but not required

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