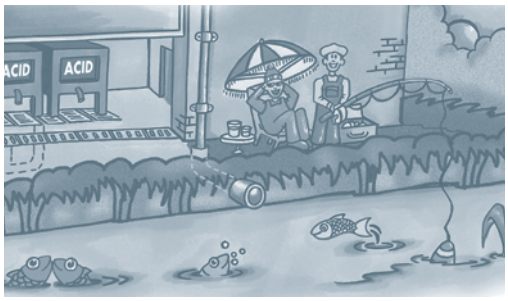
POLLUTION PREVENTION GUIDE



Environment Canterbury
Your regional council

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Keep a copy of your drainage plan.

Store any correspondence from Environment Canterbury, Relevant fact sheets and other information.

If you require additional resources, such as fact sheets, contact your Pollution Prevention Officer or see our website.

http://www.ecan.govt.nz/Protection+and+Education/Industry+Education

INTRODUCTION

Everyday business actions impact on the environment, often without anyone knowing. This pollution prevention guide will help your business comply with the Resource Management Act 1991 (RMA), regional rules and plans by preventing pollution on your site. Pollution prevention is a common sense approach to environmental management.

Pollution prevention it's not just an add-on activity; it's an improved way of doing business.

Why should you be concerned about the environment?

Whether it is drinking water straight from the tap, tramping in the mountains, kicking a ball around in the park with your kids or swimming at the beach, we all benefit from a clean environment.

You might be thinking, New Zealand is a clean, green country, with beautiful bush, parks, rivers, lakes and beaches, so what are we on about?

Actually we aren't doing as well as we think. We pollute our environment just as much as the US and some European countries. We are just lucky that there are less of us so we don't look so bad; we have more water and land to hide up our rubbish and pollution.

In Canterbury one of the most important natural resources is the groundwater. Groundwater is water sitting in the spaces between rock particles in special rock layers known as 'aquifers'. Canterbury's aquifers contain high quality water that supplies 90% of the drinking water in the region; and it is not treated before consumption.

There is a risk that leakages or spills from hazardous substances or waste storage areas will enter the groundwater system and cause contamination. Cleaning up contaminated groundwater is very costly and often not possible.

The industrial sector is just part of the total pollution risk to Canterbury's beautiful environment. But because many of the materials that industries use have the potential to cause environmental damage, the region's businesses have a responsibility to minimise this risk.

Environment Canterbury (ECan) wants to work with businesses to help them reduce this risk.

Why choose pollution prevention?

A successful pollution prevention program can result in the following benefits:

- Reductions in accidental releases of materials (spills)
- Improved storage and handling practices
- Better maintained premises
- Reduced compliance costs and risk of prosecution
- Reduced clean up costs
- Improved equipment maintenance
- Improved company image
- Better Safety performance.

It's a do-it-yourself approach

Any firm with hazardous substances or bulk materials - including food and beverages - is at risk of causing pollution unless they have good

environmental operating systems in place. High risk industries that are currently using the guide include:

- Engineering and motor vehicle premises
- Transport firms
- Painters, panel beaters and sign writers
- Food and beverage producers
- Infrastructure and construction companies
- Printers
- Electro and chemical platers.

How does the Pollution Prevention Guide (PPG) work?

The PPG is a self-audit tool. It is broken down into separate modules covering areas of concern for ECan and the community. Each module has an easy to use checklist of potential issues or risks. The aim of the checklists is to enable businesses to comply with the law by:

- Assessing their own environmental impacts
- Eliminating actual sources of pollution
- Minimising potential sources of pollution.

For the PPG process to be effective management need to show commitment to the programme and ownership in resolving any issues or risks that are identified. This is not to say that management undertake the entire programme, this should be a team approach utilising appropriate staff and knowledge, as staff may be able to provide possible solutions. A good way to ensure this occurs would be to hold a staff meeting and outline the programme and ask for any volunteers to 'champion' the process. Please note that time may need to be allocated to staff to fulfil the assessments, a little cost now could lead to potential savings or reduced costs further on.

The PPG is broken down to self-contained but inter-related modules. Other than this Introduction and Useful Information Module; there is the:

- Drainage Module
- Spills Module
- Storage and Handling Module
- Air Module
- Housekeeping Module
- Waste Module.

There is also a wide range of posters and fact sheets available for free in support of these modules. If you require additional resources; more copies of modules, fact sheets, posters or simply missing a module relevant to your operations; contact your Pollution Prevention Officer (PPO) and they will supply with these resources for free. Additional resources are also available from the ECan website (**www.ecan.govt.nz**).

Why do you need to go through the checklists?

They are one of your best ways of reducing your on site risks and educating yourself and your staff on environmental matters.

These checklists tell you how to identify and prevent pollution from your site. They highlight both your legal requirements and best practices that can help reduce environmental risks. They are your best defence at reducing legal environmental liability.

For your information under the RMA it does not matter that a person was unaware of the offence or that it was carried out unintentionally, you can still be held responsible. Consequences can include monetary fines or even prosecution if a serious environmental incident occurs. Protestations of ignorance are not an acceptable defence.

We intend to signal that good environmental management is a cost of operating a business that is rightly borne by firms and their customers – not by ratepayers and the environment.

What you need to complete checklists

- Pen
- Printed copy's of the PPG modules
- Some time
- A camera to record findings for later reference
- A folder to ensure that the paper doesn't get wet if it is raining
- Appropriate protective equipment for all areas you are entering.

How do you use the checklists?

What is an action list:

Issues are generated when a question is answered by placing a tick in a highlighted box (dark bold outline). Issues need to be resolved and some form of action needs to happen to fix or reduce your risk. At the rear of the folder are pre-printed 'Action Lists' these can be manually filled out by staff during or after the site walkover. Action lists provide a way of recording the environmental risks for your site, including allocating staff to resolve them, timeframes and sign off on completion.

Issues on the Action lists may require capital expenditure allocation by management, it is also advisable to have regular updates on the progress and status of the action lists by staff and management.

It's easier than you think:

- Read the notes at the front of each module - They will explain why problems occur from things you may not realise are harmful to the environment
- Walk round your site with the checklist and tick or cross every item on it
- Write on the action list at the back of every module everything you need to do to reduce the pollution from your site.

We are only a small company, do we need to bother with these checklists?

All companies no matter what the size have the potential to pollute the environment. Good environmental management benefits ALL firms - large and small.

There may be information in these checklists that doesn't apply to you at all, but read through the notes and the checklists and then just use the sections that relate to your company. You may be surprised at what you can do on your site to prevent pollution occurring.

When should you start?

You don't have to do it all at once - but making a start will show you the job isn't difficult. It also shows you take the environment seriously, as the law requires.

Where do you start?

The topics in the checklists are roughly in the order that most firms with potential pollution issues will need to use them. You may not need to go through every topic in detail - but we recommend you read each one carefully before deciding it doesn't apply to your firm.

If you know or suspect you have a particular problem, you might want to start with the checklists on that topic - but remember to come back to the others.

For example, if you've had spills in the past, start with 'Spills'. If you store a lot of bulk materials, start with 'Storage and Handling', or if you handle large volumes of materials, start with 'Housekeeping'.

Who is responsible on your site?

Personal liability for environmental offences means staff and directors can no longer shelter behind a company that pollutes.

This means everyone involved with your company and its site needs to know how to act responsibly, from the shop floor up to the CEO and the Board of Directors.

These checklists tell you what you need to do to eliminate pollution and minimise your risk. Make sure everyone associated with your firm knows this information.

How do you prevent pollution on your site?

The top tips on pollution prevention outlined in these checklists are:

- Know where your drains go and make sure only rain goes into storm water systems
- Design your bulk stores and handling and transfer areas to reduce the risk of spills
- Keep your site clean and tidy at all times
- Be prepared to cope with a spill or accidental air emission
- Set up systems that help all your staff do the right thing for the environment.

What are you going to end up with after all this?

You will end up with documented evidence that you have taken the protection of the environment seriously. This will stand you in good stead as a legal defence, should you ever need it.

If you put all your environmental information together and write up procedures for activities that have a high risk of causing environmental harm - such as spills - you will have produced your own environmental operating plan.

First time round, do it thoroughly, and then follow up with regular inspections, training and annual reviews. The first time you use these checklists will be the most demanding. Eventually, good environmental management will be a normal part of your operating practice.

Further support for PPG participants

Environment Canterbury sees the PPG as a proactive education tool and wants to reward those businesses that get involved.

When you complete an initial site visit from a PPO your business will be eligible for PPG promotions and benefits; see our website for current promotions; **www.ecan.govt.nz**.

For those businesses that go on to fully implement the PPG and regularly complete the Six Month Progress reports, ECan will identify and promote your business on our website and/or in Living Here, our environmental newsletter for Canterbury.

The Six Month Progress reports are sent too sites and are a simple one page check sheet to complete and return. To give you an idea these will cover:

- site incident or spills report
- confirmation of regular site audits
- site maintenance register, including waste removed
- staff training undertaken.

The list is not seen as complete or relevant to every industry, but is designed to show the type and level of information we ask for to assess your progress. Along with site revisits by PPO's, the Six Month Reports also provide a way of tracking and demonstrating your progress implementing the PPG issues and action lists.

Support and benefits of the PPG programme will continue to develop as ECan's pollution prevention programme expands and responds to industry and legislative changes and requirements.

The Resource Management Act: what it is and what it means

The Resource Management Act is New Zealand's central piece of environmental law. As well as enabling councils to ensure the environment is not unduly harmed by human activities, it makes every individual responsible for avoiding, remedying or mitigating adverse effects from their own activities.

The Act aims to ensure that in meeting their economic, social and cultural needs, New Zealanders continue to enjoy our high quality natural heritage. Economic and environmental needs are balanced because in the long term, a healthy economy is based on a healthy ecology.

Best business practice is confirming this, with many firms now recognising the bottom line benefits of demonstrating sound environmental operating systems to their export markets. But the Act also has penalties for polluters, with landowners, company directors as well as the staff who cause pollution now being personally liable for fines or imprisonment.

Excerpts from the Resource Management Act

5. Purpose-

(1) The purpose of this Act is to promote the sustainable management of natural and physical resources.

(2) In this Act, 'sustainable management' means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while-

(a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and

(b) Safeguarding the life-supporting capacity of air, water, soil and ecosystems; and

(c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.

15. Discharge of contaminants into the environment-

(1) No person may discharge any-

(a) Contaminant or water into water; or

(b) Contaminant onto or into land in circumstances which may result in that contaminant (or any other contaminant emanating as a result of natural processes from the contaminant) entering water; or

(c) Contaminant from any industrial or trade premises into air; or

(d) Contaminant from any industrial or trade premises onto or into land - unless the discharge is expressly allowed by a rule in a regional plan and in any relevant proposed regional plan, a resource consent, or regulations.

(2) No person may discharge any contaminant into the air, or into or onto land, from-

(a) Any place; or

(b) Any other source, whether moveable or not, -in a manner that contravenes a rule in a regional plan or proposed regional plan unless the discharge is expressly allowed by a resource consent or allowed by section 20 (certain lawful activities allowed).

17. Duty to avoid, remedy, or mitigate adverse effects-

(1) Every person has a duty to avoid, remedy or mitigate any adverse effect on the environment arising from an activity carried on by or on behalf of that person, whether or not the activity is in accordance with a rule in a plan, a resource consent, or regulations.

The Resource Management Act penalises polluters by:

- Infringement and abatement notices
- Enforcement orders
- Prosecution (fines and imprisonment)
- Cost recovery by enforcement agencies for site time, costs and pollution clean-ups.

But there are many benefits from complying with the law: insurers, lenders, buyers and share-holders are increasingly reluctant to get involved with properties or businesses with environmental liabilities. These organisations now routinely check with many agencies, including Environment Canterbury, that the businesses they deal with are free of environmental risk and operate in an environmentally responsible manner.

Clients and consumers are also moving towards environmentally responsible purchasing.

Environment Canterbury: who we are and what we do

Environment Canterbury is a ratepayer funded environmental management organisation. It has publicly accountable elected members.

One of its many functions is pollution control - ensuring that the quality of air, water and soil is good enough to sustain both natural ecosystems and human uses.

Some Important Points on Using this Guide

- This Guide is designed as an educational self assessment tool for industry
- This Guide is your private record
- You don't have to do it all at once. But start now and work through one module at a time
- Ask for help, support is available to follow this process by contacting your PPO.
- Read the notes at the beginning of each module, they will help explain why problems occur
- Walk around your site with the checklist
- Write every issue found on the action list at the back of every module
- Address your issues with the information provided in the guide to reduce your environmental risk and liability.

Definition of Terms

Afterburner – Takes emissions such as organic vapours from a process and burns them before releasing them to the atmosphere. Afterburners are fueled by gas.

Aquifer – Water bearing soil or rock formation that is capable of storing useable amounts of water.

Bag filter – Is a bag made of a porous or felted fabric which is often tube shaped. Gases pass through the bag and particulate matter is trapped on the inside of the bag.

Bio Filters – Air flows through a packed bed such as soil and the pollutant is transferred to a thin biofilm at the surface of the packing material. Bacteria and fungi then degrade the captured pollutants.

Bund – Refer to *Secondary Containment.*

Cardboard/Paper Filter – A Filtration system which forces the air through cardboard filters and the air exhausted to the atmosphere.

Cathodic Protection – A system to control the corrosion of a metal surface by making that surface the cathode of an electrochemical cell.

Contaminant – As defined in the Resource Management Act: any substance (including gases, liquids, solids and micro-organisms) or energy or heat, that either by itself or in combination;

a) When discharged into water changes or is likely to change the physical, chemical, or biological condition of the water; or

b) When discharged onto or into land or into air, changes or is likely to change the physical, chemical or biological condition of the land or air onto or into which it is discharged

Contaminated materials – Material that has been affected by another substance making it unusable or unsuitable for its original purpose. The contaminating substance may or may not be hazardous; e.g. rags used to soak up a spill or; a food or raw material that has been damaged by water or affected by mould or bacteria and is now unusable.

Cyclones – Remove particulate matter using centrifugal and inertia forces, to push the particulates out of the gas stream.

Dangerous Goods – Refer to *Hazardous Substance.*

Discharge – To emit, deposit or allow to escape.

Discharge consent - is permission to discharge a certain contaminant into a certain receiving environment (e.g. a place or air) usually within certain conditions (resource consent).

Down pipe – A pipe to carry rain water from a roof to a drain or ground.

Drain – A channel or pipe that carries water or liquids off site or away from a place.

Electrostatic precipitators - A device that removes particles from a flow of gases using an electrostatic charge. Used to filter particulates and smoke from air.

Emissions – Gases, vapours and particles discharged or allowed to escape into the air/ atmosphere.

Environment Canterbury (ECan) – Is the promotional name of the Canterbury Regional Council.

First Flush – The first flow of water into the storm water drains during rain. It often contains a lot of pollutants that built up during the dry time before the rain.

Grey Water – Waste water which has not been contaminated by toilet discharge. Grey water includes wastewater from baths, showers, clothes washing machines, sinks and laundry tubs.

Groundwater – Water located beneath the surface of the ground in porous rock or sand. It can be a major source of drinking water and water used in agricultural irrigation.

Gully trap – A basin in the ground with a water seal to prevent foul odours escaping the sewer. They are buried with tops or a raised surround wall above ground level to prevent storm or surface water entering the sewer.

Hazardous substance – Is a substance that does or could have a negative affect on people or the environment. Hazardous substances may be flammable, highly reactive and/or toxic; they could be a solid, liquid or gas; or anything which may react with air or water to produce a hazardous substance under normal conditions.

Hazardous waste – Is a waste or unwanted hazardous substance or substances which have hazardous properties. It can be gaseous, liquid, solid, or a combination of types. Hazardous properties are explosive, flammable (it can catch fire), corrosive (it can eat through organic or non organic materials), toxic or ecotoxic (it is harmful or deadly to living organisms).

Hopper – General term for a chute with additional space to provide space for temporary storage of materials. The bottom of the hopper chute typically has a mechanism to control the flow of materials, thus allowing them to be metered out at the desired rate.

HSNO/Hazardous Substances and New Organisms Act (1996) – This Act and the set of regulations made under it control the manufacture, importation, transport, handling, storage, use, management and disposal of hazardous substances in New Zealand, and the creation and management of New Organisms.

Hydrocarbons – A chemical term for a large number of chemicals that contain mainly hydrogen and carbon atoms; common examples are oil, petrol and diesel.

Incompatible substances – Are substances that cannot be placed together or come into contact because they either react, or one or both will affect the other in a detrimental way.

Interceptors – A gravity operated device that separates hydrocarbons and sediments from storm water. It should have the capability to be shut off from the storm water system to contain a spill.

Liability – State of being liable, legally bound and subject to a fine or penalty

Mitigate – To lessen or eliminate the severity or incidence of an effect, and includes compensation both before and after the effect.

Outfall – The place where a pipe or drain discharges, can be to a surface water body, land or to a treatment plant.

Permeable paving – Paving that allows water to permeate or move through it.

Permitted Activity – An activity that anyone can undertake for which no resource consent is required provided it complies with the standards, terms, or conditions, if any, specified by local and/or regional council.

Personal Protection Equipment – The equipment necessary to shield or minimise any impacts on a person from the chemical, physical and thermal hazards that may be encountered at a hazardous substances incident. This can include, but is not limited to personal protective clothing, glasses and respiratory protection.

Point of Discharge – Is the boundary between the public drain and a private drain.

Protective Clothing – Equipment designed to protect the wearer from heat and/or hazardous substances contacting the skin or eyes. Protective clothing is divided into four types, being:

- Structural fire fighting protective clothing
- Splash suit
- Gas tight suit, and
- High temperature protective clothing.

pH – A scale that measures the acidity or alkalinity in water (scale ranges from 0–14). pH 7 is neutral; a higher pH indicates alkalinity; lower pH indicates acidity. Natural freshwater has a pH of around 7 although 6–9 is considered within the normal range.

Resource Consent – A permit from your city, district or regional council giving permission to undertake a particular activity that would otherwise contravene the RMA.

Reconciliation – Comparison of the volume of liquid taken out of your tank (for use or sale) and the amount put in from actual tank inventories. There are allowable variances depending on tank size and contents, anything over the variances may indicate a leak.

Resource Management Act (1991) [RMA] – The key piece of environmental legislation in New Zealand. It is concerned with the sustainable management on our natural and physical resources to meet the economic, social and cultural needs of communities while protecting the life supporting capacity of the coastal marine area, water, air and land and minimising the effects human activities have on the environment.

Roll–Over Bund – A 'mounded hump' style secondary containment device. Usually placed in high use entrance ways where potential hazardous substances are stored or used.

Sanitary Sewer – A dedicated pipe that carries waste water to a treatment facility.

Safety Data Sheet/SDS – Contains key information about a chemical/substance and is required for all hazardous substances under the HSNO Act. It must provide all relevant information about a given substance and is compulsory for many commonly used products. SDS must include:

- emergency preparations
- special training or equipment needed for emergencies
- actions to reduce or eliminate danger in an emergency
- actions to be taken to restore adequate control of the substance after an emergency
- Safety Data Sheets must be available to a person handling the substance within 10 minutes.

Scrubbers – Typically refers to use of a liquid to remove particles and/or gases from exhaust streams. It can also refer to the use of a dry reagent or slurry to "scrub" out acid gases.

Soak pit – Termination point for the discharge of liquids, mainly rain or storm water to ground, through a buried chamber that has holes or no bottom to allow soakage to occur.

Spill – When a substance (usually a liquid) escapes, drips, leaks, falls from or runs out of a container – usually unintentionally. It could be large or small, slow (drip) or fast (tank rupture).

Spill Kit or Spill Station – A box, wheelie bin, trolley, cupboard or location where information/ instructions and adequate equipment are kept for use to contain and clean up a spill.

Spill Plan – A written plan detailing the correct way for dealing with a spill or leak. All staff should be aware of it and receive regular training.

Storm Water – Uncontaminated rainwater that flows off hard surfaces into drains, and then into waterways or ground water.

Trade Waste – Liquid or sludge waste generated by an activity, industry or business.

Trade Waste Consent – The authorisation from a territorial or city council to the disposal of trade wastes into a sanitary sewer

Trade Waste System – Reticulated pipe system for the disposal of liquid wastes generated from trade or industrial activities. Trade waste pipes connect with main sewer pipes that discharge to treatment plants.

Unsealed and Unconsolidated Surface – Ground that has not been sealed (e.g. with concrete, or reinforced or covered in some way (e.g. grassed).

Wash Bay – A place where vehicles or equipment are cleaned.

WasteTRACK – Is a secure internet based database which consolidates manifest, facility and carrier data to track liquid and hazardous wastes from generation, through transport to treatment or disposal.

Waterway – A body of water such as a stream, creak, water race, river, lake, estuary, lagoon, or the sea

Wet Wall Filter System – A filtration system in which water falls down a wall capturing the paint overspray and gases.