



Jersey

**WATER POLLUTION (CODE OF GOOD
AGRICULTURAL PRACTICE) (JERSEY)
ORDER 2009**

Revised Edition

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This is a revised edition of the law



Jersey

WATER POLLUTION (CODE OF GOOD AGRICULTURAL PRACTICE) (JERSEY) ORDER 2009

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Jersey

WATER POLLUTION (CODE OF GOOD AGRICULTURAL PRACTICE) (JERSEY) ORDER 2009

THE MINISTER FOR PLANNING AND ENVIRONMENT, in pursuance of Articles 16 and 52 of the Water Pollution (Jersey) Law 2000¹, orders as follows –

Commencement [[see endnotes](#)]

1 Code of Practice approved

The Code of Practice set out in the Schedule is approved for the purposes of the Water Pollution (Jersey) Law 2000².

2 Citation and commencement

- (1) This Order may be cited as the Water Pollution (Code of Good Agricultural Practice) (Jersey) Order 2009.
- (2) This Order shall come into force on 29th June 2009 and shall remain in force for 5 years.

SCHEDULE**(Article 1)****CODE OF PRACTICE****Note by the Minister for Planning and Environment**

1. This Code of Practice (but not any other document referred to therein unless otherwise expressly stated) is an approved Code of Practice for the purposes of **Article 16** of the Water Pollution (Jersey) Law 2000.
2. This Code of Practice has been approved by the Minister for Planning and Environment solely for the purposes of the Water Pollution (Jersey) Law 2000 (but not further or otherwise). Accordingly, the Minister does not accept any responsibility whatsoever for any advice contained therein except to the extent that it relates to water pollution matters.

**CODE OF GOOD AGRICULTURAL PRACTICE FOR THE PROTECTION
OF WATER**

(THE WATER CODE)

JERSEY

The Water Code, March 2009 was prepared by the Planning and Environment Department following consultation with the following:

Ambulance Service

Economic Development Department

Fire and Rescue Service

Health and Safety at Work Inspectorate

Jersey Farmers Union

Jersey Milk Marketing Board

Jersey Water

Meteorological Department

Planning and Environment Department

Police

Public Health

Royal Jersey Agricultural and Horticultural Society

Code of Good Agricultural Practice for the Protection of Water**(The Water Code)****Jersey****Contents****Notice by the
Minister for
Planning and
Environment****Background****Contents**

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SECTION 1

You will be able to minimise the risk of causing pollution to surface water and groundwater by adopting these practices.

INTRODUCTION

The Code of Good Agricultural Practice for the Protection of Water (The Water Code) Jersey is the Statutory Code for Jersey and takes priority over the MAFF Water code.

About this Code

This Code of Good Agricultural Practice for the Protection of Water (The Water Code) Jersey is a practical guide to help farmers and growers avoid causing water pollution. This is based upon Protecting our Water, Soil and Air, the DEFRA Code of Good Agricultural Practice for farmers, growers and land managers, published in 2009. This Code is available from; The Stationery Office, PO Box 29, Norwich, NR3 1GN (ISBN 9780112432845).Tel: 0870 600 5522,

E-mail: customer.services@tso.co.uk or online from www.tsoshop.co.uk

It should also be read in conjunction with the Code of Practice for the Safe Use of Pesticides on Farms and Holdings issued under Article 7 of the Pesticides (Jersey) Law 1991³.

It is intended that this Code (but not the Defra Code of Practice or any other publication referred to herein) will be the statutory code under Article 16 of the Water Pollution (Jersey) Law 2000. This means that the approved Water Code will be relevant to a defence of due diligence under Article 18(4) and Article 18(5) of that Law.

The Code describes the main risks of causing water pollution from different agricultural sources. It does not include fish farming. In each section, good agricultural practice is set down in a way which minimises the risk of polluting water while allowing economic agricultural practice to continue.

Any new practices not covered in the Code should follow the general principles set out in it.

Any amendments to this Code will be circulated to all registered holdings within the Island.

Laws Controlling Pollution

The Water Pollution (Jersey) Law 2000 contains pollution prevention provisions and allows people to be prosecuted if they pollute. Environmental Protection at the Planning and Environment Department is responsible for this work and administers the Law.

Under Article 17(1) of the Water Pollution (Jersey) Law 2000 it is an offence to cause or knowingly permit pollution of any 'controlled waters' unless it is done under the conditions of a discharge permit. Under Article 17(3) it is an offence to break the conditions of a discharge permit.

Meaning of "Controlled Waters"

Under the Water Pollution (Jersey) Law 2000 controlled waters mean:

- (a) the territorial sea adjacent to the Island;
- (b) coastal waters, being waters that are within the area that extends landward, from the baselines from which the breadth of the territorial sea is measured, as far as the limit of the highest tide;
- (c) inland waters, being the waters of lakes, marshlands, ponds, reservoirs, streams, surface water drains and wetlands (whether in any such case they are natural or artificial, or above or below the ground), and not being coastal waters; and
- (d) groundwater being water that is below the surface of the ground, in the saturation zone and in direct contact with the ground or subsoil.

Under the Law, controlled waters also include;

- (a) the foreshore, being the land that lies between the limits of the highest and lowest tides; and
- (b) the bottoms, beds and channels of controlled waters that are inland waters, whether or not they are for the time being dry.

Watercourses

In this Code, controlled waters include all surface controlled waters as defined in the Law whether coastal waters, ponds, streams, brooks or field ditches.

A discharge permit is required from the Minister for Planning and Environment under Article 21 of the Water Pollution (Jersey) Law 2000, should anyone wish to discharge a polluting substance or energy into controlled waters.

Farmers, employees and contractors can be prosecuted for causing pollution. The maximum penalty for pollution offences is an unlimited fine and or 2 years imprisonment. A person found guilty of causing pollution may also have to pay for any remedial action and for any costs incurred by the Minister for Planning and Environment. Farmers may also be held liable for pollution resulting from tampering, vandalism or accidental damage by third parties. You should therefore take reasonable steps to secure vulnerable tanks, stores and valves etc. against third party interference where there is a risk that pollution of water could result.

The Water Pollution (Jersey) Law 2000 introduces a provision whereby farmers or landowners may be prosecuted for not complying with the terms of a notice of works issued by the Minister for Planning and Environment under Article 38. The maximum

penalty is an unlimited fine and/or 2 years imprisonment. Moreover, under Article 39 the Minister for Planning and Environment can authorise the work and recover the cost from the farmer or landowner concerned if they fail to carry out such works or if the situation is urgent. In addition, under Article 35 of the Law, the Minister for Planning and Environment can require information from farmers and landowners to help them prevent water pollution.

You are therefore **STRONGLY RECOMMENDED TO COMPLY WITH THIS CODE OF PRACTICE**, especially in view of the provisions of Article 18(5) of the Water Pollution (Jersey) Law 2000 in relation to the defence of due diligence.

Water Resources Legislation

Though not directly related to pollution, The Water Resources (Jersey) Law 2007⁴ was adopted by The States in June 2007. This Law provides for the protection, management and regulation of the Island's inland water resources and allows for the equitable allocation of water resources, through a new licensing system, for the benefit of the Island's community and environment.

The licensing and registration process undertaken as part of the Law will enable the collection of comprehensive hydrological and hydrogeological data, the assessment of which will lead to a greatly improved understanding of the Island's water resources. This in turn, will also allow for the long term integrated, equitable and sustainable management of the Island's limited water resources; proper management of drought situations and will permit long-term strategies to be implemented to minimise negative impacts of global warming and climate change.

Further details from Environmental Protection, Howard Davis Farm, Tel: 441600.

Planning Applications

The Planning and Environment Department decide on the need for Environmental Impact Assessment after consultation with relevant authorities. Further information on planning legislation is available from the Planning and Environment Department office at South Hill.

Water Pollution Problems

Table 1. Point Source Pollution

The following table gives a breakdown of the point source pollution incidents from 2005 to 2008.

Cause	2005 (%)	2006 (%)	2007 (%)	2008 (%)
Agricultural	8	7	2	9
Chemical/Industrial	13	14	3	6
Construction	2	2	3	7
Natural	5	5	2	4
Oil	41	38	51	51
Other	6	3	23	1
Sewage/Domestic	8	19	12	14
Unsubstantiated	18	10	12	8

Total Number of Incidents	101	115	65	112
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Most of agricultural point source pollution, that is pollution that comes from one building, store or field, happens when farm manure or waste with a high Biochemical Oxygen Demand (BOD), see Table 2, gets into a watercourse and is broken down by micro-organisms. This process takes oxygen out of the water. In severe cases all aquatic life can be killed.

Pollution can also be caused by fuel oil, pesticides, fertilizers, slurry or milk, among other things, which could poison or damage aquatic life or may make groundwater unfit to use.

Table 2. Examples of typical BOD levels (mg/litre)	BOD mg/litre
Treated domestic sewage	20–60
Raw domestic sewage	300–400
Vegetable washings	500–3,000
Dilute dairy parlour and yard washings (dirty water)	1,000–5,000
Leachate draining from slurry stores	1,000–12,000
Liquid sewage sludge	10,000–20,000
Cattle slurry	10,000–20,000
Pig slurry	20,000–30,000
Brewer's grain effluent	30,000–50,000
Silage effluent	30,000–80,000
Milk	140,000

Biochemical Oxygen Demand

Biochemical Oxygen Demand (BOD) is used to measure the risk of causing pollution from organic wastes. BOD is the amount of oxygen (in mg/l) needed by micro-organisms to break down organic material.

Diffuse Source Pollution

Agriculture can also cause diffuse pollution of waters by suspended soil particles, nutrients and pesticides. Unlike point source pollution, diffuse pollution comes from many fields and it is not caused by a single event or action. The cumulative effect of a number of individually minor incidents of diffuse pollution becomes increasingly significant over an entire catchment area.

Diffuse pollution of watercourses or groundwater could mean that Water Quality Objectives are not met. For example, water may not meet drinking water standards, or added nutrients could make algae grow in surface waters.

Nutrients and pesticides can be present in run-off from fields in both a soluble form and also adsorbed onto soil particles.

Potentially polluting materials, such as animal slurry, contain micro-organisms which could harm humans and livestock. Any surface or groundwater polluted with such materials could be contaminated with these organisms. A problem in the UK has been contamination with the parasite, *Cryptosporidium*, which can make humans ill and is difficult to detect and remove when water is being treated. *Following pollution prevention advice will do much to reduce the risk of transfer of pathogens from animal manures and wastes to water.*

Farmer Responsibilities

All farm staff and contractors on the farm who handle, store, use, spread or dispose of any substances that could pollute water should be aware of their responsibilities and know about the substances they are dealing with, and the effects they may have on the environment. They should know how to operate and maintain the equipment they use and know what to do in an emergency.

They should know about drainage systems on the land and in buildings, especially where pipes, channels and outfalls are. They should take all reasonable steps to ascertain the position of nearby boreholes, springs and wells, including private water supplies.

Regular checks should be made to make sure that watercourses are not visibly polluted. Checks should be done more often at times when the risk of causing pollution is highest, such as when slurry, silage effluent or dirty water is being applied to land.

All storage facilities should be regularly checked for leaks and damage.

For further information consult Part 6 of Schedule 2 to the Building Bye-laws (Jersey) 2007⁵, this imposes requirements on people carrying out certain building operations.

Emergency Action

If water is at risk or becomes polluted notify Environmental Protection at once and take immediate steps to stop the pollution. **Tel: 709535**. In major cases of chemical discharge the Fire Service should be contacted on **Tel: 112 or 999** and also Jersey Water on **Tel: 707302**.

Farmers should have a contingency plan to deal with water pollution if it happens and all staff should be aware of actions to take and know where to find a copy of the plan in an emergency.

The contingency plan should include:

- A plan of the farm showing the drainage systems and water courses as described under Farmer Responsibilities above.
- Details of equipment available on the farm or available locally at short notice, which can be used to deal with pollution problems. For example you should know what equipment you have to plug land drains, dam ditches, or hold oil spillages by placing wooden boards across the surface of a watercourse, etc.
- Relevant telephone numbers, including Environmental Protection, Planning and Environment Department, downstream landowners and water abstractors e.g. JNWW Co. Ltd. The Meteorological Department can provide detailed forecasts

through their charged consultancy service, **Tel: 0905 8077777**. The use of weather radar can make it possible to predict the onset of rain, especially heavy rain within a 2 to 4 hour period. This knowledge could influence any planned clean up campaign.

- Details of action to be taken if certain problems occur, such as leaking silos, slurry store collapse or oil spillage.

Advice

Farmers can get general advice on preventing pollution and information on how to prepare your own Farm Manure and Waste Management Plan from the Planning and Environment Department, **Tel: 441600**. You can get detailed design and planning services from consultants and equipment suppliers.

SECTION 2 FARM MANURE AND WASTE MANAGEMENT PLANNING**Introduction**

The information in this section can be used to:

- Help you decide when and where to spread slurry, manure, dirty water, silage effluent and other wastes to minimise the risk of pollution.
- Work out the amount and type of storage you need on the farm to avoid the risk of pollution.
- Ensure you have sufficient storage capacity to cope with your farm manure, waste and dirty water.

Planning Stages

The most economic and environmentally friendly way of disposing of animal manure, slurry, and dirty water is normally to apply it onto agricultural land. You should plan how and when to apply all livestock manure and wastes to the land, to make the risk of water pollution as low as possible and get the most from the nutrients. Where sewage sludge or other organic wastes are applied on the farm, the same principles should be followed.

Before you apply livestock or other organic waste to the land, you should produce a Farm Manure and Waste Management Plan.

Farm Manure and Waste Management Planning

- Pick out areas where manure and waste should not be spread at any time.
- Match the land area to nutrient in manure and waste.
- Estimate the risk of pollution from spreading.
- Assess the need for storage.

(See following sections)

Contact the Planning and Environment Department for advice on drawing up Farm Manure and Waste Management plans to ensure compliance with the best current practice.

Areas Where Manure and Waste Should not be Spread at any Time

- **Slope** – The risk of run-off increases with slope – check carefully before applying fertilizers containing nitrogen onto sloping land and assess the risk of causing run-off and potential water pollution.
- **Surface run-off** – The speed at which liquid soaks into the soil is important when calculating the risk of run-off. It can occur on very dry soils in the summer as well as from wet ones in the winter.
- **Land drains** – fields with effective land drainage systems cause a particular risk to the aquatic environment.

-
- **Groundwater contamination** – Applying manure and waste to land can pollute water underground especially where there is a shallow water table.
 - Do not spread within at least 10 metres of a ditch or water-course and within 50 metres of a water source such as a spring, well or borehole.

The first stage in planning is to pick out any land where manure and waste should not be spread at any time. Leave an untreated strip at least 10 metres wide on both sides of watercourses. Do not forget those on the boundary of your farm. A buffer strip may help reduce the risk of causing pollution. Irrigation systems should work so that there is no chance of their spray coming within 10 metres of a watercourse or of wind blowing material into a watercourse.

To reduce the risk of polluting groundwater, livestock manures and other organic wastes should not be applied within 50 metres of a spring, well or borehole that supplies water for human consumption, or is to be used in farm dairies. In some cases, a larger distance will be needed particularly up-slope of a spring or shallow well. Bear in mind any water sources on your neighbour's land.

Matching Land Area to Nutrient in Manure and Waste

- Apply no more than 45kg (90 units) per vergée of total nitrogen from organic manures in any twelve months to grassland.
- Apply no more than 30kg (60 units) per vergée of total nitrogen from organic manures in any twelve months to arable land.

For typical nutrient content of animal manures, see Appendix III.

Match the amount of nutrient supplied by the manure and waste to the area of land you apply it to. As a general guide there should be enough land where manure and waste can be spread to make sure that the amount of 'total nitrogen' in livestock wastes and other organic wastes that are applied is less than 30 or 45/kg/vg/yr (kilograms each vergée each year) or 60 or 90 units/vg/yr – (units each vergée each year). This figure does not include manure deposited while livestock is grazing. Lower amounts may be appropriate in sensitive catchments (see Section 11 on Nitrate and Phosphorus).

- Make an allowance for the available nitrogen, total phosphate and total potash in manures and slurries when working out fertilizer requirements.

The 'available nitrogen' in manure and organic wastes applied to the land should not be more than the crop needs. You should take this 'available nitrogen' fully into account when you are working out how much fertilizer you need. High levels of available phosphorus can accumulate in soils receiving regular, large applications of animal manures. This can increase phosphorus loss to water. You should take account of the phosphorus content of manures when working out manure application rates and how much fertilizer you need. This means that some fields should receive less than 170 kg/ha or 250 kg/ha N (30 or 45 kg/vergée N) (60 or 90 units/vg N) in organic manures in a particular year to avoid excessive enrichment of soil phosphorus levels.

'Total Nitrogen' and 'Available Nitrogen'

Between 5% and 60% of the 'total nitrogen' in livestock manure and other organic waste can be taken up by plants in the first growing season after spreading. This is the

‘available nitrogen’. The amount of ‘available nitrogen’ depends on the type of manure.

In order to make optimum use of the available nitrogen in organic manures the manure should be applied as close as possible to the time when maximum crop growth and nitrogen uptake occur. The nitrogen value of manures will generally be considerably reduced if applied in autumn or early winter due to losses of nitrogen by leaching (particularly on sandy or shallow soils) or denitrification (mainly on poorly drained soils).

For percentage of total nitrogen available to the next crop following applications of animal manures (% of total nitrogen), see Appendix IV.

Detailed fertilizer recommendations including the available nitrogen contribution from animal manures are given in ‘Fertilizer recommendations for agricultural and horticultural Crops (RB209): 7th Edition (2000)’ **Available from the Defra website** at: **Error! Hyperlink reference not valid.** www.defra.gov.uk/farm/environment/land-manage/nutrient/fert/rb209/index.htm

Estimating the Risk of Pollution from Spreading

Judge the risk of causing pollution from a field that could have manure or organic waste spread on it, and the number of months in the year when this risk applies. If you do not have the necessary expertise to conduct the risk assessment please contact the Planning and Environment Department, **Tel: 441600**.

Day to Day Management

You should not go over the nutrient loading of 30 to 45 kg/vg/yr (60 to 90 units/vg/yr) of total nitrogen from organic manures in any period of 12 months. For slurry that has not been diluted this nutrient loading may need an application rate of less than 50 m³/ha (2000 gallons/vergée) in a year. Poultry manures will usually reach this loading at 0.9 – 2.7 tonnes/vg depending on nitrogen content.

Pay careful attention on all sites to make sure that spreading does not cause ponding or run-off. Drain outfalls and ditches that lead into watercourses should be checked frequently during and after spreading.

The risk of run-off from land spreading varies with the type of manure or organic waste. The risk from solid materials is less than from liquids applied under the same conditions. Solids only cause pollution if heavy rain follows application. Liquids can pollute in their own right, even if applied carefully. Any rain soon after application will increase this risk; therefore the use of the weather forecasting service is important. Meteorological Department – Consultancy Service, **Tel: 0905 807777 (charges apply)**.

In addition to the above guidance, you should not apply when:

- The soil is waterlogged; or
- The soil is frozen hard; or
- The field is snow covered; or
- The soil is cracked down to field drains or backfill; or
- The field has been pipe or mole drained or subsoiled over drains within the last 12 months.

Assess Need for Storage

Where slurry or dirty water is produced you should first estimate the number of months of storage already available on the farm. Next compare the times of the year when you currently spread slurry with your assessment of field run-off risk, in conjunction with the maximum nutrient loading from organic manures over a 12 month period. If this shows a shortage of suitable land at times when you currently spread, you may need extra storage. If so, you may need to take professional advice.

Controlling when slurry is applied

Livestock slurries have the potential to cause considerable damage to the environment and can cause nuisance in urban situations if not stored and handled properly. The Countryside Renewal Scheme provided financial assistance to help fund the construction of slurry stores, to contain 4 months production of slurry and dirty water, prior to the introduction of the closed period for spreading slurries within this Code of Practice.

Closed periods for slurry application

Slurry cannot be applied to grassland or arable soils between the 1st October and the 31st December except by prior consultation with the Planning and Environment Department.

A derogation will only be granted for application to land areas classified as low risk under a current Farm Manure and Waste Management Plan following consultation with the Department and a written consent obtained. Under no circumstances will applications to land classified as medium or high risk areas be permitted.

To help assess storage need, typical volumes of manure produced by livestock are given in Appendix VI. Typical amounts of bedding material used are given in Appendix VII.

Slurry can be defined as:

- (a) excreta produced by livestock whilst in a yard or building; or
- (b) a mixture consisting wholly or mainly of such excreta, bedding, rainwater and washings from a building or yard used by livestock or any combination of these; of a consistency that allows it to be pumped or discharged by gravity at any stage in the handling process.

Dirty Water

This Code separates materials covered by the definition of slurry given above into slurry and dirty water. Dirty water is a waste containing washings from milking parlours, farm dairies, cleaning work and run-off from open concrete areas that are dirtied by manure or silage. Generally, it contains less than 3% dry matter. Liquids that drain from manure and slurry stores and silage effluent are often collected in dirty water handling systems. These materials are a lot more polluting than yard run-off or cleaning water (see Table 2). The biochemical oxygen demand (BOD) and the amount of plant nutrients in dirty water can vary widely, depending upon its source.

SECTION 2 FARM MANURE AND WASTE MANAGEMENT PLANNING

Filling in this page may assist you toward a defence of ‘due diligence’ under Article 18(4) and Article 18(5) of the Water Pollution (Jersey) Law 2000.

<u>ACTION</u>	<u>DONE</u>	<u>DATE</u>
• Pick out areas where manure and waste should not be spread at any time.	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>
• Match the land area to nutrient in manure and waste.	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>
• Estimate the risk of pollution from spreading manure and waste.	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>
• Assess the need for storage.	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>
• Written consent obtained.	<input type="checkbox"/>
	<input type="checkbox"/>
• Slurry application to fields.	<input type="checkbox"/>
	<input type="checkbox"/>

OTHER ACTIONS TAKEN

COMMENTS

Extra copies of this form may be obtained by contacting the Planning and Environment Department.

SECTION 3

SLURRY STORAGE

- Provide sufficient storage and containment for slurry so that it can be managed and controlled properly. Keep stores in good repair.

A facility for storing slurry should be designed to collect and hold slurry to cope with your farm manure, waste and dirty water. A guide to designing and building slurry storage tanks is given in British Standard (BS) 5502: Part 50: 1993. Design details are given in the Construction Industry Research and Information Association (CIRIA) Report No. 126 'Farm Waste Storage - Guidelines on Construction'. Currently out of print but available as a photocopy.

Slurry must be kept in a reception pit or slurry storage tank, unless it is kept temporarily in a tanker. The slurry storage tank includes a lagoon, pit or above ground circular store used for the storage of slurry.

Please note the following:

- No part of the storage facility can be within 10 metres of a watercourse or field drain that the slurry could go into if it escaped.
- On some sites the best location for slurry stores and reception pits may also be in an area affected by high groundwater. Under these circumstances, correctly designed pressure relief drainage can provide a safe method for removing excess water from the site. These 'clean' water drains need to be within 10 metres of the structure and to have outfalls to a watercourse. You must seek guidance from Environmental Protection at the Planning and Environment Department Tel: 441600, who will assess the impact on water quality. However, professional advice should be sought with regard to detailed designs, construction and contingency arrangements in the event of system failure.
- Floors must not let liquid pass through, i.e., they must be impermeable.
- The base and walls must be protected against corrosion as in BS 5502: Part 50: 1993.
- If the walls of the store let liquid pass through, the base must go beyond the walls and have collection channels draining into a tank.
- The walls and floors must be able to stand up to the loads in BS 5502: Part 50: 1993.
- The storage tank will have a life of at least 20 years if it is maintained properly.
- Reception pits must be able to hold at least 2 days' slurry production.
- The storage tank must have sufficient capacity to cope with your farm manure, waste and dirty water as defined in section 2 unless you have a safe year-round system. You will need to demonstrate to Environmental Protection at the Planning and Environment Department: Tel: 441600, that your system provides safe, year-round management and disposal of slurry.

- The size of the store and any reception pit must take into account rain that falls directly onto or drains into them.
- Water that runs off open stockyards, silos, manure and slurry stores will be polluted. Work out volumes from the area and rainfall figures. Figures for a “return period” of 5 years are often used when working out the design. (See section 4)
- Ensure any pits, lagoons etc. are fenced off to prevent unauthorised access.

SECTION 3

SLURRY STORAGE

Filling in this page may assist you toward a defence of 'due diligence' under Article 18(4) and Article 18(5) of the Water Pollution (Jersey) Law 2000.

ACTION

DONE DATE

- Assess slurry storage requirements.

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.....

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OTHER ACTIONS TAKEN

COMMENTS

Extra copies of this form may be obtained by contacting the Planning and Environment Department.

SECTION 4**DIRTY WATER**

- Minimise the amount of dirty water produced. Provide sufficient storage and containment so that dirty water can be managed and controlled properly. Keep stores and irrigation equipment in good repair.

Rainfall Figures

Historical records of rainfall are used to predict the most rain that is likely to fall in a given time. To design dirty water pumping systems, you might need figures for rain lasting for short periods of time (1-3 hours) and medium periods of time (24–48 hours). How often such an event will occur on average is called the ‘return period’. Figures for a return period of 5 years are normally used for design calculations.

1 in 5 year return period

Duration (hr)	Rain Depth (mm)
1	21.9
4	31.2
24	47.3
48	55.5

Further information on rainfall duration, rain depth or return periods or combinations thereof are available from The Meteorological Department, **Tel: 448770**, for which a charge will be made.

Handling

If possible, collect all dirty water to a single point before storing and disposing of it. Collect water polluted with dairy chemicals or milk in the dirty water system and do not let it get to a watercourse.

It is extremely important to minimise the amount of dirty water to be handled. Clean water from roofs, nearby fields or clean concrete, running onto dirty concrete will increase the amount of dirty water which you need to store and dispose of carefully. Avoid this extra risk of pollution and cost by directing the clean water into a ditch, watercourse or soakaway, wherever possible. Careful re-organisation of open yards and silos can often reduce the area giving rise to dirty water run-off.

- Check irrigation systems regularly and make sure warning devices and automatic cut-offs are working.

Move sprinklers regularly. Check the land you are irrigating for any signs of run-off and ponding on the surface or worms being killed. Move sprinklers or re-set travelling irrigators to a lower application rate if there are **any** signs of these problems.

If you use sprinklers to apply liquids with a high nutrient content, move them frequently to limit application rates.

NOTE: POSSIBLE NUISANCE CAUSED BY SMELL: Applying dirty water and slurry by sprinklers or irrigators can cause smells. Reduce this problem by paying attention to wind direction and where the liquids are being spread.

When frost lasts for a long time, systems cannot be used, and you will have to make other arrangements to handle the small amount of dirty water produced in these weather conditions.

SECTION 5**SOLID MANURE**

- Make sure that run-off from field heaps does not cause pollution. Run-off from stores on concrete bases should be collected and contained and not allowed to enter watercourses or soak into groundwater.

Although solid manures are less likely than slurries to cause pollution, they can create a lot of liquid waste if they are heaped outside. This liquid has a large BOD and there is a large risk of it causing pollution. You should contain it if there is a risk to watercourses or groundwater.

Composting can significantly reduce both the volume of manure which is spread to land and the amount of odour released.

Solid manures include: material from traditional covered straw yards, manure with a lot of straw in it and solids from mechanical slurry separators. Most poultry and broiler systems produce solid manure. These organic manures will generally contain enough bedding material, or have enough dry matter to be stacked.

Leachate from manure stored on yards or other hardstandings can be defined as slurry. It must be collected and stored as appropriate.

Only store the manure in a temporary field heap if you can put it where there is no risk of run-off polluting water. Do not put heaps over field drains, within 10 metres of a watercourse or 50 metres of a spring, well or borehole that supplies water for human consumption, or is to be used in farm dairies.

Manure Stores

Stores specially built for solid manure will reduce the risk of pollution through run-off and will make it easier to handle and load the stored material.

Stores usually have a concrete base that can take the weight of tractors and spreaders. This base has one, two or three walls, which are typically 2-3 metres high. Ways of building the walls include ready-made concrete panels, reinforced concrete, reinforced block work, or good quality railway sleepers supported by suitable upright Reinforced Steel Joists (RSJs). Leachate is collected in a below ground tank or directed into a dirty water system.

When you are estimating the volume of manure and organic waste you need to store, take into account the amount of bedding. Fresh manure taken from livestock housing every day can fill a space of up to 2 m³/tonne (70 ft³ a ton). The volume can decrease by quite a lot while it is being stored. (A guide to typical amounts is given in Appendices VI and VII).

Permanent stores should have a base that does not let liquid pass through it. The base should slope so that liquids run-off into a collection channel across the front of the store which, along with channels at the side of the store, contain the liquid waste.

Collection channels should be outside the walls of the store if the walls let liquid pass through them.

Leachate should go either into a below ground tank which meets BS5502 standards and should be big enough to suit the circumstances, or into a dirty water system. When choosing the size of the tank, take into account the rainfall and the way you will

employ it to make sure that the tank does not overflow and cause pollution. Either empty the tank regularly by tanker and spread the contents onto the land or connect the tank to a suitable pumped dirty water disposal system.

Tanks that are emptied or de-sludged by a tractor-drawn slurry tanker should be put where the tractor can easily get to them.

SAFETY NOTE: TANKS MIGHT CONTAIN LETHAL GASES AND SO YOU SHOULD NOT GO INTO THEM. CLEARLY DISPLAY A WARNING SIGN ON THE TANK.

Any work to be carried out on such tanks must only be done so in accordance with standards acceptable under the Health and Safety at Work (Jersey) Law 1989⁶. Advice on the safe cleaning procedures can be obtained from the Health and Safety at Work Inspectorate at the Social Security Department, **Tel: 447300**.

SECTION 6

SILAGE EFFLUENT

- The amount of silage effluent produced can be minimised by wilting grass to 25% dry matter before ensiling.

The amount of effluent depends on how wet the material is in the silo. The amount produced from grass in clamps or bales can be minimised by wilting to 25% dry matter or more before ensiling. Some silage such as whole crop cereals and maize produce little effluent provided they are harvested at the correct stage of maturity.

Maximum effluent flow occurs within two days of putting the material in the silo. The flow of effluent is affected by the type of silage, the depth of silage, the drainage inside the silo and the additives you use.

- Provide sufficient storage and containment for silage effluent so that it can be managed and controlled properly.

Silage can be stored:

Either in silos;

- **Or** in wrapped and sealed or bagged bales; stored in such a way that they don't leak and if there is any effluent inside the bag this must be disposed of safely.
- **Or** in a tower silo that meets the appropriate British Standard.
- **Or** as field silage either in heaps or non-baled bagged silage following discussion with the Planning and Environment Department, Tel: 441600
- There must be no watercourses, ditches or land drains within 10m of the site.
- There must be no water sources (spring, well or borehole) that supply water for human consumption, or is to be used in farm dairies within 50m of the site.
- Liquid should not be able to pass through the silo base i.e., it should be impermeable. The base should have channels around it to collect effluent. The base and any drains should be able to resist corrosion by silage effluent.
- If the silo has walls, the base should go beyond the walls and have channels to collect effluent.
- The collection channels should lead to a tank which is able to resist acid. It should be able to hold at least 20 litres of effluent for each 1 cubic metre of silo space, if the silo holds less than 1,500 cubic metres. Silos with a capacity of 1,500 cubic metres or more should have an effluent tank of not less than 30 cubic metres plus 6.7 litres for each cubic metre of silo capacity in excess of 1,500 cubic metres.
- No part of the silo, tank or channels should be within 10 metres of a watercourse or field drain, which silage effluent could get into if it escaped.
- Any silo walls should be able to resist corrosion and be built to stand up to the loading given in British Standard 5502: Part 22:2003.

- If the base of the tank is below ground, the tank should be able to resist acid attack for 20 years without maintenance.
- Make sure that silos are in good repair with appropriate collection facilities for effluent.
- Clean and inspect walls and floors when the silo is empty, and mend any cracks, corrosion or other faults before you make silage again.

SECTION 7**FUEL OIL**

- Provide bunding to contain any spillage from above-ground agricultural fuel oil tanks or areas where fuel drums are stored. The bund should be able to store 185% of the store volume. There may be circumstances where this may not be achievable. However, the minimum should be 110%. Please contact Environmental Protection at the Planning and Environment Department, Howard Davis Farm, Tel: 441600 for advice when individual circumstances mean it is not possible or reasonably practical to achieve these figures.
- Existing fuel stores can possibly be used without being altered provided there is no significant risk of causing pollution.
- For petroleum storage a licence is required, please contact the Fire Safety Officer.

Below ground tanks should not be used as leaks could pollute groundwater. If you currently have a below ground tank it should be inside a masonry or concrete chamber with inspection access and/or equipment to monitor tank integrity on a regular basis.

All newly installed tanks should have a bund of the appropriate size. There should not be an outlet or drain from the bund. The floor of the bund should slope towards a small sump. There should be some way (for example, a hand pump) to remove water or fuel oil from the sump before you dispose of it safely. Valves and sight gauges should be secure to prevent theft and vandalism and positioned within the bunded area.

- Pipelines should be above ground where possible and protected to prevent damage and/or leakage to the environment and to allow easy inspection.
- Spillage and leaks should be contained and absorbed where possible. Materials like sand can be used to mop up the spillage. Under no circumstances should water/detergents be used to wash the oil down drains or into the soil.
- Materials used to absorb spillages and leaks should then be disposed of according to the requirements of the Waste Management (Jersey) Law 2005⁷.

SAFETY NOTE: YOU SHOULD PUT THE TANK ON A SUITABLE SITE AND TAKE OTHER PRECAUTIONS TO REDUCE THE RISK OF FIRE. CONSULT THE FIRE AND RESCUE SERVICE ON Tel: 445906.

SECTION 8**PESTICIDES**

- Pesticides should be used according to the Code of Practice for the Safe Use of Pesticides on Farms and Holdings issued under **Article 7** of the Pesticides (Jersey) Law 1991⁸.
- Keep pesticides in a store with an impermeable base and sufficient bunding to contain any spillage. Use absorbents to mop up any small spillage.
- Have a contingency plan readily available.

Any new pesticide store that is built should meet the highest standards of design and construction. You might need to improve buildings that you use or want to use to store pesticides. You should not build pesticide stores where there is a risk of polluting watercourses or groundwater. Check with the Planning and Environment Department whether permission is required. Advice should also be obtained from the Health and Safety at Work Inspectorate at the Social Security Department where health and safety information is required specifically relating to pesticide storage and use. Further information can be obtained from the Jersey New Waterworks Company Limited, the Economic Development Department, Planning and Environment Department, Fire and Rescue Service and the Crime Prevention Officer.

A store should have enough storage space, be soundly built from fire resistant materials and be equipped and organised to store the intended contents.

The store should be able to contain the contents safely if they leak or are spilt. The floor should not let liquids pass through it, i.e. be impermeable and either be below ground level to form a sump, or there should be a door sill and walls that are rendered and sealed to bund height so they do not let liquid pass through and can contain spillage. This facility should be able to hold a minimum of 110% of the store contents with 185% preferable wherever possible.

You can store small amounts of pesticide in a suitable chest, bin, vault or cabinet. This container should be impact and fire resistant, be seam welded and have a built-in sump big enough to contain the amount of pesticide stored in case the packages leak.

Liquids such as dilute sprayer-tank washings can be stored in a separate below ground tank or sump of adequate capacity outside the store. This can also double as an emergency store for contaminated water if there is a fire or spillage.

You can get more details on how to store approved pesticides in HSE Agriculture Information Sheet No. 16 'Guidance on Storing Pesticides for Farmers and Other Professional Users'. British Standard BS 5502: Part 81: 1989 – 'Code of Practice for Design and Construction of Chemical Stores' - also applies.

Spillage

Avoid spilling pesticides while you are handling and storing them. If you do spill pesticide you should take action quickly to limit the effects. Contain and absorb the spillage in accordance with the manufacturer's instructions where applicable and notify, as soon as is reasonably practicable, Environmental Protection at the Planning and Environment Department and, if necessary, Jersey Water **Tel: 707302 – 24 hours. The emergency number for Planning and Environment Department's Water Pollution Hotline Number is Tel: 709535.**

Applying Pesticides Near Water

- Observe the ‘no spray zones’ on pesticide container labels and do not allow spray to drift off target.

Never apply pesticides where they could drift onto water unless they are specifically approved to be used in or near water. Make sure that there will be a margin between where the spray falls and the bank of any watercourses. For some pesticides a minimum width for the no spray zone is specified on the label. Turn off boom sections as appropriate. You **MUST** get agreement from Environmental Protection and Jersey Water, before you use herbicides to control aquatic weeds in or near water. More comprehensive guidance is provided in the MAFF booklet “Guidelines for the Use of Herbicides on Weeds in or Near Watercourses and Lakes (PB2289)”, available from either Defra publications, Admail 6000, London, SW1A 2XX,

e-mail defra@cambertown.com, Tel: 0845 955 6000 or the Chemicals Regulation Directorate, www.pesticides.gov.uk, e-mail pesticides@hse.gsi.gov.uk, Tel 01904 455775

Disposal of Dilute Wastes and Washings

- Minimise or eliminate tank washings by careful planning, use of rinsing equipment or direct-meter sprayers. Washings and dilute pesticide wastes can be applied to the treated crop or to untreated crop areas if this is permitted within label recommendations, or they may be applied to un-cropped areas of land provided there is no risk to water courses or the environment. Soakaways and slurry pits are no longer acceptable.

Fill and wash equipment in an area chosen and built for that purpose. Spillages should not be able to escape from the area. You should ensure that the area is well away from yard drains, ditches, field drains and surface water.

All spraying will produce some liquid waste. You will need to dispose of pesticides in a way that is environmentally acceptable.

Please consult the Planning and Environment Department with regard to the appropriate method of disposal.

Disposal of Containers

Never use empty pesticide containers again except, if in good condition, to hold an identical pesticide from a container that is damaged or leaks. Containers, except those mentioned in the paragraph below, should always be cleaned before you dispose of them. Clean them by following the instructions on the label or, if there are no instructions, rinse them at least three times until the container is visually clean. If available, specialist rinsing equipment should be used. If possible, you should clean the containers when you are preparing a working strength spray dilution so you can use the rinsing liquid to dilute the spray.

Put holes in containers just before you dispose of them. Never put containers that are empty or have been filled with harmless material in a building.

Empty containers must be disposed of at Bellozanne in an approved manner. Records must be accurately maintained of all disposed materials.

In some cases, you can burn lightly contaminated combustible containers which have been triple rinsed to dispose of them, though disposal at Bellozanne is the preferred option. Please consult the Code of Practice For The Safe Use Of Pesticides On Farms And Holdings available from the Planning and Environment Department.

You should not rinse or clean containers that contained hydrogen cyanide gassing powders or aluminium, magnesium or zinc phosphides because they can give off dangerous gases if they get damp. You should fill them with dry earth, sand or other harmless material.

Local Environmental Risk Assessments for Pesticides (LERAPs)

For certain pesticides, i.e. those extremely hazardous to aquatic organisms, there is a buffer zone requirement when these are applied next to watercourses and dry ditches. The buffer zone is required to ensure that spray drift fallout onto watercourses does not reach toxic levels.

The buffer zone of 5 metres is measured from the top of the bank of the watercourse. For hand held sprayers the buffer zone is 1 metre.

In the UK there is the possibility of reducing the width of buffer zones by using Local Environmental Risk Assessments for Pesticides (LERAPs). **However, due to the sensitivity of surface and ground water to contamination in Jersey, LERAPs cannot be considered relevant.** Therefore where there is a specified buffer zone for a particular pesticide this must be observed.

SECTION 8

PESTICIDES

Filling in this page may assist you toward a defence of ‘due diligence’ under Article 18(4) and Article 18(5) of the Water Pollution (Jersey) Law 2000.

ACTION

DONE DATE

- Acquire copy of the Code of Practice for the Safe Use of Pesticides on Farms and Holdings (available from the Planning and Environment Department)
- Provide an approved pesticide storage facility.
- Provide contingency plan for emergencies.
- Observe no –spray/buffer zones on pesticide labels.
- Dispose of dilute wastes and washings according to Code of Practice for the safe use of Pesticides on Farms and Holdings.
- Dispose of empty pesticide containers according to Code of Practice for the safe use of Pesticides on Farms and Holdings

OTHER ACTIONS TAKEN

COMMENTS

Extra copies of this form may be obtained by contacting the Planning and Environment Department.

SECTION 9**DISPOSING OF ANIMAL CARCASSES****Disposal of Fallen Stock: Reducing Disease Risk**

- To minimise the risk of disease introduction to your premises, you are recommended to take the actions detailed below, when you have dead stock for removal by the knacker's service (Tel: 619281)
- Disease may not always be obvious and taking these precautions will help to reduce spread.

If you suspect a notifiable disease, you must report your suspicion to the States Veterinary Officer and the carcass must not be moved. In all other situations the following actions should be taken –

- Move fallen stock to prevent access by other livestock as quickly as possible.
- To avoid the collection vehicle driving through livestock areas of the premises e.g. fields, sheds, transfer fallen stock to a readily accessible area where carcasses can be temporarily stored without access by dogs, wildlife and vermin e.g. in a building, storage bin or covered by a tarpaulin.
- The storage area should be on hard standing or hard ground which can be readily cleaned and disinfected, away from livestock and water courses and readily accessible to the collection vehicle. Also consider proximity to footpaths, public roads and dwelling houses when choosing the storage area.
- Ensure the collector knows where your collection point is located to avoid unnecessary entry to livestock areas.
- Use disinfectants approved under the Diseases of Animals (Approved Disinfectants) (England) Order 2007 and equivalent Orders in Scotland and Wales. Information on approved disinfectants can be found on the Defra website at:
http://www.defra.gov.uk/animalh/diseases/control/testing_disinfectants.htm
- The collection service operator, Transport and Technical Services has been advised to ensure the vehicle and any associated equipment, arrives and leaves your premises visibly clean and with no discharges from any part of the vehicle. Collection staff are advised to wear protective clothing and footwear which can be readily cleaned and disinfected between premises.

If you have any questions about disease prevention, please discuss with your private vet.

SECTION 10**LIQUID FERTILIZERS**

- Provide appropriate storage and containment of fertilizers so that they can be managed and controlled properly.
- The following relates specifically to liquid fertilizers.

Place storage facilities as far away as possible from any watercourse, ditch or drainage system. Ask Environmental Protection at the Planning and Environment Department and Jersey Water if you do not know whether a site is suitable.

The storage tank should be designed to suit the type and amount of liquid that is going to be stored. It should be made from a material that is resistant to corrosion from liquid fertilizer. The base should be designed to support the weight of the full store. There should be a hard area so that large delivery vehicles can get to the store.

Mild steel tanks should be welded from plates of adequate thickness that are protected against corrosion on the outside by a suitable coating. If you are storing nitrogen fertilizers, you can prevent corrosion inside the tank either by first using a phosphate containing compound fertilizer which will form a protective layer on the inside of the tank or by adding a small amount of phosphate to the nitrogen fertilizer.

Glass-fibre reinforced plastic (GRP) tanks should be fixed to the base and put where the chance of damage from a vehicle hitting the tank is as low as possible. Protective barriers might need to be put at the filling and emptying points of the tank.

You can use a flexible liner, which is supported and protected by a suitable structure, to store liquid fertilizer. **Do not use unprotected or unsupported flexible containers for either temporary or permanent stores.**

Pipes, valves and connections for filling and emptying stores should be made out of materials that do not corrode and should be placed to avoid damage. Lock any valves where the fertilizer could empty under gravity or be subject to vandalism when they are not being used.

Keep the storage tank and any connected pipes and valves in good condition. Inspect them each year for any signs of leaking or corrosion. Paint the outside of steel tanks regularly. Treat any damage to the surface of GRP tanks with a coat of resin.

Good handling procedures will minimise the risk of spilling fertilizer either when you are filling stores from road tankers or filling the field applicator or bowser. All hatches, lids and valves should be securely closed before tankers or bowsers are moved, and valves should be locked when unattended. Do not overfill tanks. Leave space for the contents to expand. Anyone using liquid fertilizers should follow these procedures; know about the possibility of causing pollution from spillage, and the emergency action you have to take, should it occur.

Environment Department.

SECTION 11

NITRATE AND PHOSPHORUS

- Minimise nitrate leaching by following recommended rates and timings for fertilizers and avoiding ploughing up of permanent grassland wherever possible.

Inorganic Nitrogen Fertilizer

To keep the amount of nitrate lost from the soil as low as possible, carefully work out the amount of inorganic nitrogen fertilizer you need. Work out how much nitrogen is in the soil and how much the crop needs. Take into account the type of soil, previous cropping and use of animal manure and other organic wastes when you are working out how much nitrogen a crop can get from the soil itself. In situations of high soil nitrogen supply, such as land receiving regular applications of organic manures or recently ploughed from intensively managed grass, soil analysis for soil mineral nitrogen can provide a more precise guide to soil nitrogen supply and fertilizer requirement.

Do not apply extra fertilizer to be on the safe side. The amount of nitrogen fertilizer applied should not exceed the crop requirement as this increases the amount of nitrate lost by leaching and is a waste of money. Recommendations are given in 'Fertilizer Recommendations for Agricultural and Horticultural Crops (RB209): 7th Edition (2000)'. If you receive professional advice on fertilizer use make sure that the person giving advice is certified by FACTS (Fertilizer Advisers Certification and Training Scheme). The Planning and Environment Department recommends that a soil analysis is carried out every 3 years and to keep accurate records of all fertilizers (both organic and inorganic) applied.

Inorganic nitrogen fertilizer must not be applied to grassland or arable soils between the 1st October and the 31st December. Applications during the closed period will be permitted on a case by case basis provided written advice is obtained from a FACTS qualified adviser.

Ploughing up Grass

Nitrate is released if permanent grassland is ploughed up and changed to arable. The amount of nitrate released can be reduced by minimising soil disturbance. If permanent grassland needs reseeding, aim to do it with as little cultivation as possible and try to ensure that grass covers the field by early October.

Phosphorus

- Apply phosphorus according to soil analysis and the needs of the crop. Always allow for the nutrients supplied by any organic manure that you have applied.

The amount of phosphorus lost by erosion, leaching or drain flow will depend on the soil phosphorus level. The higher the soil phosphorus level, the greater the loss. To minimise losses, you should not apply amounts of phosphorus fertilizer in excess of those recommended in 'Fertilizer Recommendations for Agricultural and Horticultural Crops (RB209): 7th Edition (2000)'. For most crops, no phosphorous fertilizer is recommended at ADAS Soil P Index 4 or above.

Where organic manures are applied on fields at ADAS Soil P Index 3 or above, care should be taken to avoid total phosphorus inputs exceeding the amount removed by

crops in the rotation. This will help avoid raising soil P levels above those necessary for crop production.

Eutrophication

For the purpose of this Code, eutrophication is defined as the enrichment of water by nitrogen or phosphorus. This enrichment causes algae and other higher forms of plant life to grow to excess. When algae grows in this way it causes an algal bloom and it is when these blooms die, the bacteria which consume them uses oxygen to do so, deoxygenating the water, which can result in the death of fish and other aquatic organisms.

Fertilizers

Detailed fertilizer recommendations are given in 'Fertilizer Recommendations for Agricultural and Horticultural Crops (RB209): 7th Edition (2000)'.

Fertilizer Spreading

- Spread fertilizer accurately, at the right rate and avoid application to un-cropped areas, hedges, watercourses, pathways and roads. Get the spread pattern tested regularly. Keep machinery that spreads fertilizer in good condition and regularly calibrated. You should only use fertilizer of a quality that you can spread accurately and evenly.

Take special care when applying any inorganic fertilizer on fields where there is a risk of run-off to surface water. You should not apply fertilizer when the soil is:

- Waterlogged
- Flooded
- Frozen hard
- Snow covered

Before applying inorganic fertilizers to steeply sloping fields assess the risk of causing run-off and possible water pollution and where the risk is significant, nitrogen fertilizer should not be applied. If you do not have the necessary expertise to conduct the risk assessment please contact the **Planning and Environment Department**.

Emergency Services

To assist the **States of Jersey Fire and Rescue Service** please supply details of current fertiliser stocks and/or other agents which are likely to involve hazards to personnel likely to be engaged in fire fighting operations.

At the very least, areas containing hazardous materials should be clearly marked and made identifiable to any attending emergency crews.

Environment Department.

SECTION 12

SPECIALISED HORTICULTURE

This section covers pollution risks associated with specialised horticultural crop production including:

- protected crops
- container grown hardy ornamental nursery stock
- mushrooms
- watercress.

Surplus water will run off from many protected crop and container nursery stock production systems. This can contain both nutrients and pesticides. The following paragraphs provide guidance on minimising the quantities lost.

Soil Grown Protected Crops

Where a crop (such as lettuce) which is sensitive to high soil nutrient levels follows a crop (such as tomatoes) which requires high soil nutrient levels, it is normal practice to flood the soil between crops to reduce the nutrients in the soil.

To minimise the amount of nutrient loss by flooding, you should discontinue liquid feeding the first crop as early as practicable and avoid excessive use of water when flooding.

The amount of nutrients added to the water for protected crops should be matched to the crop requirement, particularly stage of growth and time of year. Any surplus nutrients will be lost in run-off.

Recent research has shown that the nitrate concentration in feeds for tomatoes can be partially replaced by chloride, resulting in reduced nitrate in the run-off.

Hydroponic Protected Crops

Most rockwool and other hydroponic production systems produce run-off which drains from the site. Where run-off is likely to occur into controlled waters a discharge permit may be needed under the Water Pollution (Jersey) Law 2000. Some growing systems recirculate the surplus solution and avoid run-off, but this approach is not practicable in many circumstances.

Non-Recirculating Systems

- Minimise the volume of run-off by matching water application to the requirements of the production system and minimise the loss of nutrients by matching the amounts applied to crop requirements.

You should not apply more water than is required by the particular production system. To enable you to control the amount of water applied, you need to monitor the quantity of water being used.

Depending on the crop, you should use one or more of the following techniques to avoid excessive run-off:

- Measure the quantity of run-off at a representative number of points in each cropping area. Your measurement should be compared with standard figures, where available, if run-off is greater than 30% of the water being applied, you should try and reduce water application.
- Make sure the irrigation system is well designed, carefully installed and regularly maintained to ensure that the variability in the amount of water delivered by each nozzle or dripper is as low as possible.
- The amount and frequency of applications should be adjusted according to the needs of the substrate and growing system. For example, more frequent applications of smaller volumes are needed for less retentive substrates.

Recirculating Systems

Nutrient film and any other system that allows recirculation of the nutrient solution avoids run-off. However the system will need to be emptied at the end of the season and sometimes more frequently.

To reduce the amount of liquid to be disposed of, the tank should be allowed to run down as much as possible before the end of cropping.

ALSO CHECK THE CODE OF GOOD PRACTICE FOR ‘THE COLLECTION, RE USE AND DISPOSAL OF HYDROPONIC RUN-OFF FROM ARTIFICIAL SUBSTRATES’ (States of Jersey Agriculture and Fisheries Committee, issued 26-7-1999) available from the Planning and Environment Department.

Container Nursery Stock

There are two main production systems, overhead watering and capillary sand beds. Run-off from both can be minimised by careful management. Sand beds will result in reduced run-off compared to overhead watering. However, they require greater capital investment than other standing base systems which has limited their adoption.

Overhead Watering

The amount and frequency of water applied to nursery stock grown in containers should be matched to the rainfall, species, growing medium, stage of growth, and time of year, to minimise the amount of run-off.

The irrigation system should be properly designed and should match the cropped area as far as is practicable.

The irrigation nozzles should be regularly maintained to ensure even water application.

Recirculation of Water

Recirculation of run-off water has not been standard practice but, it may become more common in future. New container areas should be planned with this possibility in mind.

Nutrient Input

Most production systems involve controlled release fertilizers added to the compost and nutrients added to the irrigation water. Controlled release fertilizers have the potential to limit nutrient loss as they are confined to the container. The amount of

nutrients added to both compost and water should be carefully matched to the production system to minimise the amount lost in run-off. Nutrient levels should be monitored to minimise costs and run-off loss.

Pesticide Use

Pesticide use should be the minimum required to produce marketable crops. Where practicable, compost incorporated treatments should be used rather than drenches.

Organic Wastes

Plant debris and used compost should normally be removed from the holding to minimise pest and disease problems. If plant material or compost is stored in heaps on the holding, these should be sited away from watercourses prior to spreading so that any effluent produced does not cause pollution.

Other Wastes

A wide range of chemicals (acids, sterilants, cleaners) are used in horticulture as well as nutrients and pesticides.

Unused concentrates should be stored safely to meet the requirements of the Health and Safety at Work (Jersey) Law 1989⁹ and the Pesticides (Jersey) Law 1991¹⁰.

Dilute, used sterilants and cleaners should be disposed of safely. Any remaining dilute liquid should be applied to land, taking care to avoid run-off to ditches or land drains thereby minimising the risk of pollution.

Mushrooms

Compost Production

The production of compost is often carried out on open concrete yards with no roof cover. Liquid run-off from any storage of manures and from composting must be minimised and contained. Poor, uneven water application can lead to excess run-off. Some liquids can be used for re-wetting compost to achieve the best moisture content for treatment. Dirty yard areas should be kept to a minimum to reduce the quantity of dirty water produced. The options for dealing with surplus dirty water, together with dirty water from cleaning operations (described below) are dealt with in Section 4, and the principles of storing and applying dirty water to land are given in Section 2 of this Code (Farm Manure and Waste Management Planning).

Mushroom Production Buildings

Cleaning down trays and equipment within buildings and on concrete yard areas outside buildings can use large amounts of water from pressure hosing. You can reduce water usage by dry brushing first to remove solids and debris. Choose an appropriate nozzle size and pressure to minimise water use. Improved use of water will reduce supply costs and minimise the volumes of dirty water to be dealt with. Dirty yard areas should be kept to a minimum to reduce the quantity of dirty water produced. Dirty water contains both settleable and suspended solids which must not be discharged to a ditch or watercourse.

Rainfall onto building roofs and clean concrete areas should have a separate drainage system from dirty water. Clean water should be directed into a ditch, watercourse or soakaway, wherever possible.

Spent mushroom compost and organic debris should be dealt with in a similar way to livestock solid manures (see Section 5).

Watercress

After harvesting watercress, the remaining plant debris is usually removed in readiness for the next crop. This action stirs up sediment which must not be discharged into controlled waters. The mix of water and suspended stocks may need to be directed to a suitable settlement tank. The liquid portion can be discharged to a controlled water, provided it meets the requirements of the discharge permit under the Water Pollution (Jersey) Law 2000.

Solids from the settlement process and plant debris should be spread onto suitable land subject to the necessary precautions.

SECTION 12

SPECIALISED HORTICULTURE

Filling in this page may assist you toward a defence of ‘due diligence’ under Article 18(4) and Article 18(5) of the Water Pollution (Jersey) Law 2000.

ACTION

DONE DATE

Soil Grown Protected Crops

- Match nutrient supply to crop requirements.
-
- Minimise nutrient loss from flooding by stopping feeding the crop as soon as practical.
-
- Avoid excessive use of water when flooding.
-

Hydroponic Protected Crops

- Where necessary obtain a discharge permit under the Water Pollution (Jersey) Law 2000 if run-off is likely to occur in controlled waters.
-
- Minimise the volume of run-off by matching water supply to the requirements of the production system.
-
- Minimise the nutrient loss by matching the amount applied to the crop requirements.
-
- Acquire “The Code of Good Practice for the collection, re-use and disposal of hydroponic run-off from artificial substrates” (States of Jersey Agriculture and Fisheries Committee, issued 26-7-1999) available from the Planning and Environment Department

Container Nursery Stock

- Match water applied to the species grown.
- Maintain irrigation system and calibrate for even water application.
-

Other Wastes

- Store unused concentrates according to the Health and Safety at Work (Jersey) Law 1989 and the Pesticides (Jersey) Law 1991.
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- Dispose in accordance with the Waste Management (Jersey) Law 2005.

OTHER ACTIONS TAKEN

COMMENTS

Extra copies of this form may be obtained by contacting the Planning and

Environment Department.

APPENDIX I**High Risk Substances under Schedule 2 to the Water Pollution (Jersey) Law 2000**

1. Any substance that has or is associated with any of the following properties, characteristics or features:
 - (a) persistency;
 - (b) toxicity or any other noxious property;
 - (c) a tendency to bioaccumulation;
 - (d) radioactivity;
 - (e) a risk, caused anthropogenically, of eutrophication;
 - (f) transboundary significance;
 - (g) a risk of undesirable changes in the aquatic ecosystem, and irreversibility or durability of effects;
 - (h) interference with harvesting of foods in controlled waters; and
 - (i) effects on the taste or smell or anything from the aquatic environment that is intended for human consumption, or effects on smell, colour, transparency or other characteristics of controlled waters.

2. Without limiting the generality of paragraph 1, any substance that is any of the following kinds:
 - (a) heavy metals and their compounds;
 - (b) organohalogen compounds and substances that may form such compounds in the aquatic environment;
 - (c) organic compounds of phosphorus, silicon and tin;
 - (d) biocides, including pesticides, fungicides, herbicides, insecticides and slimicides;
 - (e) chemicals used, *inter alia*, for the preservation of wood, timber, wood pulp, cellulose, paper, hides and textiles;
 - (f) oils and hydrocarbons of petroleum origin;
 - (g) nitrogen and phosphorus compounds; and
 - (h) radioactive substances and radioactive wastes.

3. Any substance whose presence in any controlled waters would adversely affect the standards of quality to be achieved in those waters under a Water Quality Order under **Article 12** of the Water Pollution (Jersey) Law 2000.

APPENDIX II

Useful Addresses and Telephone Numbers

<p>Planning and Environment Department Planning and Environment Howard Davis Farm Trinity JE3 5JP Tel: 441600, Fax: 441601 Environmental Protection and Pollution Hot-line: 709535</p>	<p>Rural Economy Howard Davis Farm Trinity JE3 5JP Tel: 441600, Fax: 441601</p>
<p>Planning and Environment Department Planning and Building Services South Hill St. Helier JE2 4US Tel: 445508, Fax: 445528</p>	<p>Ambulance Service Headquarters Rouge Bouillon St. Helier JE2 3ZA Tel: 444700, Fax: 444731</p>
<p>States Greffe Morier House Halkett Place JE1 1DD Tel: 441020, Fax: 441098</p>	<p>Police Police Headquarters St. Helier JE2 3ZA Tel: 612612, Fax: 612613</p>
<p>Public Health (Including Health Protection) Le Bas Centre St. Saviour's Road St. Helier JE1 4HR Tel: 443717, Fax: 443720</p>	<p>Social Security Department Philip Le Feuvre House La Motte Street St. Helier JE4 8PE Tel: 447300, Fax: 874791</p>
<p>Fire and Rescue Service SJFRS Headquarters PO Box 509 Rouge Bouillon St. Helier JE4 5TP Tel: 445906, Fax: 766375</p>	<p>Meteorological Department Jersey Airport St. Peter Jersey JE1 1BY Tel: 448770, Fax: 448778</p>
<p>Jersey Water Mulcaster House Westmount Road St. Helier JE1 1DG Tel: 707300, Fax: 707400 Tel: 707302 (Emergencies only –24 hour)</p>	<p>General Hospital Gloucester Street St. Helier JE1 3QS Tel: 442000</p>
<p>Defra Customer Contact Unit Eastbury House 30 – 34 Albert Embankment London SE1 7TL Tel: 08459 33 55 77</p>	

email: helpline@defra.gsi.gov.uk	
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APPENDIX III

Typical Nutrient Content of Animal Manures

	DM%	Total Nutrients			Available Nutrients ⁽¹⁾		
		Nitrogen	Phosphate	Potash	Nitrogen	Phosphate	Potash
Fresh FYM⁽²⁾		kg/t			kg/t		
Cattle	25	6.0	3.5	8.0	See	2.1	7.2
Pig	25	7.0	7.0	5.0	Appendix IV	4.2	4.5
Poultry Manures		kg/t			kg/t		
Layer Manure	30	16	13	9.0	See	7.8	8.1
Broiler/ Turkey Litter	60	30	25	18	Appendix IV	15	16.0
Slurries		kg/m³			kg/m³		
Dairy ⁽³⁾	6	3.0	1.2	3.5	See	0.6	3.2
Beef ⁽³⁾	6	2.3	1.2	2.7	Appendix	0.6	2.4
Pig	4	4.0	2.0	2.5	IV	1.0	2.3
Separated Cattle Slurries (Liquid)		kg/m³			kg/m³		
Strainer Box	1.5	1.5	0.3	2.2	See	0.15	2.0
Weeping Wall	3	2.0	0.5	3.0	Appendix	0.25	2.7
Mechanical Separator	4	3.0	1.2	3.5	IV	0.6	3.2

Notes:

1. *Nutrients that are available for utilisation by the next crop.*
2. *Values of Nitrogen and Potash will be lower for FYM stored in the open or for long periods.*
3. *It is common for farm slurries to contain approximately 6% DM. Slurries of DM% other than 6% will have greater or lesser concentrations of nutrients than those shown above. Undiluted slurry will usually contain approximately 10% DM.*

APPENDIX IV**Nitrogen – Percentage of total nitrogen available to the next crop (% of total nitrogen)****Surface Application**

	DM %	Autumn ¹ (Aug – Oct, 350mm rainfall to end March)		Winter ¹ (Nov – Jan, 200mm rainfall to end March)		Spring ¹ (Feb – Apr)	Summer ¹ use on grassland
		Sandy/Shallow ²	Medium/Heavy ²	Sandy/Shallow ²	Medium/Heavy ²	All soils	All soils
Fresh FYM ³	25	5	10	10	15	20	N/D
Layer Manure	30	10	20	15	30	35	N/A
Broiler/turkey litter	60	10	20	15	25	30	N/A
Dirty water	<1	0	40	Closed Period		80	50
Dairy/Beef Slurries* ^a	2	5	20	Closed Period		50	35
	6	5	15			35	20
	10	5	10			20	10
Pig Slurry	2	5	25	Closed Period		60	40
	4	5	20			50	30
	6	5	15			40	25

Soil Incorporation

	DM %	Autumn ¹ (Aug – Oct, 350mm rainfall to end March)		Winter ¹ (Nov – Jan, 200mm rainfall to end March)		Spring ¹ (Feb – Apr)	Summer ¹ use on grassland
		Sandy/Shallow ²	Medium/Heavy ²	Sandy/Shallow ²	Medium/Heavy ²	All soils	All soils
<i>24 hours after application⁴</i>							
Fresh FYM	25	5	10	15	20	25	N/A
Layer Manure	30	10	25	20	40	50	N/A
Broiler/turkey litter	60	10	25	20	40	45	N/A
<i>6 hours after application⁵</i>							
Dairy/Beef Slurries* ^a	2	5	20	Closed Period		55	N/A
	6	5	20			45	N/A
	10	5	15			25	N/A
Pig Slurry	2	5	25	Closed Period		65	N/A
	4	5	20			55	N/A
	6	5	20			50	N/A

*a for separated cattle slurry, use the value for 2% dry matter slurry

N/A not applicable

N/D no data

Deep Injection (25 – 30cm)

	DM %	Autumn ¹ (Aug – Oct, 350mm rainfall to end March)		Winter ¹ (Nov – Jan, 200mm rainfall to end March)		Spring ¹ (Feb – Apr)	Summer ¹ use on grassland
		Sandy/ Shallow ²	Medium/ Heavy ²	Sandy/ Shallow ²	Medium/ Heavy ²	All soils	All soils
Dairy/Beef Slurries	2	5	10	Closed Period		60	60
	6	5	10	Closed Period		50	50
	10	5	10	Closed Period		45	45
Pig Slurry	2	5	10	Closed Period		70	70
	4	5	10	Closed Period		65	65
	6	5	10	Closed Period		60	60

Notes

- The nitrogen availability estimates assume 350mm of rainfall (after autumn application) and 200mm (after winter application) up to the end of soil drainage (usually end March). Where rainfall differs from these amounts, intermediate values of nitrogen availability should be used. Reduce the values by half on medium/heavy soils where rainfall is much greater than 350mm following autumn application (i.e. over 500mm). For spring or summer applications, rainfall is not likely to cause movement of nitrogen to below crop rooting depth.*
- Sandy/shallow means light sand soils and shallow soils. Medium/heavy means medium, deep fertile silt and deep clay soils. Use this category for organic and peaty soils where applicable.*
- Fresh FYM means manure which has not been stored prior to land application and has an estimated ammonium-N content of 25% of the total N. Old FYM means manure which has been stored for 3 months or more and has an estimated ammonium-N content of 10% of the total N.*
- The values assume incorporation by ploughing. Cultivation using discs or tines is likely to be less effective in minimising ammonia losses and intermediate values of nitrogen availability should be used.*
- The values assume incorporation by ploughing. Cultivation using discs or tines is likely to be less effective in minimising ammonia losses. Where slurry has been applied in spring or summer and incorporated more quickly than 6 hours, nitrogen availability should be intermediate between the 'soil incorporated' and 'deep injected' figures. Where slurry has been applied in spring or summer using shallow injection or band spreading methods, nitrogen availability will be intermediate between 'surface applied' and 'deep injected'.*

APPENDIX V**Land area needed for spreading manures from different livestock**

1 Jersey dairy cow (6 month housed)	0.72 vergée
1 Pig (35 – 105kg)	0.23 vergée
1 Sow and litters (to 4 weeks)	0.43 vergée
1,000 laying hen places	14.7 vergée
1,000 broiler places	11.0 vergée

Typical figures to meet the recommended maximum loading of 45kg vergée/yr (90 units/vergée/yr) of total nitrogen in applied organic manure.

APPENDIX VI**Estimated quantities of excreta and nutrients produced during the housing period**

Type of livestock	Body Weight (kg)	Housing period (% of year)	Undiluted excreta (t or m ³)	Nitrogen (N) (kg)	Phosphate (P ₂ O ₅) (kg)	Potash (K ₂ O) (kg)
Cattle						
Dairy cow	400–450	50	8.1	32.4	16.2	40.5
Pigs						
1 Maiden gilt ¹	90–130	100	2.6	13	13	10
1 Sow + litter ²	130–225	100	4.0	19.5	20	16
1 Weaner	7–18	90	0.4	3.0	2.3	1.8
1 Grower, dry meal	18–35	90	0.9	6.1	4.5	3.6
1 Bacon, meal fed	35–105	90	1.5	10.5	7.5	6.0
Poultry						
1000 Laying hens	2,200	97	41	660	545	360
1000 Turkeys (male) ³	13,500	80	46	1390	1225	810
1000 Turkeys (female) ³	6,500	80	22	650	575	380
Sheep						
1 Adult ewe	65	8	0.13	0.8	0.2	0.4
1 Lamb	35	8	0.03	0.2	0.05	0.1

Note:

1. Maiden gilts – assumes all year round accommodation
2. Sows – based on 2.3 lactations (23% of year) and dry period (77% of year)
3. Turkeys – assumes 2.1 or 2.4 crops/year, for male and female birds

APPENDIX VII

Typical amounts of bedding material used by each animal in livestock housing systems

Livestock	Housing System	Litter Used	Typical Amount Used in 180 Days (kg)
Dairy cows	Cubicles	Chopped straw	120
		Sawdust, wood wastes	150
Dairy cows	Loose housing	Straw	530

Livestock	Housing System	Litter used	Typical amount used per year (kg)
Pigs	Pens	Straw	102
Poultry	Deep litter	Wood shavings Straw chopped 38-50mm	1.0
Broilers	Deep litter	Wood shavings Chopped straw Chopped paper	0.5 (per bird per crop)

APPENDIX VIII

Amount of cleaning water used

Livestock Type	Cleaning system	Amounts in litres	
		Range	Typical
Dairy cows	Cleaning milking parlour equipment, washing udders, etc. Without a power hose With a power hose	per animal/day	
		14-22	18
		27-45	35
Pigs	Cleaning out pens after each batch (10 pigs per pen)	16-24	18

APPENDIX IX**Sources of Information****1. LEGISLATION**

Water Pollution (Jersey) Law 2000¹¹

Building Bye-laws (Jersey) 2007¹²

Pesticides (Jersey) Law 1991¹³

Pesticides (General Provisions) (Jersey) Order 1991

Health and Safety at Work (Jersey) Law 1989¹⁴

Planning and Building (Jersey) Law 2002¹⁵

Slaughter of Animals (Jersey) Law 1962¹⁶

Diseases of Animals (Waste Foods) (Jersey) Order 1958¹⁷

Diseases of Animals (Jersey) Law 1956¹⁸

EC Council Directive 91/676/EEC (Nitrates Directive)

Waste Management (Jersey) Law 2005¹⁹

Water Resources (Jersey) Law 2007²⁰

2. BRITISH STANDARDS SPECIFICATIONS

BS 5502*: Buildings and Structures for Agriculture.

Part 22: 2003 Code of Practice for design, construction and loading.

Part 50: 1993 Code of Practice for design, construction and use of reception pits and storage tanks for livestock slurry.

Part 81: 1989 Code of Practice for design and construction of chemical stores.

* Other Building and Structure regulations covering agriculture are available from BSI.

BS 8007: 1987 Code of Practice for design of concrete structures for retaining aqueous liquids.

BS 5061: 1974 Specification for cylindrical forage tower silos and recommendations for their use.

AMD 1747-1975, AMD 6074-1990

BS 799 Part 5: 1987 Oil Burning Equipment. Specification for Oil Storage Tanks. (Under review).

You can get these from: BSI, British Standards HQ, 389 Chiswick High Road, London W4 4AL. Tel: 0208 996 9000.

3. HEALTH AND SAFETY PUBLICATIONS

Managing confined spaces on farms (HSE Agricultural information sheet 26)

Preventing access to effluent storage and similar areas on farms (HSE Agricultural information sheet 9)

Guidance on storing pesticides for farmers and other professional users. (HSE Agriculture Information Sheet No. 16, May 96)

Farmwise - Your essential guide to health and safety in agriculture (HSE)

Five steps to risk assessment (HSE INDG163 (rev2), revised 06/06)

The Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991 S.I. 1991/324 (HSE OC 400/8)

You can get information on these and other HSE publications from the HSE InfoLine Tel: 0845 3450055 or order from HSE Books, PO Box 1999, Sudbury, Suffolk, CO10 6FS. Tel: 01787 881165; Fax: 01787 313995.

JERSEY

Health and Safety in the Workplace – a general guide. HS(g)1 Revised 2007.

Health and Safety at Work (Jersey) Law 1989 **Article 3(3)** – Advice to Employers on Writing a Safety Policy Statement. 8/97. SP4.

The above Jersey publications are available from the Health and Safety at Work Inspectorate, Tel: 447300

4. OTHER PUBLICATIONS

Reference Book 209 ‘Fertilizer Recommendations for Agricultural and Horticultural Crops’ (7th Edition, 2000) You can get this from Stationary Office bookshops or The Stationary Office (TSO). Tel: 0870 600 5522.

Construction Industry Research and Information Association (CIRIA) Report No. 126 “Farm Waste Storage – Guidelines for Construction”. Available from: CIRIA, 6 Storey’s Gate, London SW1P 3AU. For general enquiries Tel: 0207-222-8891, for publications Tel: 020-7799-3243.

Construction of bunds for oil storage tanks, CIRIA (Construction Industry Research and Information Association), Report 163, ISBN: 0 86017 468 9.

Masonry Bunds for Oil Storage Tanks – CIRIA/Environment Agencies Joint Guidelines.

Concrete Bunds for Oil Storage Tanks – CIRIA/Environment Agencies Joint Guidelines.

JERSEY

Pesticides: Code of Practice for the Safe Use of Pesticides on Farms and Holdings 1991.

Abattoir and Knackersyard Code of Practice – December 1998.

Code of Good Practice for the collection, re-use and disposal of hydroponic run-off from artificial substrates – July 1999.

The above Jersey publications are available from the Planning and Environment Department, Tel: 441600.

ENDNOTES

Table of Legislation History

Legislation	Year and No	Commencement
Water Pollution (Code of Good Agricultural Practice) (Jersey) Order 2009	R&O.61/2009	29 June 2009

Table of Renumbered Provisions

Original	Current
None	

Table of Endnote References

<i>1</i>	<i>chapter 27.800</i>
<i>2</i>	<i>chapter 27.800</i>
<i>3</i>	<i>chapter 01.880</i>
<i>4</i>	<i>chapter 27.960</i>
<i>5</i>	<i>chapter 22.550.05</i>
<i>6</i>	<i>chapter 05.300</i>
<i>7</i>	<i>chapter 22.950</i>
<i>8</i>	<i>chapter 01.880</i>
<i>9</i>	<i>chapter 05.300</i>
<i>10</i>	<i>chapter 01.880</i>
<i>11</i>	<i>chapter 27.800</i>
<i>12</i>	<i>chapter 22.550.05</i>
<i>13</i>	<i>chapter 01.880</i>
<i>14</i>	<i>chapter 05.300</i>
<i>15</i>	<i>chapter 22.550</i>
<i>16</i>	<i>chapter 02.800</i>
<i>17</i>	<i>chapter 02.400.28</i>
<i>18</i>	<i>chapter 02.400</i>
<i>19</i>	<i>chapter 22.950</i>
<i>20</i>	<i>chapter 27.960</i>