

**MANAGING DAIRY FARM
EFFLUENT IN TASMANIA**

CODE OF PRACTICE

**PRODUCED BY STATE DAIRY EFFLUENT
WORKING GROUP**

AUGUST 1997

FOREWORD

The Code represents a responsible step towards ensuring that dairy effluent management is under taken on a sustainable basis in the State. It gives all persons involved the opportunity to self regulate and minimise the need for intervention by regulating authorities in matters that are better handled by the industry.

Dairy effluent is not a nuisance but a valuable farm resource capable of giving substantial and low cost fertiliser benefits to farmers. However, to achieve this it must be stressed that effluent must be soundly managed and not ignored. Dairy farmers, like all members of society, have a responsibility not to pollute the environment.

Better management of dairy effluent is just one aspect of sustainable and responsible farm management practices. It is very important aspect as incorrect management of effluent can lead to health problems or harm to humans, aquatic and animal life and may cause financial hardship to other users of our water resources.

We would like to thank the working group members as well as the many other people who have contributed to this Code and implore you, the reader, not to ignore it, as we will all benefit from adhering to its principles.

**MANAGING DAIRY FARM
EFFLUENT – CODE OF PRACTICE**

WORKING GROUP ON DAIRY EFFLUENT MANAGEMENT

Chair	Brendon Thompson, Member of the Dairy Council, Tasmanian Farmers and Graziers Association
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IMPORTANT DISCLAIMER

Information presented in this Code has been derived from a number of sources. The Working Group that developed this Code does not accept responsibility for misuse of this Code nor for the correctness or otherwise of measurements presented. All suggested measures are guides and where appropriate should be varied if better information is available and or where such action will lead to more environmentally sound and effective dairy effluent management.

PURPOSE

The purpose of this Code is to document environmental guidelines which are acceptable to regulatory authorities for dairy shed effluent management in order to:-

- promote industry self regulation;
- provide information for planning authorities on the assessment and control of effluent management under the *Land Use Planning and Approvals Act 1993* and the *Environmental Management and Pollution Act 1994*;
- promote environmental responsibility;
- increase community awareness about environmental management within the dairy industry;
- provide a simple mechanism to enable identification of farms polluting through a variety of sources (including farmers) to ensure appropriate follow up
- provide a list of sources of technical information

CONTENT

This code consists of the following specific sections.

1. Site Planning
2. System Design
3. Dairy Effluent Re-use Methods
4. Management of Intensive Use Areas
5. Animal Hygiene
6. Associated Environmental Issues
7. Hazard Analysis
8. Emergency Plans
9. Emergency Disposal of Milk
10. Monitoring of Dairy Effluent Management

Appendix A Management Mechanism for Code of Practice

Appendix B Sources of Technical Information

Appendix C Further Information on Dairy Effluent Management

LEGISLATION

Compliance with this Code should reduce the potential for environmental harm or environmental nuisance as defined by the *Environmental Management and Pollution Control Act 1994 (EMPCA)*. This Act contains mechanisms such as Environment Protection Notices, which may enforce the prevention of environmental harm, or restoration of harm, at any dairy premise whether or not a planning permit is held.

EMPCA provides for Regulations which enable the making, issuing and if necessary, ratification by Parliament, of Codes of Practise.

LICENCES/PERMITS

Operators of dairy premises may be required to hold a permit issued by a planning authority under the *Land Use Planning and Approvals Act 1993*. In most cases the Municipal Council is the relevant authority. Information should be sought for any new and/or extension of use to existing dairy premises. The conditions attached to the permit are legally binding and guidelines in this Code are likely to be reflected in the conditions.

A building permit under the *Building Regulations 1994* must be obtained from the local Municipal Council prior to the commencement of any building works.

Operators of dairy premises are required to hold a licence under the *Dairy Industry Act 1994*.

GLOSSARY OF TERMS

Acceptable Standard	Minimum degree to which the principle must conform.
Best Practise	incudes having due regard to: <ul style="list-style-type: none">(a) strategic planning by the person carrying out or proposing to carry out the activity;(b) administration systems implemented by the person including staff training;(c) public consultation carried out by the person, product and process design(d) waste prevention, treatment and disposal
	Means an employee of a Council appointed under Section 21 of EMPCA.
Dairy Effluent	Liquid matter emanating from milk spillage, faeces, urine, waster water from milking, cleaning and yard washdown activities.
Dairy Effluent System	Works and management measures adopted to manage dairy effluent.
Due Diligence	All reasonable and practical measures are taken to avoid environmental harm.
EHO	Municipal Environmental Health Officer
EMPCA	<i>Environmental Management and Pollution Control Act, 1994.</i>
Environmental Harm	May include any adverse impact on the environment and includes environmental nuisance (further defined in EMPCA).
Executive Group	Industry Group who operates and manages the Dairy Effluent Management database and assists Councils, as appropriate, to manage dairy effluent management complaints.
Environmental Nuisance	The emission of a pollutant that unreasonably interferes with or is likely to unreasonably interfere with a person’s enjoyment of the environment.
HACCP	Hazard Analysis Critical Control Point
Hydraulic Loading	Amount of effluent able to be supplied that is consistent with the soil profile.

GLOSSARY OF TERMS (continued)

Planning Authority	In most cases the Municipal Council is the relevant authority.
Pollution	Means the discharge, emission, deposition or disturbance of pollutants as defined under Section 3 of EMPCA.
Principal	A concept to adhere to for dairy effluent management.
Re-use	Means any process by which wastes from one activity are used beneficially for use in another activity
Regulatory Authority	In most cases the Municipal Council is the relevant authority.
Suggested Measure	Recommended methods or possible management options for improving environmental management of premises which should achieve acceptable standards.

PRINCIPLES

1. SITE PLANNING

Principle

Consideration of effective dairy effluent management methods will ensure an accord with relevant legislation whilst enhancing on-farm operations.

Acceptable Standard

That best practice environmental management of dairy effluent is achieved.

Suggested Measures

A number of factors need to be considered in the process of planning. The fundamental approach desirably should be based on the belief that pollution is a resource in the wrong place. Steps to be taken in the planning process include:

- consult you dairy adviser and others to gain assistance;
- assess current farm operations and landuse practices and consider the influence of new works and new activities resulting from enterprise expansion in the foreseeable future;
- establish property and catchment boundaries on a farm;
- provide details of existing works and re-use areas on a farm;
- provide details of areas for future development, expansion or modification of existing landuse practices;
- provide details of all watercourses and waterways on the farm plan;
- identify areas of swamp lands and low lying country preferably with the aid of a topographic map;
- establish the pattern of natural drainage with the aid of a topographic map;
- study local topography and rock formations to provide an indication of possible sub-surface features;
- review a map of underground water (if available) to determine the potential to pollute underground water;
- consider the minimum recommended buffer distances to watercourses and neighbouring properties contained in these guidelines;
- study farm landuse and consider the location of the milking shed, farm buildings, farm house, neighbouring houses, feed pad and other fixed physical features which will influence the siting of works;
- conduct a site investigation of soil profiles at potential sites for storage and at the location of potential areas for land application of wastes;
- identify the most appropriate site for storage to avoid contamination of surface and underground water;
- assess pollution risks associated with the failure of the wastewater management system;
- consider future developments;
- identify how the farm may be effected by, or have an effect upon, any proposed catchment management strategy for the area;
- planning needs to be consistent with whole farm planning.

2. SYSTEM DESIGN

Principle

The design of the dairy effluent management system must provide for an economic means of handling the volume of waste whilst maximising re-use value and preventing pollution.

Acceptable Standard

A system must have the capacity to reliably achieve compliance with industry practice and environmental legislation regardless of adverse weather conditions and/or component breakdowns.

Suggested Measures

An analysis of volume and composition of waste must be carried out with due regard to the following factors:

- the volume of water used to washdown and the characteristics of this water;
- chemicals for washing milking plant and their capabilities as sanitisers;
- the volume of manure generated in the yard area and the behaviour of the milking herd whilst in the yard;
- milk spillage;
- the amount of material conveyed into the yards on cows hooves and bodies;
- yard surface materials and the integrity of yards;
- rainfall occurring during milking;
- the area of yards to be washed down;
- the amount of water from other sources including plate cooler, roof runoff and water used for cleaning milking equipment;
- stormwater ingress from surrounding land.

Some design principles to consider for incorporation into effluent disposal systems are:

- use of solids trap(s) between the dairy yard and pump sump to minimise the need to clean out pipes and pumps and to help avoid excessive maintenance;
- storage and treatment systems need to be incorporated where possible to act as a buffer for equipment breakdowns;
- stormwater runoff should be separated from dairy shed effluent;
- in areas where accidental spillage of milk effluent or chemicals could occur, diversion bumps should be provided and drains directed away;
- buffer zones should be constructed to ensure there is adequate separation between the effluent disposal dairy shed areas and the community. Buffer zones should not be used to compensate for poor design.

3. DAIRY EFFLUENT RE-USE METHODSS

Principle

Dairy effluent re-use should provide for a site-specific, economic and environmentally suitable application method.

Acceptable Standard

A method which provides for continuous wastewater disposal or wastewater storage/treatment prior to land disposal. Pollution of waterways and groundwater must not occur whilst maximising benefits to land.

Suggested Measures

- A maintenance programme be detailed and rigorously followed to ensure a minimum of component breakdowns.
- Careful consideration of wastewater nutrient concentrations and application rates should be undertaken.
- Site features need careful consideration when considering hydraulic loading.
- Hydraulic loading rates should be calculated using rainfall, evaporation and transpiration rates of the vegetation to be irrigated.

4. MANAGEMENT OF INTENSIVE USE AREAS

Principle

Intensive use areas must be adequately designed and managed to avoid water pollution problems especially in adverse weather conditions.

Acceptable Standard

Runoff from intensive use areas must be prevented from entering both surface and groundwater.

Suggested Measures

- Careful consideration of yard design and practice to minimise the volume of washdown water.
- Centralised washdown techniques and stormwater diversions from holding yards should be put in place.
- Appropriate design of laneways to prevent polluted storm water runoff and/or erosion of the race itself.
- Incorporation of camber, stormwater diversion bumps and table drains to laneways.
- Construction of laneways along contours rather than down the slope.
- Construct stock races of concrete in areas of heavy stock use eg gateways at yard entrance.
- Avoidance of night paddocks to hold stock.
- Place hoof bumps where practicable across entrances to concrete hard stand areas.

5. ANIMAL HYGIENE

Principle

Dairy effluent management must seek to minimise health risks associated with the re-use of wastewater.

Acceptable Standard

A program be implemented to protect against transfer of disease causing organisms. Veterinary advice should be sought on herd health matters.

Suggested Measures

- Avoid spraying calf paddocks with dairy effluent.
- Rotate stock away from sprayed paddocks.
- Paddocks should be sprayed after pasture has been grazed.
- Wastewater should be spread at rates to allow changes in temperature, pH, moisture and sunlight to help destroy harmful organisms.
- Observe veterinary requirements on disease control eg isolate infected animals.

6. ASSOCIATED ENVIRONMENTAL ISSUES

Principle

The dairy effluent management system must avoid problems such as odours, soil erosion and aesthetic degradation.

Acceptable Standard

A system which employs best practice techniques and achieves compliance with environmental legislation.

Suggested Measures

Avoid or minimise potential problems by following minimum distances subject to site specific considerations and regulatory authority requirements. The following distances can be used as a guide:

- distance from milking shed to sump greater than 600 litres capacity – 45 metres;
- distance from single or double ponds to nearest dwelling – 300 metres;
- distance from areas where wastewater is disposed of continuously to nearest dwelling – 300 metres;
- distance from areas where wastewater from ponds is disposed of intermittently to nearest dwelling – 100 metres;
- distance from area where sludge is stockpiled or spread to nearest dwelling – 300 metres.

In addition to the above set-back distance, the following management practices need to be accounted for:

- spray irrigation equipment should provide large droplets rather than fine sprays;
- wind variations eg prevailing wind must be accounted for in effluent system design and consideration of seasonal variations;
- where possible, wastewater irrigation and sludge disposal needs to be carried out during the middle of the day rather than late evening or early morning;
- when irrigating wastewater, it is important that ponding on the land does not occur;
- it would be desirable to establish a belt of trees between effluent disposal sites and adjacent land holders to reduce the movement of air in that direction;
- siting of pumps in wastewater storage ponds needs to avoid disturbing the sludge during pumping;
- if odours are likely to emanate from sludge disposal on land, arrangements need to be made to plough it in immediately;
- to avoid potential soil degradation effects caused by effluent disposal practices, a farm plan is needed to identify areas of erosion hazard, soil limitations and land capability to ensure sustainable use of the land resource;
- where aesthetics are important, strategic planting of trees and vegetation in relation to effluent disposal areas is desirable.

7. HAZARD ANALYSIS

Principle

Identification of potential areas of system failure.

Acceptable Standard

The analysis should clearly identify the effects of failure of the effluent management system in critical areas to enable a satisfactory emergency plan to be put in place to combat such failures. The analysis is also required to develop triggers to be used in a monitoring program to give advance warning of a hazardous situation developing.

Suggested Measures

- Identify likely points of system failure.
- Consequences of system failure should be assessed.
- Consider effects on soils, watercourses, underground water and milk quality of breakdowns in the effluent management plan.
- Identify time periods over which hazardous situations may continue.
- Adopt HACCP to evaluate.

8. EMERGENCY PLANS

Principle

A plan to cater for system failure is required to be developed.

Acceptable Standard

The measure(s) adopted should ensure that pollution does not occur in the event of system failure.

Suggested Measures

Measures need to include provision for:

- notification of accidental discharge of effluent from property to local Council Environmental Health Officer;
- disruption to power supplies;
- human error;
- disruption to dairy shed operation caused by flooding, fire, storms etc;
- plant breakdowns;
- overloading of effluent disposal locations;
- accidental discharge of hazardous materials into the effluent stream;
- temporary or permanent loss of access to application and disposal facilities;
- temporary or permanent loss of trained operators;
- disruption by processors;
- disease outbreak (veterinary advice should be sought).

9. EMERGENCY DISPOSAL OF MILK

Principle

Disposal of excess milk must be undertaken in a manner that does not adversely impact on the environment.

Acceptable Standard

An emergency strategy must be developed and implemented as required to dispose or re-use milk in a manner that will not affect the integrity of the farm's dairy effluent management system.

NB milk is a significant pollutant many times more destructive than normal dairy shed effluent.

Suggested Measures

Measures that could be adopted to dispose of milk include:

- feeding to livestock;
- spray irrigation where milk is heavily diluted;
- disposal in a pond or trench constructed specifically for this purpose;
- application (preferably diluted) to land to be cultivated.

10. MONITORING OF DAIRY EFFLUENT MANAGEMENT

Principle

The performance of a dairy effluent management system must include a monitoring program.

Acceptable Standard

Due diligence of system performance is required.

Suggested Measures

- Pipelines should be regularly checked for blockages.
- A program of checking adjacent watercourses and groundwater (where relevant) should be undertaken to ensure effluent does not enter these.
- Health of crops or pasture, soil sealing, waterlogging, surface runoff, soil water concentrations below root depth and soil water balance should be regularly observed.
- Relevant records should be kept.
- Minimisation of environmental impact due to accidental discharge of effluent from property.

Appendix A

MANAGEMENT MECHANISM FOR THE CODE OF CONDUCT.

The management mechanism comprises 6 broad areas. These are:

1. information input;
2. database;
3. effluent reporting;
4. complaints;
5. Executive Group action;
6. legal action.

These will be briefly described in the following sections.

Information Input

Information on performance of commitments and dairy effluent pollution will be provided by field personal from many sources. These may include:

- Environmental Health Officers and other Council employees;
- dairy company field personnel;
- DPIF water management officers and dairy officers;
- TFGA members and farmers;
- TDIA personnel;
- General public.

All of these people are not experts in dairy effluent management and performance but all have the ability to observe and report on situations. Collectively this group would visit many dairy farms during the year on business other than matters concerned with dairy effluent disposal. Reports on whether dairy effluent systems are in place and operating or whether pollution may be occurring can be provided from this group.

Databases

This is probably the most important component of the management system. The database would:

- utilise information received from the many sources mentioned previously;
- collate and record reports on dairy effluent commitments;
- record complaints;
- record actions leading from reports received;
- produce reports on the performance of the program.

Standard input forms will be set up for use by field personnel to record their observations for late transfer into the database. Output or reporting forms are produced for dissemination to appropriate parties.

Auditing reports will be produced from the database and sent to:

- Executive Group;
- EHO/Council Officer;
- Steering Group members.

Effluent Reporting

The database will produce effluent reports for EHOs. The reports sent to the EHO/Council Officer will include:

- history and relevant farm details eg complaints, commitments, result of any legal action;
- details of dairies in municipalities. This would include names of owners, location, type of effluent systems in place.
- size of dairy;
- date of last inspection;
- annual history.

Complaints

Dealing with complaints concerning dairy effluent management is the role of the local Municipal Council. The EHO/Council Officer on receiving the complaint will need to decide on the most appropriate course of action to take. Action could involve:

- an inspection to determine the nature of the complaint;
- contact with the landholder concerned;
- following inspection, deciding whether the matter needs to be referred to the Executive Officer for assistance or whether legal action is required;
- EHO/Council Officer inputting details of the complaint into the database.

Executive Group Role

Where a complaint is referred to the Executive Group for their assistance, the group may choose to:

- contact the landholder and EHO/Council Officer in question;
- undertake a site inspection;
- refer details back to EHO/Council Officer;

In undertaking its action, the Executive Group would normally give the landholder an appropriate time to resolve the matter. After this period, the Executive Group's role would cease unless there were extenuating circumstances.

Legal Action

For the purpose of this Code, legal action is the responsibility of the local Municipal Council. Various legal options are available. One course of action may involve serving an Environmental Protection Notice (EPN) on the landholder concerned whereby:

- the dairy could be closed down if compliance is not achieved within 14 days;
- a charge of \$200 is imposed for issue of the notice;
- ongoing reports of the effluent management system by a suitability qualified person. A fee may be charged for each inspection.
- penalties for failure to comply – prosecution, maximum fine is \$100,000 and a daily fine of \$2,000;
- a right of appeal against the issue of the EPN can be lodged for a fee of \$50

The fees and penalties stated will be subject to amendment under EMPCA.

Role of the State Steering Group on Dairy Effluent Management

The Management mechanism provides for reporting to what is presently called the Dairy Effluent Steering Group consisting of landholder, industry, Council and public sector representatives. A report on system performance will be presented to the Steering Group annually by the Executive Group. Where any aspect of the program is not functioning properly, the Steering Group will assist the Executive to correct this where necessary. The name of this group may be changes but its role is not intended to be fundamentally altered.

Appendix B

SOURCES OF TECHNICAL INFORMATION

The Code does not contain detailed technical information. Technical information can be obtained by the reader from many sources. To assist the reader in obtaining this information, the following list has been provided.

Circular Head Council

West Tamar Council

Break O Day Council

Waratah- Wynyard Council

Central Coast Council

Dorset Council

Meander Council

Kentish Council

Latrobe Council

Launceston City Council

Burnie City Council

Northern Midlands Council

King Island Council

Department of Primary Industries and Fisheries – Smithton, Elliott, Devonport (Stoney Rise), Launceston (Prospect), Hobart

Tasmanian Farmers and Graziers Association, Launceston

Tasmanian Dairy Industry Authority, Hadspen

Central Highlands Council

Derwent Valley Council

Huon Valley Council

Tasman Council

A comprehensive technical manual (described at Appendix C) has been provided to each Council and organisation listed above. The manual is available to dairy farmers on loan and free of charge to assist in selecting an effective effluent management system for their property. The manual can assist both installation and upgrading of systems.

Appendix C

FURTHER INFORMATION

Title	Author
Dairying and the Environment – Managing Farm Dairy Effluent*	Dairying and the Environment Committee New Zealand (1996)
Managing Dairy Farm Waste	NSW Dairy Farmers Association; NSW Agriculture
National Water Quality Management Strategy-Effluent Management Guidelines for Dairy Sheds - February 1997	Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) and Australian and New Zealand Environment and Conservation Council (ANZECC)
Hygienic Milk Production Code of Practice for Dairy Farms	Victorian Dairy Industry Authority
Dairy Shed Waste Management Demonstration Site “Kergunyah Park” Kergunyah South	Agriculture Victoria
Effluent Control on Dairy Farms	Department of Primary Industry and Fisheries and Department of Environment and Land Management
Dairy Shed Waste Management (video)	Agriculture Victoria
Dairy Shed Waste Management (Agnotes Victoria)	Agriculture Victoria
Managing Dairy Shed Wastes - Volume 1 and 2	Lee-Ann Monks and Roger Wrigley
Taxation Concessions	Australian Taxation Office

* This is considered to be the primary reference document and is available at Municipal Council Offices listed at Appendix B. Further information can also be obtained from Councils and other organisations listed in Appendix B.