

## Why Should I Install an Effluent Management System?

### Guideline No 1.



*There are four main reasons that you need to consider when contemplating why you should install an Effluent Management System.*

- *Benefits of Using Dairy Effluent as a Fertiliser*
- *Taking on Your Environmental Responsibility*
- *Creating a Positive Environmental Image of the Dairy Industry*
- *The Environment Protection (Water Quality) Policy 2003*

### **Benefits of Using Dairy Effluent as a Fertiliser**

Dairy effluent is a valuable resource as it contains nutrients, which are needed for growth by pastures and crops. The major nutrients of value in dairy effluent are Nitrogen (N), Phosphorus (P) and Potassium (K). The amounts of major nutrients in the effluent leaving the dairy shed depends on the time the cows spend at the dairy shed and their behaviour.

For every 100 milkers effluent worth between \$2,500 and \$2,700 fertiliser equivalent could be captured at the dairy.

This alone is a compelling reason to collect and utilise the effluent from the dairy shed.

An effluent management system could cost between \$150 and \$350 per cow to install. Actual cost will depend on the type of system installed, whether the system requires a high level of user labour input (generally cheaper to install but more costly to run) or a more automated system which requires minimal labour input from the operator (more expensive to install but generally cheaper to operate).

A system for 100 cows could cost approximately \$25,000, which would have a pay-back period of less than 10 years based on the value of major nutrients in the effluent captured alone.

An added bonus is the effluent can be used to value-add summer crops through irrigation systems or grow extra pasture for milkers. Winter pastures will receive a boost from effluent applied in the late autumn. Studies in New Zealand have shown an increase of 50% in pasture growth following the spreading of effluent.

It is best to apply effluent when pasture or crops are actively growing so that they can utilise the nutrients. In the most regions of South Australia, the end of spring and then soon after the autumn break are ideal times. Often a single irrigation to a fodder crop at this time of the season will make a big difference in yield. The extra production from crops and pastures irrigated at this time will help to shorten the "payback" time.

## **Taking on Your Environmental Responsibility**

Every person has a responsibility not to harm the environment. All reasonable and practicable measures must be taken to prevent or minimise environmental harm caused by any activity.

Dairy shed effluent has the potential to cause harm or degrade soil, and ground and surface water resources. For example, studies in the South East have shown that Nitrate – N levels in groundwater in some areas already exceed the drinking water guidelines set by the National Health and Medical Research Council. Dairy farms have been identified as a major contributor to the N levels in the groundwater.

To prevent degradation of soils and water resources, nutrients in effluent can be recycled by growing crops or pastures. In this way the nutrients, particularly the major nutrients nitrogen, phosphorus and potassium, can be captured in the root zone. Nutrients constantly applied in excess of plant requirements either build up in the soil until the physical and chemical properties of the soil are degraded, are carried off site in surface water, or the soluble nutrients move below the root zone and are no longer available to plants. In some areas these can eventually end up in groundwater.

## **Creating a Positive Environmental Image of the Dairy Industry**

Quality assurance schemes for milk quality have been implemented in the industry over the past few years. These schemes are designed to ensure the safety of the milk and the milk products produced. It can also be used to demonstrate good milk production, harvesting and processing practices to the whole milk marketing chain. However, they do not encompass environmental issues such as the design and operation of effluent management systems.

The general public perceives dairy farmers, rightly or wrongly, as contributing to environmental pollution through ineffective management of their effluent. For example, a study in the South East in 1998 showed that dairy production resulted in the highest maximum levels of nitrate in groundwater and therefore concluded that past and current management practices are contributing to the degradation of the groundwater resource. Clearly, from this work and the public perception, the dairy industry needs to adopt sound effluent management practices and demonstrate its commitment to the protection of the environment.

Many industries are now adopting the Environment Management Systems (EMS) approach to demonstrate their environmental responsibility. Retailers are beginning to demand EMS certification of products as a condition of purchase. Without the certification there is no market for the product. For many it has become not a question of “What premium is in it for me?” but “What do I have to do to remain in the market place?”.

The image of dairy farmers as seen by the general public needs to be improved. The adoption of sound effluent management practices will be a step towards improving this image.

## **The Environment Protection (Water Quality) Policy 2003**

Not only is it a good idea to manage and use the nutrients in effluent, it is mandatory for all dairies to have an effective effluent management system. The Environment Protection (Water Quality) Policy sets out the mandatory requirements.

The *Environment Protection (Water Quality) Policy 2003* is a legislative tool provided for by the *Environment Protection Act 1993* to address the protection of waters in South Australia.

The Environment Protection (Water Quality) Policy 2003 clarifies the obligation imposed by section 25 of the Act (General Environmental Duty) on any person in South Australia undertaking an activity that pollutes or might pollute in relation to impacts upon water quality. The policy establishes water quality framework objectives and sets down general obligations. These obligations include avoiding discharge to water, to not contravene the water quality criteria set down in the policy and to not cause certain environmental harm.

## **As a Dairy Farmer, how does the Environment Protection (Water Quality) Policy Relate to me?**

The Environment Protection (Water Quality) Policy includes general obligations not to discharge pollutants into waters and not to cause environmental harm. It also contains a section, which relates specifically to wastewater lagoons and dairy milking sheds. Relevant extracts from these two sections are:-

### **Wastewater storage lagoons**

#### **18. (1) construction of wastewater storage lagoons should be avoided in the following locations:**

- (a) any flood plain that is subject to flooding that occurs, on average, more often than once in every 100 years;
- (c) within 20 metres of a public road or road reserve;
- (d) within 50 metres of a bank of a watercourse;
- (e) within 200 metres of a residence built on land that is owned by some other person;
- (f) within 500 metres of the high water mark;
- (g) within an area where the base of the lagoon would be below any seasonal water table.

**Mandatory provision: Category B offence.**

#### **(3) A person who constructs a wastewater storage lagoon must comply with the following provisions:**

- (a) the lagoon must be constructed so that polluted water in the lagoon cannot intercept any underlying seasonal water table; and
- (c) ...the lagoon must be constructed of or lined with a barrier that minimises, as far as practicable, leakage from the lagoon;
- (d) a sufficient number of monitoring bores must be installed and properly placed so that the presence of any leakage can be readily ascertained;
- (e) the lagoon must be constructed so as not to be liable to inundation or damage from flood waters;
- (f) if there is any potential for the wastewater in the lagoon being a risk to the health of any animals, sufficient barriers to access to the lagoon by those animals must be installed.

**Mandatory provision: Category B offence**

#### **(4) A person must ensure that the lagoon is maintained in a condition that ensures ongoing compliance with the provisions set out.**

**Mandatory provision: Category B offence.**

#### **(5) A person who discharges wastewater into a wastewater storage lagoon must not allow the water in the lagoon to reach a level that is less than 600 millimetres from the level of the maximum carrying capacity of the lagoon.**

**Mandatory provision: Category B offence.**

## Milking sheds

### 28. (1) In this clause—

"milking shed" means any structure, whether roofed or not, at which operations for the milking of animals are carried on, including any associated yard areas in which animals are confined prior to or following milking.

### (2) An operator of a milking shed must ensure that—

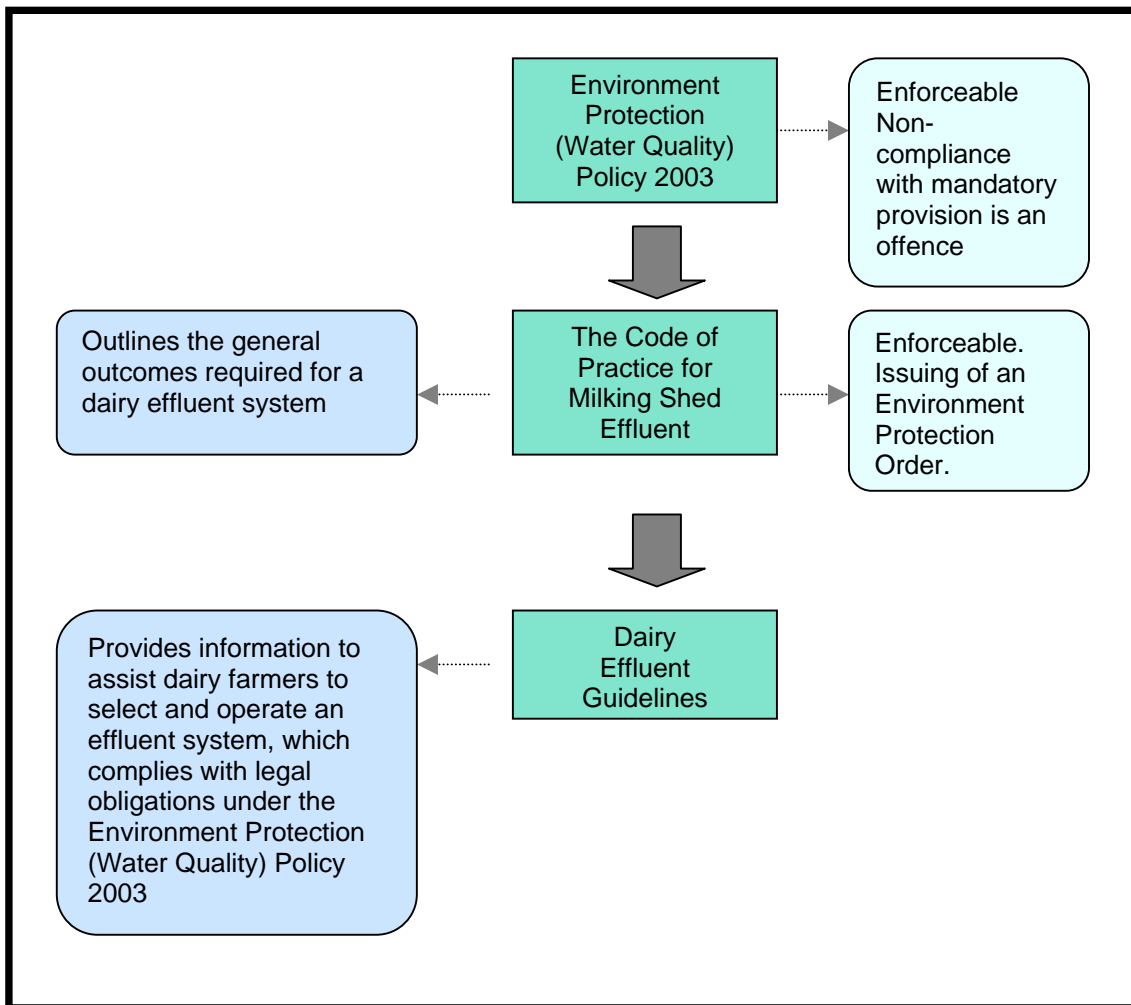
- (a) the premises incorporate a wastewater management system; and
- (b) the system is effectively operating in respect of any wastewater generated at the premises while the premises are being used as a milking shed; and
- (c) waste generated at the premises is not discharged—
  - (i) into any waters; or
  - (ii) onto land in a place from which it is reasonably likely to enter any waters (including by processes such as seepage or infiltration or carriage by wind, rain, sea spray or storm water or by the rising of the water table).

### Mandatory provision: Category B offence.

- (3) If a person operates a milking shed, the code titled *Code of Practice for Milking Shed Effluent 2003 (CoP)* prepared by the Authority applies.
- (4) The Authority may issue an environment protection order to a person who operates a milking shed to give effect to the code referred to in subclause (3).

### How does the Water Quality Policy link to the Code of Practice and Guidelines?

An important feature of the *Environment Protection (Water Quality) 2003*, is the link between the policy and the Code of Practice for Milking Shed Effluent. These Dairy Effluent guidelines are intended to provide information to assist dairy farmers to select and operate a system which complies with their legal obligations under the *Environment Protection (Water Quality) Policy 2003*. The Code of Practice for Milking Shed Effluent outlines the general outcomes required for a dairy effluent system.



**Flow chart depicting the relationship between the Environment Protection (water quality) Policy 2003, Code of Practice for Milking Shed Effluent and the Dairy Effluent Guidelines**

The Environment Protection (Water Quality) Policy 2003 uses the Code of Practice for Milking Shed Effluent as a means of describing how a person undertaking a particular activity can comply with their general environmental duty. Failure to comply with the code listed in the policy is not an offence; however compliance with specific requirements of a code can be enforced through the issuing of an Environment Protection Order (EPO).

### **The Code of Practice for Milking Shed Effluent 2003**

The specific requirements of the Code of Practice for Milking Shed Effluent describes what a person undertaking a particular activity must or must not do in order to comply with the requirements of the Environment Protection (Water Quality) Policy 2003 and the Act generally. These specific requirements are usually outcome based and not prescriptive. For example, the policy states that a person responsible for a milking shed must not dispose of dairy waste into a watercourse. The Code of Practice for Milking Shed Effluent may provide a number of options for alternative means of disposal. There may be many ways how the disposal can occur and therefore it may not be appropriate to specify a particular way, so long as the outcome is achieved.

The Code of Practice for Milking Shed Effluent provides advice and information on how a person undertaking a particular activity can meet the specific requirements and operate in a

best environmental practice manner. This may include, for example, advice on how to treat wastewater, with a description of different options that could be used.

Using the advice provided in the Code of Practice should ensure that the specific requirements are met. It is recognised that there may be instances where alternative approaches can be used to the same effect or that circumstances may dictate that a higher level of care is required. For this reason, the advisory sections of a code or guideline are not intended to be enforceable provided the outcome is achieved.

### **What happens if for some reason I don't comply?**

The Environment Protection (Water Quality) Policy 2003 sets out specific obligations and requirements that must be complied with as mandatory provisions and may be enforced on people and businesses by authorised officers in several ways:

- issuing an Environment Protection Order (EPO) to gain compliance with the policy
- issuing an expiation notice (\$300) for a breach of a mandatory policy
- issuing an EPO and also issuing an expiation notice for a breach of a mandatory policy
- failure to comply with an EPO, by issuing an expiation notice
- prosecution through the Court (maximum penalty \$30,000).

An EPO may require that a person or agency take specified action within a determined time period. Authorised officers under the policy include the Environment Protection Authority, local councils and other regional government authorities.

Non-compliance with a mandatory provision is an offence. Depending on the seriousness of the offence, the EPA may choose to prosecute through the court or take other options as listed above. Fines may apply if you have been shown to be negligent, even if the offence was accidental.

Typically, the Code of Practice for Milking Shed Effluent listed in the Environment Protection (Water Quality) Policy 2003 contains specific requirements, advice, and information. The Code of Practice for Milking Shed Effluent or Dairy Effluent Guidelines will not contain offence provisions.

### **Summary**

Installing an effluent management system on your dairy farm will save you a considerable amount of money in fertilisers each year. It is possible that the set-up costs and running costs could be covered by the savings in fertiliser purchase within ten years. The value of extra fodder grown by using effluent could shorten this payback time further. However, if this is not enough incentive to get you started, think of your environmental responsibility and the protection of the soil and water quality for future generations.