



Dairy Effluent: Building and Operating a Safe System

Updated: February 2006

AG0444

ISSN 1329-8062

Scott McDonald, Kyabram

Farm safety and accident prevention should be the highest priority on the farm, ensuring the farm surrounds are as safe as possible; for workers, children, visitors, livestock and pets. Dairy effluent systems can be hazardous if they are poorly designed and managed.

The following comments are provided for guidance but it is important that every farmer consult widely and critically assess their own situation for risks and take adequate measures to control any problems that they may find.

Sumps and Solids Traps

These structures contain liquid and are usually steep sided, therefore they should either be covered with safety grating or be surrounded by a safety fence including locking gate to exclude children, pets and livestock. If young children live on the farm or visit, the construction of a fence and gate to swimming pool surrounds standards (Australian Standard 1926) may be warranted.

Farm machinery operators removing solids from these structures should be aware of children and other people when reversing.

Ponds

Dairy effluent ponds have the potential to be extremely hazardous to children, farm operators, pets and livestock and every effort should be made to make them safe.

The water depth in ponds can range from 1 metre to 6 metres, which is more than enough to pose as a drowning hazard.

Effluent ponds even though usually constructed with internal batter slopes of 2:1 or 3:1, can on occasions have steeper internal batters of 1:1, depending on where the pond has been sited. These steep batters can be extremely slippery and unstable. These factors make it relatively easy to slip into a pond and extremely difficult to escape.

Quite often ponds that are poorly managed form a crust of solid-looking material, which develops on the surface of a pond. This surface can often grow weeds, grasses and even small saplings in some cases, giving an illusion of a stable surface. As most pond surrounds are not usually grazed, tall weeds tend to establish hiding the presence of water and making it difficult to locate the actual water line.

Any maintenance or desludging on the pond should be conducted under extreme caution as unstable and narrow banks may collapse under the weight of machinery. Pond stirrer and power take off driven pumps must also be guarded.

Farm children and employees need to be made aware of the hazards of effluent ponds and particular attention needs to be paid to warning visiting children. Ponds should be fenced as soon as construction has been completed to minimise the risk to young children and stock. Appropriate signs warning of deep water or showing relevant hazard symbols are also warranted. Signs are available from safety equipment suppliers.

Some common safety tips

- Use goats or sheep to graze the pond surrounds, but not cattle or horses.
- Mowing and spraying herbicides will control rank vegetation on pond surrounds.
- Erect appropriate fencing around the pond(s).
- Locate and mark the pond water line before accessing machinery.
- Install railing to guide tractor tyres when reversing up to ponds.
- Encourage the establishment of vegetation on external batters to help stabilise the banks.
- Ensure any pontoons on the pond have adequate buoyancy and are securely fixed to banks.
- Use long extension poles to collect effluent samples for nutrient analysis.

Flood wash systems

Recycling effluent water from a multiple pond system back to floodwash tanks is a common recommendation as it significantly reduces the storage pond volume, as well as provides a reliable water source. However, recycling effluent water from sumps, trafficable solid traps and even smaller single pond is not encouraged. This recycled effluent is usually of a poorer quality and tends to promote slime and algae deposits on yards creating a slippery surface for stock and operators.

Floodwash tanks should be installed on solid and stable foundations due to their excessive weight. They should also have appropriate guarding on outlets and rudders to prevent injury to stock and dairy operators.

Hydrant washing systems operate at high pressure discharging large volumes of water. Nozzles and couplings have been known to fly around if not handled correctly. Children or inexperienced operators should not operate these systems.

Pumps

The management of dairy effluent quite often requires some type of pumping system to enable effluent and the nutrients it contains to be returned to pastures. The pump selected and where it will be located will vary significantly depending on the farm layout and how effluent is managed.

Some common safety tips

- Use only a qualified electrician to install all electrical requirements such as wiring, switches etc
- Install weatherproof and waterproof switches.
- Allow adequate spacing around the pump for maintenance.
- Guard all moving parts such as shafts and impellers.
- Be conscious of manual handling issues when removing pumps or moving traveling irrigators.

Human health

Dairy effluent should not be a threat to human health, provided appropriate hygienic practices are carried out when working in a high manure environment. These include not smoking, eating or drinking whilst in the dairy shed and washing hands and clothing after the completion of the task. As aerosols can be generated by hydrants and

manure sprinklers, it is wise to avoid areas where effluent can be breathed in or likely to settle on the skin.

Dairy shed operators should wear appropriate personal protective clothing such as aprons and gloves.

Confined spaces

Dairy operators should be aware of regulations associated with confined spaces, as these will cover tanks, pipes, underground sewage shafts, wells and trenches. These structures may be incorporated in an effluent system.

More detailed information can be obtained from the reference, *Code of Practice for Confined Spaces 1997*.

Effluent Management Plans

The development of an Effluent Management Plan to assist the farm operation manage dairy effluent is recommended. The plan provides specific technical and management options relevant to individual farms ensuring a productive and safe utilisation of dairy effluent.

These plans can be obtained from DPI Offices at:

Kyabram, Warrnambool, Colac, Ellinbank and Maffra.

More information on safety covering broader dairy operations can be found in *Dairy Safety: A Practical Guide - 2005*, WorkSafe Victoria.

Further information on farm safety is available from WorkSafe Victoria. Offices in Melbourne, Ballarat, Bendigo, Dandenong, Geelong, Mildura, Mulgrave, Preston, Shepparton, Traralgon, Wangaratta and Warrnambool. Toll-free 1800 136 089.

Acknowledgement

The original author of this note was Ken Slee, and the previous version was published in December 1997.

The advice provided in this publication is intended as a source of information only. Always read the label before using any of the products mentioned. The State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.