

NZCP1: Design and Operation of Farm Dairies

31 May 2024

Te Kāwanatanga o Aotearoa New Zealand Government

TITLE

Operational Code: NZCP1: Design and Operation of Farm Dairies.

COMMENCEMENT

This Operational Code is effective from 31 May 2024

REVOCATION

This Operational Code revokes and replaces the Operational Code: NZCP1: Design and Operation of Farm Dairies, dated 19 May 2017.

ISSUING BODY

This Operational Code is issued by Food Regulation, New Zealand Food Safety, Ministry for Primary Industries

Dated at Wellington this 31st day of May 2024.

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Introduction

This MPI Operational Code: NZCP1: Design and Operation of Farm Dairies (Code) covers the approval, design, fabrication, installation, layout, operation of farm dairies and equipment installed in farm dairies. This Code has been developed in consultation with the New Zealand dairy industry to assist farm dairy operators and farm dairy RMP operators to produce and supply raw milk that is safe, wholesome, and fit for purpose. The Code describes one way that farm dairy operators can demonstrate compliance with legislative requirements contained in the:

- a) Animal Products Act 1999 (APA);
- b) Animal Products Regulations 2021; and
- c) Animal Products Notice: Production, Supply and Processing (PSP Notice).

The obligations contained in this Code are applicable to farm dairies producing raw milk, including colostrum, intended for:

- a) further processing; and
- b) sale in or export from New Zealand.

This introduction is not part of this Code but is intended to indicate its general effect.

Purpose

This Code is applicable to all farm dairies covered by a risk management programme (RMP) that incorporates this Code.

It describes the minimum standards that apply to all farm dairy activities to ensure that farm dairies and the equipment, facilities and services at farm dairies are designed, located, constructed, and operated appropriately. Adopting and following this Code ensures that the raw milk offered for supply satisfies New Zealand requirements, international market expectations and that manufactured dairy products are fit for their intended purpose.

Through the inclusion of this Code by farm dairy operators into the relevant registered risk management programme, New Zealand is able to maintain access for dairy products to over 140 countries.

Background

This Code is maintained and administered by MPI on behalf of the New Zealand dairy industry. It outlines the standards not only for the operation of the farm dairy but also for the service providers, who locate, design and build the farm dairy, supply or install the equipment and materials used in it, or provide various services to the farm dairy operator.

This Code is subject to review by MPI and will be updated as required in consultation with appropriate industry representatives.

In addition to setting out requirements that must be followed when this Code has been incorporated into the RMP covering the milk harvesting activities at the farm dairy, this Code also makes recommendations based on good practice (prefaced by "should" rather than "must"). Where these recommendations are not followed it is expected that the farm dairy operator will have an alternative means of control that provides an equivalent outcome.

NZCP2: Assessment of Farm Dairies has associated procedures for farm dairy assessment activities and has been developed to align with the PSP notice and this Code.

Who should read this Code?

Anyone who has an involvement with farm dairies will have specific areas of interest depending on the nature of their involvement in the industry. A quick guide to areas of the Code relevant to each group is as follows:

- a) dairy farmers and farm dairy operators should be familiar with all Parts but should refer to the following when:
 - i) building or altering a farm dairy refer Parts 2 through 4;
 - ii) installing a milking machine or altering an existing machine or ancillary equipment refer Parts 7 through 14;
- b) persons involved in the design and construction of farm dairies refer to Parts 2 through 4;
- c) suppliers and installers of milking equipment and suppliers of detergents, sanitisers (maintenance compounds) and veterinary medicines refer to Parts 7 through 14; and
- d) RMP operators, farm dairy assessors, farm dairy RMP verifiers and consultants should be familiar with all Parts of this Code.

All farm dairy operators, and their farm dairies will be periodically assessed against the requirements of the RMP covering their operations. More rigorous standards than those outlined in this Code may be set by the RMP operator as a way of managing potential hazards or to satisfy market or customer specific requirements.

Farm dairy operators intending to sell or supply raw milk to a third-party dairy processor must assume that the RMP covering their main milk harvesting, storage and supply activities will not cover this additional supply. This additional activity will typically need to come under a separate RMP registered with MPI. It is recommended that farm dairy operators consult the operator of the risk management programme that covers their farm dairy activities (usually this will be your dairy company).

Dairy companies often have specific requirements related to supply of raw milk, including only permitting third party supply under specific conditions. Any farm dairy operator considering any form of third-party supply should consult their dairy company as the operator of the RMP covering the farm dairy activities.

Why is this important?

All farm dairies supplying milk intended for further processing must be covered by an RMP registered by MPI. Those who operate in accordance with this Code satisfy the New Zealand requirements for the design and operation of farm dairies.

Document history

Version Date	Section Changed	Change(s) Description
19 May 2017	All	Full document revision
<mark>29 May 2024</mark>	Various	Amendments as highlighted

Variations to this Code

Adoption of this Code is not mandatory. However, incorporating this Code into an RMP enables the RMP operator to demonstrate how the relevant requirements set under the APA will be met. As such, the requirements within this Code must be complied with once incorporated into the RMP.

RMP operators may develop alternative measures that can be proven to provide an equivalent level of confidence in the integrity of milk, milk harvesting and storage operations.

Where the RMP operator defines alternatives to part or the entire Code, these alternatives must be referenced in the RMP, evaluated by an MPI recognised dairy evaluator and submitted to MPI for registration.

This Code is not intended to, nor should be used to, inhibit innovation. A desired outcome may be achieved in more than one manner. The manner in which risks are managed and procedures applied within the RMP is the responsibility of the RMP operator.

Amendments to this version of the Code

In the case of RMPs that incorporate this MPI Operational Code, the amendments made to this version of the Code are deemed to be minor amendments unless specifically noted otherwise. As such these amendments do not require evaluation or registration as a significant amendment.

Producing milk for other purposes

This Code has been developed to manage the risks associated with raw milk intended for further processing that includes a pathogen reduction step (e.g., heat treatment). When milk is produced and harvested for special uses (e.g., speciality milk products, organic products, or raw milk products), or other purposes, any further requirements to those outlined in this Code must be complied with. In the case of raw milk products, additional measures are set out in the MPI Code of Practice: Additional Measures for Raw Milk Products.

Also, this Code does not address the requirements for farm dairy operators or other businesses planning to sell unpasteurised raw drinking milk from the farm gate. Any farm dairy operator planning to sell unpasteurised raw drinking milk from the farm gate must be registered with MPI and comply with the:

- a) Raw Milk for Sale to Consumers Regulations 2015; and
- b) Animal Products Notice: Raw Milk for Sale to Consumers.

More information on these requirements is available at <u>Selling raw drinking milk to consumers | NZ</u> <u>Government (mpi.govt.nz)</u>

Other information

This Code will be reviewed, as necessary, by MPI. Suggestions for alterations, deletions, or additions to this Code, should be sent, together with reasons for the change, any relevant data and contact details of the person making the suggestion, to:

animal.products@mpi.govt.nz

Part 1: Quality systems for raw milk supply

1.1 On-farm quality management system

- (1) On-farm quality management systems are designed to ensure that the milk supplied is:
 - a) fit for its intended purpose;
 - b) eligible for its intended market(s); and
 - c) safe and of an acceptable quality.
- (2) When included in an RMP, this code requires that all farm dairy operators have an on-farm quality management system as a means of demonstrating conformance to company, New Zealand, and overseas market specific requirements.

1.2 Raw milk for manufacturing supply

- (1) Raw milk is considered fit for the manufacture of dairy products, including the manufacture of pasteurised liquid milk when:
 - all activities at the farm dairy are in accordance with a registered RMP specifically covering those operations;
 - b) the harvested milk meets the requirements outlined in this Code, the APA and any regulations, specifications, notices or conditions issued under that Act; and
 - c) any relevant export or importing country requirements are demonstrated to be met.

1.3 Relevant legislation

- (1) In addition to the requirements under the APA, farm dairy operators will need to comply with the relevant sections of the following legislation or requirements:
 - a) Agricultural Compounds & Veterinary Medicines Act 1997:
 - b) Animal Welfare Act 1999;
 - c) Biosecurity Act 1993;
 - d) Food Act 2014 (including the Australia New Zealand Food Standards Code);
 - e) Resource Management Act 1991;
 - f) <u>Health and Safety at Work Act 2015; and</u>
 - g) Local authority bylaws.

1.4 Risk management programmes

(1) All farm dairies that intend to supply milk for further processing must operate under a Risk Management Programme (RMP) that has been registered by MPI. The vast majority of farm dairy operators will be covered by a multi-business RMP that is operated by the dairy company that they supply. If this is not the case, then the farm dairy operator will need to have and follow their own RMP. MPI has an RMP template available for farm dairies which streamlines the process of developing an RMP and has the advantage that evaluation is not required. For a custom RMP (one developed by the farm dairy operator), independent evaluation is required prior to registration.

1.5 Note for risk management programme operators and farm dairy operators

- (1) Operators of risk management programmes that cover farm dairies and that reference this Code must review their RMP, including the HACCP Plan, in light of the amendments that have been made. Generally, amendments to this Code will not result in a significant change to the RMP being required. Minor changes may need to be made and a record should be kept to confirm that a review was undertaken and by whom. A key benefit of incorporating this Code into an RMP, is that significant changes that do not require additional change within the RMP do not require a significant amendment. Note: RMP operators are responsible for ensuring that changes that affect the farm dairy operators under their RMP are communicated to them.
- (2) If a significant amendment is necessary to align the RMP with this code, then the amendment will require evaluation and registration with MPI. For example, if the RMP recasts or repeats certain requirements from the Code that are subsequently amended.

1.6 Monitoring

- (1) Farm dairy operators are subject to various forms of monitoring to confirm that they do the things that are required under the APA, maintain the correct procedures, and have records in place, and that the milk offered for supply is safe. In addition, farm dairy operators are required to undertake their own periodic checks of milking equipment, services, facilities, farm dairy premises, procedures, and records (see Part 15 Plant and premises checks).
- (2) Independent monitoring includes:
 - a) farm dairy assessment (see Part 16 Farm dairy assessment standards);
 - RMP verification, with a selection of farm dairies under the RMP selected to assess compliance with the RMP and other regulatory requirements;
 - sampling and testing by the RMP operator; and
 - ampling and testing of milk available for supply under the MPI National Chemical Contaminants Programme (see clause 1.7).

1.7 National Chemical Contaminants Programme

- (1) The dairy National Chemical Contaminants Programme (NCCP) is administered by MPI and is empowered under Part 8 of the Animal Products Regulations 2021. This establishes a Regulated Control Scheme for the monitoring and surveillance of animal material and animal products, including raw milk.
- (2) The NCCP provides for certain persons to sample raw milk on farm for testing. The programme uses both random and risk-based farm selection, meaning that any farm can be selected for sampling at any time. This means that one farm might be selected for sampling more than once per dairy season while another farm will not be selected for several years. Raw milk in the farm bulk milk tank is always deemed eligible for supply (unless protected in accordance with clause 4.13(1) and 5.21 of this Code) and may be sampled at any time, even if milking is in progress.
- (3) Farm dairy operators are requested to assist authorised samplers to gain access to raw milk that is available for supply for the purpose of sampling under the NCCP. Refusal by a farm dairy operator to facilitate an authorised sampler access to raw milk in the bulk milk tank could have a serious impact on the ability of the dairy company to sell or export dairy products made using milk from the farm dairy concerned.
- (4) The purpose of the NCCP is to confirm that agricultural chemicals, veterinary medicines, and other chemical compounds are being handled, stored, and used correctly and that milk and dairy products do not contain unacceptable levels of a wide range of chemical residues or contaminants. The data

obtained enables MPI to quantify the national status of New Zealand milk and dairy products and provide official assurances to other governments as well as supporting international trade.

Part 2: Summary of standards for farm dairies

2.1 Standards for all farm dairies

- (1) The owner and operator of every farm dairy should ensure that it is built to the requirements of this Code, as well as other relevant standards, codes, and regulatory requirements. The farm dairy should be maintained and operated in a hygienic manner and in accordance with the standards of this code.
- (2) A failure to meet the requirements set out in this Code may mean that the farm dairy does not meet regulatory requirements and may further mean that the farm dairy cannot be used to harvest, store, or supply raw milk for further processing.
- (3) Suppliers and manufacturers of equipment intended for use in farm dairies, along with those undertaking structural work, should ensure that their equipment and any structural work will not impact the farm dairy operator's ability to meet their obligations. It is strongly recommended that farm dairy operators obtain confirmation from their equipment suppliers, as well as anyone building or altering their farm dairy, that the requirements of this Code will be or have been met.

2.1.1 Buildings and plant

- (1) The farm dairy must be sited to minimise the risk of flooding, objectionable odours, smoke, dust, and other contaminants.
- (2) The milk receiving area and milk storage area must:
 - a) protect milk against manure, dust or other contamination, objectionable odours, birds, rodents, insects, animals and other vermin;
 - b) be easy to wash and clean; and
 - c) have proper and adequate facilities for the filtering and cooling of milk.
- (3) The milking areas must be located, designed, and constructed so that:
 - a) walls and floors can be easily cleaned on a daily basis;
 - b) the drainage is effective;
 - c) the lighting is sufficiently adequate to facilitate milking and the observation of animal health and milk quality;
 - d) the working space is sufficient to minimise the risk of contamination of milk during milking;
 - e) areas for birds to perch on are minimised; and
 - f) opportunities for pest access are minimised.
- (4) The farm dairy's milking plant must be designed, manufactured, and maintained to ensure that materials and substances coming into contact with milk do not contaminate the milk or cause it to deteriorate.
- (5) There must be sufficient water of suitable quality to clean the premises and plant and to cool the milk. Water use must also meet any local authority conditions or requirements. Water that may come into direct contact with milk or milk contact surfaces must comply with the Animal Products Regulations 2021 and the PSP notice.
- (6) The surroundings of farm dairies must be kept clean and tidy to discourage birds, rodents, and insects.

2.1.2 Animal health

- (1) Farm dairy operators must comply with the **PSP notice** for milking animal health, notably:
 - a) milk supplied must come only from animals that are outwardly healthy and show no signs of disease or injury capable of contaminating milk with pathogenic micro-organisms and/or toxic substances;
 - b) animals milked in farm dairies must have visibly clean teats;

- c) sick or diseased animals must be identified by marking or other suitable means or marked as under treatment;
- on veterinary advice or instruction must be segregated and/or isolated until they show no clinical signs of disease, or a veterinarian advises that they may be returned to the main milking herd; and;
- e) records must be kept of all sick or diseased animals and of all treatments administered.
- (2) Refer to clause 5.2 for more detail.

2.1.3 Operations

- (1) Milking areas must not be used for any purpose other than milking, breeding, veterinary treatment, or animal husbandry.
- (2) The milking plant in farm dairies must be:
 - a) used solely for the harvesting of milk or colostrum;
 - b) designed and constructed to be easily and properly cleaned to specified hygiene standards;
 - c) cleaned after every milking to minimise the risk that milk may deteriorate or be contaminated;
 - d) cleaned only with MPI approved maintenance compounds (e.g., detergents and sanitisers);
 - cleaned and rinsed in a way that the compounds used do not contaminate milk; and
 subject to milking machine testing in accordance with clause 7.6.
- (3) Milk must be filtered and cooled immediately before entering the bulk milk tank (refer to 5.13, 5.14 and Parts 10 and 11).
- (4) Milk must be stored in a safe and hygienic manner until collection or use.

2.1.4 Pesticides

- (1) The use of agricultural compounds (e.g., pesticides, herbicides and fungicides), odorous or toxic compounds, and similar substances within 20 metres of farm dairies must be controlled in a manner that ensures milk will not become contaminated, either directly or indirectly.
- (2) Pesticides, herbicides, fungicides, and similar substances must not be:
 - a) prepared, used or stored using farm dairy equipment;
 - b) stored, prepared or mixed within 20 metres of the farm dairy (unless an alternative distance is permitted within this Code);
 - c) stored with veterinary medicines or dispensing units;
 - d) stored within 45 metres of a farm dairy water source classified as surface water under Schedule 1, except as provided for under clause 3.8.1; and
 - used in milk handling areas unless all milk contact surfaces, and other treated surfaces will be thoroughly cleaned after use and prior to the next milking.
- (3) Pesticide containers must be clearly labelled at all times and must not be re-used for any other purpose.
- (4) It is strongly recommended that all farm staff undergo relevant training in the use of pesticides (for example Growsafe).
- (5) Rodenticides must be used in accordance with their label and:
 - a) the bait must be in a bait station;
 - b) the bait station locations must be recorded;
 - c) the bait must not be accessible to animals, pets, or children;
 - the bait station is not located above milking equipment (including the bulk milk tank and CIP tub) or in a location that could lead to milk or milk contact surfaces becoming contaminated at any time including during washing of the yard, milking and milk storage areas; and
 - should be listed on a register of maintenance compounds stored or used in the farm dairy (refer to 5.2.7(6)).

Part 3: Location and design

3.1 General

- (1) This part applies to new and substantially rebuilt farm dairies for supply of raw milk.
- (2) All farm dairy operators must be operating under a MPI registered RMP prior to supplying raw milk for manufacturing purposes.
- (3) The design, siting and construction of the farm dairy must ensure milk produced will be, and remain, fit for its intended purpose and be compliant with other regulatory requirements.

3.2 Assessment of new farm dairies and substantially altered farm dairies

- (1) A new farm dairy or alterations to a farm dairy must be assessed to ensure compliance with this Code and other relevant requirements. The premises and milking equipment must be assessed by a farm dairy assessor contracted by the RMP operator. The completed farm dairy must be assessed for compliance with this Code before commencement of supply.
- (2) Milk supply must not proceed until the farm dairy assessor confirms the suitability of the premises. Compliance includes the requirement that all local authority consents have been obtained e.g., building, effluent discharge and consent to take water.
- (3) The local authority must be contacted to ensure relevant consents are obtained.
- (4) The assessment may also include confirmation of compliance to supplementary standards applied by the RMP operator.

3.3 Approval of site and plan

- (1) The farm dairy operator should obtain agreement to proceed from their farm dairy assessor before:
 - a) any structural alterations are carried out;
 - b) any significant alterations are made to the milking plant or services; or
 - c) additional buildings are built within (or extended to within) minimum approved distances from the farm dairy, and such agreement is permitted under this code.
- (2) The farm dairy operator should obtain provisional agreement to proceed from their farm dairy assessor before construction of a new site commences.
- (3) The farm dairy operator should obtain agreement from a relevant farm dairy assessor for the siting of and changes to:
 - a) effluent storage;
 - b) effluent disposal systems; and
 - c) sumps.
- (4) It is the farm dairy operator's responsibility to ensure that the farm dairy assessor sights a copy of the plan for the construction or major reconstruction of the farm dairy. The plan will be examined for compliance with the relevant standards, then signed and returned once the farm dairy assessor is satisfied that the conditions set out in this Code and the applicable RMP have been met.
- (5) Having the farm dairy assessor review proposed work as described in this clause will enable the farm dairy assessor to identify potential conflicts with this Code. However, compliance with relevant requirements is ultimately the responsibility of the farm dairy operator.

3.4 Location of the farm dairy

- (1) The farm dairy, which includes the yards and races, must be sited to minimise the risk of flooding so that there is no likelihood of contamination or strong odours affecting milk quality or water quality from other sources.
- (2) The yards must be sited to facilitate tanker collection. For specific requirements the dairy company and local authority are to be consulted.

3.5 Tanker roadways

- (1) Tanker roads must comply with the following, as well as any additional dairy company requirements:
 - the tanker roadway must be kept free from all obstructions including but not limited to trees, branches, buildings, vehicles and implements;
 - b) dead animals intended for collection can be held beside the tanker roadway but not within 45 metres of the farm dairy;
 - c) dead animals held beside the tanker roadway must not impede tanker access, and must be collected within 12 hours;
 - d) dead animals should be covered;
 - e) animals must not have access to tanker roadways e.g. fenced off;
 - f) stock must not be held on the tanker roadway;
 - g) where there is controlled grazing of the tanker loop and tanker roadway to control rank growth this must be carried out in such a way so as not to adversely affect milk quality or milk collection;
 - h) tanker roadways must not be used as a race;
 - it is recommended that animals do not cross the tanker roadway. If this is unavoidable, any crossing that is within 45 metres of the milk collection point must be made of concrete or a similar material that can be easily cleaned. Effluent from this crossing point must not be allowed to pond. Note that in the event of a biosecurity response stock and soiled vehicle access to the tanker roadway may not be permitted;
 - from 1 July 2025, races and crossings are not to be added to an existing tanker roadway unless a dispensation has been provided by the RMP operator and the farm dairy operator meets any associated conditions;
 - from June 2017, stock must not be able to cross the tanker roadway on newly converted dairy farms;
 - all crossings must be well maintained and minimise risk of contamination being carried back to the dairy factory via the tanker;
 - m) effluent from the crossing must drain into an effluent disposal system. This may be a separate disposal system to that used for the farm dairy effluent; and
 - n) any use of the tanker roadway by animals must not create a food safety hazard.

3.6 Using a public road as a race

(1) You may need to apply to your local council to get permission to use a public road as a race. Contact the local district council for further information.

3.7 Minimum approved distances

- (1) All livestock, pigs and poultry must be housed, fed, and controlled at specified distances from the farm dairy and its water supply. These areas must be clean and well maintained.
- (2) The following minimum approved distances from the milking area, milk receiving area, milk storage room/area and milk collection point must be observed. If the specified distance does not adequately

protect milk, milk contact surfaces and bulk milk storage tanks then the distance must be increased and/or additional steps taken to provide protection to these areas from the farm environment:

Table 1: Minimum approved distances

Area	Minimum Distance
Effluent storage including effluent ponds and bladders (excluding sumps)	45 metres
Offal holes	45 metres
Whey pits	45 metres
Storage of conserved feed (silage and unwrapped baleage)	45 metres
Pigs	45 metres
Dead animals	45 metres
Sand trap (stone trap) intended to hold a volume greater than 7.5 m ³ at any time (refer clause 4.3)	45 metres
Drainage pad or effluent solids storage bunker intended to hold a volume greater than 5 m ³ at any time (refer to clause 4.3)	45 metres
Cattle loafing barns & livestock housing without impervious cleanable floor surface (if permitted by Regional Council and no adverse animal health impact)	45 metres
Cattle feeding pad or standoff pad without impervious cleanable surface (if permitted by Regional Council and no adverse animal health impact)	45 metres
Animal effluent and other wastes applied to pasture (effective from 1 July 2025)	45 metres
Land disposal sites/rubbish pits (effective from 1 July 2025)	<mark>45 metres</mark>
Biological waste that is not fully sealed or is not sterilised	45 metres
Cattle loafing barns & livestock housing with impervious cleanable floor surface; and loafing barns for other species	20 metres
Cattle feeding pad or standoff pad with impervious cleanable surface; and feeding pad or standoff pad for other species	20 metres
Housing for milking animal off-spring 0 to 3 months	20 metres
Poultry housing (and ostriches and emus)	20 metres
Hay barns, <mark>baled hay and fully wrapped baleage</mark>	20 metres
Dog housing	20 metres
Buildings not associated with farm dairy activities and not otherwise specified	20 metres
Fertiliser bins/storage	20 metres
Supplementary feed storage <mark>(fully contained, but excluding baleage that is not fully wrapped and silage)</mark>	20 metres
Fuel storage including fuel storage tanks	20 metres
Chemical preparation and storage (pesticides and other chemicals not approved for use in the farm dairy)	20 metres
Dairy effluent sumps between 22,500 and 100,000 L capacity (temporary storage – refer clause 4.3)	20 metres
Recycled water storage in a fully enclosed tank, with a maximum capacity of 30,000 litres per tank (distance from milk storage area, refer to clause 6.10 (5))	20 metres

Area	Minimum Distance
Dairy effluent sumps up to 22,500 litres (no storage – refer to clause 4.3)	10 metres
Sand trap (stone trap) intended to hold a volume not exceeding 7.5 m ³ at any time (refer clause 4.3)	10 metres
Drainage pad or effluent solids storage bunker intended to hold a volume not exceeding 5 m ³ at any time, (refer to clause 4.3)	10 metres
Sewage sumps or septic tanks	10 metres
Biological cultures (refer to clause 5.19)	10 metres

Note: Loafing barns, housing, feed pads and standoff pads for cattle, located within 45 metres, must be constructed with an impervious surface that is connected to an effluent system that complies with clauses 4.3, 4.4 and 6.14 of this Code as well as any relevant local authority requirements.

- (3) Supplementary feed may be:
 - a) stored closer to the farm dairy provided the feed is:
 - i) in a fully enclosed silo or similar vessel that is located over a concrete pad;
 - ii) connected to the farm dairy or place of feeding by an augur system or similar;
 - iii) protected from pest activity; and
 - iv) at least 10 metres from any bulk milk tank.
 - b) fed in purpose built loafing barns, housing barns and feed pads that meet the distances specified in Table 1 provided the facilities are managed in a manner that minimises the presence of hazards and risk factors, such as pests and other vectors for disease; and
 - c) fed within the farm dairy in a suitably designed feed system, with feed waste removed after feeding.
- (4) A farm dairy operator wishing to maintain the above facilities at closer distances is required to gain a written dispensation from their RMP operator, either directly or via the farm dairy assessor. Dispensations are intended for exceptional circumstances where the distances indicated above cannot be met and compensating measures provide for an equivalent level of protection to the farm dairy (including facilities and services such as CIP systems, water, and airlines) and the raw milk offered for supply.
- (5) Any dispensation given by the RMP operator covering the farm dairy must be kept as a record by the RMP operator and the farm dairy operator, and include:
 - a) the area of concern (from column 1 of Table 1: Minimum Approved Distances);
 - b) the agreed permitted distance;
 - c) the justification and control measures in place to effectively mitigate the significance of any hazard; and
 - d) any other conditions or alternative measures given that the farm dairy operator must comply with.
- (6) The farm dairy operator is responsible for having systems in place to ensure that risks associated with facilities sited closer than the minimum distances specified in this clause are managed in accordance with the dispensation conditions.
- (7) If at any time the alternative measures are found to be inadequate or ineffective then the farm dairy operator will be required to either comply with the distances specified or adopt additional control measures that satisfy the RMP operator and farm dairy assessor.
- (8) Prior to June 2013, facilities located at distances closer than those specified above that were deemed acceptable by the RMP operator will continue to be deemed acceptable provided that the controls and factors in place that mitigate the significance of the hazard continue to be effective. These were recorded, for example in dairy assessment reports. If the controls cease to be effective then the farm

dairy operator must take action to remedy the situation to the satisfaction of the RMP operator and farm dairy assessor.

- (9) No dispensation to the distances in Table 1 above will be given for:
 - a) pigs and poultry housing (including commercial farms);
 - b) dead animals;
 - c) offal holes;
 - d) whey pits;
 - e) the preparation or storage of chemicals not approved or registered for use in the farm dairy including pesticides; or
 - f) from 1 July 2025:
 - i) fuel storage;
 - ii) sewerage sumps or septic tanks;
 - iii) sand traps or stone traps (volume not exceeding 7.5 m³) within 10 metres of milking, milk handling and milk storage areas;
 - iv) drainage pads or effluent solids storage bunkers (volume not exceeding 5 m³) within 10 metres of milking, milk handling and milk storage areas; or
 - v) recycled water storage within 10 metres of milking, milk handling and milk storage areas.

Note: Inadequate control of livestock could result in milk quality defects. The presence of pigs, poultry, and vermin in the immediate vicinity of the farm dairy presents a pathogen risk. The preparation or storage of chemicals and pesticides in or near the farm dairy could lead to inadvertent contamination of the milk or equipment.

3.8 Water supply

- (1) The farm dairy water supply used for the rinsing and cleaning of the milking equipment, bulk milk tanks and the milk harvesters' hands and forearms must comply with the PSP notice. In particular, this water must either:
 - a) be free of *E. coli* (i.e. absent in 100 ml) and have a turbidity level that doesn't exceed 5 NTU (noting subclause (2)), and any water supply or reticulation system hazards identified when completing the MPI form <u>DPF 201</u> "Assessment of Farm Dairy Water Status" are adequately controlled; or
 - b) be covered by a Water-use Plan that:
 - i) ensures milk is protected from any possible microbiological, chemical or physical contamination from the water used;
 - addresses any specific deficiencies identified from water testing or when completing the MPI form DPF 201 "Assessment of Farm Dairy Water Status", including actions to remedy deficiencies as required by clause D2.5(4)c) of the PSP notice; and
 - iii) has been determined to be acceptable by the farm dairy assessor on behalf of the RMP operator (dairy company).

(2) Turbidity can be assessed using a clarity test, in accordance with D2.5(2)c)ii) of the PSP notice.

- (3) Any change to farm dairy water supply must be notified to the RMP operator and the farm dairy assessor without delay.
- (4) Water used for teat cleaning and milk cooling must be visually clean and fit for the purpose.

3.8.1 Surface water

(1) Refer to the Schedule 1 - Definitions for a definition of surface water. Where the farm dairy water is sourced from a supply classed as surface water, the following distances must apply:

Table 2: Minimum approved distances

Area	Minimum Distance
Effluent storage including effluent ponds and bladders (excluding sumps)	45 metres
Any yard for animals that is not connected to a compliant effluent system	45 metres
Animal housing, including pigs and poultry	<mark>45 metres</mark>
Offal pit/soak hole	45 metres
Human sewage soakage pit or septic tank	45 metres
Sumps <mark>(any size)</mark>	45 metres
Animal effluent and any other waste applied to pasture	45 metres
Land disposal sites/rubbish pits	45 metres
Feed pad <mark>or bunker</mark> , silage pad, <mark>silage pit</mark>	45 metres
Fuel storage and fuel tanks	45 metres
Chemical preparation and storage	45 metres
Stock access to water intake location	10 metres
Upstream effluent discharge (where permitted)	2 kilometres

Note: Provided the chemical preparation area is of a suitable concrete design that ensures any chemical spill will be contained and cannot affect the water source or supply in any way, minimum distance can be 20 metres.

(2) If a farm dairy operator maintains any of the above in less than the stated distance, the water supply must be managed in accordance with the requirements of the Animal Products Regulations 2021 and the PSP notice.

3.8.2 Secure water

(1) The quality of secure water sources must not be compromised. Bore heads in particular must be protected from chemical or effluent contamination and ponding of water. Refer to Schedule 1 -Definitions for a definition of secure water.

3.8.3 Treating water

- (1) The chemicals used by a farm dairy operator for treating water that is intended for use as farm dairy water (that is, the purposes set out in clause 3.8(1)) must:
 - a) be approved for use as a water treatment on the <u>MPI Register of Approved Dairy Maintenance</u> <u>Compounds;</u>
 - b) clearly state on the label that the compound is for water treatment and that it has been approved by MPI for use in farm dairies or dairy processing;
 - be used at the dose rate recommended by the manufacturer for the purpose indicated and according to a written procedure;
 - not be used beyond their expiration, use by or best before date (expired chemicals should not be used for treating drinking water or farm dairy water, but may be used to treat water for other purposes); and
 - e) in the case of chemicals containing chlorine in any form (e.g. hypochlorite), excluding sodium chloride (common salt):
 - i) be stored in a cool, shaded place away from sunlight; and
 - be used within the stated expiry, use by or best before date. If there is no expiry, use by or best before date then the compound must be used within 6 months of receipt.

- (2) If water treatment chemicals have no expiry, use by or best before date then the manufacture date or date received should be recorded and noted on the label.
- (3) The treated water should be monitored after treatment to confirm correct dosing. Overdosing water is not appropriate and can result in milk being adversely affected and more rapid deterioration of rubberware which may lead to hygiene issues.
- (4) From July 2025, water that contains excessive sediment or has a turbidity level greater than 20 NTUs must be filtered prior to treatment to avoid the formation of undesirable chemical compound byproducts which might contaminate milk via flushing or from residues on milk contact surfaces.

3.9 Alternative premises and equipment designs

- (1) Premises (including animal housing), facilities, equipment and essential services that are associated with a farm dairy are required to meet the requirements set out in this Code. Novel technologies and alternative premises and equipment designs that do not meet the requirements for this Code are deemed to be suitable if they have been assessed, confirmed as acceptable and listed on the MPI Register of Alternative Premises and Equipment Designs for Farm Dairies.
- (2) The register identifies:
 - a) designs and technologies that have been assessed and confirmed by MPI as suitable for the specified purpose;
 - b) any conditions or operating considerations that may apply;
 - c) any restrictions on location, construction, installation or use that may have been imposed; and
 - d) whether or not the listing is provisional, for example to facilitate on-farm trials.
- (3) Before committing to any novel technology, new premises, facilities, equipment or services design, it is recommended that farm dairy operators consult their farm dairy assessor, dairy company and the MPI Register referred to under clause 3.9(1).
- (4) Milking systems that are automated (robotic milking systems) or partially automated are required to meet the requirements of this Code unless the system has been determined to be an acceptable alternative by MPI under this clause. Likewise, all milk harvester and farm dairy operator obligations must be met unless the function or activity is completed by a system that has been determined to be an acceptable alternative by MPI under this clause.

Part 4: Construction of the farm dairy

4.1 Floors, yard surfaces and races

- (1) All the floors of a farm dairy (i.e., in the milking, milk receiving, and milk storage areas, yards and associated storerooms and offices) must be made of concrete or a similar impervious material. These floors and yards must be:
 - a) uniformly graded;
 - b) be able to be readily cleaned after every milking; and
 - c) have a fall to allow drainage to outlet points connected to the dairy effluent system.
- (2) Farm races must be made of concrete for a distance of 10 metres from the milk receiving and milk storage areas, and edges of the pit or milking platform. If these areas are not maintained in a safe and hygienic condition the amount of concrete race required may be extended.
- (3) All concreted areas in, and around the farm dairy must fall to a drainage point connected to the dairy effluent system.
- (4) All farm races must be free draining. Any run-off from the races must not pond within 45 metres of the farm dairy.
- (5) The minimum recommended fall for yards is 1 in 50 and for other areas 1 in 80.
- (6) Larger herds may benefit from extending the concreted entry/exit races to 20 metres from the milk storage room, milk receiving room and edges of the pit or milking platform.
- (7) For further information on concrete for the farm refer to the <u>Publications (concretenz.org.nz)</u> Information Bulletin IB 55, "Concrete for the Farm".

4.1.1 Rubber matting

- (1) Rubber matting is only permitted in farm dairies under the following conditions:
 - a) the material must be designed to allow drainage underneath the matting and should allow flushing with fresh water underneath the matting;
 - within the milking area rubber matting may only be installed in the immediate traffic areas, such as the bail and exit area on rotary platforms, as well as the pit floor in herringbone dairies and milk harvester positions in rotary dairies;
 - c) the mat must lay flat with no gaps between seams;
 - d) rubber matting must only be installed over concrete or another impervious surface that complies with this Code and has sufficient fall to drainage points connected to the effluent system;
 - e) installations of rubber matting must be free of trip hazards;
 - f) there must be no build-up of material underneath the matting, and no opportunity for build up; and
 - g) dairy yards fitted with rubber matting must be free of offensive odours.
- (2) Storm water diversion from the effluent system must not be installed on dairy yards fitted with rubber matting.

4.2 Kerbing

(1) The perimeter of all the yards and of all races, concreted as required in clause 4.1 Floors, Yard Surfaces and Races, must have a kerb which is a minimum of 150 mm above the level of the surface of the yard. The exception is where kerbs can be reduced to 50 mm at the yard entrance area and bail exit area. The kerb must be made of concrete or another similar material.

- (2) Coved kerbing is effective, easy to clean and is less likely to cause injury to animals. The purpose of a kerb around the yards and at the sides of concrete races is to prevent soil and manure being washed over the sides of the yards and races.
- (3) If manure is accumulating over the sides of the yards and race, then either:
 - a) the wash down procedures must be reviewed and amended to rectify the problem; or
 - b) the kerbing is inadequate and this must be rectified.
- (4) If manure is accumulating in any areas around the farm dairy, the wash down procedure and any other relevant cleaning procedures must be reviewed and steps taken to remove the accumulated manure and to ensure further accumulation of manure does not occur.
- (5) The 50 mm kerb nib across the end of the race will help prevent soil and manure from being brought into the yards and may prevent yard washing water from causing heavy pugging at the end of the concrete race.

4.3 Effluent drains and sumps

- (1) Drains, sumps, and traps must be of a sufficient size to cope with the total effluent flow. There must be an adequate fall in the drains to the drainage point.
- (2) Open drains must be constructed of concrete or another similar material, so they are easily cleaned and free draining. All drains from the main sump to the effluent disposal point must be fully enclosed and impervious to moisture.
- (3) If drainage is discharged from a milking pit by either a venturi or a pump, a recess should be provided in the floor. The sides and bottom of this recess must be finished to a smooth surface and sealed to prevent any seepage.
- (4) Most drains require a minimum diameter of 100 mm, with a fall towards the draining area of 300 mm in every 25 metres (1 in 80). Open drains should be rounded off at the bottom to assist with self-cleaning and prevent the accumulation of silt, gravel and weeds.
- (5) Sumps must be made of concrete or another impervious material and must be designed to be easily cleaned. Sumps must not be located within 10 metres of the milking, milk receiving and milk storage areas, unless the effluent is to be pumped away on a daily basis or piped to effluent ponds.
- (6) Sumps between 10 and 20 metres of the farm dairy may have a storage capacity up to but not exceeding 22,500 litres and must not have a footprint exceeding 4 metres in diameter or a surface area of 12.5 m².
- (7) Sumps between 20 and 45 metres of the farm dairy where storage capacity exceeds 22,500 litres are permitted provided:
 - a) storage capacity does not exceed 100,000 litres;
 - b) the structure does not have a footprint exceeding 7 metres in diameter or a surface area of 38.4 m²;
 - c) the structure is only used for interim storage (no more than one day); and
 - d) the structure is not utilised as the primary effluent storage facility.
- (8) Sand traps (also known as stone traps) and associated drainage pads must be made of concrete or another impervious material and must be designed to be easily cleaned.
- (9) Sand traps must be located at least 10 metres from the farm dairy, must not have a capacity exceeding 7.5 m³, and must be designed to retain sand and stones with a minimum of effluent solids.
- (10) Drainage pads associated with sand traps and solids storage bunkers must be located at least 10 metres from the farm dairy and, unless 45 metres from the farm dairy, must not be used to store more than 5 m³ of sand trap cleanings or de-watered solids. The drainage pad or solids storage bunker must

be constructed so that stored cleanings are effectively contained and any liquid drains back into the effluent system.

- (11) Sand traps exceeding 7.5 m³ and drainage pads greater than 5 m³ and (including weeping wall sludge beds) must be located at least 45 metres from all areas of the farm dairy other than any yards.
- (12) The local authority will advise the minimum storage capacity required for farm dairy effluent. The Dairy Effluent Storage Calculator, available at <u>www.dairynzdesc.co.nz</u> provides guidance on calculating the appropriate effluent storage volume.

4.4 Disposal of effluent and other wastes

- (1) Drainage outfalls or effluent discharges from all livestock, including pigs and silage pit run-off, must not be sited closer than 45 metres from the milking, milk receiving and milk storage areas, and the water supply. This includes effluent ponds, treatment ditches and places where effluent is sprayed on to the land.
- (2) The application of the following wastes to land used for grazing milking animals is not permitted:
 - a) human waste;
 - b) meat processing waste, including waste from pet food manufacture and rendering; or
 - c) industrial waste from tanneries and pulp and paper mills.
- (3) The use of the feed from land that has had the wastes in subclause (2) applied is not acceptable unless the waste has been treated by a process that ensures potential hazards are reduced to an acceptable level. The process needs to have been evaluated and confirmed by the RMP operator to be fit for purpose.
- (4) Toilet system soak fields must not be grazed on and must be fenced off.
- (5) Water/wastewater recovered from the farm dairy effluent system must not be used for cleaning any part of the farm dairy other than the dairy yard and may only be used to clean the dairy yard when following the criteria set out in clause 6.10.
- (6) Waste from industrial or commercial activities (other than fertiliser or those wastes listed above which are not permitted unless suitably treated) may only be applied to land used for dairy feed and grazing when:
 - a) the RMP operator covering the farm dairy (e.g., dairy company) has been advised and has given written approval including the date at which the land may be returned to dairy feed production (grazed or cut and carry) and any conditions that may also apply;
 - b) any resource consent conditions and dairy company specified conditions have been met; and
 - c) records and reports are available that:
 - i) identify the nature of the waste, and where and how it was applied, on each occasion;
 - ii) the quantity of each application;
 - iii) confirm withholding periods have been met;
 - iv) confirm that any other required information, such as inspection reports and analytical test reports, have been obtained and are acceptable;
 - v) identify the use of any plant material grown on the affected land prior to confirming acceptability for dairy feed production; and
 - vi) identify the date at which the land is or was returned to use for dairy feed production or grazing.

(7) Disposal of farm dairy effluent:

- a) must meet the requirements of the Resource Management Act 1991 and regional plans; and
- should be carried out so that it presents no significant risks to human or animal health or aquatic systems.

4.5 Offal holes

- (1) An offal hole containing decaying matter must not be sited closer than 45 metres, as per Table 1, from the milking, milk receiving and milk storage areas, and any water supply. An offal hole should not be sited closer than 45 metres from the tanker loop. Offal holes must be adequately covered to reduce odour and insect infestation and to prevent scavenging by animals.
- (2) Care should be taken on the location of offal holes, as leaching may occur which could contaminate the underground water supply. Offal holes should not intercept the groundwater table, as this may increase the risk of contamination of the underground water supply. To ensure compliance with bylaws when installing an offal hole check with the local authority.

4.6 Amenities

- (1) Hand washing facilities (soap and clean running water) must be available within the farm dairy.
- (2) In any new farm dairy or where major alterations are being carried out, a hand basin must be provided where there is a toilet. The basin must be provided in or adjacent to the toilet, have running water and be connected to the toilet drainage system. Both the toilet and the hand-basin must be fitted in compliance with local authority by-laws. Any toilet and hand basin must be in good operating order and maintained in a clean and sanitary state.
- (3) It is strongly recommended that all new farm dairies and farm dairies that are being substantially upgraded have a toilet installed in accordance with this clause of the Code and to meet all local authority requirements.
- (4) There must be a door between any toilet and the milking, milk receiving area or milk storage areas and the door must be kept closed. To meet this requirement, it is recommended that doors are self-closing. The toilet must be in a separate room with a ceiling and adequate external ventilation.
- (5) Any septic tank must not be installed within 10 metres of the milking, milk receiving and milk storage areas or within 45 metres of the dairy water source.
- (6) When a toilet is installed, the owner or occupier must check with the local authority for the conditions of installation. The farm dairy operator must hold proof of compliance.
- (7) Effluent from septic tanks must be treated and discharged in accordance with regional council rules. Discharge from any toilet must not enter the farm dairy effluent system or be otherwise spread onto any pasture that is to be grazed by dairy animals or harvested for feed for dairy animals.
- (8) A toilet, which has no septic tank, must not be sited closer than 45 metres from the milking area, milk receiving area and milk storage area, tanker loop, or 45 metres from the water supply. The only exception to this requirement is a fully sealed effluent storage tank which must be vented to a minimum distance of 10 metres from the farm dairy.

4.7 Walls, ceilings, roof under-surfaces

- (1) Walls, ceilings and roof under-surfaces of the farm dairy must be constructed to prevent or minimise the harbouring of birds, rodents, insects or other animals and also minimise the accumulation of dust and dirt.
- (2) Walls and ceilings must be made of a material with a final surface that is impervious to moisture and able to be cleaned. This also applies to all rooms attached to the farm dairy such as lunchrooms, compressor rooms, and offices.
- (3) The milking and milk handling areas must be constructed in a manner that provides adequate protection from adverse weather and minimises the opportunity for milk to become contaminated. In all

cases, including rotary platforms, the area for checking foremilk, teat preparation and applying the cluster is to be covered.

4.8 Doors and ventilation

- (1) Doors must be fitted in the milk storage room where there is a lidded bulk milk tank. Where roller doors are fitted, they must have capped ends to prevent birds nesting.
- (2) There must be adequate ventilation to provide sufficient air movement to dry out the room's interior surfaces.
- (3) As a guide, ventilation openings (louvres or windows) of at least 1/8 of the floor area (high level) and 1/20 of the floor area (low level) should be provided in the milk storage area. This should allow adequate ventilation of the milk storage room.
- (4) If a refrigeration unit is installed inside the milk storage room, there must be sufficient air movement for efficient refrigeration and to help cool the milk storage room as the unit heats the air.

4.9 Screens

(1) Where there are lidded bulk milk tanks, permanent screens must be provided over ventilation openings (e.g., louvres or opening windows) to prevent the access of birds and rodents into the milk storage room.

4.10 Lighting

4.10.1 Milking area lighting

(1) Permanent lighting must be installed in the milking area. This lighting must be sufficient to adequately illuminate the area where animals are milked.

4.10.2 Milk storage area lighting

- (1) Lights must be easily cleaned and must be designed so that dust cannot accumulate on the upper surfaces of fittings.
- (2) Lights must be placed so that they will shine into lidded bulk milk tanks.
- (3) Where there is any risk of broken glass from lights entering the milk supply such as via bulk milk tanks or CIP (cleaning in place) tubs, lights must be screened with shatter-proof coverings. Broken glass is a direct threat to the safety of manufactured dairy material. Every effort must be made to reduce the likelihood of broken glass entering the raw milk supply.
- (4) All lights in the following areas must be of a shatter-proof design or be screened with shatter-proof coverings:
 - a) Milk room
 - b) milk storage area
 - c) lights within 5 metres of CIP tubs
- (5) There must be adequate lighting outside the milk storage room at the milk collection point. The position of this lighting should be discussed with the RMP operator and may be specified in the terms and conditions of supply.

4.11 Milk storage area

(1) The following is a minimum standard for milk storage areas. RMP operators may have more stringent requirements that will need to be followed when altering or constructing a new milk storage area.

4.11.1 Milk storage room

- (1) The bulk milk tank must be set back from the main doorway with;
 - adequate clearance between the bulk milk tank and the walls to allow for cleaning around the circumference of the bulk milk tank. The minimum allowable between the bulk milk tank and the wall is 0.5 metres; and
 - b) adequate clearance between the bulk milk tank and the ceiling to allow for servicing of the agitator. The minimum allowable distance between the bulk milk tank and the ceiling is 1 metre.
- (2) Where the bulk milk tank is adjacent to the milking area, the bulk milk tank pad must be designed so that no effluent can move to the milk storage area.

4.11.2 Drainage and floors

- (1) To prevent milk and cleaning residues flowing onto the tanker road or steps, the floor must slope inwards from the outer edge of the room at the milk tanker collection point. Good drainage must be provided in the standing area for the milk tanker.
- (2) There should be an adequately sized drainage basin beneath the outlet pipe of the bulk milk tank, drained to the dairy effluent system.
- (3) All new milk storage areas and colostrum for supply storage areas must have a drainage basin beneath the outlet pipe of the bulk milk tank. This must drain to the dairy effluent system.
- (4) All new milk storage areas and colostrum for supply storage areas must have a tanker pad the width of the tanker road (at least 6 metres x 5 metres wide x 150 mm deep). This must slope towards a drainage point leading to the dairy effluent system.
- (5) Existing farm dairies should have a concrete apron, at least 700 mm wide, and at least as long as the length of the bulk milk tank stand at the road level under the milk collection point. This should slope towards a drainage point leading to the dairy effluent system.

4.11.3 Enclosed bulk milk tanks (milk silos) located outside at farm dairies

- (1) Bulk milk tanks that are located outside must be bottom filled and the milk agitated sufficiently to meet the requirements outlined in clause 12.3. The bulk milk tank must be sited, installed, and managed so that its interior will be protected from the environment and will not become contaminated.
- (2) Bulk milk tanks can be located outside or isolated from the farm dairy provided that the raw milk is protected from contamination at all times and will not be adversely affected. The same construction, maintenance and sanitation requirements apply to bulk milk tanks away from the farm dairy.

4.11.4 Storage of goods

- (1) The storage areas at a farm dairy must only be used for the storage of consumables, equipment and supplies used in connection with farm dairy activities (such as milking, filtering, cooling, and storing milk, cleaning plant, and marking animals), or animal husbandry activities that need to be undertaken at the farm dairy.
- (2) Items required for the operation, maintenance and cleaning of the milking plant and premises may be kept in the milk receiving room or combined receiving/storage room if an appropriate storage facility is provided.
- (3) Chemical compounds must be stored in designated areas, and only MPI approved maintenance compounds intended for use at the farm dairy (such as detergents and sanitisers, hand wash/sanitisers)

<mark>and disposable sanitising wipes</mark>), teat sanitisers, and emollients <mark>for teat sanitisers</mark> may be kept in milk receiving or <mark>milk</mark> storage areas.

4.12 Storage facilities

- (1) Storage facilities must be provided for goods required for use in the farm dairy and must be kept in a suitably hygienic and organised (tidy) manner.
- (2) Any spillage in or around storage facilities must be cleaned immediately.
- (3) A cupboard, shelves or separate room must be provided to store materials and equipment associated with the milking process, to prevent the clutter of materials inside the farm dairy.
- (4) Cupboards and shelves must be set above the floor so the area under them can be washed.
- (5) Consumable items stored in these facilities (e.g., milk filters and milking equipment) must be protected from contamination (including from the environment contamination and pests) during storage.
- (6) All veterinary medicines must be clearly and correctly identified and be:
 - a) registered under the Agricultural Compounds and Veterinary Medicines (ACVM) Act for use on lactating dairy animals; or
 - b) exempt under the ACVM Act (e.g., some homeopathic treatments).
- (7) Prior to preparation for use, all veterinary medicines, must be stored in accordance with their label instructions (including the correct temperature), unless alternative storage instructions are stated in writing by a veterinarian.
- (8) All restricted veterinary medicines in a container not exceeding 20 kg must be stored in a secure manner, such as in a cupboard or room that is locked when the farm dairy is unattended. It is recommended that all other veterinary medicines should also be stored in a similarly secure manner except those that are:
 - a) held in bulk containers (i.e., greater than 20 kg or 20 litres), or
 b) in routine use and are not restricted veterinary medicines.
- (9) Veterinary medicines in bulk containers and veterinary medicines in routine use (and that are not restricted veterinary medicines) should be held in a secure manner that minimises the opportunity for inadvertent or malicious use.
- (10) Veterinary medicines, needles and hazardous items must be removed and disposed of in a responsible manner after use, when their use by date has expired or when the label is no longer legible.

Note: Handwritten identification of veterinary medicines is only acceptable when written and initialled by the prescribing veterinarian.

4.13 Milk not intended for supply

- (1) Milk not intended for supply must:
 - a) be clearly identified in such a way that the signage is clearly visible above the outlet, and
 - b) secured in such a manner that the contents cannot be accidentally collected as milk for manufacturing purposes.
- (2) The RMP operator may have more specific requirements for the identification and security of milk not intended for supply.

- (3) Milk not intended for supply that is stored within 20 metres of the farm dairy must be stored in a suitable vessel that is sealed and on a concrete pad capable of being cleaned. Drainage from the pad must be connected to the dairy effluent system.
- (4) If it is unavoidable to store milk not intended for supply in the milk room or elsewhere at the farm dairy, the containers and surroundings must be maintained in a clean and sanitary condition to prevent unacceptable odours, and to avoid attracting flies and vermin. Milk that is rotten, odorous, or offensive must not be stored in or near the farm dairy.

4.14 Fuel burning engines

- (1) Any wood burning-type water heater must be installed so the fire box opens outside the milking, milk receiving and milk storage areas. Fuel for fuel burning engines and heaters must not be stored in the farm dairy.
- (2) Fuel, smoke, and exhausts can lead to milk contamination by odours and airborne matter.

4.15 Hose points

(1) There must be suitable hose points to allow all areas of the farm dairy to be kept in a hygienic manner at all times. This includes the milk storage area, centre of rotary (if applicable) and milkroom.

4.16 Protection from power failure

- (1) From 1st June 2016 all new farm dairies are required to have in place the necessary plugs so that a suitable generator can be fitted to the farm dairy without the assistance of an electrician. It is recommended that all farm dairy operators consider purchasing a generator that is capable of operating the farm dairy (including water through the plate cooler and refrigeration).
- (2) Additionally, if stockwater is sourced from groundwater, and there is no alternative water supply, farm dairy operators should ensure they have the capability to get water to stock during a power outage. Usually this will require a generator to be transportable, and a suitable plug be fitted to the electric pump.

Note: The most common type of plug required is an AS/NZS3123 (56 Series) or IEC 60309 3P+N+E 125 Amp plug. A 63 Amp plug may be suitable for smaller dairy units with only essential equipment used.

Farm dairy operators should consult their dairy company (or the RMP operator covering their operations) or seek advice from a professional before installing such equipment or plugs as conditions and circumstances vary between dairy units.

Part 5: Protection of milk quality

5.1 Supply of milk

- (1) The following types of milk must not be offered for supply to a dairy processor:
 - a) milk from an animal which is outwardly unhealthy;
 - b) milk from an animal which has been diagnosed or confirmed by a veterinarian to have a clinical infectious disease that is:
 - i) transmissible to humans via milk such as brucellosis, salmonellosis or tuberculosis; or
 - ii) transmissible to animals via milk, if the milk is intended for animal consumption and the milk will not undergo an appropriate pathogen reduction treatment.
 - c) milk which is tainted, impure or fails an organoleptic assessment (senses test);
 - d) milk which contains any inhibitory substance, chemical contaminant or toxin at an unacceptable level;
 - e) milk from an animal within the first four days and eight milking's of giving birth unless there is a supply agreement in place that allows for such milk to be supplied separately;
 - f) milk that is harvested by a milk harvester with a notifiable communicable disease;
 - g) milk with an acidity level of 0.18% or higher;
 - h) milk that contains any foreign matter, or has in any way been adulterated or tampered with; or
 - i) milk that for any other reason is not fit for purpose or is not harvested under the conditions detailed in the RMP or as otherwise advised to the farm dairy operator by the RMP operator or an Animal Products Officer.

5.2 Milking animal health

- (1) All farm dairy operators must comply with the <u>PSP notice</u> for milking animal health as set out in the registered RMP covering their operation.
- (2) Animals introduced from other herds should be subject to a quarantine period and regular monitoring to confirm the animal health status unless full health details and treatment records have been provided.

5.2.1 Diseased animals

- (1) Milking animals being milked for supply must be outwardly healthy and show no clinical signs of sickness, disease or injury capable of contaminating milk with pathogenic micro-organisms.
- (2) Records must be kept of all diseased milking animals. These records must demonstrate that the milking animal was removed from the supply herd during the period that it was diseased.
- (3) All records of sick and diseased animals must be made available to farm dairy assessors and farm dairy verifiers on request.
- (4) Milking animals shown to be tuberculosis standard test positive are considered to be diagnosed immediately after the animal is confirmed to be a tuberculosis reactor or when directed to slaughter by either a veterinarian or a person authorised under The National Pest Management Plan for Bovine Tuberculosis.
- (5) Milk from animals shown to be tuberculosis standard test positive that are awaiting results of a confirmatory test must only be supplied for the manufacture of heat-treated dairy products.
- (6) Any milking animal diagnosed under subclause (4) must be isolated and not milked in the farm dairy.

5.2.2 Abnormal milk

- (1) Milk from diseased or injured udders must not be mixed with the milk intended for supply. Diseased and injured udders can result in blood and mastitis organisms in the milk. A well-managed farm dairy should have methods in place to detect and isolate abnormal milk. Common methods of detection are a pre-milking squirt from the teat on to a dark surface, rapid mastitis testing (RMT) and the use of electronic mastitis detectors.
- (2) Other routine methods of detection include careful observation for:
 - a) hardness;
 - b) swelling;
 - c) abnormal temperature;
 - d) tenderness;
 - e) incomplete milking out;
 - f) altered behaviour;
 - g) kicking;
 - h) lameness; and
 - i) sick appearance.
- (3) Mastitis should be detected before clots are observed on the milk filter.

Note: some forms of mastitis do not form clots.

- (4) Following the SmartSAMM Seasonal Approach to Managing Mastitis or a similar mastitis management programme, such as Countdown Downunder, will help to ensure that all aspects of mastitis control are actively managed. The SmartSAMM plan is available from your dairy company, the National Milk Quality Advisory Committee or online.
- (5) Mastitis is the persistent, inflammatory reaction of the udder tissue in response to bacterial infection. Contributing factors include improper pulsation, excessive vacuum, bacterial infection of the teat canal or cross contamination from milking equipment or the milk harvester.
- (6) Expert advice should also be sought on the treatment and control of mastitis.

5.2.3 Restricted veterinary medicines and authorisations

- (1) In order to hold or use restricted veterinary medicines, farm dairy operators must have a veterinary authorisation. This authorisation allows a farm dairy operator to:
 - a) hold the restricted veterinary medicines; and/or
 - b) use the restricted veterinary medicine in the way specified in the authorisation.
- (2) All restricted veterinary medicines held on farm must be recorded on a current authorisation that is currently in force. If non-expired restricted veterinary medicines from the previous season are carried forward, they should be included on the current season's authorisation.
- (3) In many cases the authorisation will be provided at or following an annual consultation in the form of an Annual Veterinary Consultation and Authorisation for Purchase document, though an authorisation may be provided in many forms at other times, including:
 - a) an individual case veterinary docket or prescription (script);
 - b) a prescription, document or letter provided with the medicine or attached to the packaging;
 - c) an individual stick-on label attached to the medicine or its packaging; and
 - d) clinical case records.
- (4) All veterinary authorisations must be retained by the farm dairy operator for at least 2 years, whether in hard copy or electronic form. Electronic forms of veterinary authorisations may include photographs of authorisation stickers/labels on the outer packaging of restricted veterinary medicines.
- (5) If the veterinarian administers a restricted veterinary medicine, a veterinary authorisation is not required, but the treatment must be recorded along with details of milk withheld as per clause 5.2.4.

Note: All restricted veterinary medicines will have "Restricted Veterinary Medicine" or "RVM" on the label.

For more information on veterinary authorisations consult your veterinarian.

5.2.4 Use of animal treatments

- (1) Any animal treatments administered to milking animals must be:
 - a) registered for use on milking animals under the ACVM Act or exempt;
 - b) administered as per label or following written veterinary advice;
 - c) stored in accordance with their label instructions, unless alternative storage instructions are stated in writing by a veterinarian (prior to preparation for use); and
 - d) only used within the date of expiry.
- (2) Animal treatments include any product administered to milking animals, including teat salves, teat sprays, drenches and pour-ons.
- (3) To be absolutely clear, the following medicines are prohibited in many markets and must not be administered or applied to dairy animals, or added to the feed or water:
 - a) chloramphenical;
 - b) nitrofurans;
 - c) Hormonal Growth Promotants;
 - d) 17ß-oestradiol and its esters;
 - e) nitroimidazole class of compounds, e.g., metronidazole and ronidazole;
 - f) arsenilic acid;
 - g) chloroform;
 - h) chlorpromazine;
 - i) colchichine;
 - j) dapsone;
 - k) nandrolone;
 - phenylbutazone;
 - m) stanozolol;
 - n) beta sympathomimetic agents (cimetarol, salbutamol); and
 - o) thyreostatic compounds (methyl thiouracil, phenyl thiouracil, propyl thiouracil).
- (4) Milk withholding times specified for antibiotics and any other animal treatments must be followed unless an alternative has been approved by MPI or prescribed by a veterinarian. Nil milk withholding assumes that the animal is treated immediately after milking. If milking once a day or treating large numbers of animals, a veterinarian should be consulted to ensure withholding periods are appropriate.
- (5) Any off-label use of animal treatments must be prescribed in writing by a veterinarian. A record of this must be kept by the farm dairy operator. This record will most likely be in the form of a veterinary script.
- (6) In the case of concurrent use of veterinary medicines (where multiple medicines are prescribed to treat the same condition at the same time), written veterinary advice must be obtained and should include the milk withholding time to be observed. In the absence of written advice on the milk withholding time, the longest milk withholding time applies plus 1 milking.
- (7) Records must be kept of the administration details for all animal treatments regardless of whether a milk withholding period applies. Types of treatments where records are required include, but are not restricted to:
 - a) restricted and over the counter veterinary medicines (e.g., antibiotics);
 - b) vaccines and hormone treatments (where permitted);
 - c) inductions;
 - d) drenches (oral and pour-on);
 - e) lice applications;

- f) foot baths;
- g) injections;
- h) ointments, teat salves or oral powders;
- i) downer cow treatment;
- j) homeopathic and natural remedies; and
- k) products exempt from registration.
- (8) When administering an animal treatment, farm dairy operators must keep treatment records that include the following (except as provided for in clauses 5.2.4 (9) and (10)):
 - a) the unique animal identifier;
 - b) condition or symptoms being treated;
 - c) the veterinarian (if consulted);
 - d) the type of treatment (including name of product and dose);
 - e) whether the treatment was administered by a veterinarian;
 - f) the date of each treatment;
 - g) date of last treatment;
 - h) date that milk re-entered the bulk milk tank; and
 - i) from 1 July 2026:
 - the minimum milk withholding time (hours/days or milkings or the day, time and/or milking at which the milk may re-enter the bulk milk tank for supply;
 - ii) the time/milking (as well as date) of each treatment;
 - iii) the time that the last treatment is administered (as well as date);
 - iv) the milking (as well as date) that milk re-entered the bulk milk tank; and
 - v) milking frequency during treatment, for example twice per day.
- (9) For whole herd treatments, farm dairy operators may keep treatment records that include the following as an alternative to the requirement to keep individual animal records in clause 5.2.4 (8):
 - a) the condition or symptoms being treated, or disease if known;
 - b) the veterinarian (if consulted);
 - c) the type of treatment (including product and dose);
 - d) the date of each treatment;
 - e) date of last treatment;
 - f) any applicable milk withholding period; and
 - g) from 1 July 2026:
 - i) the time or milking (as well as date) for each treatment;
 - ii) the time (as well as date) of the last treatment;
 - iii) date and milking that milk re-entered the bulk milk tank, unless the treatment is at drying off; and
 - iv) confirmation that the whole herd was treated.
- (10) For animal treatments that are not RVMs, and do not require milk withholding periods (e.g. udder creams, teat salves or teat sanitiser), farm dairy operators do not need to keep records for each use, but instead may keep treatment records that include the following as an alternative to clause 5.2.4 (8):
 - a) the name of the product;
 - b) the condition treated/reason for use;
 - c) the dose used if relevant; and
 - d) the dates' that the product was first and last used.
- (11) Expiry date of the treatment is recommended to be recorded.
- (12) All records of animal treatments administered to milking animals must be made available for audit at farm dairy assessments. In addition, for restricted veterinary medicines held at the farm dairy there must be evidence of the veterinary authorisation available (refer to clause 5.2.3).

5.2.5 Administration of animal treatments

- (1) To minimise the chance of direct and indirect contamination, Lactational Veterinary Medicines (including antibiotics but excluding teat sanitisers) must only be administered at the completion of milking and after the delivery line to the bulk milk tank has been disconnected. The only exception to this is when:
 - a) the milking animal is treated after it has been milked, and the treatment is not administered by a person involved in milking (i.e. not the milk harvester); or
 - b) there is no practical alternative; and
 - i) the animal is treated after it has been milked;
 - ii) the medicine and any associated equipment (including spent tubes) are removed from the milking area immediately after use; and
 - iii) anyone administering the medicine or handling the medicine and associated equipment must wash their hands with soap/detergent before resuming milk harvesting activities.
- (2) Dry Period Therapy (e.g. Dry Cow Therapy) must not be administered until the delivery line to the bulk milk tank has been disconnected. If this is not possible for valid reasons, there must be written procedures that ensure animals cannot re-enter the farm dairy and that staff wash their hands (and change protective clothing if necessary) before resuming milk harvesting duties. Residues from veterinary medicines intended for use over the dry period pose a significant risk to food safety. Therefore, it is important that the risk of unintentional contamination is prevented.
- (3) Dry Period Therapies and teat sealants should not be stored with lactational treatments, and if this is not possible, they must be clearly labelled so that they will not be mistaken for use as lactational treatments.
- (4) When administering teat sealants:
 - a) label instructions must be reviewed and followed;
 - b) care must be taken to ensure that the sealant remains in the teat canal and is not massaged into the udder;
 - c) hands must be washed after treating animals; and
 - d) spent tubes and containers must be safely and securely disposed of.
- (5) At the first milking post calving, milk harvesters must hand strip each teat of animals that have had a teat sealant administered in accordance with label instructions to ensure full removal of the sealant. The initial colostrum stripped by hand from each animal must not be offered for supply.
- (6) During the colostrum period (in most cases the first 8 milkings), the milking equipment must be hot washed after each milking if animals treated with teat sealants are in the colostrum herd. This is to ensure that any remaining residue is effectively removed.
- (7) Used needles should be placed into a sharps container or similar for appropriate disposal.

5.2.6 Identification and segregation of treated and/or diseased milking animals

- (1) Treated and/or diseased milking animals must be clearly identifiable from the rest of the herd at all times. This applies regardless of whether a separate herd is run for treated and/or diseased animals. Recommended identification methods include non-toxic spray paint on udder or legs, leg bands, tail tape.
- (2) Treated milking animals should be marked immediately prior to each treatment. This practice reduces the likelihood of the wrong milking animal being treated. Treated milking animals must be milked last after the delivery line has been diverted away from the bulk milk tank. Treated milking animals should also be kept in a separate herd, however if this is not possible then 2 forms of identification must be used.
- (3) Quarter milkers must not be used to segregate milk from treated and or diseased milking animals. If treated, milk must be withheld from all quarters, even if not all quarters are treated.

- (4) From 1 July 2024 quarter milkers are not to be used for cows and buffalo and may only be used with minor species when used to capture all milk extracted from the animal at the milking.
- (5) Treatment marks must be removed, or cancelled (e.g., overlaid with an alternative paint e.g., green) prior to milk from animals with treatment marks returning to supply.
- (6) Test buckets must not be used to segregate milk from treated or diseased milking animals, unless the milk delivery line has been diverted from entering the bulk milk tank.
- (7) All milk harvesters, including relief milkers, must know how treated milking animals are identified, and the procedures to follow if they are accidentally milked into the bulk milk tank for supply.

5.2.7 Management of animal treatments and other compounds

(1) Animal treatments:

- a) must not be used once expired;
- must be disposed of as soon as practicable after expiring, and under all circumstances must be removed from the farm dairy within 3 months of expiry;
- must be disposed of in a responsible and secure manner, for example by returning to the supplier of the treatment; and
- should be recorded as they are disposed of, including the name of the product, the quantity disposed of and the manner of disposal.
- (2) Farm dairy operators must review all animal treatments at least every 3 months, and:
 - a) remove and discard any expired animal treatments in accordance with clause 5.2.7(1)b) as well as any products with illegible labels; and
 - b) record the date of the review.
- (3) Containers used to store any chemicals, including detergents, sanitisers, maintenance compounds, animal treatments and any other agricultural compounds must only be reused for their original purpose provided the container remains clearly and accurately labelled and in good condition i.e., they must only be used to store the same compound. Where the container is emptied prior to re-use, the expiry date can and should be updated.
- (4) When decanting chemical compounds from a bulk container to a smaller container (for example, from a 200-litre drum into a 20-litre containers), the identification details from the bulk container are to be replicated on the smaller container in some way. This includes the trade name of the compound and any expiry, use by or best before date indicated on the bulk container.
- (5) Detergents, sanitisers, maintenance compounds and veterinary medicines must be used according to the manufacturer's label instructions and conditions of approval or registration (as per clause 6.5), unless an alternative is specifically provided for in this Code.
- (6) Farm dairy operators should keep a register of all chemical compounds that are stored or used in the farm dairy each dairy season, including maintenance compounds (e.g., chemical compounds used for cleaning, sanitising, maintaining equipment and facilities, water treatment, rodenticides, and other pest control compounds).

Note: It is recommended that reviews of animal treatments are completed monthly alongside other monthly checks required under clause 15.2.

5.2.8 Good agricultural practice

(1) It is extremely important that agricultural compounds and veterinary medicines are used according to the label instruction, as intended by the manufacturer of the product, or according to the written instructions of the veterinarian. Improper use can have serious impacts on trade, which in turn could have a serious impact on the eligibility of milk from an individual farm. (2) Inhibitory substance residues can result from many types of treatment, ranging from injections and pessaries to externally applied creams. Even though antibiotics are predominantly used for mastitis control, they are also used to treat many other health problems (e.g., foot problems). In all cases of antibiotic treatment, there is the potential for residues to be left in the milk.

5.3 Colostrum

- (1) Milk (colostrum) drawn from animals within four days of calving and eight complete udder evacuations must not be supplied to a dairy company for further processing unless this forms part of a specific contract to supply colostrum, and the colostrum does not mix with the normal white milk supply at any point.
- (2) The following points are to be noted:
 - a) heifers may require ten complete udder evacuations to overcome let down problems;
 - b) newly calved milking animals should be milked after the main herd; and
 - c) as induced milking animals may produce colostrum there must be at least eight complete udder evacuations after calving.
- (3) Records must be kept of the calving date and date animals enter the milking herd.

5.4 Toxic, odorous, and other chemical substances

- (1) Toxic or odorous substances not registered or exempt under the ACVM Act must not be given to any animal or used on any animal, or mixed in any dairy, or with any utensil that will come into contact with the milk, cleaning solutions or water supply.
- (2) Additionally, the following compounds must not, under any circumstances, be used in, on or around the farm dairy, dairy animals, or the farm environment including off farm grazing, dairy feed or water:
 - a) aldrin;
 - b) HCB (hexachlorobenzene);
 - c) chlordane;
 - d) HCH (hexachlorocyclohexane or benzene hexachloride);
 - e) chlordecone;
 - f) heptachlor;
 - g) DDT including DDE and DDD (also known as TDE);
 - h) lindane;
 - i) dieldrin;
 - j) mirex;
 - k) endosulfan and its isomers;
 - I) pentachlorobenzene; and
 - m) endrin.
- (3) Odorous substances, including those containing fragrances, must not be used in a manner that might result in milk becoming tainted, either directly or via contact surfaces or topical use on milking animals, and must not be used to mask odours due to unsanitary conditions.
- (4) Pesticides, chemicals not registered, approved, or permitted for use in the farm dairy, and veterinary medicines not intended for milking animals, must:
 - a) not be stored in the farm dairy or in the same room as detergents, sanitisers or any other equipment or utensils that are to be used in the farm dairy; and
 - b) be clearly labelled and stored in an orderly state in a separate building, which is at least 20 metres from the farm dairy.

For clarity, cleaning chemicals approved for use in farm dairies (i.e., approved maintenance compounds) and veterinary medicines registered for use on milking animals are excluded from this restriction.
- (5) Where pesticides and other chemicals are to be used, they must be used in such a manner as to minimise risk of contamination to milk, milk contact surfaces, the water supply, animals and animal feed.
- (6) Only MPI approved maintenance compounds (e.g., detergents and sanitisers) may be used to clean the milking plant including the bulk milk tank. Compounds for pest control at the farm dairy and for the treatment of water supplying the farm dairy for cleaning and rinsing must also be MPI approved maintenance compounds.
- (7) It is critically important to read the label regarding restrictions for use and milking plant rinsing or draining requirements.
- (8) Chemicals not approved for use in the farm dairy, such as pesticides and herbicides, must not be mixed within 20 metres of the farm dairy or within 45 metres of surface water or the source of surface water (20 metres if sufficiently protected secure water, refer to clause 3.8.1). Such chemicals must not be prepared using any utensil which is to be used in the farm dairy or in connection with milking, cleaning of the milking plant, or treating water. If the water supply is located at the farm dairy, then the minimum of 45 metres from the water supply and 20 metres from the milking area applies.
- (9) A designated chemical mixing area is to be used for the mixing of chemicals not approved for use in the farm dairy. This area should include dedicated mixing equipment and utensils, a water supply set up to prevent backflow, appropriate safety equipment and have suitable drainage. This area must be a minimum of 45 metres from the farm dairy water source (20 metres if sufficiently protected, refer to clause 3.8.1) and 20 metres from the milking, milk handling and milk storage areas, and farm dairy water storage. It is recommended that equipment and utensils are colour coded to make it clear that they are only to be used in the designated chemical mixing area.
- (10) If rodent baits are used, they must not be laid in the milk storage and collection area. They must be laid in accordance with clause 2.1.4 (5).
- (11) To avoid residue contamination, separate identifiable containers must be used to measure or mix chemicals. It is essential to make up these solutions away from the farm dairy.
- (12) Poisonous substances e.g., animal treatments, agricultural chemicals and detergents must not be accessible to children and must be stored in a location and manner which reduces any likelihood of milk contamination.

5.5 Disposal of agricultural chemicals

- (1) Pesticides are classified by a hazard rating (Hazardous Substances and New Organisms Act (HSNO) classification code) which takes into account the concentrations of active ingredients and their state (whether liquid or solid). This rating appears on the label, which bears warning and precautionary statements related to the degree of hazard.
- (2) Always read the label and follow the instructions.
- (3) The disposal of agricultural chemicals has now become a major issue with the increased concern for care of the environment.
- (4) In general, surplus chemical should be disposed of in the way it was intended on the land at the recommended rates provided that use of the chemical is still permitted. The chemical company sales representative can be contacted to determine whether other clients may be willing to use any surplus.
- (5) In many cases the regional authority or the Agrecovery rural recycling programme can assist with disposal of surplus chemicals.

5.6 Contaminated sites

(1) Access of stock to known contaminated sites and areas reasonably thought to pose a chemical residue risk must be prevented e.g., fence off sheep dip sites and known chemical and industrial waste disposal sites. Also note the controls necessary when applying wastes to land (refer to clause 4.4).

5.7 Purchased stock feed

- (1) All purchased feed for milking animals must only be accepted when delivered with documentation identifying:
 - a) the feed (what it contains);
 - b) who supplied it and its source (where it came from) if not the same business that supplied it;
 - a unique delivery identifier, such as the delivery date, delivery docket/invoice number, the batch or lot identifier or other form of delivery identification; and
 - d) that the feed is suitable for feeding to the intended milking animals.
- (2) This documentation, whether hard copy or electronic, may come from multiple sources, such as an invoice or delivery consignment note or product note but must be relevant to the feed supplied and must be kept for at least four years.
- (3) Any contract signed with a feed provider must allow for consignments to be rejected when they cannot be confirmed as suitable for feeding to lactating dairy animals.
- (4) From 1 July 2025, the information in (1)a) to c) will be required for any feed additives or other material added to feed or water, and (1)d) will be required unless the additive is a veterinary medicine or agricultural compound and is registered for the intended use.

5.8 Stock feed storage

- (1) Feeds containing grain, Palm Kernel Extract (PKE), and similar products should be stored in a feed silo situated on concrete or in a covered concrete bunker (see Table 1). These are to be no closer than 10 metres from the bulk milk tank stand.
- (2) Feed that cannot be stored in a feed silo should be stored over concrete or, if a concrete area is not available, on a sheet impervious to moisture such as polyethylene. Storage must be at least 20 metres from the farm dairy and not within 3 metres of the edge of the farm roadway and should not allow any water runoff to contaminate the feed pile, surface water or ground water source.
- (3) In addition:
 - a) feed should not be stored directly on the ground unless suitably protected;
 - b) feeds containing grain, PKE, and similar products should be covered at all times to prevent water damage;
 - c) feed must be stored so that it remains cool and dry;
 - d) the feed storage area needs to be kept free of birds, rodents, insects and other vermin;
 - e) the feed storage area should not be made of any materials that are likely to contaminate the stored feed with residues, such as tanalised timber;
 - f) feed should not be stored on-farm for long periods; and
 - g) mouldy or spoiled feed must not be fed to lactating animals.
- (4) From 1 July 2025, the recommendations in subclause (1) and (2) will become requirements (i.e. "should" will become "must").

5.9 Taints, residues and contaminants from feed

- (1) Milking animals must not be fed fodder or stock feed at a level that is likely to directly or indirectly:
 - a) cause milk taints; or
 - b) contaminate the milk with any chemical residue, contaminant, or toxin at levels above permitted limits.
- (2) Dairy animals must not be fed ruminant protein e.g., supplementary feeds that contain blood or bone from ruminant animals. The Biosecurity (Ruminant Protein) Regulations 1999 make it an offence to feed ruminant protein to a ruminant animal.
- (3) Farm dairy operators must ensure that when spraying, or spray irrigating, pasture, or crops:
 - a) conditions are suitable and will not result in the farm dairy, water supply or the milking animals becoming contaminated via, for example, spray drift; and
 - b) the person responsible for the activity is adequately trained or experienced.
- (4) When spraying pasture with pesticides, herbicides and other agricultural compounds farm dairy operators must ensure that they and their staff or contractors:
 - a) adhere to the recommended pasture withholding periods or where possible use a planned winter spray programme;
 - b) spray each paddock after it has been grazed (some poisonous weeds become more palatable after they are sprayed); and
 - c) keep a record of what was used and when.
- (5) Following surface applications of fertiliser, effluent, or other waste to land, the pasture must be allowed sufficient time and rain/water irrigation for the fertiliser, effluent or waste to be flushed from the grass or crop to the soil. If unsure, consult your fertiliser representative. Failure to follow a suitable rest period may result in milk becoming contaminated. Also note that the application of effluent and other waste material must be in accordance with clause 4.4.
- (6) When feeding fodder crops, plant waste or plants other than pasture, there should be a management plan in place to minimise the risk of milk tainting. Milk that is tainted should not be offered for supply. Some common fodder crops and plants that can taint milk are:
 - a) turnips;
 - b) chicory;
 - c) onions;
 - d) landcress;
 - e) wild onion;
 - f) wild garlic;
 - g) pennyroyal; and
 - h) asparagus.
- (7) Feeding of copra has been known to cause aflatoxin contamination of raw milk. Consult your milk quality advisor or dairy company prior to feeding copra (or feeds containing copra) to lactating dairy animals and take particular note of the points identified under clause 5.7.

5.10 Teat preparation

- (1) The milking procedure must address sources of contamination such as wet or heavily soiled udders.
- (2) To ensure that teats are clean, animal teats must be adequately prepared before applying the cluster.
- (3) If teats are wet and dirty:
 - a) for cows and buffalo, they must be cleaned and should be wiped dry with a single service towel;
 - b) for goats, sheep and deer, they must be wiped clean.

- (4) If teats are dry and dirty, they must be brushed or washed (cows and buffalo) or brushed or wiped (goats, sheep and deer).
- (5) Teat washing facilities (or wiping facilities in the case of goats, sheep and deer) must be available and adequately maintained for this purpose.
- (6) Any chemicals used in conjunction with cleaning teats must be on the list of dairy maintenance compounds approved by MPI for teat cleaning.
- (7) Volume washing and use of water under high pressure is not acceptable and can lead to milk contamination issues through over-wetting.
- (8) Teat wipes that are medicated or contain a sanitiser/disinfectant must be registered or approved by MPI, must only be used in accordance with their label instructions and for the purpose indicated. To be clear, medicated teat wipes are typically only to be used to sanitise the teat prior to administering a treatment.

Note: Animal husbandry practices should try to minimise the soiling of udders and teats.

Typically, medicated teat wipes are not for routine use. If in doubt, consult your supplier.

5.11 Milker health and hygiene

- (1) Personal hygiene is of the utmost importance. Hands and clothes can transfer bacteria to milk, milk contact surfaces and to lactating animals. Milk harvesters' hands must be kept appropriately clean for the full duration of milking, and clothing (including aprons and gloves) must be suitably clean, in good condition and not be a source of contamination.
- (2) Anyone intending to undertake any activities at a farm dairy and who becomes aware that they have an illness, disease or condition of concern listed in subclause (3) must advise the farm dairy operator. A person with such an illness, disease or condition must not undertake any duties at the farm dairy that might result in milk or milk contact surfaces becoming contaminated, and records of such cases must be kept by the farm dairy operator.
- (3) A person with an illness, disease or condition of concern includes anyone:
 - a) suffering from an acute respiratory infection; or
 - suffering from boils, sores, infected wounds or any other condition that cannot be adequately prevented from becoming a source of contamination; or
 - known or suspected of being infected with, or a carrier of, an infectious disease transmissible via milk including:
 - Acute gastroenteritis (including due to Bacillus species, Clostridium perfringens, Cyclospora, norovirus, rotavirus, Staph. Aureus);
 - ii) Entamoeba histolytica (amoebic dysentery);
 - iii) Campylobacter;
 - iv) Cryptosporidium;
 - v) E.coli, VTEC or STEC;
 - vi) Giardia;
 - vii) Hepatitis A;
 - viii) Salmonella;
 - ix) Shigella;
 - x) Vibrio cholerae; or
 - <mark>xi) Yersinia.</mark>

5.12 Milk filtering

- (1) All milk must be filtered before entering the bulk milk tank refer to Part 10 Milk filtering systems for details.
- (2) Filter socks must be fitted at all times during milking and washing of the plant.
- (3) Filter socks must be used as per the manufacturers' instructions. Filter socks can harbour high levels of bacteria and inhibitory substances that may contaminate the milk at the next milking. As such disposable filter socks must be replaced after each milking when lactating animals are under treatment.
- (4) Refer to 5.14.1(1) for the actions to be taken when milk filtering is found to not meet the requirements of this Code.

5.13 Milk cooling

- (1) Bacteria in raw milk will grow more rapidly above 6°C. Therefore, adequate milk cooling is essential for ensuring quality milk is supplied. The following time/temperature requirements are a minimum standard for the cooling of milk. Farm dairy operators should aim to cool their milk more effectively than these requirements.
- (2) Unless used immediately for further processing, raw milk must:
 - a) be cooled immediately, using a plate heat exchanger or an alternative suitable for the volume of milk to be cooled; and
 - b) be cooled to 10°C or below within four hours of the commencement of milking; and
 - be cooled to 6°C or below within the sooner of:
 - i) six hours from the commencement of milking, or
 - ii) two hours from the completion of milking; and
 - d) be held at or below 6°C without freezing until collection or the next milking; and
 - e) must not exceed 10°C during subsequent milkings.
- (3) In situations where there is continuous or extended milking or automated milking systems (robotic milking systems), the milk must be cooled to 6°C or below immediately after harvesting and held at 6°C or below until collection. "Continuous or extended milking" is defined as milking for six hours or longer from the time that milk first enters any bulk milk tank.
- (4) Subclauses (2) and (3) do not apply to harvested milk if the milk:
 - a) manufacture starts within 2 hours of completion of milking; and
 - b) manufacture takes place at the same premises where milking occurs; and
 - c) the storage and transfer conditions protect the milk from deterioration; and
 - the RMP operator confirms in writing that the milk cooling requirement set out in this clause doesn't need to be met.
- (5) It is recommended that the temperature of the milk be maintained at 4°C or below (but no lower than 2°C to avoid freezing), and the temperature of any stored milk should be checked prior to each subsequent milking to minimise loss should a refrigeration failure occur.
- (6) A milk cooling system is acceptable when it can be shown to meet;
 - a) the milk cooling requirements set out in this clause;
 - all relevant equipment criteria in this Code; and
 - any additional milk cooling requirements that may be specified in the RMP covering the farm dairy.
- (7) A record of milk temperature at collection or use must be available, which will typically be made by the dairy company when collecting raw milk from the farm dairy.

5.14 Milk cooling performance monitoring

- (1) The periodic confirmation of milk cooling performance must be undertaken to confirm that the milk cooling system is meeting the requirements under clause 5.14 as follows:
 - a) Farm dairy operators must have records to confirm that milk cooling requirements are being met to confirm the capability of milk cooling equipment. Milk cooling performance should be monitored monthly, but as a minimum must be monitored and recorded:
 - i) about the time of expected peak milk production; and
 - ii) in February.
 - b) Each performance check must cover at least two consecutive milking's, and the records must include:
 - i) the temperature of milk in each bulk milk tank immediately prior to the start of milking (if there is any);
 - ii) the time that milking starts;
 - iii) the time that milking is completed;
 - iv) the temperature of the milk in the bulk milk tank at the completion of milking;
 - v) the time that the milk is confirmed to meet the requirements of clause 5.14; and
 vi) the method used to measure the temperature.
- (2) Milk cooling performance monitoring and routine temperature measurements and recording must be
 - done in a way that ensures milk will not become contaminated and can be accomplished using:
 - a) an electronic monitoring system;
 - b) a chart recorder;
 - c) a temperature logging device;
 - d) manual measurements using an electronic thermometer (non-glass); or
 - e) any other equivalent method.
- (3) The accuracy of the device used to measure the temperature must be recorded and available or, in the case of a calibrated device, details of the relevant calibration certificate must be recorded.

5.14.1 Failure to meet milk filtering or cooling requirements

- (1) A Farm dairy operator who becomes aware that milk filtering or cooling performance is inadequate must:
 - a) notify their RMP operator (dairy company);
 - b) follow the advice received from their RMP operator;
 - c) take appropriate corrective action; and
 - assume that the milk filtering or cooling performance continues to be inadequate until it is confirmed to be corrected, for example in the case of milk cooling failures, follow-up checks show that requirements are being met.
- (2) Milk that has not been cooled in accordance with clause 5.14 must be withheld from supply, unless the milk has been assessed and confirmed as fit for intended purpose by the RMP operator / dairy company through measures such as:
 - a) sensory evaluation;
 - b) microbiological testing;
 - c) titratable acidity; or
 - d) a validated predictive risk assessment model provided by MPI or acceptable to MPI.
- (3) Farm dairy operators must:
 - advise their dairy company if they determine that milk has not been cooled as required in clause 5.14; and

 b) discard milk that is refused collection or is not suitable for collection. This milk must not be reoffered for supply for human consumption, but a suitably skilled person may determine that it is fit for another purpose such as feeding to animals.

Note: Where any equipment upgrade is being considered to rectify repeat failures to meet milk cooling requirements, it is recommended that the farm dairy assessor or dairy company is consulted before committing to capital expenditure.

5.14.2 Electronic monitoring systems

(1) Where electronic monitoring systems are installed, it is recommended that such systems be capable of holding delivery line and bulk milk tank temperature data for a minimum of 30 days for both milk and CIP solutions.

5.15 Disposal of milk

- (1) For a variety of reasons RMP operators may not always be able to collect milk. Milk may also be rejected by the RMP operator for any of the reasons specified in clause 5.1.
- (2) Farmers can face prosecution, under the Resource Management Act 1991, if they discharge milk directly into water or if they allow milk to flow into water. This is due to milk being a potent pollutant, being 1000 times more potent than farm dairy effluent. As such, intrusion into waterways will have a serious impact.
- (3) There must be a procedure in place for the disposal of milk that had been offered for supply and disposal records must be kept, such as:
 - a) the date of disposal;
 - b) the method of disposal; and
 - c) recipient, if not disposed of on farm.
- (4) The RMP operator is to be contacted if major disruption occurs, as they will have contingency plans drawn up.
- (5) The following are possible methods for disposal of milk on farm:
 - a) discharge into effluent ponds (for example, dilute 1:10 with water);
 - b) spray irrigation (for example, dilute 1:10 with water);
 - c) waste pond or trench;
 - d) sacrifice area; and
 - e) feeding livestock, provided that it remains suitable as an animal feed and meets relevant requirements under the ACVM Act (e.g., will not result in unacceptable residues in food).
- (6) Farm dairy operators should check with their regional authority before disposing of milk onto land.
- (7) Milk intended for disposal should not be stored at the farm dairy. If such storage is unavoidable the bulk milk tank must be labelled and secured from collection as outlined in clause 5.23.

Note: Under some exceptional circumstances the method for disposal may be stipulated by the RMP operator or by an Animal Products Officer.

5.16 Trials and experiments

(1) Any milk produced under experimental trial conditions must not be offered for supply unless the risk management programme operator (dairy company) has been notified of all relevant facts and has agreed in writing. This includes situations such as:

- a) cleaning chemical and maintenance compound trials;
- b) veterinary medicine trials, or any similar exposure of milking animals to novel treatments (refer to clause 7.5), whether or not the treatment is intended to provide a benefit for the animal;
- c) trials involving new, novel or experimental equipment that does not fully comply with this Code;
- d) trials involving feed or feed supplements where the residue effect on milk is unknown, or the purpose is to manipulate milk composition;
- e) trials that may adversely affect the nature and quality of the milk; or
- f) trials that for any other reason involve deviating from the requirements of this Code.
- (2) In addition to subclause (1), any experiments or trials involving milking animals, and which may adversely affect milk or meat will generally require separate MPI approval under Regulation 120 in accordance with Regulation 118 of the Animal Products Regulations 2021. This includes feeding trials that may taint milk or are intended to manipulate milk composition or may result in abnormal milk composition for milk constituents present at macro or micro levels.

5.17 Training

- (1) Farm dairy operators must ensure that any staff involved in the operation of a farm dairy, are adequately trained to carry out their duties. This should include training in safe plant operation, cleaning, and animal health management.
- (2) If milk quality or hygiene issues occur, it is strongly recommended that farm dairy operators consider milk harvesters attend a relevant training course or refresher course. This consideration should include everyone involved in milk harvesting activities, including farm dairy owners.
- (3) Training records should be kept to demonstrate that farm staff are capable of completing their duties adequately.

5.18 Management of chemicals

- (1) Failure to have and follow procedures for the appropriate receipt, handling, storage, preparation, and use of chemicals can result in milking animals being inadvertently exposed to chemicals or to milk becoming contaminated, whether direct or indirect. Refer also to clause 6.5.
- (2) The requirements and restrictions related to the storage, preparation and use of chemical compounds apply from delivery onwards. As such, chemicals that are not permitted to be stored at the farm dairy are expected to be delivered to a designated delivery point that is at least 20 metres from the farm dairy and has clear signage for delivery drivers.
- (3) It is recommended that farm dairy operators:
 - have (and follow) procedures for the management of chemicals that are to be stored and/or used within 20 metres of the farm dairy (where permitted); and
 - only use chemicals at the farm dairy once they have been through an inwards goods acceptance procedure with:
 - acceptance recorded (which may be retaining the delivery docket ticked and initialled); and
 the container marked in some way to indicate that it has been received and is "good to go";
 - i) the container marked in some way to indicate that it has been received and is "good to go ; and
 - ensure that all chemicals to be used within 20 metres of the farm dairy are stored under suitable conditions in an area designated for their storage (this is a requirement in the case of maintenance compounds).

5.18.1 Chlorine Products

(1) Care must be taken with the storage, handling and use of maintenance compounds that contain chlorine, excluding sodium chloride (common salt), such as sodium hypochlorite. Chlorates and perchlorates may be present as minor contaminants in chlorine products, and they will continue to form over time as chlorine decomposes (breaks down). This process will occur more rapidly if chlorine products are mishandled.

- (2) To minimise the presence of chlorates in milk, farm dairy operators must ensure that:
 - a) chlorine products are stored in a cool place away from direct sunlight;
 - b) good stock rotation practices are followed, that is, first in first out;
 - maintenance compounds are not used on food contact surfaces beyond their expiry, use by or best before date;
 - d) label instructions and chemical supplier recommendations are followed for all maintenance compounds (such as chemicals used to clean or sanitise the milking plant or to treat water), including;
 - only using the dosage rate indicated (dosing above recommended rates can lead to residues carrying over into milk);
 - removing residues of the chemicals used to clean and sanitise the milking plant by rinsing prior to the next milking; and
 - iii) particularly in the case of a chlorinated alkali, ensure that the milking plant is thoroughly rinsed after use.

(3) When treating water:

- a) do not overdose the water;
- b) containing sediment or organic matter, filter the water prior to treating with chlorine;
- c) periodically monitor the chlorine level (e.g., free available chlorine) of treated water;
- set a target range for free available chlorine, which must not exceed 5mg/L; and
- avoid uncontrolled dosing of water, as overdosing water has been shown to result in contaminants carrying through to milk.
- (4) Despite the concerns outlined above, farm dairy operators must ensure that the milking plant and associated equipment is in a suitably sanitary and hygienic state. Use of chlorine and/or other sanitisers is critical to the supply of milk that is safe and suitable for further processing. The essential consideration to ensure the prudent use of these chemicals, especially for water treatment, and good management practices that include written procedures from receipt through to disposal, rinsing of milk contact surfaces after use and staff training.

5.19 Analytical testing on-farm

- (1) Biological, chemical, or biochemical testing may only be undertaken at the farm dairy when:
 - a) sampling and testing are undertaken in a manner that ensures milk, milk contact surfaces, airlines and CIP circuits will not become contaminated;
 - consumables and waste material are handled, stored and disposed of in a safe manner, and will not contaminate any area of equipment within the farm dairy, the water supply, or adversely affect the effluent system;
 - animals are not exposed to chemicals or micro-organisms due to testing activities or the presence of a testing facility, with any biological cultures either sterilised, adequately disinfected, or immediately removed from the farm dairy;
 - testing is undertaken by people trained and suitably skilled in the testing concerned and who wear appropriate protective clothing; and
 - anyone involved in the testing or disposal of testing wastes follows written procedures that ensure an appropriate personal hygiene regime (which must include a change of protective clothing) is followed prior to resuming any milk harvesting duties.
- (2) Testing that requires the growth of biological cultures (for example through incubation) must be performed in a room that:
 - a) is suitably designed and constructed for the purpose;

- b) has the necessary facilities to provide for proper testing operation, hygiene, storage and containment of wastes; and
- c) as per clause 3.7, is at least 10 metres from milking, milk handling, milk storage, farm dairy consumable storage, maintenance compound storage, and CIP areas.
- (3) For clarity, 5.19 (1) does not apply to:
 - a) sensors, meters and fully contained biochemical test kits;
 - b) rapid mastitis testing using an approved dairy maintenance compound (e.g., the California mastitis test or paddle test);
 - c) other test kits intended for cowside (or other milking animal) use;
 - d) sampling and or testing undertaken by a practicing veterinarian; or
 - e) tuberculosis testing under the national tuberculosis eradication scheme.
- (4) When on-farm testing is intended to assess milking animal health (including mastitis), any action taken in response to results must only be taken in conjunction with veterinary advice.

5.20 Protection from intentional adulteration (food defence)

(1) It is important that farm dairy operators remain vigilant to the potential threat of milk being adulterated intentionally. Milk integrity can be protected by measures that prevent the opportunity for someone to have access to the farm dairy, as well as measures that help to identify when someone may have had unauthorised access. (2) The following measures should be considered and implemented where possible: controlling, preventing or monitoring access to the farm dairy premises and associated storage a) and service areas; b) use of security lighting; use of security cameras, especially monitoring of bulk milk tanks and chemical storage areas, c) with video feed recorded and held for an appropriate period of time; d) secured access to indoor milk rooms, veterinary medicines, chemicals, and consumable storage; avoiding clutter and excess rubbish or waste in around the farm dairy; e) restricting access to services and utilities, particularly: f) water supply and the treatment of water intended for the farm dairy and milking animals; i) ii) airlines and air supply; and iii) CIP chemicals and circuits. raising awareness with farm personnel, including: g) training on security; and i) ii) fostering a culture of challenging anyone unknown or out of place. in the case of contractors and visitors: h) supervising contractors working in or near the farm dairy; i) keeping records of contractors and visitors in conjunction with visitor/contractor sign in and ii) site induction procedures; and cleaning (CIP) after repairs and maintenance in the farm dairy, with a record kept. iii) i) in the case of procurement and vendors: i) source goods from reputable suppliers; use approved maintenance compounds and registered veterinary medicines and ii) agricultural chemicals wherever possible; and keep records of all farm and farm dairy related purchases. iii) i) inspect feed and other incoming goods on receipt and keep feed declarations in accordance with clause 5.7;

- i) implementing a system of secured access;
- ii) protecting the outlet; and
- iii) securing bulk milk tank wash controls and/or monitoring integrity of stored milk (e.g., volume).

Under the NCCP, an official sampler may need to obtain a representative sample from the bulk milk tank with limited advanced notification. Farm dairy RMP operators should advise MPI (animal.products@mpi.govt.nz) of any farms with secured bulk milk tanks that will or may be difficult to access.

- for bulk storage of other goods, including chemicals and feeds, use of locks, security tags/seals, or tamper evident tape on the outlet of bulk chemical and fuel storage tanks;
- active monitoring of farm dairy, adjacent buildings, and storage areas for evidence of security breaches, with any suspicious observations recorded; and
- establishing procedures that will trigger notification to the RMP operator/dairy company when evidence of a security breach indicates that milk may be compromised.

5.21 Management of non-conforming milk

- (1) Farm dairy operators must:
 - advise their dairy company if they determine that milk is not, or may not be, fit for further processing. This includes milk that:
 - i) may be contaminated, adulterated, or tainted; or
 - ii) contains objectionable matter; or
 - iii) has not been filtered or cooled as required in clause 5.13.
 - b) discard milk that;
 - is refused collection; or
 - ii) the dairy company/RMP operator determines to be unfit for supply. This milk must not be re-offered for supply for human consumption, but a suitably skilled person may determine that it is fit for another purpose such as feeding to animals.
 - c) remove non-conforming milk from the farm dairy as soon as possible;
 - ensure that any non-conforming milk that is held temporarily at the farm dairy is clearly labelled, and the bulk milk tank outlet is secured to prevent collection, for instance through use of a vat lock; and
 - e) take appropriate corrective action.

5.22 Contingency/adverse event preparedness plan

- (1) It is recommended that farm dairy operators develop and have available a contingency and adverse event preparedness plan. The plan should set out:
 - a) the steps to be taken in the event of an interruption to some or all routine activities at the farm dairy, for example adverse weather events; and
 - the equipment, facilities or arrangements that should be put in place so that the farm dairy operator can be better prepared to cope in the face of adverse circumstances such as no power.
- (2) In developing the contingency and adverse event preparedness plan consideration should be given to:
 - a) the actions to be taken if power is lost for an extended period, for example:
 - i) installing a power point and supply suitable for a generator;

- ii) linking in with a group of farmers to purchase a portable generator that can be shared amongst the group in the event of a loss of power; and
- iii) use of the tractor power take-off to complete some of the required functions (e.g., pumping water).
- b) documenting the contact details for service agents and organisations who may be able to offer advice or support during an adverse event.

Part 6: Plant and premises cleaning and maintenance

6.1 General requirements

- (1) The farm dairy milking plant and premises must be kept in a clean state to reflect a food hygiene premises and to avoid milk quality problems occurring. Only suitable equipment and MPI approved detergents and sanitisers must be used to avoid contamination of milk.
- (2) Part 13 Cleaning systems sets out additional requirements for cleaning systems and equipment.

6.2 Quality and supply of water

- (1) The farm dairy must have an adequate supply of both cold and hot water.
- (2) Water that may come into direct contact with milk or milk contact surfaces must comply with the PSP notice. Refer also to clause 13.3 and clause 13.4.

6.3 Water requirements

- (1) As a guide, summer cold water requirements for dairy cows are:
 - a) drinking 70 litres per milking animal per day;
 - b) premises and plant sanitation and milk cooling 70 litres per milking animal per day; and
 - c) total per milking animal each day 140 litres per milking animal per day.
- (2) Requirements for other animals and other purposes are to be included when determining water quantities needed at the farm dairy.
- (3) For goats, sheep, and deer an appropriate adjustment can be made to subclause (1).

6.4 Cleaning system

- (1) There must be a documented cleaning procedure provided in the farm dairy.
- (2) The documented cleaning procedure must include the operation of:
 - a) any automated wash systems;
 - b) cleaning in place (CIP);
 - manual cleaning/cleaning out of place; and
 - d) procedures for when automated wash systems are unavailable.
- (3) Reverse flow and cold-water cleaning are not recommended plant cleaning systems for any new installation. Existing systems must be actively managed to ensure effective cleaning is achieved.
- (4) There must be a non-glass thermometer available in the farm dairy for checking hot water and plant/bulk milk tank dump wash temperatures.
- (5) Glass thermometers must not be used or stored in the farm dairy. Refer to your rural trading store or dairy company for a suitable thermometer.
- (6) Wash/CIP tubs must be of a covered type to prevent the entry of extraneous material.
- (7) Automatic dispensers used to dose maintenance compounds (e.g. cleaning chemicals, sanitisers and water treatment chemicals) should have records of calibration.

6.5 Cleaning materials

- (1) Cleaning materials must be capable of maintaining a clean milking plant and must not cause milk quality defects such as milk tainting, deposition, and degradation. Refer also to clause 5.18.
- (2) Detergents and sanitisers used to clean, sanitise, and maintain the milking plant, including the bulk milk tank, must:
 - a) be MPI approved for use in the farm dairy;
 - b) be kept in a clean, labelled container intended for the chemical concerned; and
 - c) be used in accordance with the label instructions, including the dose rate to be used.
- (3) Containers may only be refilled when the original container is empty, is in good condition, and the label remains legible as per clause 5.2.7.
- (4) In situations of bulk delivery, with chemicals pumped or transferred to a tank, drum or container held on the farm, the farm dairy operator must keep a record of the delivery, including:
 - a) the trade name of chemical;
 - b) the volume;
 - c) the expiry, use by or best before date; and
 - d) when it was delivered.
- (5) It is not recommended to blend chemicals of differing batches. This is not good practice and makes it difficult to manage expiring chemicals.
- (6) Utensils used to measure and dispense chemicals must be clean and should be dedicated to one chemical. If this is not possible, they must be rinsed thoroughly when changing from one chemical to another.
- (7) Instructions provided on the printed labels of cleaning chemicals are to be followed unless alternative written instructions are provided by the chemical supplier. Such instructions will include the amounts to use, temperature and frequency of use, along with any special conditions that must be followed. The label must indicate that the detergent or sanitiser is approved by MPI for use in farm dairies.

6.6 Restricted chemicals

- (1) Restrictions apply to the use of maintenance compounds that are, or contain, chemicals of high residue concern. These, along with any conditions for the use of these compounds, are listed on the MPI website at Maintenance compounds used in dairy processing.
- (2) Dairy maintenance compounds are checked for restricted chemicals at the time of approval and so farm dairy operators are not required to take any additional action.

6.7 Milking plant cleaning

- (1) The milking equipment must be:
 - a) **rinsed** immediately after use; then
 - b) cleaned and optionally sanitised using MPI approved detergents and sanitisers for use on farm dairies, following label and the instructions of the dairy cleaning chemical supplier (sanitising will protect milk contact surfaces until rinsed); then
 - c) **drained** to remove excess solution; and then
 - d) **rinsed and drained** prior to the next milking using compliant or **properly** treated water to avoid cleaning chemical residues contaminating the milking plant or carrying over into the milk.
- (2) Typically, a minimum volume of 5-10 litres of suitable water per cluster is required to rinse the milking plant effectively, but advice should be obtained from the detergent company representative for the

specific cleaning products in use. The rinse water volume must be recorded in the documented cleaning procedures required under clause 6.4.

- (3) The bulk milk tank is to be rinsed immediately after milk collection and must be cleaned, sanitised, rinsed and drained before further use. Rinsing to remove residual sanitiser or cleaning chemicals may be immediately prior to the next milking (which is recommended) or may be immediately after cleaning, sanitising and draining the plant. The bulk milk tank(s) must be protected from contamination from the completion of cleaning onward.
- (4) After opening or dismantling for maintenance or inspection the milking plant must be cleaned and preferably sanitised, then rinsed and drained.
- (5) Sanitising all milking equipment after cleaning is recommended and will help to maintain plant hygiene, especially while the plant is idle. However, as with all cleaning chemicals, sanitisers do need to be rinsed from the plant prior to the next milking. Draining any excess cleaning solutions from the milking plant (including the bulk milk tank) before and after rinsing is also recommended and will dramatically improve the effectiveness of the rinse.
- (6) In situations where a water use plan is in place, either the first milk through the milking plant after cleaning must be discarded (1.5 to 2 litres per cluster) or the water must be treated using a suitable MPI approved maintenance compound for disinfecting water such as chlorine.
- (7) The exterior of the milking equipment and bulk milk tank must be kept in a clean condition.
- (8) Harsh abrasives or steel pads must not be used to clean any milk contact surface. These can cause fine scratches in the plant surfaces, which allow protein build-up and therefore possible bacterial colonisation. Metal particles from steel pads could also find their way into the milk.
- (9) It is strongly recommended that all systems be used according to manufacturer's specifications. Some systems must be disconnected prior to the start of milking, e.g., reverse flow connections.
- (10) With CIP systems, agitators must run during the bulk milk tank washing cycle. A device should be installed to deactivate the cleaning and rinsing system when the bulk milk tank contains milk.
- (11) All wash tubs must be able to be fully drained and must be installed at a height which enables the floor underneath to be cleaned.
- (12) Circulation cleaning of the bulk milk tank is strongly recommended. Extreme care must be taken when manually cleaning bulk milk tanks. Wear protective gear at all times and always follow the safety guidelines outlined on the detergent container label.
- (13) Many cleaning methods fail because the detergent mix is not kept at a high enough temperature. This will allow a build-up of deposits in the plant and consequently a build-up of bacteria, which may lower milk quality.
- (14) Heat loss of cleaning solutions through the plant is a problem. To minimise this:
 - a) if recirculating, increase the amount of the liquid wash; and
 - b) run the first amount of water to waste to preheat the plant and then begin the recirculation process.
- (15) When checking the cleaning solution temperature against the recommended cleaning temperature (as per the detergent label or manufacturer's instructions) take the measurement at the end of the cleaning cycle.
- (16) Each farm dairy should have adequate cleaning equipment, including buckets and brushes to keep the plant interior and exterior in a sanitary and clean condition. These should be kept off the floor in a clean area, preferably hanging up by the handle. For plant disassembly and reassembly, the correct tools should also be available.
- (17) Brushes which are used for exterior plant and premises cleaning must be identifiable and not be used for interior cleaning. Brushes may look clean but can harbour extremely high numbers of bacteria. All brushes used for interior cleaning must be cleaned, and sanitised where appropriate, after use and

hung up, bristles facing outward, while not in use to facilitate drying and maintaining hygiene. A similar cleaning procedure is recommended for brushes used in exterior cleaning.

(18) During the calving/colostrum period, hot water washing may be required after each milking to ensure effective cleaning due to the higher fat and protein residues in the milking plant, and the presence of compounds that may have been used at drying off, such as teat sealants. Similarly, the frequency of hot water washing may need to be increased toward the end of the season as the milk solids increase.

6.8 Cooler cleaning

- (1) Milk coolers must be dismantled and cleaned periodically and whenever there is an indication that milk cooler performance has been adversely affected, for instance after a filter failure.
- (2) The following are some disassembly tips:
 - a) turn off the water supply to the cooler;
 - b) measure the distance between the end plates on both sides. Both sides should be exactly the same distance;
 - c) disconnect the milk delivery line and other lines if necessary;
 - d) undo the nuts progressively and diagonally until the swing bolts or other bolts can be swung to one side or removed;
 - e) if the plates do not part, then spring them by pouring warm water (50°C) over the top of the cooler plates, allowing it to run down the sides;
 - f) avoid taking the plates off the spacer rods or carrier bars; and
 - g) check and clean if necessary. Wear gloves when brushing (the plate edges can be extremely sharp).
- (3) When reassembling, follow the manufacturer's instructions and note that:
 - a) milk and water always travel in opposite directions;
 - b) there should be no brush hairs or grit on the seals;
 - c) the seals must be secure and located correctly;
 - d) tighten to the measured distance between plates; and
 - e) do not over tighten. This can restrict both water and milk flows, causing excessive back pressure and ruin the gaskets.
- (4) After cleaning, test for leaks by operating with the cold water supply used for milk cooling.

6.9 Care of rubberware

- (1) All rubberware should be replaced according to the manufacturer's recommendations and must be replaced earlier if there is evidence of significant wear.
- (2) All changes of rubberware are to be recorded and a full list of rubberware in the plant should be kept.
- (3) The four main 'enemies' of rubberware are tension, sunlight, milkfat and misuse of detergents.
- (4) Incomplete removal of milkfat, teat salves and milk residues by incorrect or inefficient washing procedures has an adverse effect on milking machine rubber components. Rubber deterioration will allow fat and protein to remain post-cleaning and allow for the proliferation of bacteria.
- (5) Correct liner function is critical for efficient and complete milking.
- (6) A well-designed plant cleaning system will also maintain rubberware in a clean condition in accordance with clause 6.7.

Note that excessive brushing of internal surfaces can destroy rubberware and some strong acid detergents and hypochlorites can destroy rubberware if used excessively or left in the milking machine.

6.10 Cleanliness of premises

- (1) The farm dairy must be kept free from soil, manure and milk residues which could affect milk quality through odours and airborne contamination. The premises must be maintained in a visually clean condition.
- (2) The farm dairy environment must be maintained in a suitable state by:
 - maintaining the farm dairy in a state appropriate for the harvesting of milk for human consumption;
 - b) cleaning the farm dairy yard after every milking;
 - minimising the accumulation of manure, waste and offensive odours (which may require more frequent cleaning);
 - d) keeping the milking plant exterior and premises clean;
 - e) cleaning the bail area, including the entry and exit, after every milking;
 - f) running effluent away and preventing overflow or blockages;
 - g) keeping surroundings and races in good repair and clear of rank growth and all rubbish;
 - h) having a lidded rubbish bin for solid waste;
 - i) keeping stock housing, feed pads and pens clean and at the approved distances in Table 1; and
 j) eliminating vermin and discouraging birds and insects.
- (3) Effluent, wastewater, and water recovered from the farm dairy effluent system must not be used for any purpose in or near any part of the farm dairy other than the yard unless it has been treated to meet potable water standards.
- (4) Water recovered from the farm dairy effluent system must not be used within the farm dairy except to clean the dairy yard, in which case:
 - a) the system operates at low pressure, with no detectable mist or aerosol;
 - b) the water recovery system is of a design that will consistently deliver water that does not contain excessive sediment or offensive odours and is acceptable to the farm dairy assessor;
 - c) the system must be of a fixed design and must not include handheld hoses;
 - d) if pumped, the delivery outlet is to be fixed at no more than 300 mm above the yard surface;
 - e) the recovered water system must only be used for recovered water, and must be completely separate from the fresh water wash down system which must still be available;
 - the yard must be of concrete construction with no surface cover, and rinsed with clear water if necessary, to remove any residual sediment;
 - g) the recovered water will not be used within 5 metres of the milking, milk handling or milk storage areas, or in roofed areas;
 - h) the activity does not have a negative impact on the:
 - i) hygiene status of the milking and cleaning equipment, milking area, milk handling and milk storage areas;
 - ii) water used in the farm dairy for other purposes;
 - iii) cleanliness of milking animal teats and udders; or
 - iv) any other thing that might to lead to contamination of the milk.
 - i) the raw milk is not supplied for the manufacture of unpasteurised dairy products, or for consumption without heat treatment;
 - j) the recovered water and its storage must not introduce offensive odours;
 - k) the farm dairy operator has documented the design and follows written procedures that are sufficient to ensure the requirements detailed in this clause are met; and
 - I) all other requirements under this clause and clauses 3.7 and 4.3 are met.
- (5) Storage of recovered water must:
 - a) not introduce offensive odours;
 - b) be located at least 20 metres away from the milk storage area; and

c) be enclosed and not exceed 30,000 litres capacity per tank if within 45 metres of the milk storage area.

6.11 Concrete cleaning

- (1) All concrete must be kept clean and algal growth removed.
- (2) To remove and reduce further algal growth, the concrete floors and yards of the farm dairy may at regular intervals need more attention than the routine cleaning carried out at the completion of each milking. If scrubbing the surface with a brush or using a water blaster, always treat the surfaces to kill the algae and fungal spores, otherwise re-growth will rapidly occur. When using a water blaster or high-pressure hose to clean concrete ensure that the bulk milk tank and milking system is fully closed and sealed to prevent contamination of milk contact surfaces.
- (3) Wash all surfaces of the milking equipment from top to bottom at completion of concrete cleaning to remove any residues that have transferred to the milking system.

6.12 Farm dairy surrounds and litter

- (1) The area around the farm dairy and tanker loop must be kept in a tidy condition with no ponding. There must be no rank growth or accumulated litter scattered inside or surrounding the farm dairy.
- (2) Rank growth can encourage rodents. Ponding causes odours and will encourage flies.
- (3) Litter includes old milking equipment and utensils, used milk filter socks, used syringes, old rubberware, empty containers, clothes, timber and general rubbish.
- (4) If rubbish is to be collected at the farm dairy, it <u>must</u> be placed in a lidded drum or similar <u>container</u> outside the farm dairy.
- (5) The environment around the farm dairy needs to be presented as a human food harvesting area. The risk of transporting faeces from farm to farm and to the factory via the tanker or the tanker driver's boots must be minimised.

6.13 Farm dairy presentation

- (1) The farm dairy must be well presented and well maintained.
- (2) From a customer perception and marketing perspective, the appearance of the farm dairy and its surroundings is as important as the quality of the milk produced.
- (3) The tanker road, centre of loop, milk collection area, entry for the farm dairy and area immediately surrounding the dairy must be well maintained with no litter or rank growth. Only essential equipment should be stored in these areas.
- (4) The exterior cladding, roofing, windows, doors, yards, floors, and all interior linings must be in good repair and must be clean and tidy.

6.14 Other buildings

- (1) Other rooms and buildings permitted within 20 metres of the milking area, milk receiving area and milk storage area must be kept in a tidy and clean condition.
- (2) Buildings surrounding the dairy premises, beyond 20 metres, should be maintained in a condition that is in keeping with the dairy premises and must not pose a hazard to the food processing activities at the farm dairy.

6.15 Dead animals

- (1) Dead animals and birds must not be left within 45 metres of the milking area, milk receiving and milk storage area or within 45 metres of the water supply. This includes dead animals stored for collection. Dead animals cause odour problems, risk spreading disease and encourage flies and rodents.
- (2) Also refer to clauses 3.5 and 3.7.

6.16 Off-paddock herd management systems

- (1) Farm dairy operators intending to supply milk from milking animals that are held in an off-paddock management system should advise their RMP operator (dairy company). Additional care must be taken to observe teat and udder hygiene, signs of injury, and to ensure that teats are clean at milking.
- (2) Farm dairy operators using an off-Paddock System during lactation must have an appropriate management plan in place and must gain approval from the RMP operator before using the system. The RMP operator will ensure that a management plan is in place and appropriate so that raw milk remains fit for its intended purpose.

Part 7: General requirements for milking plant and equipment

7.1 General requirements

(1) The milking plant in a farm dairy must be designed, installed, and maintained to ensure that the materials and substances coming into contact with the milk do not contaminate it or cause the milk to deteriorate.

Figure 1: Milking machine



7.2 Installation

- (1) The milking plant, once installed, must comply with this Code. If any alterations or additions are made, the farm dairy operator must obtain confirmation from the person responsible for the alteration that the full milking plant continues to comply with this Code.
- (2) Milk contact surfaces must be easily accessible for cleaning, inspection and/or monitoring either when in an assembled position or when removed. System accessories such as milk meters and cup removers must be accessible for inspection and removable parts must be readily disassembled according to the manufacturer's specifications.

- (3) There must always be a removable inspection point in any milkline, at the furthermost point from the receiving can. Alternatives to this requirement may be accepted if they can be demonstrated through suitable trials that a similar outcome can be achieved.
- (4) Where there is a CIP system installed that meets the basic engineering requirements of temperature, contact time, wash volume, detergent concentration and solution flow rate, the number of inspection points may be minimised.



Figure 2: Milk equipment – joints and fittings

- (5) All joints, unions and fittings must be assembled to prevent possible milk contamination. All pipelines must be able to be drained and all milklines, airlines and delivery lines must be drained between milkings.
- (6) Any sanitary trap mounted above the receiver, with a direct connection to the receiver must have an up-stand, of at least 50 mm, which prevents liquid entering the receiver from the sanitary trap. The sanitary trap must contain a shut-off device to prevent liquid from entering the main airline, and that device must close before any liquid flows over the up-stand into the receiver.
- (7) All airlines must be capable of being dismantled for inspection and cleaning. There must be a union at:
 - a) the end of the receiver airline immediately adjacent to the receiver; and
 - b) on the main airline immediately adjacent to the interceptor.
- (8) The receiver airline must be connected to either an interceptor or a self-draining sanitary trap.
- (9) There must be a threaded union in the pulsator airline for cleaning and inspection purposes.
- (10) When installed, an air purge system must be designed and fitted to ensure no contamination of the milk system with oil. They must be operated in a manner, which does not damage milk or cause bypass of milk filter components allowing unfiltered milk to enter the bulk milk tank. Air purge systems must be set at no more than 300 kPa (45 psi) and should only be adjusted by a competent milking machine technician.
- (11) Air purge systems must also meet the requirements of the 3-A, Sanitary Standards & Accepted Practices 604-05, "Supplying Air Under Pressure in Contact with Milk, Milk Products and Product Contact Surfaces", published by 3-A Sanitary Standards Inc.
- (12) For new installations and major upgrades the farm dairy operator must:
 - a) obtain interim agreement (in writing) from a farm dairy assessor before supplying raw milk using the newly installed or upgraded milking plant unless a letter/certificate of compliance has been received; and
 - b) either:

- obtain a letter/certificate of compliance from the installer of the newly installed or upgraded milking plant within 3 months of installation. This should include a statement that the installation uses only food grade materials for all milk contact surfaces; or
- ii) if a letter/certificate of compliance cannot be obtained within 3 months of installation, obtain agreement from the farm dairy assessor to continue to use the newly installed or upgraded milking plant.

7.3 Milking plant extensions

- (1) All milking plant extensions must comply with this Code.
- (2) All new installations and extensions must be assessed by a farm dairy assessor, contracted by the RMP operator, prior to any milk collection.
- (3) Before making changes to an existing milking plant, e.g., adding extra sets of clusters to an existing milking machine, advice is to be obtained from the milking machine company, dairy company, or relevant farm dairy assessor. This includes any necessary upgrading of the milk pumping system, filter capacity, primary cooling efficiency, and hot water capacity.

Figure 3: Milking Plant Terminology



7.4 Identification of equipment

(1) Other equipment must be easily identifiable. Rubberware must be identified by a brand applied by the manufacturer. Refer to clause 6.9.

7.5 Experimental equipment

(1) Any experimental equipment or equipment under trial in the farm dairy must be identified as such by the manufacturer or equipment supplier. The manufacturer or equipment supplier must gain written

permission from the RMP operator prior to the installation and use of any such equipment. Also refer to clause 3.9.

7.6 Milking machine performance and maintenance

- (1) Milking machines must be tested when installed (prior to milk supply) and then at the frequency specified in the most recent milking machine test report for the farm dairy (which must be within 24 months of the previous test) or, if no frequency is specified once each dairy season.
- (2) Milking machines must be tested by:
 - a person with a current New Zealand Milking and Pumping Trade Association Inc (NZMPTA) Milking Machine Tester Practising Certificate; or
 - b) a person:
 - certified to do so against ISO 6690: Milking Machine Installations Mechanical Tests and to ISO 5707: Milking Machine Installations – Construction and Performance by an organisation that is accredited to ISO/IEC 17065; and
 - ii) undertakes the milking machine testing in accordance with ISO 6690: Milking Machine Installations – Mechanical Tests and to ISO 5707: Milking Machine Installations – Construction and Performance.
- (3) Any deficiencies relating to the items below that are identified during milking machine testing must be rectified as soon as practicable:
 - a) adverse impact on animal health, particularly in relation to teat damage and mastitis;
 - adverse impact on proper milking machine function;
 - c) damage to milk components e.g from excessive frothing; and
 - adverse impact on the hygiene of milking equipment.
- (4) Consumable items such as air filters and rubberware (including silicon components) are to be replaced at the end of the expected service life or whenever there is evidence that the item may be compromised, breaking down, not able to be effectively cleaned or no longer able to be maintained in a hygienic state.
- (5) A full clean will be required after dismantling the milking equipment (e.g., for inspection) or after replacing any item that comes into contact with milk or is part of a milk contact surface.

Part 8: Milking systems

8.1 General requirements

- (1) The milking plant in a farm dairy must be designed, installed, and maintained to ensure that the materials and substances coming into contact with the milk directly, or indirectly through services such as water, CIP and air lines, do not contaminate the milk or cause it to deteriorate.
- (2) No system (including automated milking systems) that administers or applies an agricultural compound, veterinary medicine or dairy maintenance compound is permitted to be installed on, or be part of, milking equipment if the compound concerned will come into contact with milk or milk contact surfaces while the milking equipment is in use, unless:
 - a) in the case of contact with a milk contact surface, a full CIP is conducted after contact and before the next milking; or
 - the system has been assessed and determined by MPI to be an acceptable equipment design under section 3.9.
- (3) Farm dairy operators must ensure that the supplier and installer of the milking system confirms that all contact surfaces for the milk and services:
 - a) are suitable and safe;
 - b) will not adversely affect the milk or milking plant; and
 - c) will not contribute to the deterioration of the milk.

8.2 Design

- (1) The milking plant must be designed:
 - a) to minimise physical damage to the milk while it is being harvested;
 - b) to avoid any adverse impact on milking animals, including physical damage to the teat;
 - c) to allow for effective internal cleaning and flushing to remove milk or cleaning agents; and
 - d) to drain condensation and other liquids.
- (2) All pipelines must be capable of being readily drained. Airlines and interceptors (where fitted) must be self-draining.
- (3) The receiver airline must be connected to either an interceptor or a self-draining sanitary trap.
- (4) Farm dairy operators should be aware that a volume of liquid (e.g., cleaning or sanitising solutions) will be held within the milking plant after draining. Excessive volumes present a risk of chemical residues carrying through to the milk for supply.
- (5) The design of the milking plant can affect milk quality, both microbiologically and physically.
- (6) It is strongly recommended that cluster claws with a form of automatic vacuum shut-off device or automatic cluster removal device form part of the milking system. These have been shown to prevent excessive air, manure and soils from entering the plant during cluster changing or drop off, thus resulting in greater vacuum stability and better-quality milk.
- (7) There should be an airflow meter connection point at or near the interceptor.

8.3 Materials

(1) All milk contact and cleaning system surfaces must be made from suitable materials which are smooth, free from cracks and crevices, impervious, durable, and are cleaned adequately by normal procedures (refer to Part 14 Fabrication of farm dairy equipment). (2) Poor welds can make the milking plant difficult to clean. Machine surface finishes must comply with Part 14 Fabrication of farm dairy equipment.

Part 9: Milk pumping systems

9.1 Design, installation and maintenance

- (1) All new farm dairies and upgrades of existing releaser milk pumping systems must be installed in such a way that the operation of the milk pump is controlled by the quantity of the milk in the receiver. When the receiver is empty the pump must not run.
- (2) Releaser milk pumps must be designed, installed, and maintained to minimise damage to milk composition. The unions in the delivery line must be pressure-type unions.

9.2 Delivery line unions

- (1) All delivery line unions installed after 1 October 2002 must be pressure type unions capable of withstanding 400 kPa. Nylon/steel cone seal type unions or moulded rubber bends/sleeves must not be installed on the milk delivery line. The only exception to this is where there is no alternative but to use a flexible connection.
- (2) If the delivery system is properly designed the total head should be less than approximately 180 kPa so 400 kPa gives an achievable safety margin.

Part 10: Milk filtering systems

10.1 General requirements

- (1) The purpose of filtration is to remove insoluble material that has entered the milk after it has been extracted from a healthy gland. Milk filtration:
 - a) controls foreign matter;
 - b) protects cooler hygiene and performance without damaging the milk; and
 - c) maintains the wholesomeness of the milk.
- (2) With the exception of manual milking systems, a milk filtering system must be fitted immediately prior to the cooler and ensure compliance with this Part and the PSP notice for milk filtering and cooling.
- (3) Raw milk must be filtered during or immediately following milking to remove extraneous material. Refer also to clause 5.12.

10.2 Performance

- (1) Filtration must be adequate to meet the milk quality standards required for further processing, and to ensure no sediment, foreign matter or objectionable material enters the bulk milk tank. Milk must be free from visible dirt.
- (2) The use of milk filters for milking installations does not absolve farm dairy operators from taking the necessary precautions to avoid dirt or other extraneous material entering milk during the milking process, nor can it give protection against legal action. Rather it is intended that pipeline filters should remove particulate matter, which despite good milking practice, may on occasions inadvertently enter milk.
- (3) Providing supplementary feed to animals within the farm dairy may adversely affect milk filter performance. If this is the case the farm dairy operator must take appropriate action to ensure effective filtration at all times, which may mean upgrading the filtration system in place.

10.3 Construction

- (1) Materials used in the filter vessel that may come into contact with milk and cleaning solutions must be of a hygienic design that is suitable for such contact, does not cause contamination of milk and, with the exception of single service elements, be easily cleaned.
- (2) All raw milk filters installed after 1 June 2013, including filter elements, seals, and associated fittings, must comply with the current industry approval standard, namely:
 - a) filter elements must be able to withstand a pressure drop of at least 200 kPa (2 bar) without failing;
 - b) the filter cage and seals must withstand a pressure of 300 kPa (3 bar), without permanent damage or distortion (including failure of components causing milk bypass across the filter that may allow unfiltered milk to enter the bulk milk tank);
 - c) the filter body must withstand a pressure of 400 kPa (4 bar), without permanent damage or distortion;
 - d) the filter size must comply with the requirements of clause 10.6; and
 - e) there **must** be an appropriate port on the milk pump side of the filter element(s) from which filter performance can be measured. This port must be of a sanitary design.
- (3) Filters must also be constructed in a manner that allows for easy removal and replacement of the filter element.

- (4) Filtration systems installed prior to 1 June 2013 must be upgraded to meet the requirements of clause 10.3(2) if:
 - a) they form part of a major alteration to milking equipment made after 1 July 2025; or
 - the milk filtration system is identified as being ineffective, for example during a farm dairy assessment or trace back.

10.4 Identification

(1) Filter bodies must be clearly and durably marked with the manufacturers or vendor's name or trademark, together with some means of identifying the model (e.g., name, symbol or number). The filter element size must be correctly matched to the filter body size.

10.5 Filter elements

- (1) Filter elements must be designed as follows:
 - a) filtration must be sufficient to ensure that no extraneous matter (sediment, foreign matter, or objectionable material) is present in raw milk offered for supply. To achieve this, filter elements will typically have a nominal pore size of 100 microns or a maximum (absolute) pore size of 150 microns;
 - b) multi-use filter elements must be easy to clean either in place or after removal;
 - c) single and multi-use filter elements must only be used in conjunction with the filter bodies for which the filter elements have been designed;
 - d) filter elements must be able to withstand a pressure drop of at least 200 kPa (30 psi) across them without failing; and
 - e) filter elements must comply with ISO 1421:2016 Rubber or Plastics Coated Fabrics.

10.6 Filter sizing

- (2) Filters must be sized at a minimum of:
 - a) 6.0 cm²/cow or buffalo effective filtering area;
 - b) 0.85 cm²/sheep or goats effective filtering area; or
 - c) 1.7 cm²/deer effective filtering area.
- (3) If the effective filtering area is unknown then it can be estimated using the formula:

Effective filtering area = $(2 \times \text{Width} \times \text{Length}) \times 80\%$.

Part 11: Primary cooling systems

11.1 General

- (1) There must be primary cooling after filtering, which should be capable of cooling the milk to 18°C or lower and must be capable of lowering the milk temperature to within 3°C of the coolant/cooling water temperature.
- (2) As a guideline, the coolant/cooling water flow rate requirement is at least 2.5 times the maximum milk pumping rate of the milk pump. Care should be taken to ensure variable speed milk pumping and on/off control systems are capable of cooling the milk to the 3°C requirement outlined above without using unnecessary amounts of water. Suggested methods of achieving this are:
 - a) installing a variable speed coolant/cooling water pump that will match the variable speed milk pump output; or
 - b) for on/off controlled systems, installing solenoid valves on the cooling water system that are interlocked with the milk pump to allow them to close when there is no milk flow.
- (3) Milking routine should be considered when designing the primary cooling system. Extended milking times could have a detrimental effect on milk quality due to milk being stored at elevated temperatures for long periods of time. In these situations, pre-chilling should be considered where milk enters the bulk milk tank at or below the storage temperature.
- (4) As indicated in clause 5.13, in the case of automatic milking systems (robotic milking systems) milk must be cooled to 6°C immediately after harvesting and held at 6°C or below until collection. Cooling immediately (i.e., snap chilling) represents best practice and should be considered in all situations.
- (5) The primary cooler must be installed in a safe manner. It must be easily accessible for inspection and cleaning and must be positioned so that it does not drain or drip on to other equipment.
- (6) As a guideline, the top of the cooler should be no more than 1.8 metres from ground level.
- (7) Any chemical compound added to coolant/cooling water must be an approved maintenance compound.

11.2 Construction

- (1) If a plate heat exchanger is installed, the plate arrangement must be such that coolant flows on either side of a milk channel. The milk must flow in the opposite direction to the coolant and the coolant flow must be capable of being turned off by a valve close to the cooler.
- (2) The plate arrangement must allow drainage of those plates that form the milk passages in the plate stack without dismantling the cooler.
- (3) All product-contact surfaces must be easily accessible for cleaning, either when in an assembled position or when removed. Removable parts must be readily de-mountable. A leak-protector groove, open to the atmosphere at both ends, should be provided to allow leakage past the gaskets to drain to waste.
- (4) Where a coolant used in combination with water, is used in the primary cooling system (e.g. monopropylene glycol):
 - a) the coolant must be an MPI approved maintenance compound and appropriate for use in that system; and
 - b) the design and construction of the system must include either:
 - i) multi-plate (more than one) separation between the raw milk and the coolant; or

ii) an automatic leak detection system which ensures the coolant flow is stopped should a gain or loss be detected. The system must not have an automatic reset system and will require a manual reset after inspection is carried out.

11.3 Gaskets and sealants

- (1) The materials used for gaskets and sealants must comply with Part 14 Fabrication of farm dairy equipment. They must be installed to form a true fit, so they do not protrude into the product zone or form recesses or ledges at the gasketed joints. Any surplus or protruding material must be removed to form a smooth surface.
- (2) Sealants that contain a mould inhibitor are toxic and must not be used.
- (3) Self-curing sealants should not be used unless any excess can be removed from the product side of the seal.
- (4) Gaskets should be assessed regularly and replaced as required.

Part 12: Bulk milk tanks

12.1 Vents

(1) A vent, if provided, must be designed to protect the interior surfaces from contamination including dust, dirt, or other objectionable material. It must be located at or near the top of the bulk milk tank and the inside surface of the vent must be considered a milk contact surface.

12.2 Inlet and outlet ports

(1) Where a bulk milk tank is installed outside, the milk inlet port must be located near the bottom, no more than 300 mm up the vertical walls. Bulk milk tanks may be inter-connected, where there is a suitable valve system in place (3-way valve). Delivery lines must be able to be disconnected from the inlet port. Where it is intended that non-conforming milk will be stored in the bulk milk tank, there should be a suitable means to disable the bulk milk tank outlet.

12.3 Agitation

- (1) Bulk milk tanks must be provided with agitation sufficient to:
 - a) thoroughly mix the milk to give a variation in fat content of less than 0.1% in milk volumes down to 10% of the rated capacity of the bulk milk tank;
 - b) prevent thermal layering and ensure that the variation in temperature in the bulk milk tank does not exceed 1°C; and
 - c) ensure that foaming or "churning" of milk does not occur.
- (2) The agitator shaft must be sealed and adequately covered to prevent contamination.
- (3) Farm dairy operators must not interfere with the operation of the agitator.

12.4 Measurement of milk volume

- (1) Bulk milk tanks should be provided with a sight tube (which can be directly read from a fixed gauge) unless:
 - a) the tanker is fitted with a milk meter;
 - b) milk volume can be measured by weight such as by load cells; or
 - c) there is an accepted alternative means of measuring milk volume.
- (2) The sight tube must be designed so that all milk in it can be discarded to waste and so that it can be adequately cleaned in place.

12.5 Drainage

(1) All milk-contact surfaces must be able to be drained. The bottom pitch of tanks designed to be cleaned by recirculation of the cleaning fluid should be at least 1:15 (4°).

12.6 Lidded bulk milk tanks (Vats)

- (1) Bulk milk tank lids, where fitted, must:
 - a) be sufficiently rigid to prevent buckling;

- b) be designed so that when the lids are in any open position, liquid from the exterior surface will not drain into the bulk milk tank; and
- c) have bridges with an underside that is accessible for cleaning and inspection without the need to get into the bulk milk tank.

12.7 Access

- (1) Hinged doors or lids must have the hinge attached to the outside of the bulk milk tank. The edge of the opening around the access point must not protrude into the bulk milk tank, so that it protects an area of the inside surface of the bulk milk tank from in-place cleaning. The access point must be large enough to allow for cleaning and for the bulk milk tank to be entered for inspection purposes.
- (2) Handholds should be provided outside the bulk milk tank for ease of entry and exit.

12.8 Inspection facilities

- (1) All farm bulk milk tanks over 1200 mm from the floor to the top of the tank must be provided with a suitable appliance such as a stepladder to give access for cleaning and inspection.
- (2) For enclosed bulk milk tanks above 1800 mm high, a permanently fixed ladder must be provided for access to the top to allow cleaning and inspection and for reading the sight glass (where present).
- (3) At heights above 3 metres, means must be provided to prevent falls and must be suitable for that purpose.
- (4) There should be safe access to any inspection point.

12.9 Installation

- (1) All <u>bulk milk tanks</u> must be provided with in-place cleaning facilities. A suitable pump and container manufactured from a food safe material must be installed. From 1 June 2017, all new or modified/upgraded installations must <u>include</u> a filter on the CIP intake line that is made from food safe materials.
- (2) The bulk milk tank must be installed and vented in such a manner as to prevent the entry of birds, rodents, foreign matter, or any other form of contamination.
- (3) Where support legs are longer than 600 mm, access must be provided so that inspection and cleaning can be done with reasonable ease and the sight glass can be read accurately.
- (4) Where tanks or equipment are flush to the floor, the base must be fully sealed so that liquid is prevented from seeping underneath.
- (5) Bulk milk tanks installed outside must be protected from environmental contamination and installed on a concrete pad sufficient to support the weight of the full tank, and in compliance with either relevant building Standards and/or company requirements (refer to clause 4.1). The pad must be sloped to a drainage point.
- (6) Manufacturers of bulk milk tanks should stipulate the number, size and spacing of support legs so that the filled tank will be adequately supported.
- (7) It is recommended that bulk milk tanks should be insulated, housed, or covered.

12.10 Temperature measurement

(1) All bulk milk tanks must be fitted with a suitable temperature measurement and display device, which:

- a) must be located so that it can be easily read by the tanker driver at collection;
- b) must be capable of registering the temperature of the milk when the bulk milk tank contains 10% or more of its rated capacity;
- c) must include a scale range from 0°C to 40°C graduated in divisions of not greater than 0.5°C;
- must have protection against thermal damage to 100°C for the temperature sending parts of the device;
- e) must be designed so that any intrusion can be readily cleaned;
- f) calibration should be established and maintained;
- g) should be accurate to $\pm 0.5^{\circ}$ C over its calibration range; and
- h) when re-calibrated, the records must be available to the RMP operator.

12.11 Refrigeration temperature controllers

- (1) Temperature controllers or thermostats used to control the refrigeration system on bulk milk tanks must comply with the following requirements:
 - a) the case must be splash proof and protect the device against steam and moisture; and
 - b) when the bulk milk tank contains a larger volume of milk than 10% of its rated capacity, the temperature range at which the refrigeration unit operates must not be more than 1°C above the set point.

Part 13: Cleaning systems

13.1 General

- (1) Cleaning systems must be designed, constructed, installed, and maintained to the supplier's specifications to ensure that all milk contact surfaces can be effectively cleaned. The cleaning system must be constructed of materials which are smooth, impervious, durable and which do not contaminate the milk or cleaning solutions. The supplier and/or installer of the components in the cleaning system must demonstrate that all of the milk contact surfaces are safe for foods.
- (2) Cleaning systems should be installed and maintained to ensure maximum turbulence of the cleaning liquids through the milking machine. A velocity of 1.5 metres/second in normal CIP is recommended. If slug cleaning is used, then a minimum of 7 metres/second is recommended. Slug cleaning occurs whenever slugs of cleaning liquids fill the entire cross clause of the milkline.
- (3) For new or modified/upgraded installations there must be a filter of suitable materials fitted to the CIP intake line for the milking machine and for the bulk milk tank. The filter holes must be smaller in diameter than the holes in both the sprayhead and jetter units. Filters must not restrict cleaning solution flow rates below recommended levels. From 1 July 2025 all CIP systems must meet this requirement.
- (4) The installer must provide the manufacturer's written cleaning instructions, which will include details, if applicable, of:
 - a) cleaning solutions;
 - b) the temperature of cleaning solutions;
 - c) inspection points;
 - d) the quantity of hot water required;
 - e) contact times and flow rates;
 - f) any special cleaning requirements; and
 - g) washline injector settings.
- (5) The cleaning instructions should cover all components, including milklines, the milk receiver, dead end points etc.

13.2 Cleaning solutions

- (1) Manufacturers and suppliers of cleaning chemicals must provide written cleaning instructions to be used with their programme, and these must be consistent with the product label.
- (2) Only detergents and sanitisers approved by MPI for use in farm dairies may be used. The approval must be stated on the label or obtained directly from the register of approved chemicals (known as dairy maintenance compounds), available <u>here</u>.
- (3) Detergent and sanitiser manufacturers are required to specify the use temperatures and concentrations for any approved detergent or sanitiser. The temperature of the cleaning solution should be checked at the point of discharge. Hot wash discharge temperatures must be greater than 55°C.
- (4) Refer to clauses 6.5 and 6.7 for additional information regarding cleaning materials.

13.3 Minimum quantities of cold water required for cleaning plant and bulk milk tanks

(1) Enough cold water is needed prior to cleaning to flush milk residues from the plant to the stage where the discharge liquid runs clear. In addition, sufficient cold water must be available to rinse cleaning chemicals from the plant following cleaning or sanitising. Usually a total of 10 – 20 litres per cluster (product flush and cleaning) and 4% of the bulk milk tank volume is sufficient, but a higher volume may be required for larger bulk milk tanks.

13.4 Minimum quantities of hot water required for cleaning plant and bulk milk tanks

13.4.1 Water heaters

- (1) One or more water heaters must be provided at the farm dairy. These must be capable of heating the required amount of water to the correct cleaning temperature. They must be made from materials that do not release toxic substances into the water.
- (2) The minimum quantity of hot water available must be either (as appropriate):
 - a) 10 litres per set of cups and 2% of the bulk milk tank volume with a minimum volume for bulk milk tanks of 120 litres; or
 - b) for twin cup systems (goat and sheep clusters), 5 litres per set of cups and 2% of the bulk milk tank volume with a minimum volume for bulk milk tanks of 120 litres, provided clause 13.4.3 is met.
- (3) The most appropriate water heaters are dairy-type water cylinders and associated valves that comply with the relevant NZS 4600 series standard.
- (4) Alternative heating systems may be installed where there is evidence that they will meet the requirements of this Code and quality outcome standards as determined by the dairy company.

13.4.2 Cleaning systems for standard milking machines

- (1) New farm dairies must have recirculation cleaning systems:
 - a) jetter and bucket systems allow a minimum of 10 litres/cluster of hot and cold water (5 litres/cluster for twin cup systems), at a flow rate of not less than 3 litres/minute through each jetter.
 - reverse flow systems allow 20 litres/cluster of hot and cold water (10 litres/cluster for twin cup systems) at a flow rate of not less than 15 litres/minute. Note that reverse flow cleaning is not a recommended cleaning system.
- (2) Recycling systems are recommended.

13.4.3Twin cup systems

- (1) For twin cup milking machine systems:
 - a) the milk line must be no greater than 75 mm internal diameter (ID) with centres not greater than 600 mm;
 - b) there must be no cluster (only a "Y-Piece that connects directly to the dropper");
 - c) the farm dairy operator must ensure that monthly plant checks are carried out and these must show no build-up within the plant;
 - d) the grading history must show consistent bacterial counts that comply with current standards. If milk quality becomes an issue due to lack of hot water, then increased hot water volume can be demanded by either the farm dairy assessor or RMP operator; and

 e) during the farm dairy assessment, there must be no major or critical sanitation ratings that relate directly to the hot wash system, clusters or milkline.

13.4.4Cleaning systems for bulk milk tanks

- (1) Effective bulk milk tank cleaning using mechanical systems is dependent on the following key factors:
 - a) correct water volume;
 - b) temperature;
 - c) contact time;
 - d) pump size;
 - e) delivery pipe length and diameter;
 - f) spray ball selection; and
 - g) return pipe length and diameter.
- (2) For new or modified/upgraded installations there must be a filter on the inlet pipe to minimise the risk of spray head blockage. This filter must not restrict cleaning solution flow rates below recommended levels.
- (3) All new farm dairies must have recirculation cleaning systems for bulk milk tanks.
- (4) The design and placement of spray heads must achieve complete coverage of all target surfaces.
- (5) Pump selection and pipe design should meet spray ball flow and pressure requirements. All unions under pressure must be pressure type unions capable of withstanding 400 kPa. Nylon/steel cone seal type unions or moulded rubber bends/sleeves must not be installed on <u>bulk milk tank</u> wash delivery lines.
- (6) The maximum water temperature for bulk milk tank cleaning should be 82°C to avoid damage to the cooling pad.
- (7) For manual systems the volume of hot water required for manual cleaning of the bulk milk tank is dependent on the individual system used and should be determined from the outcome standards. Extreme care must be taken when manually cleaning bulk milk tanks. Wear protective clothing at all times and always follow safety guidelines outlined on the detergent container label.

13.4.5 Multiple bulk milk tank installations

(1) When more than one bulk milk tank is installed, it is necessary to ensure the bulk milk tanks can be rinsed separately after collection without adding water to other bulk milk tanks that still contain milk. The CIP system(s) for each of the bulk milk tanks must be capable of being operated independently by the tanker driver.

13.4.6 Air pockets

- (1) Special care must be taken to design and install equipment so that no stabilised air pockets occur during cleaning.
- (2) Where dead ends are necessary, special provisions must be incorporated to wash them in place or instructions given to manually clean them.

13.4.7 Support

(1) The pipelines used in cleaning circuits must be adequately supported and all joints made secure in a manner, which is safe for the operator and suitable for the specified cleaning procedures and pressures.

13.4.8 CIP-milking system segregation

(1) All connections between the cleaning solution circuit and milking system under vacuum must be constructed to prevent the intermixing of milk and cleaning solutions during the milking operation. To achieve this:
- a) either the connections between the cleaning solution circuit, milking system or air system must be disconnected during the milking process; or
- b) the connection between the cleaning solution circuit and the milking system must be vented.

13.4.9 Further information on CIP design

- (1) Further information on the design of CIP systems can be found in:
 - a) Symposium on Design and Operation of Cleaning Systems in the Dairy Industry. NZ Society of Dairy Science and Technology, Palmerston North, 1980;
 - b) IDF Bulletin 100: 1977. Safety and Reliability of Automated Dairy Plant;
 - c) IDF Bulletin 117: 1979. Design and Use of CIP Systems in the Dairy Industry; and
 - d) 3-A 605-05 Accepted Practice, "Permanently Installed Product Pipelines and Solution Pipelines and Cleaning Systems used in Milk and Milk Product Processing Plants".

Part 14: Fabrication of farm dairy equipment

14.1 Materials for contact surfaces

14.1.1 General

- (1) The criteria in this Part applies to the selection and use of materials for contact surfaces.
- (2) A contact surface is a surface in direct contact with milk, or a surface from which liquids may drain, drip or be drawn into the milk or onto direct milk contact surfaces. As such contact surfaces includes those parts of the cleaning systems carrying cleaning and sanitising solutions.

14.1.2 Toxicity

- (1) In the completed or installed form, the material must not release substances that are toxic, that will taint the milk, or that may render the milk unfit for its intended purpose at any time during routine use.
- (2) Chemical compounds of concern that are specifically restricted are published on the MPI website refer to clause 6.6. These chemicals may only be used within the restriction provisions identified. Where a compound is listed and there is no provision for use then the chemical must not be used.
- (3) Food contact and CIP contact materials intended for use in the farm dairy must not contain any Substance of Very High Concern (SVHC) as listed in European Chemicals Agency (ECHA) SVHC candidate list of Regulation (EC) No. 1907/2006 – Registration, Evaluation and Authorisation of Chemicals (commonly referred to as the REACH standard). Also refer to clause 14.1.5.

14.1.3 Cleanability

- (1) The material must be able to be effectively cleaned by MPI approved detergents and sanitisers when following cleaning procedures specified by the manufacturer or detergent supplier.
- (2) "Clean" in this context is considered to be free from visible contamination and biofilms, and having no measurable effect on the quality of milk as it passes over the milk contact surface of the component.

14.1.4 Durability

(1) The material must be:

a) Resistant to water and water vapour:

In addition to resisting deterioration, materials should be impervious to water (except for filter element materials);

b) Resistant to milk and chemicals:

The material and its finish must be resistant to milk, to chemicals approved by MPI for use in farm dairies and to the physical effects of the cleaning procedures specified by the manufacturer or have a quantified life under conditions specified by manufacturer. The material must be able to withstand regular cleaning and sanitising programmes;

c) Resistant to physical damage:

The material must be resistant to chipping, flaking or de-lamination, abrasion, machinery vibration and impacts likely to be encountered in its intended use. Glass thermometers are not to be used because of the risk glass poses; and

d) Resistant to extreme temperature fluctuations:

The material must maintain its original properties after being subjected to temperature changes that may occur in a farm dairy. Normally this will be from -20°C to 100°C unless otherwise specified by the manufacturer.

(2) The external surfaces of milk contact materials must also be able to be readily cleaned and have a suitably smooth finish that will minimise the opportunity for soil or dust to adhere to the surface.

14.1.5 Acceptable materials

- (1) Acceptable materials are those which in their intended use suffer no chemical or physical change liable to adversely affect the quality of the milk or the function of the component of which they form a part. For instance:
 - a) the material may be listed in an internationally recognised register of food grade materials, e.g., plastics complying with the 3-A Sanitary Standards, or the United States Government Code of Federal Regulations, Title 21, "Food and Drugs", Parts 170-199; and
 - b) stainless steel tube used in the fabrication of dairy equipment must meet the manufacturing requirements of Australian Standard AS 1528.1 or equivalent.
- (2) Milk produced in New Zealand is expected to meet the international standards, and as such the milk contact materials used must meet international standards. Manufacturers and suppliers of materials intended for use in the farm dairy must ensure that chemical migration is avoided under all foreseeable operating conditions so that milk will not become contaminated, either through direct contact or through indirect contact such as water and/or air.
- (3) Materials must also be free rinsing and designed so that cleaning chemicals are readily removed through rinsing as part of the cleaning regime.
- (4) Substances of very high concern must not be used in contact surface refer to clause 14.1.2.
- (5) For clarity, PVC is not a suitable material for the transfer of CIP solutions.
- (6) Materials in common use are:
 - Austenitic or duplex stainless-steel complying with the requirements specified for the relevant grade in ASTM A240M;
 - b) austenitic stainless-steel equivalent to the American Iron and Steel Institute 300 series;
 - c) plastics, silicones, rubber and rubber-like materials;
 - d) iron (cast iron is suitable only for limited use in the transport of cleaning solutions, e.g., for pump heads and impellers not carrying milk);
 - e) fabrics (certain fabrics are permitted for filter elements); and
 - f) some sealants, e.g., glues used on plate heat exchangers.
- (7) Further information on suitable materials can be obtained from the following references:

a) Metals

i) LH Boulton and NA Miller. Using Stainless Steel. DSIR Information Series 2. DSIR, Wellington, 1982.

b) Stainless steel

i) Australian Standard AS 1528.1. Tubes (stainless steel) and tube fittings for the food industry.

Note: Suitable equivalents may be accepted by the RMP Operator with sufficient evidence provided.

c) **Plastics**

- i) Modern Plastics Encyclopaedia. pg. 86-87. McGraw-Hill, New York, 1985.
- ii) The 3A Sanitary Standards 20-22: 01 June 2003, "Multiple-use Plastics Materials Used as Product Contact Surfaces for Dairy Equipment".
- iii) United States Government Code of Federal Regulations, Part 177, "Indirect food additives Polymers".

d) Rubber

- i) German Federal Institute for Risk Assessment (BfR) "XXI. Commodities based on Natural and Synthetic Rubber".
- e) Silicones

i) German Federal Institute for Risk Assessment (BfR) "XV. Silicones".

f) Milk filter materials

i) BS 3424, Part 4: 1982, "Testing of Coated Fabrics. Method 6. Method for determination of breaking strength and elongation at break".

g) Non-toxicity and non-tainting

i) AS4020: 2002, "Testing of Products for use in contact with drinking water".

14.2 Materials for non-milk contact surfaces

14.2.1 General

- (1) Non-milk contact surfaces:
 - a) either carry the cleaning solution water before the cleaning chemical is added; or
 - b) carry only air and (under normal milking, cleaning, and draining operations) there is no possibility of liquids reaching a milk contact surface.
- (2) The materials will have similar properties to the milk contact surface materials, but they are less stringently defined.

14.2.2 Toxicity

(1) In the completed or installed form, the material must not release toxic substances.

14.2.3 Cleanability

(1) The material must be able to be cleaned.

14.2.4 Durability

- (1) The material must be:
 - a) resistant to chipping, flaking or de-lamination, and as such fibreglass is not considered a suitable material;
 - b) able to withstand exposure to water and, if necessary, heat under normal operating conditions;
 - resistant to abrasion, machinery vibration and impact likely to be encountered in its intended use; and
 - d) resistant to pressure and stress likely to be encountered during intended use.

14.2.5 Acceptable materials

(1) Any acceptable milk contact surface is automatically satisfactory as a non-milk contact surface. Other materials which meet the criteria above are also acceptable.

14.3 Fabrication and installation

14.3.1 Good manufacturing practices

(1) All components must be safe to handle (e.g., finished to remove burrs and unnecessarily sharp edges) and installed in a way that minimises the risk of accidents when operating and cleaning the milking machines. This includes the provision of guards to cover pump shafts, and safe washing systems.

14.3.2 Surface finish

 All milk contact surfaces must be finished to a Ra value of <1 µm. All milk contact surfaces must be free from imperfections such as pits, folds, and crevices. (2) The surface must be free from "grinding spot" rusting from mild steel contamination.

14.3.3 Prevention of contamination

(1) Equipment must be designed to protect milk from external contamination. There must be a vessel (sanitary trap or interceptor) between the milk and air systems in all new installations and upgrades. External surfaces of milk harvesting equipment must be able to be kept visually clean by the operator.

14.3.4 Bonding of materials to milk contact surfaces

(1) Where rubber and rubber-like or plastic materials forming milk contact surfaces are bonded to a base material, the bond must remain continuous and mechanically sound under intended conditions of use.

14.3.5Inspection points

(1) Where there is a CIP system installed that meets the basic engineering requirements of temperature, contact time, wash volume, detergent concentration and solution flow rate, the number of inspection points may be minimised.

14.3.6 Internal radii

(1) For internal angles of 135 degrees or less, a radius of not less than 3 mm is recommended. When the radius is less than 3 mm, the milk contact surface of the internal angle must be readily accessible for cleaning and inspection as required.

14.3.7 Threads, springs, mesh and other difficult-to-clean surfaces

(1) Threads, springs, mesh and other difficult-to-clean surfaces must only be used on milk contact surfaces where alternatives are not practicable and any hazards are minimised e.g., pump impellers may be attached to shafts by threads, provided the unit is shown to remain sanitary in operation.

14.3.8 Tube fittings

- (1) All tube fittings used in the manufacture of dairy equipment which is deemed a milk contact surface must comply with the requirements of the following standards:
 - "AS 1528.2 Tubes (stainless steel) and tube fittings for the food industry, Part 2: Screwed couplings";
 - b) "AS 1528.3 Tubes (stainless steel) and tube fittings for the food industry, Part 3 Butt weld tube fittings"; and
 - c) "AS 1528.4 Tubes (stainless steel) and tube fittings for the food industry, Part 4 Clamp liners with gaskets".
- (2) The flaring of stainless steel, such as for unions, is not considered best practice and should be avoided.

14.3.9 Seals, glands, and bearings

- (1) Shaft seals, glands and bearings that come in contact with milk must be able to be removed for inspection and maintenance. Any bearing having a milk contact surface must be of a non-lubricating type and comply with Part 14 Fabrication of farm dairy equipment. Mechanical rotary seals must be used rather than packed glands.
- (2) Non-milk contact equipment having seals and bearings must be designed and fabricated so that lubricant cannot leak, drip, be forced into or in any way contaminate the milk contact surface.

14.3.10 Openings

(1) Openings on equipment, including those with hinged or removable covers, must be designed to prevent the entry of extraneous material, e.g., by using raised edges. Lids and doors on equipment

must be close-fitting, self-draining and sufficiently rigid to prevent buckling. They must be designed so that any liquid or dry material on the exterior will not touch milk contact surfaces e.g., lids should have downward edges of at least 10 mm and be close fitting.

14.3.11 Corrosion

(1) Equipment must be designed and manufactured to discourage stress corrosion, crevice corrosion or any other corrosion which could cause hygiene or contamination problems.

14.3.12 Clearance for cleaning

- (1) All equipment must be installed to allow easy accessibility for cleaning.
- (2) Where equipment is supported on legs, these either have rounded ends or are sealed to the floor.
- (3) There should be sufficient clearance between the base of the equipment and the floor to allow the floor beneath to be cleaned (refer to Table 3: Recommended clearances equipment to floor).

Table 3: Recommended clearances – equipment to floor

Width (m)	Minimum Clearance (mm)
Up to 0.5	150
0.5 – 2.0	200
Over 2.0	250

14.3.13 Cleanability

(1) All equipment and piping must be able to be cleaned either manually or preferably in-place under normal conditions of installation and use. They must be designed so there is no permanent distortion or displacement at the specified cleaning temperature. Equipment designed to be manually cleaned must be able to be readily disassembled. Milklines and equipment to be cleaned in place must have fittings suitable for this purpose.

14.3.14 Drainage

(1) All equipment must be capable of being drained, preferably self-drained, and all milk and air lines sloped to drain points, so that no pools of standing liquid are left after cleaning. All equipment and pipelines must be supported so that they remain in alignment and position and must not drain on to other equipment.

14.3.15 Welding of stainless steel

- (1) All welds must meet the standards specified in AS/NZ 2980: 2007, "Qualification of Welders for Fusion Welding of Steels". Welding should be carried out by personnel certified to this standard.
- (2) Internal grinding and/or polishing is recommended on all pipeline welds and must be carried out where purge welding is not used. Unpolished welds are satisfactory providing they meet the criteria laid down in this clause. Where they do not meet the criteria, they must be ground and polished to <1 µm Ra.</p>

For information on stainless steel fabrication refer to "Standard of Practice for the Fabrication of Stainless Steel Plant and Equipment" published by the New Zealand Stainless Steel Development Association, 2001. Although not available online, further information on weld inspection standards is contained in the MAF Quality Management Technical Report T3/83, "Inspection of Welds in Stainless Steel Pipes".

Figure 4: Good weld profile



(3) The full length of both the face and root of the finished weld must comply with the following:

a) Shape of profile

- i) The external profile must be uniform and free from overlap at the toes of the weld. It must show a maximum of 2 mm reinforcement which must blend smoothly with the parent metal.
- ii) The start/stop positions in the weld must merge smoothly and show no pronounced hump or crater in the weld surface.
- b) Freedom from surface defects
 - i) The surface of the weld must be reasonably smooth, i.e., it must be free from cracks, cavities, and porosity.
- c) **Overheating**
 - i) There must be no evidence of localised overheating.
- d) Stray arc strikes
 - i) The surface must be free from stray arc strikes.
- e) Undercut (weld face)
 - i) Any undercut less than 0.2 mm deep may be disregarded. No undercut must be deeper than 0.5 mm. Localised undercuts deeper than 0.2 mm, but not more than 0.5 mm deep, must not have a total length of more than 25 mm in the entire test piece.

Figure 5: Undercut weld face



- f) Penetration
 - A slight penetration bead should be present but must not protrude into the bore more than 1 mm. The penetration bead must be clean and free from oxidation of the weld metal and must merge smoothly with the parent pipe. If there is complete root fusion, root concavity at the bore is acceptable, provided that:
 - 1) the depth of root concavity is not greater than 0.5 mm;
 - 2) the thickness of the weld is not less than the pipe wall thickness; and
 - 3) the root concavity merges smoothly into the adjacent surfaces.

Note: A visual examination for penetration should be carried out after sectioning the test piece.

Figure 6: Weld penetration



g) Alignment

i) Misalignment of the bore must not exceed 0.5 mm and axial misalignment must not exceed 5 degrees.

Part 15: Plant and premises checks

15.1 System checks

(1) Farm dairy operators must review all procedures and documentation related to their milk harvesting activities each dairy season, preferably during the dry period, if there is a dry period.

15.2 Monthly checks

- (1) From 1 July 2025, farm dairy operators must carry out their own monthly plant and premises checks and record the results of these checks. These checks are a useful training exercise for new staff and can prevent problems which could affect milk quality. The use of a suitable quality management system for on-farm practices is strongly encouraged. This system should address various aspects related to milking animals, the farm dairy premises, and milking practices, such as animal health management, plant and premises hygiene, milk cooling, structures and facilities management and environmental management.
- (2) Key assessment points in such a system will include but not be limited to:
 - a) bulk milk tank surfaces (interior and exterior), milkline, clusters, receiver and air systems;
 - b) milk storage and collection areas, yards and races, milking area, general surrounds;
 - c) water quality;
 - d) effluent management;
 - e) chemical, storage and use;
 - f) removal of expired veterinary medicines and other chemical compounds;
 - g) animal health and welfare management;
 - h) expired veterinary medicines or agricultural compounds;
 - i) waterway and riparian area management;
 - j) litter control; and
 - k) worker safety and health.
- (3) To carry out an effective plant assessment it is recommended that the following items are used:
 - a) a torch (of a type without a glass lens);
 - b) a thermometer (non-glass and constructed from food-safe materials, refer to clause 6.4); and
 - c) a device designed for checking rubberware condition and hygiene (a trier).
- (4) If non-conformances or deficiencies are identified during the monthly plant and premises checks, these must be rectified in a timely manner, and a record kept of the actions taken and when.

Part 16: Farm dairy assessment standards

16.1 Assessment of farm dairies

- (1) An assessment of each farm dairy is required at least once per dairy season to ensure compliance with this Code, regulatory requirements, and the RMP under which the farm dairy operates. This assessment will be arranged by the RMP operator and carried out by a farm dairy assessor. If the farm dairy operates under more than one RMP then additional farm dairy assessments may be required.
- (2) Farm dairy assessors are required to meet specified competency criteria and are recognised by MPI. The farm dairy assessment must follow, at a minimum, criteria set out in NZCP2: Code of Practice for the Assessment of Farm Dairies. Overseas markets, importers or customers may set additional requirements that must be met by farm dairy operators and be reviewed as part of the farm dairy assessment.
- (3) The intensity of the farm dairy assessment may differ depending upon the type of assessment being undertaken. The types of farm dairy assessment include:
 - assessment prior to supply of all new or significantly altered farm dairies;
 - b) full assessment;
 - c) surveillance assessment;
 - follow-up or revisit;
 - e) short notice assessment; and
 - f) targeted assessment (including traceback) following a specific failure or out of character finding.
- (4) Following the assessment farm dairy operators must clean and optionally sanitise, then drain and rinse any part of the milking plant that has been opened or subject to hygiene assessment.
- (5) The farm dairy operator is required to promptly rectify any defects identified during the farm dairy assessment and is expected to address any instructions made. In addition, any recommendations offered should be given full consideration.
- (6) Any critical failure identified by the farm dairy assessor must be rectified immediately. Critical failures may result in milk being rejected and milk supply being suspended until any food safety, wholesomeness or international concerns have been satisfactorily resolved.
- (7) For routine assessments, the farm dairy assessor will endeavour to provide advance notice to the farm dairy operator of the upcoming assessment.
- (8) From time-to-time, the farm dairy assessor is required to observe milking procedures.
- (9) Farm dairy assessors are required to rate each finding as it is first observed. If a non-conformance is rectified during the assessment, the assessor will take note of this, but the original rating will stand on the assessment report. This is so that the RMP operator and MPI can determine the state of compliance immediately prior to the assessment.

16.2 Short notice assessments of farm dairies

- (1) Farm dairy assessors are required to undertake a certain number of short notice farm dairy assessments for each dairy company each season.
- (2) For short notice assessments, the farm dairy assessor may provide very short notice (e.g., same day) of the upcoming assessment.

16.3 Other forms of assessment at farm dairies

- (1) Other forms of farm dairy assessments, investigations or tracebacks may occur for various reasons, including:
 - a) a traceback following the detection of a chemical residue or contaminant in the milk;
 - b) an investigation following an unexpected test result, e.g., unusual milk composition;
 - c) follow-up (revisit) to confirm the completion of corrective actions; or
 - d) an additional assessment to meet the requirements of an overseas market or customer.

Part 17: Non-compliances

17.1 RMP (dairy company) action

- (1) If a farm dairy operator fails to comply with this Code, other regulatory requirements, or requirements advised by the RMP operator such as via a Supply Contract, Terms and Conditions of Supply or a Supplier's Handbook, then the RMP operator must take corrective action as set out in the RMP, which may include:
 - a) issuing an order requiring corrective action or eliminating a hazard or risk factor;
 - b) increasing farm dairy assessment frequency (scheduled or short notice);
 - c) deeming the milk to be unfit and refuse collection (which may be required under the PSP notice);
 - d) suspending collection until such time that the failure is corrected; or
 - e) withdrawing coverage of the farm dairy under the RMP.
- (2) The RMP operator may also:
 - a) increase raw milk testing frequency; or
 - b) take any other appropriate action, which assures the safety of raw milk supplied.
- (3) The RMP operator may also be required to report the failure to the RMP verifier or to MPI.
- (4) If the farm dairy operator is the RMP operator, then failures to comply with this Code must be reported to the RMP verifier.

17.2 Transport operator action

- (1) If the tanker driver has reasonable cause to suspect that any particular supply of milk is not safe or suitable for further processing, the driver must:
 - a) advise the RMP operator or the farm dairy assessor contracted by the RMP operator; and
 - b) decline to accept and transport that supply of milk.

17.3 Farm dairy RMP verifier

(1) A farm dairy RMP verifier is granted freedom of access to all dairy premises under the RMP, including farm dairies. This freedom extends to all places and things relevant to dairy processing activities under the RMP including farm dairy, milking and milk storage, feed storage, animals, and animal health records.

17.4 Animal products officers

(1) An Animal Products Officer has certain powers under the APA, including right of entry and the power to direct disposal of non-conforming milk. In serious situations an Animal Products Officer may specify the actions that must be adhered to at a farm dairy.

Schedule 1 – Definitions

(1) The following terms are used within this Code:

APA means the Animal Products Act 1999

ACVM Act means the Agricultural Compounds and Veterinary Medicines Act 1997

Agricultural Compounds means:

- a) Any substance, mixture of substances, or biological compound, used or intended for use in the direct management of plants and animals, or to be applied to the land, place, or water on or in which the plants and animals are managed, for the purposes of:
 - i) managing or eradicating pests, including vertebrate pests;
 - ii) maintaining, promoting, or regulating plant or animal productivity and performance or reproduction;
 - iii) fulfilling special nutritional requirements;
 - iv) the manipulation, capture, or immobilisation of animals;
 - v) diagnosing the condition of animals;
 - vi) preventing or treating conditions of animals;
 - vii) enhancing the effectiveness of an agricultural compound used for the treatment of plants and animals; or
 - viii) marking animals; and
- b) includes:
 - i) any veterinary medicine, substance, mixture of substances, or biological compound used for post-harvest treatment of raw primary produce;
 - ii) anything used or intended to be used as feed for animals; and
 - iii) any substance, mixture of substances, or biological compound declared to be an agricultural compound

Animal Products Officer means a person appointed as an Animal Products Officer under section 78 of the APA

animal treatments means any drug, medicine, remedy, therapeutic preparation, or any biochemical substance, which is manufactured, imported, advertised for sale or is sold for any of the following purposes:

- a) curing, diagnosing, treating, controlling, or preventing any disease in animals;
- b) testing any animals in relation to any disease;
- c) destroying or preventing parasites in or on animals;
- d) maintaining or improving the health, condition, or productivity of any animal; or
- e) capturing or immobilising any animal;

this does not include any preparation, substance, or product which is used as a food for animals

bulk milk tank means a vessel used for the storage of milk that may be lidded or enclosed

CIP means cleaning in place

clean means free of soil, food residue, dirt, grease, cleaning or sanitising agents or other objectionable matter

commencement of milking means the time at which the first milk is drawn from an animal that is producing milk intended for supply at a discrete milking

completion of milking means the time at which the last cluster is removed from an animal that is producing milk intended for supply at a discrete milking provided that milking is not delayed without just cause

diseased animal means a milking animal with an illness, condition or injury of a kind described under clause D2.7 of the PSP notice.

effluent ponds means a constructed ponding system designed for the holding and oxidation of faecal and urinary animal wastes before discharge into an outfall

effluent system refers to the full series of component parts that are intended to contribute to the collection, movement, temporary or permanent storage, separation, treatment and disposal of dairy effluent, whether or not the effluent is raw or treated

farm dairy means a place where milking animals are milked on a permanent or temporary basis; and includes:

- any stockyard, milking yard, feedyard, feed silo pad, bulk milk tank pad or stand, or other construction associated with or involved in the activity of extracting milk from milking animals; and
- b) any place where milk from the milking animals is first collected, filtered, deposited, cooled, stored, or treated for transport or for further processing;

but does not include any place where any further processing takes place, or transport to that place

Farm dairy assessment, for the purposes of this code, means an activity carried out for the purpose of confirming that premises, equipment, facilities, processes, procedure and services comply with the applicable standards

Farm dairy assessor, for the purposes of this code, means a person recognised under the APA to conduct assessments of the design, siting, construction, conditions, procedures, and systems of, or at, a farm dairy against the criteria specified in the RMP and under the APA

Farm dairy operator means a person in charge of operations at a farm dairy, including the extraction of milk from milking animals

Farm dairy RMP operator means a person or business responsible for the operation of a RMP that covers the processing activities at a farm dairy

Farm dairy RMP verifier means a person recognised by the Director-General under section 103 or 104 of the APA for the verification of RMPs that cover farm dairy related activities

HACCP means the Hazard Analysis and Critical Control Point system adopted by the Codex Alimentarius Commission

inhibitory substance means a substance that may inhibit the life process of any living micro-organism that is present in milk or that is introduced into milk for the purposes of a manufacturing process. It includes any antimicrobial substance that may be detected in milk by an accepted test

maintenance compound means any compound used—

- a) for maintaining, repairing, servicing, cleaning, or sanitising equipment or surfaces that may be a source of contamination of animal material or animal product;
- b) for treating water;
- c) for controlling pests;
- d) for the personal hygiene of people; or
- e) on live animals, other than for their therapeutic benefit, to improve, or maintain, or both, the hygiene and suitability of animal material for processing

milk contact surface means a surface in direct contact with milk, or a surface from which liquids may drip, drain or be drawn into the milk. It includes CIP lines, the CIP/wash tubs, airlines and those parts of the cleaning system carrying solutions that will come into direct contact with the same surfaces as milk.

milking animal has the meaning given to it in the PSP notice

milk receiving area means the part of a farm dairy where the machinery necessary for the mechanical operation of a milking machine is situated. This area could include the milk storage room or end of the pit in the milking area

milk storage area means the part of a farm dairy (or an area at a farm dairy) where milk is stored before transport from the farm dairy. The milk storage and receiving areas may be combined. An area could be set within, alongside or at a distance from the main farm dairy, but will still form part of the farm dairy

milking area means the part of a farm dairy where animals are prepared for milking and are milked

milking plant includes any milking machine, milk pumping equipment, milk cooling equipment, milk storage equipment or separator and any other plant and equipment with which milk comes into contact in a farm dairy

Off Paddock Management System is a form of housing where milking animals are kept on a constructed surface. These include purpose-built buildings (sheds or barns), stand-off areas and feed pads (where these incorporate a constructed base)

offal hole means a hole dug to dispose of parts cut off carcasses or entrails of animals, and other types of refuse or garbage

owner means any agent, manager, lessee, or bailee of an owner; and

- a) in the case of a farm, a farm dairy, or any part of a farm or farm dairy, a sharemilker of an owner; and
- b) where an owner is a body corporate, every person who is a manager, secretary, director or other principal officer (however described) of the body

pathogens means an organism that may cause disease

poultry includes chickens, turkeys, ducks, pheasants, quail, guinea fowl, geese, partridges, pigeons and other game birds

PSP notice means the Animal Products Notice: Production, Supply and Processing

raw milk means milk (including specialty milk) that has not been subjected to any processing intended to alter the quality or compositional characteristics of the milk

Restricted Veterinary Medicine (RVM) means veterinary medicines registered under the ACVM Act that have conditions restricting their sale, purchase and use

Risk Management Programme (RMP) means a programme required under Part 2 of the APA to ensure that risks are appropriately and effectively managed

RMP operator means the operator of the RMP registered under the APA for the processing of dairy material (usually a dairy company)

rubberware includes rubber, synthetic rubber, silicon-based products and plastic

sanitary trap means a vessel between the milk system and the air system, to prevent contamination by movement from one to the other

secure water means water that:

- a) is sourced from a depth greater than 10 metres;
- b) is not influenced in any way by surface water; and
- c) meets all other criteria outlined in the PSP notice for secure water

self-draining means a component or part of a system which will drain automatically e.g. a flap which opens when vacuum is released

septic tank means a single or multiple chambered tank through which wastewater is allowed to flow slowly to permit suspended matter to settle and be retained, so that organic matter contained therein can be decomposed (digested) by anaerobic bacterial action in the liquid

suitable means fit for the purpose for which it is intended. For materials, generally meaning durable, impervious, able to be cleaned by normal procedures and, in the case of milk contact surfaces, safe for foods

surface water means water that:

- a) is sourced within 10 metres or less from the ground surface;
- b) is in any way influenced by surface water; or
- c) that meets any other criteria required to be defined as surface water as outlined in the PSP notice

sump means a specifically constructed holding tank made of concrete or some other impervious material intended for temporary storage of wastewater and effluent

treated animal means a milking animal that is being treated with, or is within the withholding period of, an animal treatment which is registered or exempt under the ACVM Act

Veterinary Medicine means any substance, mixture of substances, or biological compound used or intended for use in the direct management of an animal

yards means those parts of a farm dairy used for holding livestock for the purposes of milking, breeding or veterinary treatment

(2) Any term defined in the APA or Animal Products Regulations 2021 and the PSP notice and used but not defined in this Code has the meaning given in the APA or Animal Products Regulations 2021 or the PSP notice.