THE DAIRY PRACTICES COUNCIL®

GUIDELINES FOR DAIRY FARM INSPECTION

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EXCEPTIONS FOR INDIVIDUAL STATES NOTED IN TEXT OR FOOTNOTES
Additional Guidelines may be ordered from:
https://www.dairypc.org
https://www.dairypc.org/catalog/guidelines

ABSTRACT

This guideline on dairy farm inspection contains the sanitation requirements for Grade A raw milk for pasteurization according to the 2001 PHS/FDA Pasteurized Milk Ordinance (PMO) and additional information as set forth by the individual states which have a working relationship with The Dairy Practices Council®.

GUIDELINES FOR DAIRY FARM INSPECTION

This Guideline is intended to be appropriate for all commercial dairy farms producing milk for pasteurization with the following exceptions:

USA

Arizona No Exceptions
California In agreement except as noted in the text.
Connecticut Connecticut "Grade A Registered" milk producers have some provisions different from this Guideline.
Delaware No exceptions
Florida No exceptions
Georgia In agreement except as noted in the text.
Idaho No exceptions
Illinois No exceptions
Indiana In agreement except as noted in the text.
Kansas No Exceptions
Kentucky Enforces the PMO as the Kentucky Pasteurized Milk Ordinance.
Maine No exceptions
Maryland No exceptions
Massachusetts Where allowed by local boards of health, Massachusetts has additional requirements for dairy farms selling raw milk directly to consumers.
Michigan In agreement except as noted in the text.
Missouri No exceptions
Nevada No exceptions
New Hampshire No exceptions
New Jersey Applies to all "Grade A" farms and is recommended as a guideline for farms producing milk for manufacturing purposes.
New Mexico No exceptions
New York This Guideline also applies to dairy farms selling raw milk directly to consumers.
Ohio In agreement except as noted in the text.
Pennsylvania In agreement except as noted in the text.
Puerto Rico No exceptions
Rhode Island No exceptions
Tennessee No exceptions
Texas Has additional regulations for dairy farms that are permitted to sell raw milk directly to consumers.
Utah No exceptions
Vermont In agreement except as noted in the text.
Virginia Applies to all Grade A farms with exceptions noted in text. Manufactured grade dairy farms are regulated under a separate regulation based on the USDA recommended requirements for milk for manufacturing purposes.
Washington In agreement except as noted in the text
Wisconsin No exceptions
West Virginia No exceptions

CANADA

Ontario Operates under the Ontario Milk Act. This document can be used as general guidance but contact your local regulatory inspector for official information.

PREFACE

The intent of the Guideline is to continue to promote the interstate movement of milk and milk products by improving communications concerning Interstate Milk Shipper requirements using the PHS/FDA Grade "A" Pasteurized Milk Ordinance (PMO). In this Guideline, recommendations from the 2001 PMO revision for Raw Milk for Pasteurization are reproduced, section-by-section, with all PMO material enclosed by black lines. The material outside the black lines is supplemental information. This supplemental information is arranged as follows:

1. General comments pertaining to the specific PMO item is listed first (agreed to by all member states).
2. Question and Answers from various meetings, which FDA Milk Safety Branch published.
3. Comments from individual states or by FDA.
4. General questions and answers that do not specifically apply to PMO items in this document are listed under a separate heading "General Questions and Answers".

The PMO is the basic standard used in determining conformance with sanitation standards for milk in interstate commerce.

GUIDELINE PREPARATION AND REVIEW PROCESS

The Dairy Practices Council (DPC) Guideline development and update process is unique and requires several levels of peer review. The first step starts with a *Task Force* subcommittee made up of individuals from industry, regulatory and educational institutions interested in and knowledgeable about the subject to be addressed. Drafts, called "*white copies*," are circulated until all members of the subcommittee are satisfied with the content. The final "*white copy*" may be further distributed to the entire Task Force; DPC Executive Board; state and federal regulators; educational and industry members; and anyone else the Task Force Director and/or the DPC Executive Vice President feel would add strength to the review. Following final "*white copy*" review and corrections, the next step requires a "*yellow cover*" draft to be circulated to representatives of participating Regulatory Agencies referred to as "*Key Sanitarians*." Key Sanitarians may suggest changes and insert footnotes if their state standards and regulations differ from the text. After final review and editing, the Guideline is distributed in the distinctive DPC "*green cover*" to DPC members and made available for purchase to others. These guidelines represent our state of the knowledge at the time they are written. Currently, DPC Guidelines are primarily distributed electronically in pdf format without colored covers, but the process and designation of the steps remains the same. Contributors listed affiliations are at the time of their contribution.

DISCLAIMER

The DPC is not responsible for the use or application of the information provided in this Guideline. It is the responsibility of the user to ensure that the information addresses their needs and that any action taken complies with appropriate regulations and standards.

TABLE OF CONTENTS

Department of Health and Human Services
Public Health Service
Food and Drug Administration

DAIRY FARM INSPECTION REPORT

Inspecting Agency

NAME AND LOCATION OF DAIRY FARM

POUNDS SOLD DAILY:
PLANT:
PERMIT #:

Inspection of your farm today showed violations existing in the items checked below. You are further notified that this inspection sheet serves as notification of the intent to suspend your permit if the violations noted are not in compliance at the time of the next inspection. (See Sections 3 and 5 of the *Grade "A" Pasteurized Milk Ordinance.*

COWS

1. Abnormal Milk:
Cows secreting abnormal milk milked last or in separate equipment……..(a) _____
Abnormal milk properly handled/disposed of. (b)_____
Proper care of abnormal milk handling equip..(c)_____

MILKING BARN, STABLE, OR PARLOR

2. Construction:
Floors, gutters, and feed troughs of concrete or equally impervious materials; in good repair…(a) _____
Walls and ceilings smooth, painted or finished adequately; in good repair; ceiling dust-tight…(b) _____
Separate stalls or pens for horses, calves, and bulls; no overcrowding……(c) _____
Adequate natural and/or artificial light; well distributed……(d) _____
Properly ventilated ……(e) _____

3. Cleanliness:
Clean and free of litter……(a) _____
No swine or fowl……(b) _____

4. Cowyard:
Graded to drain; no pooled water or wastes..(a) _____
Cowyard clean; cattle housing areas & manure packs properly maintained……(b) _____
No swine……..(c) _____
Manure stored inaccessible to cows……(d) _____

MILKHOUSE OR ROOM

5. Construction and Facilities:

Floors

Smooth; concrete or other impervious material; in good repair……(a) _____
Graded to drain……(b) _____
Drains trapped, if connected to sanitary system..(c) _____

Walls and Ceilings

Approved material and finish……(a) _____
Good repair (windows, doors and hoseport included)……(b) _____

Lighting and Ventilation

Adequate natural and/or artificial light; properly distributed……(a) _____
Adequate ventilation……(b) _____
Doors/windows closed during dusty weather..(c) _____
Vents and lighting fixtures properly installed.(d)_____

Miscellaneous Requirements

Milkhouse operations only; sufficient size...(a) _____
No direct opening into living quarters or barn, except as permitted by Ordinance……(b) _____
Liquid wastes properly disposed of……(c) _____
Proper hoseport where required……(d) _____
Acceptable surface under hoseport……(e) _____
Suitable shelter for transport truck as required..(f)_____

Cleaning Facilities

Two-compartment wash and rinse vat of adequate size……(a) _____
Suitable water heating facilities……(b) _____
Water under pressure piped to milkhouse…(c) _____

6. Cleanliness:
Floors, walls, windows, tables and similar non-product-contact surfaces clean……(a) _____
No trash, unnecessary articles, animals or Fowl……(b) _____

TOILET AND WATER SUPPLY

7. Toilet:
Provided; conveniently located……..(a) _____
Constructed and operated according to *Ordinance*. ……..(b) _____
No evidence of human wastes about premises (c) _____
Toilet room in compliance with *Ordinance*…(d) _____

8. Water Supply:
Constructed and operated according to *Ordinance*……..(a) _____
Complies with bacteriological standards…(b) _____
No connection between safe and unsafe supplies; no improper submerged inlets……(c) _____

UTENSILS AND EQUIPMENT

9. Construction:
Smooth, impervious, nonabsorbent, safe materials; easily cleanable……(a) _____
In good repair; accessible for inspection…(b) _____
Approved single-service articles; not reused..(c) _____
Utensils and equipment of proper design…(d) _____
Approved mechanically cleaned milk pipeline System……..(e) _____

10. Cleaning:
Utensils and equipment clean……(a) _____

11. Sanitization:
All multi-use containers and equipment subjected to approved sanitization process (See *Ordinance*).(a) _____

12. Storage:
All multi-use containers and equipment Properly stored……..(a) _____
Stored to assure complete drainage, where Applicable……..(b) _____
Single-service articles properly stored……(c) _____

MILKING

13. Flanks, Udders, and Teats:
Milking done in barn, stable or parlor……(a) _____
Brushing completed before milking begun…(b) _____
Flanks, bellies, udders and tails of cows clean at time of milking; clipped when required…(c) _____
Teats cleaned, treated with sanitizing solution (if required) and dried, prior to milking…(d) _____
No wet hand milking……(e) _____

TRANSFER/PROTECTION OF MILK

14. Protection From Contamination:
No overcrowding……(a) _____
Product and CIP circuits separated…(b) _____
Improperly handled milk discarded….(c) _____
Immediate removal of milk……..(d) _____
Milk and equipment properly protected(e) _____
Sanitized milk surfaces not exposed to contamination ……(f) _____
Air under pressure of proper quality… (g) _____

15. Drug and Chemical Control:
Cleaners and sanitizers properly identified(a) _____
Drug administration equipment properly handled and stored……..(b) _____
Drugs properly labeled (name and address) and stored……(c) _____
Drugs properly labeled (directions for use, cautionary statements, active ingredient).(d) _____
Drugs properly used and stored to preclude contamination of milk ……(e) _____

PERSONNEL

16. Hand-Washing Facilities:
Proper hand-washing facilities convenient to milking operations……(a) _____
Wash and rinse vats not used as hand-washing facilities……(b) _____

17. Personnel Cleanliness:
Hands washed clean and dried before milking, or performing milk house functions; rewashed when contaminated……..(a) _____
Clean outer garments worn……(b) _____

COOLING

18. Cooling:
Milk cooled to 45°F or less within 2 hours after milking, except as permitted by o*rdinance*.(a) _____
Recirculated cooling water from safe source and properly protected; complies with bacteriological standards……(b) _____
An acceptable recording device shall be installed and maintained when required ……..(c) _____

PEST CONTROL

19. Insect and Rodent Control:
Fly breeding minimized by approved manure disposal methods (See O*rdinance*)....(a)_____
Manure packs properly maintained…(b) _____
All milkhouse openings effectively screened or otherwise protected; doors tight and self-closing; screen doors open outward……..(c) _____
Milkhouse free of insects and rodents…(d) _____
Approved pesticides; used properly….(e) _____
Equipment and utensils not exposed to pesticide contamination……(f) _____
Surroundings neat and clean; free of harborages and breeding areas……(g) _____
Feed storage not attraction for birds, rodents or insects……..(h) _____

Remarks:

Date: | Sanitarian:

Note: Item numbers correspond to required sanitation items for Grade "A" raw milk for pasteurization in the *Grade "A" Pasteurized Milk Ordinance.*

FORM FDA 2359a

ITEM 1r. ABNORMAL MILK

INSPECTION REPORT

COWS

1. **Abnormal Milk**:
Cows secreting abnormal milk milked last or in separate equipment (a) _____
Abnormal milk properly handled and disposed of…(b) _____
Proper care of abnormal milk handling equipment…(c) _____

PMO

ITEM 1r. ABNORMAL MILK

Lactating animals which show evidence of the secretion of abnormal milk in one (1) or more quarters, based upon bacteriological, chemical or physical examination, shall be milked last or with separate equipment and the milk shall be discarded. Lactating animals treated with, or lactating animals which have consumed chemical, medicinal or radioactive agents, which are capable of being secreted in the milk and which, in the judgment of the Regulatory Agency, may be deleterious to human health, shall be milked last or with separate equipment and the milk disposed of as the Regulatory Agency may direct.

PUBLIC HEALTH REASON

The health of lactating animals is a very important consideration because a number of diseases of lactating animals, including salmonellosis, staphylococcal infection and streptococcal infection, may be transmitted to man through the medium of milk. The organisms of most of these diseases may get into the milk either directly from the udder or indirectly through infected body discharges which may drop, splash or be blown into the milk.

Bovine mastitis is an inflammatory and, generally, highly communicable disease of the bovine udder. Usually, the inciting organism is a streptococcus of bovine origin (type B), but a staphylococcus or other infectious agent often causes the disease. Occasionally lactating animal's udders become infected with hemolytic streptococci of human origin, which may result in milkborne epidemics of scarlet fever or septic sore throat. The toxins of staphylococci and possibly other organisms in milk may cause severe gastroenteritis. Some of these toxins are not destroyed by pasteurization.

ADMINISTRATIVE PROCEDURES

This Item is deemed to be satisfied when:

1. Milk from lactating animals being treated with medicinal agents, which are capable of being secreted in the milk, is not offered for sale for such a period as is recommended by the attending veterinarian or as indicated on the package label of the medicinal agent.

2. Milk from lactating animals treated with or exposed to insecticides, not approved for use on dairy animals by the U.S. Environmental Protection Agency, (EPA) is not offered for sale.

3. The Regulatory Agency requires such additional tests for the detection of abnormal milk, as they deem necessary.

4. Bloody, stringy, off-colored milk, or milk that is abnormal to sight or odor, is so handled and disposed of as to preclude the infection of other lactating animals and the contamination of milk utensils.

5. Lactating animals secreting abnormal milk are milked last or in separate equipment, which effectively prevents the contamination of the wholesome supply. Abnormal milking equipment is maintained clean to reduce the possibility of re-infecting or cross infection of the dairy animals.

6. Equipment, utensils and containers used for the handling of abnormal milk are not used for the handling of milk to be offered for sale, unless they are first cleaned and effectively sanitized.

7. Processed animal waste derivatives, used as a feed ingredient for any portion of the total ration of the lactating dairy animal, have been:

   a. Properly processed in accordance with at least those requirements contained in the Model Regulations for Processed Animal Wastes developed by the Association of American Feed Control Officials; and

   b. Do not contain levels of deleterious substances, harmful pathogenic organisms or other toxic substances, which are secreted in the milk at any level, which may be deleterious to human health.

8. Unprocessed poultry litter and unprocessed recycled animal body discharges are not fed to lactating dairy animals.

Additional Information - COWS**

1r. Abnormal Milk

See Guidelines: DPC 18, Fieldperson's Guide to High Somatic Cell Counts, DPC 71 Farmers Guide to High Somatic Cell Counts in Sheep, DPC 72 Farmers Guide to High Somatic Cell Counts in Goats, Guideline DPC 22, Control of Antibacterial Drugs and Growth Inhibitors in Milk and Milk Products and Guideline DPC 69 Abnormal Milk-Risk Reduction and HACCP

Caution - If only one quarter is treated with an antibiotic, milk from all four quarters must be withheld from market. Withholding time should be increased when special veterinary preparations or multiple dosages are used.

(a) Abnormal milk may be determined by milking time inspections, by statements from producer or observation of equipment which is obviously used for other than normal milking operations.

(c) This item applies only to the equipment used to handle abnormal milk. Failure to find evidence that farm type abnormal milk tests (strip cups, CMT or MWT kits, etc.) are being used by the producer, are not debited under this item. While it is advisable that every producer of milk use such abnormal milk screening tests, there is no requirement that he do so.

Questions & Answers

1. Q: Where do you mark abnormal milk in a pail stored in the milkhouse during non-milking times?
   A: Item 6, unless you see it dumped into the tank of milk. In that case it would be marked under Item 1.

2. Q: Must there be a separate holding area for cows giving abnormal milk if they are milked in separate equipment or if they can milk the cows last without such an area?
   A: No! The PMO states that cows giving abnormal milk must be milked last or in separate equipment. It does not specify separate holding areas or any other particular remedies.

3. Q: Can antibiotic positive dry milk or milk products be sold as animal feed?
   A: Not unless they are issued a special permit from FDA.

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* *Under Additional Information all general comments that do not specifically apply to the alphabetized items are listed first. Comments pertaining to the alphabetized items are listed with the general comments first followed by comments from individual states or FDA.

4. Q: What type of circumstances?
   A: The contaminated dry milk or milk products may become a component of a medicated feed; provided the contaminated product is handled under a new animal drug application or a supplement to such an application.

   Or If FDA/CVM reviews and accepts a diversion request and the State Regulatory Authority (milk and feed) agrees.

5. Q: Can a producer who has a positive antibiotic sample on Monday morning be sampled between pickups and be put back on grade by sampling prior to the next scheduled pickup and be allowed to offer the milk for pickup?
   A: Yes, if the producer has an official negative clearing sample, and the sample is representative of all the milk which will be offered for sale.

6. Q: Why is it not debitable on a check rating to mark abnormal milking practices when a separate vacuum source is not present, no separate claw is available, and yet you verify the dairyman milked treated cows in the middle of the milking string?
   A: It is a violation of Item 1r-Abnormal Milk, debitable on the inspection sheet under Item 1(a), to milk cows giving abnormal milk during the milking of the cows giving normal milk if:
   A. a common milker claw is used for abnormal and then normal milk,

Or

   B. the milk line to the bulk milk tank, or a vacuum line directly connected to this milk line, is used to provide vacuum directly to the bucket or pail type milker used to harvest abnormal milk.

   These practices can be debited without direct observation if they can be confirmed by other direct means, such as observing a used abnormal milking bucket with no separate claw in the milking area during milking.

   These violations should not be debited based only on statements by owners or other individuals.

7. Q: The 1999 NCIMS Conference moved the evaluation of Abnormal Milk Handling Equipment (i.e. "The Fresh Cow Bucket") to Item 1r which is a 5 point item. Many State and Industry people think that improper storage (of a reasonably clean fresh cow bucket) shouldn't be debited 5 points (use Professional Judgement) but instead choose to evaluate it under Item 12r(a)-Storage of Cleaned Equipment (2 points). I understand their intent, but I believe the Conference put everything for fresh cow buckets under Item 1r. What is correct?
   A: Evaluation of abnormal milk handling equipment was moved to Item 1r to deal with the issue of cow-to-cow transfer of infections. Therefore, cleaning, repair and drainage concerns regarding this equipment are evaluated under Item 1r. If storage of this equipment is contributing to a cleaning (housekeeping) concern in the milking area or milkhouse, this is evaluated under Item 3r or 6r, respectively.

8. Q: Is abnormal milk stored in the milkhouse, during non-milking times, still evaluated under Item 6r(b)?
   A: Yes

9. Q: Can fresh/treated cow milking equipment, if it does not comply with construction and/or cleaning requirements, be stored in the milkhouse? What are the debited areas?
   A: If such equipment is stored in the milkhouse or milking area, it must conform to the applicable requirements of 1r, 9r and 12r.

California

(a) Milk shall not be obtained or used for human consumption within 15 days prior or 5 days after parturition.

New York

Requires that abnormal milk handling equipment be so designed that it can be properly cleaned and sanitized as is the case with any milk handling equipment. Such equipment must be stored in the milkhouse and be kept clean.

ITEM 2r. MILKING BARN, STABLE, OR PARLOR - CONSTRUCTION

INSPECTION REPORT

MILKING BARN, STABLE, OR PARLOR

2. Construction:

Floors, gutters, and feed troughs of concrete or equally impervious materials; in good repair (a) _____
Walls and ceilings smooth, painted or finished adequately; in good repair; ceiling dust-tight (b) _____
Separate stalls or pens for horses, calves, and
bulls no overcrowding..... ……(c) _____
Adequate natural and/or artificial light; well
Distributed……(d) _____
Properly ventilated; ……..(e) _____

PMO

ITEM 2r. MILKING BARN, STABLE, OR PARLOR – CONSTRUCTION

A milking barn, stable or parlor shall be provided on all dairy farms in which the milking herd shall be housed during milking time operations. The areas used for milking purposes shall:

1. Have floors constructed of concrete or equally impervious materials. Provided, convalescent (maternity) pens located in milking areas of stanchion-type barns may be used when they comply with the guidelines specified in Appendix C., III.
2. Have walls and ceilings, which are smooth, painted or finished in an approved manner; in good repair; and ceiling dust-tight.
3. Have separate stalls or pens for horses, calves and bulls, and not be overcrowded.
4. Be provided with natural and/or artificial light, well distributed, for day and/or night milking.
5. Provide sufficient air space and air circulation to prevent condensation and excessive odors.

PUBLIC HEALTH REASON

When milking is done elsewhere than in a suitable place provided for this purpose, the milk may become contaminated. Floors constructed of concrete or other impervious materials can be kept clean more easily than floors constructed of wood, earth or similar materials and are; therefore, more apt to be kept clean. Painted, or properly finished walls and ceilings encourage cleanliness. Tight ceilings reduce the likelihood of dust and extraneous material getting into the milk. Adequate light makes it more probable that the barn will be clean and that the lactating animals will be milked in a sanitary manner.

ADMINISTRATIVE PROCEDURES

This Item is deemed to be satisfied when:

1. A milking barn, stable or parlor is provided on all dairy farms.

2. Gutters, floors and feed troughs are constructed of good quality concrete or equally impervious material. Floors shall be easily cleaned, brushed surfaces permitted; be graded to drain; maintained in good repair; and free of excessive breaks or worn areas that may create pools.

3. Gravity flow manure channels in milking barns, if used, shall be constructed in accordance with the specifications of Appendix C., II. or acceptable to the Regulatory Agency.

4. Stall barns, when used with gutter grates over manure storage pits, are designed and constructed in accordance with the specifications of Appendix C., IV. or acceptable to the Regulatory Agency.

5. Walls and ceilings are finished with wood, tile, smooth-surfaced concrete, cement plaster, brick or other equivalent materials with light colored surfaces. Walls, partitions, doors, shelves, windows and ceilings shall be kept in good repair; and surfaces shall be refinished whenever wear or discoloration is evident.

   Whenever feed is stored overhead, ceilings shall be constructed to prevent the sifting of chaff and dust into the milking barn, stable or parlor. If a hay opening is provided from a loft, which is open into the milking portion of the barn, such openings shall be provided with a dust-tight door, which shall be kept closed during milking operations.

6. Bull pens, maternity, calf and horse stalls are partitioned from the milking portion of the barn. Such portions of the barn that are not separated by tight partitions shall comply with all the requirements of this Item.

7. Overcrowding is not evidenced by the presence of calves, lactating animals or other barnyard animals in walks or feed alleys. Inadequate ventilation and excessive odors may also be evidence of an overcrowded barn.

8. The milking barn is provided with natural and/or artificial light to insure that all surfaces and particularly the working areas will be plainly visible. The equivalent of at least ten (10) foot-candles of light in all working areas shall be provided.

9. Air circulation is sufficient to minimize odors and to prevent condensation upon walls and ceilings.

10. A dust-tight partition, provided with doors that are kept closed, except when in actual use, shall separate the milking portion of the barn from any feed room or silo in which feed is ground or mixed, or in which sweet feed is stored.

When conditions warrant, the Regulatory Agency may approve a barn without four walls extending from floor to roof, or a shed-type barn provided the requirement of Item 3r., prohibiting animals and fowl from entering the barn is satisfied.

Additional Information - MILKING BARN, STABLE OR PARLOR

Every effort should be made to avoid walking in mangers or in front of cows.

See Guidelines: DPC 1, Planning Dairy Freestall Barns, DPC 37 Planning Dairy Stall Barns, DPC 6 Natural Ventilation for Dairy Tie Stall Barns, Guideline DPC 12, Tunnel Ventilation for Dairy Tie Stall Barns, and Guideline DPC 54 Selection of Elevated Milking Parlors

Questions & Answers

1. Q: Is a full cellar under a milking barn used to store manure during the six winter months allowed?
   A: Yes, as long as the barn and the manure storage area are separated by a solid floor or wall.

2. Q: Are manure pits under milking parlors approved?
   A: At present, these are considered to violate Items 2r and 3r.

3. Q: Is mechanical ventilation required in the milkroom or parlor?
   A: No. The use of window, fans, heating or cooling equipment are some examples of the options open to the dairyman for achieving ventilation in the milkroom or parlor.

4. Q: Are screens required on windows in milking parlors where milking equipment is stored?
   A: No. There is no requirement in the PMO for screening milking barns or milking parlors.

Note: Questions 5, 6, and 7 assume that milk receiver assembly and/or equipment washing are in the parlor area.

5. Q: Are sliding doors on the sidewalls of a milking parlor and holding area acceptable for ventilation purposes?
   A: Yes, providing the doors have a satisfactory finish and can be cleaned.

6. Q: Is it necessary to screen the openings?
   A: It is not necessary to screen the door openings.

7. Q: Are insulated curtains on the sidewalls of a milking parlor and holding area acceptable for ventilation purposes?
   A: Yes, if they are cleanable and kept clean.

8. Q: Can the floor under a receiver in the milker's pit be lower than the floor?
   A: Yes, providing there is adequate water drainage from this area and it is kept clean.

9. Q: Can a parlor be located in the animal housing barn and totally open to the barn?
   A: Yes, providing the receiver is located in the milkroom and the milking equipment is removed to the milkroom for washing and storage.

Note: This would be similar to an around-the-barn pipeline situation.

10. Q: Are manure gravity flow gutters under a slatted floor holding area acceptable? If so, are there any special requirements?
    A: Yes. A door closure is required between the holding area and the parlor regardless of how the holding area is finished. This door can be open during the milking period but must be closed during the wash cycle and non-milking periods when milking equipment is stored in the parlor.

11. Q: Are slatted floors acceptable in a milking parlor?
    A: No.

12. Q: What, if any, are the restrictions and/or limitations on the flush cleaning of milking parlors and holding areas?
    A: Provide adequate drainage of wash water the same as required with hose cleaning.

13. Q: Can CIP water be reused to wash down a parlor floor and holding area?
    A: Yes.

14. Q: Are feed troughs of concrete etc. which are in poor repair an Item 2r(a)-Floors violation; whereas, poor repair of hanging feeders is an Item 2r(b)-Walls and Ceilings violation?
    A: Yes.

2r. Construction

California
(b) The lower half of the barn doors shall be covered on both sides with smooth, corrosion-resistant metal.
(d) Artificial light shall not be less than 20-foot candles at the floor level.
(e) The Milking barn shall have a minimum of 400 cubic ft. of air space per stall.

Connecticut
(c) Permit only dairy cattle in the milking barn or parlor.
(e) Do not permit any colostrum to be stored in the milkhouse.

New York
(a) Accepts grooves in concrete floors, provided that the floor is otherwise in good repair and is reasonably clean. Grooved floors will not be debited for construction by the enforcement representative.
(b) Accepts wooden construction in stanchions if in good repair, but does not accept wood in the manger and gutter areas.

(c) Requires that separate stalls, if included in the milking barn or stable, be so constructed or situated as to prevent animal waste from flowing or dropping into the milking area of the stable platform. A separation of one or more empty stalls between milking cows and other livestock may be considered adequate if such conditions are met. Separation by concrete curbs is also acceptable.
(d) Some ways of complying with 2r (d) are:

As a minimum requirement, a clean 100-watt bulb for each three stanchions in line or a single row of lights spaced thusly over the center of the backwalk where cows are tail to tail; or one 40-watt fluorescent tube used in lieu of each 100-watt incandescent bulb. Evenly spaced bulbs shall adequately light feed alleys and mangers. Also see PMO Appendix B in this Guideline.

Ohio
(a) Debits for wood floors, wood mangers and wood crossovers. New producers are given a reasonable amount of time to eliminate wood construction.
(e) Do not permit any colostrum to be stored in the milkhouse.

ITEM 3r. MILKING BARN, STABLE OR PARLOR - CLEANLINESS

INSPECTION REPORT

MILKING BARN, STABLE, OR PARLOR –CLEANLINESS

3. Cleanliness:
Clean and free of litter.....(a) _____
No swine or fowl…….(b) _____

PMO

ITEM 3r. MILKING BARN, STABLE OR PARLOR - CLEANLINESS

The interior shall be kept clean. Floors, walls, ceilings, windows, pipelines and equipment shall be free of filth and/or litter and shall be clean. Swine and fowl shall be kept out of the milking area.
Feed shall be stored in a manner that will not increase the dust content of the air or interfere with the cleaning of the floor.
Surcingles, or belly straps, milk stools and antikickers shall be kept clean and stored above the floor.

PUBLIC HEALTH REASON

A clean interior reduces the chances of contamination of the milk or milk pails during milking. The presence of other animals increases the potential for the spread of disease. Clean milk stools and surcingles reduce the likelihood of contamination of the milker's hands between the milking of one (1) lactating animal and the milking of another.

ADMINISTRATIVE PROCEDURES
This Item is deemed to be satisfied when:

1. The interior of the milking barn, stable or parlor is kept clean.

2. Leftover feed in feed mangers appears fresh and is not wet or soggy.

3. The bedding material, if used, does not contain more manure than has accumulated since the previous milking.

4. Outside surfaces of pipeline systems located in the milking barn, stable or parlor are reasonably clean.

5. Gutter cleaners are reasonably clean.

6. All pens, calf stalls and bull pens, if not separated from the milking barn, stable or parlor, are clean.

7. Swine and fowl are kept out of the milking area.

8. Milk stools are not padded and are constructed to be easily cleaned. Milk stools, surcingles and antikickers are kept clean and are stored above the floor in a clean place in the milking barn, stable, parlor or milkhouse, when not in use.

9. Gravity flow manure channels in milking barns, if used, shall be maintained in accordance with Appendix C., II.

10. Stall barns, when used with gutter grates over manure storage pits, are operated and maintained in accordance with the specifications of Appendix C., IV.

The method of cleaning is immaterial. Dairymen whose barns are provided with water under pressure should scrub the floors after each milking with a stiff-bristled brush. In barns in which water under pressure is not available, the floors may be brushed dry and limed. In the latter event, care should be exercised to prevent caking of the lime. When lime or phosphate is used, it shall be spread evenly on the floor as a thin coating. If clean floors are not maintained by this method, the sanitarian should require cleaning with water.

Additional Information - MILKING BARN, STABLE OR PARLOR

3r. Cleanliness

Conventional stables and milking barns should not be automatically debited under cleanliness. Stables which are found to be neat and reasonably clean should be considered in compliance with the requirements of this item.

Questions & Answers

1. Q: What is considered as being a clean milking area?
   A: The "Administrative Procedures" of Item 3r of the PMO and this guideline provide specific guidelines for evaluating cleanliness of milking areas.

2. Q: Are insulated pipelines satisfactory?
   A: Yes, provided that the outer surface and the area around the milk cocks and ferrules are easily cleanable.

3. Q: Is a grated gutter and sump pump-out pit located at the cow end of a holding area (holding area opened to parlor) allowed?
   A: If the pump-out sump is flushed with sufficient fresh water and kept clean so that it does not provide a fly breeding situation, there would be no objection.

4. Q: Are dirty air injection hoses debited under inspection sheet Item 3, 6, 10, or 10 and 11?
   A: If the inside of these hoses are soiled enough to debit, they would be evaluated under Item 10r. If the outside is soiled they could be evaluated under Item 3r or 6r depending on where they are located.

5. Q: Are milker claws stored in the parlor (exterior dirty) still marked under Item 6r(a)?
   A: Milker claws and all milking equipment is evaluated under Items 3r or 6r depending on whether it is located in the milking area or milkhouse, respectively.

NOTE: This is a change from previous guidance and is intended to simplify evaluating the cleanliness of the outside of milking and related equipment.

6. Q: Is feed stored in feed troughs in a milking area a violation of the feed storage requirements?
   A: Yes, in certain instances. If leftover feed is wet and soggy and creating a cleaning problem it can be debited under 3(a). If it is an attraction for rodents or insects it can be debited under 19(h).

7. Q: What item of the PMO is in violation when the outside of milking units or wash manifolds are not clean and are stored in the parlor?

A: Item 3r(a) is in violation of the PMO if the outsides of either or both of these two pieces of equipment are not clean.

8. Q: Are milker claws stored in the parlor (exterior dirty) still marked under Item 6r(a)?
A: Milker claws and all milking equipment is evaluated under Items 3r or 6r depending on whether it is located in the milking area or milkhouse, respectively**.**

NOTE: This is a change from previous guidance and is intended to simplify evaluating the cleanliness of the outside of milking and related equipment**.**

New York
Requires silo approaches and feed storage rooms be separated from the milking area of the barn by tight fitting doors and partitions. Feed storage containers shall be of tight construction and be equipped with tight fitting covers. This also applies to such containers that may be used to store, in the stable, milk which is to be used as animal feed. Storage of feed in tightly closed plastic bags is acceptable.

ITEM 4r. MILKING BARN, STABLE, OR PARLOR - COWYARD

INSPECTION REPORT

MILKING BARN, STABLE, OR PARLOR - COWYARD

4. **Cowyard**:
Graded to drain; no pooled water or wastes……(a) _____
Cowyard clean; cattle housing areas & manure
packs properly maintained……..……(b) _____
No swine……..(c) _____
Manure stored inaccessible to cows……. ... ..(d) _____

PMO

ITEM 4r. MILKING BARN, STABLE, OR PARLOR - COWYARD

The cowyard shall be graded and drained and shall have no standing pools of water or accumulations of organic wastes. Provided, that in loafing or lactating animal-housing areas, lactating animal droppings and soiled bedding shall be removed, or clean bedding added, at sufficiently frequent intervals to prevent the soiling of the lactating animal's udder and flanks. Waste feed shall not be allowed to accumulate. Manure packs shall be properly drained and shall provide a reasonably firm footing. Swine shall be kept out of the cowyard.

PUBLIC HEALTH REASON

The cowyard is interpreted to be that enclosed or unenclosed area in which the lactating animals are apt to congregate, approximately adjacent to the barn, including animal-housing areas. This area is; therefore, particularly apt to become filthy with manure droppings, which may result in the soiling of the lactating animal's udders and flanks. The grading and drainage of the cowyard, as far as is practicable, is required because wet conditions are conducive to fly breeding and make it difficult to keep manure removed and the lactating animals clean. If manure and barn sweepings are allowed to accumulate in the cowyard, fly breeding will be promoted, and the lactating animals, because of their habit of lying down, will be more apt to have manure-soiled udders. Lactating animals should not have access to piles of manure, in order to avoid the soiling of udders and the spread of diseases among dairy animals.

ADMINISTRATIVE PROCEDURES

This Item is deemed to be satisfied when:

1. The cowyard, which is the enclosed or unenclosed area adjacent to the milking barn in which the lactating animals may congregate, including animal-housing areas and feed lots, is graded and drained, depressions and soggy areas are filled, and lactating animal's lanes are reasonably dry.

2. Approaches to the barn door and the surroundings of stock watering and feed stations are solid to the footing of the animals.

3. Wastes from the barn or milk-house are not allowed to pool in the cowyard. Cowyards, which are muddy due to recent rains, should not be considered as violating this Item.

4. Manure, soiled bedding and waste feed are not stored or permitted to accumulate therein in such a manner as to permit the soiling of cow's udders and flanks. Animal-housing areas, stables without stanchions, such as loose-housing stables, pen stables, resting barns, holding barns, loafing sheds, wandering sheds and free-stall housing, shall be considered as part of the cowyard. Manure packs shall be solid to the footing of the animals. (See Appendix C.)

5. Cowyards are kept reasonably free of animal droppings. Animal droppings shall not be allowed to accumulate in piles that are accessible to the animals.

Additional Information - MILKING BARN, STABLE OR PARLOR

Appendix C of the PMO on Milk Production is reproduced in this document as Appendix. C.

See Guidelines: DPC 27 Dairy Manure Management from Barn to Storage, DPC 46 Dairy Odor Management

4r. Cowyard

The term "cowyard" as used in this section includes the barnyard which is that outdoor area adjacent to the barn and the loose housing areas, if provided, which include stables without stanchions such as loose housing stables, pen stables, resting barns, holding barns, loafing sheds, wandering sheds, and free stall housing.

(b) It is recommended but not required that approaches to the barn door and the surroundings of stock watering stations, feeding stations and the remaining loose housing areas be paved with concrete. It is required that these areas be solid to the footing of the animal.

Questions & Answers

1. Q: Can clean solids separated from manure be used as bedding for lactating dairy animals?
   A: Yes.

2. Q: Can CIP water be reused to wash down a parlor floor and holding area?
   A: Yes.

FDA

Requires cleaning of the loafing stable when necessary.

California

(a) A minimum of a 3 percent slope shall be maintained in unpaved corrals where there is 400 square feet or less per animal. Slope in areas where more than 400 square feet per animal may be reduced proportionately to not less than 1.5 percent at 800 square feet per animal. Paved access is required to permanent feed racks, mangers and water troughs.
(b) The cow standing platform at permanent feed racks shall be paved with concrete or equivalent for at least 10 feet back of the stanchion line.

Maine

Requires concrete paving for loose housing systems.

New York

Requires that the loafing stable be cleaned at least once each year.

ITEM 5r. MILKHOUSE OR ROOM–CONSTRUCTION AND FACILITIES

INSPECTION REPORT

MILKHOUSE OR ROOM

5. Construction and Facilities :

Floors

Smooth; concrete or other impervious material;
in good repair (a) _____
Graded to drain (b) _____
Drains trapped, if connected to sanitary system.....(c) _____

Walls and Ceilings

Approved material and finish.....(a) _____
Good repair (windows, doors, and hoseport
included) (b) _____

Lighting and Ventilation

Adequate natural and/or artificial light;
properly distributed.....(a) _____
Adequate ventilation ..... (b) _____
Doors and windows closed during dusty
weather.....(c) _____
Vents and lighting fixtures properly installed ..... (d) _____

Miscellaneous Requirements

Milkhouse operations only; sufficient size(a) _____
No direct opening into living quarters or barn,
except as permitted by Ordinance ..... (b) _____
Liquid wastes properly disposed of ..... (c) _____
Proper hoseport where required..... (d) _____
Acceptable surface under hoseport..... (e) _____

Suitable shelter for transport truck as
required .....(f) _____

Cleaning Facilities

Two-compartment wash and rinse vat of
adequate size .....(a) _____
Suitable water heating facilities ..... (b) _____
Water under pressure piped to milkhouse .....(c) _____

PMO

ITEM 5r. MILKHOUSE OR ROOM - CONSTRUCTION AND FACILITIES

A milkhouse of sufficient size shall be provided, in which the cooling, handling and storing of milk and the washing, sanitizing and storing of milk containers and utensils shall be conducted, except as provided for in Item 12r. of this Section.

The milkhouse shall be provided with a smooth floor constructed of concrete or equally impervious material; graded to drain; and maintained in good repair. Liquid waste shall be disposed of in a sanitary manner. Floor drains shall be accessible and shall be trapped if connected to a sanitary sewer system.
The walls and ceilings shall be constructed of smooth material; be in good repair; and be well painted, or finished in an equally suitable manner.

The milkhouse shall have adequate natural and/or artificial light and be well ventilated.

The milkhouse shall be used for no other purpose than milkhouse operations. There shall be no direct opening into any barn, stable or parlor or into a room used for domestic purposes. Provided, that a direct opening between the milkhouse and milking barn, stable or parlor is permitted when a tight-fitting, self-closing, solid door(s) hinged to be single or double acting is provided. Screened vents in the wall between the milkhouse and a breezeway, which separates the milkhouse from the milking parlor, are permitted, provided animals are not housed within the milking facility.

Water under pressure shall be piped into the milkhouse.
The milkhouse shall be equipped with a two (2) compartment wash vat and adequate hot water heating facilities.

A transportation tank may be used for the cooling and/or storage of milk on the dairy farm. Such tank shall be provided with a suitable shelter for the receipt of milk. Such shelter shall be adjacent to, but not a part of, the milkhouse and shall comply with the requirements of the milkhouse with respect to construction items; lighting; drainage; insect and rodent control; and general maintenance. In addition, the following minimum criteria shall be met:

1. An accurate, accessible temperature-recording device shall be installed in the milk line downstream from an effective cooling device, which cools the milk to 7°C (45°F) or less. An indicating thermometer shall be installed as close as possible to the recording device for verification of recording temperatures. This indicating thermometer will comply with all applicable requirements in Appendix H. This thermometer shall be used to check the recording thermometer during the regulatory inspection and the results recorded on the recording chart.

2. The milk shall be sampled at the direction of the Regulatory Agency in a manner so as to preclude contaminating the tanker or sample, by an acceptable milk sample collector.

3. The milk tank truck shall be effectively agitated in order to collect a representative sample.

When the Regulatory Agency determines conditions exist whereby the milk tank truck can be adequately protected and sampled without contamination, a shelter need not be provided if the following minimum criteria are met:

1. The milk hose connection is accessible to, and made from within, the milkhouse. The milk hose connection to the milk tank truck is completely protected from the outside environment at all times.

2. To assure continued protection of the milk, the milk tank truck manhole must be sealed after the truck has been cleaned and sanitized.

3. The milk tank truck shall be washed and sanitized at the dairy plant receiving the milk or at a wash station acceptable to the Regulatory Agency.

4. An accurate, accessible temperature-recording device shall be installed in the milk line downstream from an effective cooling device, which cools the milk to 7°C (45°F) or less. An indicating thermometer shall be installed as close as possible to the recording device for verification of recording temperatures. This indicating thermometer will comply with all applicable requirements in Appendix H. This thermometer shall be used to check the recording thermometer during the regulatory inspection and the results recorded on the recording chart.

5. The milk shall be sampled at the direction of the Regulatory Agency, in a manner so as to preclude contaminating the milk tank truck or sample, by a permitted milk sample collector or the equivalent. The milk in the milk tank truck shall be effectively agitated in order to collect a representative sample.

6. The milk tank truck shall be parked on a self-draining concrete or equally impervious surface during filling and storage.

PUBLIC HEALTH REASON

Unless a suitable, separate place is provided for the cooling, handling and storing of milk and for the washing, sanitizing and storage of milk utensils, the milk or the utensils may become contaminated. Construction, which permits easy cleaning, promotes cleanliness. A well-drained floor of concrete or other impervious material promotes cleanliness. Ample light promotes cleanliness, and proper ventilation reduces the likelihood of odors and

condensation. A milkhouse that is separated from the barn, stable or parlor and the living quarters provides a safe-guard against the exposure of milk and milk equipment and utensils to contamination.

ADMINISTRATIVE PROCEDURES
This Item is deemed to be satisfied when:

1. A separate milkhouse of sufficient size is provided for the cooling, handling and storing of milk and the washing, sanitizing and storing of milk containers and utensils, except as provided for in Item 12r. of this Section.

2. The floors of all milkhouses are constructed of good quality concrete (float finish permissible), or equally impervious tile, or brick laid closely with impervious material, or metal surfacing with impervious joints or other material the equivalent of concrete and maintained free of breaks, depressions and surface peelings.

3. The floor slopes to drain so that there are no pools of standing water. The joints between the floor and the walls shall be watertight.

4. Liquid wastes are disposed of in a sanitary manner. All floor drains are accessible and are trapped if connected to a sanitary sewer.

5. Walls and ceilings are constructed of smooth dressed lumber or similar material; well painted with a light-colored washable paint; and are in good repair. Surfaces and joints shall be tight and smooth. Sheet metal, tile, cement block, brick, concrete, cement plaster or similar materials of light color may be used and the surfaces and joints shall be smooth.

6. A minimum of twenty (20) foot-candles of light is provided at all working areas from natural and/or artificial light for milkhouse operations.

7. The milkhouse is adequately ventilated to minimize condensation on floors, walls, ceilings and clean utensils.

8. Vents, if installed, and lighting fixtures are installed in a manner to preclude the contamination of bulk milk tanks or clean utensil storage areas.

9. The milkhouse is used for no other purpose than milkhouse operations.

10. There is no direct opening into any barn, stable or parlor or room used for domestic purposes. Except that an opening between the milkhouse and milking barn, stable or parlor is permitted when a tight-fitting, self-closing, solid door(s) hinged to be single or double acting is provided. Except that screened vents are permitted in the wall between the milkhouse and a breezeway, which separates the milkhouse from the milking parlor, provided animals are not housed within the milking facility.

11. A vestibule, if used, complies with the applicable milkhouse construction requirements.

12. The transfer of milk from a bulk milk tank to a transport tank is through a hose port located in the milkhouse wall. The port shall be fitted with a tight door, which shall be in good repair. It shall be kept closed except when the port is in use. An easily cleanable surface shall be constructed under the hose port, adjacent to the outside wall and sufficiently large to protect the milk hose from contamination.

13. Water under pressure is piped into the milkhouse.

14. Each milkhouse is provided with facilities for heating water in sufficient quantity and to such temperatures for the effective cleaning of all equipment and utensils. (See Appendix C.)

15. The milkhouse is equipped with a wash-and-rinse vat having at least two (2) compartments. Each compartment must be of sufficient size to accommodate the largest utensil or container used. The upright wash vat for milk pipelines and milk machines may be accepted as one (1) part of the two (2) compartment vat. Provided, that the stationary wash rack, in or on the vat, and the milking machines inflations and appurtenances are

completely removed from the vat during the washing, rinsing and/or sanitizing of other utensils and equipment. Where mechanical cleaning/recirculated systems eliminate the need for handwashing of equipment, the presence of the second wash vat compartment may be optional, if so determined by the Regulatory Agency, on an individual farm basis.

16. A transportation tank, with or without overhead protection, may be used for cooling and storing milk on a dairy farm. If a suitable shelter is provided for a transportation truck, used for cooling and storing milk, such shelter shall be adjacent to, but not a part of, the milkhouse and shall comply with the prerequisites of the milkhouse with respect to construction items: lighting; drainage; insect and rodent control; and general maintenance. (See Appendix C. for suggested plans and information on size, construction, operation and maintenance of milkhouses).

In addition, the following minimum criteria shall be met:

a. An accurate, accessible temperature- recording device shall be installed in the milk line downstream from an effective cooling device that cools the milk to 7°C (45°F) or less. An indicating thermometer shall be installed as close as possible to the recording device for verification of recording temperatures. This indicating thermometer will comply with all applicable requirements in Appendix H**.** This thermometer shall be used to check the recording thermometer during the regulatory inspection and the results recorded on the recording chart.

b. The milk shall be sampled at the direction of the Regulatory Agency in a manner so as to preclude contaminating the milk tank truck or sample, by an acceptable milk sample collector.

c. The milk tank truck shall be effectively agitated in order to collect a representative sample.

When the Regulatory Agency determines conditions exist whereby the milk tank truck can be adequately protected and sampled without contamination, a shelter need not be provided if the following minimum criteria are met:

a. The milk hose connection is accessible to, and made from within, the milkhouse. The milk hose connection to the milk tank truck is completely protected from the outside environment at all times.

b. To assure continued protection of the milk, the milk tank truck manhole must be sealed after the truck has been cleaned and sanitized.

c. The milk tank truck shall be washed and sanitized at the dairy plant receiving the milk or at a wash station acceptable to the Regulatory Agency.

d. An accurate, accessible temperature recording device shall be installed in the milk line downstream from an effective cooling device, which cools the milk to below 7°C (45°F). An indicating thermometer shall be installed as close as possible to the recording device for verification of recording temperatures. This indicating thermometer will comply with all applicable requirements in Appendix H**.** This thermometer shall be used to check the recording thermometer during the regulatory inspection and the results recorded on the recording chart.

e. The milk shall be sampled at the direction of the Regulatory Agency, in a manner so as to preclude contaminating the milk tank truck or sample, by a permitted milk sample collector or the equivalent. The milk in the milk tank truck shall be effectively agitated in order to collect a representative sample.

f. The milk tank truck shall be parked on a self-draining concrete or equally impervious surface during filling and storage.

Additional Information - MILKHOUSE OR ROOM

See Guidelines: DPC 41, Milkrooms and Bulk Tank Installations, DPC 43 Farm Tank Calibrating and Checking, and DPC 73 Layout of Dairy Milkhouses for Small Ruminant Operations.

Drop Lights for Use with Single Manhole Farm Bulk Tanks

It is recommended that any decisions on the safety of drop lights for this use be left to the electric companies. One power company has advised that a properly designed drop light operating directly off line current could be acceptable for this use. They do not feel that it would be necessary for all lights of this type to be reduced to six or twelve volts to be considered safe for this use.

The following factors should be considered when approving bulk tank installations with this type of light: Resistance to shattering. A light bulb which is exposed to impact or water splash must be coated with plastic or a similar material to prevent shattering. Conventional incandescent or fluorescent bulbs may be used if encased in an unbreakable transparent sheath which will retain glass particles.

Amount of light provided. The light must provide sufficient illumination to inspect all interior surfaces of the tank.

Maine
Recommends a swivel base spot light.

Massachusetts and Ohio
Recommends drop lights for single manhole tanks but will accept any type of light which will provide sufficient illumination to inspect all interior surfaces on the tank.

New Hampshire
Permits any type of light which will provide sufficient illumination to inspect all interior surfaces of the tank.

Pennsylvania and New York
Requires a drop light for use with single manhole bulk tanks. The light should be installed on the ceiling convenient to the manhole, but may not be installed directly above the tank. A self-winding mechanism or other suitable device for convenient storage of excess cord must be provided. A low voltage light is recommended but not required.

Vermont
Permits any type of light which will provide sufficient illumination for interior inspection of all surfaces.

Questions & Answers

1. Q: Are special lights such as swivel-based ceiling fixtures or flashlights required for a single manhole bulk tank?
   A: The PMO requires 20 ft. candles of light in a milkhouse and does not specify how this must be accomplished (other than lights may not be located directly over tank openings). Some states may have more specific policies.

2. Q: Is a screen door acceptable between a barn and a milkhouse?
   A: No. A tight-fitting, self-closing, solid door is required.

3. Q: What about a compressor room with only a screen door or large screen between it and the milkhouse?
   A: When only a screen door separates them, it is considered to be part of the milkhouse and would be evaluated as such.

4. Q: Are sliding milkhouse doors required to be self-closing?
   A: Yes.

5. Q: Is a two-compartment vat required when a CIP system is used?
   A: Yes. The upright was vat for milk pipelines and milking machines may be accepted as one (1) part of the two (2) compartment vat.

6. Q: Must water be piped into both vats?
   A: No. The PMO requires that water must be piped into the milkhouse. However, the method of supplying to vats is optional.

7. Q: Can a closed wash vat be counted as one part of a two-compartment sink?
   A: No. If the cover is removable it may be considered on a case by case basis.

8. Q: Can milk receiver jars be located in a stanchion barn in a small room that meets all milkhouse standards?
   A: Yes.

9. Q: What is the difference between Item 5r, Milkhouse Adequate Size Requirement, and Item 14r, Prohibiting Overcrowding of a Milkhouse?
   A: Use Item 5r unless the overcrowding could be a direct cause of product contamination. In that case, use Item 14r.

10. Q: Where would a plugged milkhouse floor drain be marked?
    A: Item 5r, Floors.

11. Q: Is mechanical ventilation required in the milkroom or parlor?
    A: No. The use of windows, fans, heating or cooling equipment are some examples of the options open to the dairyman for achieving adequate ventilation in the milkroom or parlor.

12. Q: Can warm air from a utility room be pulled through the milkroom and discharged out into the parlor for heating and drying purposes? If so, are there any special requirements?
    A: Yes, if openings between the utility room and the milkhouse are screened and there is positive airflow with a fan to the parlor (when fan is off, there must be a louver closure). Air supply into utility room must be fresh outside air and not come from a housing area.

13. Q: Is exposed wood such as door framing and raw wooden racks, etc. debited under Item 5r-Walls and Ceilings?
    A: Yes. Such unfinished wood may be debited under Item 5r-Walls and Ceilings

14. Q: Are "smashed" hose ports debited under Item 5r-Walls and Ceilings (b) or 5r-Miscellaneous Requirements (d)?
    A: 5r-Walls and Ceilings (b). The hose port is present but it is not in good repair.

15. Q: Is a light fixture over the milk tank opening still in violation of lighting fixtures properly installed, Item 5r-Lighting and Ventilation (d)?
    A: Yes

16. Q: Under the provisions for the direct-shipped (loading) milk on milk tank trucks on the farm, without a shelter provided, where and how is the cleanliness of the tankers to be determined (the manhole must be sealed after the truck has been cleaned and sanitized)?
    A: The preferable method would be to inspect the trucks at the plant following cleaning and sanitizing and prior to the sealing of the manhole by the plant employee.

NOTE: If the seal is missing from the manhole during storage or filling, at the farm, it would be debitable under Item 5r-Miscellaneous Requirements (f). It is the producer's responsibility to make sure the tanker is properly sealed prior to use.

17. Q: Cleaning solution surfaces must meet product surface standards. What about wash vats?
    A: Item 9r deals only with the construction requirements for milk contact surfaces. Utensil wash vats should be relatively smooth and be of sufficient size to accommodate the largest utensil or container that is washed manually. When was vats deteriorate to a condition of poor repair (i.e., excessive corrosion, separated seams, etc.) which hampers their intended use and cleanability, then Item 5r would be debited.

18. Q: Can a CIP wash vat be fiberglass?
    A: Yes. If in good repair.

5r. Construction and Facilities - Floors

California
A 2-inch minimum radius cove is required at all floor wall junctions. The cove must be an integral paart of the floor.

Connecticut
Requires that floor drains be accessible for maintenance and all drains in new construction be trapped.

Connecticut, Maine, Massachusetts, New Hampshire and Vermont
Require the floor drains to be at least 18" from the bulk tank outlet.

New York
Requires a drain approximately 18" from the bulk tank outlet.

5r. Construction and Facilities - Walls and Ceilings

Connecticut
Require 32-inch clearance between tank and ceiling.

Connecticut, Massachusetts, New Hampshire, New York, Pennsylvania and Vermont
Permit the closing in of farm bulk tanks against milkhouse walls. This type of installation is made by placing the tank against the existing milkhouse wall and constructing an interior wall to box in the rear of the tank. Framing is placed against the existing wall and plywood or other wall material is used to fit around the tank and form the interior wall. The joint between the interior wall material and the tank is sealed with foam rubber or caulk in the same manner as used for through-the-wall installations. The appearance of the finished installation from inside the milkhouse is identical to an installation bulkheaded through the wall. The interior wall is subject to the usual construction and maintenance requirements for milkhouse walls.

Maine
Requires sufficient clearance to allow the measuring stick to be removed in a vertical position from the liquid. A minimum 16 inch "box" above the stick position is permitted when necessary.

New York
Requires a minimum clearance between the bulk tank and ceiling of at least 36 inches. The Director of the Bureau of Weights and Measures has advised that their local sealers will now require a minimum vertical clearance of 36 inches to be available over at least a 5 feet by 5 feet area above the dipstick and manhole.

Vermont
Vermont requires adequate clearance between tank and ceiling to allow the tank covers to open fully and allow for access to and egress from the tank for manual cleaning.

Pennsylvania
Requires impervious wall surface within 18 inches from the floor.

5r. Construction and Facilities - Lighting and Ventilation

The use of shatter-proof bulbs over equipment wash vats may be desirable but is not a requirement.

(d) In all new construction, compressors must be installed in a position which will prevent dust from being blown toward the bulk milk storage tank or any areas of the milkhouse used for the storage of milk handling equipment.

California
Artificial light shall not be less than 15-foot candles at the floor level and 30-foot candles at the equipment cleaning areas.

5r. Construction and Facilities - Miscellaneous Requirements

FDA
Advises that evidence of kitchen and/or laundry waste being discharged to ground surface should be debited under 5r Miscellaneous requirements (c).

California
(e) A minimum of 10 feet by 12 feet paved, curbed, sloped to drain, tanker-loading areas shall be provided adjacent to the milk house where milk is transferred from a farm tank to a milk tanker.

Connecticut
(a) Bulk tank clearance, minimum of 24". Working side, pouring side or outlet end must have 36" of clearance.

Maine
(a) Requires a 36" minimum clearance on the outlet end, pouring side, and between the tank and sink; 24" minimum clearance on the other side or sides.
(e) Do not require a specific size pad, but it must extend from the hose port to the back end of the pickup truck and be wide enough to keep the hose clean.

Massachusetts
Requires the bulk milk cooling tank to be located so that on the pouring side there is at least 36" of working space not obstructed by a wall, sinks or other equipment; and at the outlet end there is at least 36" of working space between the tank and wall; and on the opposite end and opposite side, there be at least 24" of working space between the tank and a wall or other equipment and 32" clearance between tank and ceiling.

New Hampshire and Ohio
Requires sufficient clearance around the tank to permit cleaning and access for service.

New York
Requires a minimum clearance of 30" around bulk tanks. This distance applies to the non-working sides; that is, sides other than the wash vat and outlet valve sides where a minimum clearance of 36" is required. The previous farm bulk tank installation standards required a minimum clearance of 24" on non-working sides.

The change from a 24-inch clearance to a 30-inch clearance was made to make New York State standards consistent with the minimum equipment clearance recommendation of 30" in Appendix C of the PMO. When these installation standards were issued in 1971, the Health Department indicated that these standards would apply only to new construction and to existing milkhouses with major reconstruction. The Department of Agriculture and Markets has continued to use this policy since the milk inspection program was transferred to this Department.

This policy was established to permit future installation of larger bulk tanks in existing milkhouses which had been constructed with extra space for future expansion. Many of the milkhouse plans available from the Cornell Extension Service were designed with extra space at one end to permit installation of a larger bulk tank of the same diameter or width. Some of these plans also included a removable wall section to facilitate removal and replacement of a bulk tank.

Existing milkhouses which meet the old 24-inch clearance on non-working sides may install a replacement bulk tank with 24-inch clearance on the non-working sides if major renovation is not required for the installation. The removal and replacement of a wall section for changing the bulk tank and the piping and wiring changes for the new tank would not be considered major renovation.

(c) Where milkhouse wastes are discharged to ground surface, they must not become pooled* or create insect and odor problems. Existing milkhouse drains discharging to ground surface, which are not trapped, must be screened at discharge to prevent entrance of rodents.

(e) Requires that the pad be at least 36" wide and extend from the working area at the rear of the bulk tank truck to the hose port so that the milk hose will be on the pad between the truck and the milkhouse. The pad must be constructed of an impervious and reasonably smooth material. Materials such as blacktop or natural stone slabs with slight irregularities would be considered reasonably smooth for this purpose. The pad must be free of large cracks or other damage. The pad may be constructed in sections and small cracks between sections would not be considered as a construction violation. If the bulk milk truck or other vehicles will drive over the pad, heavy duty construction may be necessary.

Vermont
(e) Do not require a specific size pad, but it must extend from the hose port to the back end of the pickup truck and be wide enough to keep the hose clean.

ITEM 6r. MILKHOUSE OR ROOM – CLEANLINESS

INSPECTION REPORT

MILKHOUSE OR ROOM

6. Cleanliness:
Floors, walls, windows, tables, and similar non-product-contact surfaces clean (a) _____
No trash, unnecessary articles, animals or fowl(b) _____

PMO

ITEM 6r. MILKHOUSE OR ROOM – CLEANLINESS

The floors, walls, ceilings, windows, tables, shelves, cabinets, wash vats, non-product-contact surfaces of milk containers, utensils and equipment and other milkhouse equipment shall be clean. Only articles directly related to milkhouse activities shall be permitted in the milkhouse. The milkhouse shall be free of trash, animals and fowl.

PUBLIC HEALTH REASON

Cleanliness in the milkhouse reduces the likelihood of contamination of the milk.

ADMINISTRATIVE PROCEDURES

This Item is deemed to be satisfied when:

1. The milkhouse structure, equipment and other milkhouse facilities, used in its operation or maintenance, are clean at all times.

2. Incidental articles such as desks, refrigerators, and storage cabinets may be in the milkhouse provided they are kept clean and ample space is available to conduct the normal operations in the milkhouse and will not cause contamination of the milk.

3. Vestibules, if provided, are kept clean.

4. Animals and fowl are kept out of the milkhouse.

*"Pooled" does not mean to exclude proper collection of liquids in tanks or lagoons, etc.

Additional Information - MILKHOUSE OR ROOM

6r. Cleanliness

Storage of Incidental Items in Milkhouse

Articles such as refrigerators, desks, storage cabinets, semen tanks, antibiotics and other medicinals may be stored in the milkhouse.

The following criteria should be used to determine if an article not directly related to milkhouse activities may be stored in the milkhouse under these interpretations.

The milkhouse must have sufficient space to conduct normal milkhouse activities if such incidental articles are stored in the milkhouse.

The presence or method of storage of the incidental article should not contaminate milk or clean equipment.

The incidental article must be kept clean and must not interfere with normal cleaning of adjacent areas.

The incidental article must be related to milk production and there should be adequate reason to store the article in the milkhouse rather than at another location on the farm.

Questions & Answers

1. Q: Where do you mark abnormal milk in a pail stored in the milkhouse during non-milking times?
   A: Item 6, unless you see it dumped into the tank of milk. In that case it would be marked under Item 1.

2. Q: Can buckets of fermented colostrum milk be stored in the milkhouse?
   A: No.

3. Q: Can you mark the cleanliness of the exterior of a pipeline when it is not in the milkroom or stable?
   A: If the area that the pipeline passes through on its way from the milking area to the milkroom is a vestibule, the vestibule must comply with the requirements for the milkhouse and the exterior of the pipeline must be reasonable clean. If the area through which it passes is not a part of the milking area, vestibule, or milkhouse, and there are no openings or fittings in the pipeline, then cleanliness of the exterior is of no consequence.

4. Q: If the IBA's 6000 silicone inflation and component won't clean, where is this marked?
   A: Unclean contact surfaces are marked under Items 10r and 11r, non-contact surfaces under Item 6r or 3r depending on where they are stored.

5. Q: Are milker claws stored in the parlor (exterior dirty) still marked under Item 6r(a)?
   A: Milker claws and all milking equipment is evaluated under Items 3r or 6r depending on whether it is located in the milking area or milkhouse, respectively**.**

NOTE: This is a change from previous guidance and is intended to simplify evaluating the cleanliness of the outside of milking and related equipment**.**

The northeastern states recommend that antibiotics and other medicinals be kept out of the milkhouse.

ITEM 7r. TOILET

INSPECTION REPORT

TOILET

7. Toilet:
Provided; conveniently located.....(a) _____
Constructed and operated according to
Ordinance ..... (b) _____
No evidence of human wastes about premises.....(c) _____
Toilet room in compliance with *Ordinance* ..... (d) _____

PMO

ITEM 7r. TOILET

Every dairy farm shall be provided with one (1) or more toilets, conveniently located; properly constructed; operated; and maintained in a sanitary manner. The waste shall be inaccessible to insects and shall not pollute the soil surface or contaminate any water supply.

PUBLIC HEALTH REASON

The organisms of typhoid fever, dysentery and gastrointestinal disorders may be present in the body wastes of persons who have these diseases. In the case of typhoid fever, well persons (carriers) also may discharge the organisms in their body wastes. If a toilet is not fly-tight and so constructed as to prevent overflow, infection may be carried from the excreta to the milk, either by flies or through the pollution of ground water supplies or streams to which the lactating animals have access.

ADMINISTRATIVE PROCEDURES

This Item is deemed to be satisfied when:

1. There is at least one (1) flush toilet connected to a public sewer system, or to an individual sewage-disposal system, or a chemical toilet, earth pit privy or other type of privy. Such sewage systems shall be constructed and operated in accordance with the standards outlined in Appendix C., or when a Regulatory Agency has more effective standards designed specifically for that region, these standards may apply, provided, there is no mixing of animal and human waste.

2. A toilet or privy is convenient to the milking barn and the milkhouse. There shall be no evidence of human defecation or urination about the premises.

3. No privy opens directly into the milkhouse.

4. The toilet room, including all fixtures and facilities, is kept clean and free of insects and odors.

5. Where flush toilets are used, doors to toilet rooms are tight and self-closing. All outer openings in toilet rooms shall be screened or otherwise protected against the entrance of insects.

6. Vents of earth pits are screened.

Additional Information – TOILET
See Guideline: DPC 15, Milking Center Wastewater

7r. Toilet

Flush toilet room doors which open directly into milkhouse will not be considered in violation of this section if they are self closing.

Questions & Answers

1. Q: Can restrooms open directly off the milkroom?
   A: A room equipped with a flush-type toilet may open directly off the milkroom provided that the two rooms are separated by a solid door which is tight fitting and self closing.

California
The toilet room may not open directly into any milk handling area.

New York
Currently in New York, evidence of kitchen and/or laundry waste discharged to ground surface is debited under 7r (b).

Pennsylvania
Does not permit a toilet room door to open directly into milkhouse.

ITEM 8r. WATER SUPPLY

INSPECTION REPORT

WATER SUPPLY

8. Water Supply:
Constructed and operated according to
Ordinance .....(a) _____
Complies with bacteriological standards..... (b) _____
No connection between safe and unsafe supplies;
no improper submerged inlets;.....(c) _____

PMO

ITEM 8r. WATER SUPPLY

Water for milkhouse and milking operations shall be from a supply properly located, protected and operated and shall be easily accessible, adequate and of a safe, sanitary quality.

PUBLIC HEALTH REASON

A dairy farm water supply should be accessible in order to encourage its use in ample quantity in cleaning operations; it should be adequate so that cleaning and rinsing will be thorough; and it should be of a safe, sanitary quality in order to avoid contamination of milk utensils.

A polluted water supply, used in the rinsing of dairy utensils and containers, may be more dangerous than a similar water supply that is used for drinking purposes only. Bacteria grow much faster in milk than in water and the severity of an attack of a given disease depends largely upon the size of the dose of disease organisms taken into the system. Therefore, a small number of disease organisms consumed in a glass of water from a polluted well

may possibly result in no harm; whereas, if left in a milk utensil, which has been rinsed with the water, they may after several hours growth, in the milk, increase in such numbers as to cause disease when consumed.

ADMINISTRATIVE PROCEDURES

This Item is deemed to be satisfied when:

1. The water supply for milkhouse and milking operations is approved as safe by the State Water Control Authority and, in the case of individual water systems, complies with the specifications outlined in Appendix D., and the Bacteriological Standards outlined in Appendix G.

2. No cross-connection exists between a safe water supply and any unsafe or questionable water supply or any other source of pollution.

3. There are no submerged inlets through which a safe water supply may be contaminated.

4. The well or other source of water is located and constructed in such a manner that neither underground nor surface contamination from any sewerage systems, privy or other source of pollution can reach such water supply.

5. New individual water supplies and water supply systems, which have been repaired or otherwise become contaminated, are thoroughly disinfected before being placed in use. (See Appendix D) The supply shall be made free of the disinfectant by pumping to waste before any sample for bacteriological testing shall be collected.

6. All containers and tanks used in the transportation of water are sealed and protected from possible contamination. These containers and tanks shall be subjected to a thorough cleaning and a bacteriological treatment prior to filling with potable water to be used at the dairy farm. To minimize the possibility of contamination of the water during its transfer from the potable tanks to the elevated or groundwater storage at the dairy farm, a suitable pump, hose and fittings shall be provided. When the pump, hose and fittings are not being used, the outlets shall be capped and stored in a suitable dust-proof enclosure so as to prevent their contamination. The storage tank at the dairy farm shall be constructed of impervious material; provided with a dust and rainproof cover; and also provided with an approved vent and roof hatch. All new reservoirs or reservoirs which have been cleaned shall be disinfected prior to placing them into service. (See Appendix D.)

7. Samples for bacteriological examination are taken upon the initial approval of the physical structure, based upon the requirements of this *Ordinance*; when any repair or alteration of the water supply system has been made; and at least every three (3) years. Provided, that water supplies with buried well casing seals, installed prior to the adoption of this Section, shall be tested at intervals no greater than six (6) months apart. Whenever such samples indicate either the presence of bacteria of the coliform group or whenever the well casing, pump or seal need replacing or repair, the well casing and seal shall be brought above the ground surface and shall comply with all other applicable construction criteria of this Section. Provided, that when water is hauled to the dairy farm, such water shall be sampled for bacteriological examination at the point of use and submitted to a laboratory at least four (4) times in separate months during any consecutive six (6) months. Bacteriological examinations shall be conducted in a laboratory acceptable to the Regulatory Agency. To determine if water samples have been taken at the frequency established in this Section, the interval shall include the designated period plus the remaining days of the month in which the sample is due.

8. Current records of water test results shall be retained on file with the Regulatory Agency or as the Regulatory Agency directs.

Additional Information - WATER SUPPLY

(Also, see DPC Guideline #30, Guidelines for Potable Water on Dairy Farms and Appendix D of the PMO)

Questions & Answers

1. Q: EPA accepts a different coliform standard, less than 5 per hundred, on public water supplies when membrane filter is used. Do we use PMO standards or EPA Public Water Supply Standards?
   A: We follow the PMO.

2. Q: Do we have formal standards for standard plate counts on farm well water?
   A: No.

3. Q: Is ultra-violet treatment acceptable to treat farm water?
   A: If the state authority accepts it based upon EPA standards, it is acceptable. M-a-18 and attached policy statement must also be complied with.

4. Q: Is a drilled well in a barn markable?
   A: If it is at least 50 feet from gutters or other major sources of contamination, it would not normally be marked because of location only.

5. Q: A question was asked regarding the proper distances for fences around wells.
   A: If a fence is required to separate the well from cattle it should be at least fifty feet from the well.

6. Q: A discussion was held regarding Watts valves for preventing back siphonage.
   Conclusions:
   a) Watts 8A is not recommended by the manufacturer for continuous pressure.
   b) Watts 288A is not recommended for continuous pressure.
   c) Watts 36 is not recommended for preventing back siphonage.
   d) States should work with their plumbing control boards.

7. Q: What is the definition of a "Cross-Connection"?
   A: A "Cross-Connection" can be defined as a physical connection between a safe product or water supply and any unsafe or questionable product or water supply. Examples of this could be:
      1) A connection of a pipeline or piece of equipment used to conduct or contain milk or milk products and a possible source of contamination such as cleaning solution, chemicals or other source of contamination.
      2) A connection between a safe water supply and any unsafe or questionable water supply.

8. Q: Does a submerged inlet in a stock trough at the bottom of a hill and downhill from a milkhouse need to be protected against back siphonage if there is no pump in the system? (gravity system)
   A: Each system must be evaluated individually to determine other unstated factors, such as the likelihood of the occasional use of a high pressure cleaning pump. However, as described, this system would not be debited.

9. Q: What if you cannot be sure if other conditions may exist which could affect the above system?
   A: Correct the submerged inlet.

10. Q: Can a check-valve be used in place of a vacuum breaker to prevent back siphonage in a water system?
    A: No.

11. Q: Describe the possible approved ways to protect a single inlet pipe rising through nonpotable water in a stock trough.
    A: The most common methods are:
    a) Double case the inlet pipe where it passes through the standing water and provide free drainage for any liquid accumulated between the pipes.
    b) Protect the remainder of the system by placing an approved backflow preventer on the line to the stock trough downstream from the last tee which goes to any potable water use.

12. Q: Are there any measures which provide for a safe water source if a windmill is used to supply power for pumping?
    A: Yes! Any method which protects the well from the introduction of contaminants and is of sanitary construction is acceptable.

13. Q: Is a producer required to have a chlorine test kit if he has installed a chlorinator on his water supply?
    A: No! A chlorinator must be properly installed and operated in order to satisfy the requirements of Appendix D, IV of the PMO.

14. Q: Does the "leeway" for inspection frequency described in IMS-a-23 include farm water tests?
    A: Yes Allows the remaining days of the month the sample is due.

15. Q: Are recirculated cooling water samples due semi-annually or every six months?
    A: The ordinance says semi-annually. This has been interpreted to mean that there cannot be any six-month period without the required sample.

16. Q: How often does single pass cooling water on the farms with private water supplies, not reclaimed for use, need to be tested?
    A: The farm water supply must be tested every three years. If reclaimed for use it must comply with Appendix D of the PMO and be tested every 6 months.

17. Q: Do you mark a hose connected to a faucet if the end of it extends down into an equipment or hand-wash sink with no plug?
    A: No. Would be a debit under Item 8r if the wash vat contained water or with a plugged drain.

18. Q: Current literature indicates that the Surge Electrobrain, Automatic CIP Washer is equipped with an internal antisiphon breaker, which precludes the possibility of backsiphonage. Is this true?
    A: Babson Bros. Co. has advised that the antisiphon device is designed to prevent solution in the detergent dispenser from backsiphoning into the water line. It does not prevent backsiphoning when the dispensing tube is improperly attached to the wash vat. All dealers have been advised via company memo.

19. Q: Under what conditions may a well be closer than 50 ft. from major sources of contamination?
    A: When a sanitary and geologic survey shows that the reduced distance is safe and that laboratory analysis indicates the water is safe.

20. Q: Some new high pressure water pumps are now equipped with an internal air gap for all pump flow patterns. Is this acceptable isolation as specified in M-a-57, Item 1?
    A: It may be! Each pump must be evaluated on its own merits and if found to have an adequate air gap, would meet the requirements of M-a-57.

21. Q: What high pressure water pumps are now equipped with an internal air gap and how can we know which pumps are properly protected and which are not?
    A: Several brands may now have this protection. Since new models reportedly look identical to older models, each one must be evaluated on its own merits to clearly see whether or not a sufficient air gap is present.

22. Q: An effort has been made to modify the approval requirements for the laboratories conducting water quality tests by eliminating many of the heavy metal testing necessary for approvals. This would substantially reduce the range of approval requirements and would allow certified industry labs to conduct these tests. What is the current status of this possibility?
    A: The PMO specifies that water analysis of farm water supplies be conducted in laboratories acceptable to the regulatory agency. Individual plant water supplies shall be sampled by the regulatory agency and examinations shall be conducted in "an Official Laboratory". Under the IMS program, individual farm water supplies could be tested in industry, commercial or official labs. States can, and in most cases do, only approve these labs for microbiological testing. EPA has a water laboratory approval system whereby official laboratories may be approved for microbiological, or chemical methods or may be

approved for both. The EPA water laboratory approval system does not apply to laboratories testing individual water supplies.

23. Q: Is "50 feet from major sources of contamination" for private water supplies an absolute, hard and fast rule?
    A: Some professional judgment is allowed.

24. Q: Do public water supplies have to be tested every three years?
    A: Not by the milk regulatory agency. Public water supplies are under the jurisdiction of EPA and are under a more stringent sampling and testing requirement.

25. Q: If a water sample is bad, is it fair to debit the farm or plant during the time until a correction is accomplished?
    A: If a dairy farm or plant is using water from a supply which has been tested and found to exceed the limits for coliform bacteria, it is a violation of the PMO.

26. Q: Is a Watts 8a, atmospheric type vacuum breaker, acceptable on a line to a CIP wash vat?
    A: The Watts 8a is acceptable in any application downstream from the last valve.

27. Q: Is adequate protection provided by a high pressure water pump which cannot start without enough water to prime the pump?
    A: No!

28. Q: Some distributors of portable high pressure washers claim that low pressure cutoff switches or other means of protection of the potable water supply are not necessary because the pump must have a positive pressure to start. Do we need to be concerned?
    A: Yes! There is a need to be concerned as stated in M-a-57.

29. Q: Why isn't chemical analysis required on farm water supplies?
    A: The PMO requires only bacteriological testing of farm water supplies, however, the state may require such additional testing as they deem appropriate.

30. Q: Is it a violation of the PMO if a State Water Control Authority has a chemical standard and it is a matter of record that the farm water supply violates those standards?
    A: The PMO requires that the water supply for the milking operation is "---approved as safe by the State Water Control Authority---". Therefore, if the state considers the chemical analysis of the farm water supply in violation of State Standards, then it is a debit of Item 8r(a). Bacteriological violations are debited under Item 8r(b).

31. Q: If multiple wells on a farm individually meet construction standards and all water samples taken are in bacteriological compliance, why is it necessary to sample each individual well?
    A: It is necessary that all sources of milkhouse water be tested at the required frequency. If the system is constructed and operated so that a single sample will represent all sources, a single sample is sufficient. If a single sample will not represent all sources, then each individual well must be sampled at the required frequency.

32. Q: What is the difference in interpretation on double check valves on dairy farms and the interpretation of accepting the State Water Control Authority decisions on high pressure water pumps on farms?
    A: There is no difference. Memorandum M-a-57, Item 4, acknowledges any device that will satisfactorily prevent a negative pressure on the water supply system. Check valves are not recognized as such devices.

33. Q: Is Item 8r considered in violation if a State Plumbing Authority accepts double check valves as adequate backflow preventers?
    A: Yes. One or more check valves are not recognized as devices designed to prevent negative pressure between safe and unsafe water supplies.

34. Q: May a low pressure cutout switch be located other than on a portable pump if the water and electrical connections are such that the pump can only be hooked up to receive water and power through the switch?
    A: Yes.

35. Q: Can a directly plumbed sealed water tank with no vent or air gap be used as a separate system to provide the required protections for a high pressure pump?
    A: No.

36. Q: What about if you add a vacuum breaker?
    A: Not unless the vacuum breaker is spring loaded and will open to the air while there is still positive line pressure.

37. Q: DeLaval high pressure pumps are now being sold as needing no low pressure cut out switch or other protection because the pump will not pump without line pressure. Can we recognize this claim as accurate?
    A: Not at this time. It has yet to be shown that while the pump is in operation, if the line pressure should drop, the pump will stop pumping while there is still positive line pressure. If the pump does not stop until zero line pressure is reached, it does not meet the public health need for protection.

38. Q: Is the Watts 36(n) vacuum relief valve acceptable as a back siphonage/backflow preventer?
    A: The company says no. We will consider them a violation of Item 8r on check ratings unless the State Water Authority certifies that these meet the PMO criteria despite the manufacturers' denial.

39. Q: What can we do to require built-in vacuum breaker protection on portable high pressure pumps and similar equipment at the time of their production?
    A: As a purchaser of such equipment, the dairy farmer can insist that this feature be built into the equipment he purchases. Some manufacturers do make them and they are available on request. Regulatory officials can point out to the manufacturers that proper installation must be made of these high pressure pumps to prevent less than atmospheric pressure on the suction side of pumps and the water supply system.

40. Q: What criteria are to be used to approve reverse-flush systems?
    A: M-a-65 and the supplement to M-a-65.

41. Q: Are well pits that are buried under several feet of earth a violation of the PMO?
    A: Well pits that do not terminate at least 6 inches above established ground surfaces are in violation of Item 8r of the PMO.

42. Q: If a well meets the bacteriological standards of the PMO, but does not meet the location requirements, is it in compliance with the PMO?
    A: No. A bacteriological sample of the water supply indicates the safety at a specific time. The location requirements of the well are designed to provide continued protection.

43. Q: Is a well pit drain or sump pump line which discharges within 30 feet of the well a violation of Item 8r of the PMO?
    A: Each must be reviewed on a case-by-case basis to determine if they are creating a probable source of contamination.

44. Q: May well water which is used as a cooling medium in a precooler be returned to the well?
    A: No. EPA regulations preclude such water being returned directly to a well.

45. Q: Is it a violation of Item 8r of the PMO when the producer record indicates that a water sample was unsafe and a subsequent sample taken at a later date (approximately 2 to 3 months) was safe?
    A: No. Any debit regarding the producer's rating must reflect current conditions at the time of the rating. The rating officer should debit the enforcement rating if the time between the unsafe sample and the subsequent safe sample has exceeded 30 days.

46. Q: Is an inverted check valve of equal pipe diameter installed on a pipe "T" an acceptable device to protect the water supply system from an auxiliary high pressure water pump?
    A: No. The use of a check valve as a device to prevent a negative pressure on a water line caused by an auxiliary high pressure pump is not acceptable.

47. Q: May a water well terminate in a basement on a producer farm?
    A: Yes, provided the well meets the criteria in Appendix D.

48. Q: Is the water coming out of the pre-cooler, used on dairy farms, potable water or non-potable water?
    A: Water from pre-coolers may be used for milkhouse purposes if the requirements from Appendix D., VI. - Water Reclaimed from Heat Exchanger Processes, Items #1 – 10 of the PMO are met.

49. Q: Are standard flush toilets submerged inlets?
    A: No.

50. Q: With regard to the Germania milking machine back flushing system, why are the water, sanitizer and product connections not considered to be a cross connection.
    A: Because of a movable block type construction, when the Germania back flush system is milking cows or is in the "rest" position between cows, the water and sanitizer connections are moved providing a complete physical break to atmosphere between them and the milk line. Any modification of this equipment that does not include such a physical break is unacceptable.

The iodine and water lines will most probably be directly connected to each other. When this is true, if the iodine (or other acceptable sanitizer) is dispensed from a container that is larger than one gallon, there will need to be an appropriate back flow preventer on the water line upstream from the connection to the sanitizer line to protect the water supply from the sanitizer.

51. Q: Two (2) separate dairy farms are both on the same well. Should a water sample be taken from each milkhouse? The milkhouses are the points of use.
    A: If this distribution system does not have separate storage reservoirs or other unique features in the system, a single sample may be representative of the individual water system. The results from this single sample must be included in the records for each permitted dairy farm.

8r. <u>Water Supply</u>

<u>FDA</u>

Issued the following memo M-a-57, dated August 17, 1979, entitled, Use of Auxiliary High Pressure Water Pumps on Grade "A" Dairy Farms.

"We have had recent requests regarding the use of auxiliary water pumps to increase water pressure in milkhouses, dairy barns, and milking parlors. These pumps increase the water pressure and permit easier cleaning of floors, walls, stanchions, stalls, and the exterior surfaces of equipment. However, they can create a negative pressure in the water supply system because of their capability to pump at a faster rate than water can be supplied if not properly installed and operated.

When a negative pressure exists in the water supply system there is a possibility for contamination to enter the water system due to backsiphonage. This is considered a violation of Item 8r. of the Grade "A" Pasteurized Milk Ordinance, 1978 Edition.

An auxiliary high pressure water pump may be used if it is protected in one of the following ways:

1. The auxiliary pump may be supplied by a separate surge tank that is isolated from the main water supply system by an air gap.

2. The auxiliary pump may be supplied by a separate water source that is not connected to the water supply system supplying water to the milk house.

3. An effective low pressure cut-off switch may be installed on the suction side and immediately upstream from the pump. This switch must deactivate the pump when the pressure on the suction or feed line drops below 10 pounds per square inch. A shut off valve must be installed on the supply line near the High Pressure Pump to test the system.

4. The installation of any other device or means that will satisfactorily prevent a negative pressure on the water supply system and subsequent contamination of the water supply system."

Michigan
Requires 75 feet between source of contamination and the well.

Ohio
Does not permit new well pits or buried seals after July 1, 1966.

(b) Disinfection of Individual Water Supplies

All individual water supplies should be disinfected after initial construction and after any repair, which may have introduced contamination into the water supply, pumping equipment or distribution system. Disinfection may be accomplished with any chlorine laundry bleach. Chlorine bearing compounds used for swimming pools disinfection may also be used. These compounds have a considerably higher chlorine content than laundry bleach, and the label instructions for preparing a stock sanitizing solution should be followed for water supply disinfection.

Two quarts of laundry bleach with an EPA approved label would be sufficient for disinfection of most drilled and dug wells. Springs with larger reservoirs may require four quarts of bleach for proper disinfection. The chlorine solution should be poured into the well or spring. A short period of pumping and recirculation back into the well is desirable to insure complete mixing of the chlorine in the water supply. Water should then be drawn to each tap until a strong chlorine odor is noticeable. The water supply should then remain unused overnight or preferably for 24 hours.

Dug wells, springs, and reservoirs may not be completely contacted by the chlorine solution for proper disinfection. In these cases, it may be necessary to assure complete exposure by recirculating water by pumping or by hand brushing those surfaces with chlorine solution prior to the overnight contact time.

After the contact time is completed, water should be drawn from each tap until the chlorine odor has dissipated. The water supply may then be used for normal purposes.

About one week after disinfection has been completed, the water supply should be resampled to determine if the disinfection has eliminated the contamination. If disinfection procedures cannot eliminate the contamination, permanent chlorination of the water supply may be necessary.

Testing of Chlorinated Water Supplies

New York
Requires that any private water supplies which require chlorination shall be tested for chlorine residual each day. The plant or farm shall have a chlorine test kit available for this purpose. A chlorine test kit used for swimming pools is suitable for this purpose and should be available for less than $10. The chlorine content should be at least 0.3 ppm.

The chlorine residual should be determined each day and recorded. A record of these tests should be kept in the milkhouse or with plant quality control records.

ITEM 9r. UTENSILS AND EQUIPMENT – CONSTRUCTION

INSPECTION REPORT

UTENSILS AND EQUIPMENT

9. Construction :
Smooth, impervious, nonabsorbent, safe materials;
easily cleanable; ..... (a) _____
In good repair; accessible for inspection . (b) _____
Approved single-service articles; not reused(c) _____
Utensils and equipment of proper design (d) _____
Approved mechanically cleaned milk pipeline
system ..... (e) _____

PMO

ITEM 9r. UTENSILS AND EQUIPMENT - CONSTRUCTION

All multi-use containers, equipment and utensils used in the handling, storage or transportation of milk shall be made of smooth, nonabsorbent, corrosion-resistant, nontoxic materials, and shall be so constructed as to be easily cleaned. All containers, utensils and equipment shall be in good repair. Multiple-use woven material shall not be used for straining milk. All single-service articles shall have been manufactured, packaged, transported and handled in a sanitary manner and shall comply with the applicable requirements of Item 11p. of this Section. Articles intended for single-service use shall not be reused.
Farm holding/cooling tanks, welded sanitary piping and transportation tanks shall comply with the applicable requirements of Items 10p. and 11p. of this Section.

PUBLIC HEALTH REASON

Milk containers and other utensils without flush joints and seams, without smooth, easily cleaned, and accessible surfaces, and not made of durable, non-corrodible material, are apt to harbor accumulations in which undesirable bacterial growth is supported. Single-service articles, which have not been manufactured and handled in a sanitary manner, may contaminate the milk.

ADMINISTRATIVE PROCEDURES

This Item is deemed to be satisfied when:

1. All multi-use containers, equipment and utensils, which are exposed to milk or milk products, or from which liquids may drip, drain or be drawn into milk or milk products, are made of smooth impervious, nonabsorbent, safe materials of the following types:
   a. Stainless steel of the American Iron and Steel Institute (AISI) 300 series; or
   b. Equally corrosion-resistant, non-toxic metal; or
   c. Heat-resistant glass; or
   d. Plastic or rubber and rubber-like materials which are relatively inert, resistant to scratching, scoring, decomposition, crazing, chipping and distortion, under normal use conditions; are nontoxic, fat resistant, relatively nonabsorbent, relatively insoluble; do not release component chemicals or impart flavor or odor to the product; and which maintain their original properties under repeated use conditions.

2. Single-service articles have been manufactured, packaged, transported and handled in a sanitary manner and comply with the applicable requirements of Item 11p.

3. Articles intended for single-service use are not reused.

4. All containers, equipment and utensils are free of breaks and corrosion.

5. All joints in such containers, equipment and utensils are smooth and free from pits, cracks or inclusions.

6. Mechanically cleaned milk pipelines and return-solution lines are self-draining. If gaskets are used, they shall be self-positioning and of material meeting specifications described in 1.d. above, and shall be of such design, finish and application as to form a smooth, flush, interior surface. If gaskets are not used, all fittings shall have self-positioning faces designed to form a smooth, flush, interior surface. All interior surfaces of welded joints in pipelines shall be smooth and free of pits, cracks and inclusions.

7. Detailed plans for mechanically cleaned pipeline systems are submitted to the Regulatory Agency for written approval prior to installation. No alteration or addition shall be made to any milk pipeline system without prior written approval of the Regulatory Agency.

8. Strainers, if used, are of perforated metal design, or so constructed as to utilize single-service strainer media.

9. All milking machines, including heads, milk claws, milk tubing and other milk-contact surfaces can be easily cleaned and inspected. Pipelines, milking equipment and appurtenances, which require a screwdriver or special tool, shall be considered easily accessible for inspection, providing the necessary tools are available at the milkhouse.

10. Milk cans have umbrella-type lids.

11. arm holding/cooling tanks, welded sanitary piping and transportation tanks comply with the applicable requirements of Items 10p. and 11p. of this Section.

12. During filling, flexible plastic/rubber hoses may be used between the fill valves of bottom fill bulk milk storage tanks, when needed for functional purposes. Such hoses shall be drainable, be as short as practical, have sanitary fittings, and be supported to maintain uniform slope and alignment. The end fittings of such hoses shall be permanently attached in such a manner that will assure a crevice-free joint between the hose and the fitting, which can be cleaned by mechanical means. The hoses shall be included as part of a mechanical cleaning system.

NOTE: 3-A Sanitary Standards for dairy equipment are promulgated jointly by the Sanitary Standards Subcommittee of the Dairy Industry Committee, the Committee on Sanitary Procedure of the International Association for Food Protection and the Milk Safety Branch, Food and Drug Administration, Public Health Service, Center for Food Safety and Applied Nutrition, Department of Health and Human Services. Equipment manufactured in conformity with 3-A Sanitary Standards complies with the sanitary design and construction standards of this *Ordinance*.

Additional Information - UTENSILS AND EQUIPMENT

9r. Construction

(b) Inking (leaching of the black pigment) of any rubber parts (air hoses, inflations, lid gaskets, etc.) or cracked and porous rubber parts are debited under this item. Also debited under this item are leaking bulk milk storage outlet valves, leaking milk pipeline joints, cracked or checked dumping station vacuum seal balls and transfer hoses on dumping stations which are opaque.

(e) Vacuum Requirements for Pipeline Milking Systems

The information on pipeline milker vacuum requirements given on the pipeline milker application forms has created some confusion among inspectors and among dealers.

The confusion apparently exists in regard to the item "Pulsated vacuum line per 10 feet of length." A pulsated vacuum line is seldom found in pipeline milking systems installed in the Northeast. A vacuum system of this type would have a master pulsator which pulsated the entire vacuum line rather than individual pulsators attached to each milking machine or to the vacuum line stallcock.

In pipeline milking systems with individual pulsators attached either to the milker unit or to the vacuum hose at the stallcock, it is not necessary to compute a vacuum allowance for the vacuum line.

(e) Installation of Milk Receivers and Pumps in Pits of Milking Parlors

There have been questions about the acceptability of receiver jars and milk pumps located on the floor of milking parlor pits, as part of low-line pipeline installations.

In a low-line installation, the milk pipeline is located on the upper part of the pit wall, usually beneath the overhang of the cow platform. Milk from this line or lines flows by gravity to the receiver jar. It is often necessary to install the receiver jar and pump assembly on the floor of the pit to provide enough slope on the milk lines to achieve gravity flow to the receiver jar.

Installations of this type may be accepted when the following items are provided in the installation:

1. The pump and receiver jar assembly must be readily accessible for cleaning and inspection. The level control probes must be removable from the receiver jar without disconnection and removal of the receiver jar from adjacent piping. The receiver jar and pump must not be placed in a recessed area under the cow platform or under the cow crossover near the parlor exit.

2. The pump and receiver jar must be mounted on legs or a stand to provide clearance for flow of water during cleanup.

3. The pump and receiver jar must not be placed over a floor drain or near a floor drain where waste water will flow under and around or come in contact with the receiver assembly to reach a drain.

Questions and Answers

1. Q: Is it acceptable to use so-called Food Grade PVC plastic in return solution lines on Grade "A" dairies? All information in 3-A Practices and in the PMO require wash lines to be of material equivalent to product contact surfaces?
   A: The PMO requires that "All cleaned-in-place milk pipelines and return solution lines are rigid, self-draining, and so supported to maintain uniform slope and alignment". To date, no plastic pipeline system has been able to satisfactorily demonstrate this characteristic. M-b-246 does provide for the use of polypropylene tees and elbows when connected to stainless steel or glass pipelines.

   Anyone desiring to use a PVC plastic in return solution lines should make a formal request and provide the appropriate study information.

   The use of PVC plastic in return solution lines is a violation of Item 9r.

   Flexible PVC (plasticized) that the manufacturer certifies is "Food Grade" may be used for short flexible takedown jumpers or connections.

2. Q: Is it acceptable to leave the wash yoke on the Universal receiver during the milking operation? Originally the yoke assembly was removed when milking and the inlets sealed with plugs. New systems are being installed and the yoke left on during milking with a shut-off in the return solution line. Depending on the location, a portion of the yoke assembly becomes milk contact surface. If shut-off is acceptable, explain type and location.
   A: The wash yoke is installed in several different arrangements. Each arrangement must be carefully reviewed for the possibility of surfaces from which milk may drip, drain or be drawn. If the wash yoke is left on during milking, then all affected surfaces must be cleaned and sanitized. If a shut-off valve is used, it must meet the construction criteria of the PMO. There is no location requirement for a shut-off valve.

3. Q: Cleaning solution surfaces must meet product surface standards. What about wash vats?
   A: Item 9r deals only with the construction requirements for milk contact surfaces. Utensil wash vats should be relatively smooth and be of sufficient size to accommodate the largest utensil or container that is washed manually. When was vats deteriorate to a condition of poor repair (i.e., excessive corrosion, separated seams, etc.) which hampers their intended use and cleanability, then Item 5r would be debited.

4. Q: There is an in-line "mastitis indicator" which consists primarily of a woven screen. Where do we mark the use of this device?
   A: Under equipment construction Item 9r.

5. Q: If we find something that bears a 3-A symbol but does not appear to meet the standard, can we debit it?
   A: Yes.

6. Q: What else can we do?
   A: Our regulatory agency or individuals can file an objection with 3-A.

7. Q: Must piping and appurtenances used in conjunction with exterior measuring tubes on farm bulk tanks be designed to automatically discard the measured milk?
   A: Yes. All outlets on farm bulk tanks which do not maintain proper product temperatures must discard the milk.

8. Q: When a coded M-b Memorandum states that a piece of equipment meets the applicable construction criteria of the PMO, does this necessarily mean that it will clean in place (CIP)?
   A: No. The only equipment considered truly CIP is stainless steel tanks and welded pipeline circuits.

9. Q: What type of outlet valve is acceptable for bottom filling a farm bulk tank?
   A: Any type of valve that is capable of being properly cleaned and sanitized after the filling operation is completed and before the emptying is started. Butterfly valves can be cleaned and sanitized after filling and would be acceptable. However, plug type valves that hold milk in the plug are not accessible for cleaning, and would not be acceptable for a bottom fill tank.

10. Q: What is the status of DEC polypropylene farm pipelines installed several years ago on an experimental basis?
    A: Review made by Midwest Region indicates that those in the study did not comply with PMO requirements.

11. Q: Are rolled-on fittings on farm pipelines allowed or do they have to be welded as per 3A? (Are they to be debited?)
    A: Yes. Roll-on fittings are allowed and if in proper repair they are not debited.

Delaware, Maine, Massachusetts, Maryland, and New Hampshire

Recommend pipeline milkers be equipped with automatic washers. Automatic washers are defined as washers designed to execute a series of pre-rinse, wash and post-rinse cycles of predetermined length. After initial manual activation, an automatic washer shall proceed to each cycle in sequence without further manual intervention. Automatic washers may accomplish sanitizing in the final post-rinse cycle or may have a separately activated sanitizing cycle.

New York

(e) Requires automatic washers on all farm milk pipelines installed on or after April 15, 1974. Pipeline washers which do not meet the above definition which are in use and have been accepted by New York will continue to be accepted.

This decision has been made because of reports of cleaning problems caused by day to day variation in washing procedures on manually operated recirculation cleaning systems.

New York has sent this information to each of the companies manufacturing pipeline milker systems and these companies have been requested to notify their dealer organization of this decision.

Bulk Tank Platforms

New York
Has worked with the manufacturers of farm bulk tanks to standardize the design of bulk tank platforms and the methods of installing these platforms.

After reviewing design proposals from several manufacturers, New York has decided that it is appropriate to broaden the interpretation of the term "permanently attached platform" as used in Item 4c of their Refrigerated Bulk Milk Storage Tank Installation Requirements, dated November 15, 1971.

The objective in defining construction and installation of bulk tank platforms is to insure a convenient and safe working location for sampling and inspection of large bulk tanks. The platform must be constructed and installed to permit a sampler to have both hands free and to allow the user to safely lean away from the platform when necessary to obtain a milk sample.

New York believes it is possible to accomplish the objective of holding a platform securely in place without a permanent installation, such as welding or other methods which would require tools for removal of the platform. Platform attachment methods, such as retaining rings on the tank to hold the platform or metal studs or brackets in the milkhouse floor to hold the platform in place, may be accepted.

On future bulk tank installations, the inspector may accept any installation technique which will hold the platform securely in place and prevent movement during use. An installation method which meets these criteria and still permits the platform to be removed without the use of tools would be acceptable.

Use of PVC Plastic Parts

FDA
Questions have arisen about the use of polyvinylchloride (PVC) plastic parts. PVC parts that are certified by the manufacturer for food grade use and are 3A approved may be used for milk contact purposes.

However, the assembly techniques often used on PVC piping (i.e. slip joints, chemical solvents, welds and threads) cannot be considered to be in compliance with PMO construction criteria for milk products and cleaning solution lines. This type of installation can be used for vacuum lines when it is not part of the CIP return solution line. National Sanitation Foundation (NSF) testing of PVC piping is predicated upon its use for water piping and does not constitute approval for milk contact surfaces, sanitary piping or CIP return solution lines.

PVC piping may be used for sanitizer solution lines up to the manifold on reverse flush systems.

PVC piping may be used for air under pressure on reverse flush systems when it complies with paragraph 5 of FDA memo M-a-65, see page 27.

FDA
Issued the following Memo M-a-65, dated November 15, 1979, entitled, Reverse Flush Systems for Flushing Milk Hoses, Teat Cup Clusters, Milker Claws, and Inflations Between Cows. (This includes the modification of parameter number 5 based on a supplement to M-a-65, dated December 10, 1980).

"Considerable interest is being expressed toward the practice of reverse flushing chemical solutions through milk hoses, teat cup clusters, milker claws, and inflations between the milkings of one cow and another in order to prevent the spread of mastitis from one cow to another. A study has been conducted by Dairy Extension Service, University of California, Davis, CA; The Department of Agriculture in California; our Region IX office; and this Branch over the past year on several field trial installations of these systems. These field trials have indicated that

when these systems were designed, installed, and operated in accordance with the outlined parameters that no appreciable adulteration or contamination of the milk takes place.

Parameters for the design, installation, and operation of reverse flush systems:

1. All product contact surfaces shall conform to the construction criteria of Item 9r of the PMO.

2. An intervening break to the atmosphere shall be provided between the water and/or chemical solution and the product and/or product contact surfaces at all times.

3. If a prerinse cycle is used it shall be with safe water.

4. The system shall provide for:

   a. A chemical solution cycle with a chemical solution complying with provisions of Appendix F of the PMO.

   b. The chemical solution strength shall be limited to that strength necessary to accomplish its intended effect and shall not leave a significant residual in the milk.

   c. A post-rinse cycle with safe water. The use of treated water to prevent psychrophilic contamination should be considered.

   d. A drain cycle with sufficient time to drain or remove all moisture from the product contact surfaces of the reverse flush system.

5. When air under pressure is used in contact with product or solution contact surfaces, it shall comply with the requirements for air under pressure contained in Item 16r. of the PMO; Provided, that an exception to the piping requirement for the air piping downstream from the terminal filter may be granted when: (1) the piping is used only for filtered air, (2) at least one access point is available to determine cleanliness of the air piping, and (3) the piping is of a smooth, non-adsorbent, corrosion-resistant, non-toxic material, including any adhesives used in joints. In some installations, a check valve may be required to prevent water and/or chemical solution from entering these air lines.

When reverse flush systems are designed, installed, and operated in accordance with the above parameters they may be considered to be in compliance with the Grade "A" Pasteurized Milk Ordinance.

ITEM 10r. UTENSILS AND EQUIPMENT - CLEANING

INSPECTION REPORT

UTENSILS AND EQUIPMENT

10. Cleaning:
Utensils and equipment clean.....(a) _____

PMO

ITEM 10r. UTENSILS AND EQUIPMENT - CLEANING

The product-contact surfaces of all multi-use containers, equipment and utensils used in the handling, storage or transportation of milk shall be cleaned after each usage.

PUBLIC HEALTH REASON

Milk cannot be kept clean or free of contamination if permitted to come into contact with unclean containers, utensils or equipment.

ADMINISTRATIVE PROCEDURES

This Item is deemed to be satisfied when:

1. There shall be a separate wash manifold for all mechanically cleaned milk pipelines in all new, or extensively remodeled facilities.

2. The product-contact surface of all multi-use containers, equipment and utensils used in the handling, storage or transportation of milk are cleaned after each milking or once every twenty-four (24) hours for continuous operations.

3. There shall be no partial removal of milk from milk storage/holding tanks by the bulk milk hauler/sampler, except partial pickups may be permitted when the milk storage/holding tank is equipped with a seven (7) day recording device complying with the specifications of Appendix H. or other recording device acceptable to the Regulatory Agency, provided the milk storage/holding tank shall be clean and sanitized when empty and shall be emptied at least every seventy-two (72) hours. In the absence of a temperature-recording device, partial pickups may be permitted as long as the milk storage/holding tank is completely empty, clean and sanitized prior to the next milking. In the event of an emergency situation, such as inclement weather, natural disaster, etc., a variance may be permitted at the discretion of the Regulatory Agency.

Additional Information - Utensils and Equipment

See Guidelines: DPC 2, Effective Installation, Cleaning and Sanitizing of Milking Systems, DPC 4 Installation, Cleaning and Sanitizing of Large Parlor Milking Systems, DPC 9 Fundamentals of Cleaning & Sanitizing Farm Milk Handling Equipment, DPC 28 Troubleshooting Residual Films on Dairy Farm Milk Handling Equipment, DPC 58 Sizing Dairy Farm
Water Heater Systems and DPC 70 Small Ruminant Milking Systems

10r. Cleaning

For information on heat exchangers for heating water, see Appendix D pages 64-65.

Washing Instructions for CIP Pipeline and Bulk Tanks on Dairy Farms

Sometimes dairy farms do not have accurate washing instructions for CIP equipment. In some cases, these instructions were not supplied with the original installation, and in other cases, the instructions available did not correspond with the brand of cleaning chemicals currently available in the milkhouse.

Recirculation cleaning depends upon solution velocity and the chemical action of the detergent to replace the scrubbing action of manual cleaning. Differences in equipment size and variations in water analysis create a unique cleaning problem at each farm and no set of standard instructions provided with cleaning products can be suitable for all circumstances.

All the major suppliers of farm cleaning chemicals have personnel who can determine the hardness and pH of water and set up a cleaning program designed for the individual needs of each dairy farm. This service is available without cost to the producer.

Many of the cleaning chemical suppliers are understandably reluctant to formulate a cleaning program or to become involved in cleaning problems when a producer is using chemicals from several suppliers in his cleaning program. This is unfortunate since the producer loses the benefit of free technical service in a specialized area usually outside the competence of most dairy farmers.

Dairymen should have a posted set of washing instructions for each pipeline and CIP bulk tank installation. Producers should be advised to obtain new instructions whenever a new brand of cleaning supplies is purchased.

Inspectors and fieldpersons should also point out to producers, and particularly the producers with a history of cleaning problems, the advantage of purchasing all cleaning chemicals from one supplier to obtain the technical services of the manufacturer.

(a) Improperly cleaned air hoses, pulsators, and vacuum lines located between trap and receiver jars or bulk milk storage tanks are debited under this item. HOWEVER, such items are not debited under Item 11a.

Questions & Answers

1. Q: If IBA's 6000 silicone inflation and component won't clean, where is this marked?
   A: Unclean contact surfaces are marked under Items 10r and 11r; non-contact surfaces under Item 6r or 3r depends on where the equipment is stored..

2. Q: Are pulsators and vacuum hoses considered milk contact surfaces?
   A: Pulsators and vacuum hoses are not normal milk product contact surfaces but are surfaces from which condensation and other contamination could drip, drain or be drawn into the product. If these surfaces are dirty, Item 10r is marked on the inspection sheet. Item 11r is not debited when pulsators and vacuum hoses are not clean.

3. Q: On a recent check rating, a Bodman pulsator was found to be dirty and debited on Items 10 and 11. Is this a proper debit? Why is this violation being debited 10 points under Items 10 and 11 rather than the previously marked 5 points under Item 10?
   A: On some Bodman pulsators, older models manufactured before August, 1983, the pulsators were considered product contact surfaces; i.e., the product came in contact with the surface where liquids may drip, drain or be drawn into the milk. When product contact surfaces are found dirty, they are debited under Items 10r Cleaning, and 11r Sanitizing, because an unclean surface cannot be properly sanitized. Other types of pulsators have, in the past, not been considered as product contact surfaces because of their design. When they are found dirty, they have been debited for violation of Item 10r but not 11r.

FDA

Issued the following memo M-a-43 Revised 8-17-79 entitled: Single Line Farm Pipeline Milkers using Vacuum-Gravity (reverse flush) Washing Systems.
"In view of the number of requests for information concerning the proper installation of the subject washing systems, we wish to reconfirm previous interpretation as to their compliance with the Grade "A" Pasteurized Milk Ordinance, 1978 Edition.

1. All new installations of vacuum-gravity (reverse flush) washing systems should be installed so that the distal receptacle is readily available for inspection and manual cleaning if necessary. Receptacles, unless effectively separated from the milking lines during the milking operation, are considered to be product contact surfaces and subject to the applicable items of the Grade "A" Pasteurized Milk Ordinance, 1978 Edition.

2. For existing installations, distal receptacles not accessible for inspection must be separated from the milking system during the milking operation. Failure to properly separate the receptacle during the milking operation is considered a violation of Items 10r. and 11r.

3. Physical disconnection of the distal receptacle from the milking system will, of course, require a sanitary cap for the milk line. If this cap is not available during inspections made between milking periods, it is considered a violation of Items 10r. and 11r.

4. In lieu of a physical disconnection a valve may be used which will effectively separate the milking line from the distal receptacle

Georgia
When there is a partial pickup, the remaining milk in the bulk tank shall be picked up before the next milking.

ITEM 11r. UTENSILS AND EQUIPMENT - SANITIZATION

INSPECTION REPORT

UTENSILS AND EQUIPMENT

11. Sanitization:
All multi-use containers and equipment subjected to approved sanitization process (See *Ordinance*) (a) _____

PMO

ITEM 11r. UTENSILS AND EQUIPMENT - SANITIZATION

The product-contact surfaces of all multi-use containers, equipment and utensils used in the handling, storage or transportation of milk shall be sanitized before each usage.

PUBLIC HEALTH REASON

Mere cleaning of containers, equipment and utensils does not insure the removal or destruction of all disease organisms that may have been present. Even very small numbers remaining may grow to dangerous proportions, since many kinds of disease bacteria grow rapidly in milk. For this reason, all milk containers, utensils and equipment must be treated with an effective sanitizer before each usage.

ADMINISTRATIVE PROCEDURES

This Item is deemed to be satisfied when:

All product-contact surfaces of multi-use containers, utensils and equipment used in the handling, storage or transportation of milk are sanitized before each usage by one of the following methods, or by any method which has been demonstrated to be equally effective:

1. Complete immersion in hot water at a temperature of at least 77ºC (170ºF) for at least five (5) minutes; or exposure to a flow of hot water at a temperature of at least 77ºC (170ºF), as determined by the use of a suitable accurate thermometer, at the outlet, for at least five (5) minutes.

2. Certain chemical compounds are effective for the sanitization of milk utensils, containers, and equipment. These are contained in 21 CFR 178.1010 and shall be used in accordance with label directions. (See Appendix F. for further discussion of approved sanitizing procedures).

Additional Information - Utensils and Equipment

11r. Sanitization
(a) If you have any questions about the acceptability of any sanitizer used in the field, please send a product label to the office of your local EPA.

Questions & Answers

1. Q: What is FDA's position on the use of household bleach as a chlorine sanitizer on dairy farms?
   A: All chlorine sanitizers must have labeling acceptable to EPA which specifies its use in dairy facilities and must have instructions for mixing the product to obtain the required sanitizing strength. At least one household bleach manufacturer has this information available upon request from its company headquarters. The available information is generally not provided as regular labeling and must be obtained by special request. If this labeling is not readily available at the dairy facility, it is a violation of Item 11r. Item 13r could also be in violation if no other sanitizer is available for the sanitizing of teats prior to milking, if applicable.

2. Q: Can household chlorine bleach be added to solutions of chlorinated cleaners?
   A: Yes! The PMO does not address cleaning compounds, however, this procedure does not satisfy the PMO requirements for sanitizing.

3. Q: Is hydrogen peroxide approved as a sanitizer to fog equipment?
   A: No. Hydrogen peroxide, applied as a fog, is ineffective and leaves a residue.

4. Q: Are nitric acid sanitizers allowed for milk contact surfaces?
   A: No.

ITEM 12r. UTENSILS AND EQUIPMENT - STORAGE

INSPECTION REPORT

UTENSILS AND EQUIPMENT

12. Storage:
All multi-use containers and equipment
properly stored ..... (a) _____
Stored to assure complete drainage, where
applicable ..... (b) _____
Single-service articles properly stored .....(c) _____

PMO

ITEM 12r. UTENSILS AND EQUIPMENT - STORAGE

All containers, utensils and equipment used in the handling, storage or transportation of milk, unless stored in sanitizing solutions, shall be stored to assure complete drainage and shall be protected from contamination prior to use. Provided, that pipeline milking equipment such as milker claws, inflations, weigh jars, meters, milk hoses, milk receivers, tubular coolers, plate coolers and milk pumps which are designed for mechanical cleaning and other equipment, as accepted by FDA, which meets these criteria, may be stored in the milking barn or parlor, provided this equipment is designed, installed and operated to protect the product and solution-contact surfaces from contamination at all times.

PUBLIC HEALTH REASON

Careless storage of milk containers, utensils and equipment, which previously have been properly treated, is apt to result in recontamination of such utensils, thus rendering them unsafe.

ADMINISTRATIVE PROCEDURES

This Item is deemed to be satisfied when:

1. All milk containers, utensils and equipment, including milking machine vacuum hoses, are stored in the milkhouse in a sanitizing solution, or on racks, until used. Pipeline milking equipment such as milker claws, inflations, weight jars, milk hoses, milk receivers, tubular coolers, plate coolers and milk pumps which are designed for mechanical cleaning and other equipment, as accepted by FDA, which meets these criteria, may be mechanically cleaned, sanitized and stored in the milking barn or parlor, provided this equipment is

designed, installed and operated to protect the product and solution contact surfaces from contamination at all times. Some of the parameters to be considered in determining protection are:

a. Proper location of equipment;
b. Proper drainage of equipment; and
c. Adequate and properly located lighting and ventilation.

2. The milking barn or parlor must be used only for milking. Concentrates may be fed in the barn during milking but the barn shall not be used for the housing of animals. When manual cleaning of product contact surfaces is necessary, the cleaning shall be done in the milkhouse. Provided, in the case of a milking parlor that opens directly into an enclosed housing area, through a covered holding area, the holding area may be seasonally enclosed when:

a. There are no manure pit openings in the parlor, holding area or in the housing area close enough to affect the milking parlor.
b. The cattle holding and housing areas are maintained in good repair and reasonably clean.
c. With respect to dust, odors, rodents and insects, the entire area meets milking parlor standards and the parlor is free of evidence of birds.

In addition, construction and cleanliness items identified above shall be evaluated in the appropriate *Ordinance* Sections.

3. Means are provided to effect complete drainage of equipment when such equipment cannot be stored to drain freely.

4. Clean cans or other containers are stored in the milkhouse within a reasonable time after delivery to the dairy farm.

5. Strainer pads, parchment papers, gaskets and similar single-service articles are stored in a suitable container or cabinet, in a location convenient to their use, and protected against contamination.

Additional Information - UTENSILS AND EQUIPMENT

12r. Storage

(b) FDA

Permits the use of milker unit washers designed for washing and storage of milker claw assemblies and milk hoses in the milking parlor.

This equipment and type of installation is acceptable under the following circumstances:

The milking barn or parlor must be enclosed and used only for milking. Concentrations may be fed, but the barn shall not be used for housing of cattle. Also look at 12r-Adminisrative Procedures #2.

When manual cleaning of product contact surfaces is necessary, the cleaning shall be done in the milkhouse.

The washing units shall be installed and operated to provide protection of the product contact surfaces and solution contact surfaces at all times.

Washing units shall be installed to provide self-draining.

Lighting shall be adequate to permit inspection of the equipment for cleanliness.

Only washing units designed by the manufacturer for use in the parlor shall be acceptable in parlor installations. Home-made units or modified milkhouse washing units shall not be acceptable.

Installation of milker unit washers in an existing pipeline is considered an addition to the pipeline and requires approval of the regulatory agency.

Questions & Answers

1. Q: What item in the PMO pertains to storage of washed and sanitized milking equipment in the parlor?
   A: Item 12r.

2. Q: What method of storage is required for abnormal milk equipment?
   A: The same as other milk equipment no mater where it is stored.

3. Q: Can there be equipment wash vats in the parlor?
   A: No.

4. Q: Is it permissible to place a strainer sock in a pipeline system directly after the wash and rinse cycle and leave it there for sanitizing prior to the next milking?
   A: Yes! Provided the equipment will properly drain during the day and is protected from contamination.

5. Q: Do the in-place cleaning units for milking units in the parlor need protection during milking?
   A: Yes! They need covered protection from splash and contamination during milking **or** must be moved into the milkhouse.

Note: Questions 6-9 assume that milk receiver assembly and/or equipment washing are in the parlor area.

6. Q: Are sliding doors on the sidewalls of a milking parlor and holding area acceptable for ventilation purposes?
   A: Yes, providing the doors have a satisfactory finish and can be cleaned.

7. Q: Is it necessary to screen the openings?
   A: It is not necessary to screen the door openings.

8. Q: Are insulated curtains on the sidewalls of a milking parlor and holding area acceptable for ventilation purposes?
   A: Yes, if they are cleanable and kept clean.

9. Q: Are doors or any type of closure necessary between the parlor and holding area when the holding area is "finished" on the inside?
   A: No. Note: This assumes that the holding area is not open to the barn between milkings.

10. Q: Can the milk receiver be located at the cow entrance end of parlor (when parlor is separated from the housing barn)?
    A: Yes.

11. Q: Are manure gravity flow gutters under a slatted floor holding area acceptable? If so, are there any special requirements?
    A: Yes, but a door closure is required between the holding area and parlor regardless of how the holding area is finished. This door can be open during the milking period but must be closed during the wash cycle and non-milking period when milking equipment is stored in the parlor.

12. Q: The 1999 NCIMS Conference moved the evaluation of Abnormal Milk Handling Equipment (i.e. "The Fresh Cow Bucket") to Item 1r which is a 5 point item. Many State and Industry people think that improper storage (of a reasonably clean fresh cow bucket) shouldn't be debited 5 points (use Professional Judgment) but instead choose to evaluate it under Item 12r(a)-Storage of Cleaned Equipment (2 points). I understand their intent, but I believe the Conference put everything for fresh cow buckets under Item 1r. What is correct?
    A: Evaluation of abnormal milk handling equipment was moved to Item 1r to deal with the issue of cow-to-cow transfer of infections. Therefore, cleaning, repair and drainage concerns regarding this equipment are

evaluated under Item 1r. If storage of this equipment is contributing to a cleaning (housekeeping) concern in the milking area or milkhouse, this is evaluated under Item 3r or 6r, respectively.

13. Q: Do single-service filters, stored in a properly protected and clean container, have to remain in their original box or can they be removed and placed in a separate container?
A: This would be acceptable if the filters can be removed and stored in a sanitary manner and the container is kept clean and in good repair.

ITEM 13r. MILKING - FLANKS, UDDERS, AND TEATS

INSPECTION REPORT

MILKING

13. Flanks, Udders, and Teats:
Milking done in barn, stable, or parlor .....(a) _____
Brushing completed before milking begun(b) _____
Flanks, bellies, udders, and tails of cows clean at time of milking; clipped when required....(c) ____
Teats cleaned, treated with sanitizing solution and dry, prior to milking..... (d) _____
No wet hand milking.....(e) _____

PMO

ITEM 13r. MILKING - FLANKS, UDDERS, AND TEATS

Milking shall be done in the milking barn, stable or parlor. The flanks, udders, bellies and tails of all milking lactating animals shall be free from visible dirt. All brushing shall be completed prior to milking. The udders and teats of all milking lactating animals shall be clean and dry before milking. Teats shall be treated with a sanitizing solution just prior to the time of milking and shall be dry before milking. Wet hand milking is prohibited.

PUBLIC HEALTH REASON

If milking is done elsewhere other than in a suitable place provided for this purpose, the milk may become contaminated. Cleanliness of the lactating animals is one of the most important factors affecting the bacterial count of the milk. Under usual farm conditions, lactating animals contaminate their udders by standing in polluted water or by lying down in the pasture or cowyard. Unless the udders and teats are clean and dry before milking, particles of filth or contaminated water are apt to drop or be drawn into the milk. Such contamination of the milk is particularly dangerous because manure may contain the organisms of brucellosis and tuberculosis, and polluted water may contain the organisms of typhoid fever and other intestinal diseases. Application of sanitizing solutions to the teats, followed by thorough drying just prior to the time of milking, has the advantage of giving an additional margin of safety with reference to such disease organisms as they are not removed by ordinary cleaning and it is helpful in the control of mastitis.

ADMINISTRATIVE PROCEDURES

This Item is deemed to be satisfied when:

1. Milking is done in a milking barn, stable or parlor.

2. Brushing is completed prior to milking.

3. Flanks, bellies, tails and udders are clipped as often as necessary to facilitate cleaning of these areas and are free from dirt. The hair on the udders shall be of such length that it is not incorporated with the teat in the inflation during milking.

4. Udders and teats of all milking animals are clean and dry before milking. Teats shall be cleaned, treated with a sanitizing solution and dry just prior to milking, except that additional alternative udder preparation methods may also be used once they have been evaluated by FDA and found acceptable.

5. Wet hand milking is prohibited.

Additional Information: MILKING

See Guidelines: DPC 11, Sediment Testing and Producing Clean Milk, DPC 17 Prevention of & Testing for Added Water in Milk, and DPC 49 Pre- & Postmilking Teat Disinfectants,

FDA

Based on a review of scientific literature, FDA has accepted the following as an alternative to sanitizing udders as required by item 13r of the Grade A Pasteurized Milk Ordinance, "milking—flanks udders and teats". Sanitizing of the teats shall not be required if the udder is dry and the teats have been thoroughly cleaned (not dry wiped) and dried (manually wiped dry) prior to milking. The determination of what constitutes a dry udder and cleaned and dried teats shall be made by the regulatory agency.

ITEM 14r. PROTECTION FROM CONTAMINATION

INSPECTION REPORT

TRANSFER AND PROTECTION OF MILK

14. Protection From Contamination:
No overcrowding..... (a) _____
Product and CIP circuits separated..... (b) _____
Improperly handled milk discarded.....(c) _____
Immediate removal of milk ..... (d) ____
Milk and equipment properly protected .(e) _____
Sanitized milk surfaces not exposed to
Contamination ..... (f) _____
Air under pressure of proper quality..... (g) _____

PMO

ITEM 14r. PROTECTION FROM CONTAMINATION

Milking and milkhouse operations, equipment and facilities shall be located and conducted to prevent any contamination of milk, equipment, containers and utensils. No milk shall be strained, poured, transferred or stored unless it is properly protected from contamination.

After sanitization, all containers, utensils and equipment shall be handled in such a manner as to prevent contamination of any product-contact surface.

Vehicles used to transport milk from the dairy farm to the milk plant, receiving station or transfer station shall be constructed and operated to protect their contents from sun, freezing and contamination. Such vehicles shall be kept clean, inside and out, and no substance capable of contaminating the milk shall be transported with the milk.

PUBLIC HEALTH REASON

Because of the nature of milk and its susceptibility to contamination by disease producing bacteria and other contaminants, every effort should be made to provide adequate protection for the milk at all times. This should include the proper placement of equipment so that work areas in the milking barn and milkhouse are not overcrowded. The quality of any air that is used for the agitation or movement of milk or is directed at a milk product-contact surface should be such that it will not contaminate the milk.

The effect of sanitization of equipment can be nullified if the equipment is not protected after sanitizing. To protect milk during transportation, delivery vehicles must be properly constructed and operated.

ADMINISTRATIVE PROCEDURES

This Item is deemed to be satisfied when:

1. Equipment and operations are so located within the milking barn and milkhouse as to prevent overcrowding and contamination of cleaned and sanitized containers, utensils and equipment by splash, condensation or manual contact.

2. During processing, pipelines and equipment, used to contain or conduct milk and milk products, shall be effectively separated from tanks or circuits containing cleaning and/or sanitizing solutions.

3. All milk that has overflowed, leaked, been spilled or improperly handled is discarded.

4. All product-contact surfaces of containers, utensils and equipment are covered or otherwise protected to prevent the access of insects, dust, condensation and other contamination. All openings, including valves and piping attached to milk storage and milk tank trucks, pumps or vats, shall be capped or otherwise properly protected. Gravity type strainers used in the milkhouse do not have to be covered. Milk pipelines used to convey milk from pre-coolers to the bulk milk tank must be fitted with effective drip deflectors.

5. The receiving receptacle is raised above the floor, as on a dolly or cart, or placed at a distance from the lactating animals, to protect it against manure and splash when milk is poured and/or strained in the milking barn, stable or parlor. Such receptacle shall have a tight-fitting cover, which shall be closed, except when milk is being poured.

6. Each pail or container of milk is transferred immediately from the milking barn, stable or parlor to the milk-house.

7. Pails, cans and other equipment containing milk are properly covered during transfer and storage.

8. Whenever air under pressure is used for the agitation or movement of milk, or is directed at a milk-contact surface, it is free of oil, dust, rust, excessive moisture, extraneous materials and odor, and shall otherwise comply with the applicable standards of Appendix H.

9. Sanitized product contact surfaces, including bulk milk tank openings and outlets, are protected against contact with unsanitized equipment and utensils, hands, clothing, splash, condensation and other sources of contamination.

10. Any sanitized product contact surface, which has been otherwise exposed to contamination, is again cleaned and sanitized before being used.

11. Vehicles used to transport milk from the dairy farm to the milk plant, receiving station or transfer station are constructed and operated to protect their contents from sun, freezing and contamination.

12. Vehicles have bodies with solid enclosures and tight, solid doors.

13. Vehicles are kept clean, inside and out.

14. No substance capable of contaminating milk is transported with the milk. (See Items 10p. and 11p. and Appendix B. for information on the construction of milk tank trucks).

Additional Information; TRANSFER AND PROTECTION OF MILK

14r. Protection from Contamination

(e) Air Under Pressure on Farms

Air under pressure which contacts milk or milk-contact surfaces must comply with certain requirements to insure that this air does not become a source of product contamination. Uses of air under pressure subject to these requirements would include the following:

1. Agitation of milk.

2. Movement of Milk

3. Blow down of pipelines or equipment to supplement natural drainage.

4. Air drying of pipelines or equipment.

The air under pressure requirements usually apply to equipment which includes a compressor to increase the air pressure above atmospheric pressure as shown in Figure #1. (These diagrams are from the 2001 PMO Figures 32 and 35 on pages 183 and 184 respectively.)

The air intake for any farm air system subject to these requirements must be located in the milkhouse. The milkhouse is the only location where construction and cleanliness requirements provide reasonable control over air quality.

All air intakes must have a dry filter media.

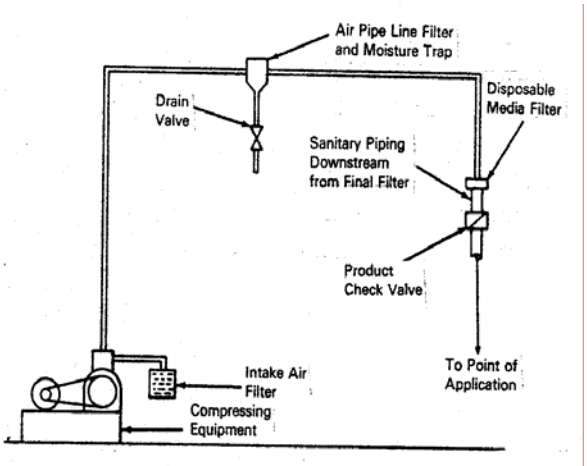
Compressors, fans and blowers must be capable of producing oil-free air by either being water lubricated, not requiring lubrication, or by having suitable equipment for removal of oil.

Air under pressure from a compressor shall pass through an oil-free filter and moisture trap to remove solids and liquids. The filter shall be readily accessible for inspection and replacement. The moisture trap shall be equipped with means for draining accumulated water. An additional disposable filter of sanitary construction is also required located as close as possible to the point of air use. All piping and fittings downstream from this filter shall be of sanitary construction. The requirements in this paragraph do not apply to air systems using a fan or blower.

A sanitary check valve downstream from the final filter is required to prevent backflow of milk into the air piping. This check valve is not required if the air is discharged above the product zone at a point higher than the product overflow level.

PMO

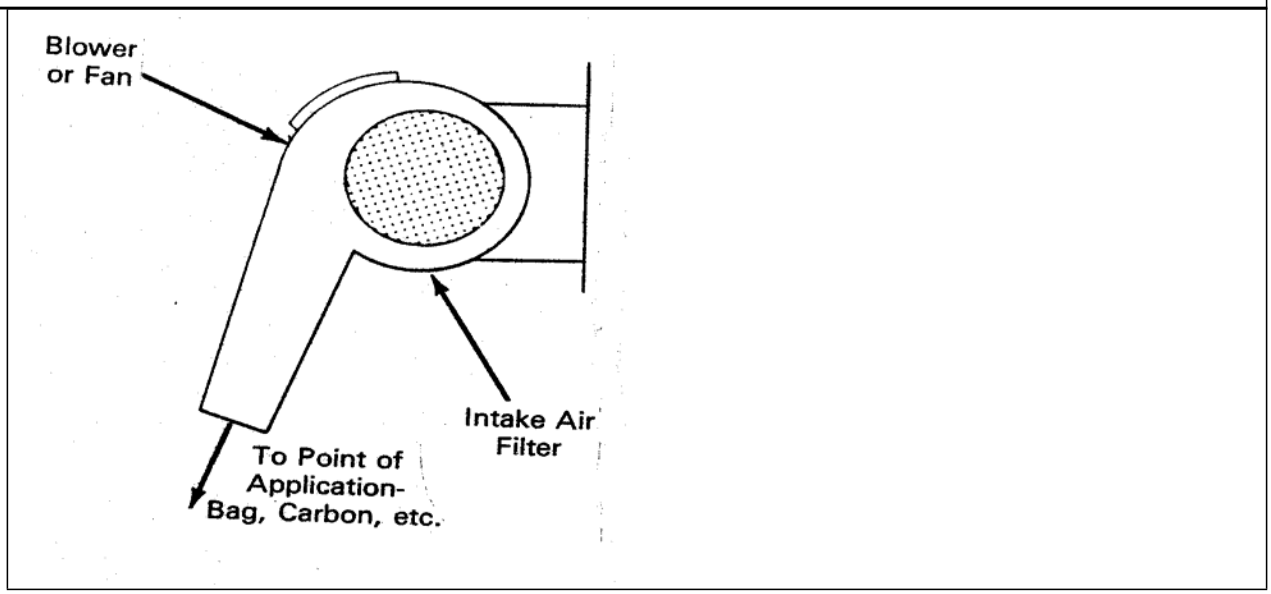
FIGURE 32 - INDIVIDUAL COMPRESSION-TYPE AIR SUPPLY*



A fan or blower such as used on a milk transfer system dryer and shown in Figure #2 increases air flow but does not increase air pressure.

PMO

FIGURE 35 - INDIVIDUAL FAN-TYPE AIR SUPPLY**



*From Appendix H 2001 PMO
** From Appendix H 2001 PMO

Questions & Answers

1. Q: What is the difference between Item 5r, Milkhouse Adequate Size Requirement, and Item 14r, Prohibiting Overcrowding of a Milkhouse?
   A: Use Item 5r unless the overcrowding could be a direct cause of product contamination. In that case, use Item 14r.

2. Q: Where should an air injector in a farm CIP pipeline be located according to the PMO?
   A: The PMO is not specific relative to air injector equipment. The PMO states, in part, "Milking and milkhouse operations, equipment, and facilities shall be located and conducted to prevent any contamination of milk equipment, containers, and utensils." Air injectors on CIP farm pipelines should be located in a clean area and operated so that they do not contaminate the milk or milk product contact surfaces or CIP surfaces.

3. Q: Are air injectors on lowline pipelines in parlors required to be equipped with filters?
   A: No.

4. Q: Where do you mark dirty filters on dryers used to dry plastic hoses in dump stations?
   A: Item 14r.

5. Q: Are rubber collars on lines from precoolers to farm bulk milk tanks acceptable in lieu of metal collars?
   A: If they are made of approved materials and if they fit tightly enough around the cold pipe to prevent condensate from getting into the product.

6. Q: What are the separation requirements for milk lines and CIP tanks during milking?
   A: The milk lines must be physically separated from CIP tanks to assure no water, cleaning or sanitizing solution can enter the milk lines during milking.

7. Q: Where do you mark bulk tank cleaning systems that are not disconnected and capped when the tank is in use?
   A: Uncapped tank openings and cleaning systems that are not disconnected are marked under Item 14r.

8. Q: What lines need to be capped on a farm bulk tank with the tank washer permanently connected with water lines to the tank, yet adequately protect the milk in the tank?
   A: Each installation has to be evaluated on its own merits. In some situations, the line to the top of the tank (to the spray ball) may have to be disconnected and capped and in other situations, it may be necessary to disconnect and cap the water feed lines to the tank. If there is a direct opening to the tank that is not capped, a violation is present. If capping certain lines allow water, cleaning and/or sanitizing solution to enter the tank while product is in the tank, a violation is present.

9. Q: Is an intake wash line which extends below the maximum flood level of the wash tank and connected to a milk pipeline a violation of the PMO?
   A: Yes. It is a violation of Item 14r when the design of the intake wash line is such that it cannot be physically separated from the milk pipelines.

10. Q: Are vacuum condensate traps without an automatic shut-off, i.e. float, etc., in violation?
    A: Yes, Item 14r.

11. Q: Is a full sized tee (same diameter as the uptake line), which is uncapped during milking, acceptable physical separation between the CIP and milk system? The uptake line extends below the flood level of the wash vat.
    A: FDA has not objected to this if the tee is appropriately located above the flood level of the wash vat.

12. Q: A bulk milk tank is bulk headed into the milkhouse with the agitator located either outside or in an area that does not meet milkhouse standards. This agitator has a rubber boot or slinger cover to protect the opening through which the agitator shaft enters the tank. An appropriate sanitary seal or cover is needed to completely protect the opening and which extends from the bottom of the agitator motor support base to the outside surface of the bulk tank. Is it acceptable to use a cover or seal that is not manufactured by a tank manufacturer, i.e., a clear plastic cover, that is tight-fitting and adequately protects the opening and meets the requirements listed above? Does this cover have to be clear so that the boot or slinger can be visually observed?
    A: Yes, if it meets the conditions described below, either a manufacturer's cover or an appropriate cover, designed by the producer or installer, can be acceptable.

    We would recommend, but not require, that the cover be clear so that the boot or slinger can be observed and also to observe if the agitator motor is leaking oil.

    A cover used in place of a properly designed sanitary seal must adequately protect the agitator shaft opening into the tank. It must be tight fitting. It must be constructed to be easily accessible for inspection or must be clear so that visible inspection is possible. If special tools are needed to disassemble an opaque cover for inspection, they must be provided in or convenient to the milkhouse. Side seams, top and bottom fittings must be sealed or properly gasketed to make a tight seal. The surfaces inside the cover must meet product contact requirements, be constructed to free drain back into the tank and be kept clean.

ITEM 15r. DRUG AND CHEMICAL CONTROL

INSPECTION REPORT

DRUG AND CHEMICAL CONTROL

15. Drug and Chemical Control
Cleaners and sanitizers properly identified(a) _____
Drug administration equipment properly handled
and stored ..... (b) _____
Drugs properly labeled (name and address) and
Stored ..... (c) _____
Drugs properly labeled (directions for use,
Cautionary statements, active ingredient)(d) _____
Drugs properly used and stored to preclude
Contamination of milk .....(e) _____

PMO

ITEM 15r. DRUG AND CHEMICAL CONTROL

Cleaners and sanitizers shall be stored in properly identified, dedicated end-use containers.
Animal drugs and drug administration equipment shall be stored in such a way that milk, milking equipment, wash vats and hand sinks are not subject to contamination.
Animal drugs shall be properly labeled and segregated, lactating from non-lactating. Unapproved drugs shall not be used.

PUBLIC HEALTH REASON

Accidental misuse of cleaners or sanitizers can result in adulteration of the milk.
Animal drugs can result in adverse reactions in people sensitive to those residues and can contribute to the development of strains of drug resistant human pathogens.

ADMINISTRATIVE PROCEDURES

This Item is deemed to be satisfied when:

1. Cleaners and sanitizers, used on dairy farms, shall be purchased in containers from the manufacturer or distributor which properly identify the contents or, if bulk cleaners and sanitizers are transferred from the manufacturer's or distributor's container, that the transfer only occurs into a dedicated end-use container, which is specifically designed and maintained according to the manufacturer's specifications for that specific product. The label on the dedicated end-use container shall include the product name, chemical description, use directions, precautionary and warning statement, first aid instructions, container storage and maintenance instructions and the name and address of the manufacturer or distributor.

2. Equipment used to administer drugs is not cleaned in the wash vats and is stored so as not to contaminate the milk or milk contact surfaces of equipment.

3. Drugs intended for treatment of non-lactating dairy animals are segregated from those drugs used for lactating animals. Separate shelves in cabinets, refrigerators or other storage facilities satisfy this Item.

4. Drugs shall be properly labeled to include the name and address of the manufacturer or distributor for OTC drugs, or veterinary practitioner dispensing the product for Rx and extra label use drugs.

5. Drug labels shall also include:
   a. Directions for use, and prescribed withholding times;
   b. Cautionary statements, if needed; and
   c. Active ingredient(s) in the drug product.

6. Unapproved and/or improperly labeled drugs are not used to treat dairy animals and are not stored in the milkhouse, milking barn, stable or parlor.

7. Drugs are stored in such a manner that they cannot contaminate the milk or milk product-contact surfaces of the containers, utensils or equipment.

NOTE: Topical antiseptics and wound dressings, unless intended for direct injection into the teat, vaccines and other biologics, and dosage form vitamins and/or mineral products are exempt from labeling and storage requirements except when it is determined that they are stored in such a manner that they may contaminate the milk or milk product surfaces of containers, utensils or equipment.

Additional Information - Drug And Chemical Control

See Guidelines: DPC 22, Control of Antibacterial Drugs & Growth Inhibitors in Milk and Milk Products

Questions & Answers

1. Q: Is improper storage of teat dips (an OTC Veterinarian Drug) a violation of 15r (e)?
   A: If the storage could lead to the contamination of milk, it is a violation and marked under Item 15r (e).

California
(c) Medicines are not allowed to be stored in the milk house.

ITEM 16r. PERSONNEL - HAND-WASHING FACILITIES

INSPECTION REPORT

PERSONNEL - HAND-WASHING FACILITIES

16. Hand-Washing Facilities :
Proper hand-washing facilities convenient to milking operations ..... (a) _____
Wash and rinse vats not used as hand-washing facilities ..... (b) _____

PMO

ITEM 16r. PERSONNEL - HAND-WASHING FACILITIES

Adequate handwashing facilities shall be provided, including a lavatory fixture with hot and cold, or warm running water, soap or detergent and individual sanitary towels, convenient to the milkhouse, milking barn, stable, parlor and flush toilet.

PUBLIC HEALTH REASON

Adequate handwashing facilities are essential to personal cleanliness and minimize the likelihood of contamination of the milk. Handwashing facilities are required in order to increase the assurance that milker's and bulk milk hauler/sampler's hands will be washed.

ADMINISTRATIVE PROCEDURES

This Item is deemed to be satisfied when:

1. Handwashing facilities are located convenient to the milkhouse, milking barn, stable, parlor and flush toilet.

2. Handwashing facilities include soap or detergent, hot and cold, or warm running water, individual sanitary towels and a lavatory fixture. Utensil wash and rinse vats shall not be considered as handwashing facilities.

Additional Information - PERSONNEL

16r. Hand-Washing Facilities

Questions & Answers

1. Q: Does the PMO require hand-washing facilities to be located in the milkroom?
   A: No! The PMO requires that the hand-washing facilities be provided and located convenience to the milkhouse, milking barn, stable, parlor and flush toilet.

2. Q: Is the basin in a hoop still considered as a satisfactory lavatory fixture for a hand-washing facility?
   A: Yes! As long as there is running water piped to it and it is properly located.

(a) Delaware and Maine
Recommend that hand-washing facilities be in the milkhouse

New York, Pennsylvania and Maryland
Requires hand-washing facilities in the milkhouse.

ITEM 17r. PERSONNEL - CLEANLINESS

INSPECTION REPORT

PERSONNEL - CLEANLINESS

17. Personnel Cleanliness:
Hands washed clean and dried before milking, or performing milk house functions; rewashed when contaminated .....(a) _____
Clean outer garments worn ..... (b) _____

PMO

ITEM 17r. PERSONNEL - CLEANLINESS

Hands shall be washed clean and dried with an individual sanitary towel immediately before milking, before performing any milkhouse function and immediately after the interruption of any of these activities. Milkers and bulk milk hauler/samplers shall wear clean outer garments while milking or handling milk, milk containers, utensils, or equipment.

PUBLIC HEALTH REASON

The reasons for clean hands of the persons doing the milking are similar to those for the cleanliness of the lactating animal's udder. The milker's hands may have been exposed to contamination during the course of their normal duties on the farm and at milking time. Because the hands of all workers frequently come into contact with their clothing it is important that the clothes worn, during milking and the handling of milk, be clean.

ADMINISTRATIVE PROCEDURES

This Item is deemed to be satisfied when:

1. Hands are washed, clean and dried with an individual sanitary towel immediately before milking; before performing any milkhouse function; and immediately after the interruption of any of these activities.

2. Milkers and bulk milk hauler/samplers wear clean outer garments while milking or handling milk containers, utensils or equipment.

ITEM 18r. RAW MILK COOLING

INSPECTION REPORT

COOLING

18. Cooling:
Milk cooled to 45°F or less within 2 hours after milking, except as permitted by *Ordinance*.....(a) _____
Recirculated cooling water from safe source and properly protected; complies with bacteriological standards ..... (b)_____
An acceptable recording device shall be installed and maintained when required .....(c) _____

PMO

ITEM 18r. COOLING

Raw milk for pasteurization shall be cooled to 10ºC (50ºF) or less within four (4) hours or less, of the commencement of the first milking, and to 7ºC (45ºF) or less, within two (2) hours after the completion of milking. Provided, that the blend temperature after the first milking and subsequent milkings does not exceed 10ºC (50ºF).

PUBLIC HEALTH REASON

Milk produced by disease-free lactating animals and under clean conditions usually contains relatively few bacteria immediately after milking. These can multiply to enormous numbers in a few hours unless the milk is cooled. However when the milk is cooled quickly to 7ºC (45ºF) or less, there is only a slow increase in the numbers of bacteria.

Usually, the bacteria in milk are harmless, and if this were always true there would be no reason to cool milk, except to delay souring. There is, however, no way for the dairyman or regulating officer to be absolutely sure that no disease bacteria have entered the milk, even though observance of the other Items of this *Ordinance* will greatly reduce this likelihood. The likelihood of transmitting disease is much increased when the milk contains large numbers of disease bacteria. Therefore, it is extremely important for milk to be cooled quickly, so that small numbers of bacteria, which may have entered the milk, will not multiply.

ADMINISTRATIVE PROCEDURES

This Item is deemed to be satisfied when:

1. Raw milk for pasteurization shall be cooled to 10ºC (50ºF) or less within four (4) hours or less, of the commencement of the first milking, and to 7ºC (45ºF) or less, within two (2) hours after the completion of milking. Provided, that the blend temperature after the first milking and subsequent milkings does not exceed 10ºC (50ºF).

2. Recirculated cooling water, which is used in plate or tubular coolers or heat exchangers is from a safe source and protected from contamination. Such water shall be tested semiannually and shall comply with the Bacteriological Standards of Appendix G.

3. All farm bulk milk tanks manufactured after January 1, 2000 shall be equipped with an approved temperature-recording device.

a. The recording device shall be operated continuously and be maintained in a properly functioning manner. Circular charts shall not overlap.
b The recording device shall be verified every six months and documented in a manner acceptable to the Regulatory Agency by a traceable standard thermometer.
c Recording thermometer charts shall be maintained on the premises for a period of a minimum of six (6) months and available to the Regulatory Agency.
d. The recording thermometer should be installed in an area convenient to the milk storage tank and acceptable to the Regulatory Agency.
e. The recording thermometer sensor shall be located to permit the registering of the temperature of the contents when the tank contains no more than ten percent (10%) of its calibrated capacity.
f. The recording thermometer shall comply with the current technical specifications for tank recording thermometers.
g. A recording thermometer and/or any other device that meets the intent of these Administrative Procedures and technical specifications and is acceptable to the Regulatory Agency can be used to monitor/record the bulk tank temperature.
h. The recording thermometer charts shall properly identify the producer, date, and signature of the person removing the chart.

Additional Information - COOLING

For general information on cooling, see DPC Guideline #48, Cooling Milk on the Farm and DPC Guideline #65, Installing and Operating Milk Precoolers Properly on Dairy Farms. For information on in-line cooling, see Cornell Agricultural Engineering Facts EF-2.

18r. For information on determining the compressor size for farm bulk milk tanks, see Cornell University Agricultural Engineering Extension Bulletin 384, Sizing Condensing Units for Farm Bulk Milk Cooling Systems, by Dr. D. C. Ludington.

Both Pennsylvania State University and Cornell University have computer programs for sizing farm milk cooling systems. Cornell's program is an adaptation of the one developed by Stephen B. Spencer of the Pennsylvania State University. The following data is necessary to complete the calculations:

1. Number of Cows
2. Peak production in pounds per day
3. Milking time in minutes
4. Milk per cow(average) in pounds per hour
5. Loading rate in pounds per hour
6. Maximum blend temperature of milk
7. Milk inlet temperature
8. In-line cooler, if used
   a. Water inlet temperature
   b. Effectiveness of in-line cooler

DPC Guideline #5 A Directory of Dairy Farm Building & Milking System Resource People will provide individuals who could help with any questions you may have.

Questions & Answers

1. Q: Where do you debit improper sweetwater systems on dairy farms?
   A: Item 18r.

2. Q: Which sanitizer can be used in sweetwater systems to control microbial growth?
   A: Sanitizer as listed in 21 CFR 178.1010 may be used at low levels (approximately 10% of the recommended sanitizing levels).

3. Q: Is it acceptable to leave raw milk outside the temperature zone (above 45 degrees F.) for periods over four hours?
   A: No. It is also unacceptable for raw milk to be above 45 degrees F. for less than four hours unless specifically provided for by the PMO and related documents.

4. Q: If a farm installs a new bulk milk tank (manufactured after 1/1/2000) and does not have a temperature-recording device, where is this Item debited?
   A: Under Item 18r(c)

5. Q: When a recording chart is required under Item 18r and a dairyman does not maintain bulk milk tank temperature recording charts, where is this debited?
   A: This item would be debited under Item 18r(c)

Connecticut, Maine, and New York
(a) Recommended that the milk be 4°C (40°F) or lower at the time of pickup.

Georgia
There shall be enough milk in the bulk tank after the first milking to agitate completely all milk in the bulk tank or no milk shall be picked up as Grade A

Maine & Indiana
Requires that no milk be held outside of the bulk tank.

Massachusetts, Virginia and Washington
Requires that milk stored in bulk coolers shall be cooled to a temperature not higher than 4°C (40°F) or less within two hours after milking. **Provided**, That the blend temperature after the first and subsequent milkings does not exceed 10°C (50°F).

Pennsylvania
Requires milk to be 4°C (40°F) or lower at the time of pickup.

Indiana
Requires automatic controls for the cooling and agitation of farm bulk milk tanks.

Virginia
Recording thermometers are required on each grade A bulk milk tank installed on a grade A dairy farm.

ITEM 19r. INSECT AND RODENT CONTROL

INSPECTION REPORT

INSECTS AND RODENTS

19. Insect and Rodent Control :
Fly breeding minimized by approved manure
disposal methods (See *Ordinance*).....(a) _____
Manure packs properly maintained..... (b) _____
All milkhouse openings effectively screened or otherwise protected; doors tight and self-closing; screen doors open outward
(c) _____
Milkhouse free of insects and rodents..... (d) _____
Approved pesticides; used properly.....(e) _____
Equipment and utensils not exposed to
Pesticide contamination .....(f) _____
Surroundings neat and clean; free of harborages
and breeding areas..... (g) _____
Feed storage not attraction for birds,
Rodents or insects ..... (h) _____

PMO

ITEM 19r. INSECT AND RODENT CONTROL

Effective measures shall be taken to prevent the contamination of milk, containers, utensils and equipment by insects and rodents and by chemicals used to control such vermin. Milkhouses shall be free of insects and rodents. Surroundings shall be kept neat, clean and free of conditions, which might harbor or be conducive to the breeding of insects and rodents. Feed shall be stored in such a manner that it will not attract birds, rodents or insects.

PUBLIC HEALTH REASON

Proper manure disposal reduces the breeding of flies, which are considered capable of transmitting infection by physical contact or through excreta to milk or milk utensils. Flies visit unsanitary places, they may carry pathogenic organisms on their bodies and they may carry living bacteria for as long as four (4) weeks within their bodies, and they may pass them on to succeeding generations by infecting their eggs. Effective screening tends to prevent the presence of flies, which are a public health menace. Flies may contaminate the milk with microorganisms, which may multiply and become sufficiently numerous to present a public health hazard. The surroundings of a dairy should be kept neat and clean in order to reduce insect and rodent harborages.

ADMINISTRATIVE PROCEDURES

This Item is deemed to be satisfied when:

1. Surroundings are kept neat, clean and free of conditions, which might harbor or be conducive to the breeding of insects and rodents. During fly season, manure shall be spread directly on the fields; or stored for not more than four (4) days in a pile on the ground surface and then spread on the fields; or stored for not more than seven (7) days in an impervious-floored bin, or on an impervious-curbed platform and then spread; or stored in a tight-screened and trapped manure shed; or effectively treated with larvicides; or disposed of in any other manner which controls insect breeding.

2. Manure packs in loafing areas, stables without stanchions, pen stables, resting barns, wandering sheds and free-stall housing are properly bedded and managed to prevent fly breeding.

3. Milkhouses are free of insects and rodents.

4. Milkhouses are effectively screened or otherwise protected against the entrance of vermin.

5. Outer milkhouse doors are tight and self-closing. Screen doors shall open outward.

6. Effective measures are taken to prevent the contamination of milk, containers, utensils and equipment by insects and rodents and by chemicals used to control such vermin. Insecticides and rodenticides, not approved for use in the milkhouse, shall not be stored in the milkhouse.

7. Only insecticides and rodenticides approved for use by the Regulatory Agency and/or registered with EPA are used for insect and rodent control. (See Appendix C. for further information about insect and rodent control).

8. Insecticides and rodenticides are used only in accordance with the manufacturer's label directions and are used so as to prevent the contamination of milk, milk containers, utensils and equipment, feed and water.

9. Covered boxes, bins or separate storage facilities for ground, chopped or concentrated feeds are provided.

10. Feed may be stored in the milking portion of the barn only in such a manner as will not attract birds, flies or rodents. Open feed dollies or carts may be used for distributing the feed, but not storing feed, in the milking barn. Feed dollies, carts, fully automated feeding systems, or other feed containers may be exempt from the use of covers, provided they do not attract birds, insects, or rodents.

NOTE: See Appendix M. for an inspection form for producer dairy farms, which summarizes the applicable sanitation requirements.

Additional Information - INSECTS AND RODENTS

19r. Insect and Rodent Control

(a) Manure Storage
See DPC Guidelines # 27, Dairy Manure Management from Barn to Storage and # 46, Dairy Odor Management.

The following general information has been prepared to be included in this guideline.

1. Location: The manure storage facility must be at least 100 feet from any water supply and downslope. The manure storage area must not be accessible to cows.

2. Construction: The manure storage facility must be constructed to confine manure and any liquid seepage or run-off water within the manure storage area. A cover will not be required for liquid manure storage tanks.

3. Fly Control: Fly breeding must be minimized to the extent which can be expected in a properly maintained dairy barn using daily manure disposal. Larvicide spraying is not specifically required, but may be necessary on solid manure stacking systems which do not form a crust and for spot applications around edges of storage facilities.

In addition to these items which are required for compliance on inspections, fieldmen should also consider the following items, which will help to avoid future problems with manure storage systems.

1. Producers considering the installation of manure storage systems should be encouraged to visit as many other manure storage facilities as possible and seek advice from the county extension agent, Soil Conservation Service and other experienced people on the best type of system for individual needs.

2. The producer should determine the time, labor and equipment which will be needed for disposal of a large quantity of manure in a short period of time before making a decision on this type of storage system.

3. Construction plans designed specifically for the individual site should be prepared by a qualified person.

4. If a stream or other body of water is located near the proposed manure storage site or the area of land application, the producer should discuss the project with the agency responsible for environmental control before construction is begun.

Other factors which have become apparent at existing manure storage facilities which should be considered in new construction include:

1. Prevention of excess water entering the storage area can significantly reduce the amount of time required to empty the storage area. Control measures include diversion ditches or above-ground banks to prevent run-off into the storage area, proper sealing of earthen structures to prevent ground water infiltration and proper design to avoid an unnecessarily large surface area which will collect precipitation.

2. Safety must be considered, particularly with semi-solid and liquid manure storage facilities. The crusted surface of these storage areas often appears solid, but will not support a person or cow. Fencing off all manure storage areas is recommended, even if the site is inaccessible to cows. Additional precautions to restrict access may be necessary if children are nearby.

3. Some odor usually occurs when the storage area is agitated during emptying and during subsequent spreading on land. Producers who have milking centers located within 300 feet of a property line or who have non-agricultural properties in the immediate vicinity should plan the location and operation of a manure storage

system very carefully to avoid complaints. Producers located in such areas and producers located on heavily traveled roads should try to locate the manure storage area out of sight of the road if possible.

Questions & Answers

1. Q: Define a manure pit; and is a roof or screening required?
   A: A manure pit is not defined in the PMO. If manure storage is such that it attracts flies or provides a breeding place for flies, it is a violation of Item 19r. A roof or screening around or over such manure storage may be necessary if other acceptable manure handling practices are not employed to effectively control fly breeding. It is preferable that manure is spread often enough to prevent fly breeding.

2. Q: Are liquid manure tanks debitable under 19a?
   A: Not if they are properly managed and there is no evidence of fly breeding.

3. Q: Where do you debit the improper use of pesticides?
   A: Item 19r inside or outside on the farm.

4. Q: Are sliding milkhouse doors required to be self closing?
   A: Yes.

5. Q: Must outside openings in utility room walls used to vent heat from refrigeration units be screened?
   A: No, provided openings to the milkhouse have solid doors or are properly screened.

6. Q: Is it necessary to screen windows and doors of a milkroom?
   A: All openings to the milkroom that can be opened for ventilation should be screened.

7. Q: What pesticides or insecticides may be used?
   A: Any having an EPA number. Label directions must be followed.

8. Q: What is the status of Insecta-Paint (both pre-mixed and the pesticide which the farmer adds to his own paint)?
   A: The material (Chlorpyrifos) which the farmer adds to his own paint is not approved by EPA for use on dairy farms. The pre-mixed product has recently been approved by EPA after a change in labeling to be used in dairy farms and other farm buildings but may not be used in milkrooms, milkhouses or other food-producing areas.

9. Q: Is feed stored in feed troughs in a milking area a violation of the feed storage requirements?
   A: Yes, in certain instances. If leftover feed is wet and soggy and creating a cleaning problem it can be debited under 3(a). If it is an attraction for rodents or insects it can be debited under 19(h).

California

(e) Pesticides are not allowed to be stored in the milk house.

New York

Requires silo approaches and feed storage rooms be separated from the milking area of the barn by tight fitting doors and partitions. Feed storage containers shall be of tight construction and be equipped with tight fitting covers. This also applies to such containers that may be used to store, in the stable, milk which is to be used as animal feed. Storage of feed in tightly closed plastic bags is acceptable.

APPENDIX A; STANDARDS FOR MILK AND MILK PRODUCTS

PMO

SECTION 7. STANDARDS FOR MILK AND MILK PRODUCTS

All Grade "A" raw milk for pasteurization, ultra-pasteurization, or aseptic processing and all Grade "A" pasteurized, ultra-pasteurized or aseptically processed milk and milk products shall be produced, processed and pasteurized, ultra-pasteurized, or aseptically processed to conform to the following chemical, bacteriological and temperature standards and the sanitation requirements of this Section.

No process or manipulation other than pasteurization, ultra-pasteurization or aseptic processing; processing methods integral therewith; and appropriate refrigeration shall be applied to milk and milk products for the purpose of removing or deactivating microorganisms. Provided, that in the bulk shipment of cream, nonfat (skim) milk or reduced fat or lowfat milk, the heating of the raw milk, one time, to temperatures greater than 52ºC (125ºF) but less than 72ºC (161ºF), for separation purposes, is permitted when the resulting bulk shipment(s) of cream, nonfat (skim) milk or reduced fat or lowfat milk are labeled heat-treated. In the case of heat-treated cream, the cream may be further heated to less than 75ºC (166ºF) in a continuing heating process and immediately cooled to 7ºC (45ºF) or less when necessary for enzyme deactivation (such as lipase reduction) for a functional reason.

Table 1. Chemical, Bacteriological and Temperature Standards

GRADE "A" RAW MILK AND MILK PRODUCTS FOR PASTEURIZATION, ULTRA-PASTEURIZATION OR ASEPTIC PROCESSING	Temperature.....	Cooled to 10ºC (50ºF) or less within four (4) hours or less, of the commencement of the first milking, and to 7°C (45ºF) or less within two (2) hours after the completion of milking. Provided, that the blend temperature after the first milking and subsequent milkings does not exceed 10ºC (50ºF).
	Bacterial Limits.....	Individual producer milk not to exceed 100,000 per mL prior to commingling with other producer milk. Not to exceed 300,000 per mL as commingled milk prior to pasteurization.
	Drugs.....……	No positive results on drug residue detection methods as referenced in Section 6 - Laboratory Techniques.
	Somatic Cell Count*...	Individual producer milk not to exceed 750,000 per mL.

- * Goat Milk 1,000,000 per mL

Additional Information- SECTION 7. STANDARDS FOR MILK AND MILK PRODUCTS

Standards for Radiation are not included. These are set by the National Radiation Council (sample testing is done by EPA).

Questions & Answers

1. Q: Milk that is produced under the supervision of a regulatory agency is then shipped by tank truck to another state. The other state samples the tanker loads. Whenever such samples turn out to be violative, should the individual producer samples be used to determine compliance, i.e. regulatory action against an individual producer?
   A: The receiving state may analyze individual producer samples. Samples found to be in violation of the standard may be reported to the regulatory agency of origin. Those samples would not be official samples for regulatory purposes. The regulatory agency of origin should conduct an investigation of the problem.

2. Q: If a producer ships from two bulk milk tanks and sample results indicate only one tank is violative for inhibitory substances, should both tanks be suspended from the market? Do you average zone sizes?
   A: If either sample is positive for inhibitory substances, Section 6 of the PMO requires that no milk be offered for sale by the permit holder until it is shown by a subsequent sample to be free of antibiotics.

3. Q: If a producer ships milk from two bulk milk tanks and sample results indicate only one tank is violative for somatic cell determinations, do you confirm both results and take an arithmetical average?
   A: Yes.

4. Q: What about high somatic cell counts caused by stray voltage?
   A: The high count still exists.

5. Q: Does the state central laboratory designate officially designated industry laboratories within a state?
   A: No. The responsibility for declaring an industry laboratory is the responsibility of the regulatory agency, state or local. They may act upon recommendations from the state central laboratory. If the officially designated laboratory is to be utilized for results of individual producer samples, the laboratory must be certified by the state laboratory, evaluation officer.

6. Q: What happens if a laboratory loses its official designation?
   A: If the producers do not have an official or officially designated laboratory at the time of a rating or check rating, the rating or check-rating should not be made and the existing listing should be removed from the quarterly publication. If the rated supply had an acceptable laboratory at the time of the rating, but did not sometime during the rating period, then each producer's record is evaluated using only samples run when the lab was acceptable. Appropriate sections of the enforcement and/or sanitation ratings are debited if there are less than four acceptable samples in the current or any previous six-month period.

7. Q: What is the proper procedure of running producer samples when two or more tanks are used on a farm holding one producer permit? For the purpose of this inquiry, suppose two bulk tanks are used and two samples are submitted to the laboratory. May the laboratory commingle the samples and run for one result, or must the lab run the samples separately and issue separate results? If the samples are run separately, could the laboratory average the results and report one result to the enforcement section of the agency?
   A: Run samples separately and average results for DMSCC, SPC, and temperature. The DMSCC must be confirmed (WMT cannot be averaged), antibiotic must be run on each tank, and if either positive, it reflects on both. Samples must be reported separately by the laboratory. The averaging shall be done by the regulatory agency.

8. Q: How are unnatural inhibitors, other than members of the beta lactam group, handled under the PMO?
   A: The PMO requires "No zone equal to or greater than 16 mm with the Bacillus stearothermophilus disk assay methods...". It makes no distinction between beta lactam (penicillin, ampicillin, cepharipirin or closacillin) and other products which will yield a 16 mm or greater zone class

9. Q: What about standard plate counts?
   A: M-I-83-2 specifies that standard plate counts for a sample which shows any zone size may be counted only if the zone is 12.8 to 15.9 mm and was caused by a member of the beta lactam group. All others shall be reported as "Growth Inhibitor" and the standard plate counts shall not be used for official purposes.

10. Q: What frequencies are required under pesticide sampling programs?
    A: The frequency is not set. The state is responsible to have whatever program is needed to keep milk in compliance. FDA would recommend annual pesticide testing.

11. Q: Is there a list of action levels for pesticides and heavy metals?
    A: 40CFR lists many of these.

12. Q: Do the universal representative samples, taken at the individual farms, have to accompany the bulk milk pickup tanker to the receiving plant?
    A: Section 6 of the PMO states: "All samples shall be collected and delivered to a milk plant, receiving station, transfer station or other location approved by the regulatory agency." M-a-86 (Revision #3), Implementation Date-07/23/2001 states: "The representative sample(s) shall travel with the bulk milk pick-up tanker to a designated location acceptable to the State Regulatory Agency."

13. Q: Concern: M-a-79 (revision # 1) states in the question and answer section at the top of page 2: "Once AOAC reviewed and FDA accepted methods are available, methods shall be appropriate for the drug being analyzed, and shall be capable of detecting the same drugs at the same concentrations as the methods being used by the industry."
    What methods should be used to analyze these bulk milk pickup tanker audit samples (10% quarterly regulatory sampling) by the regulatory agency? Since the wording states "same drugs" and "same concentrations" then isn't it required to be the "same" test?
    A: The "SAME" Test

This regulatory agency analysis to audit industry farm bulk milk tanker programs shall be performed in an Official or Officially Designated Laboratory using a method from the latest revision of M-a-85.

Connecticut
Has a lab pasteurized count not to exceed 3,000 per ml.

Massachusetts
Has a lab pasteurized count not to exceed 2,500 per ml. Milk stored in bulk coolers shall be cooled to a temperature not higher than 4°C (40°F) or less within two hours after milking.

New York
Has a sediment standard of less than 1.5 mg per gallon of milk.

Pennsylvania
Milk must be 4°C (40°F) or lower at the time of pickup.

Washington
Requires that milk stored in bulk coolers shall be cooled to a temperature not higher than 4°C (40°F) or less within two hours after milking. **Provided**, That the blend temperature after the first and subsequent milkings does not exceed 10°C (50°F).

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APPENDIX B

MILK SAMPLING, HAULING, AND TRANSPORTATION

Milk sampling, hauling, and transport are integral parts of a modern dairy industry. Hauling, sampling and transport can be categorized into three (3) separate functions: Dairy Plant Samplers, Bulk Milk Hauling and Sampling and Milk Transport from one (1) milk handing facility to another.

I. MILK SAMPLING AND HAULING PROCEDURES

The dairy plant sampler is a person responsible for the collection of official samples for regulatory purposes outlined in Section 6 of this *Ordinance*. These persons are employees of the Regulatory Agency and are evaluated at least once each two (2) year period by a State Sampling Surveillance Officer (SSO). These individuals are evaluated using Form FDA 2399 - MILK SAMPLE COLLECTOR EVALUATION FORM, which is derived from the most current edition of SMEDP. (See Appendix M.)

The bulk milk hauler/sampler is any person who collects official samples and may transport raw milk from a farm and/or raw milk products to or from a milk plant, receiving station or transfer station and has in their possession a permit from any State to sample such products. The bulk milk hauler/sampler occupies a unique position making this individual a critical factor in the current structure of milk marketing. As a weigher and sampler, they stand as the official, and frequently the only judge of milk volumes bought and sold. As a milk receiver, the operating habits directly affect the quality and safety of milk committed to their care. When the obligations include the collection and delivery of samples for laboratory analysis, the bulk milk hauler/sampler becomes a vital part of the quality control and regulatory programs affecting producer dairies. Section 3 of this *Ordinance* requires that Regulatory Agencies establish criteria for issuing permits to bulk milk hauler/samplers. These individuals are evaluated at least once each two (2) year period using Form FDA 2399a - MILK TANK TRUCK, HAULER REPORT AND SAMPLER EVALUATION FORM. (See Appendix M.)

The milk tank truck driver is any person who transports raw or pasteurized milk products to or from a milk plant, receiving station or transfer station. Any transportation of a direct farm pickup requires the milk tank truck driver to have responsibility for accompanying official samples.

The criteria for permitting these individuals should embrace at least the following:

TRAINING:

To understand the importance of bulk milk collection and the techniques of sampling, all bulk milk hauler/samplers must be told why, and instructed how, in the proper procedures of picking up milk and the collection of samples. The Regulatory Agency, dairy field person, route supervisors or any appropriate person whose techniques and practices are known to meet requirements can conduct this training. If the Regulatory Agency does not conduct the training, the training must be approved by or conducted under the supervision of the Regulatory Agency.

Training also frequently takes the form of classroom sessions in which the trainer describes pickup practices, demonstrates sampling and care of samples and affords the candidate the opportunity for guided practice in these techniques. Basic considerations of sanitation and personal cleanliness, which are important to the protection of milk quality, are discussed here. Officials administering weights and measures may participate in these programs and provide instruction in the measuring of milk and the keeping of required records.

An examination, approved by the Regulatory Agency, shall be administered at the conclusion of this program. Candidates failing the exam, a score of less than seventy percent (70%), shall be denied permits or licenses until indicated deficiencies are corrected. The examination should be adequate enough to determine if a bulk milk hauler/sampler is competent. The exam shall be composed of a minimum of twenty (20) total questions broken down into the following areas:

1. Six (6) questions relating to sanitation and personal cleanliness;
2. Six (6) questions relating to sampling and weighing procedures;

3. Four (4) questions relating to equipment, including proper use, care, cleaning, etc.; and
4. Four (4) questions relating to proper record keeping requirements.

Regularly scheduled refresher short courses by the regulatory agents and officials administering weights and measures would assist in maintaining and increasing the efficiency of the bulk milk hauler/sampler.

QUALIFICATIONS:
1. **Experience:** Experience may include a required period of observation during which the candidate accompanies a bulk milk hauler/sampler in the performance of their duties.

2. **Personal References:** Permit applications should be supported by suitable references testifying to the character and integrity of the candidate.

EVALUATION OF BULK MILK HAULER/SAMPLER PROCEDURES:
The routine inspection of bulk milk hauling/sampling procedures provides the Regulatory Agency with an opportunity to check both the condition of the bulk milk hauler/sampler's equipment and the degree of conformance with required practices.

The bulk milk hauler/sampler's technique is best determined when the regulatory agent is able to observe the bulk milk hauler/sampler at one (1) or more farms. Each bulk milk hauler/ sampler must be inspected by the Regulatory Agency prior to the issuance of a permit and at least once every twenty-four (24) months thereafter as referenced in Section 5 of this *Ordinance*. The bulk milk hauler/sampler must hold a valid permit prior to the collection of official samples. States may use inspections from any Regulatory Agency as a means of maintaining record requirements and enforcement.

The procedures for sampling and the care of samples should be in compliance with the current edition of SMEDP. Specific Items to be evaluated in determining compliance include:

1. **Personal Appearance:** Bulk milk hauler/samplers shall practice good hygiene; shall maintain a neat and clean appearance; and not use tobacco in the milkhouse.

2. **Equipment Requirements:**
   a. Sample rack and compartment to hold all samples collected.
   b. Refrigerant to hold temperature of milk samples between 0º- 4.4ºC (32º- 40°F).
   c. Sample dipper or other sampling devices of sanitary design approved by the Regulatory Agency, clean and in good repair.
   d. Sterile sample bags, tubes or bottles; properly stored.
   e. Calibrated pocket thermometer; certified for accuracy every six (6) months; accuracy ± 1°C (2°F).
   f. Approved sanitizing agent and sample dipper container.
   g. Watch for timing milk agitation.
   h. Applicable sanitizer test kit.

3. **Milk Quality Checks:**
   a. Examine the milk by sight and smell for any off odor or any other abnormalities that would class the milk as not being acceptable. Reject if necessary.
   b. Wash hands thoroughly and dry with a clean single-service towel or acceptable air dryer immediately prior to measuring and/or sampling the milk.
   c. Record milk temperature, time, date of pick-up and bulk milk hauler/sampler identification on the farm weight ticket; monthly the hauler/sampler shall check the accuracy of the thermometer on each bulk tank and record results. Pocket thermometer must be sanitized before use.

4. **Milk Measurements:**
   a. The measurement of the milk shall be taken before agitation. If the agitator is running upon arrival at the milkhouse, the measurement can be taken only after the surface of the milk has been quiescent.

b. Carefully insert the measuring rod, after it has been wiped dry with a single-service towel, into the tank. Repeat this procedure until two identical measurements are taken. Record measurements on the farm weight ticket.
c. Do not contaminate the milk during measurement.

5. **Universal Sampling System:** When bulk milk hauler/samplers collect raw milk samples, the "universal sampling system" shall be employed, whereby samples are collected every time milk is picked up at the farm. This system permits the Regulatory Agency, at its discretion, at any given time and without notification to the industry, to analyze samples collected by the bulk milk hauler/sampler. The use of the "universal sample" puts more validity and faith in samples collected by industry personnel. The following are sampling procedures:

   a. Pick-up and handling practices are conducted to prevent contamination of milk contact surfaces.
   b. The milk must be agitated a sufficient time to obtain a homogeneous blend. Follow State and/or manufacturer's guidelines.
   c. While the tank is being agitated, bring the sample container, dipper, dipper container and sanitizing agent for the outlet valve, or single-service sampling tubes into the milkhouse aseptically. Remove the cap from the tank outlet valve and examine for milk deposits or foreign matter and then sanitize if necessary. Protect the hose cap from contamination when removing it from the transfer hose and during storage.
   d. The sample may only be collected after the milk has been properly agitated. Remove the dipper or sampling device from the sanitizing solution or sterile container and rinse at least twice in the milk.
   e. Collect a representative sample or samples from the bulk tank. When transferring milk from the sampling equipment, caution should be used to assure that no milk is spilled back into the tank. Do not fill the sampling container more than ¾ full. Close the cover on the sample container.
   f. The sample dipper shall be rinsed free of milk and placed in its carrying container.
   g. Close the cover or lid of the bulk tank.
   h. The sample must be identified with the producer's number at the point of collection.
   i. A temperature control sample must be taken at the first stop of each load. This sample must be labeled with time, date, temperature and producer and bulk milk hauler/sampler identification.
   j. Place the sample or samples immediately into the sample storage case.

6. **Pump Out Procedures:**
   a. Once the measurement and sampling procedures are completed, with the agitator still running, open the outlet valve and start the pump. Turn off the agitator when the level of milk is below the level that will cause over-agitation.
   b. When the milk has been removed from the tank, disconnect the hose from the outlet valve and cap the hose.
   c. Observe the inside surfaces of the bulk tank for foreign matter or extraneous material and record any objectionable observations on the farm weight ticket.
   d. With the outlet valve open, thoroughly rinse the entire inside surface of the tank with warm water.

7. S**ampling Responsibilities:**
   a. All sample containers and single-service sampling tubes used for sampling shall comply with all the requirements that are in the current edition of SMEDP. Samples shall be cooled to and held between 0°C (32°F) and 4.4°C (40°F) during transit to the laboratory.
   b. Means shall be provided to properly protect the samples in the sample case. Keep refrigerant at an acceptable level.
   c. Racks must be provided so that the samples are properly cooled in an ice bath.
   d. Adequate insulation of the sample container box or ice chest shall be provided to maintain the proper temperature of the samples throughout the year.

The SSO's conduct periodic evaluations of sampling procedures. This program will promote uniformity and compliance of sample collection procedures.

II. MILK TANK TRUCK PERMITTING AND INSPECTION

Milk tank trucks shall be evaluated annually using the requirements established in Sections 3. and 5. of this *Ordinance* using Form FDA 2399b - MILK TANK TRUCK INSPECTION FORM. (See Appendix M.)

PERMITTING:
Each milk tank truck shall bear a permit for the purpose of transporting milk and milk products. (See Section 3. of this *Ordinance.*) The permit shall be issued to the owner of each milk tank truck by an authorized Regulatory Agency. The permit identification and State issuing the permit shall be displayed on the milk tank truck. It is recommended that this permit be renewed each year pending satisfactory completion of an inspection as outlined in the following **Inspection Section.**

RECIPROCITY:
Each permit shall be recognized by other Regulatory Agencies under the reciprocal agreements of the NCIMS and supporting documents of this *Ordinance.* A milk tank truck need only bear one (1) permit from an appropriate Regulatory Agency. A milk tank truck may be inspected at any time when deemed appropriate by the Regulatory Agency. Absent proof of a current permit and current inspection, when the milk tank truck is inspected by a Regulatory Agency other than the permitting agency, an inspection fee may be charged to the owner of the milk tank truck. This is necessary to allow a milk tank truck to pickup and deliver in several jurisdictions without the need for more than one (1) permit. A Regulatory Agency may have the option of inspecting any milk tank truck at any time when milk and milk products are transported in or out of a particular jurisdiction. It is the responsibility of the milk tank truck owner or operator to maintain a current proof of inspection to avoid a re-inspection fee. Disputes concerning reciprocal agreements on milk tank truck inspection between Regulatory Agencies may be tendered to the Chair of the NCIMS or the Chair's designee for resolution.

INSPECTION:
Each milk tank truck shall be inspected at least once each year by a Regulatory Agency. (See Section 5. of this *Ordinance.*) A copy of the current inspection report shall accompany the milk tank truck at all times, or the tank shall bear an affixed label, which identifies the Regulatory Agency with the month and year of inspection. The affixed label shall be located near the tank outlet valve.

When significant defects or violations are encountered by a Regulatory Agency, a copy of the report shall be forwarded to the permitting agency and also carried on the milk tank truck until the violations are corrected. Milk tank truck inspections shall be conducted in a suitable location, i.e., a dairy plant, receiving or transfer station or milk tank truck-cleaning facility. Inspections may not require entry of confined spaces as defined by the Occupational Safety and Health Administration (OSHA) standards. When significant cleaning, construction or repair defects are noted the milk tank truck shall be removed from service until proper confined entry safety requirements can be satisfied to determine cleaning or repairs needed. Cleaning or repairs may be verified by a qualified individual to the satisfaction of the Regulatory Agency.

Inspection reports completed by Regulatory Agencies other than the permitting agency shall be forwarded to the permitting agency for verification of annual inspection as required in the **Permitting Section** of this Appendix. The permitting agency may use these reports to satisfy permit requirements.

MILK TANK TRUCK STANDARDS:
All Items of the Milk Tank Truck Inspection Form fall into the categories of 'Compliance', 'Non-Compliance' or 'Not Applicable' (NA) as determined during the inspection. The following Items relate to Form FDA 2399b (See Appendix M.):

1. **Samples and Sampling Equipment:** (When provided.)
   a. Sample containers shall be stored to preclude contamination.
   b. The sample box shall be in good repair and kept clean.
   c. Sample transfer instrument shall be cleaned and sanitized to insure that proper samples are collected.

d. The sample transfer instrument container is provided and adequate means for maintaining sanitizer solutions is on hand.
e. The samples are properly stored to preclude contamination.
f. The sample storage compartment shall be clean.
g. Samples are maintained at an acceptable temperature (32ºF to 40ºF) and a temperature control sample is provided.
h. An approved thermometer is available for use by the sampler. The accuracy of the thermometer is checked each six (6) months with the results and date recorded on the carrying case.

2. **Product Temperature 4.4º C (45ºF) or Less:**
   a. The product temperature must meet all the requirements of Section 7, Items 18r. and 17p., Cooling of Milk, of this *Ordinance*.
   b. Product that remains in external transfer systems that exceeds 4.4ºC (45ºF) is discarded. This includes pumps, hoses, air elimination equipment or metering systems.

3. **Equipment Construction, Cleaning, Sanitizing and Repair:** Items A through K on Form FDA 2359b shall be evaluated according to the following criteria:

   a. Construction and Repair Requirements.
      (1) The milk tank truck and all appurtenances shall meet applicable requirements of Section 7, Item 10p. - Sanitary Piping and Item 11p. - Construction and Repair of Containers and Equipment, of this *Ordinance*. Equipment manufactured in conformity with 3-A Sanitary Standards, complies with sanitary design and construction requirements of this *Ordinance.*
      (2) The interior of the milk tank trucks shall be constructed of smooth, non-absorbent, corrosion-resistant, non-toxic material; and it shall be maintained in good repair.
      (3) The appurtenances of the milk tank truck includes hoses, pumps and fittings, shall be constructed of smooth, non-toxic cleanable material; and shall be maintained in good repair. Where flexibility is required, the fluid transfer system shall be free draining and so supported to maintain uniform slope and alignment. They shall be easily disassembled and accessible for inspection.
      (4) The cabinet portion(s) of the tank, used for the storage of appurtenances and sampling equipment, where applicable, shall be constructed to preclude contamination by dust, dirt; be clean; and in good repair.
      (5) The milk tank truck dome lid assembly, vent and dust cover shall be designed to protect the tank and milk from contamination.

   b. Cleaning and Sanitizing Requirements:
      (1) The milk tank truck and all of its appurtenances shall be cleaned and sanitized in accordance with applicable requirements of Section 7, Item 12p. -Cleaning and Sanitizing of Containers and Equipment, of this *Ordinance*.
      (2) The milk tank truck shall be cleaned and sanitized prior to its first use. When the time elapsed after cleaning and sanitizing, and before its first use, exceeds seventy-two (72) hours the tank must be re-sanitized.
      (3) It is allowable to pickup multiple loads continuously within a twenty-four (24) hour period, provided the milk tank truck is washed after each day's used.

4. **Exterior Condition of Tank:** The exterior of the milk tank truck is properly constructed and in good repair. Defects and damage that would adversely affect products contained in the milk tank truck are pointed out on the Milk Tank Truck Inspection Form and corrective actions are prescribed. Cleanliness of the milk tank truck exterior is evaluated with consideration for existing weather and environmental conditions.

5. **Wash and Sanitize Record:**
   a. The bulk milk hauler/sampler shall be responsible for assuring that the milk tank truck has been properly cleaned and sanitized. A milk tank truck without proper cleaning and sanitizing documentation shall not be loaded or unloaded until the proper cleaning and sanitization can be verified.

b. A cleaning and sanitizing tag shall be affixed to the outlet valve of the milk tank truck until the milk tank truck is next washed and sanitized. When the milk tank truck is washed and sanitized, the previous cleaning and sanitizing tag shall be removed and stored at the location where the milk tank truck was washed for a period of not less than fifteen (15) days.

c. The following information shall be recorded on the cleaning and sanitization tag:
   (1) Identification of the milk tank truck.
   (2) Date and time of day the milk tank truck was cleaned and sanitized.
   (3) Location where the milk tank truck was cleaned and sanitized.
   (4) Signature or initials of the person who cleaned and sanitized the milk tank truck.

d. The maintenance of all information on the cleaning and sanitizing tag shall be the responsibility of the bulk milk hauler/sampler or the milk tank truck operator.

6. **Location of Last Cleaning/Sanitizing:** The location of the last cleaning and sanitizing shall be verified by the Regulatory Agency during any milk tank truck inspection and recorded on the Milk Tank Truck Inspection Form.

7. **Labeling:** The maintenance of all pertinent information on all shipping documents, shipping invoices, bills of lading or weight tickets is the responsibility of the bulk milk hauler/sampler. A milk tank truck transporting raw, heat-treated or pasteurized milk and milk products to a milk plant from another milk plant, receiving station or transfer station is required to be marked with the name and address of the milk plant or hauler and the milk tank truck shall be under a proper seal. All shipping documents must contain the following information as outlined in Section 4 - Labeling of this *Ordinance*:

   a. Shipper's name, address and permit number. Each milk tank truck load of milk shall include the IMS Bulk Tank Unit (BTU) identification number(s) or the IMS listed Plant Number, for farm groups listed with a plant, on the farm weight ticket or manifest.
   b. Permit identification of the hauler, if not an employee of the shipper.
   c. Point of origin of shipment.
   d. Milk tank truck identification number.
   e. Name of product.
   f. Weight of product.
   g. Temperature of product when loaded.
   h. Date of shipment.
   i. Name of supervising Regulatory Agency at the point of origin of shipment.
   j. Whether the contents are raw, pasteurized, or in the case of cream, lowfat or skim milk, whether it has been heat-treated.
   k. Seal number on inlet, outlet, wash connections and vents.
   m. Grade of product.

All information contained on the above described documents shall be verified by the Regulatory Agency and recorded on the appropriate inspection sheet for any bulk milk tank trucks under inspection.

8. **Vehicle and Milk Tank Truck Properly Identified:** It shall be the responsibility of the milk tank truck owner or operator to insure the proper and legible identification of the milk tank truck(s) in their possession.

9. **Previous Inspection Sheet or Affixed Label Available:** When a milk tank truck transports milk and milk products from one (1) regulatory jurisdiction to another it is not necessary to inspect each milk tank truck upon each arrival. Milk tank truck owners and operators shall carry proof of annual inspection from a recognized Regulatory Agency. A milk tank truck may be inspected at any time or at the discretion of any Regulatory Agency responsible for the milk supply.

10. **Sample Chain-of-Custody:** When samples for official laboratory analysis are transported by any individual where the sample chain-of-custody must be established, the driver may be required to carry a valid permit or shall be evaluated biennially for the collection of samples for official laboratory analysis. The criteria from Section I - Evaluation of Bulk Milk Hauler/ Sampler Procedures, Item 7 - Sampling Responsibilities of this

Appendix will be used as the basis for the evaluation. As an alternative, a sample case sealed as required by the Regulatory Agency may be accepted.

Additional Information- APPENDIX B

See DPC Guidelines # 25, Cleaning & Sanitation Responsibilities for Bulk Pickup and Transport Tankers and # 50, Farm Bulk Milk Collection Procedures.

Questions & Answers

1. Q: Under IMS Procedures, can a hauler pickup on the same tanker load of milk supplies under different regulatory and rating authorities (i.e. mixed loads)?
   A: Yes, provided the regulatory agencies and rating agencies have worked out a mutual agreement specifying how the ratings are to be made and such agreement is not in conflict with the basic intent of the MMSR.

2 Q: Is sanitization of the valve on the farm bulk tank outlet, before the hauler connects up to the farm bulk tank, required?
   A: Yes

3. Q: When two of the last four somatic cell counts exceed the limit of the standard, does the next sample have to be collected by the regulatory agency or is the universal sample collected by the licensed sampler/hauler acceptable?
   A: The regulatory agency may elect to use the sample taken by a licensed sampler/hauler.

Virginia

Milk Haulers picking up milk from farms in Virginia must have a Virginia Permit.

DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
FOOD AND DRUG ADMINISTRATION

TANK SERIAL NO.

TANK PERMIT NO.

STATE ISSUING PERMIT

MILK TANK TRUCK INSPECTION FORM

NAME OF OWNER OF TANK _____

ADDRESS OF OWNER _____

MILK TANK TRUCK _____

NAME OF DRIVER _____ SAMPLER'S PERMIT NO. _____

DRIVER'S ADDRESS _____

DELIVERS TO _____ INSPECTION LOCATION _____

ADDRESS _____ STATE _____

An inspection of your milk tank truck showed violations existing in the items marked below in the non-compliance column. You are further notified that this inspection sheet serves as notification of the intent to suspend this tanker's permit if the violations are not in compliance at the time of the next inspection. Description of non-compliance items may be included in the remarks section.

	Compliance	Non-compliance	NA
1. SAMPLES AND SAMPLING EQUIPMENT (PMO APPENDIX B)			
A. Storage of sample containers			
B. Sample box in good repair, clean			
C. Sample transfer instrument			
D. Sampling transfer instrument container			
E. Sample storage			
F. Sample storage compartments			
G. Samples 32°- 40 °, control temp.			
H. Approved thermometer available			
2. PRODUCT TEMPERATURE 45° OR LESS. (PMO Sec 7, items 18r and 17p)			
A. Temperature of product in tank			
B. Product in external fluid transfer systems that exceeds 45° F is discarded			
3. EQUIPMENT CONSTRUCTION, CLEANING, SANITIZING AND REPAIR (PMO Sec. 7, items 10p and 11p)			
A. Dome lid assembly			
B. Gasket(s)			
C. Vent(s)			
D. Pump(s)			
E. Hose(s)			
F. Hose connection(s)			
G. Hose(s) more than 8 ft in length mechanically cleaned			
H. Valve(s)			
I. Protection from contamination			
J. Interior condition of tank			
K. Other_____			
EXTERIOR CONDITION OF TANK (PMO Appendix B)			
5. WASH & SANITIZE RECORD (PMO Sec 7, item 12p)			
A. Is wash/sanitize recording chart available?			
B. Is wash/sanitize tag available?			
I. Recording chart available for cross-reference?			
II. Attached to tanker?			
III. Date of last wash/sanitize (PMO Appendix B)			
IV. Properly completed (PMO Appendix B)			
6. LOCATION OF LAST CLEANING _____			
7. LABELING			
8. VEHICLE AND MILK TANK TRUCK PROPERLY IDENTIFIED			
9. PREVIOUS INSPECTION SHEET AVAILABLE			
10. SAMPLE CHAIN OF CUSTODY			

REMARKS:

INSPECTOR _____ STATE _____ DATE _____

FORM FDA 2399B

DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
FOOD AND DRUG ADMINISTRATION

Sample Collector and Title:

MILK SAMPLE COLLECTOR EVALUATION FORM

Location:

Evaluation by:_____

Agency:_____

Date:

X = Deviation

NA = Not Applicable

DAIRY PLANT SAMPLING – RAW AND PASTEURIZED MILK

EQUIPMENT

1. **Thermometer – Approved type** ____
   a. Accuracy checked against standard thermometer and adjust every 6 months – Accuracy (+)(-) deviation__
   b. Date checked and checker's initials attached to case ____
2. **Agitation**
   a. Use odor-free, pressurized filtered air. or electrically driven stirring or recirculation equipment, all equipment sanitized before use in each successive tank (where applicable) ....
3. **Sample Transfer Instrument**
   a. Clean, sanitized, or sterilized ____
   b. Seamless metal tube ____
   c. Or metal dipper with long handle; capacity at least 10 ml ____
   d. Or single-service paper or plastic sampling tube ____
   e. Or sanitized sampling cock ____
   f. Or other means for removing sample aseptically ____
4. **Sampling Instrument Case**
   a. Proper design, construction and repair ____
5. **Sample Containers** ____
   a. Clean, properly sanitized, or sterilized ____
   b. Adequate supply, properly stored and handled ____
6. **Sample Storage Case** ____
   a. Rigid construction, suitable design to maintain samples at 32° – 40° F., protected from contamination ____
7. **Cleaning and Sanitizing of Equipment** ____
   a. Sampling instruments, clean and dry ____
   b. For sanitizing stirrer, sampling tube, or dipper between samples:
      1. Rinse first in one can of clean cold water connected with a continuously flowing source ____
      2. Then submerge in a second can of water kept continuously at 180° F. for at least 1 min. ____
      3. Or dipper submerged in a hypochlorite solution at 200 ppm for at least 1 min. (or use other halogens bactericidally equivalent) ____
      4. Strengh of sanitizing solution determined with applicable test kit ____

SAMPLING PROCEDURES

8. **General Sampling Procedures – plants, raw and pasteurized sampling**
   a. Hands washed, clean, and dry during sampling ____
   b. Milk temperature determined and recorded at all sampling locations ____
   c. Temperature control sample provided at first sampling location and labeled with time, date, temperature, and collector identification ____
   d. Sample containers legibly identified at collection point ____
   e. Sample containers and closures handled aseptically ____
   f. Do not hold sample container over the milk when transferring sample into the container ____
   g. Sampling instrument protected from contamination before and during sampling ____
   h. Fill sample container not more than ¾ full ____

SAMPLING PROCEDURES (Continued)

   i. Immediately place samples into sample case ____
9. **Raw Milk for Pasteurization – trucks and plant storage tanks (see item 8 for applicable procedures)**
   a. Agitation time determined as required ____
   b. Collect sample aseptically from tank opening (manhole) ____
   c. Or from pipeline ____
   d. Or from balance tank prior to pasteurization ____
   e. Or form sanitized sampling-cock ____
   f. Do not use hand-disc agitator to mix milk in large storage tanks or trucks ____
   g. Sample dipper , when used, rinsed at least 2 times before transferring sample ____
   h. Dipper should extend 6 – 8 inches into the milk to obtain representative sample ____
   i. Rinse sample dipper or multi-use tubes in tap water after each use and replace in sanitizing solution
10. **Pasteurized Milk and Milk Product Samples (see item 8 for applicable procedures)**
   a. Collect samples while still in possession of processor ____
   b. Randomly select representative samples of all pasteurized milk and milk products ____
   c. Or if necessary, after thoroughly mixing product in container, aseptically transfer representative portion to sterile sample container ____
   d. Or from milk dispensers, collect sample direct from spigot of sterile sampling container without sanitizing or flushing the spigot opening ____
11. **Pasteurized Milk and Milk Products Containers and Closures (see item 8 for applicable procedures)**
   a. Collect at least 4 randomly selected, representative multi-use (and when necessary single-service) containers used for packaging ____
      1. Do not touch lip or interior of bottles or containers ____
      2. Do not allow milk or water to drip into empty milk containers: by-pass filler valves ____
      3. Containers sealed or capped with line equipment ____
      4. Or use laboratory sterilized caps, aseptically applied to bottles ____
      5. Containers delivered to laboratory without rinse solution, properly protected from crushing or damage ____
      6. Do not store or ship single-service containers in refrigerated cases ____
12. **Sample Storage and Transportation**
   a. Use ice or other refrigerant maintained slightly above milk level in sample container to keep sample temperature at 32° – 40°F., Do not freeze ____
   b. Protect against all contamination, including ice water; water no higher than milk level in sample containers; do not bury tops of containers in ice ____
   c. Samples and sample data promptly submitted to laboratory
   d. When shipping samples via common carrier, use tamper proof shipping case with top labeled "This Side Up" ____

Remarks:

Form FDA 2399

DEPARTMENT OF HEALTH AND HUMAN SERVICES PUBLIC HEALTH SERVICE FOOD AND DRUG ADMINISTRATION	**MILK TANK TRUCK, HAULER REPORT AND SAMPLER EVALUATION FORM**	Permit No.: _____ Hauler: _____ Milk Tank Truck:

Hauler/Sampler: _____ Address: _____
Owner: _____ Address: _____
Inspection Location: _____
Receiving Plant: _____ Daily Pickup No.: _____

An inspection of your milk tank truck and/or an evaluation of your sampling procedures showed violations existing in the Items checked below. You are further notified that this inspection sheet serves as notification of the intent to suspend your permit if the violations noted are not in compliance at the time of the next inspection. (See Sections 3. and 5. of the *Grade "A" Pasteurized Milk Ordinance*.)

I. MILK TANK TRUCK AND APPURTENANCES

1. Construction complies with PMO regulations..... _____
2. Cleaned after each days use ..... _____
3. Sanitization records/wash tags maintained..... _____
4. Vehicle properly identified..... _____

II. HAULER SANITATION PROCEDURES

5. Pickup practices conducted to preclude contamination of milk contact surfaces _____
6. Hands clean and dry, no infections..... _____
7. Clean outer clothing, no use of tobacco..... _____
7. Hose port used, tank lids closed during completion of pickup. ..... _____
8. Hose properly capped between milk pickup operations, hose cap protected during milk pickup..... _____
10. Hose disconnected before tank rinsed..... _____
11. Observations made for sediment/abnormalities..... _____
12. Sample collected at every pickup..... _____

III. BULK TANK SAMPLING PROCEDURES

13. Thermometer – Approved Type..... _____
    a. Accuracy – Checked against standard thermometer every 6 months – accuracy (+)(-) division..... _____
    b. Date checked and checker's initials attached to case ..... _____
14. Sample Transfer Instrument
    a. Clean, sanitized or sterilized and of proper construction and repair..... _____
15. Sampling Instrument Container
    a. Proper design, construction and repair for storing sample dipper in sanitizer..... _____
    b. Applicable test kit for checking strength of sanitizer (200 ppm chlorine or equivalent)..... _____
16. Sample Containers
    a. Clean, properly sanitized or sterilized..... _____
    b. Adequate supply, properly stored or handled ..... _____
17. Sample Storage Case
    a. Rigid construction, suitable design to maintain samples at 32°-40ºF, protected from contamination..... _____
    b. Ample space for refrigerant, racks provided as necessary ..... _____
18. Sample Collection – Precautions and Procedures
    a. Sampling instrument and container(s) properly carried into and aseptically handled in milk room ..... _____
    b. Bulk tank milk outlet valve sanitized before connecting transfer hose..... _____
    c. Smell milk through port hole..... _____
    d. Observe milk in a quiescent state with lid wide open and lights on when necessary.....
    e. Test thermometer sanitized (1 min. contact time)..... _____
    f. Non-acceptable milk rejected..... _____
    g. Dry measuring stick with single-service paper towel..... _____
    h. Measure milk only when quiescent..... _____
    i. Do not contaminate milk during the measuring process..... _____
    j. Agitate milk before sampling at least 5 min. or longer as may be required by tank specs..... _____
    k. Do not open bulk tank valve until milk is measured and sampled. ..... _____
    l. Temperature of milk, time, date of pickup and haulers ID recorded on each farm weight ticket..... _____
    m-1. Tank thermometer accuracy checked monthly and recorded when used as test thermometer..... _____
    m-2. Accuracy of required recording thermometers checked monthly against standardized thermometer and recorded..... _____
    n. Temperature control sample provided at first sampling location for each rack of samples ..... _____
    o. Temperature control sample properly labeled with time, date, temperature, and with producer and hauler identification ..... _____
    p. Sample containers legibly identified at collection points..... _____
    q. Sample dipper rinsed at least two times in the milk before transferring sample..... _____
    r. Dipper should extend 6-8 inches into the milk to obtain representative sample..... _____
    s. Do not hold sample container over the milk when transferring sample into the container..... _____
    t. Fill sample container no more than ¾ full..... _____
    u. Rinse sample dipper in tap water, replace in it's container, open milk valve, turn on tank pump..... _____
    v. Immediately take milk sample to the sample case ..... _____
19. . Sample Collection – Storage and Transportation
    a. Sample storage – refrigerant maintained no higher than milk level in sample containers – maintain sample temperature – do not bury tops of containers in ice, protect against contamination..... _____
    b. Deliver samples to laboratory promptly..... _____
    c. Samples and sample data – submitted to laboratory – if by common carrier, use tamper proof shipping case with top labeled "This Side Up"..... _____

Remarks: (If additional space is requires, please place information on the back of this form or on a separate page.)

Date: Sanitarian: Agency:

Form FDA 2399a

APPENDIX C. DAIRY FARM CONSTRUCTION STANDARDS AND MILK PRODUCTION

PMO

I. TOILET AND SEWAGE DISPOSAL FACILITIES

FLUSH TOILETS

Flush toilets are preferable to pit privies, earth closets or chemical toilets at both dairy farms and milk plants. Their installation shall conform to the Local or State plumbing regulations. Toilets shall be located in a well-lighted and well-ventilated room. Fixtures shall be protected against freezing. The following shall be considered defects in flush-toilet installations:

1. Insufficient water pressure or volume;
2. Leaky plumbing;
3. Clogged sewers, as evidenced by overflowing toilet bowl;
4. Broken tile lines or clogged disposal field;
5. Access of dairy lactating animals to the effluent below the sewer or disposal-field discharge;
6. Effluent coming to the surface of the ground in the absorption field;
7. Toilet room floor soaked with urine or other discharges;
8. Offensive odors or other evidence of lack of cleanliness; or
9. Location of soil lines, septic tank, absorption field or leaching pit closer to the source of water supply than the limits indicated in Appendix D.

SEPTIC TANKS

Disposal of the wastes from toilets should preferably be into a sanitary-sewer system. Where such systems are not available to a dairy farm or milk plant, the minimum satisfactory method should include treatment in a septic tank, with the effluent discharged into the soil. Where soil of satisfactory permeability is not available, the effluent shall be disposed of in accordance with the rules of the Local or State Health Authority. It is preferable to treat floor drainage, wastes from washing of utensils, etc., in separate systems. When such wastes are combined with toilet wastes in the septic tank system, careful consideration must be given to the expected flow in the design of both the septic tank and the leaching system.

The septic tank shall be located a safe distance from water sources as determined by consideration of the criteria indicated in Appendix D. The Regulatory Agency shall review and approve proposed installations prior to the initiation of construction. The location should permit easy access for inspection and cleaning. The site should be chosen to make the largest possible area available for the disposal field.

The size of the septic tank should be based on the average daily flow of sewage, a retention period of approximately twenty-four (24) hours and adequate sludge storage. The minimum liquid capacity of a septic tank should be 3,000 liters (750 gallons). The outlet should be baffled to prevent scum from passing out with the overflow. The septic tank cover or slab should be watertight, designed to be insect and rodent proof and to withstand any load likely to be placed upon it. Each tank should have a manhole for each compartment, when it is provided with a solid-slab cover. The manhole covering should be made watertight. Septic tanks should be constructed of materials that are not subject to excessive corrosion or deterioration.

DISPOSAL FIELDS FOR SEPTIC TANKS

A distribution box is considered desirable in every field system. The design of the field should be based on the expected sewage flow, the actual absorptive quality of the soil and the total bottom area of the trenches. Tile or perforated pipe designed for this use, of not less than 10 millimeters (4 inches) diameter, is recommended for field laterals. Laterals should be separated by at least three (3) times the width of the trenches, with a minimum of 2 meters (6 feet).

Trenches should be filled with broken stone or screened gravel, from a depth of at least 15 centimeters (6 inches) below the distributing pipes, to a level at least 5 centimeters (2 inches) above the top of the lines. When drain tile is used, joints should be open about 5 millimeters (¼-inch), and the openings protected by tarpaper strips over the top and sides. The aggregate should be protected from loose backfill by means of a separating strip of untreated building paper or similar material. Under no condition should a field with less than

13.9 square meters (150 square feet) of effective absorption area (30 meters of 46 centimeters (100 linear feet of 18-inch) trench be provided for any individual unit. The maximum length of individual lines should not exceed 30 meters (100 feet). The slope of the field's lateral lines may vary from 5 centimeters (2 inches) to 10 centimeters (4 inches) per 30 meters (100 feet), but should never exceed 15 centimeters (6 inches) per 30 meters (100 feet). It is desirable to have the tile lines within 46 centimeters (18 inches) of the finished grade; however, the total depth of the lateral trenches should never average more than 91 centimeters (36 inches).

In some instances seepage pits may provide a more satisfactory means of disposal of effluent. Walls should be permeable and the liquid capacity should be not less than that of the septic tank. Total wall area should be proportionate to absorptive quality of the soil and to expected sewage flow.

Information as to methods of making percolation tests to determine absorptive quality of the soil may be obtained from Local and/or State Health Departments. From the same sources, advice may be obtained as to trench areas needed for various numbers of users, in relation to observed percolation rates. In view of their close knowledge of local conditions, it is recommended that such assistance be requested before an absorption system is constructed.

EARTH-PIT PRIVY

The earth-pit privy offers the most suitable type of excreta disposal unit for the dairy farm where water carriage systems of disposal cannot be provided. While there are many different designs in use, the basic elements are the same in all cases.

1. **General:** The earth pit should be of such capacity that it may be used for several years without requiring the privy to be moved. Excreta and toilet paper are deposited directly into the pit. Aerobic bacteria break down the complex organic material into more or less inert material. Insects, animals and surface water must be prevented from entering the pit. It is essential that the privy be designed and constructed so that the pit can be kept fly tight.

2. **Location:** The location of the privy shall take into account the need to prevent the contamination of water supplies. The criteria of Appendix D. shall be applied. On sloping ground, it shall be located at a lower elevation than the water supply. On level ground, the area around both the privy and water supply should be mounded with earth. If the installation of an earth-pit privy will endanger the safety of the water supply, other methods of disposal must be used.

The site should be accessible to all potential users. Consideration should be given to the direction of prevailing winds to reduce fly and odor nuisances. The privy pit should not encroach within 2 meters (6 feet) of any building line or fence, in order to allow proper construction and maintenance.

3.Pit, Sill, and Mound: A minimum pit capacity of 4.6 cubic meters (50 cubic feet) is recommended. The pit should be tightly sheathed for a meter or several feet below the earth surface, but openings in the sheathing are desirable below this depth. The sheathing should extend from 25-50 millimeters (1-2 inches) above the natural ground surface, to provide space between the sill and the upper portion of the sheathing, so that the floor and building will not rest on the sheathing. A reinforced concrete sill should be provided for support of the floor and superstructure. The sill should be placed on firm, undisturbed earth.

An earth mound, at least equal in thickness to the concrete sill, should be constructed with a level area 46 millimeters (18 inches) away from the sill in all directions.

4. **Floor and Riser:** Impervious materials, such as concrete, are believed to be most suitable for the floor and riser. Because privy units are commonly used as urinals, the use of impervious materials for risers is desirable in the interest of cleanliness. In cold climates, wood treated with a preservative, such as creosote, has been found to be durable and to reduce the problem of condensation. Therefore, in some sections of the country, wood may be used if approved by the Local or State Health Authority.

5. **Seat and Lid:** Both seat and lid should be hinged to permit raising. Material used in construction should be light in weight, but durable. Seats should be comfortable. Lids shall be self-closing. Two (2) objections to self-closing seat lids are: discomfort from the lid resting on the upper portion of the user's back and contact of the oftentimes soiled or frost-covered bottom surface of the lid with the user's clothing. A seat lid has been devised which overcomes these objections. This lid is raised to a vertical position by lifting it from the rear, so that the top surface of the lid is against the user, rather than the bottom surface that is normally exposed to the pit.

6. **Vent:** Venting practices differ in many parts of the United States, because of differences in climatic conditions. In some States, particularly those in the South, vents have been omitted entirely and results from this practice appear to be satisfactory. Vents may pass vertically from either the pit or the riser, through the roof or directly through the wall near the floor. The vertical vent from pit or riser may lead to a horizontal vent passing through both walls or diagonally across a corner of the building.

In all cases, vents are screened. Galvanized, steel-wire screens dipped in paint, copper screens and bronze screens are used. Nearly all designs employ a screen with 6 (six) meshes to the centimeter (sixteen (16) meshes to the inch). Hardware cloth is used to cover the outside entrance to vents to prevent entrance of large objects that would clog the vent.

It is stated by some authorities that venting serves no useful purpose and that vents should be eliminated from earth-pit privies. Satisfactory recommendations with respect to vents can be made only after certain technical problems have been solved. The most important of these is the moisture condensation problem due to the temperature difference between the pit and the superstructure. The use of a cold wall, to condense moisture within the pit, has been suggested. In view of the uncertain value of venting, no recommendations are offered.

7. **Superstructure:** Privy structures are standardized to some extent. The majority are 1.2 meters by 1.2 meters (4 x 4 feet) in plan, with a height of 2 meters (6.5 feet) in front, and 1.8 meters (5.5 feet) at the rear. A roof with a 1-to-4 slope is commonly used. The building should be constructed of substantial material, painted for resistance to weather and fastened solidly to the floor slab. Proper roof overhang should be provided to dispatch rainwater from the roof away from the mound.

The roof should be constructed of watertight materials, such as wood, composition shingles or metal. Achieving ventilation of the building by omitting siding beneath the roof is common, except in cold climates, where the siding is usually perforated. Windows are sometimes used in the northern latitudes. Provision of coat hooks is desirable.

8. **Defects in Earth-Pit Privies:** The following shall be considered defects in pit-toilet installations:

a. Evidence of caving around the edges of the pit;
b. Signs of overflow, or other evidence that the pit is full;
c. Seat covers broken open or not self-closing;
d. Broken, perforated or unscreened vent pipe;
e. Uncleanliness of any kind in the toilet building;
f. Toilet room opening directly into milkhouse; and
g. Evidence of light entering the pit, except through the seat when the seat cover is raised.

MASONRY-VAULT PRIVY

A masonry-vault privy is essentially a pit privy in which the pit is lined with impervious materials and in which provision is made for the removal of excreta.

1. **Function:** Masonry vaults are used chiefly where the ground water table is close to the ground surface, or where it is necessary to prevent contamination of nearby water courses, wells and springs. They are also recommended for use in limestone formations to prevent contamination of water streams in the solution channels of the limestone. This type of disposal unit is satisfactory only where adequate maintenance and servicing are assured.

2. **Construction:** Masonry vaults may be constructed of brick, stone or concrete, with the latter preferred. The vault must be watertight to keep out ground water and to prevent leakage of the vault's contents. A readily accessible cleanout door is necessary. It shall be constructed to prevent access of insects, animals and surface water to the vault's contents. The floor of the superstructure, which forms a partial covering for the vault, must be impervious. Concrete is recommended.

CHEMICAL TOILET

In some areas where pit toilets might menace water supplies, where a sufficient volume of water for the operation of flush toilets is not available and where there is no prohibitive statute or ordinance, the chemical toilet may be accepted. Provided that it:

1. Has a receiving tank of acid resisting material with an opening easily accessible for cleaning;
2. Has a bowl, of nonabsorbent materials, sufficiently elevated above the receiving basin to prevent splashing the user;
3. Has the tank and bowl vented with at least a 7.6 centimeters (3 inches) screened pipe, preferably of cast iron, extending at least 60 centimeters (2 feet) above the roof line;
4. Has the tank charged, at proper intervals, with chemicals of a bactericidal nature and concentration;
5. Is placed in a well-lighted and well-ventilated room which does not open directly into the milkhouse; and
6. Has an effective method of final disposal, including burial, or a leaching vat or a cesspool where it will not endanger any water supply.

1. **Type:** Chemical toilets differ from privies, in that they are commonly placed inside the dwelling, whereas privies are generally located apart from the dwelling. There are, in general, two (2) types of chemical toilets:
a. The commode type, in which a pail containing a chemical solution is placed immediately below the seat; and
b. The tank type, in which a metal tank holding the chemical solution is placed in the ground directly beneath the seat. A pipe or conduit connects the riser with the tank. Tanks are usually cleaned by draining to a subsurface seepage pit.

2. **Function:** Toilets of this type are predominant in cold climates, where it is found desirable to have toilet facilities in or near the home, and where running water is not available for flush toilets.

3. **Chemicals:** Sodium hydroxide is commonly used to prepare the caustic solution for either commode or tank type chemical toilets. The chemical is dissolved in water and placed in the receptacle. The purpose of the chemical solution is to emulsify the fecal matter and paper and to liquefy the contents. In order to accomplish this action, the chemical solution must be maintained at proper strength and the mixture must be agitated each time the toilet is used. Odors are produced chiefly by the liberation of ammonia, when the caustic solution is weak, or when mixing by agitation is not carried out.
Difficulties are encountered when the caustic solution becomes diluted and fails to emulsify the fecal matter. When this occurs, the chemical solution breaks down, due to absorption of carbon dioxide from the air, and the solution ceases to be caustic. The decomposition of fecal matter produces foul odors.

4. **Sludge Disposal:** Disposal of the resultant mixture is a disagreeable task. In the case of small commode types, the usual method of disposal is burial in the earth. Tank units are usually so constructed that the tank is emptied into a seepage pit. When emulsification is not complete, particles of paper clog the seepage pit requiring corrective measures. Because of fundamental differences in design, chemical toilets resemble other types of privies only in the seat construction and manner of venting. Usually, risers or stools manufactured commercially are used.
Chemical toilets shall be used only where there is assurance of constant maintenance and where safe disposal of the contents is assured. Neither sludge nor liquid effluent from chemical toilet tanks shall be discharged to a sewage system in which treatment processes are involved. Otherwise, the chemical constituents of the sludge or liquid effluent may seriously interfere with the biological action upon which such treatment processes depend.

5. **Defects:** The following shall be considered defects in a chemical toilet installation:
a. Violation of any of the above requirements;
b. Disagreeable odors indicating to-infrequent charging with chemicals or inadequate concentration of chemicals in the charge;
c. Evidence of improper disposal of the tank contents; and
d. Lack of cleanliness in the toilet compartment and room.

CONSTRUCTION PLANS

Detailed construction drawings for septic tanks, pit privies, masonry-vault privies and chemical toilets complying with State regulations may be secured from the Local and State Health Authority.

II. GUIDELINE #45 - GRAVITY FLOW GUTTERS FOR MANURE REMOVAL IN MILKING BARNS

Published by the Dairy Practices Council

The gravity flow gutter concept for manure removal comes from Europe. Manure falls into a deep gutter in the barn floor and then flows by gravity to a cross channel or outlet pipe to storage. A low (8-20 centimeters) (3"-8") dam retains a lubricating liquid layer over which the manure flows (Fig. 1). After one (1) to three (3) weeks in a newly started gutter, the manure surface forms an incline of 1-3% above the dam. Then the manure moves continuously over the lip. The gutter must be deep enough to contain manure sloped at this shallow angle.

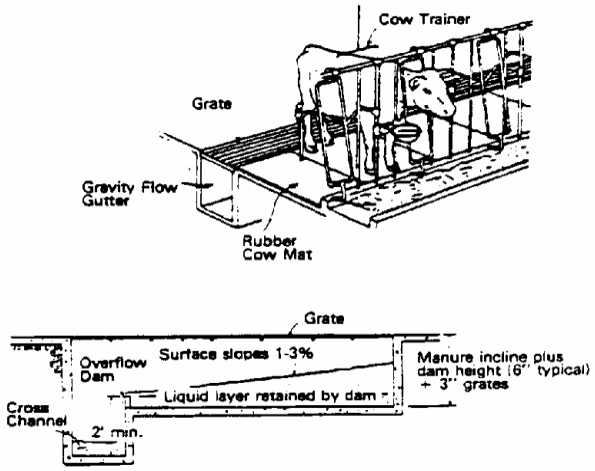

Figure 1. Side Cross Section of a Gravity Flow Gutter

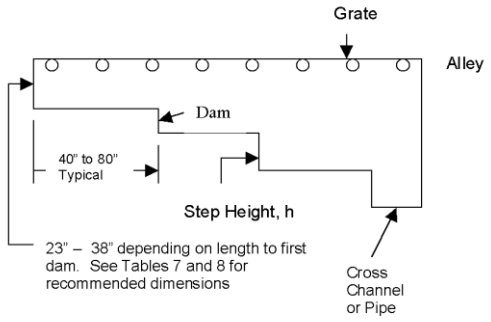

Figure 2. Stepped Gravity Flow Gutter

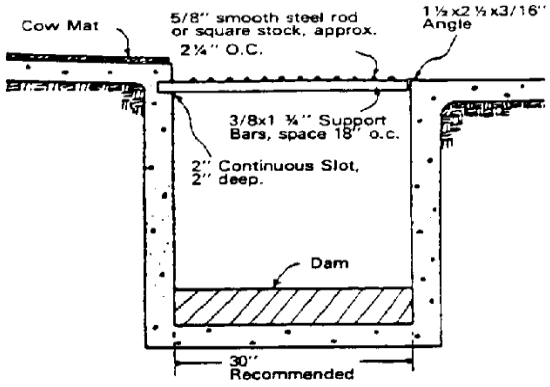

Figure 3. Cross Section of a Typical Gutter and Grate

Because manure moves by its own weight, no mechanical equipment is required to remove it from the barn. Generally the cost of the gutter and cover grates is less than the cost of installing, operating and maintaining a mechanical cleaner.

This system is neither a flush gutter, where 115-225 liters (30-60 gallons) of water per cow is needed to remove manure from the gutter, nor is it an under-barn storage that is open to the barn. Rather, it is a conveying channel that carries the manure from behind the cow to the outside storage. The top surface of the slurry has been recorded to move 3 meters (10 feet) per hour.

CONSTRUCTION

1. **Gutter Depth:** Gutter depth depends on the length of the gutter and the angle of incline of the manure surface. Design in this guideline assumes the manure surface forms a 3% slope. Most diets form wetter manure, and with no bedding the slope may be 1% less. The bottom should be level so the dam will hold a uniform liquid layer. The maximum depth of the gutter at the end opposite the discharge shall not exceed 138 centimeters (54 inches). In addition, the outlet shall be clear of obstructions.

The depth includes an allowance for a 15 centimeter (6 inch) dam and a 8 centimeter (3 inch) deep grates.

Adding steps may decrease the maximum manure depth. The depth from the bottom of each dam to the bottom of the next level varies depending on the distance between steps. (See Figure 2)

Table 6. Slot Size vs. Cattle Age

Age (Months)	1-6	6-12	12-24	Over24
Slot Size (in.)	1-1 ⅛	1⅛ -1⅜	1⅜ -1⅝	1 ½ -1⅝

2. **Width of Gutters:** The bottom of the gutter shall not exceed 91 centimeters (36 inches) in width. A 76 centimeters (30 inches) wide gutter is recommended. The gutter opening may be narrowed to 50-60 centimeters (20-24 inches) in order to reduce the size and costs of grates.

3. **Overflow Dam:** The dam retains a lubricating liquid layer over the channel, which is essential to maintain flow. Typical heights range between 8 and 20 centimeters (3 and 8 inches). Dams, if removable, would facilitate total cleanout, when and if necessary. Concrete, a steel plate, or a plank may be used to construct the dam. Caulking may be needed to seal the dam.

Table 7. Gravity Flow Gutter Depth vs. Length for Manure from Lactating Animals

Length		Depth	
Meters	Feet	Cm.	Inches
12	40	58	12
18	60	78	18
24	80	96	24
30	100	114	30
36	120	132	36

4. **Length**: A 70 meters (226 feet) long gutter has worked, but typical distances between dams range from 12 to 24 meters (40 to 80 feet). Longer channels must be deeper; hence, they may cost more because they require more concrete and stronger forms.

Table 8. Step Height vs. Length for Stepped Gravity Flow Gutters		
Step Height		
Length Between Dams	For 1.5% Manure Incline	For 3% Manure Incline
40’	7”	14”
50’	9”	18”
60’	11”	22”
70’	13”	25”
80’	15”	29”

5. **Grates:** Commercial steel grates for stall barns and concrete slats for freestall barns are generally available. Table 7 suggests slot widths. Grates for stall barns are made from round or flat steel stock.

6. **Cross Channel:** The cross channel may be constructed like the gutter. At least a 60 centimeters (2 feet) drop from the top of the dam to the bottom of the cross channel is suggested to prevent backup of manure into it. The channel may be extended directly to storage. The slurry should enter the bottom; to prevent storage gases and cold air from returning up the channel. Channel depth, below grade, should be sufficient to prevent freezing.

   Gravity flow via a concrete, steel or plastic pipe may also be used to transfer manure to the bottom of the outside storage. Pipe as small as 38 centimeters (15inches) diameter has been used successfully. However, 60 centimeters (24inches) diameter pipe is recommended.

Do not empty channels into large sumps or pits within, or having direct openings into the barn. These storages will produce gas and odors that will be drawn into the barn through the ventilation systems.

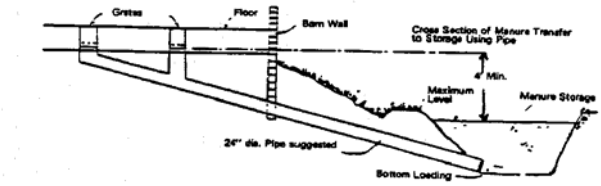

Figure 4. Manure Transfer to Storage

MANAGEMENT

1. **Flooding of Gutters:** Prior to stocking the building, fill the gutters with 8-15centimeters (3-6 inches) of water to start the lubrication layer.

2. **Bedding Usage**: The type and amount of bedding used is important to successful operation. Up to .5 kilograms (1 pound) per lactating animal per day of sawdust, fine cut shavings or peanut hulls still allows the system to work. Some have worked with long straw bedding, but it is not recommended. More bedding or long straw increases manure stiffness and may clog the gutter. Lactating animal mats allow minimum bedding use. Sometimes water may need to be added, depending upon the feed ration and amount of bedding used.

3. **Wastage and Deposits:** Keep feed and hay out of the gutter. Barn lime and soil brought in from outside may settle to the bottom. For this reason, the overflow dam, on some gutters, is removable for clean out. Buildup of solids has not been a problem under normal management, although the gutter will need cleaning if it has not
ome time. Watch for islands of solids, especially where excess bedding or feed builds up. Cut these islands free of the walls to keep them flowing.

4. **Cleaning Grates:** Grates need cleaning at least weekly and, preferably, daily. A broom connected to a hose makes the job easy.

5. **Flies and Odors**: Flies have caused little or no problems. Biodegradable oil such as mineral oil may be sprayed on the manure surface to control them. Little or no odors have been observed in barns with good ventilation. There is no need to install fans to ventilate the gutters.

III. CONVALESCENT (MATERNITY) PENS IN MILKING BARNS AND STABLES

While the requirement for concrete floors in milking barns and stables is necessary for good sanitation, climatic conditions in some areas of the country has created a need for convalescent (maternity) pens to be located in milking barns and stables. Therefore, convalescent pens may be allowed in the milk barn or stable. Provided that the following requirements are met:

1. All floors in the production milking facility, with the exception of the convalescent pens, must be of an impervious surface, with slopes for drainage as currently listed in the regulations.

2. Milk from animals milked in convalescent pens with non-impervious floors must not enter the distribution system or be sold.

3. Routine milking in pens shall not be allowed.

4. Pens must be located in a location so as not to contaminate milk holding transfer facilities or water supplies. Convalescent pens cannot be within 15 meters (50 feet) of a well.

5. A curb of at least 15 centimeters (6 in.) shall be provided on all exposed sides of the pen(s).

6. Convalescent pens shall be well bedded, clean and dry at all times.

7. No water faucet or drinking fountain shall be located within the curbed area.

8. State sanitarians, at their discretion, may require cleaning and/or reconstruction of such pens, based at intervals as necessary when the pens present a sanitation problem.

9. It is recommended that the number of pens be limited to one (1) per fifty (50) lactating animals.

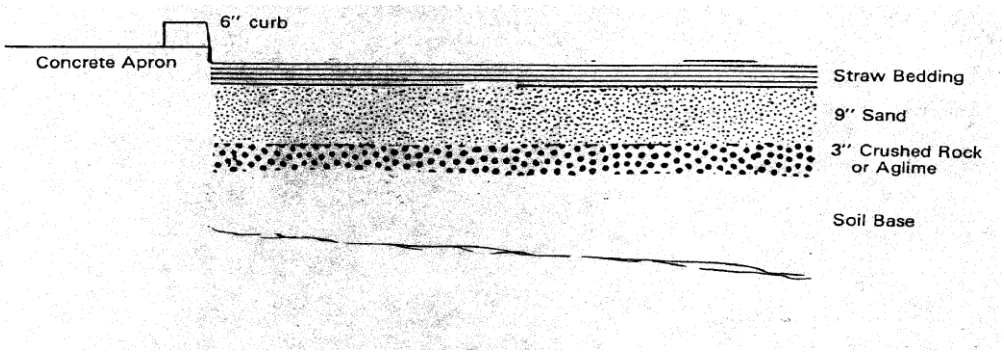

Figure 5. Side Cross Section of a Convalescent Pen

IV. GUIDELINES FOR CONVENTIONAL STALL BARN WITH GUTTER GRATES OVER LIQUID MANURE STORAGE

INTRODUCTION

The use of liquid manure storage under milking barns can be a cost, labor and energy efficient method for handling dairy animal wastes. This type of system can aid in pollution control and will provide a safe and healthy environment for cattle and humans under the following guidelines:

1. Plans for the construction of a conventional stall barn, with gutter grates over liquid manure storage, shall be submitted to the Regulatory Agency for approval before work is begun. Upon completion of the work, the builder shall furnish the purchaser with a signed written statement certifying that the system is constructed so as to be in full compliance with these guidelines.

2. The storage capacity of the liquid manure tank shall be for a minimum of nine months.

3. A negative pressure mechanical ventilation system must be installed to meet the following requirements (See Figures 6 and 7):

a. Provide a maximum exhaust capacity of forty (40) air changes per hour from the occupied area. Of this total, about one-half, twenty (20) air changes per hour shall be considered the cold weather part of the system and shall be exhausted through the manure storage area. The remaining twenty (20) air changes per hour shall be considered the warm weather part of the system and shall be exhausted through the barn walls.

b. Of the twenty (20) air changes exhausted through the manure storage area there shall be a minimum continuous exhaust of four (4) air changes per hour. The additional cold weather capacity of about sixteen (16) air changes per hour shall be thermostatically controlled. All fans exhausting from the manure storage area shall be installed in permanent fan houses built on the exterior wall of the barn and connected directly to the manure storage area. These fans must be single-speed with a certified delivery rating against 6 millimeters (¼ inch) water gauge static pressure. One pit fan must operate continuously. Airflow must be from the occupied area through the gutters. The use of variable-speed fans is prohibited.

c. Fans supplying the additional summer capacity shall be mounted to discharge directly through the barn walls. They may be mounted on the outside of the building and the openings closed with insulated panels in cold weather, or when mounted in the walls be protected with an inside insulated cover to eliminate condensation and frost formation on the shutters and mountings. Warm weather fans are to be located on the same side of the barn as the pit fans. They must have a certified delivery rating against 3 millimeters (⅛-inch) water gauge static pressure and should be single speed.

d. All fans, except those providing the minimum continuous exhaust rate are to be controlled by thermostats located away from the barn walls. All pit fans are to be in operation before any of the wall fans are started. An electrical thermal overload device of the proper size shall protect each fan.

e. Calculation Method: To calculate the fan capacity in cubic feet per minute (cfm) for a particular barn, multiply the length times the width times the average ceiling height, all in feet, to obtain the volume. Divide the volume by 15 to obtain the minimum continuous capacity of 4 air changes per hour in cfm (4 x 15 = 60 minutes).

$$\frac{W \times L \times H}{15} = \text{cfm}$$

For Example: Barn width 36', length 160' and average ceiling height 8' 6". This would be a reasonable size for sixty (60) stalls and two (2) pens. The calculation of the minimum continuous exhaust for this example would be:

$$\frac{36 \times 160 \times 8.5}{15} = 3{,}264 \text{ cfm}$$

Total cold weather capacity of twenty (20) air changes per hour equals five (5) times the minimum capacity: 3,264 x 5 = 16,320 cfm.

Use two (2) fans of 3,264 each and two (2) fans of 4,896 cfm each to make up the total. Build two (2) fan houses. Mount one 3,264 cfm and one 4,896 cfm fan in each. Operate one 3,264 cfm fan continuously. Thermostatically control the second 3,264 cfm fan at 4.4ºC (40°F). Control the two (2) larger fans with thermostats set at 6°C (43°F) and 8°C (46°F). Divide the summer capacity of an additional twenty (20) air changes per hour among three (3) fans of 5,440 cfm each. Locate these fans in the walls. Control them with thermostats set to 10°C–13°C (50°F–56°F). (See Figure 6 for the approximate locations for all fans) Fans of the exact calculated capacity are usually unavailable. Always select those having a slightly higher rather than lower capacity.

f. Adequate incoming fresh air, to enable the fan exhaust system to function as designed, must be provided. A continuous slot inlet with manual adjustment on one (1) side is recommended to provide uniform fresh air distribution throughout the barn. (See Figure 7) Adjustment of the slot opening opposite the fans is to be done manually for cold and warm weather conditions. Careful construction of the fresh air intake system is essential to the satisfactory performance of the ventilation system.

4. A stand-by generator to supply electric current to the ventilation system, in the event of a power failure, shall be provided.

5. Construction Requirements:

a. The floor system over the pit shall be designed to safely support all animal weight, plus the possibility of a tractor that may be needed to remove a sick or dead animal. Agitating and pumping of the stored manure shall be done through annexes built outside the barn. (See Figures 6 and 7) Service alley floor and lactating animal stall platforms shall be constructed to drain to the grated gutter tank opening, located between the lactating animal stall and the service alley.

b. Waste water from the milkhouse can be discharged into the pit. Sanitary (toilet) waste shall not be disposed of in the manure storage tank. When wastewater from the milkhouse is discharged into the pit, a drop pipe must be connected to the discharge line so that the liquid waste will be deposited beneath the surface of the tank contents to prevent turbulence and possible odor production.

c. Grates over the gutters, tank slot openings, shall be of sufficient strength to support all applied loads. A suitable grate design is one using 16 millimeters (⅝ inches) smooth steel bars running the length of the open gutter. The distance between the center of the first bar and the vertical face of the stall platform should be 57 millimeters (2¼ inches). The remaining bars should be spaced 63 millimeters (2½ inches) center-to-center. Support bars crossing the gutters should be 19 millimeters (¾ inch) diameter and spaced 40 centimeters (16 inches) center-to-center.

6. Little or no bedding can be used with this system, rubber mats or equivalent, and lactating animal trainers shall be installed at the time the barn is constructed. Daily cleaning of grates with a stiff broom or scraper is recommended.

7. Other construction criteria and management practices recommended for stall dairy barns should be followed.

8. Requirements for emptying holding tanks:

a. Remove all animals and post signs on all doors that no one is to enter the milking barn during the time the tank is being agitated.

b. All pit fans must be operating during agitation and emptying.

c. All milkhouse and feed storage area openings, doors, windows, etc., must be closed.

d. The milking barn must remain evacuated by animals and people for at least one (1) hour, after agitation of the holding tank is completed.

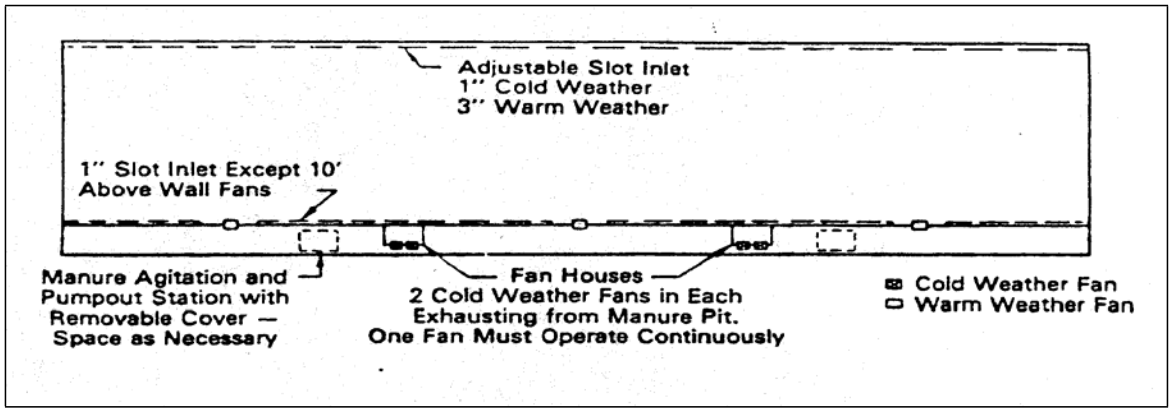

Figure 6. Schematic Diagram Showing Suggested Exhaust Fan Locations for a Typical Stall Dairy Barn with Gutter Grates Over Liquid Manure Storage

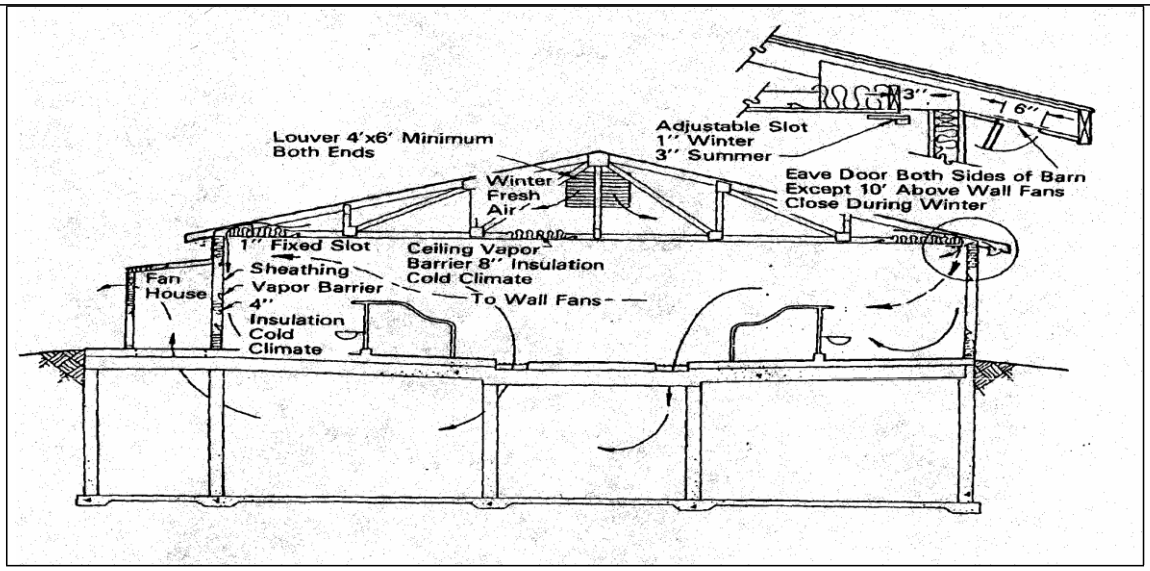

Figure 7. Schematic Diagram Showing General Pattern of Ventilation Air Movement, Slot Inlet Design and Fan House for Pit Fans

V. DAIRY - CONSTRUCTION AND OPERATION

MILKING BARN, STABLE OR PARLOR

Numerous factors, including the size and topography of the farm, the availability of utilities, the condition and disposition of existing buildings, the dairy operator's ultimate goals for the enterprise, and the operator's construction budget serve to make each milk producer's herd housing problems individual and unique.

While there has been a tendency for workers to develop strong convictions about the practicability of given housing or milking systems, there is little doubt that the success or failure of most dairy farm operations may be traced to good or poor planning. When the unique problems of each system in its individual applications are given

proper consideration, the job of producing clean milk is made easier and compliance with regulations is simplified. For example, operators of barns in which lactating animals are housed and milked will find that efficient ventilation not only reduces condensation but also relieves the problem of dust and mold on walls, ceilings and windows. When window sills are sloped or windows set flush with interior walls in stanchion barns, the accumulation of dust and unwanted miscellaneous items is similarly lessened. Covered recessed light fixtures remain clean longer and are less subject to damage than those projecting from the ceiling.

Operators of milking parlor loose-housing systems, on the other hand, will value design features such as mechanically operated doors, which speed up animal traffic, and glazed wall finishes, which cut down the time required for proper post-milking wash-up of the parlor. Cleaner lactating animals result from proper planning and management of exercise yards and bedded areas. At least 9 square meters (100 square feet) of surfaced yard and not less than 5 square meters (50 square feet) of bedded space are recommended for each animal to be accommodated. Provisions must also be made for the removal at least daily of manure from exercise yards and traffic lanes. Operators utilizing loose housing have shown considerable interest in free-stall housing. Many workers have concluded that it provides the solution to the problems of unclean lactating animals and excessive bedding demands that have plagued loose housing in past years. Milk producers planning new construction or large-scale changes in existing housing should carefully study its features.

Adequate light must be available in all work areas in the milking barn, stable or parlor. Because many dairy functions are frequently performed after dark, it is important that the required minimum of ten (10) foot-candles of illumination be available from artificial sources. While absolute certainty of compliance with this requirement can only be confirmed by the use of a light meter, experience has shown that milking barns which otherwise meet the standards of this *Ordinance* will be properly lighted when equipped with one (1) 100-watt bulb (or its fluorescent equal) for each three (3) stanchions or per 3 meters (10 linear feet) of walkway behind each row of lactating animals in face-in barns or between rows of lactating animals in face-out barns. In addition, a smaller number of bulbs, equally spaced, are recommended for feed alleys in front of the lactating animals. When natural light is utilized, a minimum of .37 square meter (4 square feet) of window space for each 5.6 square meter (60 square feet) of floor space is recommended.

Construction plans and suggestions for the various systems of animal management are available to the sanitarian and the dairyman from numerous sources, including the USDA, the county extension agent, farm periodicals and the trade associations serving the building supply industry.

MILKHOUSE

Milkhouses should be large enough to provide adequate space to meet present needs and should take into account the prospect of future expansion. Installed milkhouse equipment should be readily accessible to the operator. Aisles should be at least 76 centimeters (30 inches) wide, with added allowance at the outlets of bulk milk tanks, adjacent to wash-and-rinse vats and where operational conditions warrant. It is especially important that the space available to bulk milk tanks and mechanical cleaning systems be adequate to permit their disassembly, inspection and servicing.

Floor drains should not be located under bulk milk tanks unless there is sufficient room for servicing. Floor drains should not be located directly under the outlet of a bulk milk tank. Drains and waste disposal systems should be adequate to drain the volume of water used in rinsing and cleaning.

Milkhouses should be well ventilated. Proper ventilation not only avoids the obvious disadvantages of condensation on equipment and walls, it also lengthens the useful life of the building and its equipment. The constant need for renewal of painted surfaces, the repair of wooden fixtures and frames and the removal of algae and mold from walls and ceilings of poorly ventilated milkhouses can represent a continuing expense to the operator.

Where possible, windows should be placed to provide cross ventilation. In addition, one (1) or more ceiling vents should be located to receive water vaporizing from wash-and-rinse vats and other sources of evaporative moisture.

Glass brick is sometimes substituted for windows in milkhouse construction. In these instances, mechanical ventilation must be provided. A system affording filtered positive air pressure is recommended over exhaust ventilation, as the latter frequently draws dust, insects, and odors into the milkhouse.

The great demand for water under pressure in milkhouse operations has emphasized the importance of protecting plumbing from freezing. Devices that have proved effective include, the insulation of water lines, the use of wrap-around heat tape, infrared lamps, and thermostatically controlled space heaters.

Insulated milkhouses make protection against freezing easier and more economical, and offer the additional advantage of greater comfort for the operator. The factor of personal convenience frequently results in better performance by the operator, with subsequent benefits to milk quality.

Automated milking and mechanical cleaning systems of milking equipment has increased the use of hot water in the milkhouse. The following Table indicates the volumes of water required to fill 30 meters (100 feet) of pipeline of varying diameters:

Table 9. Work Water Volume of Various Sized Pipelines

Pipe Diameter (Inches)	Gallons
1	4.7
1.5	9.2
2	16.3

Since most cleaning installations employ a pre-rinse, followed by wash-and-rinse cycles, this Table actually represents only one-third (⅓) the usual milking-time demand for heated water. Also, it does not include the "take up" of collecting jars, pumps, rubber parts, etc.

Udder washing, bulk milk tank cleaning and similar milkhouse tasks offer additional uses for hot water. Sanitarians should compute the hot water demand of the individual milking systems under their supervision and require that not less than the minimum amount be available at all times. Milk producers should be made aware of the fact that effective cleaning of mechanically cleaned installations is impossible without adequate hot water and should be encouraged to provide a supply which exceeds their expected need. Such planning avoids emergency shortages and allows for normal expansion of the herd and facilities.

Detailed plans for milkhouses, as well as recommendations on hot water needs, insulation, lighting and ventilation are available from power companies, building supply associations, County Agricultural Extension Agents and State Universities.

Refrigeration, electrical or mechanical systems powered by gasoline or diesel engines, have no place in a milkhouse, milking barn, or in any communicating passageway between the milkhouse and milking barn. Such equipment is characteristically given to oil leakage and the discharge of fumes. The space occupied by it is difficult to keep clean and frequently becomes a gathering place for trash and flammable materials. With effective planning, these engines and their accessory equipment can be located, without detriment to their performance, in a separate room or building adjacent to the barn or milkhouse.

MILKING METHODS

Milking methods must be geared to permit the efficient withdrawal of milk without introducing undue numbers of bacteria or causing injury to the udder.

In addition to assessing the nation's milk producers a cost, which has been estimated to approach $500 million annually, mastitis has been found to pose serious public health hazards. The most widespread of these is a gastrointestinal disorder caused by toxins produced by certain strains of staphylococci.

It has been known for many years that a relationship exists between mastitis and milking practices. While not all the facts are known about mastitis, it is abundantly clear that its control is enhanced by use of mechanically sound

milking equipment and good milking practices. The National Mastitis Council (NMC) has described a satisfactory milking system as one which:

1. Maintains a stable vacuum in the teat cup and at a level adequate for completely milking most udders in three (3) to five (5) minutes;

2. Does not stress the tissues of the teat by excessive stretching and ballooning;

3. Produces massage without harsh action; and

4. Is designed so that the entire system can be sanitized efficiently and satisfactorily.

The NMC considers proper milking procedure to include the following:

1. Before the milking unit is applied to the udder, the operator takes thirty (30) seconds to prepare the lactating animal in the recommended manner to obtain milk letdown, and the milking machine should be applied immediately thereafter;

2. The teat cups are attached in a manner to limit the volume of air drawn into the system;

3. The teat cups are positioned as low on the teats as practicable;

4. The operator stays near the machine and, at the end point of milk removal, the claw is briefly pulled down to open the teat cavity and remove the strippings. Stripping by machine should not extend over a period of more than fifteen to twenty (15-20) seconds. Prolonging stripping can be injurious to the udder;

5. Before removing the machine, the vacuum to the teat cups is broken and the cups removed in a gentle manner; and

6. To avoid over-milking, the operator should limit the number of machines in use. Two (2) bucket-type units, two (2) movable pipeline units or three (3) fixed units, in a walk-through barn, usually represent maximum workloads with conventional milking systems.

Hooded, or small-mouthed pails may be used for carrying only that milk which has been drawn into them by hand-milking. Their extended use as carrying pails is considered hazardous in view of their inability to be covered or otherwise protected from flies, dust, splash, etc.

Animal identification and record keeping are critical for avoiding milk drug residues. Producers should establish systems to ensure that animal drugs are used properly and be able to provide evidence that adequate control over the administration of drugs to prevent residues in milk and/or meat has been implemented. These control systems should accomplish the following objectives:

1. Identification and tracking the location of treated animals.

2. Maintenance of a system of medication/treatment records that, at a minimum, records the identity of the animals(s) being treated, the date(s) of treatment, the drugs(s) or other chemicals administered, who administered the treatment, the dosage, and the prescribed withdrawal time for milk and slaughter.

3. Quarantine/segregation of treated animals or other means to preclude the sale of milk or offering of treated animals for sale for slaughter prior to the end of the prescribed withdrawal time.

4. Education of all farm personnel involved in treating animals on proper drug use and methods to avoid marketing adulterated milk or meat for human food.

DRUG RESIDUE AVOIDANCE CONTROL MEASURES
INSECT AND RODENT CONTROL

The complete elimination of flies from the farm premises is practically unattainable. However, a major reduction of fly infestation is obtainable by the dairy farm operator who conscientiously follows a sustained program of sanitation, screening and the proper use of insecticides.

The milk producer or plant operator must be continually aware of the potential hazard to people and animals which is inherent in most pesticides, including insecticides and rodenticides. It is important that they employ only those insecticides and rodenticides that are recommended by competent authority for the insect and rodent problems they seek to overcome, and that they follow implicitly the manufacturer's label directions for their use. Questions on the use of pesticides should be referred to the appropriate Regulatory Agency and/or County Agricultural Extension Agent.

Effective rodent control, like insect control, is dependent on sanitation for much of its success. The careful elimination of trash and woodpiles; the rodent-proofing of feed bins, corn cribs and similar structures; the prompt removal of spilled feed and manure to places of ultimate disposition; and the deliberate elimination of protected harborage areas in farm buildings, all tend to discourage rodents near the dairy farm. Such a program, also pays excellent dividends in feed savings, lowered maintenance costs for farm buildings, reduced fire hazards and lessened risk of disease outbreaks among farm animals.

Anticoagulant poisons, Warfarin, Fumarin, etc. have offered improved means of controlling rodents on the farm. Used according to directions, and with due precaution against their consumption by domestic animals, these chemicals should keep the rodent population in check while additional preventive programs are instituted.

REFERENCES

Bates, D. W. How to Plan Your Dairy Stall Barn, M-132 (Revised 1972) University of Minnesota.

Midwest Plan Service, Ames, Iowa, Plan No. 72327, Dairy Barn, 60 Tie Stalls, Gable Roof, Liquid Manure 1974.

Bates, D. W. and J. F. Anderson, 1979. Calculation of Ventilation Needs for Confined Cattle, J. of the American Veterinary Medical Association 1979.

Midwest Plan Service, Ames, Iowa, Dairy Housing and Equipment Handbook 1985.

Additional Information- APPENDIX C

See DPC Guidelines # 15, Milking Center Wastewater, #1 Planning Dairy Freestall Barns, #37 Planning Dairy Stall Barns, #54 Selection of Elevated Milking Parlors, #41 Milkrooms and Bulk Tank Installations, #2 Effective Installation, Cleaning and Sanitizing of Milking Systems, #4 Installation, Cleaning and Sanitizing of Large Parlor Milking Systems, #9 Fundamentals of Cleaning & Sanitizing Farm Milk Handling Equipment, and # 22, Control of Antibacterial Drugs & Groth Inhibitors in Milk & Milk Products.

APPENDIX D. DAIRY FARM HEAT EXCHANGERS

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Appendix D, Part VI

VI. WATER RECLAIMED FROM HEAT EXCHANGER PROCESSES

Potable water utilized for heat exchange purposes in plate or other type heat exchangers or compressors on Grade "A" dairy farms may be salvaged for the milking operation if the following criteria are met:

1. The water shall be stored in a storage vessel properly constructed of such material that it will not contaminate the water and be designed to protect the water supply from possible contamination.

2. The storage vessel shall be equipped with a drain and access point to allow for cleaning.

3. No cross-connection shall exist between this supply and any unsafe or questionable water supply or any other source of pollution.

4. There are no submerged inlets through which this supply may be contaminated.

5. The water shall be of satisfactory organoleptic quality and shall have no off-flavors or odors.

6. The water shall comply with the Bacteriological Standards of Appendix G.

7. Samples shall be collected and analyzed prior to initial approval and semi-annually thereafter.

8. Approved chemicals, such as chlorine, with a suitable retention period, may be used to suppress the development of bacterial growth and prevent the development of tastes and odors.

9. When chemicals are added, a monitoring program for such added chemicals shall be in effect and such chemicals shall not add substances that will prove deleterious to the use of the water or contribute to product contamination.

10. If the water is to be used for the sanitizing of teats or equipment, backflush systems, approved sanitizers, such as iodine, may be added by an automatic proportioning device, located downstream from the storage vessel but prior to its end-use application.

Additional Information- APPENDIX D, Part VI

See DPC Guidelines # 65, Installing & Operating Milk Precoolers on Dairy Farms.

Questions & Answers

1. Q: Is the water coming out of the pre-cooler, used on dairy farms, potable water or non-potable water?
   A:Water from pre-coolers may be used for milkhouse purposes if the requirements from Appendix D., VI. - Water Reclaimed from Heat Exchanger Processes, Items #1 – 10 of the PMO are met.

New York has provided the following memos for their inspectors.

Water Cooled Condensing Units for Farm Bulk Tanks

The water cooled condensing units for farm bulk tanks now available have the approximate size and appearance of a constant level tank of an HTST pasteurizer. This unit replaces the air-cooled condenser and fan normally used to remove heat from the refrigeration system. In a water cooled condensing system, incoming cold water removes this heat and is then stored in an insulated tank for various farm water uses or may be added to a hot water tank for additional heating.

Warm water from the condenser would be held in a storage tank or tanks or may be immediately used, such as in a prep stall. If the storage tank is filled with warm water and warm water coming from the condenser is not being immediately used, a thermostatic valve will open and all subsequent warm water would be discharged onto the floor until more warm water storage space is available.

To take maximum advantage of this equipment, a producer must need a quantity of warm water each day approximately equal to his daily milk production. A parlor milking area with a prep stall would be the most efficient way to use most of this warm water as it is produced. A parlor without a prep stall or a large stanchion barn would probably require two warm water storage tanks, since most of the warm water would be produced before it is needed for reuse.

The factors to consider when water cooled condensers are installed with a bulk tank include:

Determining Size of Cooling Equipment

Water cooled condensers will be rated in both horsepower and BTU removal capacity. The adequacy of a water cooled condenser should be judged on BTU removal capacity, using Cornell Bulletin 384, in the same manner as for air cooled condensers. A water cooled condenser of a given capacity using a 16°C (60°F) cooling water is considered to have the same BTU removal capacity as an air cooled condenser of the same horsepower cooling with 32°C (90°F) ambient air.

Location and Installation

1. The condenser and storage tank may be installed either in the milkroom or a utility room. It should be assumed that any water cooled condenser would occasionally discharge surplus warm water. The condenser must be located in an area where this water discharge could be easily disposed of without creating any problems. If the condenser is installed in a utility room, the utility room must have an impervious floor sloped toward a floor drain, wall covering or other suitable wall construction to prevent any problems from water exposure and appropriate shelves or other storage arrangements to prevent problems caused by water discharge onto the floor.

2. The surplus warm water discharge of some water cooled condensers is designed for attachment of a hose or pipe to divert this water away from the condenser. If this type of installation exists, this line should be carefully checked to insure that a submerged inlet possibility is not created.

3. Clearance around water cooled condensers and related equipment will vary depending on the size of the installation and need for access in the immediate area and should be agreed upon between the installer and inspector before the installation is begun. For example, a condenser and adjacent warm water storage tank will extend approximately six feet long and could be accepted with one foot of clearance between the wall and equipment if the clearance space was accessible from both ends. If the length of the condenser and storage tank exceeded six feet or was accessible from only one end, the clearance between the wall and equipment should be approximately two feet.

Clearances between the condensing equipment and the bulk tank should usually be at least two feet. If the condensing equipment is located on a non-working side of a single manhole bulk tank and does not extend the entire length or width of the tank, a clearance of 18 inches may be acceptable in individual situations. (Connecticut will accept this on existing installations.)

Hot Water Facilities

A conventional hot water heater capable of producing hot water approximately 74°C (165°F) will still be required when water cooled condensers are installed. The size of hot water heaters normally required for installation may not be reduced when a water cooled condenser is installed. The warm water from a water cooled condenser will be approximately 60°-63°C (140°-145°F), which would not be hot enough for immediate use in pipeline or bulk tank washing. This warm water may be piped into a hot water heater for additional heating and the recovery time of the hot water heater would be much shorter when this preheated water is added. However, it cannot be assumed that sufficient warm water would be available to meet all the demands of the hot water heater and in some cases, cold water would be coming into the hot water heater when the preheated water is not available.

Application and Approval

1. When a water cooled condenser and related equipment is installed with a new bulk tank, the bulk tank, the bulk tank application (DMC-1-506) will be sufficient for the entire installation. The condenser capacity will be reported on this application and the sketch should include the water cooled condenser and warm water storage tank, in addition to the other equipment in the milkhouse.

2. If a water cooled condenser is installed to replace an air cooled condenser on an existing bulk tank, advance notice should be given to the inspector responsible for the milk supply. This advance notice should include a sketch showing the location of the new and existing equipment and a statement indicating the size of the new condenser and the size of the condenser being replaced. There will be no specific application form for this purpose.

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APPENDIX P. PERFORMANCE-BASED DAIRY FARM INSPECTION SYSTEM

PREFACE

A performance-based inspection system is an option to the traditional routine inspection frequency of least once every six (6) months on Grade "A" dairy farms. This option provides States with a choice. For some States, inspecting every farm routinely twice a year may provide effective regulatory oversight and make efficient use of inspection resources. In other States, however, an optional system, which determines routine farm inspection frequency based on producer milk quality and inspection performance may be more desirable, equally effective, and make the most efficient use of limited inspection resources. The overall inspection effort devoted to a performance-based farm inspection system may be more or less than the traditional inspection system, which requires a routine inspection at least once every six (6) months per farm.

INSPECTION INTERVAL AND CRITERIA

Dairy farms will be categorized at least every three (3) months using the previous twelve (12) month farm inspection and milk quality data. The following criteria will be used to categorize farms into four (4) inspection intervals as defined below:

1. Minimum One (1) Year Inspection Interval: (One (1) inspection each twelve (12) months)
All criteria below must have been met for the previous twelve (12) months:

a. No more than one (1) sample with SPC >25,000, but less than 100,000
b. All SCC samples ≤ 500,000
c. No cooling temperature violations
d. No drug residue violations
e. No "critical control point" violations observed during farm inspections. Critical violations are identified on the Dairy Farm Inspection Report as:

(1) 10-Cleaning and 11-Sanitization

(2) 15(d)-Drugs properly labeled and 15(e)-Drugs properly used and stored

(3) 18-Cooling (Significant Violations)
f. No violation that creates a substantial risk of adulteration or an imminent health hazard.
g. No more than five (5) violations documented on any inspection sheet.
h. No consecutive inspection violations on any inspection Item.
i. No record of suspended permit, certification or license due to inspection, milk quality or drug residue deficiencies.
j. Bacteriologically safe water supply at the time of categorization.

NOTE: Farms in this category who are re-categorized to a six (6) month inspection interval for a single violation of one (1) milk quality parameter (SCC > 500,000 or cooling temperature violation) may be re-categorized to the one (1) year inspection interval if all ten (10) criteria listed above are met for the next six (6) months.

Minimum Six (6) Month Inspection Interval: (One (1) inspection each six (6) months)

All criteria below must have been met for the previous twelve (12) months:

a. May have more than one (1) sample with SPC >25,000
b. May have one (1) or more SCC sample >500,000

c. No more than one (1) warning letter issued due to non-compliance of two (2) out of four (4) previous official sample results for SPC and SCC
d. No cooling temperature violations
e. No drug residue violations
f. No "critical control point" violations observed during farm inspections. Critical violations are identified on the Dairy Farm Inspection Report as:
(1) 10-Cleaning and 11-Sanitization
(2) 15(d)-Drugs properly labeled and 15(e)-Drugs properly used and stored
(3) 18-Cooling (Significant Violations)
g. No violation that creates a substantial risk of adulteration or an imminent health hazard.
h. No more than five (5) violations documented on any inspection sheet.
i. No consecutive inspection violations on any inspection Item.
j. No record of suspended permit, certification or license due to inspection, milk quality or drug residue deficiencies.
k. Bacteriologically safe water supply at the time of categorization.

NOTE: Farms meeting the criteria for one (1) year or six (6) month inspection intervals but with less than twelve (12) months of farm inspection and milk quality history, i.e. new farms, will be assigned to a six (6) month inspection interval.

3. Minimum Four (4) Month Inspection Interval: (One (1) inspection each four (4) months)

Any criteria listed below, results in the farm being placed into this inspection interval for twelve (12) months from the next re-categorization:

a. More than one (1) warning letter issued due to non-compliance of two (2) out of four (4) previous official sample results for SPC and SCC.
b. Farm conditions that caused the Regulatory Agency to take official regulatory action, i.e., warning letter, intent to suspend, reinspection, etc.
c. One (1) drug residue violation.
d. "Critical control point" violations observed during farm inspections. Critical violations are identified on the Dairy Farm Inspection Report as:

(1) 10-Cleaning and 11-Sanitization

(2) 15(d)-Drugs properly labeled and 15(e)-Drugs properly used and stored

(3) 18-Cooling (Significant Violations)
e. A violation that creates a substantial risk of adulteration or an imminent health hazard.
f. More than five (5) violations on any inspection.
g. Unsafe water supply at the time of categorization.

4. Minimum Three (3) Month Inspection Interval: (One (1) inspection each three (3) months)

Any criteria listed below results in the farm being placed into this inspection interval for twelve (12) months from the next re-categorization:

a. More than one (1) drug residue violation.
b. Any farm suspended from the market by the Regulatory Agency during the previous twelve (12) month evaluation period for any reason other than drug residue violations.
c. More than one (1) incident where violative farm conditions or milk quality parameters resulted in the Regulatory Agency taking official regulatory action, i.e., warning letter, intent to suspend, reinspection, etc.

NOTE: The above guidelines for Grade "A" farm inspection intervals are not intended to prevent farm inspections at more frequent intervals if in the judgment of the Regulatory Agency more frequent intervals are necessary.

GENERAL QUESTIONS AND ANSWERS

The following Questions and Answers are those that do not fit under the PMO sections published in this guideline. The deal with ratings, check ratings and permitting.

1. Q: May a state set standards in excess of those required by the PMO?
   A: Yes.

2. Q: How do we pro-rate enforcement rating debits on sampling for farms?
   A: Use the "Guideline for Computing Enforcement Credit" for Part I, Item 9 and/or Part II Item 8 of the "Report of Enforcement Methods" from the MMSR Document.

3. Q: May a state delegate the right to suspend farms, for three of five bacteria counts, to non-certified industry people?
   A: No. Industry may exclude any producer any time they wish for any reason. If they exclude on three of five, they are under PMO standards, voluntarily withholding the milk. This is not the same as an official regulatory permit action.

4. Q: When a reinspection is requested because of low check-rating results, how soon after the due date must the paperwork reach Washington, DC?
   A: Fifteen days is the general guideline.

5. Q: What action is required when an enforcement rating is found to be more than ten points below the listed rating and below 80 at a check-rating?
   A: The FDA milk specialist is to recommend that the state make a new rating and allow 60 days for the state to take this action.

6. Q: Must an original rating of a newly constructed dairy farm be debited if less than four samples are on record?
   A: No. If the farm has been in operation less than six months.

7. Q: What about an older farm which has been functioning under a state permit previously but has recently come under the IMS program?
   A: Yes. The four samples are required to receive the applicable sanitation and enforcement credit.

8. Q: If a milk plant goes out of business, can its producers which are listed with the plant, become a BTU without being re-rated?
   A: Yes. An amended 2359i using the old producer dates must be submitted.

9. Q: Does the PMO provide guidance on the use of Certified Industry Fieldpeople?
   A: Yes. Please refer to PMO Section 5, Administrative Procedures, and PMO Appendix B.

10. Q: What is an official sample?
    A: Any sample taken by an official routine sampler who is certified by the state and is representative of the milk being picked up that day. The sample must be analyzed in an approved laboratory and the analysis must be by official methods.

11. Q: Are there things dairy farmers can or should do to reduce the chances of getting Salmonella in their raw milk?
    A: Good sanitation practices as described in the PMO are the key to control. It is doubtful that Salmonella on the farm can be eliminated completely.

12. Q: Do high coliform counts give an accurate reading on the presence or absence of Salmonella in raw milk?
    A: No! A sample of milk could have a coliform test results of <1/ml and still have a million Salmonella per milliliter. A high coliform test may, however, indicate poor sanitation practices which could foster Salmonella development or other pathogens.

13. Q: What is the status of ultra-filtration on Grade A dairy farms?
    A: Ultra-filtration is considered a type of milk processing, therefore, must be conducted in a dairy plant. To allow such operations on Grade A dairy farms, the PMO will need to be revised.

14. Q: Does a permit reinstatement have to be made when the farm tank is empty?
    A: Yes. Milk produced during a suspension was not Grade A and, therefore, may not be sold as Grade A after a reinstatement.

15. Q: Does the PMO allow for the issuance of two permits at a single dairy farm when there are two owners, two separate herds and two separate bulk tanks?
    A: Two permits may be issued at the discretion of the regulatory agency. It must be recognized that if they operate with the same equipment and facilities, all debits on inspections would be the same for both producers and would require two inspection reports with complete and separate records for each producer. Under no circumstances shall milk from one permittee's tank be interchanged with the milk from the other permittee's tank.

16. Q: If barn plans are not available, what section of the PMO is in violation?
    A: The need for plans is in the PMO, Section 12 which requires properly prepared plans for all milkhouses, milking barns, stables, parlors, which are newly constructed, reconstructed, or extensively altered. This would be a violation of Section 12 and would be noted on the report of Enforcement Methods, Part I, Number 4.

17. Q: What section of the PMO is violated, if a sanitarian observes a large amount of sediment in a bulk tank?
    A: A violation of Section 2 (Adulteration) of the PMO which requires action on the part of the regulatory agency. Attempts should be made to determine the source of the sediment and appropriate correction measures taken.

18. Q: Is the cryoscopic method of testing for added water acceptable under the Pasteurized Milk Ordinance (PMO)?
    A: The Pasteurized Milk Ordinance does not require or specify a test procedure for added water. Cryoscopes are commonly used by many regulatory agencies for this purpose.

19. Q: What are the guidelines for evaluating a satisfactory milking time inspection program?
    A: Guidelines for evaluating an acceptable milking time inspection program will be addressed by a future M-a memorandum. Until these guidelines are issued by FDA, and accepted by a majority of the voting states, full credit will be allowed when calculating the enforcement rating.

20. Q: What do the current Procedures state about time periods before a new rating following a failed FDA Check Rating or State Rating that scores less than 90%?
    A: Check Rating: New ratings may be made when the State Rating Agency has reason to believe a new rating would result in an acceptable rating. (See Procedures, Section IV., B.6.c.1.C and Section IV., B.6.c.2.C).

State Rating: A re-rating shall be conducted when the State Rating Agency has reason to believe a new rating, would after written notification from an authorized representative of the IMS Listed shipper to the rating agency that the IMS Listed shipper is in substantial compliance. A re-rating shall be completed in no more than fifteen (15) days from the date of the receipt of the notification, unless the state rating agency has a reason to believe a new rating within a lesser time would result in an acceptable rating. (See Procedures, Section V., I.2.)

21. Q: Following a check rating that indicates that a re-rating (Producer Dairies-Raw Milk) or a reinspection (Milk Plants, Receiving Stations and/or Transfer Stations) is required, what date is used when determining a re-rating within sixty (60) days or a reinspection within thirty (30) days is due? Is it the first day of the check rating, last day of the check rating or the day that the State Rating Agency is formally notified?
    A: The date that the State Rating Agency is formally notified should be the date that you use to determine when a re-rating (within sixty (60)) or a reinspection (within thirty (30)) is due.

22. Q: What does it mean when a re-rating of an IMS Listed BTU is due from a change in status because of a "significant change in number of producers"?
    A: FDA considers that a significant change has occurred when a 25% or higher (increase or decrease) in the total number of producers within a BTU has occurred.