



THE DAIRY PRACTICES COUNCIL®

GUIDELINES FOR
FARM BULK MILK COLLECTION PROCEDURES

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ABSTRACT

This guideline provides information to the bulk milk hauler/sampler, the vital link between producers and handlers, on the proper techniques, principles, and procedures used in the process of measuring, sampling, collecting and delivering farm bulk milk. It is intended to help establish uniform milk collection procedures between the various states and within the dairy industry, with the intent that it serves as a reference for and is in concurrence with the appropriate regulatory agencies. It is intended to be a valuable resource in regard to the development and design of bulk milk hauler/sampler procedures and licensing programs as mandated by the Grade "A" Interstate Milk Shipments program. This guideline references current regulations while giving additional detail needed to properly interpret the requirements and responsibilities of the bulk milk hauler/sampler.

PREFACE

The initial printing of this guideline was prepared under the leadership of Mr. C. W. Johnson, Federal Milk Market Admin. He was assisted by Mr. F. Balliet, Dairylea Cooperative, Inc.; Mr. R. A. Brazis, W. A. Golomski & Associates; Mr. G. C. Hawkins, Federal Milk Market Admin.; Mr. D. Kwider, Garelick Farms, Inc.; and Mr. H. F. Stone, Milk Marketing, Inc., Mr. G. C. Hawkins, Federal Milk Market Admin, chaired the first revision. Mr. D. M. Breiner, Atlantic Dairy Cooperative; Mr. P. M. Damon, Sunnysdale Farms Inc.; Mr. D. Ellinwood, Eastern Milk Producers Coop.; and Mr. J. H. Reeder, MD & VA Milk Producers Coop. Assn., provided assistance. A committee co-chaired by Tom Angstadt, Dairylea Cooperative Inc. and Chris Thompson, University of Kentucky, Division of Regulatory Services handled this second revision. Serving on the committee and providing input into the guideline were the following individuals: Neil Bendixen, Dairy Marketing Services; Patrick Boyle, Readington Farms; Patrick Cleary, St. Albans Coop.; Bob Gilchrist, Agri-Mark Inc.; Keith E. Hay, PA Milk Marketing Board; Bob Hickerson, University of Kentucky, Division of Regulatory Services; John Johnston, Ontario Milk Transport Association; Richard Koeberle, Federal Milk Market Admin.; J. Greg Leach, St. Albans Coop.; Tom MacNish, Federal Milk Market Admin.; Steve Murphy, Cornell University, Department of Food Science; and George Wilcox, Agri-Mark Inc.

Note: Affiliations of committee members reflect association at the time of guideline preparation.

Guideline Preparation and Review Process

Guideline development within the Dairy Practices Council (DPC) is unique. Guidelines usually start with a Task Force subcommittee numbering from just a few to many people depending on interest and those having knowledge on the subject. Drafts, called white copies, are circulated throughout the subcommittee until all are satisfied with the text. The final white copy may then be distributed to the entire task force, the DPC Executive Board, state and federal regulators, education members and anyone else the DPC Executive Vice President and the Task Force Director feels would add to the strength of the review. Then comes the yellow cover draft that goes to the member Regulatory Agency representatives called Key Sanitarians. The Key Sanitarians can make suggested changes and insert footnotes if their state standards and regulations differ from the text. After the final review and editing, it is then distributed in the DPC distinctive green cover to people worldwide. These guidelines represent the state of the knowledge at the time they are written.

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TABLE OF CONTENTS

ABSTRACT	1
PREFACE.....	1
GUIDELINE PREPARATION AND REVIEW PROCESS.....	1
INTRODUCTION	3
DEFINITIONS.....	4
GENERAL INFORMATION AND PRECAUTIONS	4
LICENSING/PERMITTING	4
TRAINING REQUIREMENTS AND QUALIFICATIONS	5
SECURITY AND BIOSECURITY	5
BULK MILK HAULER/SAMPLER HYGIENE	6
CLEANING AND SANITIZING MILK TANK TRUCKS.....	6
PRECAUTIONS REGARDING MILK PICKUPS.....	7
NECESSARY EQUIPMENT	7
PICKUP PROCEDURES	9
PROCEDURE ORDER AND SHORT CUTS.....	17
PICKUP FREQUENCY AND NUMBER OF MILKINGS REPRESENTED.....	17
GUIDANCE FOR REJECTING FARM BULK MILK.....	18
REFUSING PICKUP OF FARM BULK MILK BASED ON ODOR OR APPEARANCE.....	18
REFUSING PICKUP OF FARM BULK MILK BASED ON TEMPERATURE	19
ALTERNATIVE PROCEDURE FOR REJECTION OF MILK.	19
UNIVERSAL SAMPLING METHOD AND SAMPLE CUSTODY	19
UNIVERSAL SAMPLING METHOD.....	19
CUSTODY REQUIREMENTS FOR PRODUCER SAMPLES	20
Bulk Milk Hauler/Sampler Responsibilities	20
ENFORCEMENT POLICY	21
BULK MILK HAULER/SAMPLER PROCEDURES.....	21
MILK TANK TRUCK INSPECTIONS.....	21
SUMMARY.....	21
REFERENCES:.....	22
APPENDIX I.....	23
APPENDIX II A	24
APPENDIX II B.....	25
APPENDIX III A.....	26
APPENDIX III B.....	27
APPENDIX IV	28
APPENDIX V	29
APPENDIX VI.....	30

INTRODUCTION

The bulk milk hauler/sampler plays a very unique and important role in the milk marketing system as his/her job performance affects both the buyer and seller of raw milk. The responsibilities, judgment and decisions required with regard to the measurement, sampling, and quality evaluation of the milk picked up at the farm has a direct effect on producer payment and the quality of the milk products offered for sale.

Bulk milk hauler/samplers must possess many skills. These individuals are professional drivers of large tractor-trailer units and must possess skills to drive these units over a variety of terrain under all types of weather conditions. But they are first food handlers and their personal appearance and the appearance of the trucks they operate should reflect this role. To fulfill the responsibilities of this position, a bulk milk hauler/sampler must:

- Professionally represent the food industry through personal cleanliness and well-mannered communication and by following proper sanitation procedures in handling and protecting the milk entrusted to his/her care by taking sufficient time to perform all duties correctly.
- Objectively evaluate the milk for defects that might indicate that the milk is unacceptable, based on temperature, appearance and a keen sense of smell.
- Accurately determine milk weights for proper and legal producer payment.
- Properly collect and care for representative bulk milk tank samples used to ensure quality and safety.
- Correctly collect each load of acceptable milk from each farm, ensuring that the milk tank truck, its contents and samples are secure at all times in accordance with state regulations and industry policies in regard to sample handling, tank sealing and general “biosecurity” precautions.
- Cautiously ensure that microorganisms that may cause human or animal disease are not spread between farms or from farm to plant by following strict hygiene and “biosecurity” procedures, which are established by the farm, plant and/or milk handler(s).

In addition, the washing of bulk tank trucks may be the responsibility of the bulk milk hauler although receiving or plant personnel often perform this task. Regardless of who washes and sanitizes the tank truck including the pump, hoses, valve lid, gasket, vent and sample dipper, the driver is responsible for the vehicle and ensuring that these procedures are properly completed. Improper cleaning and sanitizing can significantly affect the quality of a dairy product. The procedures and responsibilities relative to bulk milk tank truck washing will not be addressed in this guideline but can be found in DPC Guideline 25, *Cleaning and Sanitation Responsibilities for Bulk Pickup and Transport Tankers*.

In order for hauling companies to transport milk across state lines, the procedures used must be in compliance with the appropriate guidance found in the most recent edition of the Grade “A” Pasteurized Milk Ordinance (PMO), which is the guidance document of the National Conference on Interstate Milk Shipments (NCIMS) program. Most states have either adopted or utilize the PMO in the development of their regulations. This guideline will cover the requirements as stated in APPENDIX B and other appropriate sections of the PMO, while providing additional information to assist in interpretation. Individual state requirements will be footnoted where appropriate.

A bulk milk hauler/sampler is one of the most important links in the dairy system. A chain is only as strong as its weakest link. There is a great responsibility involved while performing as a middle link between the dairy farmer and the processor. By being this link, the bulk milk hauler/sampler is in a position to maintain and improve communication between each party for the betterment of the dairy industry. This guideline will provide information that will help strengthen that link.

DEFINITIONS

Bulk Milk Hauler/Sampler – 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.

Bulk Milk Pickup Tanker – a vehicle, including the truck, tank and those appurtenances necessary for its use, used by a bulk milk hauler/sampler to transport bulk raw milk for pasteurization from a dairy farm to a milk plant, receiving station or transfer station.

Grade “A” Pasteurized Milk Ordinance (PMO) – a document of operating guidelines for the handling and production of milk and dairy products. The document was developed by the Public Health Service/Food and Drug Administration with the assistance of Milk Sanitation and Regulatory Agencies at every level of Federal, State, and Local Government including both Health and Agriculture Departments; all segments of the dairy industry including producers, plant operators, equipment manufacturers, and associations; many educational and research institutions; and with helpful comments from many individual sanitarians and others.

Interstate Milk Shippers (IMS)/National Conference on Interstate Milk Shipments (NCIMS) - a non-profit organization whose mission is “To Assure the Safest Possible Milk Supply for All the People”. The Conference is made up of persons involved in the dairy industry, from the dairy farmer, to processing plant personnel, to those persons involved in inspecting the dairy farmer's operation and/or the processing plant, to those persons who make the laws concerning the inspections, to those who enforce the laws, to the academic researcher and adviser, and to the consumer of the dairy products.

Milk Producer – any person who operates a dairy farm and provides, sells or offers milk for sale to a milk plant, receiving station or transfer station.

Milk Tank Truck – term used to describe both a bulk milk pickup tanker and a milk transport tank.

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

Milk Transport Tank - a vehicle, including the truck and tank, used by a bulk milk hauler/ sampler to transport bulk shipments of milk from a milk plant, receiving station or transfer station to another milk plant, receiving station or transfer station.

Official Laboratory – a biological, chemical or physical laboratory, which is under the direct supervision of the Regulatory Agency.

Officially Designated Laboratory – a commercial laboratory authorized to do official work by the Regulatory Agency, or a milk industry laboratory officially designated by the Regulatory Agency for the examination of producer samples of Grade “A” raw milk for pasteurization and commingled milk tank truck samples of raw milk for drug residues and bacterial limits.

GENERAL INFORMATION AND PRECAUTIONS

Licensing/Permitting

Farm Bulk Milk Hauler/Sampler: A 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. These individuals must have a license or permit issued from the state in which the hauling

company is located and/or where the milk is picked up and/or in the state where the milk is delivered. The local regulatory agency should be contacted for a particular state's requirements. These requirements are applicable to full-time, part-time and relief bulk milk hauler/samplers.

These requirements should be in accordance with the latest edition of the Grade "A" Pasteurized Milk Ordinance (PMO) and verified with the appropriate state regulatory agencies. The license/permit shall be in the possession of the bulk milk hauler/sampler while performing all hauling/sampling activities. To retain such a license/permit the bulk milk hauler/sampler's sampling procedures must be evaluated at least every 24 months. Such evaluations are performed by personnel designated by the state regulatory agency to perform such evaluations.

Milk Tank Truck: The milk tank truck must be inspected at least once each year. It is recommended that FDA Form 2399b-*Milk Tank Truck Inspection Form* be used. On condition of passing such an inspection, it shall bear a permit for the purpose of transporting milk and milk products.

Dairy Farms: A bulk milk hauler/sampler shall not collect milk from any dairy farm for delivery to a milk plant, receiving station or transfer station unless the farm holds a valid permit for authorization for sale from the appropriate state agencies.

Training Requirements and Qualifications

Training, evaluations and continued updates are required in order to properly understand and perform the duties of a bulk milk hauler/sampler. It is important that the bulk milk hauler/sampler fully understands the importance of each step required to properly sample and collect bulk raw milk. Training can be in the form of classroom instruction, required reading, and demonstrations. Candidates must also pass (minimum score of 70%) an exam approved by the regulatory agency at the conclusion of the training program. A period of functional observation and training (i.e., on a milk route) with an experienced bulk milk hauler/sampler is most beneficial. Before being permitted, a bulk milk hauler/sampler must demonstrate proficiency in and understanding of the required duties. This guideline should serve as a valuable reference.

Qualifications needed to become a bulk milk hauler/sampler include an appropriate drivers license and the ability to understand and perform the requirements of the position. Past related experience and personal references testifying to the character and the integrity of the candidate are desirable.

Once a bulk milk hauler/sampler is permitted and functioning in the position, he/she should be periodically evaluated by the hauling firm/dairy company in addition to the required regulatory evaluations. The hauling firm/dairy company should have in place a mechanism that keeps each bulk milk hauler/sampler up to date in regard to changes in regulations and policy related to the responsibilities of the position. Some states have mandatory refresher courses for bulk milk hauler/samplers. The local regulatory agency should be consulted for education and retraining requirements for a particular state.

Security and Biosecurity

The bulk milk hauler/sampler should take reasonable steps to ensure the security of his/her truck, its contents, its samples and equipment at all times. This may mean using additional precautions to deter vandalism or tampering when the truck is left unattended or is not directly under a responsible person's supervision. The bulk milk hauler/sampler should be aware of and specifically follow the policies prescribed by the dairy industry and state and federal agencies in regard to tanker sealing, sample storage and unattended vehicles. Failure to follow specific policies may result in rejection of the milk load, resulting in financial loss to the seller of the milk or the hauling company (See Appendix I, Voluntary Guidelines for Sealing Raw Milk Tankers).

Additionally, the bulk milk hauler/sampler must be aware that in their travels harmful microorganisms may be picked up and transported from farm to farm or from farms to the receiving stations or plants. When

appropriate, he/she should acknowledge each farm's or receiving station's policies and procedures relating to biosecurity.

In this situation, biosecurity refers to measures taken to keep pathogens or disease agents out of herds or groups of animals where they do not already exist and preventing carrying human pathogens into food processing facilities. Examples of potential pathogens include microorganisms that cause mastitis, Foot and Mouth Disease, Johne's and other types of illness. When specific policies are not in place, the bulk milk hauler/sampler should make every practical effort necessary to prevent the carrying of microorganisms from one location to another. These efforts should include:

- Only driving the vehicle in areas necessary to pick up and deliver milk.
- Limiting foot travel to areas between the truck and milkhouse (do not walk around the barn lot or into the milking parlor).
- Sanitize footwear or wear disposable foot coverings when appropriate and preventing contamination of all articles of clothing with farm soils.
- Do not carry food or food products into the milkhouse.
- Limit travel within a milk plant to the receiving room and/or other specified areas.

Bulk Milk Hauler/Sampler Hygiene

Cleanliness establishes the image of sanitation and professionalism. Farm bulk milk hauler/samplers are handlers of human food and their appearance and sanitary habits should reflect this role. As a handler of human food, no person who is infected with a communicable disease should sample or collect milk. A clean, neat, well groomed appearance together with good personal hygiene habits helps to create a positive image for the dairy industry. Good personal hygiene also heightens the confidence that others have in the ability of bulk milk hauler/samplers to do their job. It is important that bulk milk hauler/samplers:

- Wear clean, neat clothing, (i.e., company shirts)
- Have clean hands, frequently washed, especially as performing duties
- Never use tobacco products or bring food in the milkhouse
- Always use good sanitary procedures
- Respect the property of the producer

A positive image of sanitation and cleanliness is vital in the dairy industry. The milk tank truck and the bulk milk hauler/samplers are often the first impressions consumers visualize when they think about the dairy products they purchase. These impressions are usually long lasting. Therefore it is important for all bulk milk hauler/samplers to be conscientious about their personal appearance and hygiene.

Cleaning and Sanitizing Milk Tank Trucks

A bright, shiny tank and truck leaves a positive lasting impression on the public and dairy farmers. It is the responsibility of the bulk milk hauler/sampler to ensure that the milk tank truck is cleaned and sanitized prior to picking up milk. Generally, the driver is not required to physically clean the inside of the tanker, but it is the responsibility of the driver as a representative of the hauling firm (or milk plant if they own their own trucks) to determine that the tank is clean prior to picking up the milk. It is recommended that the milk pump, hose, valve and pump compartment be cleaned and sanitized after each delivery, even if the tanker delivers multiple loads per day. A properly completed wash tag issued by the receiving plant must be completed and carried with the truck. More information on washing and sanitizing milk tank trucks can be found in DPC 25, *Cleaning and Sanitation Responsibilities for Bulk Pickup and Transport Tankers*.¹

¹ Some states have special washing provisions for trucks delivering multiple loads within 24 hours.

Precautions Regarding Milk Pickups

- ***Milk Outside of Tank.*** Do not pick up any milk that is held outside the producer's bulk tank. This includes milk stored in milk cans, pails, milking machines, plastic and or any other container. This milk is not refrigerated and may be very high in bacteria, or may contain antibiotics which may go undetected in the producer bulk tank sample, but may be detected in the tanker sample tested at the receiving plant.
- ***Pickup Frequency.*** It is recommended that all milk (i.e. completely empty the tank) be picked up from every farm at least every 48 hours or every other day and ensure that it is delivered to the receiving plant within state and plant time requirements. Check with your state regulatory agency for required maximum transit/delivery times to receiving plants from the first milking.
- ***Tank Level.*** If the milk in a producer's tank is not touching the agitator, leave the milk and notify the field person. Milk that is not agitated cannot be cooled or sampled properly. The field person should also be notified if the milk level is so low that it obviously did not touch the agitator after the first milking.
- ***Multiple Bulk Tanks.*** If there is more than one bulk tank located at a dairy farm, each tank is to be sampled, measured, and checked separately for odor, appearance and temperature.
- ***Partial Pickups.*** Always attempt to pickup all the milk in the producer's bulk tank. Partial pickups are allowed only if the balance of the milk is picked up prior to the next milking, unless the bulk tank has a recording thermometer. If a bulk milk tank has a recording thermometer, the tank must be washed every 72 hours. If the tank is not completely emptied, the producer cannot wash the farm tank thus increasing the possibility of a rejected load. All efforts must be made not to use a farm that is conveniently located as a routine top-off point for multiple tankers before completely emptying the tank. Partial pickups may also affect component test averages. Bulk milk hauler/samplers should be aware of handler policies regarding milk pickup when additional milk has been added to the farm bulk tank after a partial pickup. Producer premiums in relation to bacterial counts could be affected by this situation.

(From the 2001 PMO Item 10r. 3): There shall be no partial removal of milk from the 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-day recording device complying with the specifications of Appendix H or other recording device acceptable to the state regulatory agency provided the milk storage/holding tank shall be cleaned and sanitized when emptied and shall be emptied at least every 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 state regulatory agency.

NECESSARY EQUIPMENT

It is essential that the bulk milk hauler/sampler and the truck he/she operates have on hand the necessary equipment to pick up milk. Since universal sampling is the most frequently used method of sampling milk, only the equipment needed for universal sampling is listed:

1. **Sampling Instruments:** Several types may be used a) seamless stainless steel dipper of an appropriate capacity, b) single service sample tubes or "straws," c) seamless stainless steel tube, or d) any other approved means for removing the sample from the farm bulk tank in a sanitary manner. Dippers are most commonly used and must be transported in a container suitable to hold a sufficient volume of sanitizing solution to sanitize the dipper and all but the top of its handle.
2. **Sample Containers:** Sample containers must be clean and dry, have leak proof caps and be made of an approved design and material. Most sample containers are made of molded rigid plastic.

Approved plastic bags may also be used, although these are rarely used for routine sampling. For universal raw milk sampling, the containers must meet the definition of a sterile, leak-proof container as defined in the latest edition of *Standard Methods for the Examination of Dairy Products* (SMEDP). Sample containers must be large enough to hold the sample volume required by the respective states without exceeding 3/4 capacity and must have a place for sample identification. Before use, universal sample containers should be carried in the cab of the truck in a resealable plastic bag or other closed container to ensure they are kept clean and dry. They must not be opened, carried loose or kept in the refrigerated sample case prior to use. Empty containers that are improperly stored in the sample case with ice and water have the potential to develop condensate which can contaminate the sample.

3. **Sanitizing Solution:** The sanitizing solution used in the dipper container should be approved by the local regulatory agency and be used at an approved concentration. This solution should be discarded and replaced with a fresh solution after each tanker load of milk is delivered/unloaded or sooner if necessary (i.e. becomes soiled, sanitizer strength tests low, etc.). The sample dipper and the container holding the sample dipper and sanitizing solution should be brushed clean using an approved detergent, rinsed and sanitized before refilling.

Some types of approved sanitizers with recommended concentrations are listed below. To obtain additional information, contact your local regulatory agency.

Type	% Concentration	Parts Per Million (ppm)
Chlorine (Sodium Hypochlorite)	5.25-6.0%	200 ppm
Iodophors (Iodine)	1.75%	12.5-25 ppm
Quats (Quat)	10%	200 ppm
Acid (Phosphoric Acid)	32.5%	1300-2600 ppm

At these strengths, these sanitizers are considered “no rinse food contact”. All approved sanitizers must have an Environmental Protection Agency (EPA) listing.

4. **Sanitizer Field Test Kit or Test Strips:** A test kit to measure the strength of the dipper sanitizing solution must be used every time the dipper container is filled. Records shall be maintained indicating when the solution was prepared and the results of the test kit. The test kit should be kept on the truck. Care must be taken in regard to exposure of the test materials to extremes of temperature and light (read manufacturers instructions).
5. **Thermometer:** Thermometers should be digital (electronic) or dial bimetallic and must be accurate to within 2 degrees Fahrenheit (+/-) or 1 degree Centigrade. Glass, mercury-type thermometers are not to be used because of hazards associated with glass and mercury that could fall into the milk or farm environment if the thermometer is broken during use.

Thermometers are to be calibrated for accuracy at least once every six months by a person certified under the NCIMS program and the calibration must be documented. The thermometer must be tagged by the certified person with the following information: date, correction factor (if any), and identification of the certified person.

Accuracy of the thermometer can be checked in the field by the following methods (However this is not a substitute for the required official certification):

- a) Immerse the stem or probe above the immersion line (thermometers should be marked) usually 2 to 4 inches in a mixture of three parts ice, one part cold water with constant agitation. When the reading stabilizes, the thermometer should register 32°F (0°C).
- b) Compare the thermometer to an officially calibrated thermometer in a 32°-40°F (0°-4.4°C) liquid in an official laboratory.

When necessary, the thermometer should be adjusted to the correct temperature. Most dial thermometers have an adjusting nut under the dial. If the thermometer can not be adjusted to agree with the certified thermometer, it must be tagged with the correction factor (not more than +/- 2°F or 1°C). The certified person should record the date the thermometer was checked and the adjustment factor, if needed along with the technician's name and certification number. This information is to be recorded on a tag on the thermometer and on the back of the bulk milk hauler/sampler's license. Records should also be kept in the laboratory.

6. **Waterproof Indelible Marker/ Preprinted Labels:** Waterproof, felt tip pens are used to write the required information on the sample container and to identify the temperature control sample. The minimum information required to be recorded on each sample container varies by state. Generally, the required information includes the:

- producer # and/or tank#
- date of pickup
- time of pickup
- milk temperature
- bulk milk hauler/sampler's initials

Your handler and local regulatory agency should be consulted regarding specific requirements for sample container identification in your state. The information recorded on the load manifest may suffice for some of this information when the manifest accompanies the samples to the laboratory.

Preprinted labels are widely used that provide the producer number and/or tank numbers and in some cases, identifying barcodes. These preprinted labels are highly recommended for identifying samples, as they make sample identification easier for lab technicians and lessen the chance of errors being made on producer numbers. Some automated laboratories use scanning equipment, which necessitates the use of preprinted bar coded labels. If preprinted labels are used, it is the bulk milk hauler/sampler's responsibility to ensure that they are correctly attached to the sample container to allow easy reading at the laboratory.

7. **Sample Case:** The sample case should be constructed of metal or rigid plastic, and insulated for safe transportation of the samples to the laboratory. The case must have ample space to hold all samples as well as an ice and water mixture to cool and maintain the samples at 32°-40°F (0°-4.4°C). A rack or vial float is required to keep the samples in an upright position with the neck of the sample kept above the surface of the cooling medium. The level of the cooling medium should be kept at or above the level of the milk in the sample containers. Sample vials should be filled to approximately 3/4 full.
8. **Watch:** Used to time the agitation of the milk in the bulk tank prior to sampling.
9. **Pen:** Ink or gel pen for all the necessary paperwork.
10. **Paper Supplies:** An adequate supply of daily weight notices or bulk tank delivery tickets.
11. **Spray Bottle Containing Sanitizing Solution:** To be used to sanitize the farm bulk tank outlet valve when necessary. The sanitizer spray may be used to sanitize footwear when entering and leaving each farm.

PICKUP PROCEDURES

The sequence of events involved in the collection of farm bulk milk after the bulk milk hauler/sampler arrives at the farm and properly positions the truck at the milkhouse is outlined below. Detailed explanations and reasons for the different steps in the collection and sampling procedures and precautions that must be taken are presented sequentially.

1. Hygiene and Biosecurity Measures

Recognize each producer's biosecurity policies in regard to personal and truck hygiene and observe restricted areas and activities on the farm. Wash footwear when entering and leaving each farm with a recommended boot wash/sanitizer or wear disposable boot covers (properly disposed of when getting back in the truck).

2. Sample Container & Supplies

Take the sample container along with the sampler holder containing a sanitizing solution and the sampling device and all other required equipment and supplies into the milkhouse.

3. Milkhouse Lights

If not already on, turn on the milkhouse lights to illuminate the bulk tank.

4. Check Odor and Appearance

Open the tank manhole and carefully examine the odor and the appearance of milk to determine if it appears to be of acceptable quality.

- a) **Odors:** Smell the milk through the porthole or manhole of the tank to check for sour, malty, feed, garlic, onion, or any other off odors. If you do not detect an off odor but are unsure, take a sanitary sample, close and heat it (i.e., run the closed vial under hot water) to approximately 100°F (37.8°C). Smell the milk in the vial as you open it. At this temperature, the odor trapped in the vial will intensify, making it easier to detect.
- b) **Appearance:** Visually inspect the milk for any apparent physical abnormalities such as signs of churning, freezing, excessive foaming, floating debris or excessive sediment. The tank should also be checked for churning, sediment or freezing after the tank is emptied.

Considerations for accepting or rejecting milk and the common farm bulk milk odor and appearance defects are described in detail in a later section of this document. Any significant identified odors or visual abnormalities should be warning signs to the bulk milk hauler/sampler not to pick up the milk. The producer and the appropriate field person should be notified of any problems. Refer to the "*Guidance for Rejecting Farm Bulk Milk*" section of this guideline for specifics relating milk odor and appearance.

5. Wash and Dry Hands

Immediately prior to checking the temperature of the milk and taking a sample, hands should be washed thoroughly and dried with a single-service paper towel or acceptable air dryer. This will eliminate any soil that could possibly contaminate the milk sample or the milk in the bulk tank.

6. Check Temperature

The temperature of the milk must be checked with an approved calibrated thermometer, officially checked at least every 6 months (See Necessary Equipment Section). Sanitize the thermometer. Remove it from the sanitizing solution and check the temperature of the milk and compare the reading with that of the bulk tank's thermometer. Record the temperature reading of the calibrated thermometer on the weight slip.

Incorrect holding temperatures can have a significant effect on the quality of the milk. While the PMO allows farm milk to be stored and collected at temperatures up to 45°F (7.2°C), it is recommended that the milk in the producer's farm bulk tank be held at 40°F (4.4°C) or less, without

freezing. Some states and processors have more stringent requirements because the optimum holding temperature of milk is 34°-36°F (1.1-2.2°C). Be sure you are aware of local requirements regarding bulk milk holding temperatures. If you find a tank that is too warm or cold (i.e. frozen), inform the producer and the field person.

Monthly, the accuracy of each producer's bulk tank thermometer should be verified by comparing it to a reading taken with the bulk milk hauler/sampler's calibrated standard traceable thermometer. The results of this comparison should be recorded. If major discrepancies exist, notify the producer and field person.

Where recording thermometers are used, these must be checked for accuracy following NCIMS protocols and/or in a manner acceptable to the regulatory agency. Recording thermometer charts shall be maintained on the premises for a period of a minimum of six (6) months and be available to the regulatory agency for review.

7. Milk Measurement

Measuring Devices: The bulk milk hauler/sampler needs to be completely familiar with all types of measuring devices that are used for farm bulk tank milk. There are currently two types used, internal or external.

The internal gauge rod is immersed in the milk with a reading taken based on the milk film left on the rod as it is removed from the tank. The uppermost milk film level is measured in standard increments of 1/32 or 1/64 of an inch etched on the rod. Metric gauge rods are also available to measure milk in centimeters and millimeters. The readings taken from the rod are compared to a conversion chart developed during the tank calibration and converted to pounds of milk.

External measuring devices use a gauged milk tube assembly mounted to the tank and attached to the tank outlet. When the outlet is opened it allows milk to flow into the tube to the level of the tank, which is read against a scale plate (gauge rod). Milk should be allowed to enter the gauge tube slowly to minimize foam buildup. External devices may be calibrated to either the standard or metric system and are compared to conversion charts developed during the tank calibration.

Most new tanks over 2,000 gallons use an external scale plate (external gauge rod) with a glass or plastic gauge tube mounted on the outside of the tank to measure the milk volume. To use this external gauge assembly, just prior to taking the measurement, the gauge tube is attached to the outlet valve. Milk from the bottom of the tank is then allowed to enter the gauge tube. The outlet valve must be opened slowly to prevent foaming of milk in the tube. The tube should be clean and dry prior to filling it with milk and taking the reading. Milk should only be in the gauge tube just prior to taking a measurement. If there is already milk in the gauge tube when you arrive at the farm, it must be drained and the tube refilled with cold milk, otherwise an inaccurate reading will result. This is because as the milk in the tube warms, it expands and gives a false, high reading. Errors of several hundred pounds can occur. Occasionally, the tube may need to be cleaned and rinsed with water prior to measurement. When this is required, special care should be taken to ensure that water is not present in the tube prior to taking a gauge reading.

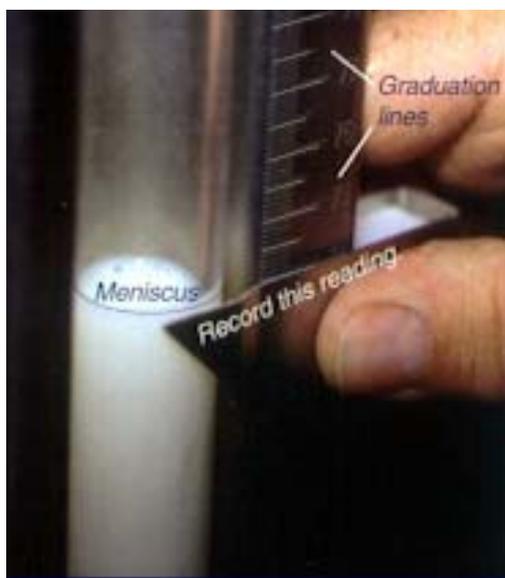
With gauge tubes, the upper surface of the milk column in the tube is not flat. The milk column clings to the inner surface of the glass or plastic and appears higher on the edge than in the center giving a curved appearance as shown in the drawing below. This curved surface is called a meniscus. The curvature of the meniscus from the highest to lowest point may span several graduations on the scale gauge.

The correct method of reading a gauge tube is to use the highest point of the center of the meniscus as the measuring point. A device called a "vernier" is raised or lowered on the gauge rod until it corresponds with the highest point of the center of the meniscus of the milk column in the gauge tube. With one edge of the vernier on the highest point of the center of the meniscus, the same edge

will correspond with a reading on the scale plate. If the measuring point is between graduations, use the graduation closest to the measuring point. If the measuring point appears exactly halfway between two graduations, use the nearest even-numbered graduation. (**Refer to the following photos**).



“Vernier”*



“Meniscus”*

*Photos from Ohio State University Extension

As a precaution with external gauge tubes, verify that they are adequately vented at the top and open to the atmosphere. Any restriction in this venting, such as a sag in the line with entrapped water,

will create an air lock in the gauge tube and prevent the milk in the tube from seeking the proper liquid level resulting in a false, low reading. Errors of several hundred pounds have been reported.

Measuring the Milk: Regardless of the measuring device used, milk must be absolutely motionless or quiescent before a reading is taken. To ensure accuracy, measurements through foam should be avoided. (Notify the producer if foam is excessive and a reading is difficult to take). If the agitator is running it must be shut down and the milk must be allowed to stabilize. Note: when the agitator is running on arrival you may proceed with taking a sample after ensuring that the agitator continues to run for the total required time (see item 9) and during the sampling (see item 11).

If the bulk tank agitator is not running on arrival to the milkhouse and the milk is absolutely motionless, turn off the auto-timer for the tank agitator and take a measurement as follows:

Internal Gauge Rods

- a) Raise the measuring gauge rod from its seat in the tank and clean the rod with a clean single service towel.
- b) To ensure a straight line when measuring the milk, lower the gauge rod straight down until it reaches a point one-quarter inch from its base. Hold the gauge rod in this position for a few seconds and then ease it down slowly until it seats itself.
- c) Remove the gauge rod and read it in a well-lighted area at eye level. Determine where the milk film is in regard to the rod's graduations. If the milk level is between two graduations, read it to the nearest graduation. If the milk level appears to be exactly half-way between two graduations, read it to the nearest even-numbered graduation.
- d) Wipe the rod with a clean single service towel and repeat the reading. Always take at least two stick readings to check for consistency. If the two readings are not consistent, continue to take readings until you have two consecutive readings that are the same. For the second and any subsequent readings, wipe the stick in a downward motion only with a single-service tissue to avoid smearing milk residue onto the clean portion of the stick.

If you have difficulty obtaining a clear milk line on the gauge, remove the measuring gauge rod from the tank and wash it with warm (not hot) water. After washing the stick, dry it thoroughly with a single-service towel. Take care not to contaminate the gauge rod while handling it. Then repeat steps b through d.

- e) Immediately record the final gauge reading at once on the appropriate form. Use the calibration chart and record the milk weight.

External Gauge Tubes and Rods

- a) Ensure that the gauge tube is clean and dry. Sanitize the tank outlet valve and attach the gauge tube. Open the valve slowly to prevent foaming. Verify that the top of the tube is adequately vented to allow milk to rise freely.
- b) When milk in the tube stabilizes, align the vernier until it corresponds with the highest point of the center of the meniscus on the milk column in the gauge tube.
- c) Record the corresponding reading on the scale plate at once on the appropriate form. If the measuring point is between graduations, use the graduation closest to the measuring point. If the measuring point appears to be exactly half-way between two graduations, use the nearest even-numbered graduation. Use the calibration chart and record the milk weight.

- d) Close the outlet valve and drain the gauge tube, wash and rinse the gauge tube and the outlet valve.

8. Recording Results

To avoid error, promptly and legibly record all the stick/gauge readings and the converted milk weights. Along with the milk weights, the following information should be recorded and included on your bulk milk receipt:

- a) Date of collection
- b) Time of pick up (indicate AM or PM or use Military Time)
- c) Producer's name and number
- d) Milk temperature
- e) Measuring stick or gauge reading
- f) Converted milk weight
- g) Name of buyer of the milk
- h) Bulk milk hauler/sampler's legible signature
- i) Bulk milk hauler/sampler's license number and route identification where required
- j) Bulk tank unit (BTU) number
- k) Milk tank truck identification number
- l) Grade of product
- m) Time milk was agitated before sampling, and
- n) Milk quality, odor and appearance

9. Agitating the Milk

A representative bulk tank sample relies on proper agitation of the total milk in the tank. Generally, the tank manufacturer's recommendations should be followed while observing the requirements of the appropriate regulatory agency.

- a) Start the agitator on the farm bulk tank and time it for the required period of agitation using a watch or other timing device. The milk sample should be taken at the end of the agitation period with the agitator still running.
- b) The milk in all farm bulk tanks must be agitated for a minimum of 5 minutes. For tanks larger than 1,000 gallons, follow the tank manufacturer's recommendations. It is not unusual for tanks 1,000 gallons and larger to require a minimum agitation time of 10 minutes. Larger tanks may require an agitation time of 15 minutes or longer while 6,000 – 7,000 gallon tanks have been shown to require up to 40 minutes agitation time before a representative sample can be obtained.

Proper tank agitation time cannot be overemphasized. Insufficient agitation time may be the leading single contributing factor to butterfat test variations. In the example below, there is almost six-tenths of 1 percent difference between an improperly and properly agitated tank of milk.

Butterfat Variation:

Top of Tank (unagitated).....	4.50%
Bottom of Tank (unagitated).....	3.78%
Agitated Five Minutes.....	3.91%

Since the butterfat content, along with other components in some markets, is used in the pricing of milk, it is apparent how much agitation time can affect the amount of the producer's paycheck.

In addition to butterfat variation, bacteria, somatic cells, and growth inhibitors may not be evenly distributed in the cream and serum (skim) phase of milk (i.e. some may tend to rise with the cream

portion of the milk, some may settle). In the example shown below the raw milk bacteria count varied over 340,000 per ml between the milk near the surface of the tank and the milk near the bottom:

Bacteria Variation:

Top of Tank (unagitated).....350,000 per ml
 Bottom of Tank (unagitated)..... 10,000 per ml
 Agitated Five Minutes.....44,000 per ml

Proper agitation time in this case made the difference between a count that was within legal limits and one that was not. Similar results have been seen with somatic cells as shown in the example below:

Somatic Cell Variation:

Top of Tank (unagitated).....890,000 per ml
 Bottom of Tank (unagitated)... 160,000 per ml
 Properly Agitated Tank.....220,000 per ml

10. Identify Sample Container

Mark the sample container clearly with a waterproof, felt tip pen or affix a pre-marked label. Be sure the sample is identified with the producer identification, date of pickup, time of pickup and all other required information. If a preprinted bar code label is provided, affix it according to the companies instructions and before the milk is put into the vial. This will ensure that the label will stick properly to the vial and that the label position will allow the sample to go through the laboratories automated equipment most efficiently.

11. Sample Collection

The bulk milk hauler/sampler has the responsibility of obtaining a representative sample from the producer's farm bulk tank(s). It is extremely important that a universal raw milk sample be taken from each farm bulk tank. It is imperative that the sample be representative of the bulk tank from which it was taken and that it arrive at the laboratory properly stored and handled, in good condition and with the proper chain of custody tracked. The sample can be used for a variety of quality tests, including milk components, somatic cell and bacteria counts and antibiotic or drug residue testing. These tests are only representative if the tank of milk has been properly agitated and sampled, and the sample properly handled thereafter and the chain of custody maintained. The sample must be taken after proper agitation and prior to opening the tank outlet valve. The recommended procedure is as follows:

- a) After the appropriate agitation time, with properly washed hands, remove the sampling device that has been stored in a sanitary manner and proceed to obtain a sample while the milk is still agitating.
- b) Drain the sanitizer from the dipper, rinse the dipper at least twice with milk before obtaining the sample. This will ensure that the sample will not be contaminated with sanitizing solution. If a sterile straw or tube is used, only immerse the straw into the milk to one half its length, covering the end with a finger to hold the sample in the tube when it is withdrawn (Note: Fingers must be absolutely clean! Repeat with the same straw as needed to fill the vial).
- c) Without touching the inside of the sample container or the milk, transfer the milk sample to the container to approximately 3/4 full (i.e. to the fill line on vials) – do not exceed 3/4 full. Do not transfer the milk sample from the dipper or tube to the sample container over the farm bulk tank.

After the sample of milk has been transferred to the sterile container, close it making sure it is tightly sealed.

- d) Close the tank lid and place the sample immediately in the refrigerated sample case. The sample should be placed in a float or other holding device (rack) within the insulated case. An appropriate amount of ice water mixture is required to maintain all samples (i.e. for the entire route) at a temperature between 32°-40°F (0°-4.4°C). Do not delay – it will only take a few minutes for a sample to warm above 40°F (4.4°C) when left at room temperature. To provide additional sample protection and to prevent contamination by water, rack compartments or floaters may be used. This will help ensure that the sample(s) will be delivered in good condition.
- e) Rinse the dipper thoroughly with warm water, dry with a single service towel and return it to the sanitizing solution. The sample dipper should be thoroughly washed with warm soapy water after the last load each day to keep it clean. If a sterile straw is used, dispose of it appropriately.

Temperature Control:

At the first pick up of each load, a second milk sample must be taken in the same manner as the official sample. This sample is to be used as a temperature control and is to be marked with a "TC" along with the date and time that the sample was taken, bulk tank temperature, and producer and bulk milk hauler/sampler identification.

Sample Volume:

NCIMS laboratory regulations require that the sample container must not be filled above 3/4 full. This level allows ample head space to properly mix the sample at the laboratory. NCIMS certified laboratories are required to reject samples that are too full, which can result in unfortunate circumstances in regard to required testing.

Sampling order:

If the agitator was running upon arrival, and you proceeded to take the sample as directed, allow the milk to become absolutely motionless and measure the milk as described previously.

12. Sanitize Outlet Valve

Sanitize the bulk tank outlet valve before connecting the transfer hose to the tank, allowing appropriate contact time for the sanitizer to work properly. If the valve appears to be leaking or if it is not capped, wash the outlet with warm soapy water and rinse before applying sanitizer. Do not connect the hose until after the temperature has been checked, the milk weight/volume has been measured, the tank has been properly agitated, and a representative sample has been taken.

13. Connect the Unloading Hose

Insert the capped milk transfer hose from the truck through the port in the milkhouse, being careful to prevent soiling of the hose (notify the producer if the area outside the port is unclean). Connect the hose to the farm bulk tank, ensuring that the outlet valve has been cleaned and sanitized. Make sure that it is attached properly and tightly secured. Note: Take care to ensure that the hose cap is protected from contamination while in storage or in use.

14. Pump Out the Milk

To prevent damage to the bulk milk tank, make sure the tank is properly vented prior to pumping out the milk. With the tank agitator still running, open the tank valve, start the bulk milk pickup tanker

pump, and transfer the milk to the bulk milk pickup tanker. The milk sample should never be taken while the milk is being pumped from the tank.

15. Stop Agitation and Complete Load-out

When the milk level in the farm bulk tank reaches the agitator blades, stop the agitator and turn off the refrigeration unit if it is a direct expansion-type tank.

16. Disconnect Hose

When the bulk tank is empty, turn off the milk pump, disconnect and cap the transfer hose, place it in the truck, and close the hose port.

17. Observe, then Rinse the Tank

Observe the inner walls and floor of the tank for signs of freezing, churning, and sediment. If any of these abnormalities are present, notify the producer and the handler's field staff. Record relevant comments on the bulk milk ticket. Rinse the bulk tank with warm 100°F (38°C) water and/or attach and start the tank's automatic washer as per agreement with the producer. Close the lid(s) of the tank.

18. Clean Up

Flush away all milk spilled on the floor. Return the water hose to its rack and place all loose items in their proper place in the milkinghouse. Turn off the lights as you leave.

Procedure Order and Short Cuts

The procedure outlined in the previous pages was presented in an order to ensure that a proper sample and milk measurement have been taken. Appendix II A and II B provide a summary of the required procedures. Bulk milk hauler/samplers may wish to modify this order to improve efficiencies at their stops. This is especially true if the agitator is running on arrival (See flow charts Appendix III A and III B). If the procedure order is modified there are a number of steps that must only occur after or before other steps have occurred. It is essential that:

- A representative sample is taken only after proper agitation.
- A proper measurement is taken only when the milk is motionless.
- A representative sample and weight must be taken prior to opening the outlet valve, and prior to any milk being pumped out of the tank.
- The odor and appearance has been evaluated before accepting the milk.

Pickup Frequency and Number of Milkings Represented.

Because of the potential influence on producer payment testing programs, it may be the policy of some handlers to keep track of pickup frequency and the occurrence of "irregular number of milkings". Keeping track of this information has become more difficult as many producers now have multiple tanks, may milk 3 or 4 times per day and may have their milk picked up more than once per day. In some cases, the bulk milk hauler/sampler may be required to keep specific records regarding this information. Be sure to check with your handler for details on how to record this information on the sample container and/or load manifest.

GUIDANCE FOR REJECTING FARM BULK MILK

The decision to accept or reject milk is one of the most difficult decisions that the bulk milk hauler/sampler must make. This decision is important because defective milk from a single producer can spoil the quality of the entire truckload. If a producer's milk is suspected or considered to be unacceptable, or if the temperature is inappropriate, the bulk milk hauler/sampler should leave the milk in the bulk tank, take a sample, and immediately bring the matter to the attention of the producer and the field person for follow-up.

Refusing Pickup of Farm Bulk Milk Based on Odor or Appearance

Normal milk is odorless, and ranges in color from bluish white to golden yellow. A change in this normal odor and appearance of milk may result from bacterial growth (i.e. improper cooling), unhealthy cows (i.e. mastitis) or from improper feeding, milking, milk handling or protection practices. To aid the farm bulk pickup drivers in making the decision on whether to accept or reject milk, they should be familiar with odor, appearance and temperature defects that may occur with bulk tank milk.

Odor Defects:

1. **Cow (Barny):** Unpleasant odor of a poorly maintained barn or "cow's breath" or an unpleasant medicinal or chemical odor. *Cause* - absorbed, transmitted odor due to cows inhaling barn odors caused by poor ventilation and overall conditions. May be due to ketosis in cows.
2. **Feed:** Odor is characteristic of the associated feed, silage, hay, grass, etc. Can be slightly sweet and generally is not unpleasant though may be perceived as unclean. Some milk will have a slight feed odor that is not generally considered a reason for rejecting. However, very strong or objectionable feed odors may be a cause for rejection. *Cause* - cows consume particular feed or inhale feed odors prior to milking, which can be transmitted to the milk. Feeding should be done after milking.
3. **Garlic/Onion:** Characteristic pungent odor. Highly objectionable reason for rejection *Cause* - Animals ingesting wild garlic/onion weeds.
4. **Sour or High Acid:** Odor may be similar to cultured milk or sour milk. *Cause* - Growth of lactic acid producing organisms such as *Lactococcus lactis*, generally due to poor refrigeration.
5. **Malty:** Malt-like aroma (like grape-nuts, malted milk). *Cause* - Growth of *Lactococcus lactis* var. *multigenes* or possibly other organisms due to poor refrigeration. May be associated with acid or unclean flavors.
6. **Rancid:** Pungent, sour-like odor when extreme. Soapy, unclean, bitter, blue cheese-like or "baby vomit". Threshold sensitivity varies among individuals. *Cause* - free fatty acids (i.e. butyric acid) released from milkfat by natural or microbial enzymes. In raw milk it is associated with excessive agitation, temperature abuse, or cow related factors (i.e., health, nutrition).
7. **Unclean:** Unpleasant odor. Suggestive of mustiness, putrid, "dirty dish rag" or other "unclean" flavors. *Cause* - generally due to growth of psychrotrophic microorganisms in milk or on dirty equipment. Can occur due to milk absorbing odors from a dirty environment.

Appearance Defects:

1. **Bloody Milk:** Milk from cows newly freshened or with severe mastitis may contain blood. A small amount of bloody milk can give a large quantity of normal milk a reddish tinge. Blood can sometimes be detected by centrifugation of the sample, where the cells will settle to the bottom and appear as a red sediment.
2. **Flaky Milk:** Flakes or curd particles may occur in milk as a result of mastitis, souring or destabilized protein. Milk from mastitic cows may show light flakiness or pronounced stringy curd particles. Flakiness due to souring of the milk is usually accompanied by a disagreeable sour milk odor.

3. **Extraneous Matter:** Floating extraneous matter such as insects, hair, chaff, and straw is a cause for rejection of milk. The presence of extraneous matter may result from a number of sources including careless handling of the milk, open tanks, open doors, damaged milkhouse ceilings, torn screens, dusty conditions, improper cleaning of the udder and teats before milking, and/or improper filtering of the milk (i.e. no filter, ripped filter).
4. **Churned Milk:** Visible fat globules sticking to the side of the tank or floating in the milk are due to excessive agitation at warm temperatures either within the farm bulk tank or the milk transfer system. Butterfat particles may range in size from tiny flakes about the size of a pinhead to little yellow chunks about the size of a pea or larger.
5. **Frozen Milk:** Presence of ice in the milk is an indication that the farm bulk tank is malfunctioning and is cooling the milk to below freezing or that the direct expansion tank was turned on prior to the first milking. The particles will be noted floating on top of the milk or seen frozen to the cooling coils when the milk is removed from the tank.
6. **Excessive Foaming:** Foam is caused by the agitator running too fast, when the drop pipe leading into the farm bulk tank is insufficient in length, or when there is an air leak in the pipeline system. Excessive foaming may be an indication of potentially rancid milk.

Refusing Pickup of Farm Bulk Milk Based on Temperature

While the PMO allows farm milk to be stored and collected at temperatures up to 45°F (7.2°C), it is recommended that the milk in the producer's farm bulk tank be held at 40°F (4.4°C) or less without freezing. Milk that is greater than 45°F (7.2°C) must not be accepted and loaded on to the milk truck. Some milk handler's policies may use a lower maximum temperature for acceptance. Additionally, if milk appears to be frozen as described above, it should not be collected. If you arrive at a farm immediately after milking has been completed, the tank may be above the acceptable temperature due to blending of warm milk.

Alternative Procedure for Rejection of Milk.

It is the responsibility of the bulk milk hauler/sampler to conduct the initial evaluation of farm bulk milk for acceptance. If it is determined that a producer's milk should be rejected, the handler's field representative should be consulted. If the bulk milk hauler/sampler considers a producer's milk to be questionable, he/she should:

1. Immediately notify the producer and the appropriate field person or representative of the handler.
2. Take a representative sample. Additional samples may be required per handler's policies.
3. If the problem is not resolved immediately, leave the producer's premises without collecting the milk. Make sure you leave the milkhouse as it was found.

UNIVERSAL SAMPLING METHOD AND SAMPLE CUSTODY

Universal Sampling Method

The sampling method known as "universal milk sampling" has become recognized as the best and most economical method of collecting samples for regulatory and industry testing of producer milk. This sampling method requires that a sample be collected at each milk pick up in such a manner that the sample can be used for:

- All routine and special tests as required for regulatory and industry milk quality programs,
- Testing for the presence of antibiotics or drug residues,
- Butterfat and other component testing for milk payment, and
- A check on milk sampling techniques.

Different tests are performed on random samples and neither the milk producer nor the bulk milk hauler/sampler knows which tests are to be made on the samples taken on a given day.

With the “universal milk sampling system” every farm tank of milk is sampled regardless of its condition, even if the milk is rejected. Therefore, complete and accurate identification of the sample are critical to ensure proper identification of the producer. A sample of milk from every bulk tank from every farm in route is necessary for the following reasons:

1. If the tank of milk is rejected by the bulk milk hauler/sampler, the sample provides evidence of the problem.
2. When a tank truckload of milk is rejected at the plant, a sample of milk from every producer picked up on the load will permit tracing of the problem to the source.
3. The sample may be used at random at any time for any of the required regulatory, industry and/or payment testing procedures.

There are several conditions and practices which could result in inaccurate samples for component testing purposes. These include:

- Frozen milk,
- Churned or partially churned milk,
- Curdled milk,
- Excessive foaming,
- Samples taken while the milk is being transferred from the farm bulk tank to the tank truck,
- Sampling milk stored outside of the farm bulk tank,
- Improper agitation,
- Improper sampling methods such as sampling out of the tank outlet valve, and
- Delay in sampling after agitation has been completed.

Frozen, churned, curdled, or foamy milk does not become uniform in composition even after extensive agitation. Foam may be higher in fat, bacteria and somatic cells than milk below the foam layer while it is generally not possible to bring the dipper up through the foam layer without getting foam into the dipper. Even taking the sample away from the foam layer, if possible, would result in an inaccurate sample because some of the fat, which would be in the milk is in the foam. Taking a milk sample when the milk is being transferred from the farm tank into the tank truck or of milk stored in containers outside the bulk tank is not permitted as this practice results in inaccurate samples.

In summary, the proper representative universal raw sample can only be taken from a bulk tank free of frozen, churned or curdled milk and excessive foam that is properly agitated and collected when the milk continues to agitate prior to any milk being transferred from the tank.

Custody Requirements for Producer Samples

Bulk Milk Hauler/Sampler Responsibilities

- Sample vial must have producer number, date of pickup, time of pickup, temperature of the milk at pickup and bulk milk hauler/sampler’s initials.
- Sample temperature must be kept between 32° - 40°F (0° - 4.4°C) at all times.
- Bulk milk hauler/samplers must document the temperature of the samples when custody of the samples is transferred from the truck to a storage location. This documentation must contain the date the samples are transferred, sample temperatures (i.e., check temperature control), load identification and bulk milk hauler/sampler’s initials.

- Bulk milk hauler/samplers must at all times use a thermometer that has been compared to an officially calibrated thermometer within the last six months. The thermometer must be tagged with the date checked, correction factor (zero if no adjustment) and the laboratory technician's identification.

Storage Location Responsibilities

- Equipment used to store samples must maintain the samples at 32° - 40°F (0° - 4.4°C) at all times.
- The thermometers used by bulk milk hauler/samplers must be checked for accuracy at least every six months by a certified laboratory technician. The thermometer tag must contain the same information outlined for the bulk milk hauler/sampler's thermometer above.
- Temperature where the samples are stored must be checked and recorded in the AM and PM. It is appropriate to place a thermometer on both the top and bottom shelves if the refrigeration unit has multiple shelves. The form used to record this temperature must be accessible by the company picking up the samples to transport to the laboratory for testing. A recording thermometer device may be used in place of AM-PM temperature readings and must also be accessible.
- Sample storage temperature log forms must be maintained and be accessible to the sample pickup company. This is the chain of custody of documentation passed from the bulk milk hauler/sampler to the storage facility who are jointly responsible for maintenance of these documents.
- The storage location must be able to be secured if necessary. This may be in the form of a locking device where the samples are stored or the location outside door being locked or the location has round the clock security.

ENFORCEMENT POLICY

To make certain that the proper farm pickup procedures are followed, it is necessary to have an evaluation and enforcement policy to ensure uniformity and help identify and correct problem areas when they arise. This policy must conform to the most current PMO (PMO references SMEDP for sampling and care of samples) and appropriate state regulations. Appendix B of the PMO provides, in part, guidance on required routine evaluations of procedures used by bulk milk hauler/samplers and serves as the minimum standard for state and federal regulations applying to participants in the IMS program. Adoption and development of an evaluation and enforcement policy should be such that it helps prevent problems and swiftly corrects problem areas when they are found. This will help prevent serious problems which can affect both the producers and the receivers of the milk. The requirements as outlined in the most current PMO are below. Policies should be kept up to date with the most recent version of this NCIMS supported document.

Bulk Milk Hauler/Sampler Procedures

All required procedures and activities of each bulk milk hauler/sampler shall be inspected at least once every 24 months. Inspections should be conducted by those personnel approved for such inspection by the regulatory agency, using FDA Form 2399a (See Appendix IV) or an equivalent form.

Milk Tank Truck Inspections

Each milk tank truck shall be inspected at least once every 12 months. Inspection should be conducted by those personnel approved for such inspection by the regulatory agency, using FDA Form 2399b (See Appendix IV) or an equivalent form.

SUMMARY

The bulk milk hauler/sampler is one of the most important persons in the milk marketing system today. Many, including producers, hauling companies, regulatory agencies and purchasers of milk, are dependent on the need for the bulk milk hauler/sampler to perform his/her responsibilities with the utmost care and consideration. The bulk milk hauler/sampler is responsible for evaluating the acceptability of farm bulk milk, taking accurate measurements of farm bulk milk, collecting and properly caring for representative samples of farm bulk milk, loading, delivering and ensuring the security of farm bulk milk and keeping accurate records to support and document all these activities. The bulk milk hauler/sampler is also responsible for ensuring that every precaution is taken to prevent the spread of disease while respecting the

policies and property of others. These responsibilities directly impact the economics of the dairy industry by influencing payment to producers and hauling companies and by significantly contributing to the first steps in guaranteeing the quality and wholesomeness of the dairy foods sold to and continuously enjoyed by consumers.

REFERENCES:

Ohio State University Extension, “Ohio Bulk Milk Haulers Manual”, 2001.

U.S. Department of Health and Human Services, Public Health Service, Food and Drug Administration, Grade “A” Pasteurized Milk Ordinance, 2001 Revision.

<http://www.cfsan.fda.gov/~ear/pmo01toc.html>

APPENDIX I

VOLUNTARY GUIDELINES FOR SEALING RAW MILK TANKERS

The International Dairy Foods Association (IDFA) and the National Milk Producers Federation (NMPF) have developed milk tanker sealing guidelines to ensure dairy products are protected and to prevent safe milk from being unnecessarily destroyed. These voluntary guidelines are provided as general advice. Individual companies may choose to modify these guidelines to increase the level of security according to their specific needs and circumstances.

The proposed guidelines detailed below are a series of procedures designed to reduce the risk of deliberate contamination of raw milk during the various steps in the collection and delivery. The ultimate goal is to have all openings on milk tankers sealed at all times, except when the tanker is being loaded, unloaded, washed or is in the immediate control of the driver. All seals should be numbered and recorded to provide a chain of custody for each delivery of milk.

General Guidelines

1. After the milk tanker is unloaded, washed and sanitized, the wash station/plant seals all potential points of access to the interior of the tank with an appropriate sealing device such as a one-way plastic slip tie or wire with pressed metal seal. Sealing devices must be designed such that they can only be removed by an obvious breaking of the seal. Each seal should have an identification number for traceability purposes. Access points that require sealing include inlet/outlet valves, manhole covers, vent tubes, CIP connections and any other point which allows access to the inside of the tank.
2. After washing of the tanker and sealing all access points, each seal is inspected and its number recorded in an appropriate place. Numbers may be recorded on the wash tag, the manifest or on a log specifically designed and carried for this purpose. This will be referred to as the "seal record."
3. If wash tags are used as the seal record, they should be printed with unique identifiers (i.e. company logo, plant I.D. number). Wash tags should be accounted for and kept in a secure place by receiving personnel as required by the PMO.
4. When the driver is preparing to leave for farm milk collection, the numbers on the seals must be verified to correspond with the numbers recorded on the seal record. If the numbers match, the driver initials the seal record.
5. If at any time the driver finds that a seal has been broken without his/her knowledge, a seal number has changed, or that a seal is missing, then the plant or cooperative should be immediately notified.
6. When the tanker arrives at the first farm pickup, the driver checks all seals to ensure that none are broken. The driver then breaks and removes the seals on the rear door and the outlet valve. The numbers on the broken seals are recorded and the seals should be saved for further accountability.
7. Any time the tanker is not under direct supervision of the driver, all openings on the tanker are secured with a seal or a lock.
8. At the last farm pickup the driver attaches a numbered seal to the inlet/outlet valve, the rear door or any other point of access that has been opened. The seal numbers are recorded in the seal record. A padlock may be used instead of a seal to secure the rear door.
9. When the tanker arrives at the receiving plant, authorized receiving personnel compares the numbers on all seals, including those broken, to the numbers in the seal record. It is recommended that the receiving plant maintain a seal verification log.
10. If the seal numbers match the milk is unloaded. The seals on all access points that need to be opened for unloading and washing the tanker should be removed as needed in the presence of appropriate personnel. The tanker should not be left unattended until after it is fully unloaded.
11. If any seals do not correspond to the seal verification entries, or if any seal is inexplicably broken, the receiving plant should not unload the milk until a further investigation reveals the cause.
12. If a tanker delivers milk to a receiving plant more than once a day and the tank is not washed until the last load is delivered, the procedure outlined above is utilized each time the tanker exits the plant. At the end of the day, after the plant has unloaded and washed the tanker, those access points listed above are sealed, with the seal numbers entered on the seal record. The cycle for the tanker begins again the following day or the next scheduled use.

APPENDIX II A

SUMMARIZED MILK SAMPLING AND WEIGHING PROCEDURES

Hygiene

The bulk milk hauler/sampler should always be clean and neat in appearance and use sanitary procedures while performing all activities. For biosecurity purposes, travel should be limited from the truck to the milkhous. Use any additional precautionary procedure(s) required on individual farms. This includes not taking any food products into the milkhous and refraining from the use of all tobacco products while sampling and weighing milk. Hands should be washed and clean whenever the measuring stick is handled and when samples are taken.

Determine if Milk is Acceptable

Examine the milk’s temperature, odor, and appearance. If the milk is not acceptable, document any abnormality and notify the producer, field person, and obtain a sample. At least once per month, the bulk milk hauler/sampler should check and document the accuracy of the bulk tank thermometer using his standardized, traceable thermometer that has been properly sanitized.

Milk Measurement

Measurement of the milk should be taken when it is absolutely motionless. When measuring milk with a stick, foam should not be present in the area of the stick. The stick should be wiped dry with a clean, single service towel in the area to be read. Gently lower the stick until it is properly seated, wait a moment, raise the stick to eye level and obtain a clear reading. This procedure should be repeated until two readings agree. Immediately record the reading and obtain the conversion from the tank calibration chart. If a tank is measured with a gauge tube, the tube should be clean prior to filling it with milk.

Sample Container

Only approved, sterile sample containers of appropriate size should be utilized. The sample container should be adequately identified with all of the information required by the handler and local regulatory agency. This usually includes, but is not limited to the producer number, time, date, temperature and initials of the bulk milk hauler/sampler. A permanent, waterproof pen should be used to print records on the sample container. If a bar code sticker is used to identify the producer, care should taken not to distort the bar code. Sample containers should be labeled just prior to sampling. The temperature control sample obtained at the first pickup must be adequately identified.

Obtaining the Sample

The milk should be adequately agitated prior to sampling. Generally speaking, adequate agitation times are 5 minutes for tanks under 1,000 gallons and 10 minutes for tanks 1,000 gallons or more. Additional agitation time may be required under certain conditions. Obtain the sample with an acceptable sampling device. If an approved sanitized dipper is used, rinse the dipper at least twice in the milk and then transfer the milk into the sample container away from the bulk tank lid. Be sure not to touch the inside of the container or lid and fill the container approximately ¾ full. (Be sure to obtain and properly identify the temperature control sample at the first stop of each load.) Immediately place the sample in your sample storage rack in an ice and water mixture.

Valve Connection and Milk Transfer

The bulk tank’s outlet valve should be rinsed and sanitized prior to connecting the transfer hose. Do not place the cap on the floor. After all sampling and weighing procedures are completed, pump the milk onto the truck. After milk transfer has been completed, disconnect the hose; observe the tank for ice, butter flakes, sediment or other abnormalities; rinse the tank and if appropriate start up the tank’s wash system.

Completing the Pickup

Be sure to finish all paperwork associated with the pickup before leaving and always leave the milkhous in the same condition as you found it.

Important telephone numbers:

Producer: _____
Field person: _____

For an unabridged guide to farm bulk milk collection procedures, refer to Dairy Practices Council guideline:

DPC 50, Farm Bulk Milk Collection Procedures.

APPENDIX II B

SUMMARIZED MILK SAMPLING AND WEIGHING PROCEDURES

Bulk Milk Hauler/Sampler Hygiene: Clean, neat appearance, wash hands prior to sampling or measuring, no tobacco or food in the milkhouse.

Determine if Milk is Acceptable: Odor, Appearance, Temperature. Check and document accuracy of the bulk tank thermometer once per month.

Milk Measurement: Measure milk while absolutely motionless. Wipe stick with single service towel, read at eye level and obtain two identical readings. Do not measure through foam. For tanks with a tube gauge, the tube must be clean prior to filling it with milk. Read the bottom of the meniscus. In all cases, record the measurement immediately.

Identify Sample Container: Approved, sterile containers must be used. Each sample properly identified according to local regulatory agency and milk handler requirements. Must identify the producer, time, date, temperature and in most cases include the bulk hauler/sampler’s initials. The temperature control at the first pickup must also be adequately identified. When sticker identification is used, do not distort the computer bar code.

Sampling the Milk: Properly agitate the milk, a minimum of 5 minutes for tanks under 1,000 gallon capacity, 10 minutes for tanks with a 1,000 gallon capacity or larger. If a dipper is used, it should be stored in an appropriate sanitizing solution and rinsed with milk at least twice. Fill the sample container approximately ¾ full away from the bulk tank opening. Do not sample foamy areas of milk. Do not touch the inside of the container. Immediately place sample in your sample storage rack in an ice and water solution.

Milk Pump Out: Rinse and sanitize the bulk tank’s outlet valve prior to connecting the transfer hose. Do not place the cap on the floor and do not begin pumping until the milk has been sampled and weighed. After milk transfer has been completed, unhook the hose, observe the tank for abnormalities such as butter flakes, sediment or ice and rinse the tank and the milkhouse floor. If appropriate, start up the tank’s wash system.

Before Leaving: Complete all paperwork and always leave the milkhouse in the same condition as you found it.

Important telephone numbers:

Producer:	_____
Field person:	_____
_____	_____
_____	_____
_____	_____
_____	_____

For an unabridged guide to farm bulk milk collection procedures, refer to Dairy Practices Council guideline:
DPC 50, Farm Bulk Milk Collection Procedures.

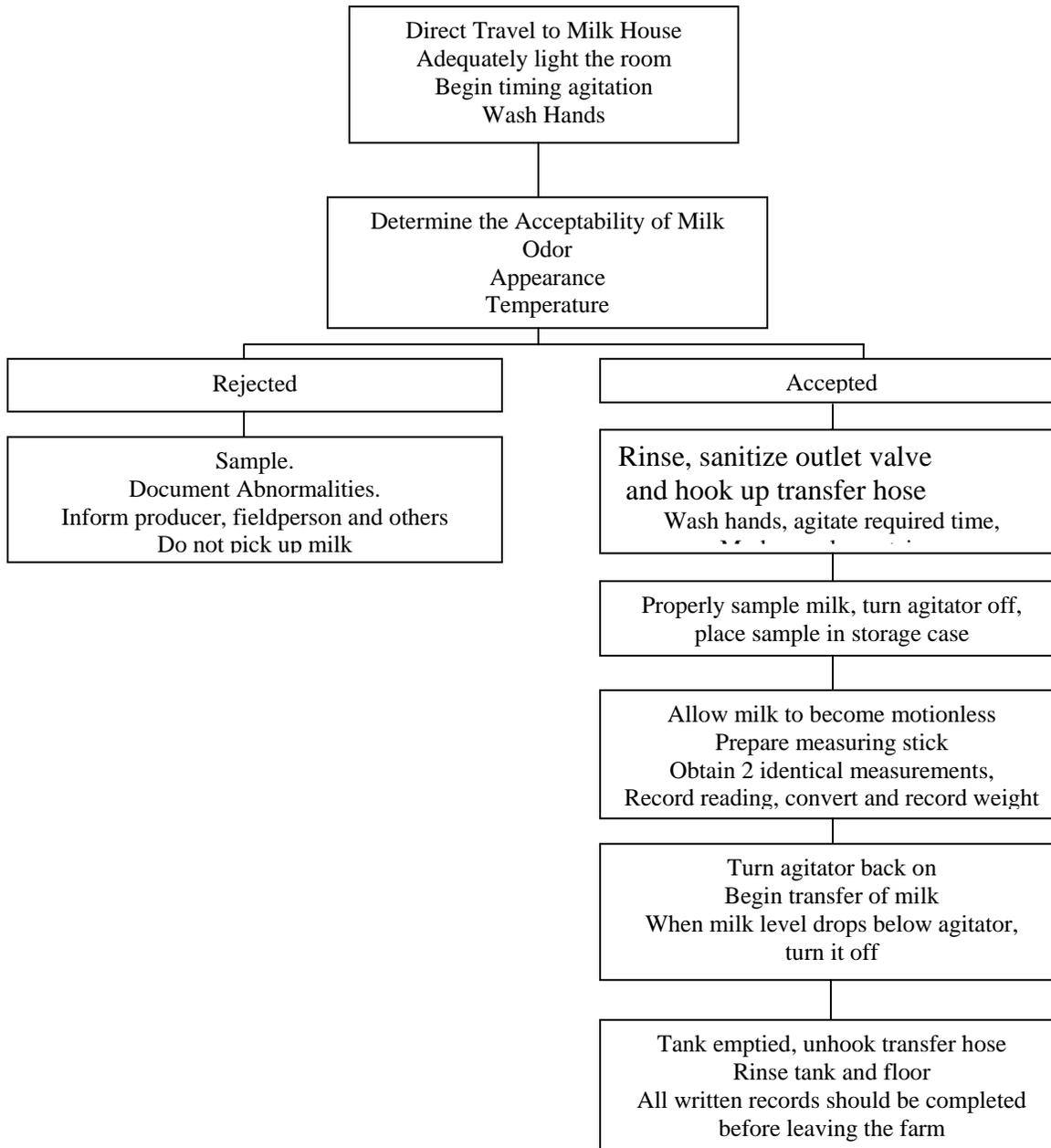
APPENDIX III A

Agitator Not Running



APPENDIX III B

Agitator Running



APPENDIX IV

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.)

<p><u>I. MILK TANK TRUCK AND APPURTENANCES</u></p> <p>1. Construction complies with PMO regulations _____</p> <p>2. Cleaned after each days use _____</p> <p>3. Sanitization records/wash tags maintained..... _____</p> <p>4. Vehicle properly identified..... _____</p> <p><u>II. HAULER SANITATION PROCEDURES</u></p> <p>5. <i>Pickup practices conducted to preclude contamination of milk</i> <i>contact surfaces</i> _____</p> <p>6. Hands clean and dry, no infections _____</p> <p>7. Clean outer clothing, no use of tobacco..... _____</p> <p>7. Hose port used, tank lids closed during completion of pickup.. _____</p> <p>8. Hose properly capped between milk pickup operations, hose cap protected during milk pickup _____</p> <p>10. Hose disconnected before tank rinsed..... _____</p> <p>11. Observations made for sediment/abnormalities..... _____</p> <p>12. Sample collected at every pickup _____</p> <p><u>III. BULK TANK SAMPLING PROCEDURES</u></p> <p>13. Thermometer – Approved Type..... _____</p> <p style="margin-left: 20px;">a. Accuracy – Checked against standard thermometer every 6 months – accuracy (+)(-) division..... _____</p> <p style="margin-left: 20px;">b. Date checked and checker's initials attached to case _____</p> <p>14. Sample Transfer Instrument</p> <p style="margin-left: 20px;">a. Clean, sanitized or sterilized and of proper construction and repair..... _____</p> <p>15. Sampling Instrument Container</p> <p style="margin-left: 20px;">a. Proper design, construction and repair for storing sample dipper in sanitizer..... _____</p> <p style="margin-left: 20px;">b. Applicable test kit for checking strength of sanitizer (200 ppm chlorine or equivalent) _____</p> <p>16. Sample Containers</p> <p style="margin-left: 20px;">a. Clean, properly sanitized or sterilized _____</p> <p style="margin-left: 20px;">b. Adequate supply, properly stored or handled..... _____</p> <p>17. Sample Storage Case</p> <p style="margin-left: 20px;">a. Rigid construction, suitable design to maintain samples at 32°-40°F, protected from contamination _____</p> <p style="margin-left: 20px;">b. Ample space for refrigerant, racks provided as necessary _____</p> <p>18. Sample Collection – Precautions and Procedures</p> <p style="margin-left: 20px;">a. Sampling instrument and container(s) properly carried into and aseptically handled in milk room _____</p> <p style="margin-left: 20px;">b. Bulk tank milk outlet valve sanitized before connecting transfer hose..... _____</p> <p style="margin-left: 20px;">c. Smell milk through port hole..... _____</p> <p style="margin-left: 20px;">d. Observe milk in a quiescent state with lid wide open and lights on when necessary..... _____</p>	<p>e. Test thermometer sanitized (1 min. contact time)..... _____</p> <p>f. Non-acceptable milk rejected..... _____</p> <p>g. Dry measuring stick with single-service paper towel..... _____</p> <p>h. Measure milk only when quiescent..... _____</p> <p>i. Do not contaminate milk during the measuring process..... _____</p> <p>j. Agitate milk before sampling at least 5 min. or longer as may be required by tank specs..... _____</p> <p>k. Do not open bulk tank valve until milk is measured and sampled. _____</p> <p>l. Temperature of milk, time, date of pickup and haulers ID recorded on each farm weight ticket..... _____</p> <p>m-1. Tank thermometer accuracy checked monthly and recorded when used as test thermometer. _____</p> <p>m-2. Accuracy of required recording thermometers checked monthly against standardized thermometer and recorded..... _____</p> <p>n. Temperature control sample provided at first sampling location for each rack of samples _____</p> <p>o. Temperature control sample properly labeled with <i>time, date, temperature, and with producer and hauler identification</i> _____</p> <p>p. Sample containers legibly identified at collection points..... _____</p> <p>q. Sample dipper rinsed at least two times in the milk before transferring sample..... _____</p> <p>r. Dipper should extend 6-8 inches into the milk to obtain representative sample..... _____</p> <p>s. Do not hold sample container over the milk when transferring sample into the container..... _____</p> <p>t. Fill sample container no more than ¾ full..... _____</p> <p>u. Rinse sample dipper in tap water, replace in it's container, open milk valve, turn on tank pump .. _____</p> <p>v. Immediately take milk sample to the sample case _____</p> <p>19. Sample Collection – Storage and Transportation</p> <p style="margin-left: 20px;">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.. _____</p> <p style="margin-left: 20px;">b. Deliver samples to laboratory promptly _____</p> <p style="margin-left: 20px;">c. Samples and sample data – submitted to laboratory – if by common carrier, use tamper proof shipping case with top labeled "This Side Up" _____</p>
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Remarks: (If additional space is requires, please place information on the back of this form or on a separate page.)

Date: _____ Sanitarian: _____ Agency: _____

APPENDIX V

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		
<p style="text-align:center;">EQUIPMENT</p> <p>1. Thermometer – Approved type _____</p> <p>a. Accuracy checked against standard thermometer and adjust every 6 months – Accuracy (+)(-) deviation _____</p> <p>b. Date checked and checker's initials attached to case _____</p> <p>2. Agitation _____</p> <p>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) _____</p> <p>3. Sample Transfer Instrument</p> <p>a. Clean, sanitized, or sterilized _____</p> <p>b. Seamless metal tube _____</p> <p>c. Or metal dipper with long handle; capacity at least 10 ml _____</p> <p>d. Or single-service paper or plastic sampling tube _____</p> <p>e. Or sanitized sampling cock _____</p> <p>f. Or other means for removing sample aseptically _____</p> <p>4. Sampling Instrument Case</p> <p>a. Proper design, construction and repair _____</p> <p>5. Sample Containers _____</p> <p>a. Clean, properly sanitized, or sterilized _____</p> <p>b. Adequate supply, properly stored and handled _____</p> <p>6. Sample Storage Case _____</p> <p>a. Rigid construction, suitable design to maintain samples at 32° – 40° F., protected from contamination _____</p> <p>7. Cleaning and Sanitizing of Equipment _____</p> <p>a. Sampling instruments, clean and dry _____</p> <p>b. For sanitizing stirrer, sampling tube, or dipper between samples:</p> <p>1. Rinse first in one can of clean cold water connected with a continuously flowing source _____</p> <p>2. Then submerge in a second can of water kept continuously at 180° F. for at least 1 min. _____</p> <p>3. Or dipper submerged in a hypochlorite solution at 200 ppm for at least 1 min. (or use other halogens bactericidally equivalent) _____</p> <p>4. Strength of sanitizing solution determined with applicable test kit _____</p>	<p style="text-align:center;">SAMPLING PROCEDURES (Continued)</p> <p>h. Fill sample container not more than ¾ full _____</p> <p>i. Immediately place samples into sample case _____</p> <p>9. Raw Milk for Pasteurization – trucks and plant storage tanks (see item 8 for applicable procedures)</p> <p>a. Agitation time determined as required _____</p> <p>b. Collect sample aseptically from tank opening (manhole) _____</p> <p>c. Or from pipeline _____</p> <p>d. Or from balance tank prior to pasteurization _____</p> <p>e. Or from sanitized sampling-cock _____</p> <p>f. Do not use hand-disc agitator to mix milk in large storage tanks or trucks _____</p> <p>g. Sample dipper, when used, rinsed at least 2 times before transferring sample _____</p> <p>h. Dipper should extend 6 – 8 inches into the milk to obtain representative sample _____</p> <p>i. Rinse sample dipper or multi-use tubes in tap water after each use and replace in sanitizing solution _____</p> <p>10. Pasteurized Milk and Milk Product Samples (see item 8 for applicable procedures)</p> <p>a. Collect samples while still in possession of processor _____</p> <p>b. Randomly select representative samples of all pasteurized milk and milk products _____</p> <p>c. Or if necessary, after thoroughly mixing product in container, aseptically transfer representative portion to sterile sample container _____</p> <p>d. Or from milk dispensers, collect sample direct from spigot of sterile sampling container without sanitizing or flushing the spigot opening _____</p> <p>11. Pasteurized Milk and Milk Products Containers and Closures (see item 8 for applicable procedures)</p> <p>a. Collect at least 4 randomly selected, representative multi-use (and when necessary single-service) containers used for packaging _____</p> <p>1. Do not touch lip or interior of bottles or containers _____</p> <p>2. Do not allow milk or water to drip into empty milk containers: by-pass filler valves _____</p> <p>3. Containers sealed or capped with line equipment _____</p> <p>4. Or use laboratory sterilized caps, aseptically applied to bottles _____</p> <p>5. Containers delivered to laboratory without rinse solution, properly protected from crushing or damage _____</p> <p>6. Do not store or ship single-service containers in refrigerated cases _____</p> <p>12. Sample Storage and Transportation</p> <p>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 _____</p> <p>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 _____</p> <p>c. Samples and sample data promptly submitted to laboratory _____</p> <p>d. When shipping samples via common carrier, use tamper proof shipping case with top labeled "This Side Up" _____</p>	
<p>SAMPLING PROCEDURES</p> <p>8. General Sampling Procedures – plants, raw and pasteurized sampling</p> <p>a. Hands washed, clean, and dry during sampling _____</p> <p>b. Milk temperature determined and recorded at all sampling locations _____</p> <p>c. Temperature control sample provided at first sampling location and labeled with time, date, temperature, and collector identification _____</p> <p>d. Sample containers legibly identified at collection point _____</p> <p>e. Sample containers and closures handled aseptically _____</p> <p>f. Do not hold sample container over the milk when transferring sample into the container _____</p> <p>g. Sampling instrument protected from contamination before and during sampling _____</p>		
Remarks: _____ _____ _____		
Form FDA 2399 (12/01) (Previous Editions are Obsolete)		

APPENDIX VI

DEPARTMENT OF HEALTH AND HUMAN SERVICES PUBLIC HEALTH SERVICE FOOD AND DRUG ADMINISTRATION	TANK SERIAL NO. _____ TANK PERMIT NO. _____
MILK TANK TRUCK INSPECTION FORM	STATE ISSUING PERMIT _____

MILK TANK TRUCK OWNER _____ ADDRESS OF OWNER _____
 OPERATOR/DRIVER _____ DRIVER'S ADDRESS _____
 SAMPLER'S PERMIT NO. _____ DELIVERS TO _____
 INSPECTION LOCATION _____ ADDRESS _____

An inspection of your milk tank truck showed violations existing in the items marked below in the non-compliance column. You are further notified 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 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 0°C-4.4°C(32°F- 40°F), control temp. H. Approved thermometer available				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 _____
2. PRODUCT TEMPERATURE 7°C (45°F) OR LESS (PMO Sec 7, items 18r and 17p) A. Temperature of product in tank B. Product in external fluid transfer systems that exceeds 7°C (45° F) is discarded				4. 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)
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)				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: Sanitarian _____ Date _____				

Form FDA 2399b