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January 21, 2014

***NOTICE*:** A change is being instituted in the process for a driver to obtain a **Bulk Milk Hauler/Sampler** license. The driver must be evaluated by a Dairy Control Sanitarian *prior* to taking the Bulk Milk Hauler's exam. The driver may schedule an evaluation, during their training, by calling the Dairy Control office at (602) 542-4189. Be aware that scheduling will depend upon staff availability.

Beginning February 1, 2014, no Bulk Milk Hauler/Sampler license will be issued without a completed evaluation form. This form will need to be presented prior to taking the exam, along with a valid photo identification.

If there are any questions about this change, please contact the Dairy Control office, (602) 542-4189.

Farm Bulk Milk Hauler's Manual

United States Department of Agriculture

Food Safety and Quality Service

Poultry and Dairy Quality Division

Dairy Standardization Branch

FARM MILK HAULERS MANUAL
Table of Contents

FARM BULK MILK HAULERS MANUAL

I. Purpose

The purpose of this manual is to provide farm bulk milk haulers with the proper techniques, principles, and procedures to use on the job. It will also serve to refresh the experienced hauler with the same techniques and principles which are required by the dairy industry.

Uniform methods are essential in agitating, weighing, sampling and pick-up of farm bulk milk in order to assure the producer, plant manager, and quality control personnel that everyone concerned is being treated equally and fairly.

II. Introduction

The quality of milk delivered to the plant depends on how well the hauler identifies and eliminates all unsatisfactory milk before pumping it into the tank truck. The frequency of pick up should never be longer than three days.

The licensed bulk milk hauler is more than a truck driver. He is frequently the judge of acceptable milk quality before it leaves the farm. He determines the amount of milk purchased and is the collector of official samples for laboratory examination and payment.

This places a great responsibility on the bulk hauler. He must check the odor and appearance of the milk. He must also use accurate and proper procedures in measuring and sampling the milk.

Sampling and measuring the milk are important duties to insure a fair and accurate transaction between the producer and buyer. The milk must always be measured accurately and a true sample obtained so the quality and composition tests will accurately represent the contents of the farm bulk tank. If proper procedures are not strictly followed and an error in evaluation occurs, the milk may have been improperly accepted or rejected. This will cause an economic loss for either the producer *or* the plant.

If there is more than one bulk tank located on a farm, each tank should be separately sampled, measured, and checked for odor and appearance. When a bulk tank is in use, no milk stored in cans may be sampled or picked-up for delivery.

III. Licensing

The grading, sampling, measuring and pumping of milk from a farm bulk tank, and the delivery of the milk to a dairy plant, receiving station, or transfer shall only be done by a licensed bulk hauler. This also includes the relief or part time hauler.

The valid license shall be kept in the hauler's place of employment or file office where he most frequently delivers milk. This license shall be available for inspection upon the request of an authorized official.

The hauler should also receive a wallet sized, numbered identification card to certify his right to sample. This card shall be carried with him at all times on the job.

A prospective hauler shall immediately apply for licensing. Upon receipt of the application, the appropriate state regulatory agency will issue the prospective hauler an instruction manual, and notification of the date and location of the next bulk hauler's training and licensing session. Upon satisfactory completion of the bulk milk hauler's examination, a permanent hauler and sampler license will be issued.

The license shall be renewable yearly, and every licensed hauler is required to attend a licensing session once every three years as a refresher course.

IV. Definition of Terms

1. Farm Bulk Milk Hauler - A licensed person who grades, samples, and measures the milk in a farm bulk tank; pumps the milk from the tank; and delivers the milk to a dairy plant, receiving station, or transfer.

2. Milk – The normal lacteal secretion, practically free from colostrum, obtained by the complete milking of one or more healthy cows.

3. Producer – The person or persons who exercise the control over the production of milk delivered to a processing plant or receiving station, and those who receive payment for this product.

4. Dairy Farm – A place or premise where one or more milking cows are kept, a part or all of the milk produced thereon being delivered, sold, or offered for sale to a plant for manufacturing purposes.

5. Farm Bulk Tank – The tank located on a dairy farm in which properly cooled raw milk is stored prior to collection by a bulk milk hauler.

V. Appearance

The bulk milk hauler is a hauler of human food and his appearance and sanitary habits should reflect this role. A clean, neat appearance and good personal habits create an image vital to the dairy industry and establishes confidence in the hauler's ability to do his job. White clothing is the most impressive. However, color is not as important as cleanliness.

The clean, outward appearance of the bulk truck also establishes confidence in the hauler's ability to handle a food product. The bulk tank truck must be of sanitary design and construction. Preferably, the tank should meet the requirements of the 3-A Standard for farm pick up service. Any new or replacement tank must meet the applicable 3-A standard.

VI. Checklist Prior to Starting on the Route

The hauler must have certain supplies and equipment in order to satisfactorily perform the requirements of measuring, sampling, pumping and transporting the milk. Before starting out, check for the following supplies and equipment:

1. The tank truck and the transfer equipment have been properly washed and sanitized. The responsibility to clean and sanitize the tank and/or pump of the farm bulk truck may lie

with a plant employee. However, it is the bulk hauler's responsibility to check the tank and pump to insure its sanitary condition.

2. The most recent wash tag must be attached. This wash tag should contain the following information:

    a. The location the tank was cleaned and sanitized.

    b. The date and time.

    c. The signature or initials of the employee who washed and sanitized the tank.

    d. The type of sanitizer used.

    e. A statement that this tag must not be removed until the tank is re-cleaned.

3. The following sampling equipment is present on the truck:

    a. An adequate supply of sample containers.

    b. Sample transfer instrument, unless stored and maintained at the farm.

    c. An accurately prepared sanitizing solutions of 100 ppm chlorine or its equivalent in a suitable container that is covered.

    d. Insulated sample carrying case.

    e. Adequate ice or other refrigerant to maintain sample temperature of 32-40° F.

4. A dial thermometer with an adjustment for calibration which is accurate to ± 2 °. The thermometer used must include the normal temperature range of milk and a dial range of 25°F to 125° F is recommended.

5. An adequate supply of sani-guide discs.

6. A waterproof, indelible marker to identify samples.

7. Watch or other timing device.

8. Adequate supply of milk weight tickets and a pencil to record the required information.

9. Single service paper towels.

10. Flashlight.

VII. Odor and Appearance of Milk

Odor

The most important factor in consumer acceptance of dairy products is flavor. Milk flavor control must begin at the farm.

It is important that the hauler not taste the milk for off-flavors because of potential health problems caused by raw milk. Nevertheless, the hauler should realize that off-flavors in raw milk invariably show up as off-odors, and if off-odors are found by the hauler, off-flavors are also present.

Normal milk has virtually no odor. The hauler should have a firm impression as to what constitutes normal milk so that he can judge the milk he collects with confidence.

If the milk has a serious off-odor or appearance (such as those that follow), the hauler should reject it. The plant fieldman should be contacted immediately so that the cause can be determined and corrected. In case a hauler is uncertain as to whether a tank should be accepted, contact the plant for guidance and obtain a sample for the plant on which a final decision may be made.

Any slight change in quality should be immediately brought to the attention of the producer and the milk plant by making an appropriate comment on the producer's milk weight ticket. This warning may often be the earliest indication of the start of trouble.

Some of the more common off-odors and their possible causes are:

1. **Feed** - The feed a cow eats may impart certain odors to milk. Some stronger feeds will carry through more noticeably than others. Odors resembling green grass, silage, turnips, and alfalfa hay are outstanding examples. Feed odor can be minimized or eliminated by taking the cows off offending feeds at least 4 hours before milking. Certain feeds can be detected in milk if fed to the cow even 15 to 30 minutes before milking.
2. **Barny** - This odor is caused by cows breathing foul air due to poor barn sanitation and/or ventilation. Proper ventilation, good sanitation, and proper milking procedures will correct this problem.
3. **Foreign** - Any seriously objectionable odor foreign to milk, such as sanitizers, fly spray, paint, oil, kerosene, creosote or a medicinal substance will render the milk unacceptable or unfit for use. Such an odor may be caused by direct contamination of the milk or may be absorbed from the air.
4. **Garlic/Onion** - This obnoxious weed flavor, imparted to milk when the cow eats garlic, onions, or leeks, is not classified as one of the usual feed flavors described above. The garlic/onion flavor is recognized by the distinctive odor suggestive of its name. It may actually be so objectionable as to render the milk undesirable for use.
5. **Musty** - This odor is suggestive of musty or moldy hay. It may be absorbed directly by the milk, but is more likely to come from feed or stagnant water consumed by the cow.
6. **Rancid**:
    a. Oxidative Rancidity - Oxidized milk gives off odors usually described as cardboardy, metallic, or tallowy. It is usually more noticeable during the winter months when cows are on dry feed. The most frequent cause of oxidative rancidity is by the contamination of milk with small amounts of copper or iron from milk contact surfaces.
    b. Hydrolytic Rancidity - Hydrolytic found in milk will give off an odor resembling spoiled nut meats. It is more noticeable during winter, when cows are on dry feed, or during late lactation. Agitation of warm raw milk

in the presence of air, causing foaming, will result in a rancid type odor within a few hours.

c. Sour - Sour milk will have a malty odor and will be found when poorly cooled milk results in excessive bacterial growth. It also may result from bacterial growth. It also may result from bacterial growth due to insanitary milking practices and/or insanitary equipment. Good, sound sanitary practices and prompt cooling in the bulk tank will prevent this problem.

7. **Weedy** - The weedy odor is not included among the usual feed odors. It may include obnoxious odors resembling such plants as ragweed, bitterweed or peppergrass and may become a very troublesome flavor defect. It can be eliminated or minimized by keeping cows away from weed-infested pastures or by not offering feeds containing such weeds until after the cow is milked.

Checking for odors

The odors gather just below the cover of the bulk tank. To properly check for off-odor, remove a small port opening, put your nose down to the opening and smell the milk. Never open the entire lid, this will let the odors escape into the air. The detection of off-odors can be affected by a number of external factors. The hauler should strive to eliminate these factors:

1. Milk house odors.
2. Gasoline fumes adhering to clothing.
3. Smoking immediately prior to checking for odors or smoking in the milk house.
4. Eating or chewing aromatic candy, tobacco, medicine, beverages, foods, etc.
5. Highly scented shaving lotion, soap, and other toiletries on the hauler.

Appearance

Following are some milk quality problems which may become evident while checking for appearance. Any of these defects would be sufficient reason to reject the tank of milk.

1. Bloody Milk - The milk from mastitic cows may contain blood. A small amount of bloody milk can give a large quantity of normal milk a reddish tinge.
2. Flaky Milk - Milk from cows having mastitis may show light flakiness or pronounced stringy curd particles.
3. Extraneous Matter - Floating extraneous matter includes such things as insects, hair, chaff, and straw. The presence of extraneous matter may result from careless handling of milk, open doors, torn screens, dusty feeding conditions and improper cleaning of the udder before milking.

Other problems which may become evident while checking for appearance include frozen and partially churned milkfat. These problems, depending on their severity, may or may not be reasons for rejecting the fat.

Checking for appearance

Normal milk color ranges from bluish white to golden yellow and is free from all foreign or clotted matter. When you are checking the appearance of a bulk tank of milk, make sure the tank light is on and or the area is well lighted. Lift the lid and observe the complete, undisturbed milk surface. Any evidence of partially churned butterfat, frozen milk or other conditions which may alter the reliability of your sample should be indicated on the sample container to inform the lab. Bring this to the attention of the producer and notify the fieldman to have this problem corrected.

VIII. Measuring the Milk

The milk shall be completely motionless when measurement are made. If the agitator is running when you arrive, it may be easier for you to sample before shutting off the agitator.

Turn the agitator switch to off, to make sure the agitator doesn't start while yon are measuring. Wait at least 5 minutes for the milk to become completely motionless.

Preparation of the measuring stick

The essential steps to assure an accurate measurement of the milk volume are:

1. The measuring stick must be clean, dry, and free of fat. It also must be warmed to room temperature (65-70°F) before the milk is measured. The measuring stick should be stored in the bulk tank in its proper position between readings. To prepare the stick, rinse with cold water, then warm to room temperature with warm water. Finally, wipe dry with a clean, dry single service paper towel. A measuring stick prepared in this manner will give you an accurate reading.
2. Now the stick is ready to be positioned into the milk. If there is any foam, gently move the foam away from the measurement area with the end of the measuring stick. Then, lower it slowly into the milk until it reaches a point approximately 1/4 inch from its proper position. Wait a few seconds, then gently lower the rod till it seats itself naturally.
3. Remove the stick and read at once. The markings should be read at eye level and in a well-lighted area. Make at least 2 readings to insure the correct weight is obtained. The measuring stick is graduated into 1/32 of an inch. Each graduation is equivalent to a determined number of pounds of milk posted on a conversion chart that must be the same.
   When the milk line is close to but not exactly on a specific mark, it is read as if it were exactly on that mark. When the milk line falls exactly between two marks, always read to the nearest even number of pounds of milk posted on a conversion chart specifically calibrated for each tank. The serial number of the bulk tank, measuring stick and conversion chart must be the same.

   The farm bulk tank and its calibration is the responsibility of the producer under the supervision of the plant and state regulatory agency. However, there are conditions that the hauler should be aware of that could contribute to inaccurate weight problems.
   a. The tank is incorrectly calibrated.
   b. Errors in the weight conversion chart.
   c. Bulk tank is out of level.
   d. Heaving, cracking, or settling of milk house floor, causing the bulk tank to shift.
   e. Improper footing under the tank legs.
   f. A weaving or distortion of the measuring stick bracket or seat.

   If you notice any discrepancies, you should contact the plant or plant fieldman and have them investigate the problem.

IX. Correct Agitation Time

In order to obtain a sample that is truly representative of the milk in the tank, proper agitation must be accomplished.

A general rule is five minutes of constant agitation (or more if determined by testing) for a 100 to 900 gallon tank and for a tank of l,000 gallons or more, constant agitation for at least 10 minutes (or more if determined by testing).

The proper agitation time should be determined by the fieldman. He should have taken sufficient samples to insure that the milk in all areas of the tank is completely mixed during the specified time.

Check your watch or timing device when you turn on the agitator. If the agitator is running when you arrive, start the timing then.

X. Temperature

The hauler should take and record the temperature of milk at each pick -up. Temperature determinations provide much useful quality control information for both the producer and the receiving plant.

1. All bulk tanks shall cool the milk to a blend temperature of less than 50°F. It is recommended that milk should be cooled to less than 40°F for the production of quality milk.
2. The reading and recording of the temperature will provide a history of the bulk tank efficiency. If the temperature readings of milk in the tank gradually increase, it will show the hauler that the tank is not cooling properly. Contact the producer and the plant to resolve the problem.
3. A high milk temperature can be a warning that the milk may have an off-flavor or be high in bacteria.
4. Check the thermometer on the bulk tank, and inform the producer if the thermometer is incorrect.

A metal stem dial thermometer is recommended. Glass mercury thermometers, although more accurate, are not recommended because of the danger of breakage during use.

The thermometer should have a stainless steel stem, an unbreakable plastic window and have an external adjustment for calibration. The thermometer must include the normal temperature of milk range. A dial range of 25°F to 125°F is recommended.

The accuracy of the thermometer should be checked before initial use and at least monthly thereafter. The best way to check the thermometer is against an officially calibrated thermometer in a 32-40°F liquid in the plant laboratory.

Be sure to sanitize the thermometer stem in 100 ppm chlorine or its equivalent each time before checking the temperature of the milk.

XI. Sampling plans

The sampling of milk from a farm bulk tank is an important part of a hauler's responsibilities. Regardless of the sampling plan used, extreme care should be taken to obtain a representative sample.

A. Universal Sampling Plan - A sampling plan that has become very popular is the Universal Sampling plan. The true Universal Sampling Plan provides one sample that can be used for all laboratory analysis but not all analyses need necessarily be done on the same sample. This plan eliminates the need for the hauler to collect several types of samples and simplifies the sampling equipment necessary. It also enables the laboratory to monitor the producer's quality without requesting special samples from the hauler.

   The producer is unable to anticipate when bacteria or sediment tests are to be run because the same size sample is removed from his tank at every pick-up. The universal sample of 1, 2, or 4oz also requires less milk, so, consequently, less milk is wasted.

B. Sampling for a Specific Test - An alternate type of sampling plan requires that only a fat sample be taken daily. This sample, when returned to the plant, can be either tested daily as a fresh fat sample, or a portion of the sample can be placed in a bottle to be composited with samples taken on other days. The composite sample will be tested for fat at a later date. The composite bottle must not leave the plant.

   This method requires that a hauler differ his sampling techniques to suit the test required. For example, when sampling for fat, a sterile sample container is not needed, however, when sampling for bacteria count, a sterile container is required. When sampling for sediment, a 16 oz. (pint) sample may be needed instead of a smaller sample.

XII. Sampling the milk

The proper analysis of a sample is dependent upon the reliability of the sampling procedure. To be satisfactory, the sample must be representative and the sampling procedure must be done in a manner to prevent contamination of the sample.

This sampling procedure should be strictly-followed:

1. Wash and dry your hands.

2. Identify each sample container with the producer number, the date of pick-up and the route number.

3. Make sure the tank is properly agitated. (see section X)

4. If a dipper is used, make sure it is clean and has been properly sanitized in a 100 ppm chlorine solution or other equally suitable sanitizing solution. The sampling device should remain in the solution until it is removed to sample the milk. Do not remove the sampling device prior to entering the milk house.

If the dipper is stored and maintained at the farm, make sure it is clean and properly sanitized before sampling the milk.

5. Open the sample container being careful not to contaminate the interior of the container and/or its cap. Contamination of the sample container will alter the laboratory results and possibly reduce the producer's payment. Do not dip the sample container in the milk.

6. Rinse the sampling device twice in the milk before taking the sample, being careful not to put your hands in the milk.

7. Sample the milk in the tank making sure the sample container is not held over the milk supply while pouring the sample. The sample container should not be filled more than three fourths full. This will enable the laboratory to properly mix the sample before testing.

8. Properly close the sample container, making sure it is sealed correctly so that it does not leak or puncture the sample container. When using a whirl-pak bag, make sure enough air is trapped inside the bag to properly agitate the sample.

9. Immediately place the sample in the refrigerated sample case and keep it at 32° to 40°F until delivery. Provide a method, such as the use of racks or drainage holes in the sample case, to keep the sample free from contamination due to melting ice.

10. After you have sampled the milk, rinse the sample dipper with tap water and return it to the sanitizing solution.

11. Always take a second sample of milk at the first stop as a temperature reference sample. Upon returning to the plant, check and record the temperature of this sample when the samples are delivered.

XIII. Sani-Guide Discs

The use of sani-guide discs will emphasize the importance of clean milk. The disc will show coarse sediment (flies, hair, straw, etc.) in a bulk tank of milk.

A new sani-guide disc is placed between the bulk tank valve and the transfer hose at each pick-up. When you finish pumping the milk, examine the disc and notify the producer and the fieldman if excessive, visible contamination is evident on the disc.

The sani-guide disc should be left at the farm for the producer to see and become aware of any contamination problems.

XIV. Connection of Hose

The transfer hose should be brought into the milkroom through the hoseport. Remove the cap from the bulk tank outlet and sanitize the tank outlet before connecting the transfer hose. Then, remove the cap from the transfer hose and connect it to the bulk tank valve outlet.

The only time the transfer hose is not capped is during loading and cleaning. If there is any evidence of the bulk tank valve leaking, notify the producer and the fieldman to correct this.

XV. Pumping the Milk

To aid in the removal of butterfat that may have clung to the side of the tank and to help protect the plant against a fat loss due to this factor, it is a good practice to leave the agitator running until the tank is at least half empty. Make sure the agitator is shut off before foaming or splashing begins to prevent product loss due to foam.

It is also important to shut off the pump as soon as possible after the tank is empty to avoid sucking air and milk house odors into the truck tank. When the tank is empty, shut off the refrigeration compressor on a direct expansion tank or the water circulation pump on an ice bank tank.

Never leave a farm bulk tank partially full. If the tank has not completely emptied when your truck tank is full, return to the farm and empty the tank before the producer adds any additional milk. If not emptied, the bulk tank could not be washed and sanitized before the next milking, nor would the samples and weight accurately represent the milk delivered.

Do not start rinsing the tank while the hose is still attached.

XVI. Disconnect the Hose and Rinse the Farm Bulk Tank

After the milk is pumped from the tank, and the pump shut off, remove the hose and cap immediately. Visually check the bottom of the bulk tank for sediment. If it is excessive, make note of it and notify the producer and plant fieldman.

As a help to the producer, rinse the interior of the bulk tank with warm water (about 110°). This will make it easier for the producer to clean up. Close the tank covers after rinsing to prevent the tank from drying out and keep out any foreign material.

Rinse the floor down to keep it clean and free of milk. Any milk remaining on the floor will sour and develop acid in which will eventually erode the concrete.

XVII. Recording Results

To avoid error, promptly record all results. Each of the following results should be included on your bulk milk receipt:

1. Date of collection.
2. Time of pick-up.
3. Producer name.
4. Plant number.
5. Milk quality, odor and appearance.
6. Milk temperature.
7. Measuring stick reading.
8. Converted weight (milk weight).
9. Name of buyer.
10. Hauler signature.

XVII. Final Farm Check

Before you leave the milkhouse, make note of any abnormalities to report to the producer and/or plant fieldman. Note the general condition of the milkhouse, its construction, and any situations which may cause contamination of product or incorrect results in performing.

Samples shall be taken of all milk, even if it is rejected or frozen. Any off-condition milk should be noted for the laboratory.

Before you leave, make sure the milkroom is in as good or better shape than when you arrived. Rinse the floor, hang up the hose, and turn the lights out.

XIX. Recap of proper Procedures

As you do your job, mentally use one of the following charts. If the agitator is running as you enter the milkroom, follow chart A. If it is not, use chart B.

XX. Composition of Milk

A general knowledge of the composition of milk will prove useful in the hauler's contact with producers. The main constituents of milk are water, milkfat, protein, lactose (milk sugar), and ash.

The average composition of milk is:
Water 87.0%
Milkfat 4.0%
Lactose 5.0%
Protein 3.3%
Ash 0.7%

Causes of milkfat variations

The variation in the percent of milkfat has the greatest effect on the producer's returns. The bulk milk hauler must provide an adequately mixed, reliable sample for milkfat analysis. This is done by following the proper sampling procedure outlined in this manual. There are, however, variations that are commonly due to:

1. Breed of cow.
2. Age of cow.
3. Genetic potential of individual cows.
4. Stage of lactation.
5. Seasonal changes.
6. Udder infection.
7. Type and quality of feed.
8. Milking procedure.
9. Health of cow.
10. Heat periods.
11. Excitement.

XXL. Milk Quality

Often times the hauler will be asked by farmers about the quality tests performed by the laboratory. The following summary will help him explain the reasons for the tests and his responsibilities as the official sampler.

A. Milkfat

The results obtained from the fat tests are the basis for payment to the producer for his milk. It is important that the bulk milk hauler has knowledge of the proper

procedure to insure that this test is accurate and representative of all the milk in the farm bulk tank.

The Babcock, Gerber, and Milk-O-Tester are the common tests used for determining milkfat.

B. Bacteria Count

Bacteria are microscopic one-celled organisms which are found on and in all living animals, in the soil, water, ponds, and even wells. Manure, flies, insects, rodents, utensils, and equipment are sources of many types of harmful bacteria. Because of the widespread presence of bacteria, contamination of the equipment which comes in contact with the milk must be avoided.

The amount and kind of bacteria found in a sample of milk is an indication of the sanitary conditions and practices occurring on the farm and the extent of milk cooling. Contamination can occur when measuring, sampling, and transferring milk. Therefore, extreme care must be taken to prevent further contamination due to the hauler.

C. Inhibitor Test

The presence of antibiotic residues can cause violent allergic reactions in some individuals. These residues are of medicine and drugs used to treat the milking and animals for udder or other infections. Therefore, tests are run periodically to determine their presence in milk.

Excessive residues or sanitizers used on milk handling equipment will also show up in these tests.

D. Sediment Tests

This is a rapid method to determine whether the milk is being properly protected from contamination due to dust, and/or improperly cleaned udders. The presence of sediment indicates insanitary methods of milking and milk handling practices. A clean sediment disc pad, however, does not prove that sanitary practices exist.

The test consists of filtering a sample of milk through a white cotton disc and checking the amount and kind of residue left.

E. Added Water

The temperature at which milk will freeze is a fairly constant factor and can easily be determined by laboratory tests. If water is added either deliberately or by accident, the freezing point will become closer to that of pure water. Adding water to milk is illegal.

The hauler must exercise care and make sure the transfer hose is disconnected before the bulk tank is rinsed in order to prevent adulteration with water.

F. Somatic Cell Count

Somatic cells are primarily white blood cells. Many factors influence the number of somatic cells in milk. The cow's age, production capacity, and stage of lactation influence the normal level of somatic cells in the milk. Irritation and infection of a cow's udder caused by poor milking practices, improper cattle housing, improperly operating milking machine, or poor pasture conditions will show up as increased somatic cell counts. High somatic cell counts signify that some cows in the herd are experiencing illness or injury.

The test measures the level of white blood cells in the milk. A level of 500,000 or less indicates normal milk and a mastitic condition would not be expected. Somatic cell counts exceeding 500,000 to 1,000,000 per ml. indicate that mastitis may be a herd or cow problem and individual cow samples should be tested to identify problem cows. Somatic cell counts exceeding 1,000,000 per ml. indicate that there is a mastitic problem and corrective action must be taken immediately. Counts exceeding 1,500,000 per ml. also indicate a severe mastitic problem and the milk should not be used for human consumption.

XXII. Rules for Good Milking Techniques

The producer may from time to time have questions concerning mastitis. A general knowledge of good milking techniques is necessary to answer his questions. The following 10 rules will aid in the prevention of mastitis problems in the producer's herd.

1. Wash the udder with a warm sanitizing solution and dry with a single service paper towel.
2. Remove 2 or 3 streams of foremilk from each quarter and examine for abnormalities.
3. Attach the teat cups approximately 1 minute after starting udder preparation or when the teats are full of milk.
4. Adjust the teat cups during milking as necessary to insure that the quarters milk out properly.
5. Start machine stripping when milk flow slows to a minimum. (Usually 3 to 4 minutes). Machine strip quickly. Do not over milk.
6. Dip the teats in a teat dip proven to be safe and effective immediately after the teat cups are removed.
7. Treat all clinical cases of mastitis.
8. Treat all cows at drying off.
9. Conduct a cow-side screening test such as the California Mastitis Test (CMT) at monthly intervals and record the results for future reference.
10. Have the entire milking system analyzed twice a year by a qualified milking machine service man.

XXIII. Sample Questions

Some sample questions are enclosed with the Bulk Milk Hauler's Manual to help prepare the applicant for the licensing examination.

True or False - In the space provided following the question, place an "X" in the correct designation.

1. The Bulk Milk Hauler's license is renewable every other day.
   True _____ False _____
2. Normal milk color ranges from bluish white to golden yellow and may contain a limited amount of foreign or clotted matter.
   True ____ False _____
3. A milk temperature above 50° F can be a warning that the milk may have an off flavor or be high in bacteria.
   True _____ False _____

Fill in the Blank - In the following questions, fill in the blank with the correct word or words.

1. _____ is a serious off-odor that is sufficient reason to reject a farm bulk tank milk.

2. The detection of off-orders can be affected by external factors including _____, _____ and _____.

3. The correct agitation time for an 800 gallon tank is _____ minutes.

Multiple Choice - Each question is followed by a series of answers; check the answer or answers which are correct. More than one answer can be correct.

1. The only time the transfer hose is not capped is:
   a. during loading
   b. between stops
   c. while you rinse the farm bulk tank
   d. during tank truck cleaning

2. The somatic Cell Count determines:
   a. the level of white blood cells in the milk
   b. the percentage of milk fat
   c. amount of added water
   d. amount of sediment in the milk

3. The hauler should be aware of the following conditions which could contribute to inaccurate weight problems:
   a. tank incorrectly calibrated
   b. amount of milk in the tank
   c. improper footings under the tank legs
   d. heaving, cracking or settling of the milk house floor causing the bulk tank to shift

Chart A

AGITATOR RUNNING

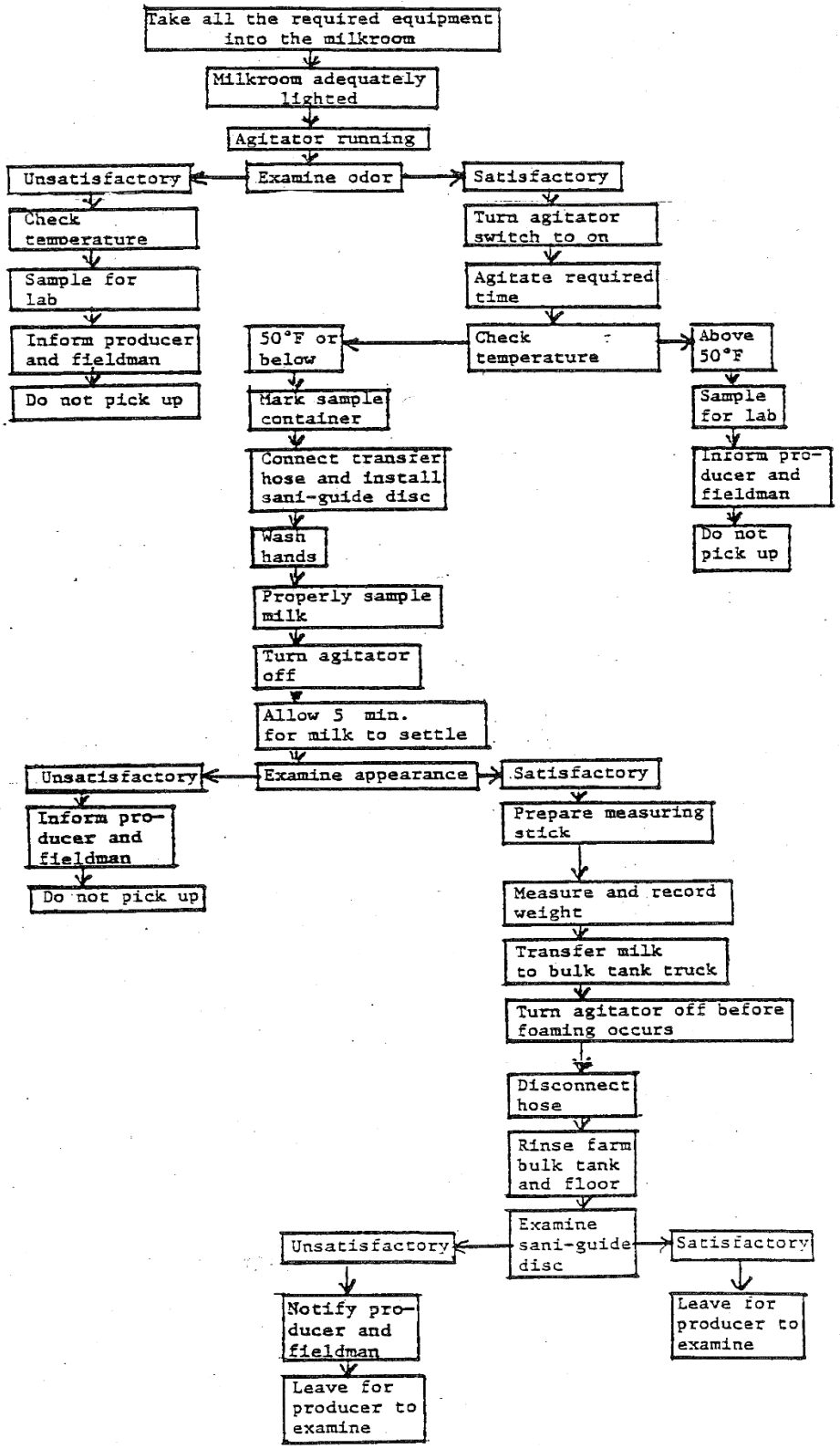
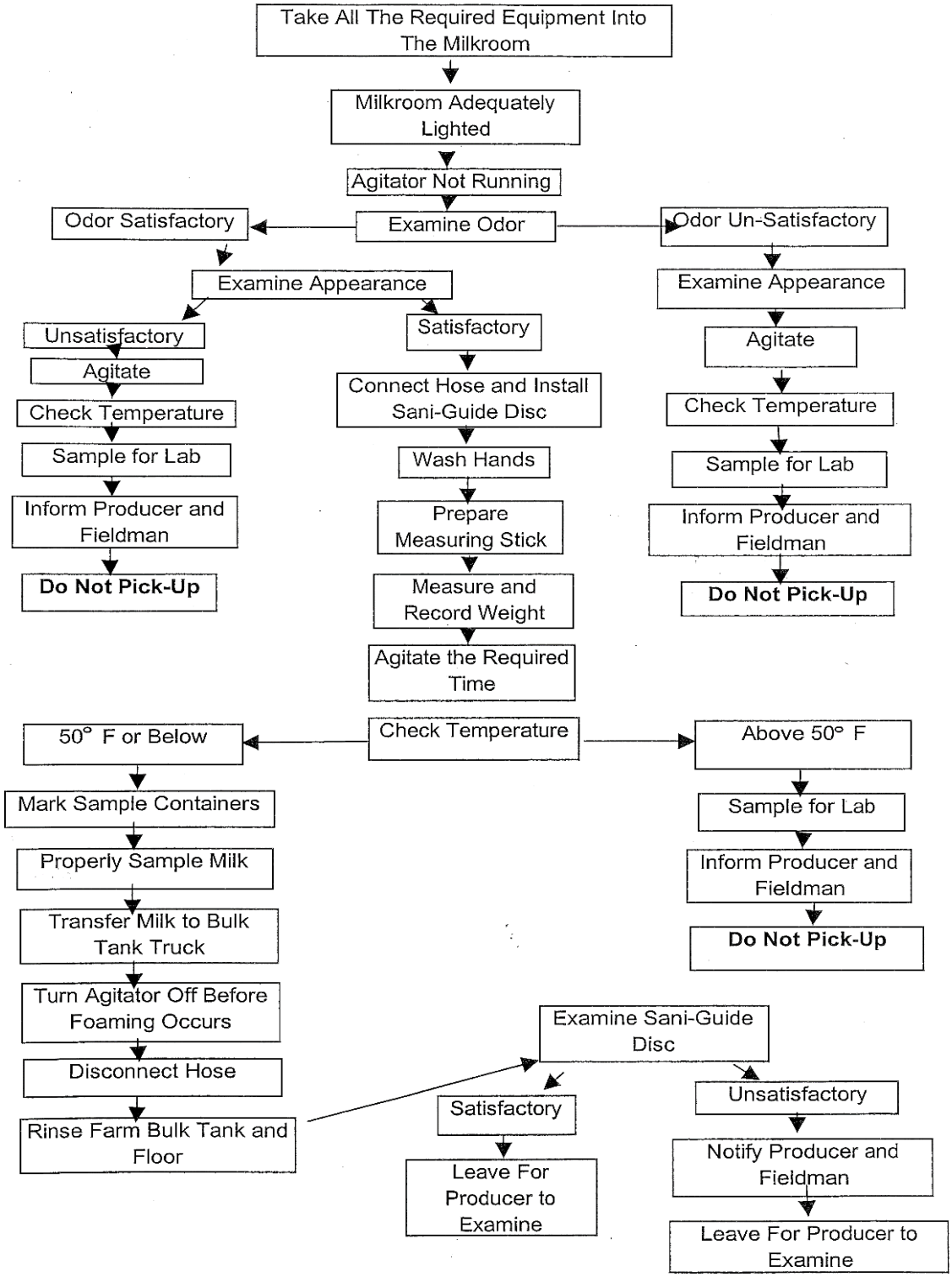


Chart B

Agitator Not Running



11/6/02

DEPARTMENT OF HEALTH AND HUMAN SERVICES
FOOD AND DRUG ADMINISTRATION

BULK MILK HAULER/SAMPLER EVALUATION REPORT

BULK MILK HAULER / SAMPLER PERMIT NO.	TANKER PERMIT NO.
BULK MILK HAULER / SAMPLER	DAILY PICKUP NO.

ADDRESS OF BULK MILK HAULER / SAMPLER

OWNER

ADDRESS OF OWNER

NAME AND ADDRESS OF INSPECTION LOCATION

NAME AND ADDRESS OF RECEIVING PLANT

An evaluation of your sampling procedures showed violations existing in the Items checked below. You are further notified that this evaluation report 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. (Refer to Sections 3 and 5 of the Grade "A" Pasteurized Milk Ordinance.)

HAULER SANITATION PROCEDURES

1. Pickup practices conducted to preclude contamination of milk contact surfaces ☐
2. Hands clean and dry, no infections ☐
3. Clean outer clothing, no use of tobacco ☐
4. Hose port used, tank lids closed during completion of pickup. ☐
5. Hose properly capped between milk pickup operations, hose cap protected during milk pickup ☐
6. Hose disconnected before tank rinsed ☐
7. Observations made for sediment/abnormalities ☐
8. Sample collected from each producer's bulk tank picked up ☐

BULK TANK SAMPLING PROCEDURES

9. Thermometer – Approved Type ☐
   a. Accuracy – Checked against standard thermometer every 6 months – accuracy (+)(-) 1 division ☐
   b. Date checked and checker's initials attached to case ☐
10. Sample Transfer Instrument
    a. Clean, sanitized or sterilized and of proper construction and repair ☐
    b. Sterile needle for aseptically dispensing a milk sample from the bulk tank sample septum into a sample container (i.e., vial) ☐
    c. Or an approved in-line sampler ☐
    d. Or an approved aseptic sampler ☐ e.
    Or a sanitized sampling cock ☐
11. Sampling Instrument Container
    a. Proper design, construction and repair for storing sample dipper in sanitizer ☐
    b. Applicable test kit for checking strength of sanitizer (200 ppm chlorine or equivalent) ☐
12. Sample Containers
    a. Clean, properly sanitized or sterilized ☐
    b. Adequate supply, properly stored or handled ☐
13. Sample Storage Case
    a. Rigid construction, suitable design to maintain samples at 0°C - 4.4°C (32°F - 40°F), protected from contamination ☐
    b. Ample space for refrigerant, racks provided as necessary ☐
14. Sample Collection – Precautions and Procedures
    a. Sampling instrument and container(s) properly carried into and aseptically handled in milkhouse ☐
    b. Bulk tank milk outlet valve sanitized before connecting transfer hose ☐
    c. Smell milk through tank port hole ☐
    d. Observe milk in a quiescent state with lid wide open and lights on when necessary ☐
    e. Test thermometer sanitized (1 min. contact time) ☐
    f. Non-acceptable milk rejected ☐
    g. Dry measuring stick with single-service paper towel ☐
    h. Measure milk only when quiescent ☐ i.
    Do not contaminate milk during the measuring process ☐ j.
    Agitate milk before sampling at least 5 min. or longer as may be required by tank specifications ☐
    k. Do not open bulk tank valve until milk is measured and sampled ☐
    l. Temperature of milk, time, date of pickup and bulk milk hauler/sampler name and license or permit no. recorded on each farm weight ticket ☐
    m. Tank thermometer accuracy
       1. Tank thermometer accuracy checked monthly and recorded when used as test thermometer ☐
       2. Accuracy of required recording thermometer checked monthly against standardized thermometer and recorded ☐
    n. Temperature control sample provided at first sampling location for each rack of samples ☐
    o. Temperature control sample properly labeled with time, date, temperature, producer ID and bulk milk hauler/sampler identification ☐
    p. Sample containers legibly identified at collection points ☐
    q. Sample dipper rinsed at least two times in the milk before transferring sample ☐
    r. Dipper should be extended 6-8 inches into the milk to obtain a representative sample ☐
    s. Sample cock properly sanitized and flushed prior to sampling ☐
    t. Septum surface properly sanitized and single service sterile needle used ☐
    u. Do not hold sample container over the milk when transferring sample into the container ☐
    v. Fill sample container no more than ¾ full ☐
    w. Rinse sample dipper in safe tap water, return to storage container, open tank valve, start milk transfer pump ☐
    x. Immediately place milk sample in the sample case ☐
15. Sample Collection – Storage and Transportation
    a. Sample storage – refrigerant maintained no higher than milk level in sample containers – maintain sample temperature – 0°C - 4.4°C (32°F - 40°F), do not bury tops of containers in ice, protect against contamination ☐
    b. Deliver samples to laboratory promptly ☐
    c. Samples and sample data – submitted to laboratory – if by common carrier, use tamper proof shipping case with top labeled "This Side Up" ☐

APPENDIX B. MILK SAMPLING, HAULING AND TRANSPORTATION

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

I. MILK SAMPLING AND HAULING PROCEDURES

The dairy plant sampler is a person responsible for the collection of official samples for regulatory purposes outlined in Section 6 of this *Ordinance.* These persons are employees of the Regulatory Agency and are evaluated at least once each two (2) year period by a SSO or a properly delegated Sampling Surveillance Regulatory Official. These individuals are evaluated using FORM FDA 2399-MILK SAMPLE COLLECTOR EVALUATION REPORT (Dairy Plant Sampling – Raw and Pasteurized Milk), which is derived from the most current edition of *SMEDP*. (Refer to Appendix M.)

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

The industry plant sampler or bulk milk hauler/sampler is a person responsible for the collection of official samples for regulatory purposes at a milk plant, receiving station, or transfer station as outlined in Appendix N. These industry plant samplers are employees of the dairy plant, receiving station or transfer station and are evaluated at least once each two (2) year period by a SSO or a properly delegated Sampling Surveillance Regulatory Official. These industry plant samplers are evaluated using FORM FDA 2399-MILK SAMPLE COLLECTOR EVALUATION REPORT (Dairy Plant Sampling – Raw and Pasteurized Milk), which is derived from the most current edition of *SMEDP*. (Refer to Appendix M.)

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

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

TRAINING: To understand the importance of bulk milk collection and the techniques of sampling, including the use of an approved in-line sampler and approved aseptic samplers for

milk tank trucks or for farm bulk milk tanks and/or silos, all bulk milk hauler/samplers and industry plant samplers must be told why, and instructed how, in the proper procedures of picking up milk and the collection of samples. The Regulatory Agency, dairy field person, route supervisors or any appropriate person whose techniques and practices are known to meet the requirements can conduct this training. If the Regulatory Agency does not conduct the training, the training must be approved by or conducted under the supervision of the Regulatory Agency.
Training also frequently takes the form of classroom sessions in which the trainer describes pickup practices, demonstrates sampling and care of samples and affords the candidate the opportunity for guided practice in these techniques. Basic considerations of sanitation and personal cleanliness, which are important to the protection of milk quality, are discussed here. Officials administering weights and measures may participate in these programs and provide instruction in the measuring of milk and the keeping of required records.
An examination, approved by the Regulatory Agency, shall be administered at the conclusion of this program. Candidates failing the exam, a score of less than seventy percent (70%), shall be denied permits or licenses until indicated deficiencies are corrected. The examination should be adequate enough to determine if a bulk milk hauler/sampler is competent. The exam shall be composed of a minimum of twenty (20) total questions broken down into the following areas:

1. Six (6) questions relating to sanitation and personal cleanliness;
2. Six (6) questions relating to sampling and weighing procedures;
3. Four (4) questions relating to equipment, including proper use, care, cleaning, etc.; and
4. Four (4) questions relating to proper record keeping requirements.

Regularly scheduled refresher short courses by the regulatory agents and officials administering weights and measures would assist in maintaining and increasing the efficiency of the bulk milk hauler/sampler. Appropriate training should also be provided to industry plant samplers with regularly scheduled refresher short courses.

QUALIFICATIONS:
1. **Experience:** Experience may include a required period of observation during which the candidate accompanies a bulk milk hauler/sampler in the performance of their duties.
2. **Personal References:** Permit applications should be supported by suitable references testifying to the character and integrity of the candidate.

EVALUATION OF BULK MILK HAULER/SAMPLER PROCEDURES: The routine inspection of bulk milk hauling/sampling procedures provides the Regulatory Agency with an opportunity to check both the condition of the bulk milk hauler/sampler's equipment and the degree of conformance with required practices.
The bulk milk hauler/sampler's technique is best determined when the regulatory agent is able to observe the bulk milk hauler/sampler at one (1) or more farms. Each bulk milk hauler/sampler must be inspected by the Regulatory Agency prior to the issuance of a permit and at least once every twenty-four (24) months thereafter as referenced in Section 5 of this *Ordinance*. The bulk milk hauler/sampler must hold a valid permit prior to the collection of official samples. States may use inspections from any Regulatory Agency as a means of maintaining record requirements and enforcement.

The procedures for sampling and the care of samples should be in compliance with the current edition of *SMEDP*.

Specific Items to be evaluated in determining compliance include:

1. **Personal Appearance:** Bulk milk hauler/samplers shall practice good hygiene; shall maintain a neat and clean appearance; and not use tobacco in the milkhouse.
2. **Equipment Requirements:**
   a. Sample rack and compartment to hold all samples collected.
   b. Refrigerant to hold temperature of milk samples between 0ºC- 4.4ºC (32ºF- 40°F).
   c. Sample dipper or other approved aseptic sampling devices of sanitary design and material approved by the Regulatory Agency; clean and in good repair.
   d. Single use sample containers; properly stored.
   e. Calibrated pocket thermometer; certified for accuracy every six (6) months; accuracy ± 1°C (2°F).
   f. Approved sanitizing agent and sample dipper container.
   g. Watch for timing milk agitation.
   h. Applicable sanitizer test kit.
3. **Milk Quality Checks:**
   a. Examine the milk by sight and smell for any off odor or any other abnormalities that would class the milk as not being acceptable. Reject if necessary.
   b. Wash hands thoroughly and dry with a clean single-service towel or acceptable air dryer immediately prior to measuring and/or sampling the milk.
   c. Record milk temperature, collection time (optionally, in military time (24 hour clock)), date of pick-up and bulk milk hauler/sampler's name and license or permit number on the farm weight ticket; monthly the hauler/sampler shall check the accuracy of the thermometer on each bulk tank and record results when used as a test thermometer. Accuracy of required recording thermometers shall be checked monthly against a standardized thermometer and recorded. Pocket thermometer must be sanitized before use.
4. **Milk Measurements:**
   a. The measurement of the milk shall be taken before agitation. If the agitator is running upon arrival at the milkhouse, the measurement can be taken only after the surface of the milk has been quiescent.
   b. Carefully insert the measuring rod, after it has been wiped dry with a single-service towel, into the tank. Repeat this procedure until two (2) identical measurements are taken. Record measurements on the farm weight ticket.
   c. Do not contaminate the milk during measurement.
5. **Universal Sampling System:** When bulk milk hauler/samplers collect raw milk samples, the "universal sampling system" shall be employed, whereby samples are collected every time milk is picked up at the farm. This system permits the Regulatory Agency, at its discretion, at any given time and without notification to the industry, to analyze samples collected by the bulk milk hauler/sampler. The use of the "universal sample" puts more validity and faith in samples collected by industry personnel. The following are sampling procedures:
   a. Pick-up and handling practices are conducted to prevent contamination of milk contact surfaces.
   b. The milk must be agitated a sufficient time to obtain a homogeneous blend. Follow the State and/or manufacturer's guidelines or when using an approved aseptic sampling device, follow the speicified protocol and SOP for that device.

c. While the farm bulk milk tank and/or silo is being agitated, bring the sample container, dipper, dipper container and sanitizing agent for the outlet valve, or single-service sampling tubes into the milkhouse aseptically. Remove the cap from the farm bulk milk tank and/or silo outlet valve and examine for milk deposits or foreign matter and then sanitize if necessary. Protect the hose cap from contamination when removing it from the transfer hose and during storage.

d. The sample may only be collected after the milk has been properly agitated or when using an approved aseptic sampling device, follow the speicified protocol and SOP for that device. Remove the dipper or sampling device from the sanitizing solution or sterile container and rinse at least twice in the milk.

e. Collect a representative sample or samples from the farm bulk milk tank and/or silo by using a sample dipper or other approved aseptic sampling device. Refer to Section IV. Requirements for Using an Approved Aseptic Sampler for Farm Bulk Milk Tanks and Silos of Appendix B. of this *Ordinance* for the specific protocol for the use of approved aseptic sampling devices**.** When transferring milk from the sampling equipment, caution should be used to assure that milk is not spilled back into the farm bulk milk tank and/or silo. Do not fill the sampling container more than ¾ full. Close the cover on the sample container.

f. The sample dipper shall be rinsed free of milk and placed in its carrying container.

g. Close the cover or lid of the farm bulk milk tank.

h. The sample must be identified with the producer's number at the point of collection.

i. A temperature control sample must be taken at the first stop of each load. This sample must be labeled with collection time (optionally, in military time (24 hour clock)), date, temperature and producer and bulk milk hauler/sampler identification.

j. Place the sample or samples immediately into the sample storage case.

6. **Pump Out Procedures:**

a. Once the measurement and sampling procedures are completed, with the agitator still running, open the outlet valve and start the pump. Turn off the agitator when the level of milk is below the level that will cause over-agitation.

b. When the milk has been removed from the tank, disconnect the hose from the outlet valve and cap the hose.

c. Observe the inside surfaces of the bulk tank for foreign matter or extraneous material and record any objectionable observations on the farm weight ticket.

d. With the outlet valve open, thoroughly rinse the entire inside surface of the tank with warm water.

7. **Sampling Responsibilities:**

a. All sample containers and single-service sampling tubes used for sampling shall comply with all the requirements that are in the current edition of *SMEDP*. Samples shall be cooled to and held between 0°C (32°F) and 4.4°C (40°F) during transit to the laboratory.

b. Means shall be provided to properly protect the samples in the sample case. Keep refrigerant at an acceptable level.

c. Racks must be provided so that the samples are properly cooled in an ice bath.

d. Adequate insulation of the sample container box or ice chest shall be provided to maintain the proper temperature of the samples throughout the year.

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

II. REQUIREMENTS FOR USING AN APPROVED IN-LINE SAMPLER

A protocol specific to each milk producer who direct loads milk tank trucks (through by-passing the use of farm bulk milk tanks or silos) while utilizing an approved in-line sampler shall be developed by the Regulatory Agency in cooperation with the sampling equipment manufacturer, the milk buyer, the milk producer and FDA. As a minimum, the protocol should include the following:

1. A description of how the milk sample is to be collected, identified, handled and stored.
2. A description of the means used to refrigerate the sample collection device and milk sample collection container throughout the milk sample collection period.
3. A means to monitor the sampler device temperature and milk sample temperature, and the milk temperature.
4. A description of how and when the sampler is to be cleaned and sanitized, if not of a single use design.
5. A listing of the licensed bulk milk hauler/samplers who have been trained to maintain, operate, clean and sanitize the sample collection device as well as to collect, identify, handle and store the milk sample.
6. A description of the method and means that will be used to determine weight of the milk on the milk tank truck.

III. REQUIREMENTS FOR USING AN APPROVED ASEPTIC SAMPLER FOR MILK TANK TRUCKS

A protocol specific to each milk plant in which industry plant samplers utilize an approved aseptic sampler shall be developed by the Regulatory Agency in cooperation with the sampling equipment manufacturer, the milk plant and FDA. As a minimum, the protocol should include the following:

1. A description of how the milk sample is to be collected, identified, handled and stored.
   a. The aseptic sampler fitting must be installed according to the manufacturer's recommendations and in a manner that is compatible with its intended use.
   b. The aseptic sampler septum must be installed according to the manufacturer's instructions.
   c. Transfer of milk is achieved using a Standard Operating Procedure (SOP) specific to the aseptic sampler.
   d. An appropriate device, i.e., a syringe, must be used to transfer the milk.
2. A description of how and when the aseptic sampler is to be cleaned and sanitized, if not of a single use design, as per the manufacturer's instructions.
3. A listing of the industry plant samplers who have been trained to maintain, operate, clean and sanitize the aseptic sampler as well as to collect, identify, handle and store the milk sample.

IV. REQUIREMENTS FOR USING AN APPROVED ASEPTIC SAMPLER FOR FARM BULK MILK TANKS AND/OR SILOS

A protocol specific to each milk producer in which the milk producer, who transports milk only from his/her own dairy farm, or bulk milk hauler/samplers utilize an approved aseptic sampler shall be developed by the Regulatory Agency in cooperation with the sampling equipment manufacturer, the milk producer and FDA. As a minimum, the protocol should include the following:

1. A description of how the milk sample is to be collected, identified, handled and stored.
   a. The aseptic sampler fitting must be installed according to the manufacturer's recommendations and in a manner that is compatible with its intended use and does not create a dead end.
   b. The aseptic sampler septum must be installed according to the manufacturer's instructions.
   c. Transfer of milk is achieved using a Standard Operating Procedure (SOP) specific to the aseptic sampler.
2. A description of how and when the aseptic sampler is to be cleaned and sanitized, if not of a single use design, as per the manufacturer's instructions.
3. A listing of the milk producer, who transports milk only from his/her own dairy farm, and/or licensed bulk milk hauler/samplers who have been trained to maintain, operate, clean and sanitize the aseptic sampling device as well as collect, identify, handle and store the milk sample.

V. MILK TANK TRUCK PERMITTING AND INSPECTION

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

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

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

operator to maintain a current proof of inspection to avoid a re-inspection fee. Disputes concerning reciprocal agreements on milk tank truck inspection between Regulatory Agencies may be tendered to the Chair of the NCIMS or the Chair's designee for resolution.

INSPECTION: Each milk tank truck shall be inspected at least once each year by a Regulatory Agency. (Refer to Section 5 of this *Ordinance*.) A copy of the current inspection report shall accompany the milk tank truck at all times, or the tank shall bear an affixed label, which identifies the Regulatory Agency with the month and year of inspection. The affixed label shall be located near the tank outlet valve or on the front left side of the milk tank truck bulkhead. When significant defects or violations are encountered by a Regulatory Agency, a copy of the report shall be forwarded to the permitting agency and also carried on the milk tank truck until the violations are corrected.

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

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

MILK TANK TRUCK STANDARDS: All Items of FORM FDA 2399b-MILK TANK TRUCK INSPECTION REPORT fall into the categories of "Compliance", "Non-Compliance" or "Not Applicable" (NA) as determined during the inspection. The following Items relate to FORM FDA 2399b: (Refer to Appendix M.)

1. **Samples and Sampling Equipment:** (When provided)
   a. Sample containers shall be stored to preclude contamination.
   b. The sample box shall be in good repair and kept clean.
   c. Sample transfer instrument shall be cleaned and sanitized to insure that proper samples are collected.
   d. The sample transfer instrument container is provided and adequate means for maintaining sanitizer solutions is on hand.
   e. The samples are properly stored to preclude contamination.
   f. The sample storage compartment shall be clean.
   g. Samples are maintained at an acceptable temperature 0ºC-4.4ºC (32ºF-40ºF) and a temperature control sample is provided.
   h. An approved thermometer is available for use by the sampler. The accuracy of the thermometer is checked each six (6) months with the results and date recorded on the carrying case.
2. **Product Temperature 7ºC (45ºF) or Less:**
   a. The product temperature must meet all the requirements of Section 7, Items 18r and 17p-Cooling of Milk, of this *Ordinance.*

b. Product that remains in external transfer systems that exceeds 7ºC (45ºF) is discarded. This includes pumps, hoses, air elimination equipment or metering systems.

3. **Equipment Construction, Cleaning, Sanitizing and Repair:** Items a. through l. on FORM FDA 2399b shall be evaluated according to the following criteria:

a. Construction and Repair Requirements:

(1) The milk tank truck and all appurtenances shall meet applicable requirements of Section 7, Item 10p-Sanitary Piping and Item 11p-Construction and Repair of Containers and Equipment, of this *Ordinance*. Equipment manufactured in conformity with 3-A Sanitary Standards, complies with sanitary design and construction requirements of this *Ordinance.*

(2) The interior of the milk tank trucks shall be constructed of smooth, non-absorbent, corrosion-resistant, non-toxic material; and it shall be maintained in good repair.

(3) The appurtenances of the milk tank truck includes aseptic samplers, if applicable, hoses, pumps and fittings, shall be constructed of smooth, non-toxic cleanable material; and shall be maintained in good repair. Where flexibility is required, the fluid transfer system shall be free draining and so supported to maintain uniform slope and alignment. They shall be easily disassembled and accessible for inspection.

(4) The cabinet portion(s) of the tank, used for the storage of appurtenances and sampling equipment, where applicable, shall be constructed to preclude contamination by dust, dirt; be clean; and in good repair.

(5) The milk tank truck dome lid assembly, vent and dust cover shall be designed to protect the tank and milk from contamination.

b. Cleaning and Sanitizing Requirements:

(1) The milk tank truck and all of its appurtenances shall be cleaned and sanitized in accordance with applicable requirements of Section 7, Item 12p-Cleaning and Sanitizing of Containers and Equipment, of this *Ordinance.*

(2) The milk tank truck shall be cleaned and sanitized prior to its first use. When the time elapsed after cleaning and sanitizing, and before its first use, exceeds ninety-six (96) hours the tank must be re-sanitized.

(3) It is allowable to pickup multiple loads continuously within a twenty-four (24) hour period, provided the milk tank truck is washed after each day's used.

4. **Exterior Condition of Tank:** The exterior of the milk tank truck is properly constructed and in good repair. Defects and damage that would adversely affect products contained in the milk tank truck are pointed out on FORM FDA 2399b-MILK TANK TRUCK INSPECTION REPORT and corrective actions are prescribed. Cleanliness of the milk tank truck exterior is evaluated with consideration for existing weather and environmental conditions.

5. **Wash and Sanitize Record:**

a. The bulk milk hauler/sampler shall be responsible for assuring that the milk tank truck has been properly cleaned and sanitized at a permitted milk plant, receiving station, transfer station, or milk tank truck cleaning facility. A milk tank truck without proper cleaning and sanitizing documentation shall not be loaded or unloaded until the proper cleaning and sanitization can be verified.

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

c. The following information shall be recorded on the cleaning and sanitization tag:
(1) Identification of the milk tank truck.
(2) Date and time (optionally, in military time (24 hour clock)) of day the milk tank truck was cleaned and sanitized.
(3) Location where the milk tank truck was cleaned and sanitized.
(4) Signature or initials of the person who cleaned and sanitized the milk tank truck.

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

e. State will submit to the NCIMS Executive Secretary an updated list of all currently permitted non-IMS listed milk tank truck cleaning facilities. The list is to be submitted for publication on the NCIMS or other easily accessible web site.

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

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

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

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

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

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

inspected at any time or at the discretion of any Regulatory Agency responsible for the milk supply.

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

The identity labeling requirement may be interpreted as permitting milk plants and persons to purchase and distribute, under their own label, milk and milk products processed and packaged at another milk plant, provided, that the label reads, "Processed at ... (name and address)", or that the processing and packaging milk plant is identified by a proper code.

MISLEADING LABELS: The Regulatory Agency shall not permit the use of any misleading marks, words or endorsements upon the label. They may permit the use of registered trade designs or similar terms on the bottle cap or label, when in their opinion, they are not misleading and are not so used as to obscure the labeling required by this *Ordinance*. For dry milk products, the outer bag must be preprinted "Grade "A" before filling. The use of super grade designations shall not be permitted. However, this should not be construed as prohibiting the use of official grade designations awarded to dry milk products by the United States Department of Agriculture (USDA). Grade designations such as “Grade "AA" Pasteurized”, “Selected Grade "A" Pasteurized”, “Special Grade "A" Pasteurized”, etc., give the consumer the impression that such a grade is significantly safer than Grade “A”. Such an implication is false, because the *Ordinance* requirements for Grade “A” pasteurized, ultra-pasteurized, or aseptically processed and packaged milk and milk products when properly enforced, will ensure that this grade of milk and milk products will be as safe as they can practically be made. Descriptive labeling terms must not be used in conjunction with the Grade “A” designation or name of the milk or milk product and must not be false or misleading.

SECTION 5. INSPECTION OF DAIRY FARMS AND MILK PLANTS

Each dairy farm, milk plant, receiving station, transfer station, milk tank truck cleaning facility whose milk or milk products are intended for consumption within ...of...[1] or it's jurisdiction, and each bulk milk hauler/sampler who collects samples of raw milk for pasteurization, for bacterial, chemical or temperature standards and hauls milk from a dairy farm to a milk plant, receiving station or transfer station and each milk tank truck and its appurtenances shall be inspected/audited by the Regulatory Agency prior to the issuance of a permit. Following the issuance of a permit, the Regulatory Agency shall:

1. Inspect each milk tank truck and its appurtenances used by a bulk milk hauler/sampler who collects samples of raw milk for pasteurization for bacterial, chemical or temperature standards and hauls milk from a dairy farm to a milk plant, receiving station or transfer station, at least once every twelve (12) months.
2. Inspect each bulk milk hauler/sampler's, dairy plant sampler's and industry plant sampler's pickup and sampling procedures at least once every twenty-four (24) months.
3. Inspect each milk plant and receiving station at least once every three (3) months, provided that, for those milk plants and receiving stations that have HACCP Systems, which are regulated under the NCIMS HACCP Program, regulatory audits shall replace the regulatory inspections described in this Section. The requirements and minimum frequencies for these regulatory audits are specified in Appendix K. Provided further, that regulatory inspections of a milk plant or portion of a milk plant that is IMS listed to produce aseptically processed and packaged milk or milk products shall be conducted by the State Regulatory Agency in accordance with this *Ordinance* at least once every six (6) months. (Refer to Appendix S.) The milk plant's APPS shall

be inspected by FDA, or the State Regulatory Agency when designated by FDA, in accordance with the applicable requirements of 21 CFR Parts 108, 110 and 113 at a frequency determined by FDA.

4. Inspect each milk tank truck cleaning facility and transfer station at least once every six (6) months, except that, for those transfer stations that have HACCP Systems, which are regulated under the NCIMS HACCP Program, regulatory audits shall replace the regulatory inspections described in this Section. The requirements and minimum frequencies for these regulatory audits are specified in Appendix K.
5. Inspect each dairy farm at least once every six (6) months.[6]

Should the violation of any requirement set forth in Section 7, or in the case of a bulk milk hauler/sampler, industry plant sampler or milk tank truck also Section 6 and Appendix B, be found to exist on an inspection/audit, a second inspection/audit shall be required after the time deemed necessary to remedy the violation, but not before three (3) days. This second inspection/audit shall be used to determine compliance with the requirements of Section 7 or in the case of a bulk milk hauler/sampler, industry plant sampler or milk tank truck also Section 6 and Appendix B. Any violation of the same requirement of Section 7, or in the case of a bulk milk hauler/sampler or milk tank truck also Section 6 and Appendix B, on such second inspection/audit, shall call for permit suspension in accordance with Section 3 and/or court action or in the case of an industry plant sampler, shall cease the collection of official regulatory samples until successfully re-trained and re-evaluated by the Regulatory Agency. Provided, that when the Regulatory Agency finds that a critical processing element violation involving:

1. Proper pasteurization, whereby every particle of milk or milk product may not have been heated to the proper temperature and held for the required time in properly designed and operated equipment;
2. A cross-connection exists whereby direct contamination of pasteurized milk or milk product is occurring; or
3. Conditions exist whereby direct contamination of pasteurized milk or milk product is occurring.

The Regulatory Agency shall take immediate action to prevent further movement of such milk or milk product until such violations of critical processing element(s) have been corrected. Should correction of such critical processing element(s) not be accomplished immediately, the Regulatory Agency shall take prompt action to suspend the permit as provided for in Section 3 of this *Ordinance.*

One (1) copy of the inspection/audit report shall be handed to the operator, or other responsible person or be posted in a conspicuous place on an inside wall of the establishment. Said inspection/audit report shall not be defaced and shall be made available to the Regulatory Agency upon request. An identical copy of the inspection/audit report shall be filed with the records of the Regulatory Agency.

The Regulatory Agency shall also make such other inspections and investigations as are necessary for the enforcement of this *Ordinance*.

Every permit holder shall, upon the request of the Regulatory Agency, permit access of officially designated persons to all parts of their establishment or facilities to determine compliance with the provisions of this *Ordinance*. A distributor or milk plant operator shall furnish the

Regulatory Agency, upon request, for official use only, a true statement of the actual quantities of milk and milk products of each grade purchased and sold, a list of all sources of such milk and milk products, records of inspections, tests and pasteurization time and temperature records.
It shall be unlawful for any person who, in an official capacity, obtains any information under the provisions of this *Ordinance*, which is entitled to protection as a trade secret, including information as to the quantity, quality, source or disposition of milk or milk products or results of inspections/audits or tests thereof, to use such information to their own advantage or to reveal it to any unauthorized person.

ADMINISTRATIVE PROCEDURES

INSPECTION FREQUENCY: For the purposes of determining the inspection frequency for dairy farms, transfer stations and milk plants or the portion of a milk plant that is IMS listed to produce aseptically processed and packaged milk or milk products, the interval shall include the designated six (6) month period plus the remaining days of the month in which the inspection is due.
For the purposes of determining the inspection frequency for all other milk plants and receiving stations the interval shall include the designated three (3) month period plus the remaining days of the month in which the inspection is due.
One (1) milk tank truck inspection every twelve (12) months; or bulk milk hauler/sampler's or industry plant sampler's pickup and sampling procedures inspection each twenty-four (24) months; or one (1) producer, transfer station, milk plants or the portion of a milk plant that is IMS listed to produce aseptically processed and packaged milk or milk products, or milk tank truck cleaning facility inspection every six (6) months; or one (1) milk plant producing pasteurized, ultra-pasteurized, condensed or dried milk and milk products or receiving station inspection every three (3) months is not a desirable frequency, it is instead a legal minimum. Bulk milk hauler/samplers, industry plant samplers, milk tank trucks, milk tank truck cleaning facilities, dairy farms, milk plants, receiving stations and transfer stations experiencing difficulty meeting requirements should be visited more frequently. Milk plants that condense and/or dry milk or milk products and which operate for a short duration of time or intermittent periods of time should also be inspected more frequently. Inspections of dairy farms shall be made at milking time as often as possible and of milk plants at different times of the day in order to ascertain if the processes of equipment assembly, sanitizing, pasteurization, cleaning and other procedures comply with the requirements of this *Ordinance*.
For the purpose of determining the minimum audit frequency for milk plants, receiving stations and transfer stations regulated under the NCIMS HACCP Program the interval shall include the remaining days of the month in which the audit is due.

ENFORCEMENT PROCEDURES: This Section provides that a dairy farm, bulk milk hauler/sampler, milk tank truck, milk tank truck cleaning facility, milk plant, receiving station, transfer station or distributor shall be subject to suspension of permit and/or court action if two (2) successive inspections disclose a violation of the same requirement.
Experience has demonstrated that strict enforcement of the *Ordinance* leads to a better and friendlier relationship between the Regulatory Agency and the milk industry than does a policy of enforcement, which seeks to excuse violations and to defer penalty thereof. The sanitarian's criterion of satisfactory compliance should be neither too lenient nor unreasonably stringent.