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Mike Beam, Secretary

Laura Kelly, Governor

TO: Kansas Dairy Producers

SUBJECT: Information Packet for New Producers

The purpose of this packet is to give prospective new Kansas Dairy producers some information concerning the construction and operation of a dairy farm in Kansas.

Included in it are the necessary applications, a sample inspection sheet, and procedures for disinfection of newly constructed wells and recommendations for the physical facilities of the dairy.

We hope that this information will be helpful to new producers in establishing their dairy operation.

If you have any other questions contact your area inspector, the association field man, or this office. The address is:

Kansas Department of Agriculture

Dairy Program

1320 Research Park Drive

Manhattan, KS 66502

Or by phone at: (785) 564-6761

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Kansas Department of Agriculture
Dairy Inspection Program
1320 Research Park Drive,
Manhattan, KS 66502

APPLICATION FOR PERMIT

GRADE A _____ MANUFACTURING GRADE _____

NEW PRODUCER _____ ASSOCIATION CHANGE _____ NAME CHANGE _____

Name of Dairy _____ Date _____

Address _____ County _____

City/State/Zip _____

Mailing Address (if different) _____

City/State/Zip _____

Contact Person _____ Title _____

Phone Number _____ E-Mail Address _____

Legal Description of Farm Location

Situated In: NW 1/4 _____ NE 1/4 _____ SW 1/4 _____ SE 1/4 _____

Farm Faces: North/South Road _____ East/West Road _____

Water Supply: Rural _____ Well _____

Milk Pick Up: Daily _____ Every other day _____ Other _____ Explain _____

Milk Sold To: _____
Name and address of milk marketing cooperative or association

Print Name

Signature

Inspector Use Only

On _____, 20_____, I have approved the above applicant's dairy farm for the production of milk in the state of Kansas.

Permit Number Assigned _____
Signature of Inspector

Kansas Department of Agriculture
Dairy Inspection Program
1320 Research Park Dr
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APPLICATION FOR INSTALLATION OF

- A. FARM BULK TANK
- B. PIPELINE AND/OR ACCESSORIES
- C. DAIRY CONSTRUCTION

NOTE: Draw Plans for A, B, C
all (3) on Reverse Side.
WATER: Rural Well

PRODUCER NAME _____
ADDRESS _____
STATE PERMIT No. _____ FARM LOCATION _____
SELLING MILK TO _____ LOCATION _____
(Association or Plant)

A. FARM BULK TANK

DEALER _____
MANUFACTURER ADDRESS _____

TYPE OF TANK Direct Expansion Model _____ Bulkhead
 Model Ice Bank Size _____ Gallons
 Every Day Pickup
 Every Other Day Pickup

Refrigeration Capacity (H.P.) _____

B. PIPELINE AND/OR ACCESSORIES

DEALER _____
MANUFACTURER ADDRESS _____

Type of Construction Glass Stainless Steel Other
Size of Pipeline (i.d.) _____ Size of Hot Water Heater _____ Gallons
System of Cleaning (CIP) Vacuum Gravity Vacuum Recirculation
 Centrifugal Pressure Recirculation

Size of Line Washer _____

C. DAIRY CONSTRUCTION

Type of Construction New Remodeling
 Frame Masonry Other _____

- Proposed Building is a Separate Unit
- Proposed Building is Part of an Existing Unit

NOTE: Application must be approved by the milk inspector before installation is begun. Any alteration to this application must also be approved. Two (2) copies must be filled out. One (1) copy will be returned after approval.

(Signature of Producer)

Application Approval _____ By _____
Final Installation Approval _____ By _____

POLICIES GOVERNING CONSTRUCTION AND OPERATION OF GRADE A DAIRY FARM FACILITIES IN KANSAS

As Adopted by the Kansas Department of Agriculture Dairy Inspection Program

I. GENERAL REQUIREMENTS

Suitable plans for new construction or remodeling of milk rooms and/or barns and the installation of equipment must be submitted to the regulatory agency and approved before starting construction. The plans do not need to be blueprints, however a sketch close to scale is required.

A. Location of Dairy Facility

1. Must be accessible to all-weather drive or road. Facility shall be located whereas to provide easy access for collection truck.
2. Shall be fenced so loading area is not accessible to livestock or domestic fowl.
3. All floors shall be at least 12 inches above ground level and the surrounding terrain shall slope away from the dairy facility.

B. Water Supply

1. Shall be constructed in accordance with the current edition of Grade A Pasteurized Milk Ordinance.
2. Shall be of safe, sanitary, quality, and adequate quantity to complete necessary dairy operations.
3. If using a water source other than rural/town water, a satisfactory water sample shall be collected prior to start up.

C. Sewage System

1. Constructed and operated in accordance with the current edition of the Grade A Pasteurized Milk Ordinance and the Kansas Department of Health and Environment regulations.
2. Percolation tests are recommended for absorption fields.

D. Toilets

1. Facilities must comply with the National Plumbing Code Standards.
2. Whenever a dairy facility is not an integral part of the farmstead or if hired help is employed, a convenient toilet must be provided.
3. Flush toilet rooms must be screened and provided with a tight self-closing door and adequate ventilation.
4. Approved chemical toilets may be used.

E. Manure Disposal

1. Manure storage and manure lagoons must be inaccessible to livestock at all times.
2. Liquid manure disposal facilities shall be designated in accordance with the current requirements of the PMO and the Kansas Department of Health and Environment regulations.
3. Manure lagoons are to be designated in accordance with the requirements of the Kansas Department of Health and Environment.

II. MILK ROOM REQUIREMENTS

A. Size

1. The milk room must be sized to provide at least the minimum distances around the bulk tank. Bulk tank shall be located in the milk room so as to provide the following clearances:
 - a) Working side:
at least 36" from wall or other equipment

- b) Outlet Valve end:
at least 36" from wall or other equipment
- c) Rear and sides:
at least 24" from wall or other equipment

B. Floors

1. Floors must be constructed of reinforced concrete or other impervious material.
2. Floors must be properly sloped to approved trapped drains to provide complete drainage. It is recommended that a minimum slope of 1/8" per foot is to be used.
3. Floors shall be covered or rounded to wall. [Feather cove to wall or finished off at 45 degrees at top of cove. Radius of rounded cove should be two (2) inches at floor to wall junction.]

C. Floor Drains

1. Must be bell or under floor trap. (P trap)
2. A minimum of two drains per milk house shall be provided. [One located under the wash vat and the other at least three (3) feet from the tank outlet valve.]
3. Access to drains shall not be obstructed by the placing of other equipment.
4. Drain lines must be copper, cast iron, vitrified tile, or other approved material.
5. Drains under driveways must be protected to prevent line breakage.
6. Milk room and milking barn drains may share a common or single drain line or may be joined at a junction box or sump outside the building.
7. Drains shall terminate outside of cow yard into a lagoon, or surface in a manner that will prevent a nuisance.
8. Wash vats and hand washing lavatories shall be trapped and plumbed to drains.

D. Walls and Ceilings

1. Must be of acceptable materials.
2. Must be finished with a light colored, smooth, surface impervious to moisture and insulated adequately.
3. A minimum ceiling height of eight (8) feet is required. [Adequate height for clearance of bulk tank lids and the removal of measuring sticks shall be provided.]
4. Properly sloping windowsills and ledges are recommended.

E. Lighting

1. Where windows are to be used as a source of natural light, they shall be evenly spaced and combined with adequate artificial light.
2. Artificial light [minimum of 20-foot candles] shall be provided for the interior of the bulk tank and for cleaning purposes.

A 150-watt Par-38 flood lamp at each opening of the bulk tank [but not over opening of tank] and a 100-watt bulb in the area of the wash vat [but not directly over the vat] will provide the necessary illumination. This lighting must be protected with shatterproof covers or shatterproof bulbs shall be utilized.

F. Ventilation

1. Adequate natural ventilation is acceptable where the milk room is kept free of condensation and odors, and there shall be at least one (1) square inch of ventilator opening for each square foot of floor space. A tight flue must be provided to extend from the ceiling opening to the ventilator on the roof. When metal is used for the flue, it is required that the ventilator flue be insulated in order to improve ventilation and decrease condensation of moisture in the flue. Windows should be hinged at the bottom or sides or conveniently arranged to allow easy opening to handle cross-

ventilation. Ventilators shall not be directly over the bulk tank.

2. Forced ventilation shall be capable of twelve (12) air changes per hour and provided with a thermostat and percentage timer control. An air inlet to provide for efficient operation of fan must be provided.
3. Proper venting of heating equipment and water heater, including combustion air, must be provided.

G. Heating

1. A temperature of at least 40 degrees Fahrenheit is required in the milk house to prevent freezing.
2. Fuel, oil, kerosene, or other fuels must not be stored in the milk room.

H. Screening

1. All windows and ventilation openings in the milk room must be screened with at least 16 mesh per inch wire. Screen must be removable for cleaning and must be kept clean. Outside doors to the milk house shall be self-closing.

I. Water Supply

1. Hot and cold water under pressure shall be available with at least three (3) outlets. [One for wash vat, one for bulk tank washing, and one for hand washing]
2. Hot water supply must be adequate for udder washing and cleaning equipment.
3. Water heater should not be placed directly on the milk house floor.

J. Miscellaneous

1. Wash and rinse vats must be of stainless steel or equally corrosion resistant material which is non-toxic and non-absorbent.
2. Permanent hand washing facilities must be located in the milk room convenient to the operator and bulk milk hauler.
3. Compressors shall be located in a protected area to keep it warm in winter and cool in summer. Remote compressors shall not be installed in milk house.
4. Shelves or racks of impervious surface must be provided for properly storing equipment and chemicals used in the milking operation.
5. Loading platforms are required and must be constructed of reinforced concrete or other impervious material at least 24 square feet in size with a minimum width of two (2)
6. feet on each side of the hose port and graded to drain away from the milk house.
7. A fixed, properly encased opening not less than six (6) inches above the floor of the milk house or the outside loading platform, whichever is higher, shall be provided in an exterior wall of the milk house to accommodate the milk conductor tubing used to pump the milk from the farm tank to the truck tank. Such openings shall be convenient to milk tank and be not less than six (6) inches or more than eight (8) inches in size and shall be provided with a fly-tight, self-closing device. On all new or existing milk houses, and where necessary, sidewalks shall be provided from hose port to milk house door.
8. A concrete slab with adequate reinforced footing is required under bulkhead farm bulk tank.

III. MILK BARN REQUIREMENTS

A. Floors

1. The same construction as specified for the milk room is required except a broom finish is suggested in the animal traffic area.
2. Floor should be properly sloped to drain at $\frac{1}{4}$ " per square foot or more.
3. Floor drains [including pits] shall be at least six (6) inches in diameter.
4. Parlor pits shall be six (6) feet wide at the narrowest point.

5. If milk pumps are installed in parlor, adequate space that will permit convenient cleaning around the receivers and pump shall be provided. Such equipment shall be installed at least six (6) inches above the floor.
6. It is required that an outside vent, sump, lagoon, or traps be used on platform or pit floor drains. The minimum size for this sump, if used, should be four (4) feet by four (4) feet. The sump cover may be of concrete, metal, or treated wood. If a lagoon is utilized, a vent or trap must be provided.
7. At least one six (6) inch floor drain is required in the milking area. [Preferably near the wall closest to the animal entrance to assist in ease of cleaning]
8. Hopper type drains are required so that materials or solids will not clog in corners. This will eliminate square corners in collection boxes. Drains should be four (4) inches below floor surface.
9. Floor drains must be trapped when joining milk room drains.

B. Walls and Ceilings

1. The construction must be of the same general type as required in the milk room.
2. A minimum ceiling height of seven (7) feet above parlor elevations is required.
3. Must be finished with a light colored, smooth surface impervious to moisture and insulated adequately.
4. Overhead feed storage shall not be permitted.

C. Lighting

1. Natural and/or artificial light is required and must be at least ten (10) foot candles in all working areas. A minimum of two (2) continuous rows or single tube fluorescent lamps or their equivalent should be provided above the operator's alley.

D. Ventilation

1. Adequate natural ventilation is acceptable where the milking barn is free of condensation and odors, and there shall be at least one (1) square inch of ventilator opening for each square foot of floor space. A tight flue must be provided to extend from the ceiling opening to the ventilator on the roof. When metal is used for the flue, it is required that the ventilator flue be insulated in order to improve ventilation and decrease condensation of moisture in the flue. Windows should be hinged at the bottom or sides or conveniently arranged to allow easy opening to handle cross-ventilation.
2. Forced ventilation shall be capable of twelve (12) air changes per hour and provided with thermostat and percentage timer control. An air inlet to provide for efficient operation of fan must be provided.

E. Water

1. Hot and cold running water is required. It is recommended that a mixing tee or tees and spray nozzles be provided as necessary for udder washing with hoses that will reach each milk stall without lying on the floor when not in use.
2. All high-pressure pumps connected to approved source of water shall be equipped with approved vacuum breakers or other anti-siphon devices.

IV. COW YARD AND HOUSING

A. Holding Area

1. Holding area shall be concrete and sloped with a grade away from the barn.
2. A six (6) inch curb of concrete or treated wood shall be constructed around the outer perimeter.
3. There shall be no pooling at lower elevations of holding area.

B. Cow Yards

1. Shall be drained, of sufficient size, and easily cleanable.
2. Feed managers, and approved watering facilities in confined yards shall be provided with adequate concrete surrounding such facilities.

C. Housing

1. If free stalls are used, they shall be of adequate size and constructed to facilitate cleaning and proper maintenance.

V. ANIMAL WASTE CONTROL

A. Wastes

1. Animal wastes shall be contained on the property.
2. Storage shall be proper and large enough to contain all manure and liquid wastes during such time as spreading on ground or other means of disposal shall be impractical.

STANDARDS FOR WATER SOURCES

I. Location of Water Sources

DISTANCE FROM SOURCES OF CONTAMINATION

All ground water sources should be located a safe distance from sources of contamination. After a decision has been made to locate a water source in an area, it is necessary to determine the distance the source should be placed from the origin of contamination and the direction of water movement.

Because many factors affect the determination of "safe" distance, the distance should be the maximum that economics, land ownership, geology, and topography will permit. It should be noted that the direction of ground water flow does not always follow the slope of the land surface.

Since safety of a ground water source depends primarily on considerations of good well construction and geology, these factors should be guides in determining safe distances for different situations. The criteria apply only to properly constructed wells. There is not a safe distance for a poorly constructed well.

When a properly constructed well penetrates an unconsolidated formation with good filtering properties, and when the aquifer itself is separated from sources of contamination by similar materials, research and experience have demonstrated that 50 feet is an adequate distance separating the two. Lesser distances should be accepted only after a comprehensive sanitary survey, conducted by qualified State or local health agency officials, has satisfied the officials that such lesser distances are both necessary and safe.

II. Construction

SANITARY CONSTRUCTION OF WELLS

The penetration of a water-bearing formation by a well provides a direct route for possible contamination of the ground water. Although there are different types of wells and well construction, there are basic sanitary aspects that must be considered and followed.

Well Casing of Lining

The casing of every well shall terminate above the ground level; the annular space outside the casing shall be filled with a watertight cement grout or clay with similar sealing properties from the surface to a minimum of 10 feet below the ground surface.

Well Covers and Seals

Every well shall be provided with an overlapping, tight-fitting cover at the top of the casing or pipe sleeve to prevent contaminated water or other material from entering the well.

The sanitary well seal, in a well exposed to possible flooding, shall be either watertight or elevated at least 2 feet above the highest known flood level.

A well slap alone is not an effective sanitary defense, since it can be undermined by burrowing animals and insects, cracked from settlement or frost heave, or broken by vehicles and vibrating machinery. The cement grout formation is far more effective.

Well covers and pump platforms shall be elevated above the adjacent finished ground level. Pump room floors shall be constructed of reinforced, watertight concrete and carefully leveled and sloped away from the well so that surface and waste water cannot stand near the well. The minimum thickness of such a slab of floor shall be 4 inches. Concrete slabs or floors shall be poured separately from the cement formation seal.

All water wells shall be readily accessible at the top for inspection, servicing, and testing. This requires that any structure over the well be easily removable to provide full, unobstructed access for well-servicing equipment.

Well Pits and Drainage

Because of the pollution hazards involved, the well head, well casing, pump, pumping machinery, valve connected with the suction pump, or exposed suction pipe shall not be permitted in any pit, room, or space extending below ground level, or in any room or space above the ground which is walled-in or otherwise enclosed so that it does not have free drainage by gravity to the surface of the ground. Provided that pumping equipment and appurtenances may be located in a residential basement which is not subject to flooding.

Vent Opening

Any reservoir, well, tank, or other structure containing water for the dairy water supply may be provided with vents, over-flows, or water-level control gauges, which shall be so constructed as to prevent the entrance of birds, insects, dust, rodents, or contaminating material of any kind. Openings on vents shall be not less than 18 inches above the floor of a pump room, or above the roof or cover of a reservoir. Vent openings on their structures shall be at least 18 inches above the surface on which the vents are located. Vent openings shall be turned down and screened with corrosion-resistant screen of not less than 16 x 20 mesh.

DISINFECTION OF WELLS

Newly constructed and reconstructed wells are likely to be contaminated during construction and should be decontaminated before being used. An effective and economical method for disinfecting water wells is through the use of a chlorine solution. Sodium hypochlorite (common household bleach) is recommended for this purpose. This chemical can be purchased in 5 ½ % solutions at most local grocery stores which is the recommended dosage for disinfection of old wells and/or reconstructed wells. For disinfecting new wells, a dosage of one gallon of laundry bleach for 500 gallons of well water is recommended.

In order to determine how much laundry bleach will be needed for disinfecting a well, it is necessary that the quantity of water in the well be estimated as accurately as is practicable. The following table shows the quantity of water that is present in wells of various diameters per foot of water depth.

Diameter of Well	Gallons of Water for every foot of water depth	Diameter of Well	Gallons of Water for every foot of water depth
4 inches	0.7	18 inches	13.2
6 inches	1.5	24 inches	23.5
8 inches	2.6	30 inches	36.7
10 inches	4.0	3 feet	53.0
12 inches	6.0	4 feet	94.0

The above quantities in gallons should be multiplied by the depth of the water in feet in to give the amount of water in the well. Example: A well 12 inches in diameter having a water depth of 20 feet would contain 20 x 6 or 120 gallons. (1 gallon of Bleach to 500 gallons of water.)

When the quantity of laundry bleach required to disinfect the well is less than 5 gallons, the laundry bleach should be mixed with 5 gallons of water and then the diluted solution poured into the well. When disinfecting a well it is desirable to have the chlorine solution thoroughly mixed with the water in the well. This mixing can be accomplished by using a rubber or plastic hose. The hose is raised and lowered so the chlorine solution enters the water at all levels from the top of the water to the bottom. Immediately following the placing of the chlorine solution in the well, the pump should be operated until the water discharging from the pump has a distinct chlorine odor or the if the well is equipped with a pressure pump and connected to a plumbing system, the pump should be operated until a distinct chlorine odor is present in the water coming from all faucets of the plumbing system beginning with faucets nearest the pump. The pump should then be shut off and no water withdrawn from the system for 12 hours, after which time the faucets should be opened and water run to waste until the chlorine odor disappears.