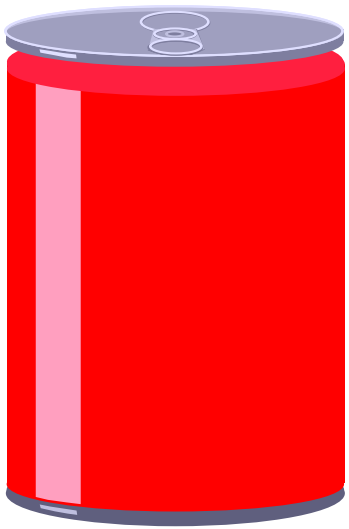
REGULATORY CONCERNS

WI Department of Agriculture

Logistics



Topics

- Application
- AMI
- Water/Plumbing/Well
- Facility Standards
- Equipment Concerns
- Direct Ship
- 2010 Installers Manual

Presenters

- Dale Osuldsen
- Glenn A. Goldschmidt
- Tom Keel
- Thomas Starich
- Lee Larsen
- Steve Stoner

Standards

ANSI/ASABE AD5707:2007 JAN2011
Approved February 2011 as an American National Standard

Milking machine installations—Construction and performance

Standards

ANSI/ASABE AD20966:2007 JAN2011
Approved February 2011 as an American national Standard

Automatic milking installations — Requirements and testing

Standards

ANSI/ASABE AD6690:2007 JAN2011
Approved February 2011 as an American National Standard

Milking machine installations — Mechanical tests

Program Differences

FDA

- Washer/Dryer **not** allowed in milkhouse
- Calf pasteurizers allowed in parlor

WDA

- Washer/Dryer allowed in milkhouse or parlor
- Calf pasteurizers **not** allowed in parlor or milkhouse

Application Process

F-fd-31 (Rev 02/10)

Wisconsin Department of Agriculture, Trade and Consumer Protection Division of Food Safety

Application for Milk Handling Equipment and Facility Construction

Mail To: WDATCP 3610 Oakwood Hills Parkway, Eau Claire WI 54701
Make Checks Payable To: WDATCP

- Wisconsin regulations requires the installer, on behalf of the producer, to submit a plan for review prior to installation of a bulk tank or milking and milk handling system OR construction of or modification to a milkhouse, milking parlor or dairy farm water system.
- Only plans that are complete and legible will be reviewed.
- The fee of **$25** must accompany this form or plans will be returned for milking and milk handling systems.
- The review of your plan and /or application is based on Wisconsin regulations and standards in effect at this time.
- Modification of this installation may be required at some future date as regulations and standards are updated.

MILKING ANIMAL

	COW		GOAT		SHEEP		OTHER

EQUIPMENT INSTALLATION

	NEW		MODIFICATION

TYPE OF EQUIMENT

	BULK TANK		RECOOLER
	PIPELINE MILKER		SILO
	DIRECT TANKER** **= (Requires Supplementary Application)		
	ROBOTIC MILKING INSTALLATION (AMI)**		
	Other – explain		

NOTE: Immediately after installing or modifying any system listed above, the installer shall provide to the milk producer and the department a signed written statement certifying compliance with the construction standards of ATCP 60, Wisconsin Administrative Code.

FACILITY CONSTRUCTION

	NEW		MODIFICATION

TYPE OF FACILITY

	STANCHION BARN		MILKING PARLOR
	SWING PARLOR		FLAT BARN PARLOR
	OPEN AIR PARLOR		MILKHOUSE
	WATER SUPPLY SYSTEM		

Please Print Clearly and Check Spelling

INSTALLER INFORMATION

NAME		
MAILING ADDRESS		
CITY	STATE ZIP	
PHONE #		
INSTALLER'S SIGNATURE	DATE	

DAIRY PLANT INFORMATION

DAIRY PLANT NAME		
PLANT LOCATION	PLANT NO	PATRON NO

PRODUCER INFORMATION

NAME		
DBA(FARM NAME)		
MAILING ADDRESS		
CITY STATE		ZIP
COUNTY NAME & #	TOWNSHIP NAME & #	SECTION #
PHONE NUMBER		
PRODUCER'S SIGNATURE	DATE	

WDATCP USE ONLY

PAYMENT RECEIVED 129-68-7000	
REVIEWER	DATE
REV COMMENTS	DATE STAMP

Continue on Reverse Side

INSTRUCTIONS

- Complete all blanks applicable to this installation
- This application must be accompanied by a detailed legible drawing of the milking system and water distribution system showing the following **items, when present:**

1. Bulk Milk Tank	5. Floor Drain	9. Receiver Group	13. Filter	17. Pressure Tank
2. Double Wash Vats	6. High Point	10. Weigh Jars	14. Vacuum Pump	18. Reclaimed Water Tank
3. CIP Pipeline Vat	7. Vacuum Test Port	11. Pipeline Inspection Port	15. Wash Flow	19. Backflow Prevention Device
4. Hand Wash Sink	8. Air Injector	12. Milk Precooler	16. Wash Manifold	20. Air Gap Connection

FABRICATION OF MILKING SYSTEM

A. MILKLINE

1.Material(s)	7. Percent slope ☐ .8% (1 inch/10 feet)
2.Diameter	☐ 1.0% (1¼ inch/10 feet) ☐ 1.2% (1½ inch/10 feet)
3.Length	☐ 1.5% (2 inch/10 feet ☐ 2.0% (2½ inch/10 feet)
4.WELDED ☐ GASKETED ☐	8. HIGH LINE ☐ LOW LINE ☐
5.Number of Units	9. Max. Height from **Cow Platform**
6.Max. Units Per Slope	10. Units Washed in PARLOR ☐ MILKHOUSE ☐

B. MILK RECEIVER

1. Number of Receiver Inlets _____ 2. Size of Receiver Milk Inlet(s) _____ 3. Size of Receiver Vacuum Inlet _____
4. Located in a Pit? YES ☐ NO ☐ 5. Located in a Mini-Milkhouse? **YES** ☐ NO ☐

C. OTHER SYSTEM COMPONENTS WITH VACUUM REQUIREMENTS (FILL IN THOSE THAT APPLY)

ITEM	QUANTITY	ADDITIONAL VACUUM REQUIREMENTS

D. VAC UUM SYSTEM

1. Main Airline Material _____ Diameter _____ Length _____
2. Pulsator Line Material _____ Diameter _____ Length _____
3. Automatic Drains in Pulsator Lines YES ☐ NO ☐
4. Vacuum Pump(s) Brand _____ Model(s) _____ Motor hp _____
5. Total Vac Pump Capacity _____ CFM/ASME at Normal Operating Level of _____ in. Hg.
6. Vacuum Regulator Brand _____ Model _____
7. Other (specify)_____

E. MILK COOLING AND STORAGE SYSTEM

1. Pre-Cooler Plate ☐ Tube ☐ Other _____
   Number of sections in plate cooler _____ Does each section freely drain? Yes ☐ NO ☐
   Coolant: Well water single use ONLY ☐ Recirculted water ☐ Recirculated glycol ☐
   Type of coolant preservative used _____
2. Bulk Milk Tank or silo Brand _____ Model _____ Capacity _____ Date of Manufacture _____
   Bulk Milk Tank or silo Brand _____ Model _____ Capacity _____ Date of Manufacture _____
   Bulk tank temperature recorder provided? (Required on tanks manufactured after 1/1/2000) Type: Chart _____ Computer ____
3. Type of cleaning MANUALLY CLEANED ☐ CIP ☐
4. Distances from bulk milk tank to walls, ceiling and equipment provided on plan? YES ☐ NO ☐
5. Direct Ship operations requires a supplemental application

F. WATER HEATING EQUIPMENT

1. Water heating system **adequate** for all milking operations YES ☐ NO ☐ Capacity: _____ Gallons
2. On Demand or continuous flow hot water systems. (Attach total hot water usage requirements and system capacity information)

G. PHYSICAL SEPARATION OF WASH SYSTEM LINES FROM:

1. Milking System During Milking YES ☐ 2. Milk Tank During Milk Storage YES ☐

H. FACILITY CONSTRUCTION FINISH SCHEDULES

1. Complete wall, floor, ceiling and lighting schedule provided for new facility construction or modification? YES ☐ NO ☐
2. Has a sanitary waste permit been applied for? YES ☐ NO ☐

F-66-31 (Rev 02/10)

Wisconsin Department of Agriculture, Trade and Consumer Protection Division of Food Safety

Application for Milk Handling Equipment and Facility Construction

Mail To: WDATCP 3610 Oakwood Hills Parkway, Eau Claire WI 54701
Make Checks Payable To: WDATCP

- Wisconsin regulations requires the installer, on behalf of the producer, to submit a plan for review prior to installation of a bulk tank or milking and milk handling system **OR** construction of or modification to a milkhouse, milking parlor or dairy farm water system.
- Only plans that are complete and legible will be reviewed.
- The fee of **$25** must accompany this form or plans will be returned for milking and milk handling systems.
- The review of your plan and /or application is based on Wisconsin regulations and standards in effect at this time.
- Modification of this installation may be required at some future date as regulations and standards are updated.

Please Print Clearly and Check Spelling

INSTALLER INFORMATION

NAME		
MAILING ADDRESS		
CITY	STATE ZIP	
PHONE #		
INSTALLER'S SIGNATURE	DATE	

DAIRY PLANT INFORMATION

DAIRY PLANT NAME		
PLANT LOCATION	PLANT NO	PATRON NO

PRODUCER INFORMATION

NAME		
DBA(FARM NAME)		
MAILING ADDRESS		
CITY STATE		ZIP
COUNTY NAME & #	TOWNSHIP NAME & #	SECTION #
PHONE NUMBER		
PRODUCER'S SIGNATURE	DATE	

WDATCP USE ONLY

PAYMENT RECEIVED 129-68-7000

MILKING ANIMAL

	COW		GOAT		SHEEP		OTHER

EQUIPMENT INSTALLATION

	NEW		MODIFICATION

TYPE OF EQUIMENT

	BULK TANK		RECOOLER
	PIPELINE MILKER		SILO
	DIRECT TANKER** **= (Requires Supplementary Application)		
	ROBOTIC MILKING INSTALLATION (AMI)**		
	Other – explain		

NOTE: Immediately after installing or modifying any system listed above, the installer shall provide to the milk producer and the department a signed written statement certifying compliance with the construction standards of ATCP 60, Wisconsin Administrative Code

FACILITY CONSTRUCTION

	NEW		MODIFICATI

TYPE OF FACILITY

	STANCHION BARN		MILKING PAR
	SWING PARLOR		FLAT BARN F
	OPEN AIR PARLOR		MILKHOUSE
	WATER SUPPLY SYSTEM		

MILKING ANIMAL

	COW		GOAT		SHEEP		OTHER

EQUIPMENT INSTALLATION

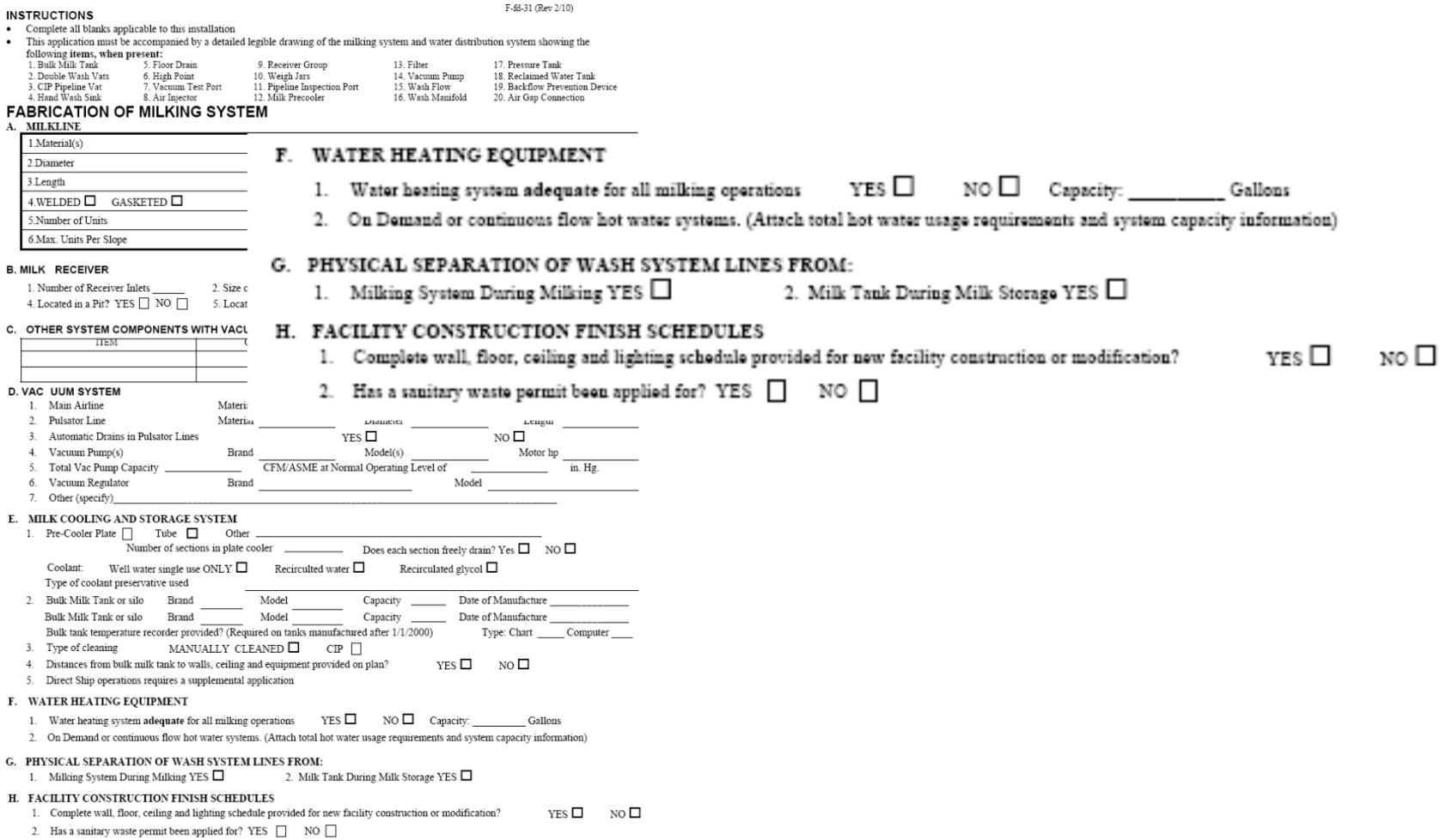
	NEW		MODIFICATION

TYPE OF EQUIMENT

	BULK TANK		RECOOLER
	PIPELINE MILKER		SILO
	DIRECT TANKER** **= (Requires Supplementary Application)		
	ROBOTIC MILKING INSTALLATION (AMI)**		
	Other – explain		

Required Information:

- Alternative Hot Water Heating
- Sanitary Permit



F-fd-31 (Rev 2/10)

INSTRUCTIONS

- Complete all blanks applicable to this installation
- This application must be accompanied by a detailed legible drawing of the milking system and water distribution system showing the following **items, when present:**

1. Bulk Milk Tank	5. Floor Drain	9. Receiver Group	13. Filter	17. Pressure Tank
2. Double Wash Vats	6. High Point	10. Weigh Jars	14. Vacuum Pump	18. Reclaimed Water Tank
3. CIP Pipeline Vat	7. Vacuum Test Port	11. Pipeline Inspection Port	15. Wash Flow	19. Backflow Prevention Device
4. Hand Wash Sink	8. Air Injector	12. Milk Precooler	16. Wash Manifold	20. Air Gap Connection

FABRICATION OF MILKING SYSTEM

A. MILKLINE

1.Material(s)
2.Diameter
3.Length
4.WELDED ☐ GASKETED ☐
5.Number of Units
6.Max. Units Per Slope

B. MILK RECEIVER

1. Number of Receiver Inlets _____ 2. Size c
4. Located in a Pit? YES ☐ NO ☐ 5. Locat

C. OTHER SYSTEM COMPONENTS WITH VACU

ITEM	

D. VAC UUM SYSTEM

1. Main Airline Materi
2. Pulsator Line Materia _____ Diameter _____ Length _____
3. Automatic Drains in Pulsator Lines YES ☐ NO ☐
4. Vacuum Pump(s) Brand _____ Model(s) _____ Motor hp _____
5. Total Vac Pump Capacity _____ CFM/ASME at Normal Operating Level of _____ in. Hg.
6. Vacuum Regulator Brand _____ Model _____
7. Other (specify)_____

E. MILK COOLING AND STORAGE SYSTEM

1. Pre-Cooler Plate ☐ Tube ☐ Other _____
   Number of sections in plate cooler _____ Does each section freely drain? Yes ☐ NO ☐
   Coolant: Well water single use ONLY ☐ Recirculted water ☐ Recirculated glycol ☐
   Type of coolant preservative used _____
2. Bulk Milk Tank or silo Brand _____ Model _____ Capacity _____ Date of Manufacture _____
   Bulk Milk Tank or silo Brand _____ Model _____ Capacity _____ Date of Manufacture _____
   Bulk tank temperature recorder provided? (Required on tanks manufactured after 1/1/2000) Type: Chart ____ Computer ___
3. Type of cleaning MANUALLY CLEANED ☐ CIP ☐
4. Distances from bulk milk tank to walls, ceiling and equipment provided on plan? YES ☐ NO ☐
5. Direct Ship operations requires a supplemental application

F. WATER HEATING EQUIPMENT

1. Water heating system **adequate** for all milking operations YES ☐ NO ☐ Capacity: _____ Gallons
2. On Demand or continuous flow hot water systems. (Attach total hot water usage requirements and system capacity information)

G. PHYSICAL SEPARATION OF WASH SYSTEM LINES FROM:

1. Milking System During Milking YES ☐ 2. Milk Tank During Milk Storage YES ☐

H. FACILITY CONSTRUCTION FINISH SCHEDULES

1. Complete wall, floor, ceiling and lighting schedule provided for new facility construction or modification? YES ☐ NO ☐
2. Has a sanitary waste permit been applied for? YES ☐ NO ☐

F. WATER HEATING EQUIPMENT

1. Water heating system **adequate** for all milking operations YES ☐ NO ☐ Capacity: _____ Gallons
2. On Demand or continuous flow hot water systems. (Attach total hot water usage requirements and system capacity information)

G. PHYSICAL SEPARATION OF WASH SYSTEM LINES FROM:

1. Milking System During Milking YES ☐ 2. Milk Tank During Milk Storage YES ☐

H. FACILITY CONSTRUCTION FINISH SCHEDULES

1. Complete wall, floor, ceiling and lighting schedule provided for new facility construction or modification? YES ☐ NO ☐
2. Has a sanitary waste permit been applied for? YES ☐ NO ☐

DRAFT F-FD-258 (Rev 03/08)

Wisconsin Dept. of Agriculture, Trade & Consumer Protection
Division of Food Safety

Supplemental Application for Direct Tanker Milking Operations

Please Mail To: WDATCP P.O. Box 8911 Madison, WI 53708-8911

- The Department requires the installer, on behalf of the milk producer, to submit this supplemental application whenever a mobile tanker will be used to store milk on the farm.
- This form must be submitted in conjunction with the "Application for Milk Handling Equipment", (F-FD-31).
- Only plans that are complete and legible will be reviewed.
- Coordinate the completion of this form between the installer, producer, milk hauler, and dairy plant to assure accurate information is provided.
- Refer to F-fd-71 "Direct Tanker Shipping from the Farm Requirements" document for guidance.
- The review of your plan and /or application is based on Wisconsin regulations and standards in effect at this time.
- Modification of this installation may be required at some future date as regulations and standards are updated.

Please Print Clearly and Check Spelling

INSTRUCTIONS

Complete all blanks applicable to this installation. This application must be accompanied by a detailed legible drawing of all the components pertaining to the Direct Ship. Use the numbers below and the numbers from the "Application for Milk Handling Equipment and Facility Construction" F-fd-31 to identify all components.

21. Cooling Media Sample Port	27. Sanitizing Station
22. Tanker Valve Drip Pan	28. Check Valve(s)
23. Indicating Thermometer	29. Milk Transfer Hose(s)
24. Recording Thermometer Probe	30. Drip Sampler
25. Recording Device	31. Milk Line Air Blow Fitting
26. Tanker Dock Seal(s)	32. Hard Surfaced Tanker Pad

PRODUCER INFORMATION

NAME:	
DBA (FARM NAME)	DATE:

PART I - EXTERIOR CONDITIONS

Tanker Parking Surface (check one)
☐ Concrete ☐ Asphalt ☐ Other

Extends Under Full Length Of Tanker
☐ Yes ☐ No Explain:

Surface Sloped to Drain
☐ Yes ☐ No Explain:

Tanker Connection to Milkhouse
☐ Dock Seal ☐ Hose Port ☐ Enclosed Intake
☐ Other Explain:

PART J - TANKERS(s)

Direct Tanker Equipment Installation (check one)
Type of tanker used
☐ Over the Road ☐ Hose Cabinet

Who Owns the Milk Tanker(s)
☐ Dairy Plant ☐ Producer ☐ Hauler

Provide Milk Tanker License Numbers(s)

1		2	
3		4	
5		6	

Tankers(s) Meet 3A Sanitary Construction Standards
☐ Yes ☐ No

Tanker Modified to Fit Tight To Milkhouse
☐ Yes ☐ No

Tanker Access Ports Sealable
☐ Yes ☐ No

Continue on Reverse Side

PART K - INTERMEDIATE COOLING

Milk Cooling Method
☐ Heat Exchanger ☐ Bulk Tank
Provide All Pertinent Information in Section E of Application for Milk Handling Equipment and Facility Construction F-fd 31
Temperature Monitoring
☐ Chart ☐ Electronic
Enclose copy of the chart or chart specifications.

PART L - FARM PROCEDURES

_____ **How Many Milkings to Fill Tanker**

_____hrs. **How Long Will Tanker Remain On Farm**

Where Is the Point Of Sale for the Milk
☐ The Farm ☐ The Dairy Plant

Is the Milking System Cleaned After Every Use
☐ Yes ☐ No

Transfer Hose, Check Valve, Exposed Interior Portion of Tanker Valve, Washed & Sanitized After Each Milking
☐ Yes ☐ No

Hoses and Fittings of Sanitary Design for Clean in Place, No Barbed Fittings with Hose Clamps.

PART M – WEIGHING & SAMPLING OF THE MILK

Performed By a Licensed Weigher & Sampler
☐ Yes ☐ No

Department Approved Facility for Receipt of Direct Shipped Tankers
☐ Yes ☐ No

Milk Agitation Location
☐ Tanker ☐ Storage/Silo
(May Not Be Commingled With Other Milk)

Method of Milk Agitation
☐ Mechanical ☐ Air ☐ Other

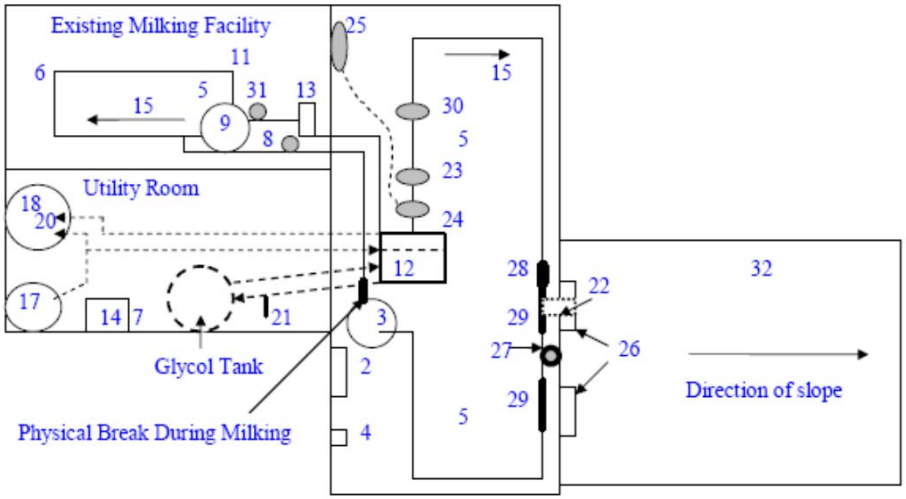
Location of Official Sampling
☐ Farm ☐ Dairy Plant

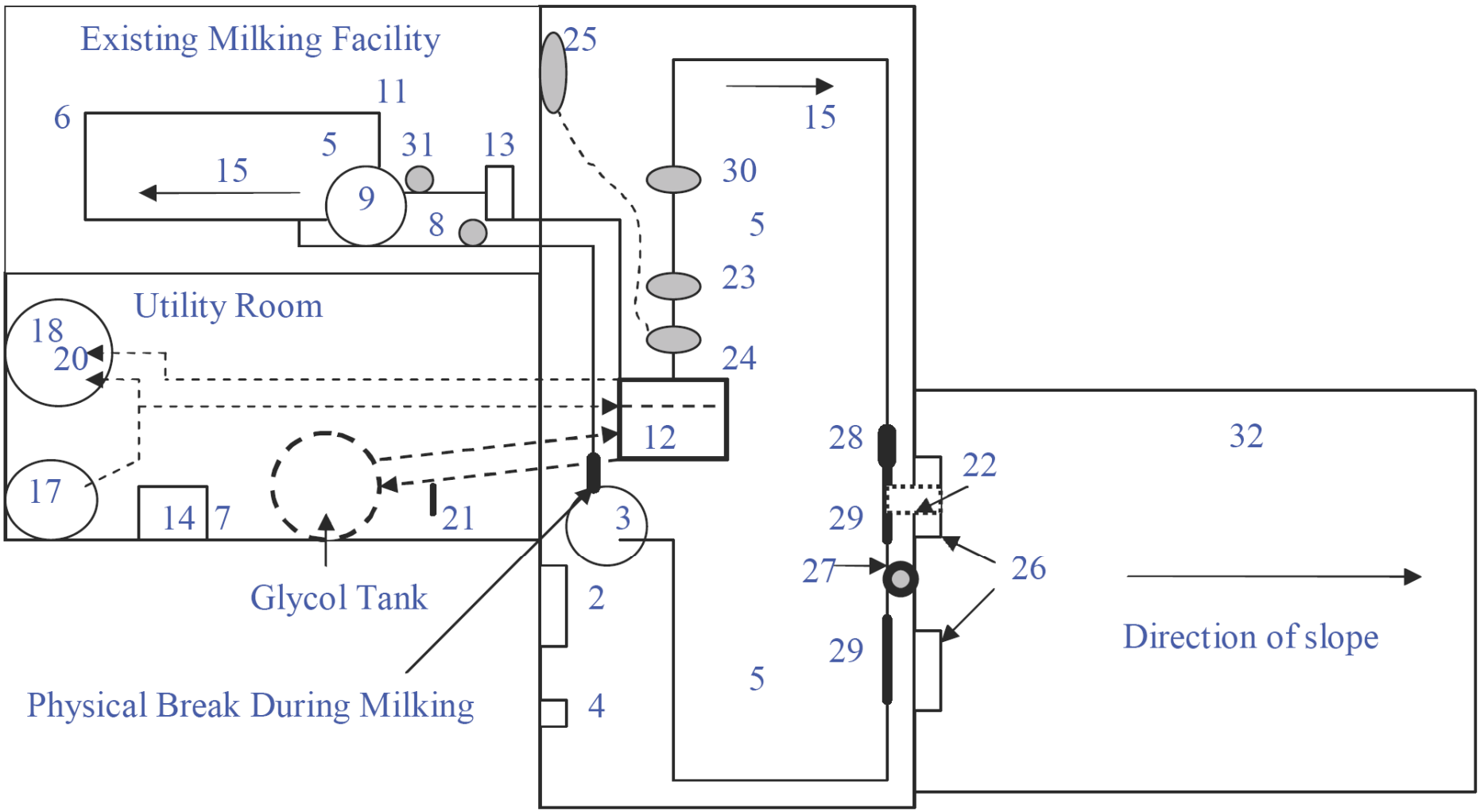
Type of Official Sampling
☐ Tanker ☐ Storage Tank ☐ Drip Sampler

Length of Agitation Prior To Sampling
____ MINUTES

Agitation Protocol Established in Compliance with Standard Methods for the Examination of Dairy Products, Section 3.042 B. Test results on file at the receiving Dairy Plant.

Below is an example drawing of a Direct Ship operation added to an existing milking operation.




Existing Milking Facility
Utility Room
Glycol Tank
Physical Break During Milking
Direction of slope
6
11
5
31
13
15
9
8
25
15
30
5
23
24
18
20
12
28
22
32
17
14
7
21
3
29
27
26
2
29
5
4

Additional Comments

Section H

- Floors - Colored Epoxy
- Walls – Glass Board
- Ceiling – Glass Board
- Lighting - 30 foot-candles all areas
  - Any lighting over bulk tank - shielded

Wisconsin Deptpartment of Agriculture, Trade and Consumer Protection
Division of Food Safety 608-224-4700

AUTOMATIC MILKING INSTALLATION (AMI) SUPPLEMENTAL APPLICATION

Attach this form and all supporting documents to F-fd-31 when submitting.

This application allows the filer to explain how the proposed installation complies with Appendix Q of the Grade "A" PMO and current department rules. Please attach plans showing locations of AMIs, plumbing devices, milk storage, ventilation, lighting and milk handing equipment along with operator and livestock traffic flow. Attach diagrams and testing procedures of all isolation valves. Note: for additional information refer to the Appendix Q of the PMO.

ITEM 1. ABNORMAL MILK
Describe the method of separating animals that are producing milk with abnormalities or animals treated with antibiotics. See Item 14 for proper separation and cleaning of milking equipment in contact with abnormal or antibiotic treated milk.

ITEM 2. MILKING BARN, STABLE OR PARLOR - CONSTRUCTION
Provide a wall, floor, ceiling schedule for the AMI milking room. Describe the method of clean access for inspection and maintenance personnel.

ITEM 3. MILKING BARN, STABLE OR PARLOR – CLEANLINESS
Describe the method and frequency for cleaning the AMI milker box and surrounding area.

ITEM 9. UTENSILS AND EQUIPMENT – CONSTRUCTION
Provide documentation on any prototype equipment used for the AMI. All milking equipment shall meet the sanitary construction in respect to fit and finish.

ITEM 10 & 11. UTENSILS AND EQUIPMENT – CLEANING AND SANITIZATION
Provide the method and cleaning/sanitization frequency of the AMI.

ITEM 12. UTENSILS AND EQUIPMENT – STORAGE
Provide documentation of the AMI positive air ventilation system, to include air source, air filtration (if any) and system operating criteria.

ITEM 13. MILKING - FLANKS, UDDERS AND TEATS
Provide documentation of the National Conference on Interstate Milk Shipments (NCIMS) M-I Memoranda of acceptance for the teat prepping system.

ITEM 14. PROTECTION FROM CONTAMINATION
Provide information regarding the separation between cleaning/sanitizing solutions and milk intended for sale and between milk with abnormalities and milk intended for sale. If an inter-wired block-bleed-block fail-safe valve system is used, provide documentation and testing protocols.

ITEM 18. RAW MILK COOLING
For AMIs the raw milk must be cooled following current standards. Explain the milk cooling and storage process.

AMI

- Completed Application
- Appendix Q – PMO
- Current System Drawings
  - Milk flow, CIP, water, air
- Current Building Drawings
  - Animal & people flow, ventilation, waste system
- Valve Function Testing Protocol
- Other

WISCONSIN REQUIREMENTS FOR MILKING EQUIPMENT PLANS

Wisconsin Department of Agriculture
Trade and Consumer Protection
Division of Food Safety

Plans are required and must be submitted to DATCP – Division of Food Safety and be reviewed prior to installing. All installation, modification or replacements shall meet applicable requirements.

Applications that require a $25.00 fee:

- Pipeline System Installation (new or used systems)
- Milk pre-cooling equipment (new or used)
- Direct Tanker Milking Operations
- Pipeline Systems or Components, if the modification or replacement changes any of the following:
  - Size of milkline or main vacuum line
  - Length of milkline
  - Size of number of receiver jar inlets
  - Number of pipeline slopes
  - Number of milker units
  - Number of milker units per milk line slope
  - CFM of vacuum needed
  - Size of vacuum pump if CFM is less than previously installed
  - Utilization of direct tanker shipment of milk

No fee required.

- Milkhouse, new or modifications
- Milking Parlors, new or modifications
- Water Systems, improvements to milkouse, pipeline, and parlor.
- Bulk Tank Installation (new or used tanks)

NOTE: Immediately after installing or modifying any system listed above, the installer shall provide to the milk producer and the Department a signed written statement certifying compliance with the construction standards of ATCP 60, Wisconsin Administrative Code.

CERTIFICATION OF COMPLETION

INSTALLER MUST SIGN THIS STATEMENT UPON COMPLETING INSTALLATION

INSTALLER SHALL Mail copy to producer and a copy to DATCP, Division of Food Safety, PO Box 8911 Madison WI 53708

PRODUCER SHALL BE POSTED WITH INSPECTION REPORTS IN MILK HOUSE FOR 12 MONTHS

PRODUCER:

John Doe
Street Address
Home Town, WI Zip Code

Date of application:

Plan # File #

I hereby certify that I have installed the equipment as described on this application and in compliance with Chapter ATCP 60, Wisconsin Administrative Code

Good Guy Equipment Installer

SIGNATURE OF EQUIPMENT INSTALLER OR REPRESENTATIVE

DATE OF COMPLETION

Robots
AMI

Glenn A. Goldschmidt
WI Department of Agriculture

Automatic Milking Installations

2010 Question

- Q. How many robotic milking systems are currently installed in Wisconsin?
  - A. The division has received 18 applications, with some applications installing more than one robotic milking system.
- Update:
  - 39 applications have been processed, effective 2-13-12.

AMI

- Completed Application
- Appendix Q – Currently Available PMO
  - Supplemental Application
- Current System Drawings
- Current Building Drawings
- Valve Function Testing Protocol
- Other

APPENDIX Q. OPERATION OF AUTOMATIC MILKING INSTALLATIONS FOR THE PRODUCTION OF GRADE "A" RAW MILK FOR PASTEURIZATION

This Appendix is intended to clarify how AMIs are to perform to be considered in compliance with the *Grade "A" PMO*. It is formatted to follow the Items as outlined in Section 7. STANDARDS FOR GRADE "A" RAW MILK FOR PASTEURIZATION, ULTRA-PASTEURIZATION OR ASEPTIC PROCESSING. Both requirements and recommendations are discussed.

ITEM 1r. ABNORMAL MILK

AMIs shall have the capability to identify and discard milk from animals that are producing milk with abnormalities. Odor is currently evaluated on a bulk tank basis and should be no different for a herd using AMI technology.

Animals producing milk with abnormalities shall be diverted to a holding pen to be milked immediately prior to the system being cleaned and sanitized, or the animal(s) are identified through an appropriate identification system so that their milk will be automatically excluded from the milk offered for sale, provided that the parts of the milking system that came into contact with the milk with abnormalities are immediately cleaned and sanitized.

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

The AMI milker box shall be treated the same as any other parlor. The goal is a clean environment in which to milk animals. All ventilation air must come from outside the cattle housing area. It is recommended that the AMI be located to provide clean access for personnel.

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

The AMI milker box shall be kept as clean as any milking and equipment cleaning area. It is recommended that the milking platform be regularly flushed with water to remove any manure that may have accumulated.

ITEM 9r. UTENSILS AND EQUIPMENT - CONSTRUCTION

AMIs are the same as any other milking system from a sanitary construction standpoint and shall meet the same standards as a conventional milking system in respect to fit and finish of the milk contact surfaces.

ITEM 10r. UTENSILS AND EQUIPMENT – CLEANING

AMIs are a continuous milking system and shall be shut down to clean at an interval sufficient to prevent the milking system from building up with soils. It is recommended that this interval not to exceed 8 hours.

ITEM 11r. UTENSILS AND EQUIPMENT – SANITIZATION

AMIs shall be sanitized after each cleaning and/or before each use, as is the case with any other milking system.

ITEM 12r. UTENSILS AND EQUIPMENT – STORAGE

AMIs shall have positive air ventilation systems in operation whenever the system is cleaning. The air for this system must come from outside the cattle housing area and should be as clean and dry as practical. This positive air system may also need to run during milking if needed to minimize odor, moisture and/or for pest control.

ITEM 13r. MILKING - FLANKS, UDDERS AND TEATS

AMI manufacturers shall submit data to FDA to show that the teat prepping system employed in their system is equivalent to Item 13r. Administrative Procedures #4: "Teats shall be treated with a sanitizing solution just prior to the time of milking and shall be dry before milking." Each installer shall provide the producer and the Regulatory Agency with a copy of this approval, including a detailed description of the approved procedure. Each producer shall keep a copy on file at the farm.

ITEM 14r. PROTECTION FROM CONTAMINATION

The teat cups of the milking cluster need to be adequately shielded during the udder prepping process to assure that contaminants may not enter through the teat cup and get into the milk.
AMIs are designed to automatically shift from milk to wash; therefore, adequate separation of milk and CIP solution shall be provided to minimize the risk of cross contamination of milk with cleaning and sanitizing solutions. A fail-safe valve system equivalent to an inter-wired block-and-bleed, as referenced in Item15p.(B), shall be located as needed to prevent cross contamination. Separation shall be provided between, milk with abnormalities and milk intended for sale, and between cleaning/sanitizing solutions and milk intended for sale.
AMIs, which have a pipe into the wash vat that is continuously connected to the system, shall have a valving system that provides for an air break equal to the diameter of the wash line.

ITEM 18r. RAW MILK COOLING

For AMIs the raw milk for pasteurization shall be cooled to 10°C (50°F) within four (4) hours or less after starting the milking operation and the milk shall be cooled within two (2) more hours to 7°C (45°F). The bulk milk storage tank temperature should not exceed 7°C (45°F) after that point. Bulk milk tank recording thermometers are recommended.

Issues

- Solution Separation
- Abnormal Milk Detection
- Facility Concerns
- Teat Washing
- Attachment Failure
- Undecided Regulatory
- Enforcement

Valve Position Test Procedure

innovators in agriculture

Water Valve - Top of Milk Jar

During the milking the position of the valve is monitored by proximity switches mounted to the valve body. When the milking is finished and the milk can be pumped away the position of the valve is checked to see if it has switched during the milking. If position has switched, an alarm is generated and sent to the operator and all Robot will not pump the milk away. The Robot will remain out of operation until it is attended by the operator.

- Note: Both the water valve and the block and bleed valve (valves 16a and 16b) are controlled by the air solenoid. Both valves are normally closed, taking air to open them.

1. Air line is removed from the block and bleed valve (16b) and plugged.
2. Person enters the stall with a tag programmed to milk.
3. Arm turns into stall to attach to "cow".
4. Water valve (16a) is shifted into wrong position by using the manual override on the solenoid valve.
5. Alarm is generated and robot is shut down (air turned off to arm controls, vacuum pump and milk pump turned off).
6. Dairyman or technician will restart the Robot.
7. Repeat steps 1-5 to test valve 16b

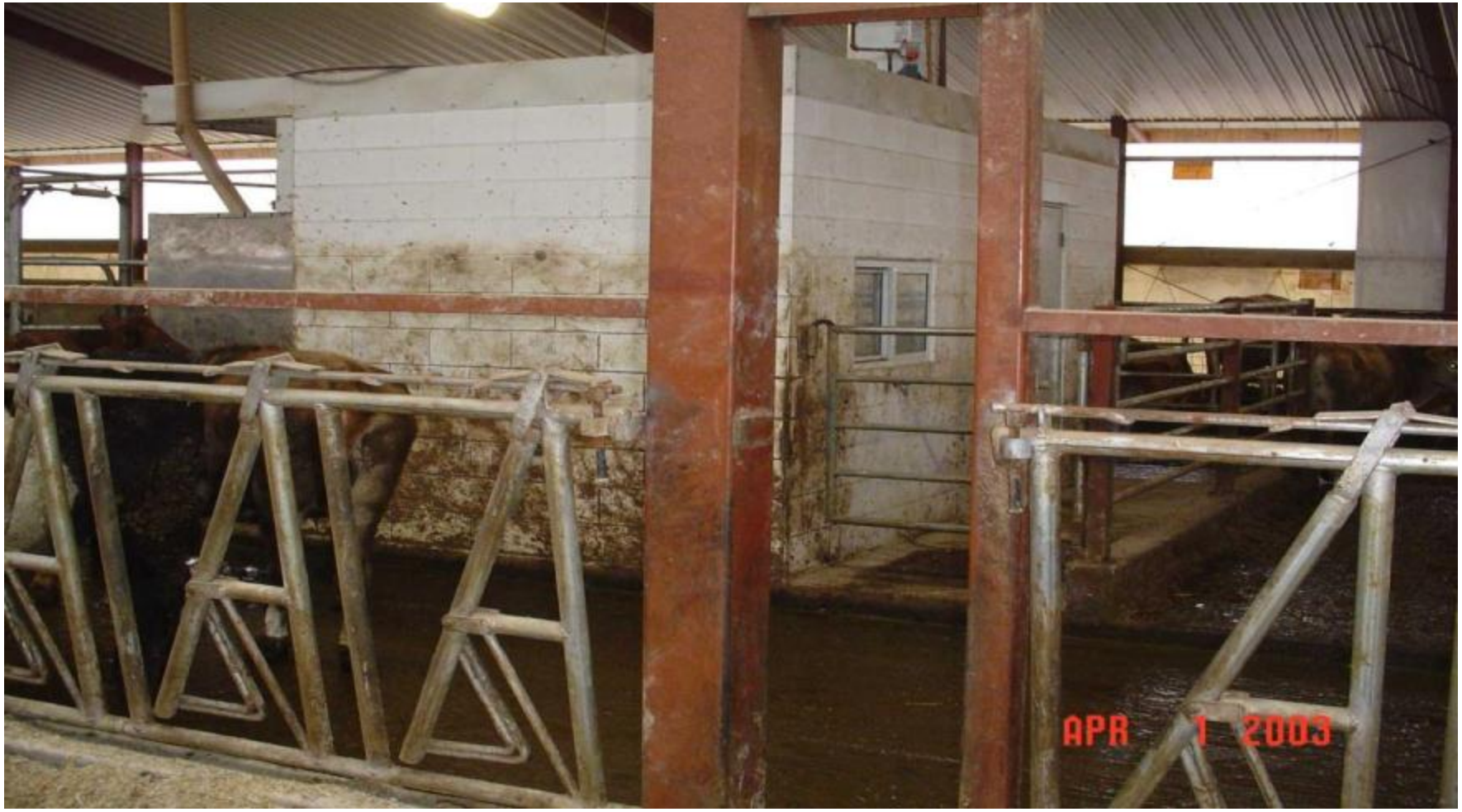
Block & Bleed Milk Pump

After the milk pump on the Robot is an assembly of two single seat three-way valves that divert abnormal milk and wash solution away from the delivery line. The position of the valves is monitored by proximity switches mounted to each valve body. When the milk is ready to be pumped away, the position of the valves is verified. If the valves are not in the intended position an alarm is generated and the milk is not pumped away. The operator will need to attend the Robot and resolve the alarm before the Robot can return to operation.

Abnormal Milk Detection

- Somatic Cell
- Treated Animals
- Blood or Color
- Utilizing A Rinse or Full Wash

Facility Concerns
Existing Systems




Clean Access

9.26.2003

Teat Washing

- FDA Approval
- VMS
- Lely
- GEA

American Society of Agricultural and Biological Engineers

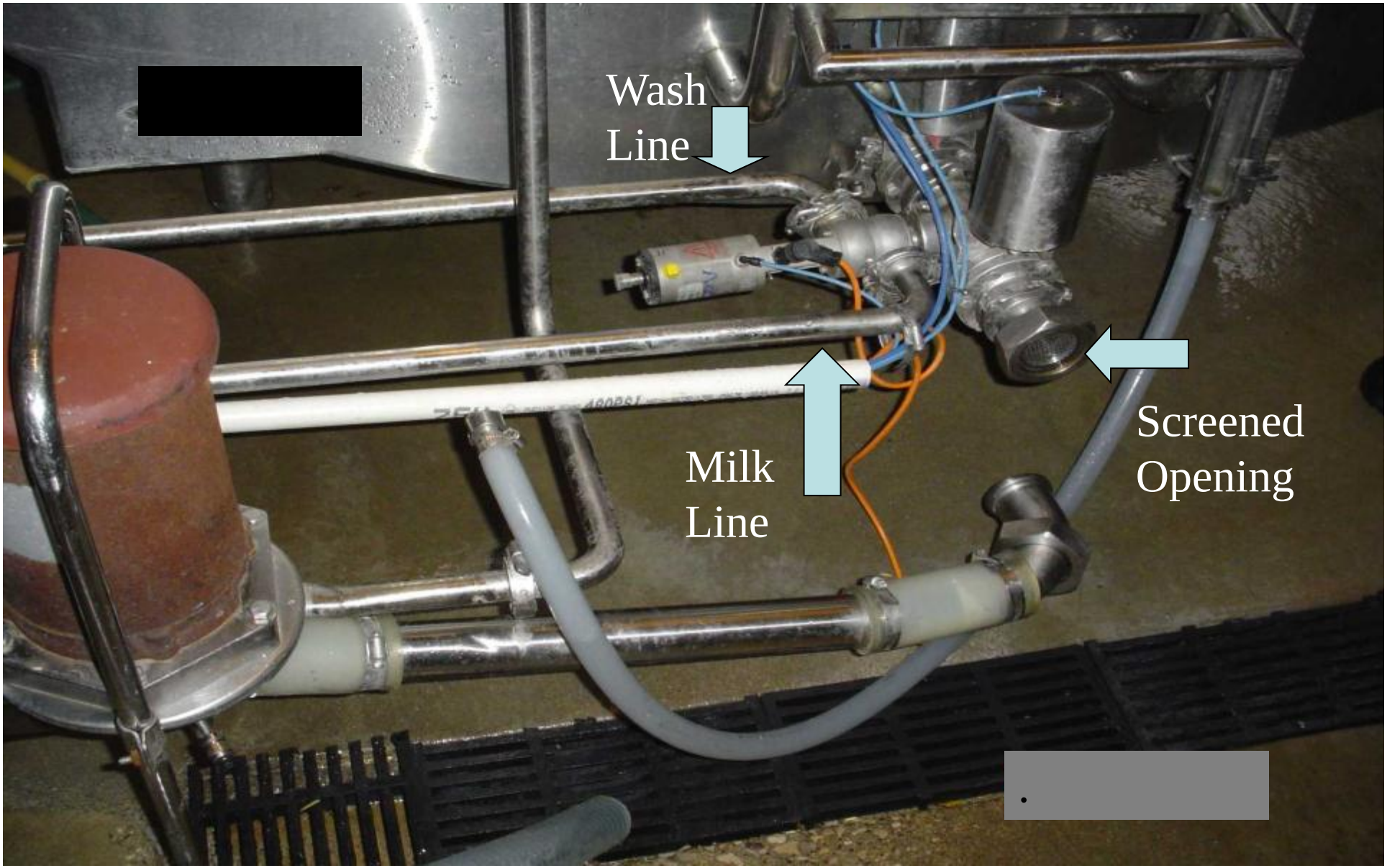
- Standard Released February of 2011
- Areas Covered
  - Functional Requirements
  - Cleaning
  - Instructions for use
  - Management
  - Monitoring
  - Safety
    - Appendix for teat cleaning
    - Appendix for abnormal milk testing

Attachment Failure

- High Counts? Observed High Failure Rate.
- Unusual Udder Configuration.
- Robot Software?

Equipment Construction

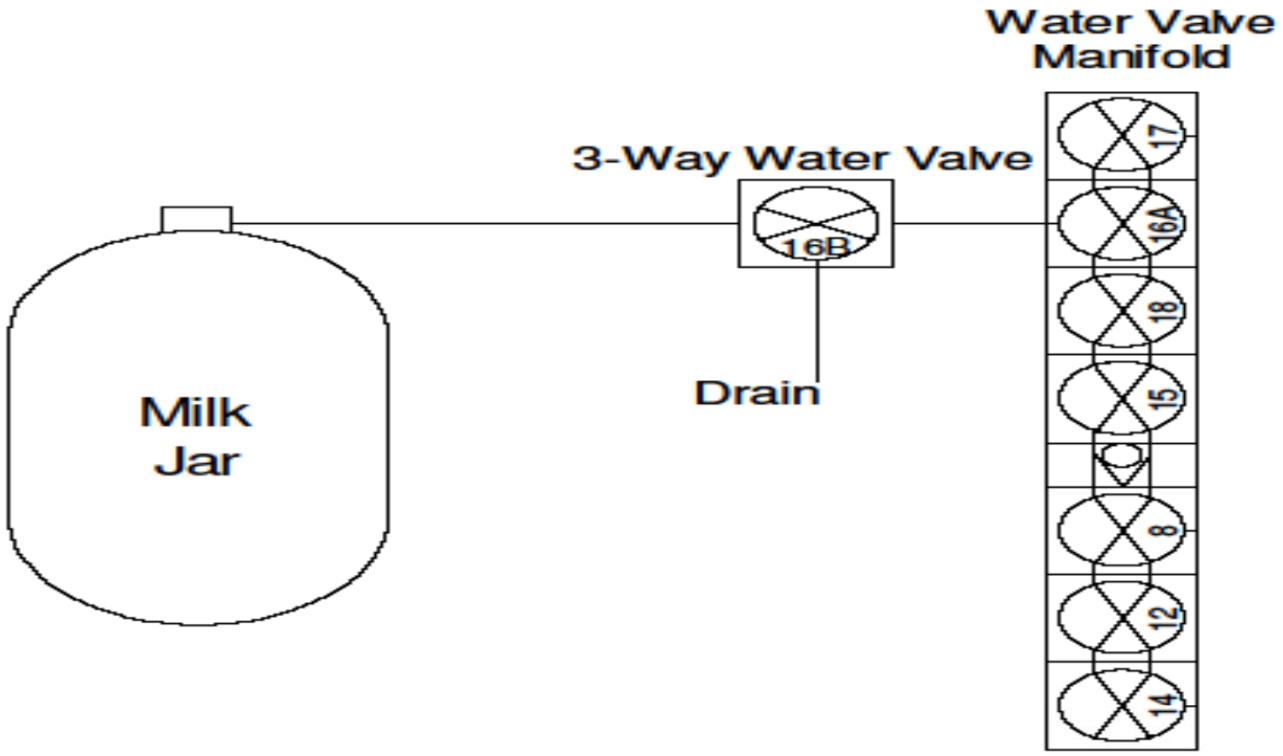
Product/Solution Separation




OPEN

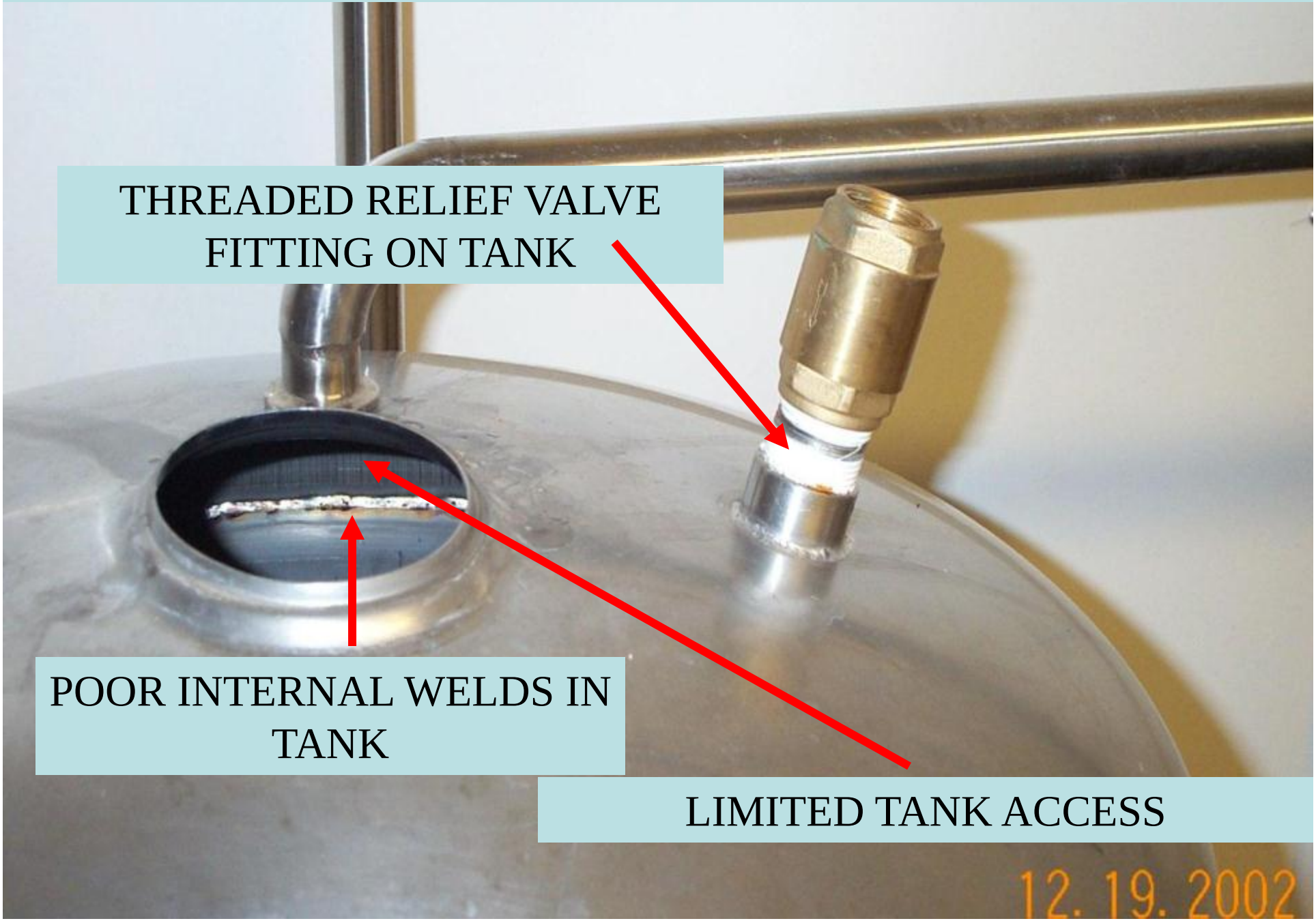
Milk Jar Block and Bleed

Water is supplied to the Lely Astronaut™ through a manifold of ½" water valves. In series between the water valve manifold and the top of the milk jar, is a ½" 3-way water valve (16B) that, in conjunction with the water valve in the manifold (16A), offers block and bleed protection to the milk jar. The drain (bleed) port of the 3-way valve will be supplied open, with no equipment to restrict possible flow.

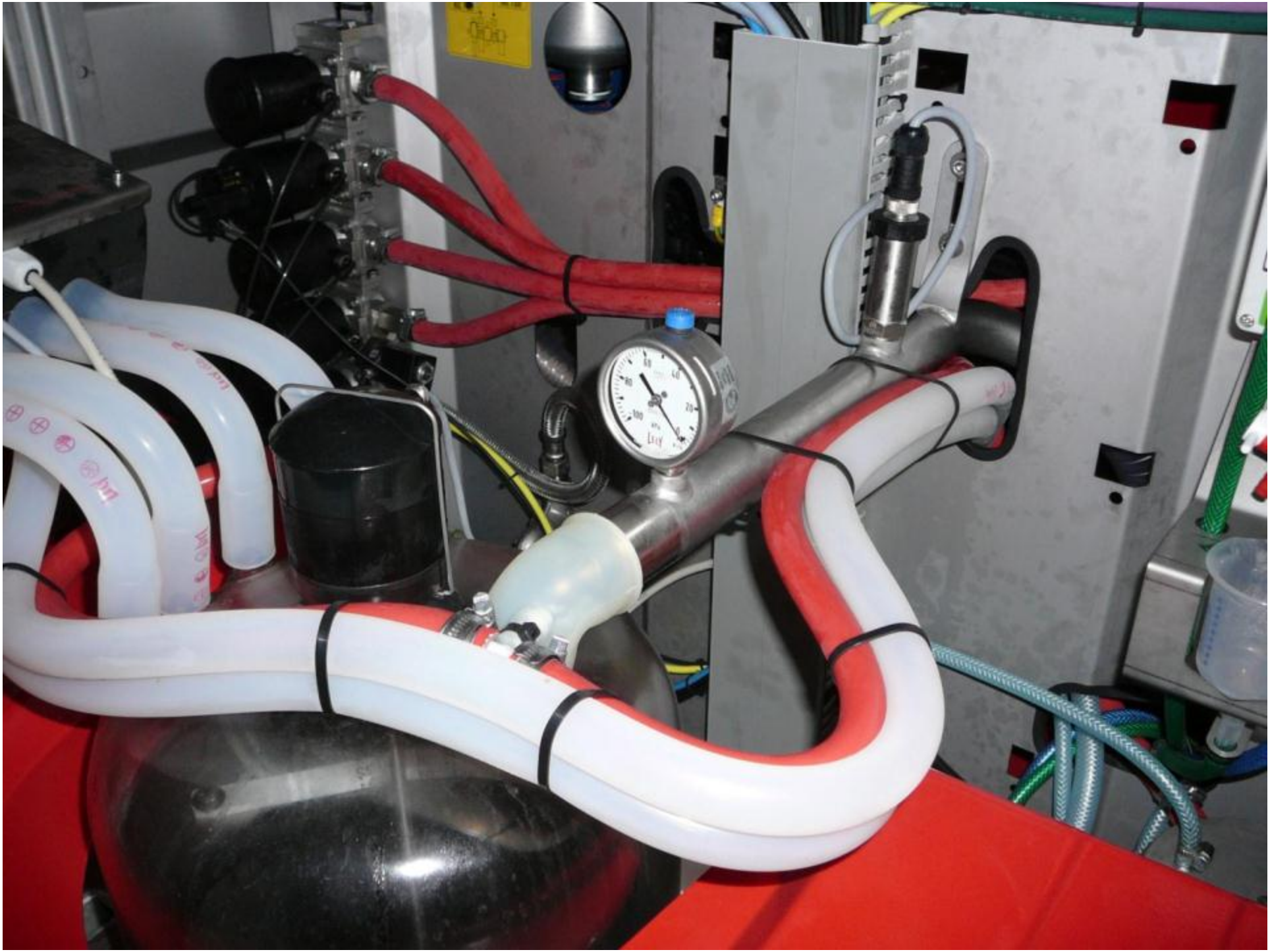


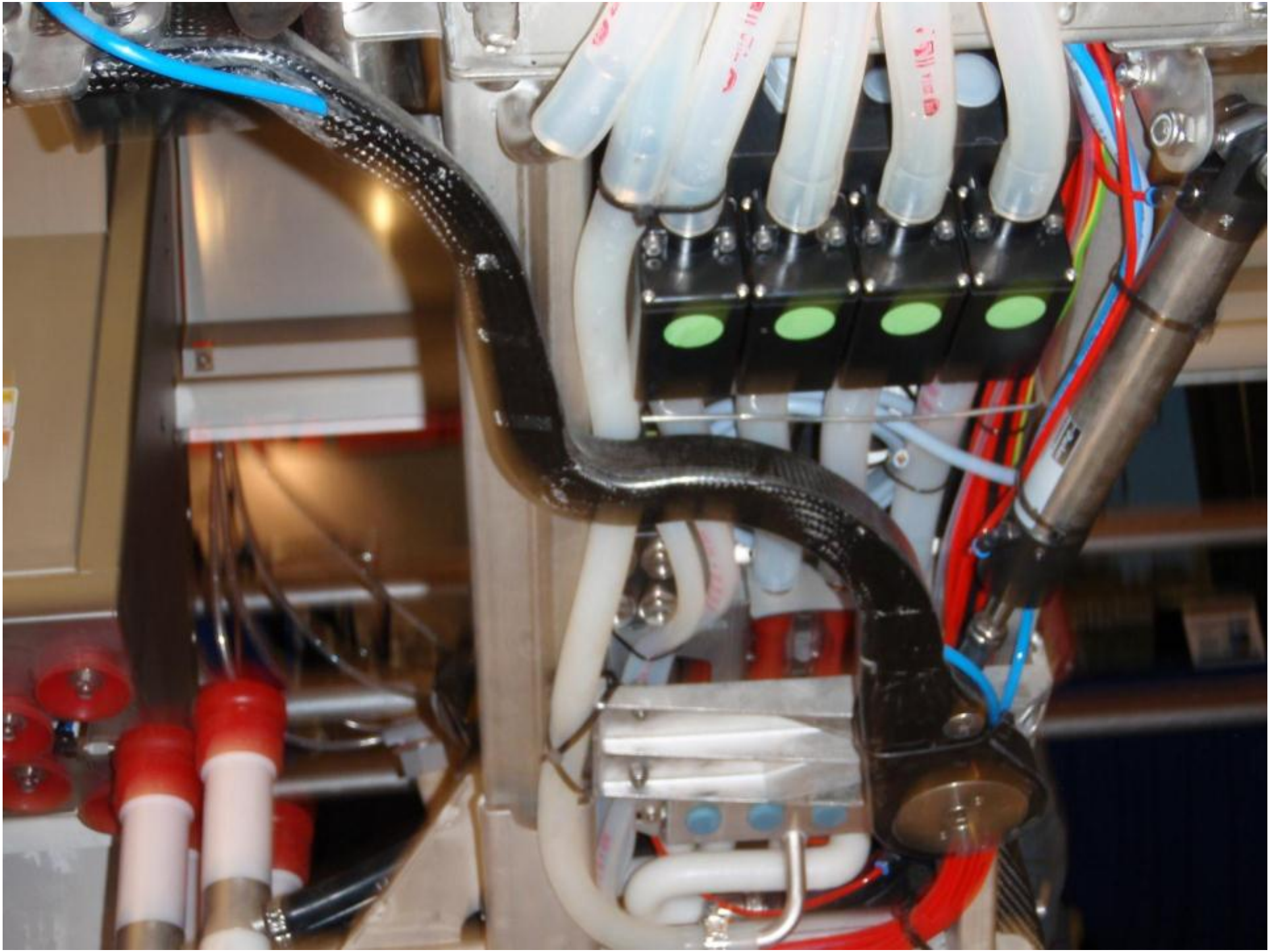

6 BAR
MAX. 7 BAR
MAX. 4 BAR

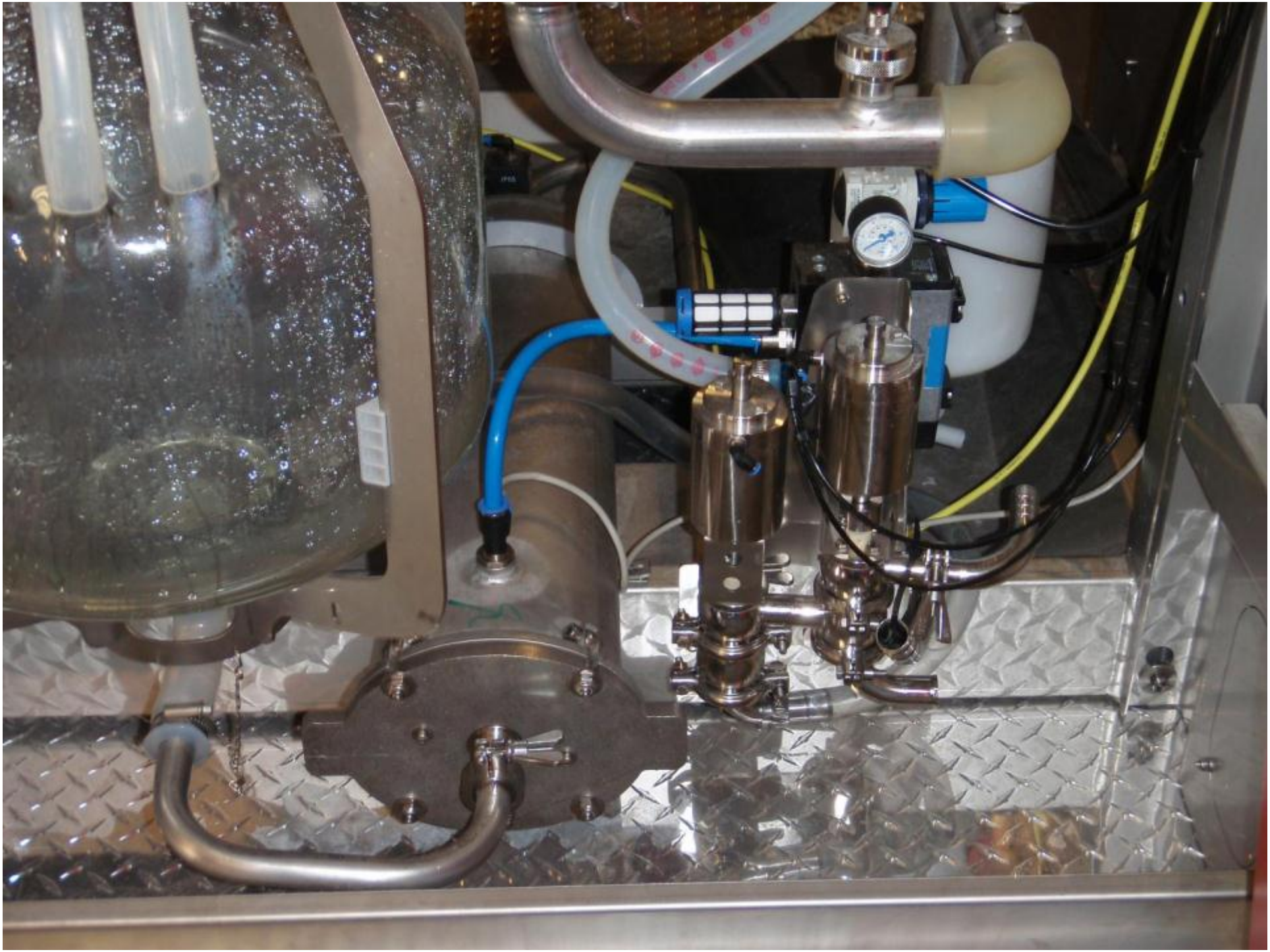
ROBOT SYSTEM SURGE TANK LOCATED IN MILKHOUSE

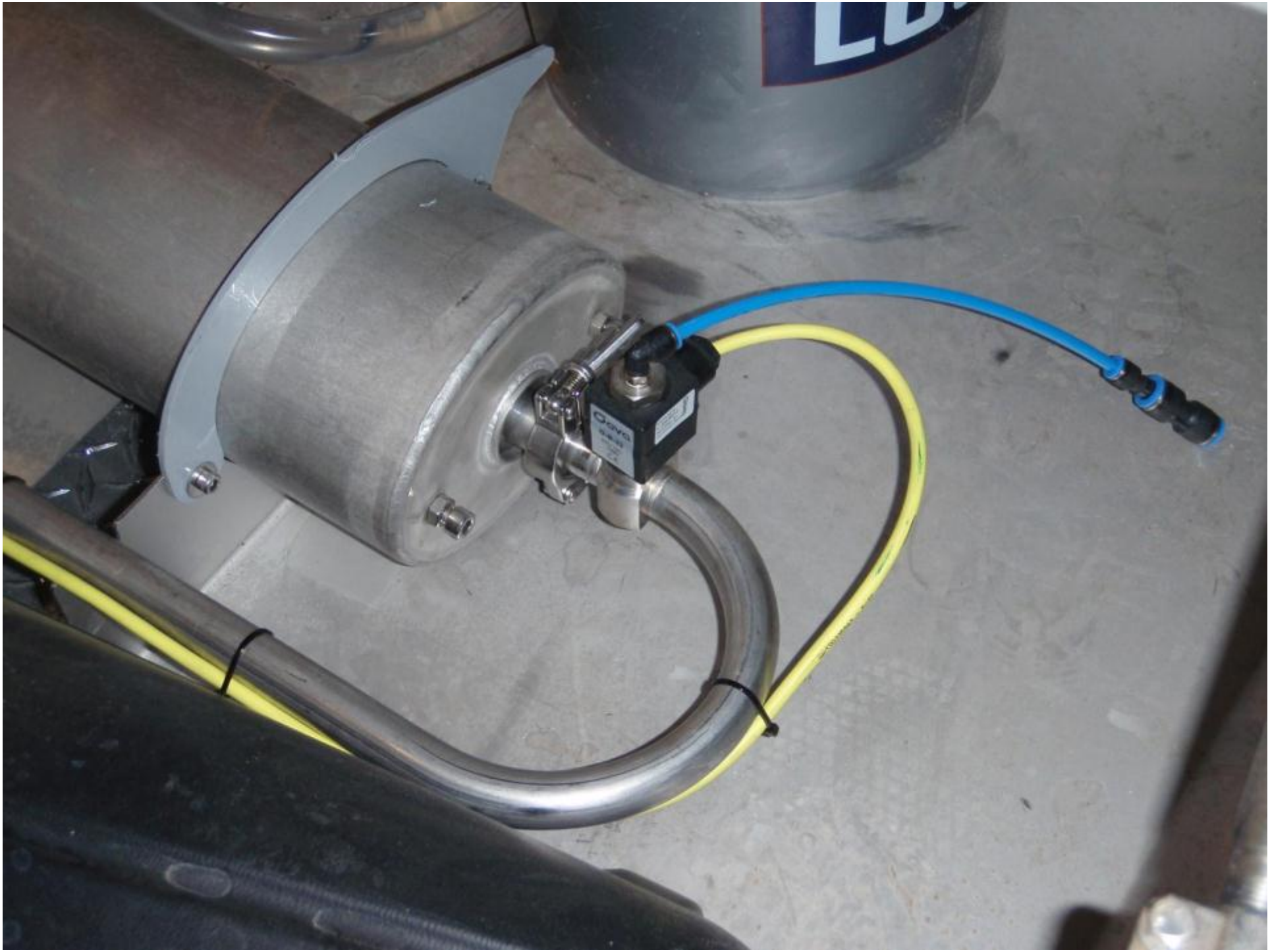


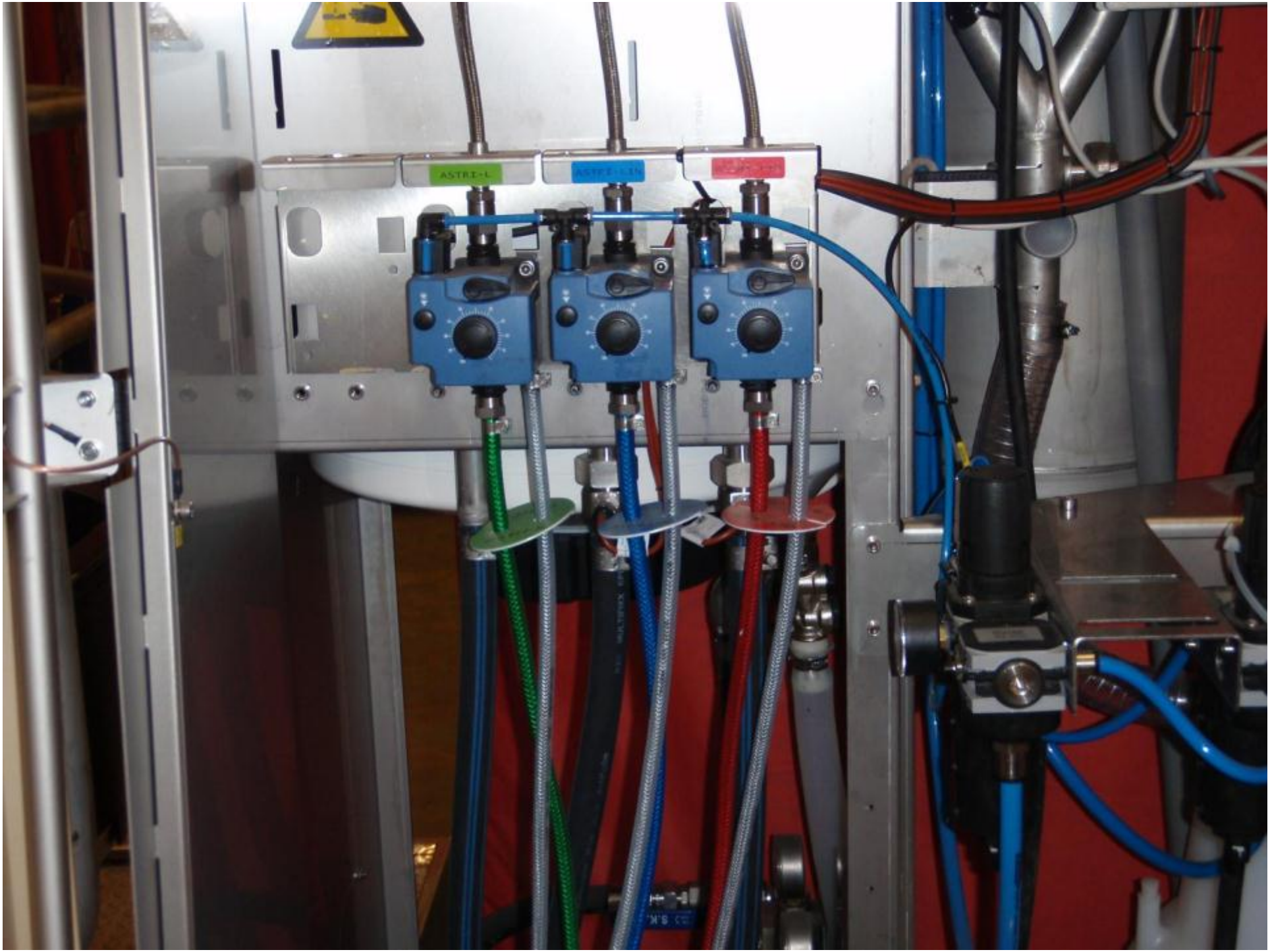
Lely Construction Issues







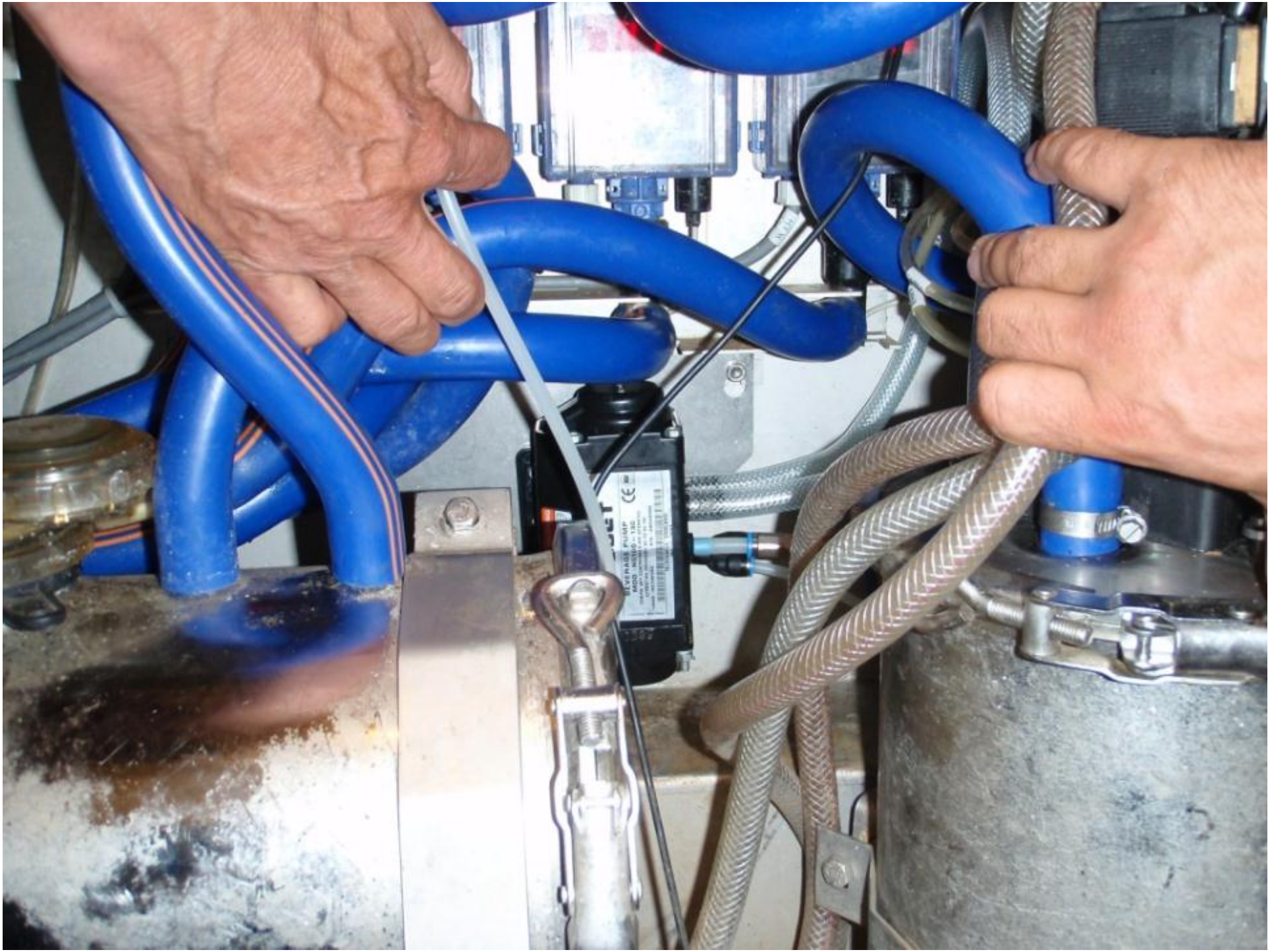


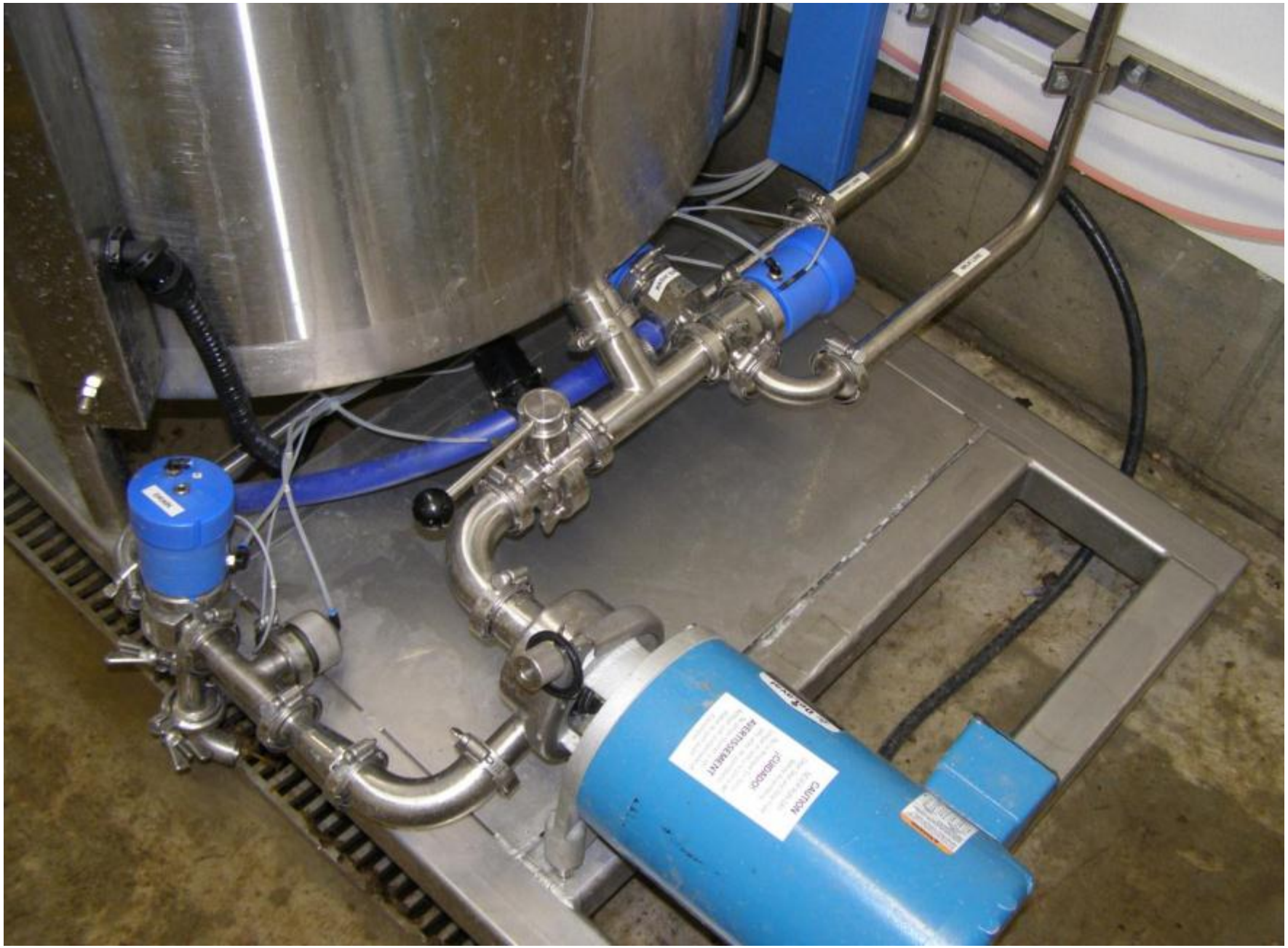


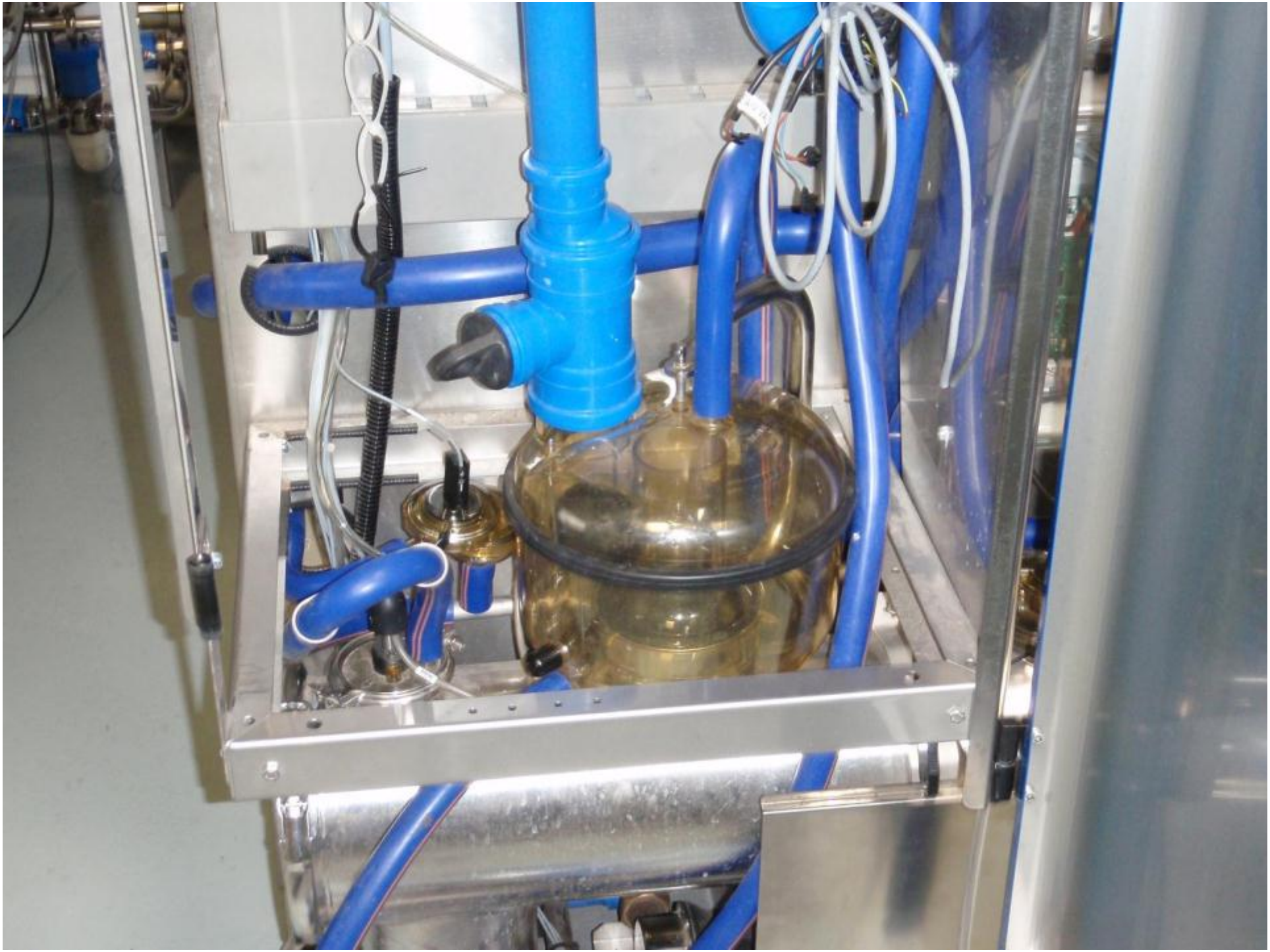

CAUTION

DeLaval

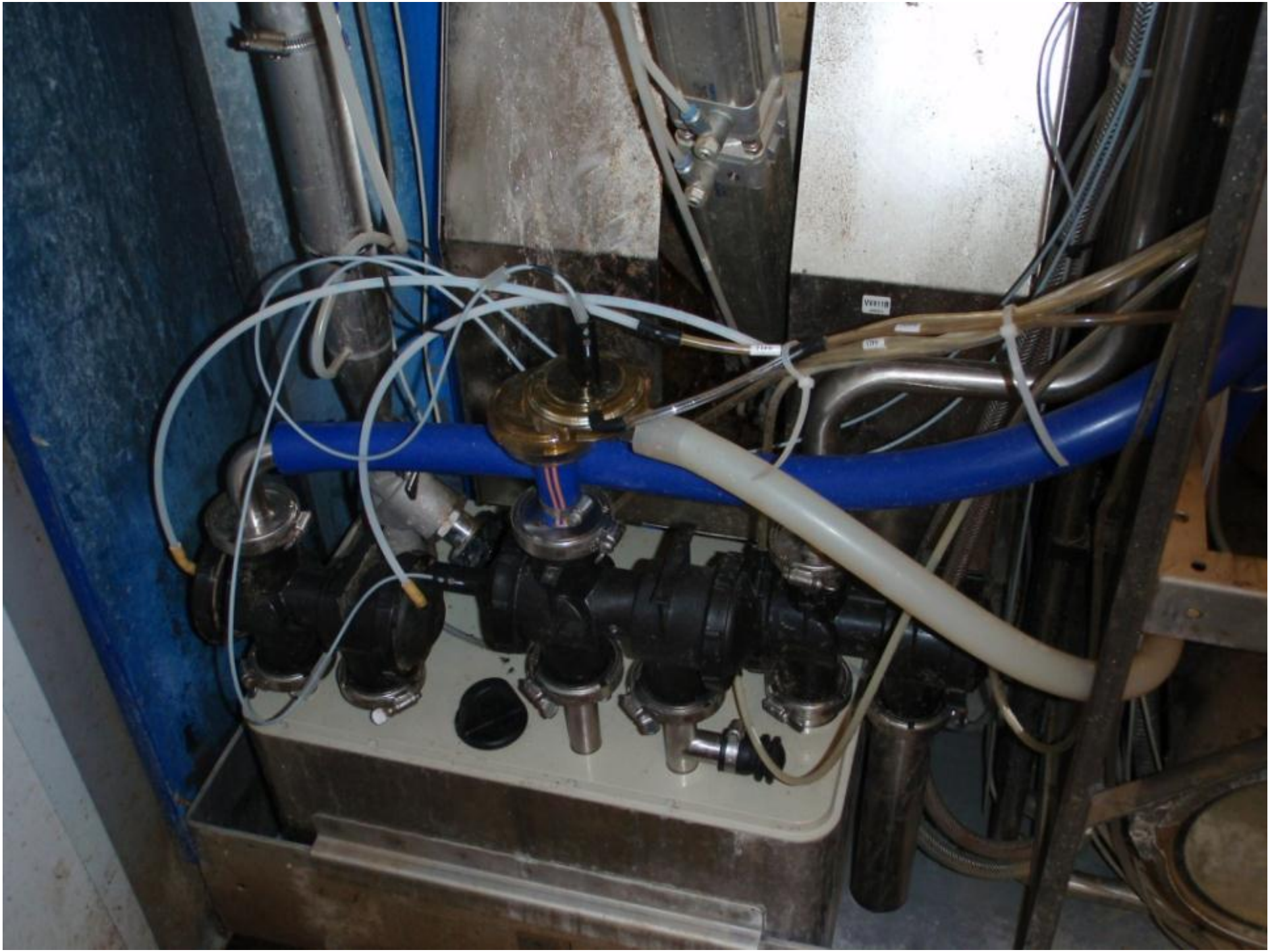
VMS

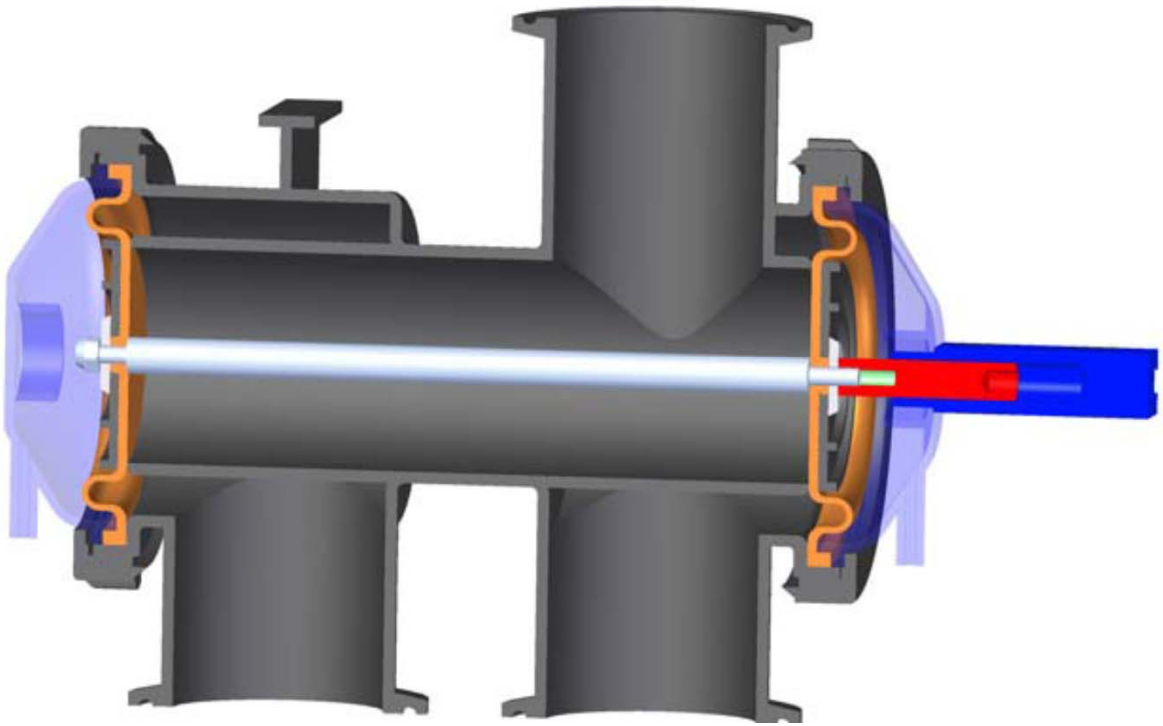



CAUTION



BLEED VALVE
MP MILK VALVE
MILK VALVE





Other Concerns

- Air Injection
- Valves
- Check Valves
- Spray Cleaning Devices
- Finish Product Zones
- Welds
- 3-A Standards

BOUMATIC

- ONE SYSTEM IN PLACE
- UTILIZED COMPLETE SEPARATION
- SYSTEM IS STILL WORKING
- Now Importing New System to the States

Lely

- A number of systems in place in WI
- New systems pending
- Working with Atlantic Midwest Dairy Equipment Committee (AMDERC)

VMS

- A number of systems in place
- New systems in place for solution & product separation
- Working with AMDERC

GEA

- M-I-11-4 9-21-2011 Teat Prep
- Working on system design with states (WI)
  - Placing system in IOWA
- Working on system design with AMDERC
  - Cannot review due to a system
  - May work with system design


GEA Farm

Other Companies

- Working with them to accept new technology
- New systems displayed at World Dairy Expo and installed in Pennsylvania
  - INSENTEC
- Will work with any new system brought to Wisconsin for use

Enforcement-Existing Systems

- Limited Enforcement While Waiting For Suppliers to Meet PMO Standards
- Study Completed
- Appendix Q 2005 PMO Published
- Complete Compliance With Progressive Enforcement Beginning 2008

Department Responsibilities

- Review & return application with comments in 14 days
- Answer all questions asked
- Inspect the facility on the next routine visit
- Provide “Certificate of Compliance by Installer”
  - Installer is required to supply this document to producer and department
  - Posted in milkhouse for 12 months

CERTIFICATION OF COMPLETION

INSTALLER MUST SIGN THIS STATEMENT UPON COMPLETING INSTALLATION

INSTALLER SHALL Mail copy to producer and a copy to DATCP, Division of Food Safety, PO Box 8911 Madison WI 53708

PRODUCER SHALL BE POSTED WITH INSPECTION REPORTS IN MILK HOUSE FOR 12 MONTHS

PRODUCER:

«FIRST_NAMEMIDDLE_INITIAL» «SECOND_NAME» «LAST_NAME»

«STREET_ADDRESS»

«CITY_STATE_ZIP»

Date of application: merge

Plan # File #«Record_»

I hereby certify that I have installed the equipment as described on this application and in compliance with Chapter ATCP 60, Wisconsin Administrative Code

«INSTALLER»

SIGNATURE OF EQUIPMENT INSTALLER OR REPRESENTATIVE

DATE OF COMPLETION

The Future

- Any manufacturer that would like to place their robot into Wisconsin should contact me prior to placement:

Glenn A. Goldschmidt, RS

PO Box 8911

Madison, WI 53708-8911

608/224-4732

Glenn.Goldschmidt@wi.gov

I also recommend contacting AMDERC members.

Questions?

Water Systems

Tom Keel

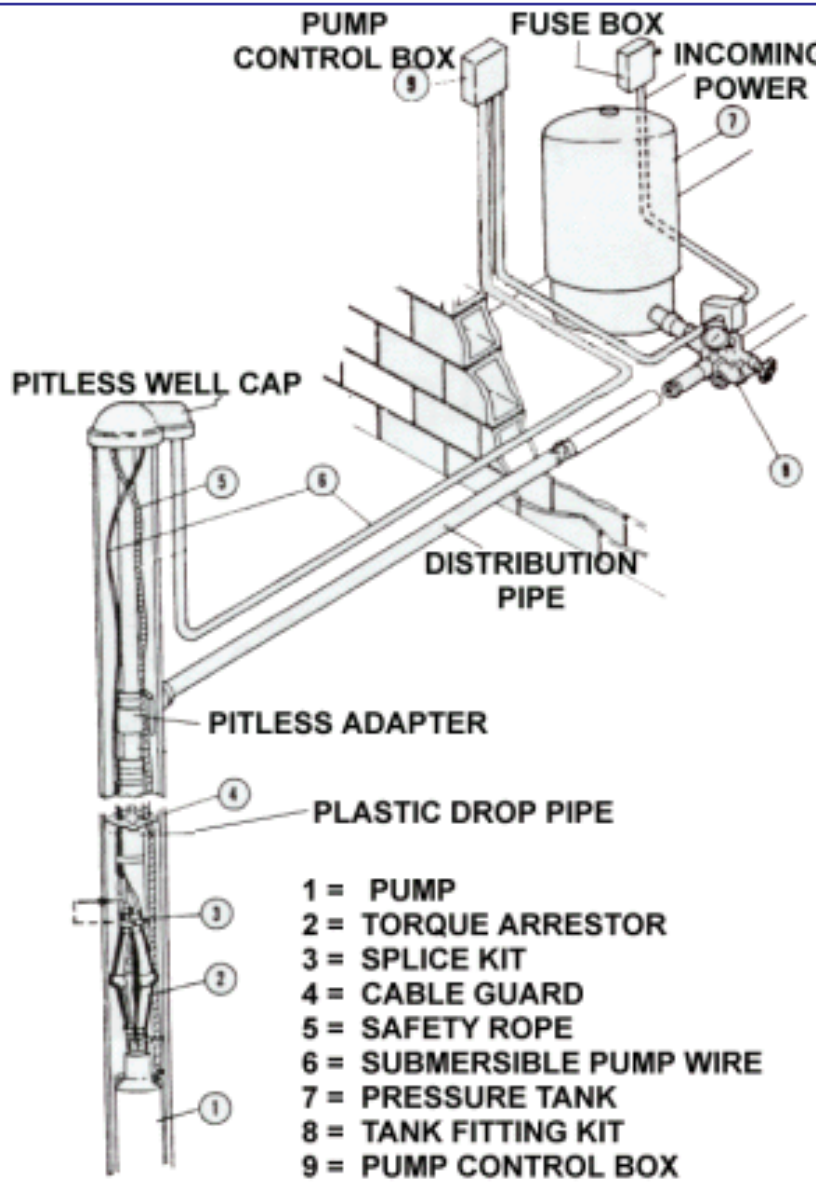
Thomas.keel@wisconsin.gov

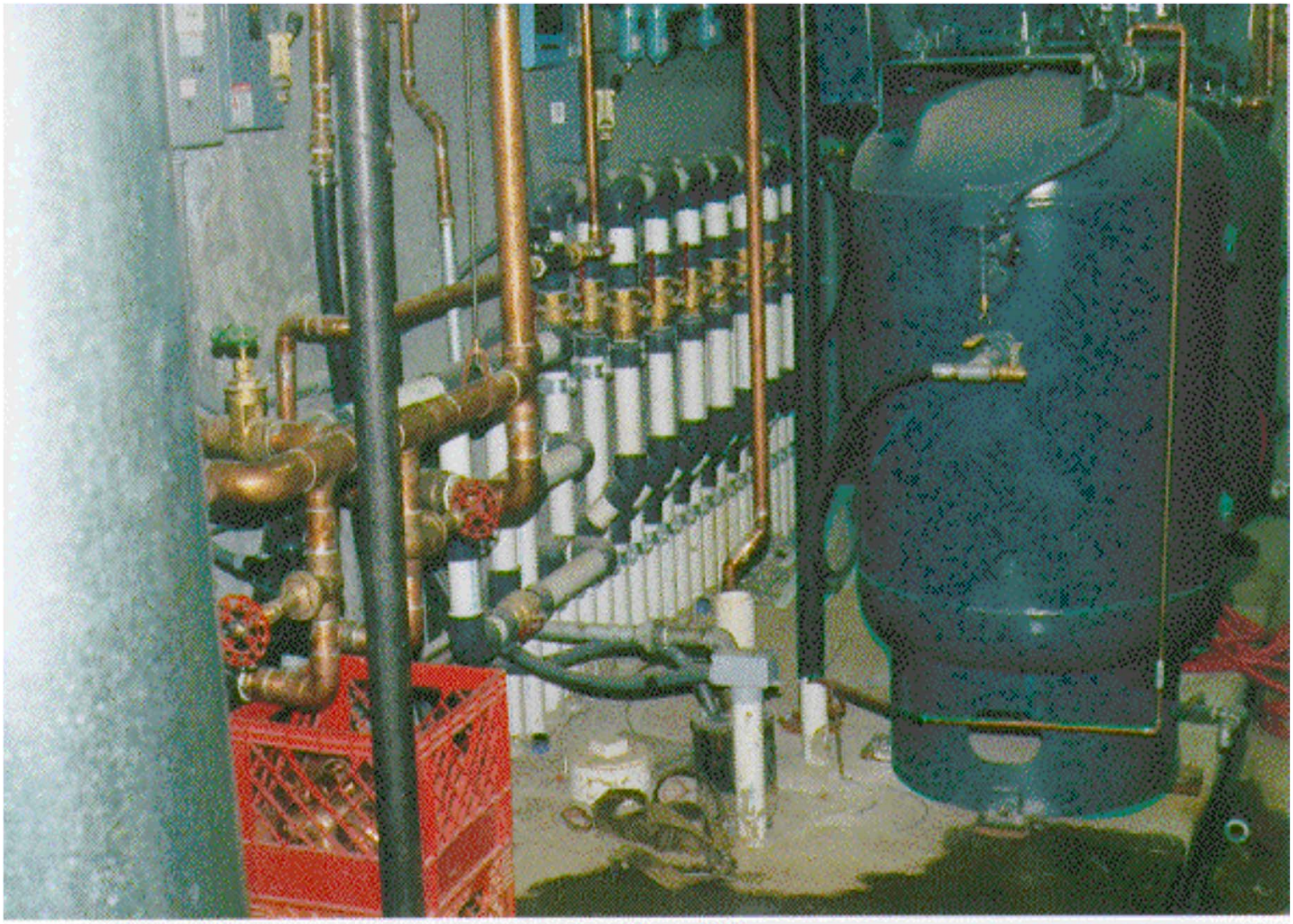
(608) 524-4075

Water Systems

- Well Water Distribution System
  - Cross-Connection Control
- Water Reclaimed from Heat Exchangers or Compressors
  - Potable Systems
  - Non-Potable Systems
- Water Reclaimed from Heat Exchangers
  - Pre-Rinse Reclamation
- Recirculated Cooling Water Systems

Water Distribution System





Water Lines Are Identified

Water Supply

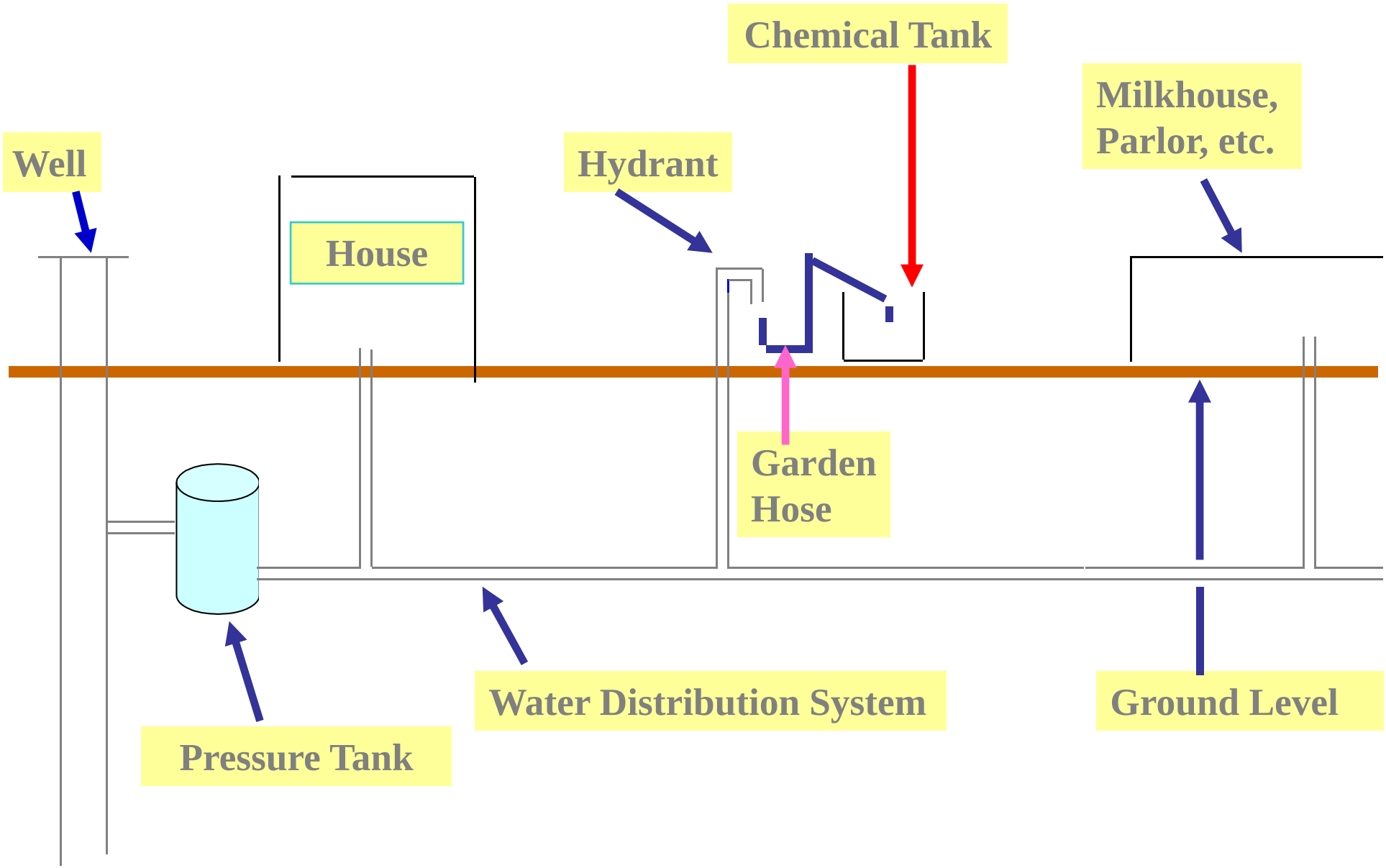
Water used for equipment cleaning, hand-washing, udder-washing, and as the cooling medium in a plate pre-cooler must be potable (safe water).

Keeping “Safe Water” Safe

Isolate the potable water system from:

- Cross-connection to chemicals.
- Cross-connection to unsafe water.
- Cross-connection to other contaminants.

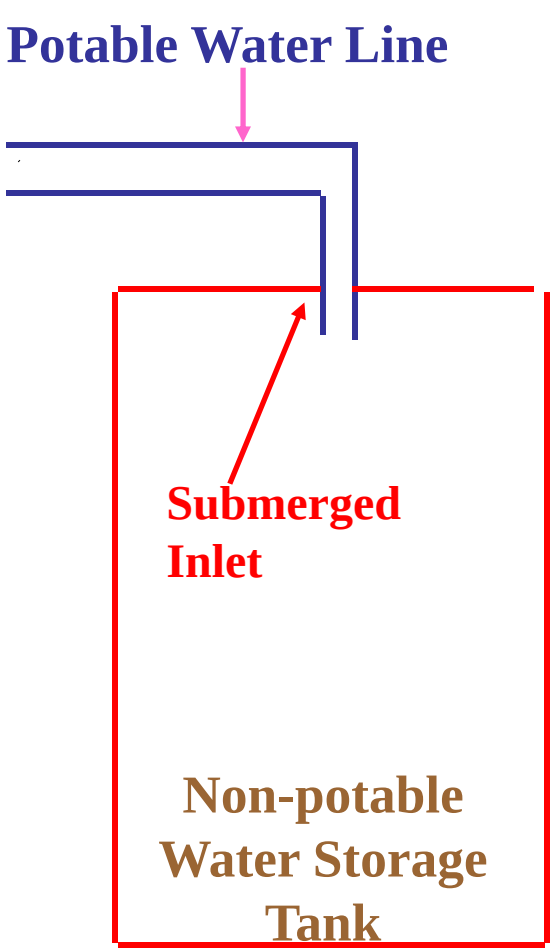
Water Distribution System

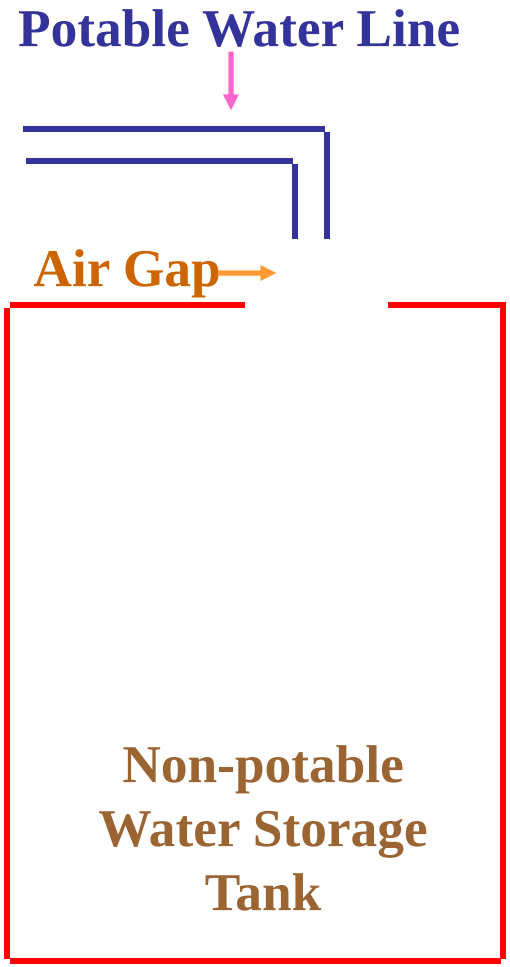


Isolating Potable Water from Sources of Contamination

- Air Gap
- Cross-Connection Control devices
- Separate well
- Separate water storage facility for non-potable use.

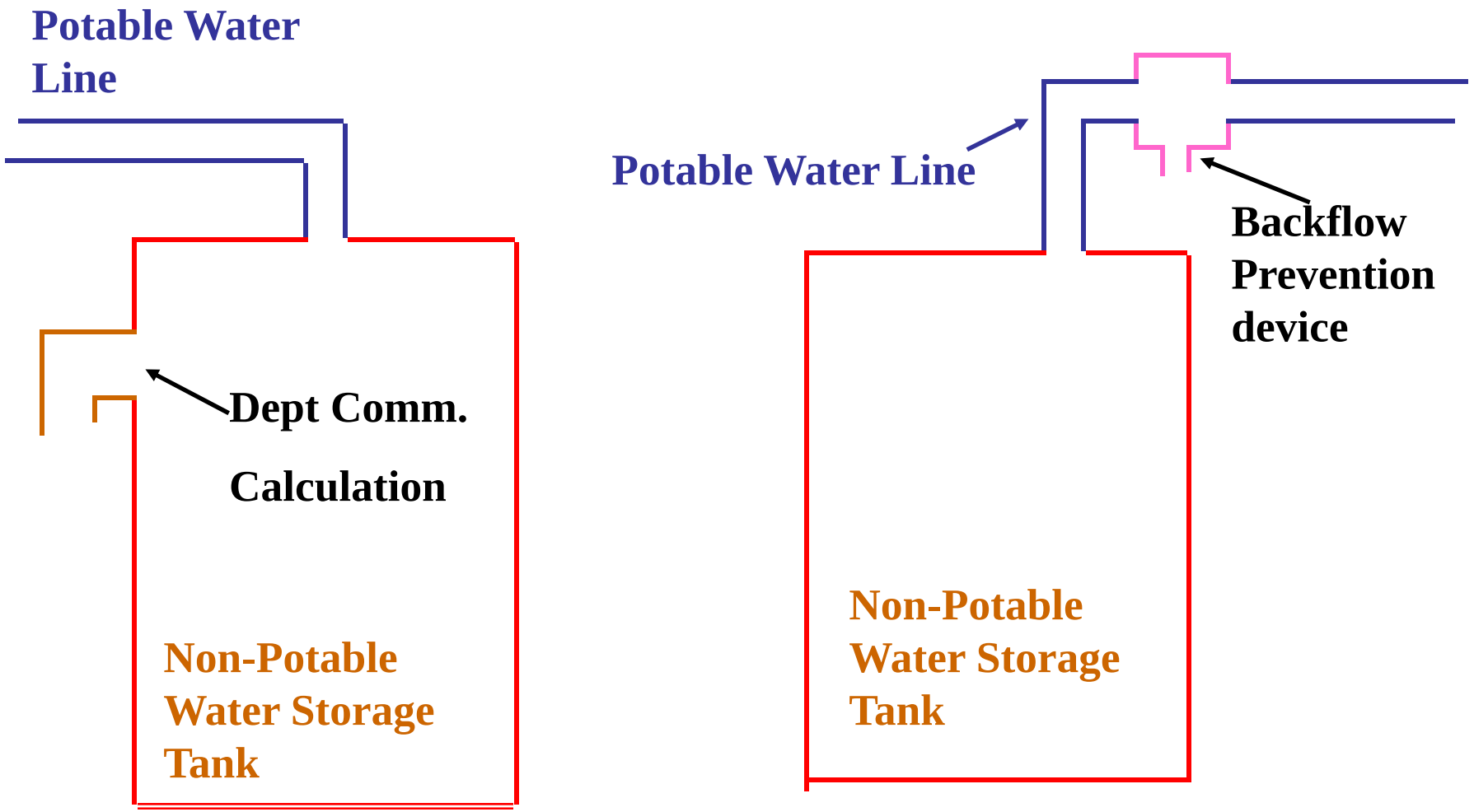
Air Gap





Note: The air gap space must be at least twice the diameter of the water line

Air Gap (cont.)


Potable Water Line
Dept Comm. Calculation
Non-Potable Water Storage Tank
Potable Water Line
Backflow Prevention device
Non-Potable Water Storage Tank

Air Gap Calculation

Department of Commerce
Water Supply Air Gap CREW
Based on ASME A112.1.2-1991

Pipe Inlet Sizing, GPM Inflow

1. Determine gallons per minute flow at the inlet pipe:

a. Provide inside diameter of the largest inlet piping:	0.75	inches (3/4" = .75, etc.)
b. Provide flow pressure at the inlet:	40	psig
Inlet flow:	71.15	gpm

If required, provide size and flow pressure data for additional inlets in the following boxes:

c. Provide the inside diameter of the second inlet pipe.....	0	
d. Provide the water flow pressure of the second inlet pipe....	0	
Inlet flow:	0.00	gpm
e. Provide the insice diameter of the third inlet pipe.....	0	
f. Provide the water flow pressure of the third inlet pipe.....	0	
Inlet flow:	0.00	gpm
Total GPM From All Inlet Pipes Is:	71.15	

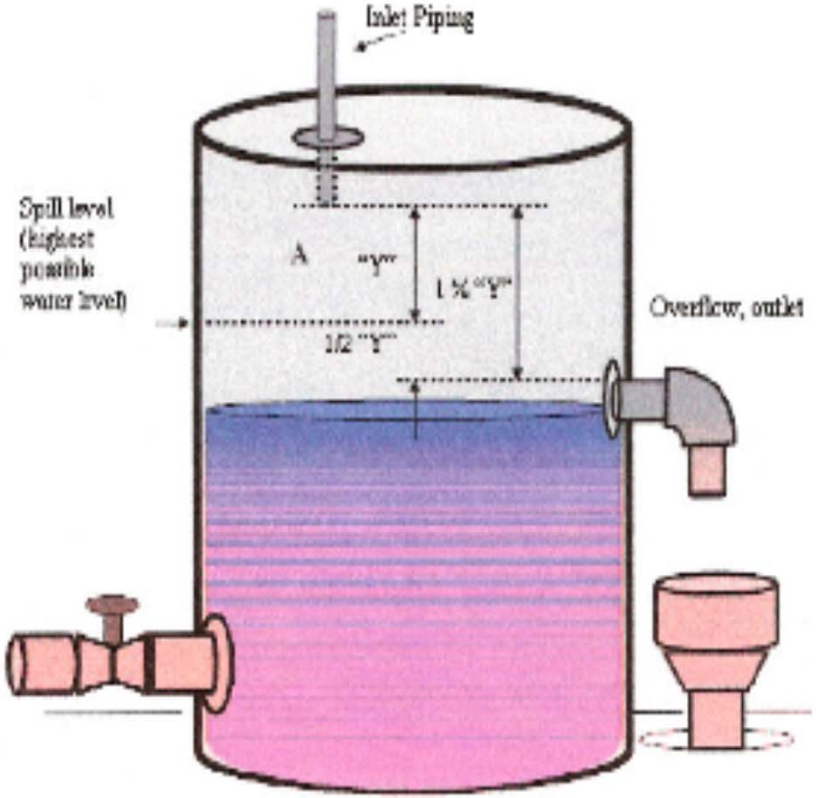
Minimum air gap with surcharge above outlet required (1 1/2 "Y").... No Near Walls 2.25 inches
(Note the tank sketch below)

When affected by near walls: 3.375 inches

Air Gap Calculation

Maximum GPM Per Pipe Outlet Size, No Near Walls

Pipe I.D.	1"	1.25"	1.50"	2"	2.5"	3"	4"	5"	6"	8"	10"	12"
GPM	3	4.7	6.7	12	18.7	27	48	75	108	191.5	300	431



Example of Air Gap In Open Tank With Overflow

A = minimum required air gap

Air Gap Calculation

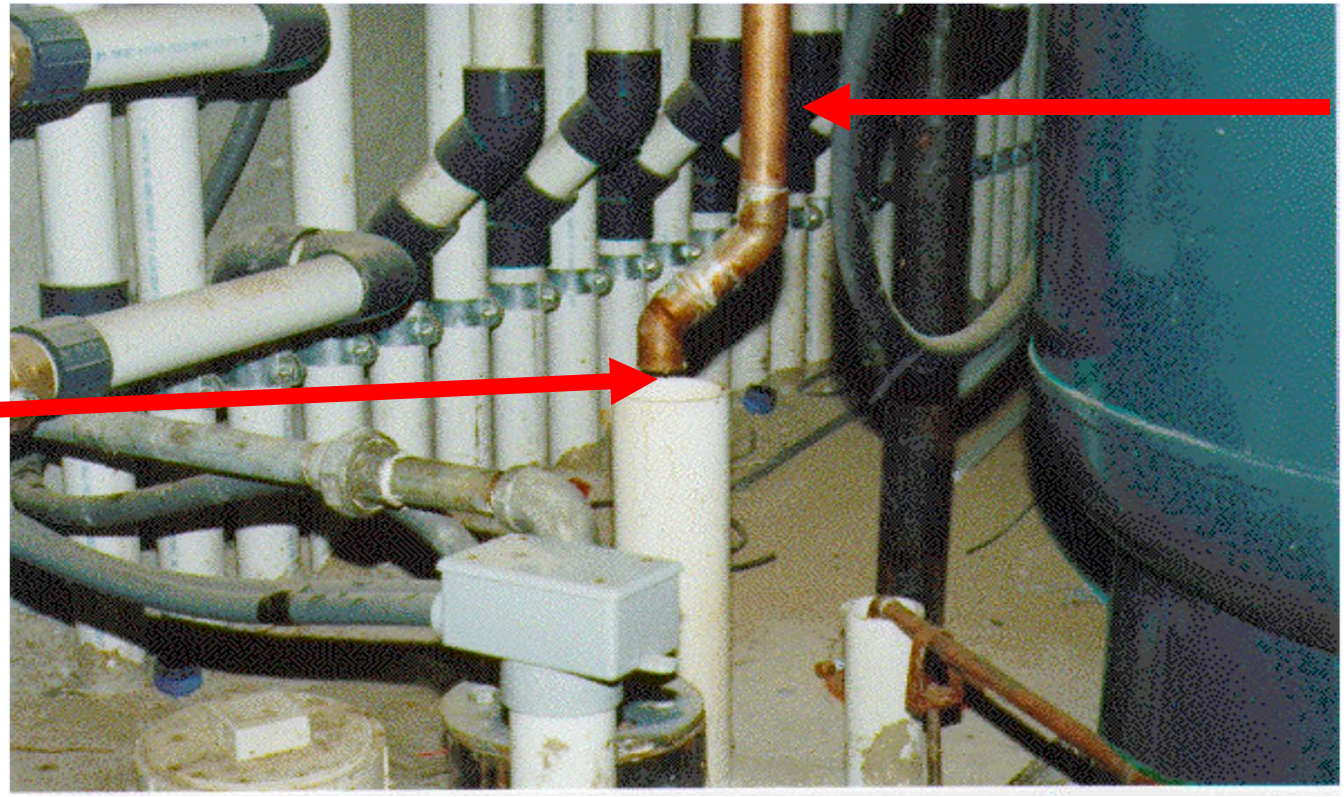
Department of Commerce

Plumbing Consultant

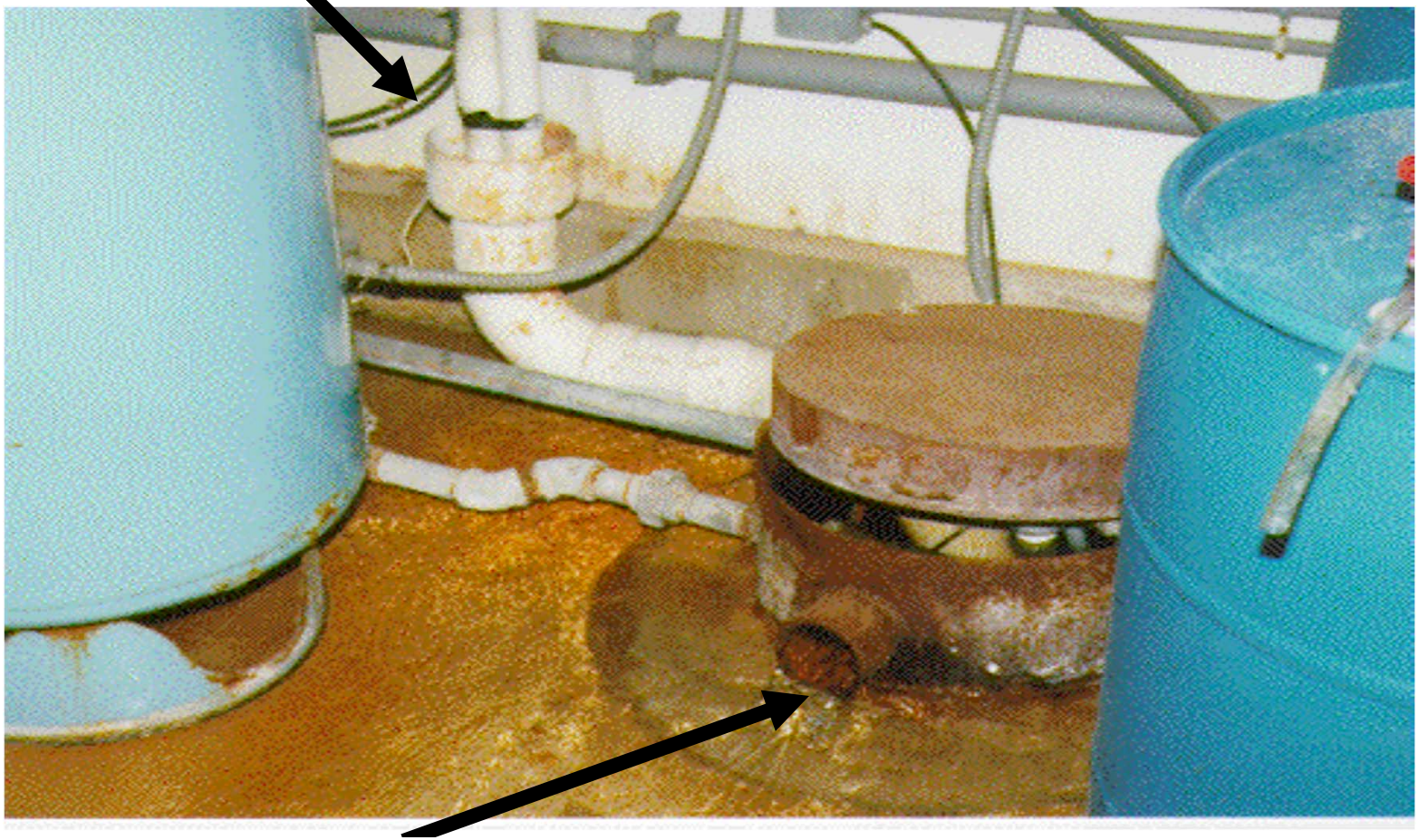
- Don Hough
- (715) 634-4804
- Donald.Hough@wisconsin.gov

- Where can I get a copy of the Commerce Air Gap Calculator?
  - A. The division recommends that you contact Don Hough at the Department of Commerce, Donald.Hough@wisconsin.gov. This will be available on the Department of Commerce website in the near future.
- Update
  - http://commerce.wi.gov/SB/docs/SB-PlumbingH2OSupAirGapCalculator.xls

Underground Storage



Potable Water



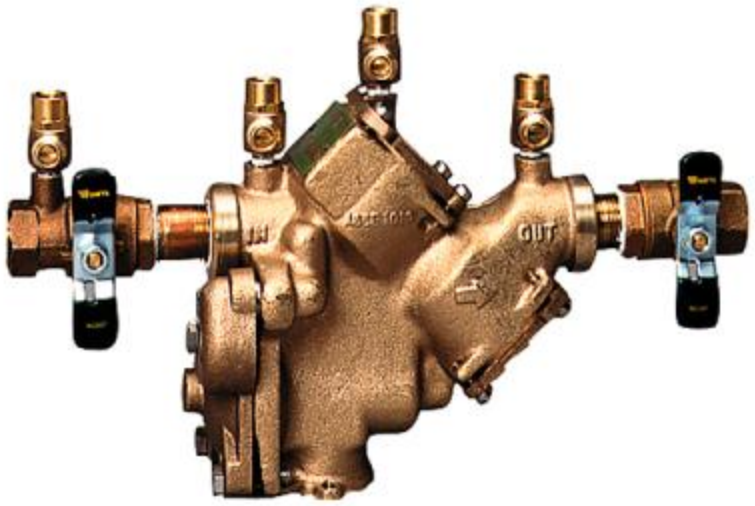
Overflow

Backflow Prevention Guide
For Agricultural Applications

Hazard/Equipment	Approved devices or methods[2]						
	Air gap ANSI std.	ASSE 1013	ASSE 1001[1]	ASSE 1012	ASSE 1055	ASSE 1011[1] 1056 1019 1052[1]	Comments
Pasteurized product lines w/out cleaning solution	X	X		X			
Raw product lines w/cleaning solution	X	X	X				
Animal watering tanks	X	X	X			X	
Cooling water w/out additives	X	X	X	X			
Reclaimed water (low hazard)	X	X	X	X			
Reclaimed water (high hazard)	X	X	X				
Chemical injector or proportioner	X	X			X		Per alternate approval or adopted standard
Boiler w/non-toxic additives	X	X		X			
Boiler w/ toxic additives or pot feeder	X	X					
Separator bowl installed downstream of pasteurization	X	X		X			
Separator bowl installed upstream of pasteurization	X	X					
Homogenizer	X	X					
Pump seals (open)	X	X	X	X			
Portable pressure washer	X	X				X	
Permanent pressure washer	X	X					

[1] No valves downstream of the device.
[2] Also see manufacturers limitations for devices.

ASSE 1013 REDUCED PRESSURE PRINCIPLE



- ***WATTS -*** 009, 909, 995 series
- ***WILKENS*** - 375, 975, 975 series
- ***FEBCO -*** 860,880, 880V, 825, 825YA, 820
- ***CONBRACO -*** 40-200 series
- ***FLOMATIC -*** RPZE, RPZ IIE


TESTED BY :
PACKED BY :

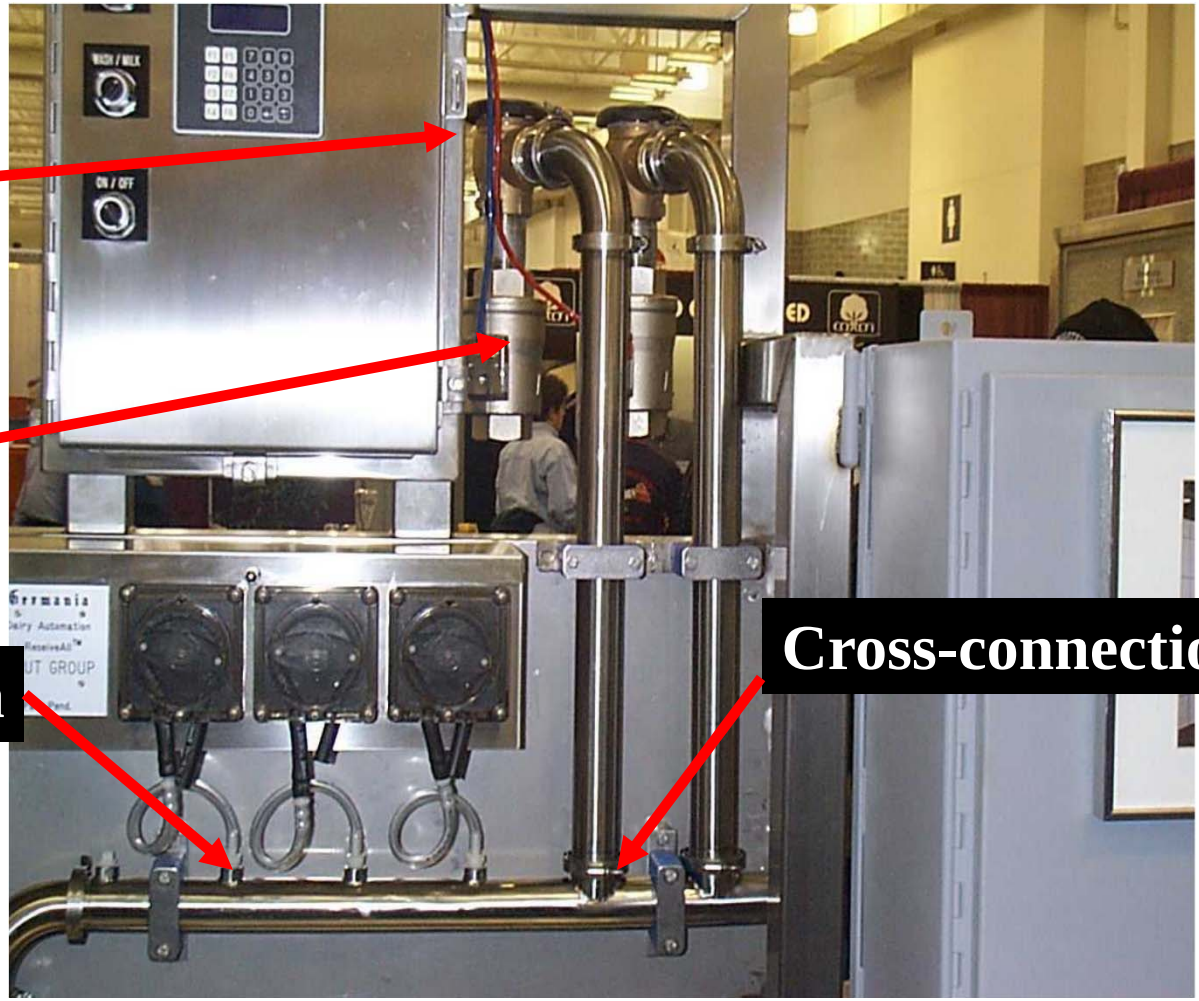
ASSE 1001 ATMOSPHERIC VACUUM BREAKER

- ***WATTS*** 288A
- ***WILKENS*** 35
- ***FEBCO*** 710 & 715
- ***CONBRACO***
  38-100 & 38-200
- ***CASH-ACME*** V-101

ASSE 1001 ATMOSPHERIC VACUUM BREAKER

- Installed in a vertical position
- 6 inches higher than vessel
- No backpressure situations
- No valves downstream
- 12 hours max. continuous use

ASSE 1001 ATMOSPHERIC VACUUM BREAKER



Hose Connection vacuum breaker ASSE 1011

- Watts 8,8A,8AC,8B,8BC,8C,NF8,NF8C,8P,8FR
- Wilkens BFP-8 & BFP-8F
- ConBraco 38-304,38P,38-400,38-404
- Cash-Acme V-3, V-4, VB-222
- Fabco 731 Series
- Danfoss HB8

ASSE 1011 HOSE CONNECTION

Vacuum Breaker

ASSE 1052 HOSE CONNECTION BFP

- ***WATTS -*** N9-CD
- ***WILKINS – Z-1399***
- ***CONBRACO -*** 38-304-02
- ***NIDEL -*** 38HD

ASSE 1012 BFP W/ INTERMEDIATE VENT

- ***WATTS -*** 9-D
- ***WILKENS -*** 750
- ***FEBCO -*** 815
- ***CONBRACO -***
  40-400 & 4J-400
- ***CASH-ACME*** BFP
- ***DANFOSS*** - 8200

ASSE 1056 BACK SIPHONAGE VACUUM BREAKER

- ***WATTS*** 008 series
- ***CONBRACO -*** 4W-500
- Indoor installation – spill resistant

ASSE 1019
Vacuum Breaker Wall Hydrants

- ***WATTS*** - HY-42, HY-42B, FHB-1 & FHB-2

Pressure Washers

- Permanent Installations
  - Connected to water distribution system with approved materials (Comm 84.30)
  - ASSE 1013 RPZ required
  - No longer required to install a low-pressure cut-off switch
- Portable Installations
  - Hose connection to water source
  - ASSE 1011 or 1052 device required
  - Non-continuous use

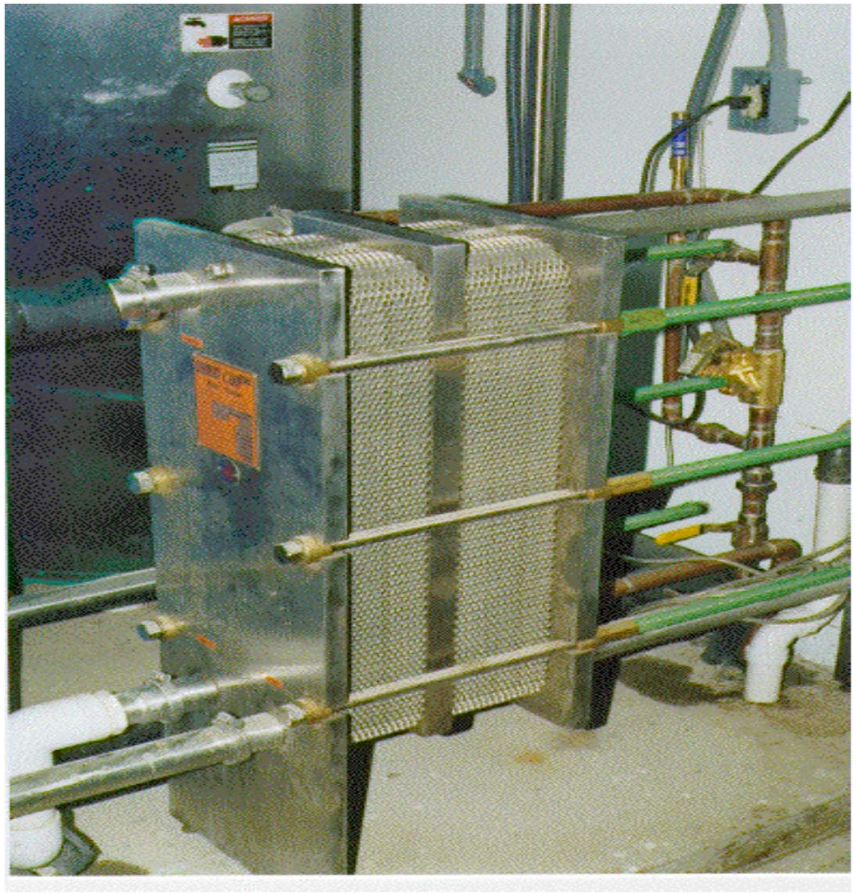
Portable Pressure Washer

ASSE 1011

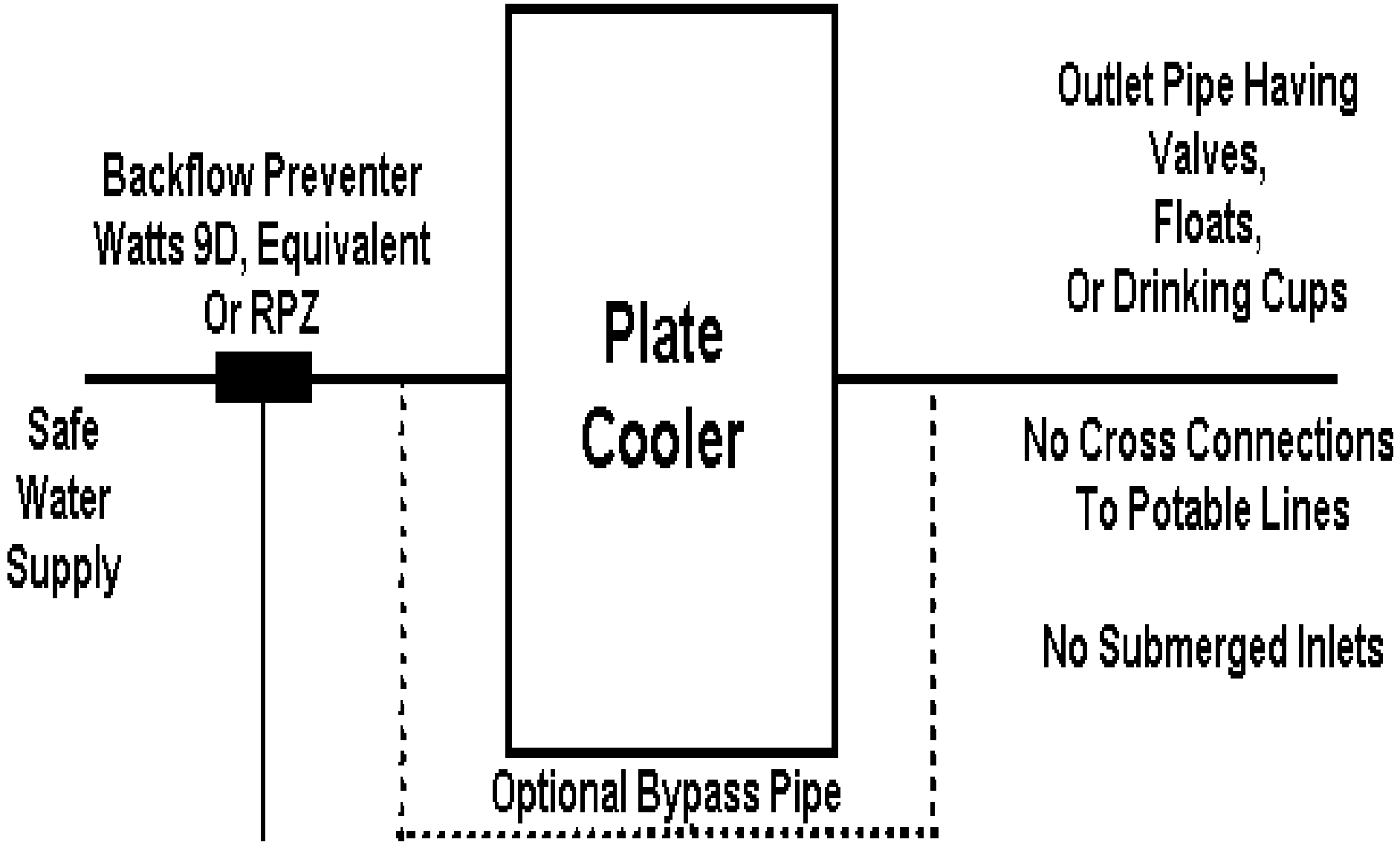
ASSE 1052

Heat Exchanger
Cross-Connection Control

- **Shut-off Valves Downstream require protection**

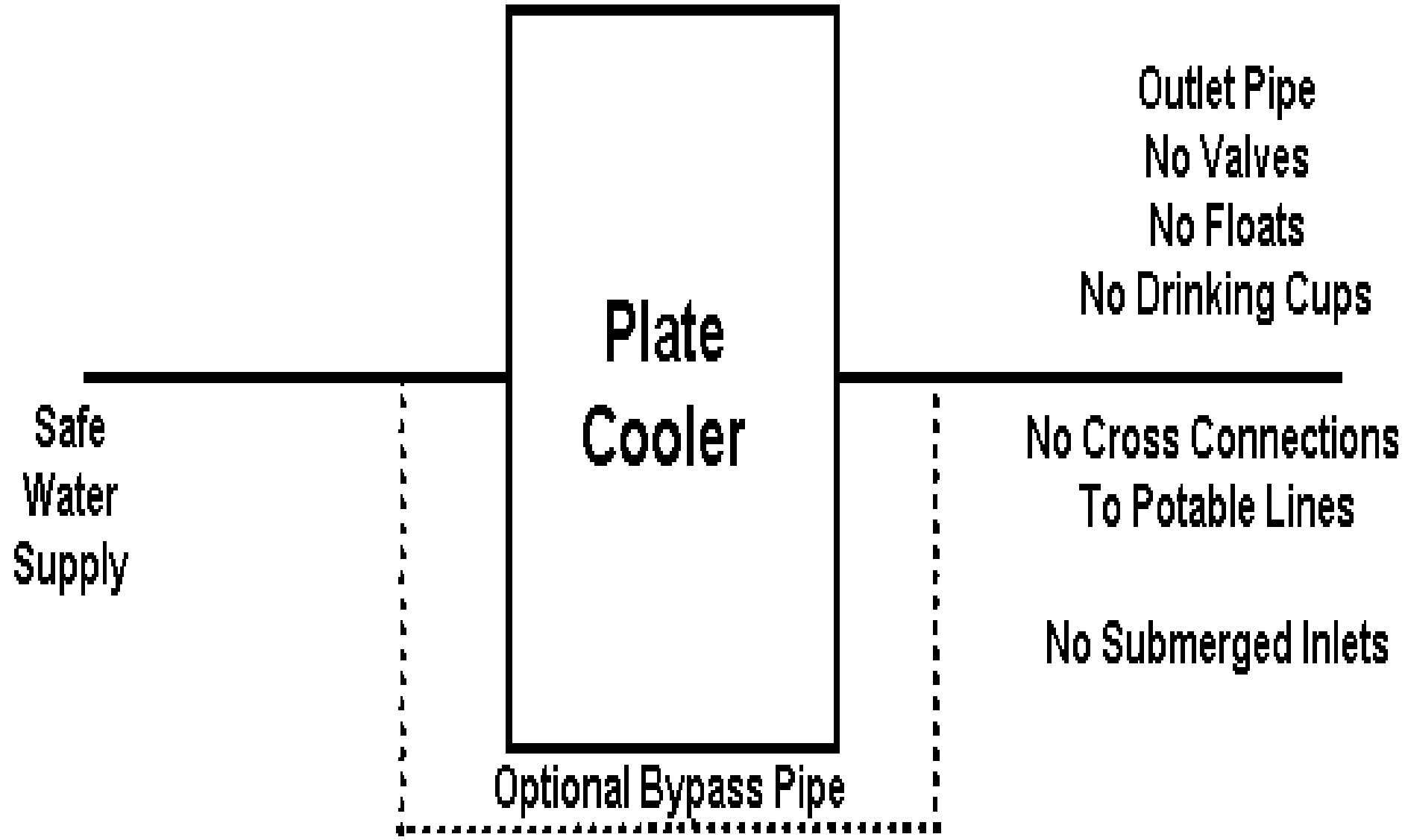


Acceptable Plumbing-Outlet Pressurized



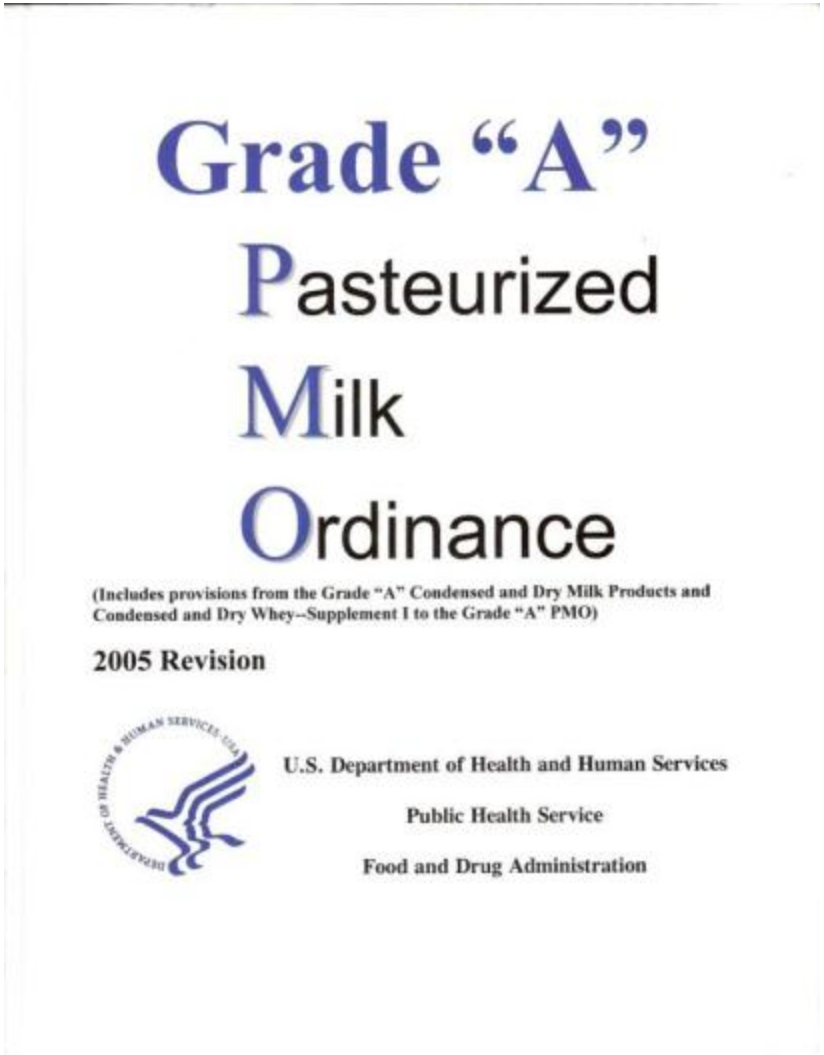
Note: Valves may be located in the water supply and bypass lines

Acceptable Plumbing-Outlet Line Not Under Pressure



Note: Valves may be located in the water supply and bypass lines

Reference



Grade "A"

Pasteurized

Milk

Ordinance

(Includes provisions from the Grade "A" Condensed and Dry Milk Products and Condensed and Dry Whey--Supplement I to the Grade "A" PMO)

2005 Revision

U.S. Department of Health and Human Services

Public Health Service

Food and Drug Administration

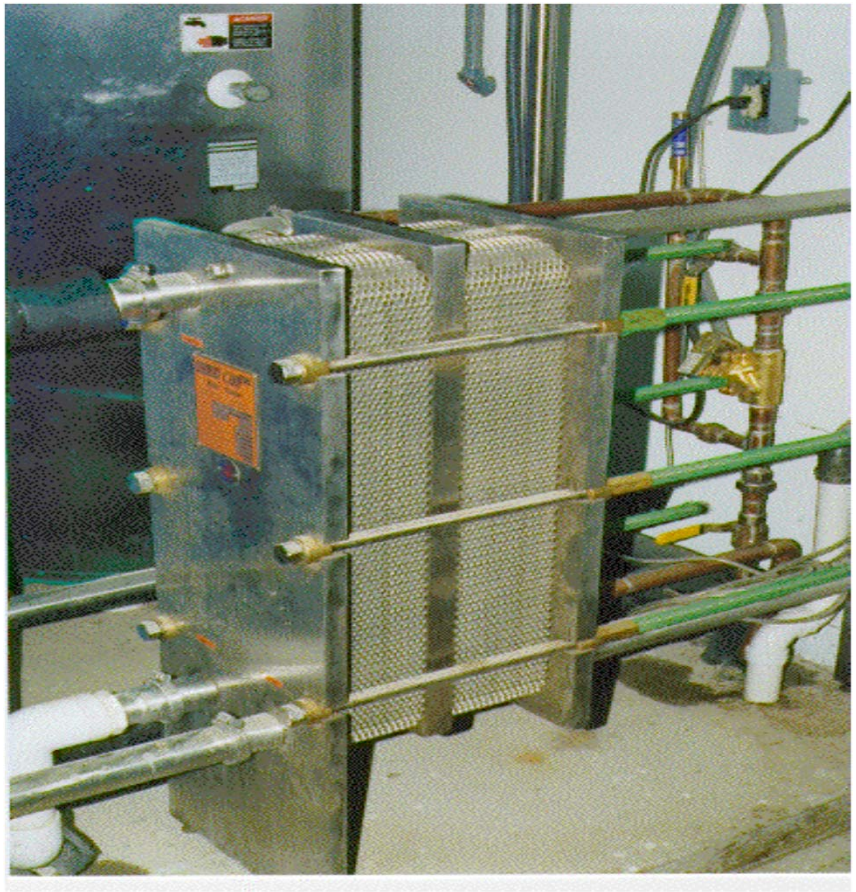
- Current Pasteurized Milk Ordinance
  - Appendix D Section VI
- ATCP 60.08, Wis. Adm. Code

Reclaiming Heat Exchanger or Compressor Water

- **Potable Use**
- **Non-Potable Use**

Heat Exchange Reclaim

- **Pre-Rinse**



Water Reclaimed for Potable Purposes

- Storage tank construction
- Cross-connection control
  - Backflow protection between pre-cooler and storage tank
  - No submerged inlets downstream of storage tank
  - May not reconnect with the potable water distribution system

Water Reclaimed for Potable Purposes

- Water quality
  - No off odor or flavors
  - Bacteriologically safe
    - At start-up
    - Every 6 months
  - Chemical addition
    - Approved chemicals
    - Monitoring of addition

Properly Constructed Storage Vessel

- Non-toxic
- Sturdy Construction
- Discernible Drain
- Access Point
- No Cross-Connections
- Backflow Protection

Above Ground Water Storage Tank

Chemical Addition

- Suppress Bacterial Growth
- Prevent Taste & Odors
- Monitoring Program

Water Reclaimed for Pre-Rinse of Milking Equipment

- Collected directly from the plate heat exchanger into the wash vat or utensil sink.
- No Submerged inlets
- Pre-rinse water immediately discharged to waste following use.

Water Reclaimed for Non-potable use

- Parlor Washdown
- Cattle Watering
- Butt Pans
- Holding Area Washdown

Water Reclaimed for Non-potable Purposes

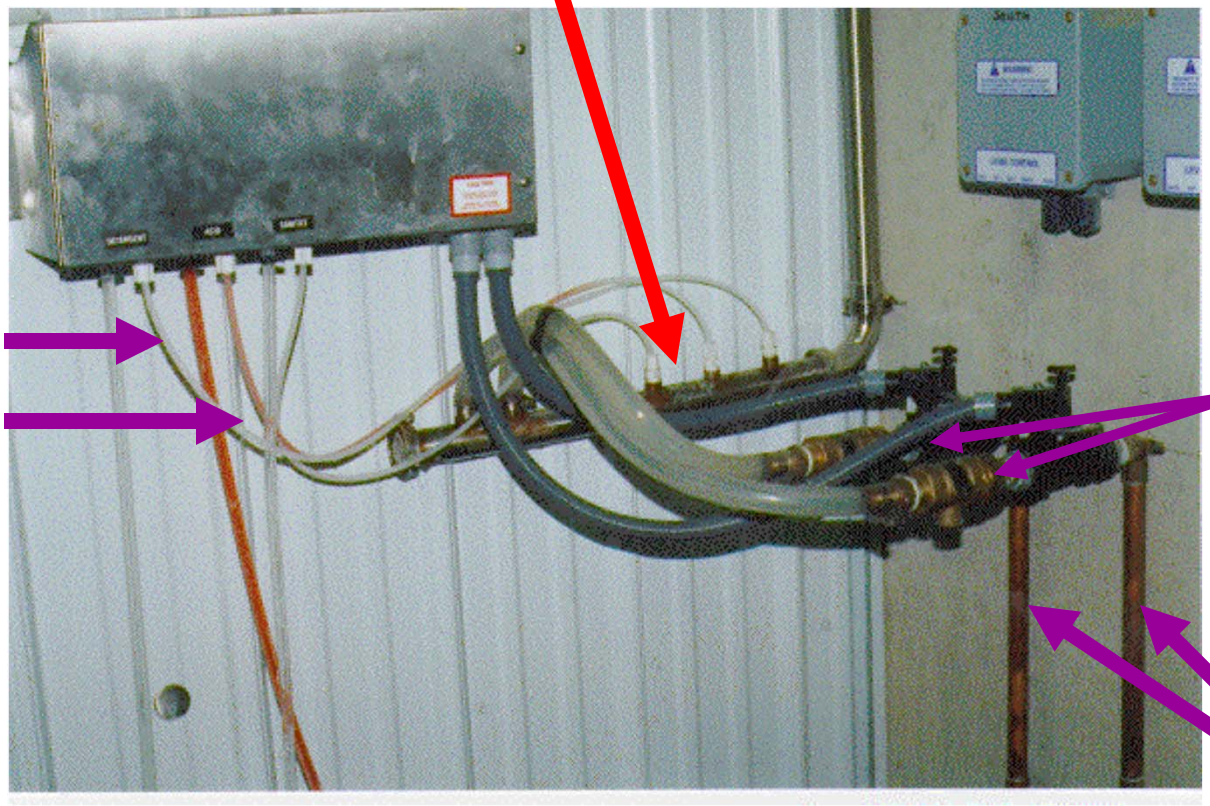
- Cross-connection control
  - Backflow protection between outlet of pre-cooler and any application or storage tank
  - No submerged inlets downstream of storage tank
  - May not reconnect with the potable water distribution system

Cross-connection Examples

- Food for thought
- Corrections
- Current rulings

Waste Trough Water Supply
Submerged Inlet?

Water-to-Chemical Cross-Connection



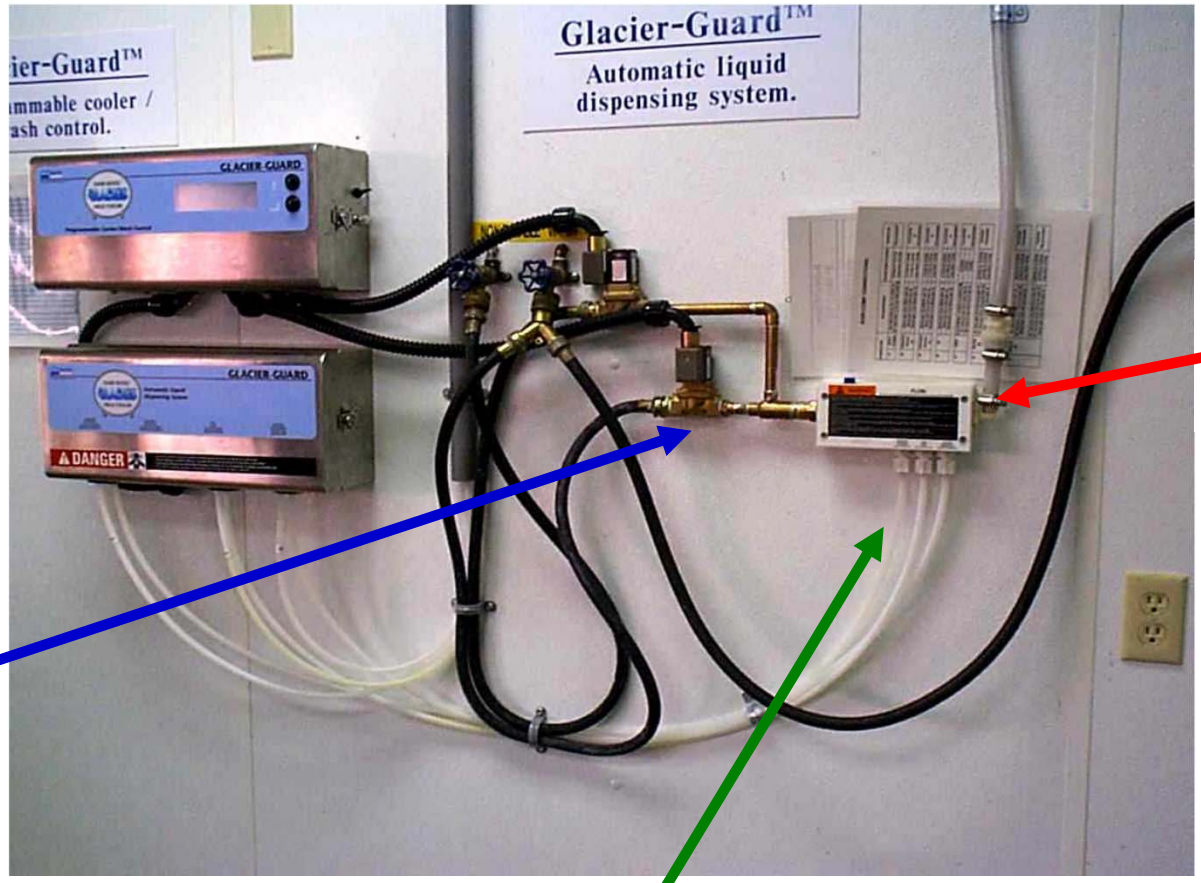
Chemical Feed Lines

Back-Flow Preventers

Potable Water Lines

Chemical-to-Water Cross-Connection

Chemical-to-Water Cross-Connection at Bulk Tank Washer

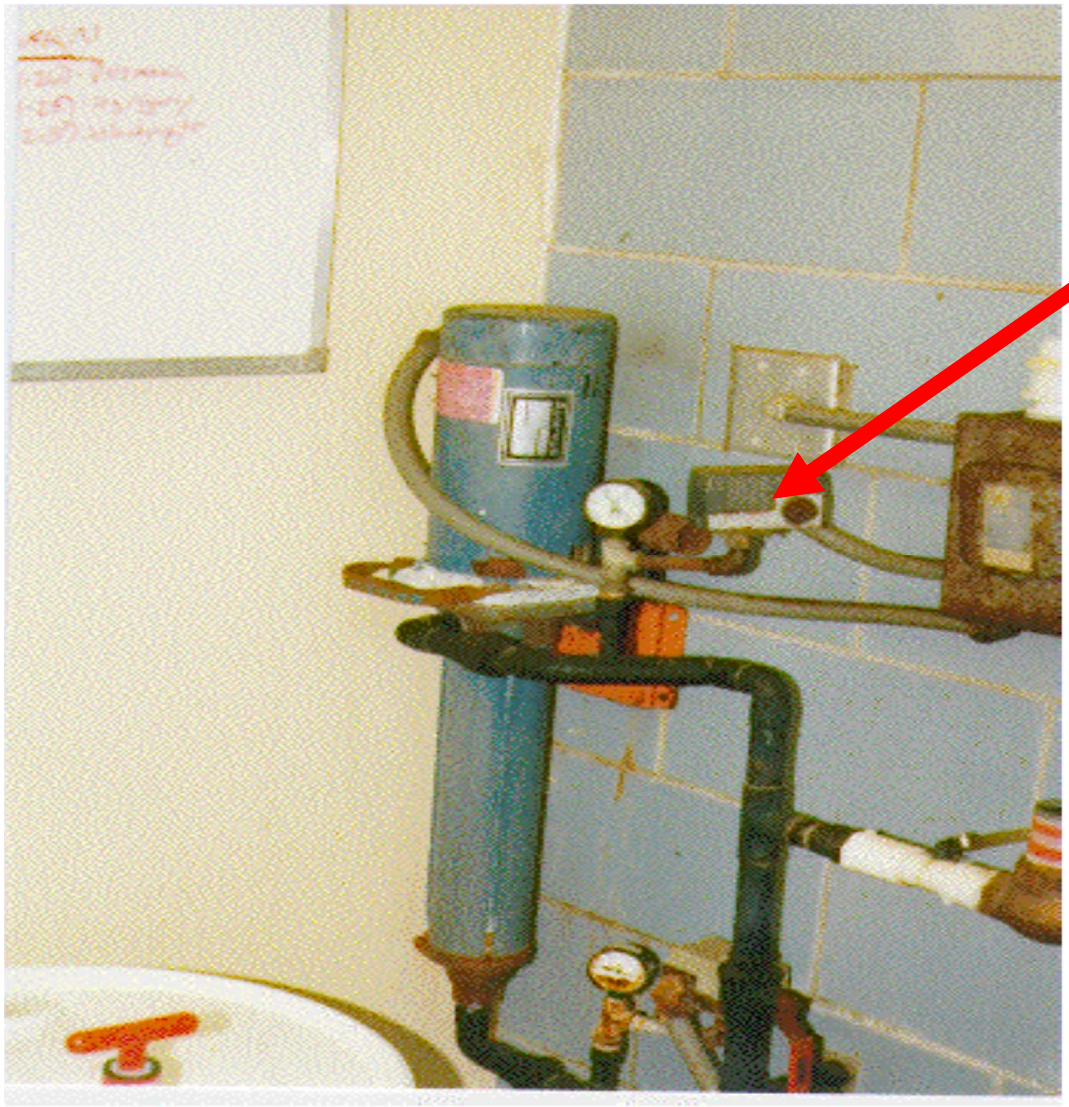


Potable Water Lines

Cross-Connection

Chemical Feed Lines

Permanently Installed High Pressure Washer



Low-Pressure Cut-Off Switch
*****No longer required**

New Systems require ASSE 1013 RPZ Backflow Prevention Device

Recirculated Cooling Water/Glycol

Recirculated cooling media (water or glycol) must be:

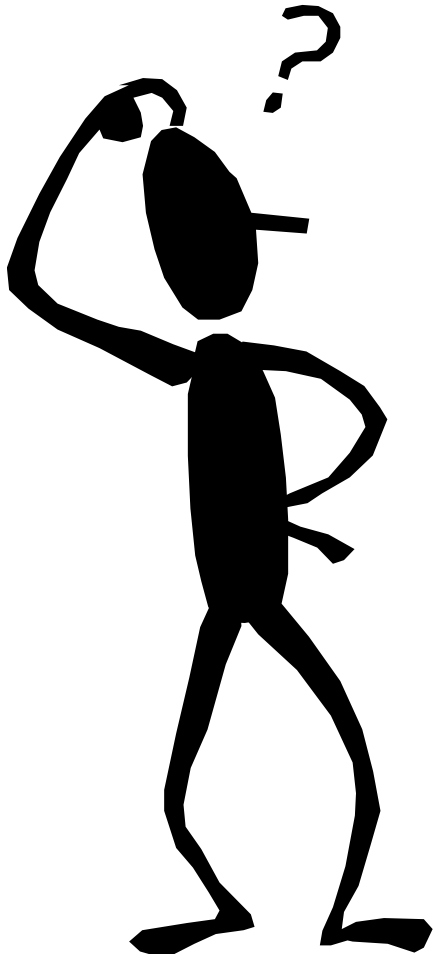
- Potable water.
- Protected from environmental contamination (over-lapping cover on reservoir; screened over-flow).
- Sampled every 6 months.
- The glycol must be *“Food Grade”. (USP)*

Tankless water heater

Hot Water Requirements

- The hot water system capacity shall be greater than or equal to the total hot water needs.
  - Submit a detailed hot water needs report
  - Refer to The Dairy Practices Council guideline # 58 for the sizing of dairy farm hot water systems for assistance.

Questions



DAIRY FARM FACILITY REQUIREMENTS 2012

Presenter:
Thomas Starich

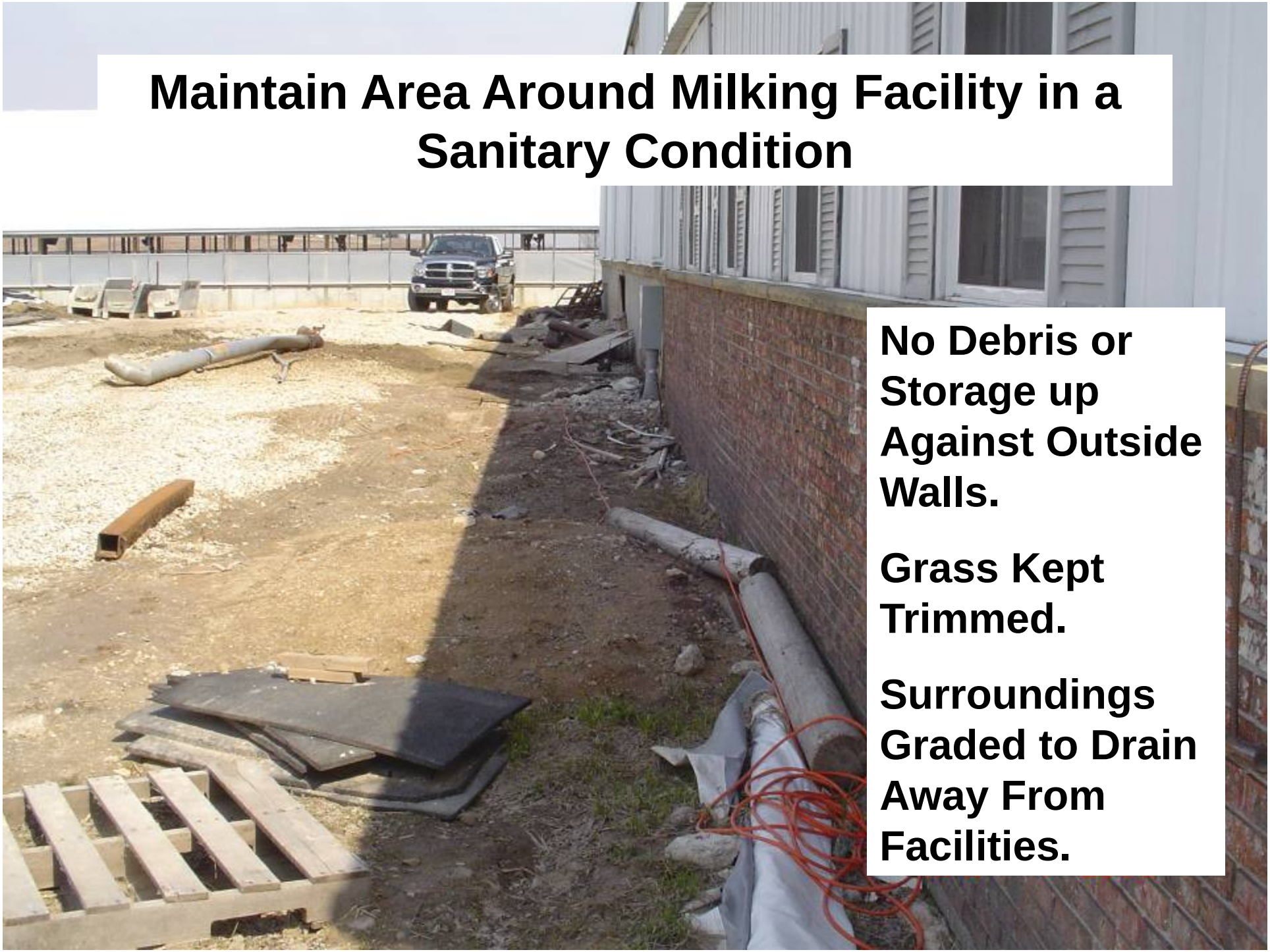
ADAPTED SPECIFICALLY FOR THE EQUIPMENT INSTALLER TRAINING SESSIONS

Wisconsin Administrative Code

The Following Training Material is Based on the Dairy Farm Rule, ATCP 60.

MILKHOUSE REQUIREMENTS

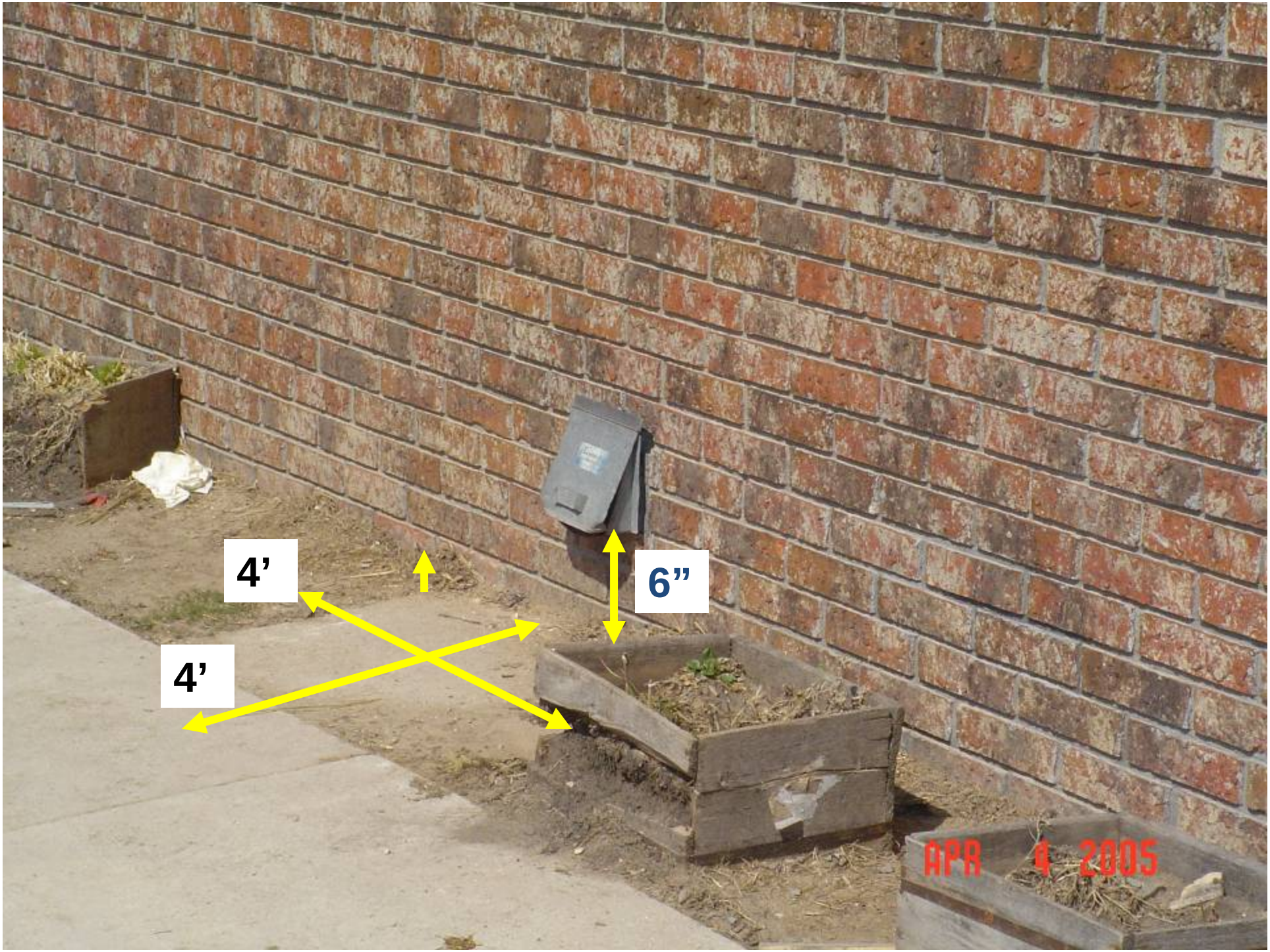
Maintain Area Around Milking Facility in a Sanitary Condition

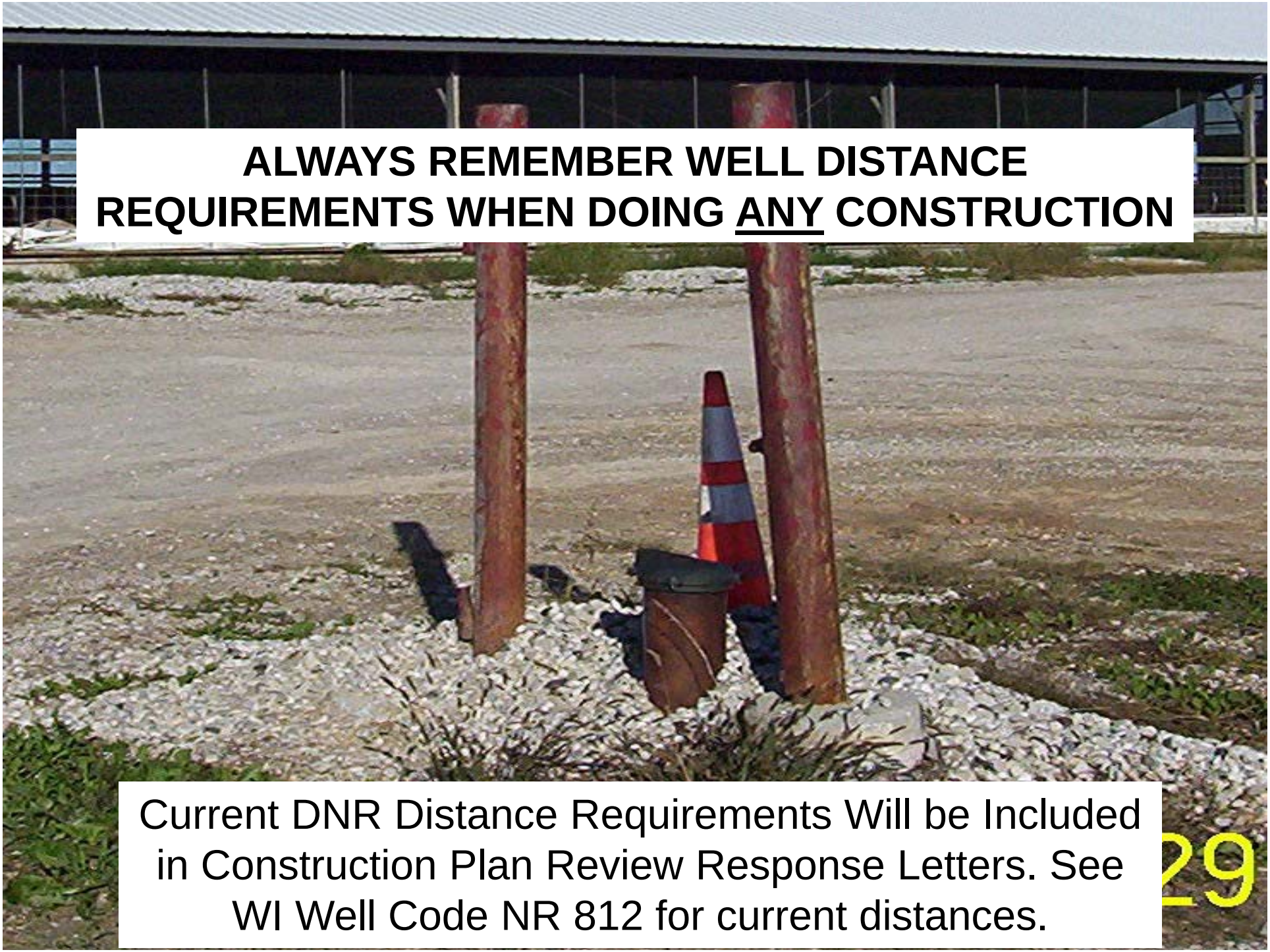


No Debris or Storage up Against Outside Walls.

Grass Kept Trimmed.

Surroundings Graded to Drain Away From Facilities.


4’
4’
6”
APR 4 2005

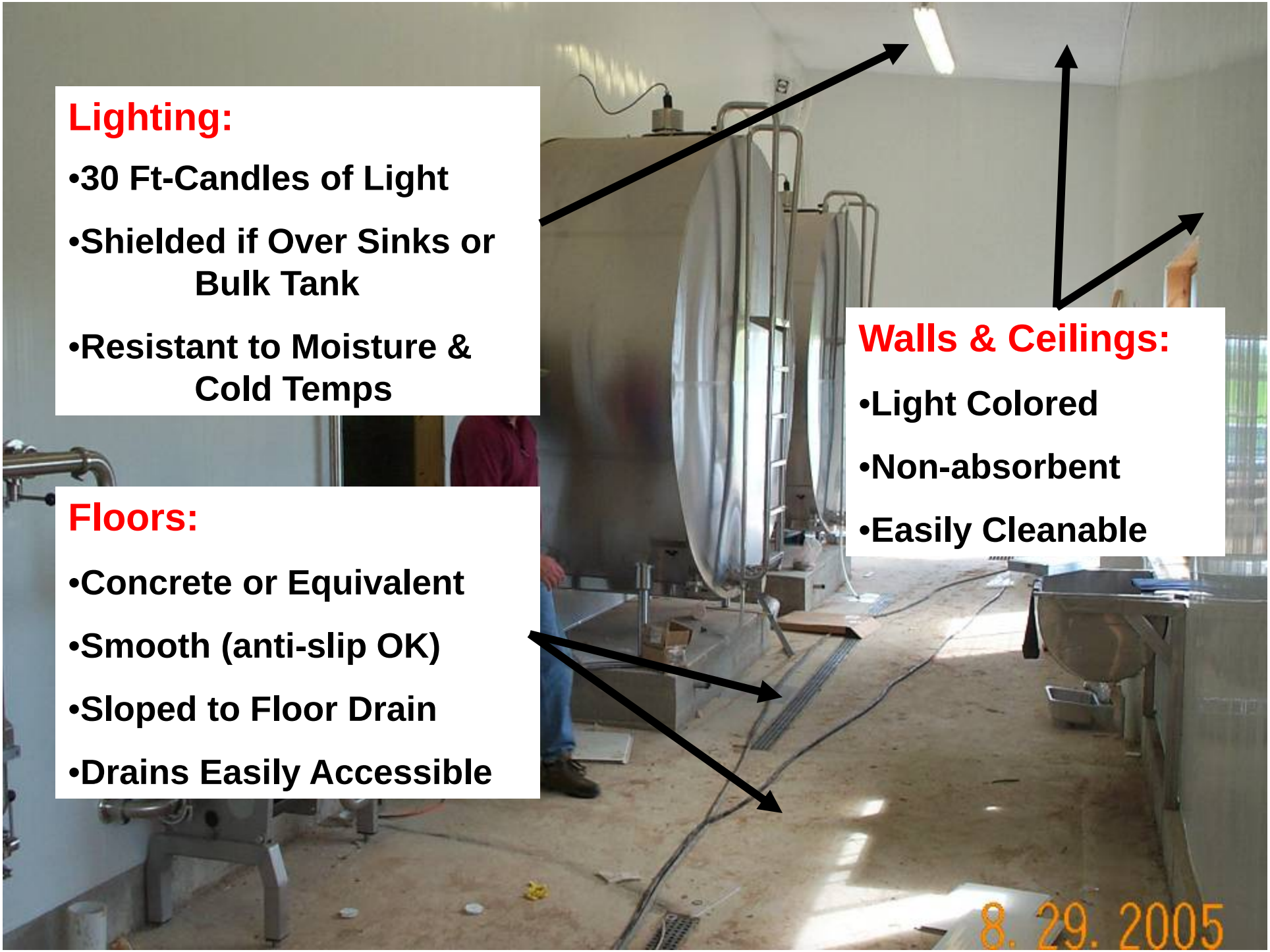


ALWAYS REMEMBER WELL DISTANCE REQUIREMENTS WHEN DOING ANY CONSTRUCTION

Current DNR Distance Requirements Will be Included in Construction Plan Review Response Letters. See WI Well Code NR 812 for current distances.

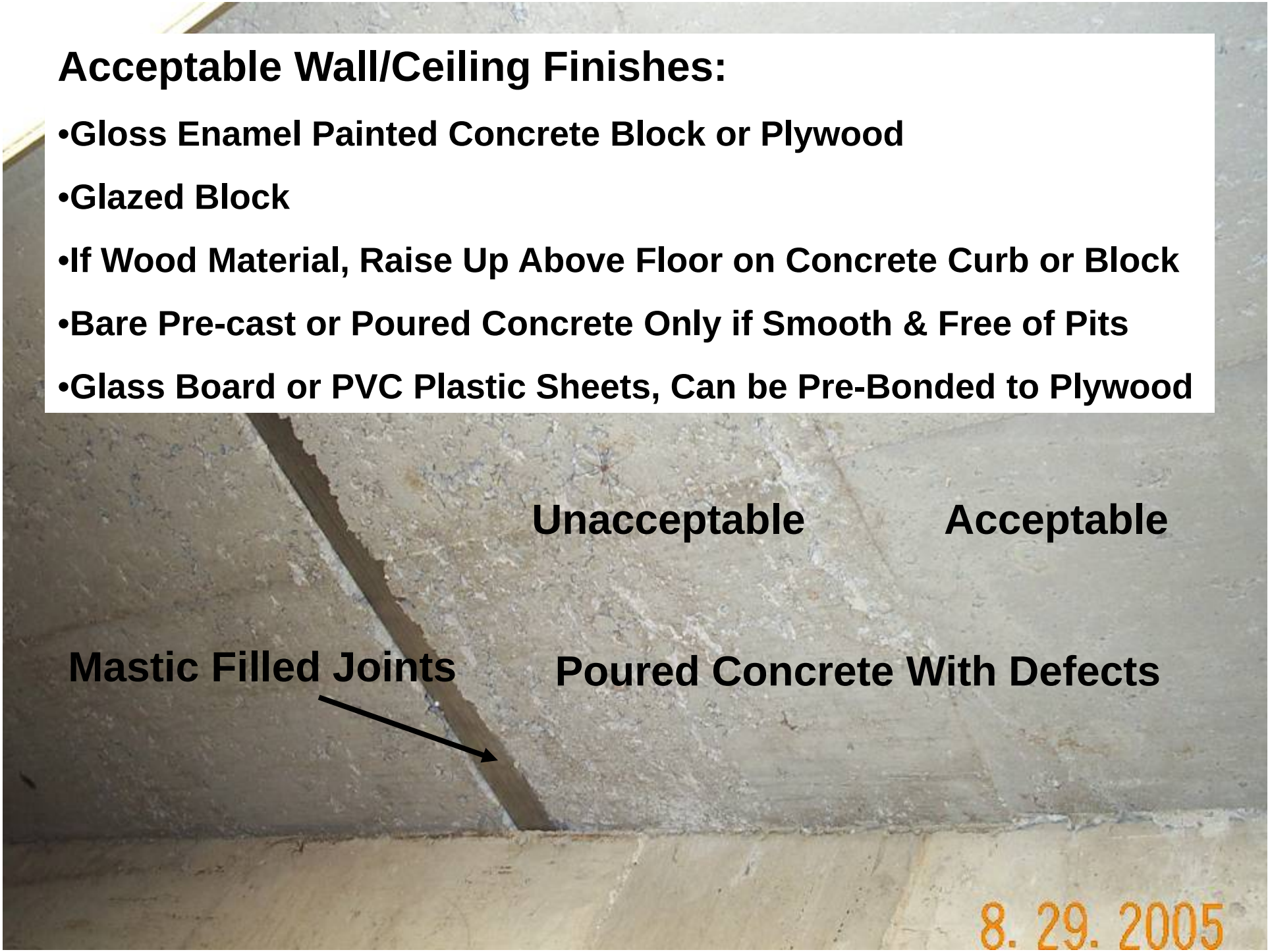
Milkhouse Doors:

- **<u>Only</u> Screen Doors Must Open Outward**
- **<u>All</u> Doors Must be Tight-Fitting and Self-Closing**
- **Milkhouse Doors to Parlor, Barn, or Other Dust/Odor Areas Must be Solid (no vents or screens)**


Lighting:
•30 Ft-Candles of Light
•Shielded if Over Sinks or Bulk Tank
•Resistant to Moisture & Cold Temps
Walls & Ceilings:
•Light Colored
•Non-absorbent
•Easily Cleanable
Floors:
•Concrete or Equivalent
•Smooth (anti-slip OK)
•Sloped to Floor Drain
•Drains Easily Accessible
8. 29. 2005

Acceptable Wall/Ceiling Finishes:

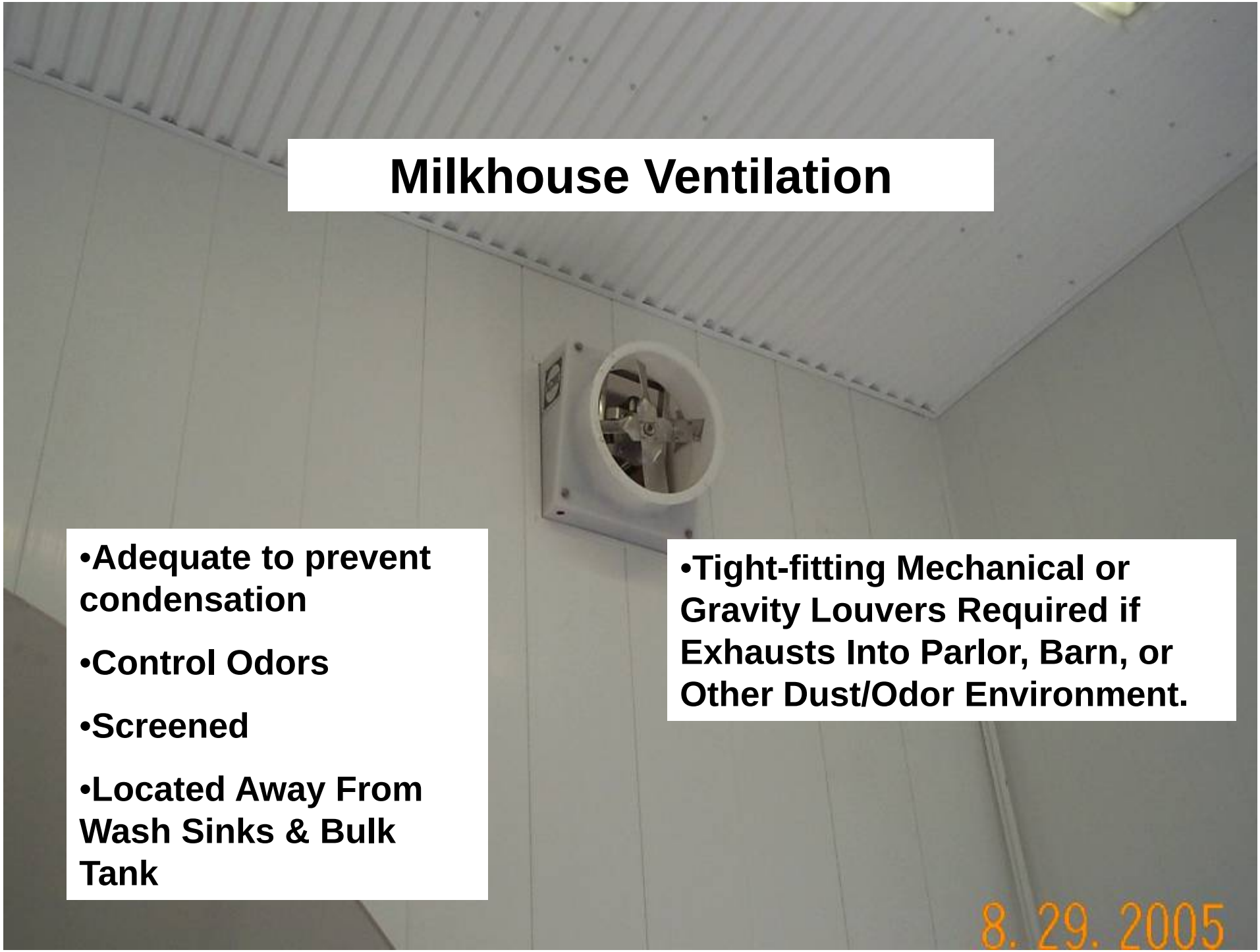
- Gloss Enamel Painted Concrete Block or Plywood
- Glazed Block
- If Wood Material, Raise Up Above Floor on Concrete Curb or Block
- Bare Pre-cast or Poured Concrete Only if Smooth & Free of Pits
- Glass Board or PVC Plastic Sheets, Can be Pre-Bonded to Plywood



Milkhouse Floor Drains:

- Trapped if Connected to Sanitary Sewer
- Accessible for Cleaning
- Not Directly Under Bulk Tank

Milkhouse Ventilation

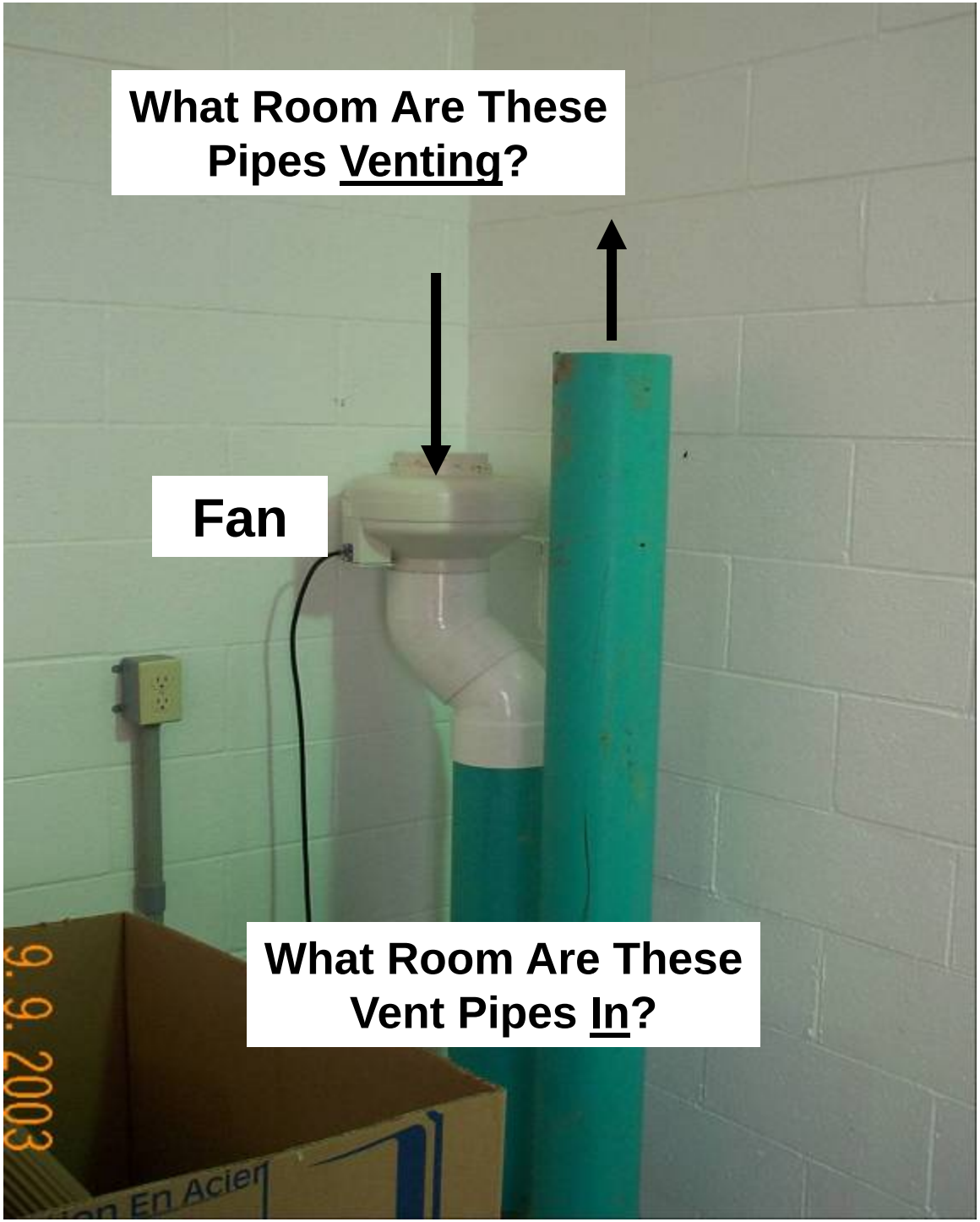


- Adequate to prevent condensation
- Control Odors
- Screened
- Located Away From Wash Sinks & Bulk Tank

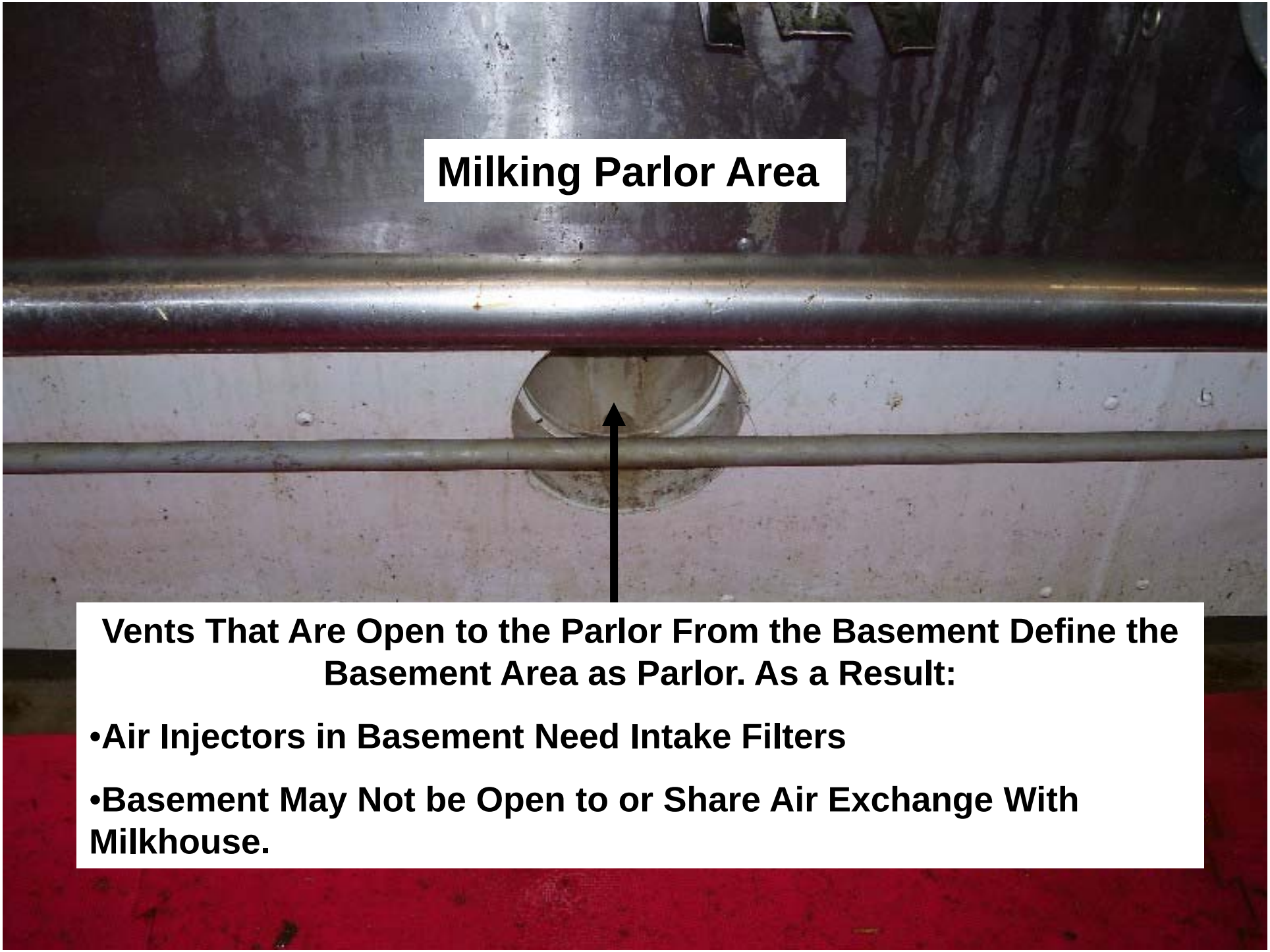
- Tight-fitting Mechanical or Gravity Louvers Required if Exhausts Into Parlor, Barn, or Other Dust/Odor Environment.

Air From Utility Rooms Can be Used to Ventilate Milkhouse if:

- **Fan or Vent Openings Between Utility Room & Milkhouse are Screened.**
- **No Openings Exist Between Utility Room and Parlor, Cattle Housing, etc.**
- **Forced Air Heating with Cold Air Returns Would Be Considered a Direct Opening Between Any Rooms Connected to the System.**

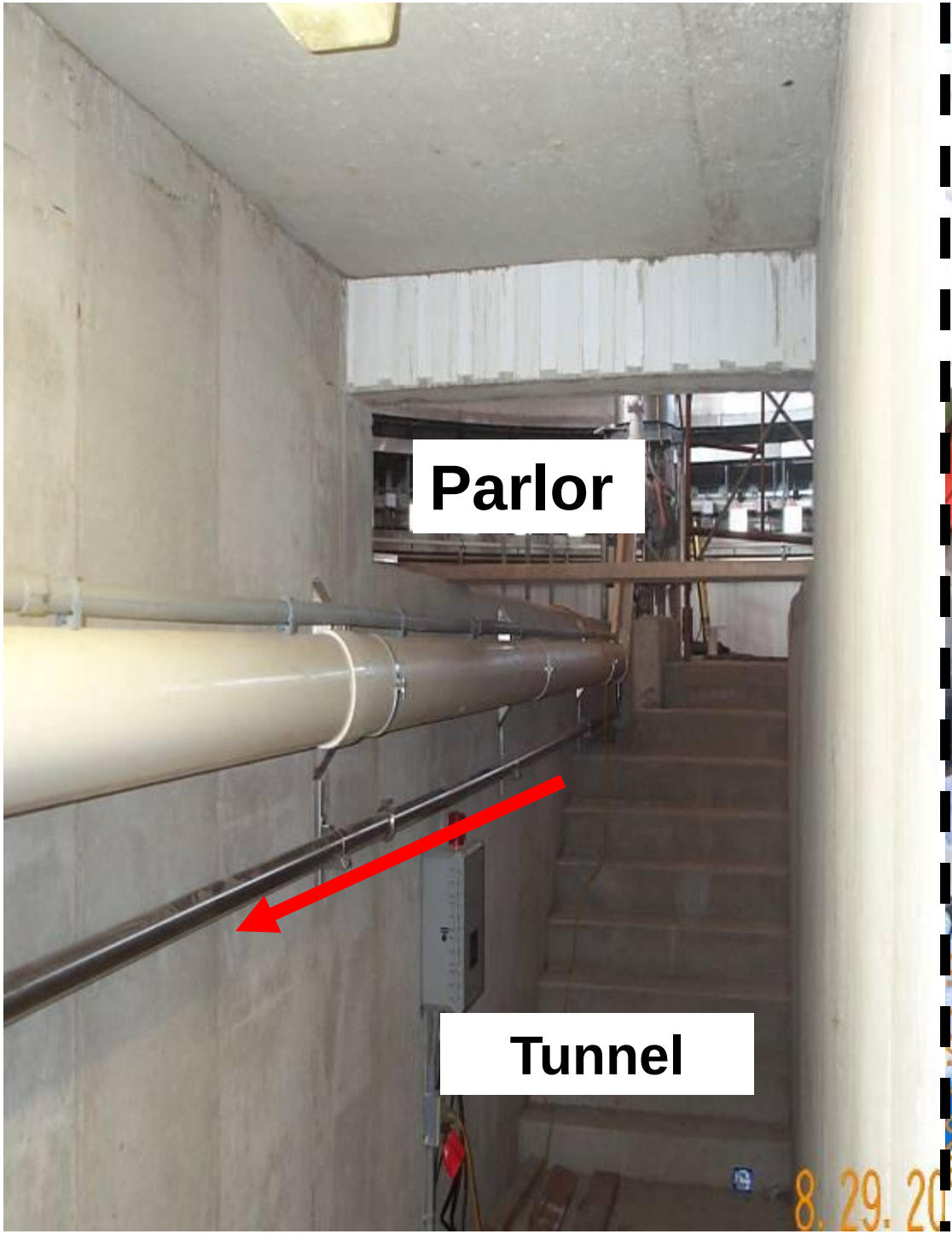


Sometimes the Ventilation Connection Isn't so Obvious, but Still Needs to be Considered.



Vents That Are Open to the Parlor From the Basement Define the Basement Area as Parlor. As a Result:

- **Air Injectors in Basement Need Intake Filters**
- **Basement May Not be Open to or Share Air Exchange With Milkhouse.**

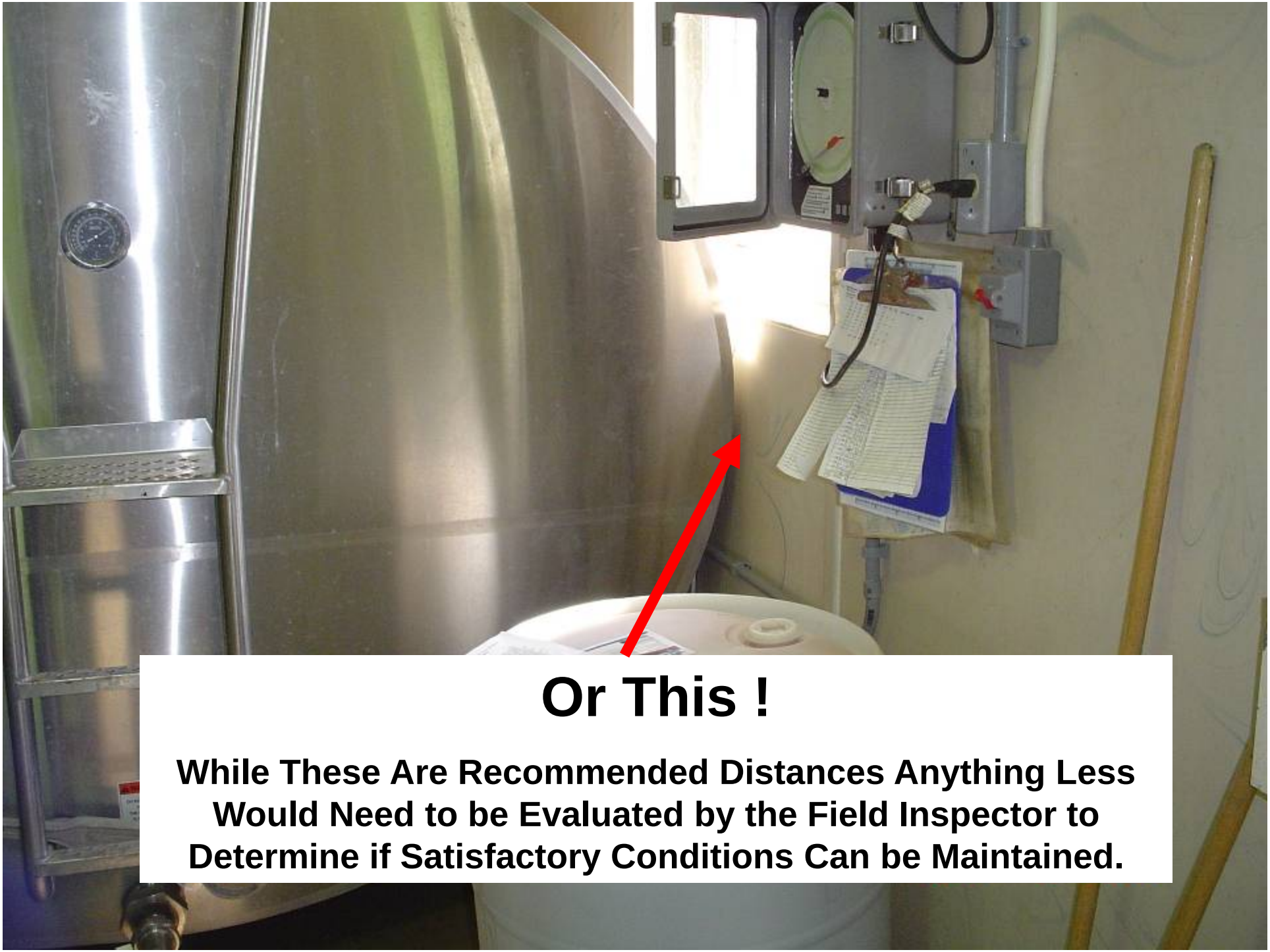

Parlor
Tunnel
8. 29. 20


What Area Is This and Where is it Vented or Open to?
With No Solid Door Separation The Entire Area Becomes Parlor
8. 29. 2005

Milk House Sink Requirements

- Two Compartment wash sink with an unrestricted Hand wash Sink on the side.
- Two (double compartment sinks) one of the 4 sinks serving as a hand wash sink
- Always Hot and Cold Water Under Pressure and soap and Towel

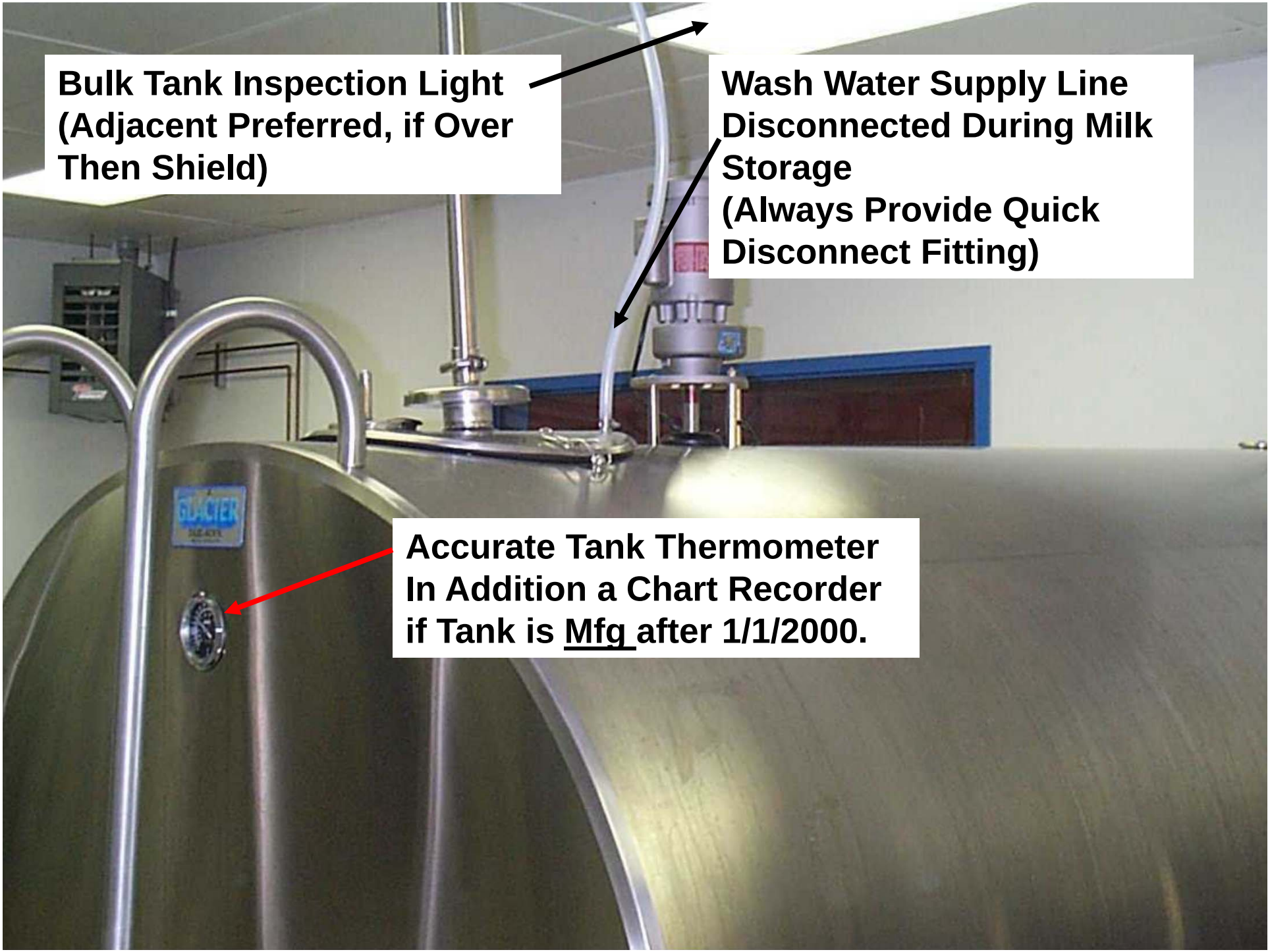

Don't Forget
24"
18"
18"
Bulk Tank Clearances Measured From Tank to Walls & Ceiling or Fixed Pieces of Equipment
18"
24"
We Don't Want to See This!
9. 9. 2003

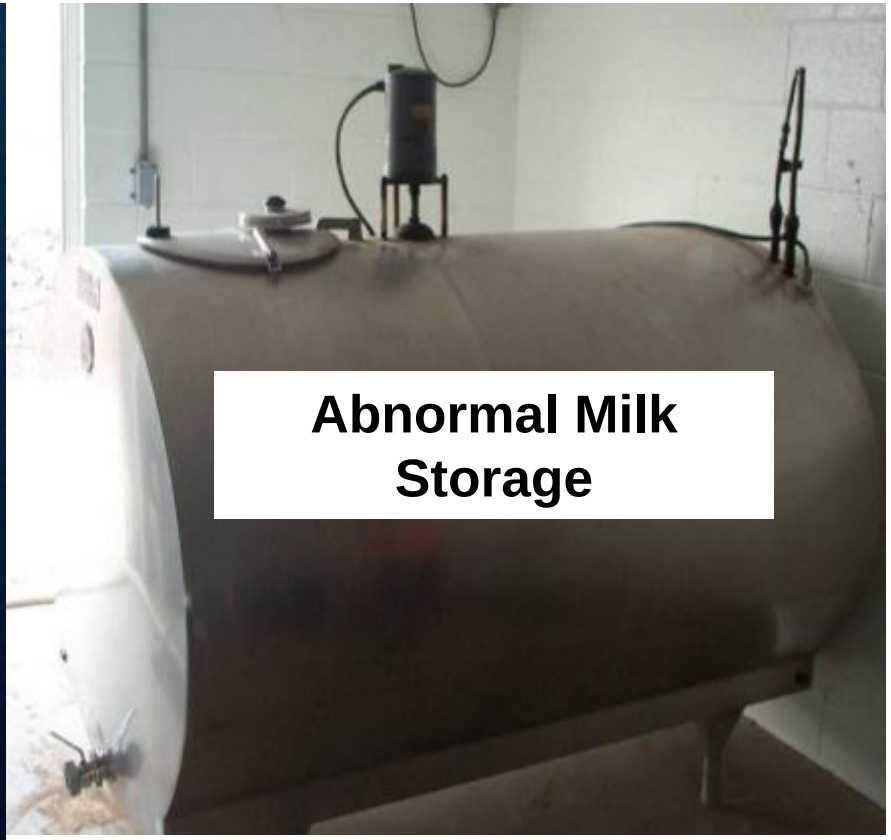


Or This !

While These Are Recommended Distances Anything Less Would Need to be Evaluated by the Field Inspector to Determine if Satisfactory Conditions Can be Maintained.


Sanitary Caps
Required on Wash
Hose & Tank Outlet
Valve During Milk
Storage


Bulk Tank Inspection Light (Adjacent Preferred, if Over Then Shield)
Wash Water Supply Line Disconnected During Milk Storage (Always Provide Quick Disconnect Fitting)
Accurate Tank Thermometer In Addition a Chart Recorder if Tank is Mfg after 1/1/2000.
GLACIER



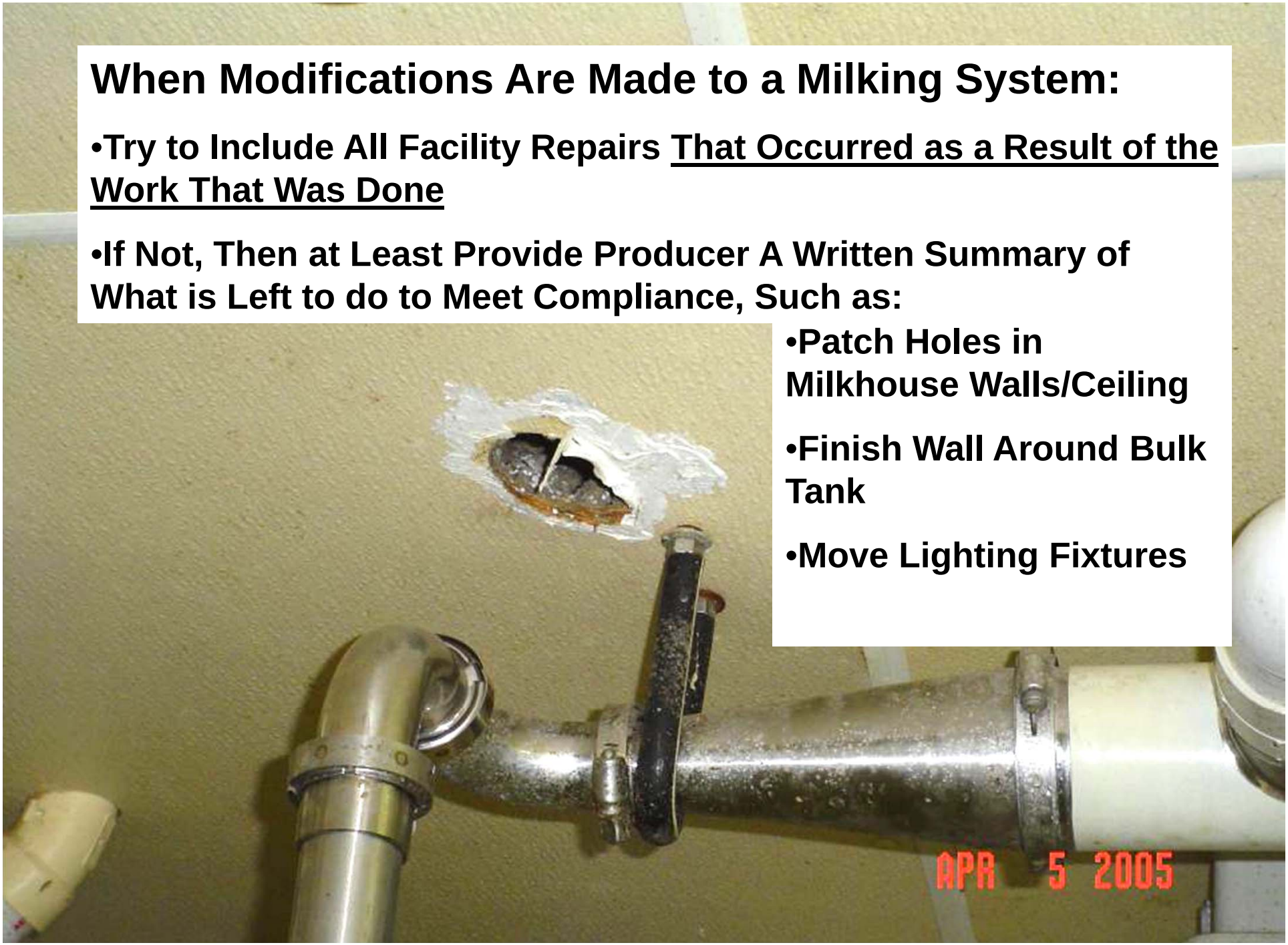
- **These Items <u>May Not</u> be in Parlor or Milkhouse**
- **Utility Room OK**
- **Separate Room Within Milkhouse OK (With Full Walls & Tight Fitting Door)**

Department Expectations During Major <u>Remodeling</u> Projects

1) **Sanitation in milk handling areas to be maintained in good condition, (injury & product safety concerns), haz. materials**
2) **If milkhouse is open to the elements temporary plastic walls that effectively protect the product and milking equipment shall be constructed.**
3) **If the bulk tank is outside it must be effectively covered with clean plastic sheeting. If for extended period, temporary plastic walls & roof required.**
4) **All liquid waste properly removed from the area.**
5) **Adequate equipment cleaning facilities remain available, including safe water supply.**
6) **Major projects that compromise milking facilities to be completed promptly.**

When Modifications Are Made to a Milking System:

- **Try to Include All Facility Repairs <u>That Occurred as a Result of the Work That Was Done</u>**
- **If Not, Then at Least Provide Producer A Written Summary of What is Left to do to Meet Compliance, Such as:**
  - **Patch Holes in Milkhouse Walls/Ceiling**
  - **Finish Wall Around Bulk Tank**
  - **Move Lighting Fixtures**

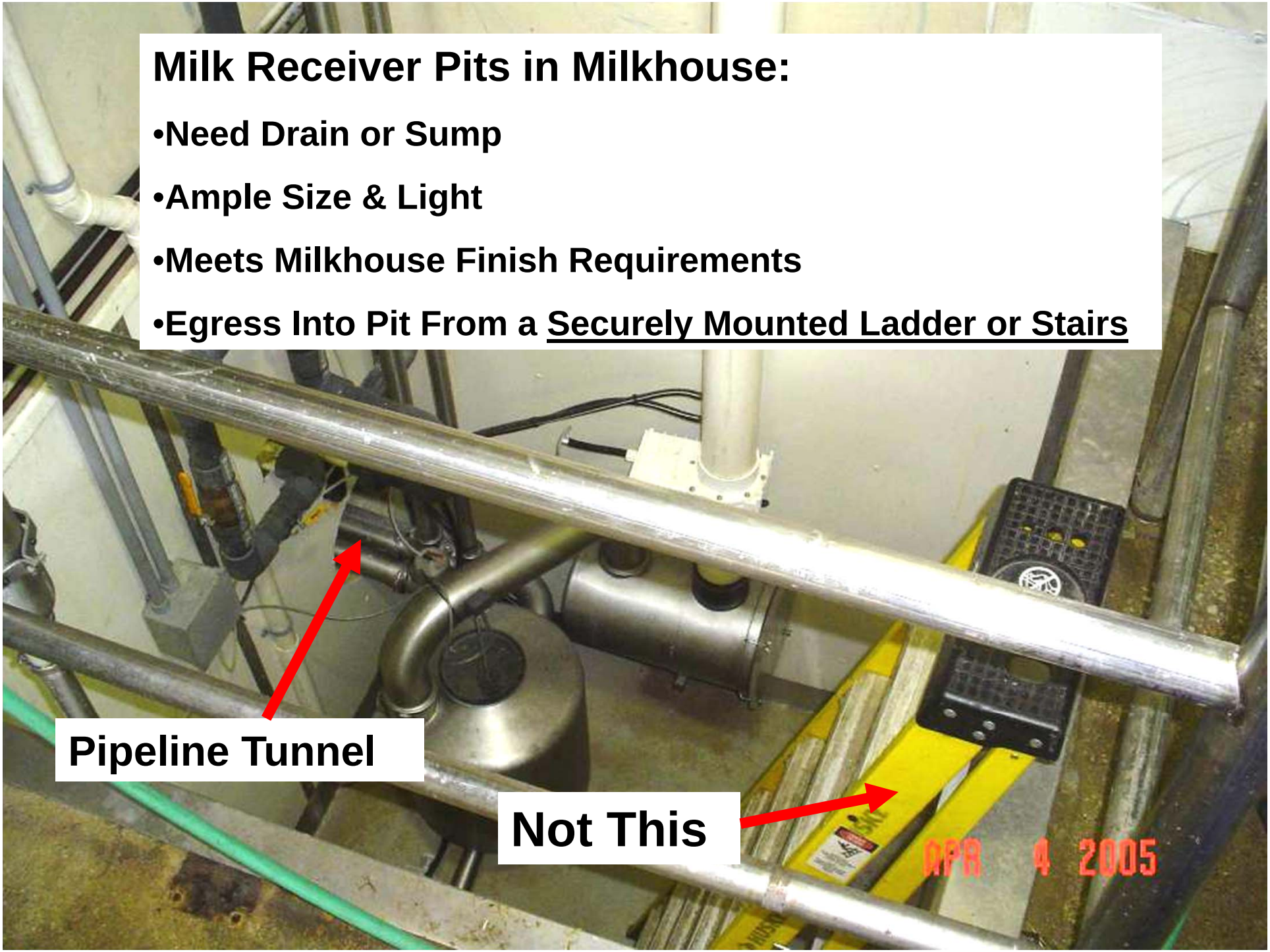


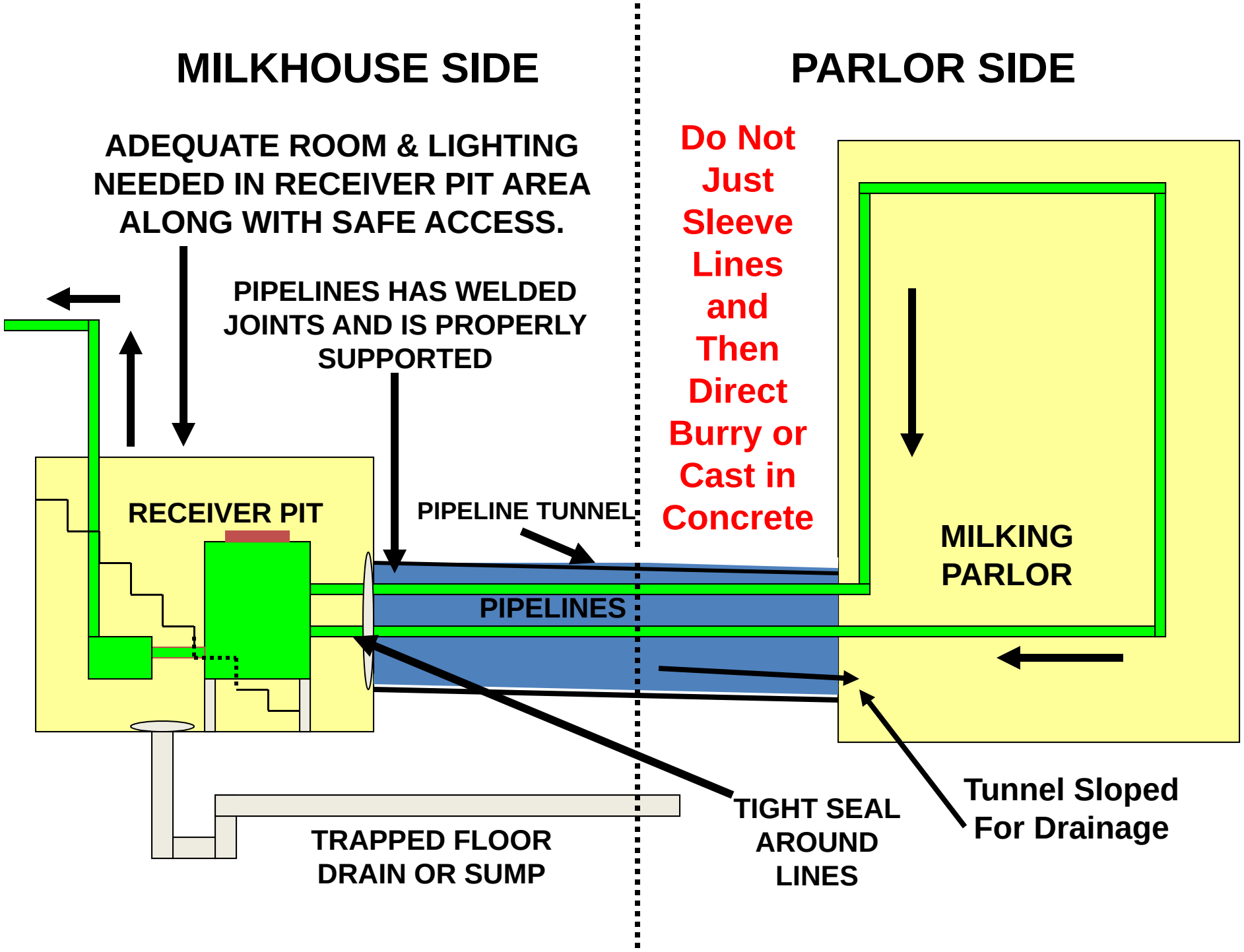
Restrooms

- **Toilets Must be Conveniently Accessible**
- **If in the Milking Facility it Must Have a Solid, Tight-Fitting, & Self-Closing Door**
- **Shall Comply With Comm. Code 62 & NR 812**
- **Restroom Wastewater <u>May Not</u> be Discharged Into the Manure Handling System**

Laundry Areas

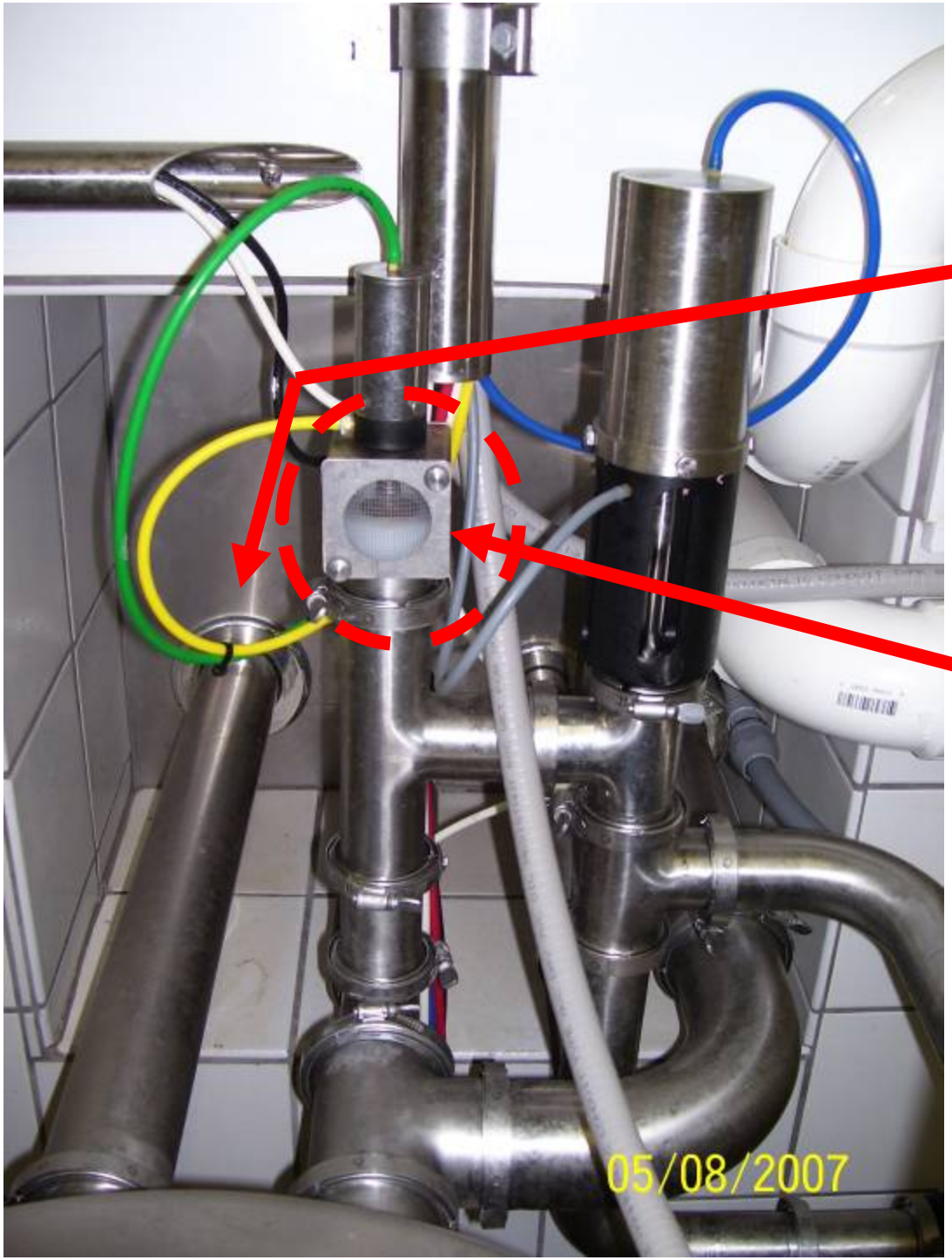
- **Installations May be in Milkhouse/Parlor Used For Cow Towels Only**
- **Dryers Properly Vented**
- **Adequate Space**


Milk Receiver Pits in Milkhouse:
•Need Drain or Sump
•Ample Size & Light
•Meets Milkhouse Finish Requirements
•Egress Into Pit From a Securely Mounted Ladder or Stairs
Pipeline Tunnel
Not This
APR 4 2005


MILKHOUSE SIDE
PARLOR SIDE
ADEQUATE ROOM & LIGHTING NEEDED IN RECEIVER PIT AREA ALONG WITH SAFE ACCESS.
PIPELINES HAS WELDED JOINTS AND IS PROPERLY SUPPORTED
Do Not Just Sleeve Lines and Then Direct Burry or Cast in Concrete
RECEIVER PIT
PIPELINE TUNNEL
PIPELINES
MILKING PARLOR
TRAPPED FLOOR DRAIN OR SUMP
TIGHT SEAL AROUND LINES
Tunnel Sloped For Drainage

APR 4 2005


Milk Receiver Pit in Milkhouse
Pipeline Tunnel Tightly Sealed Off With Stainless Steel Plate (Isolating Milkhouse From Parlor)
Sump Pump/Drain
05/08/2007



Close Up of Tunnel Seal Plate With Pipeline Flanges

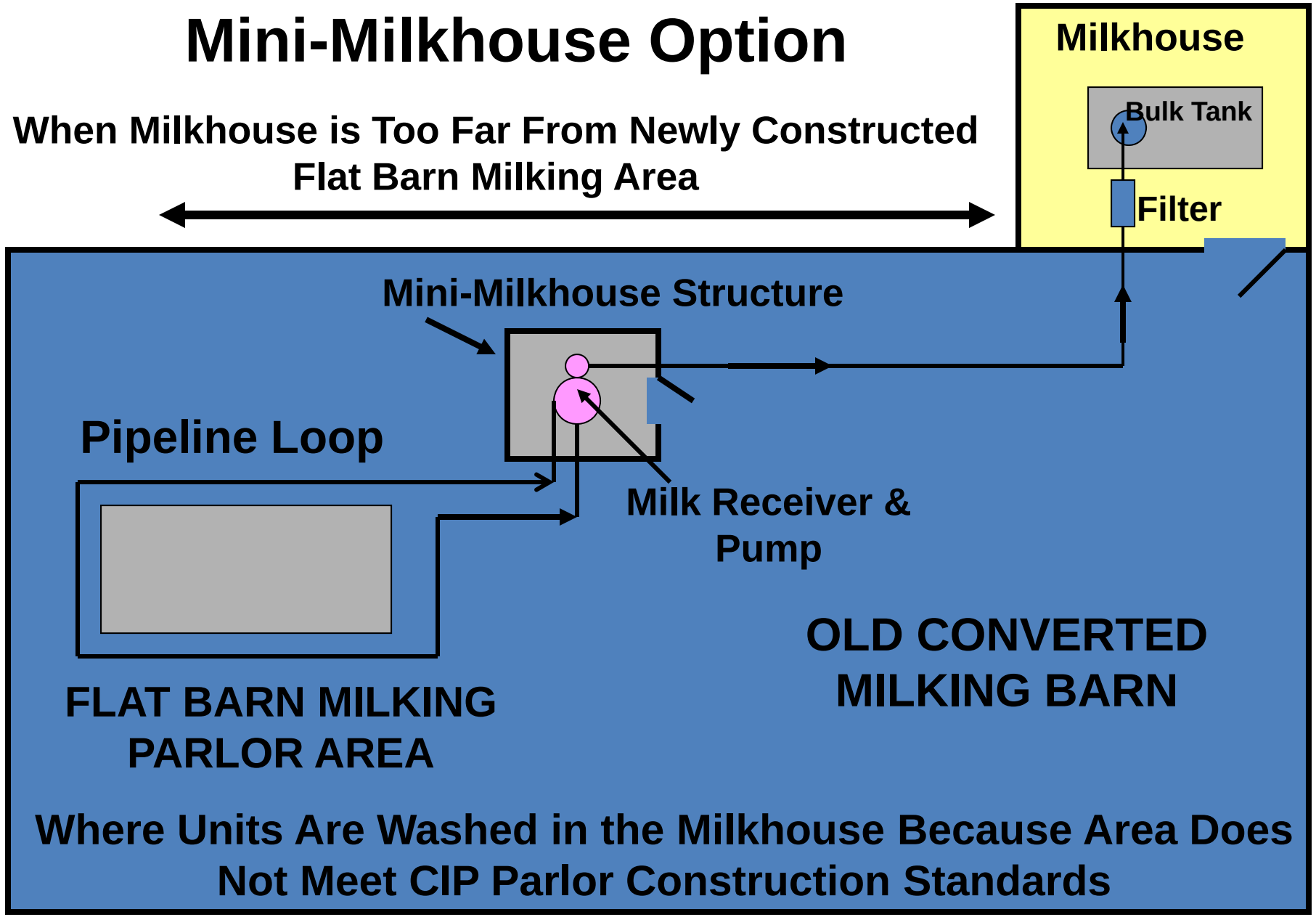
If the Area in Which the Milk Receiver is Located was in or Open to the Parlor Then the Unfiltered Type Air Injector Would be Unacceptable.


Milking Parlor Open to This Milk Receiver Pit Area
Unfiltered Air Injector
Like This One Is
05/08/2007

Undersized Milk Receiver Pit

- No Room For Ladder Much Less Egress Into Pit Area for Servicing & Inspection
- Usually Air Blow Fitting is Located Near Receiver Making it Nearly Impossible to Service Properly.

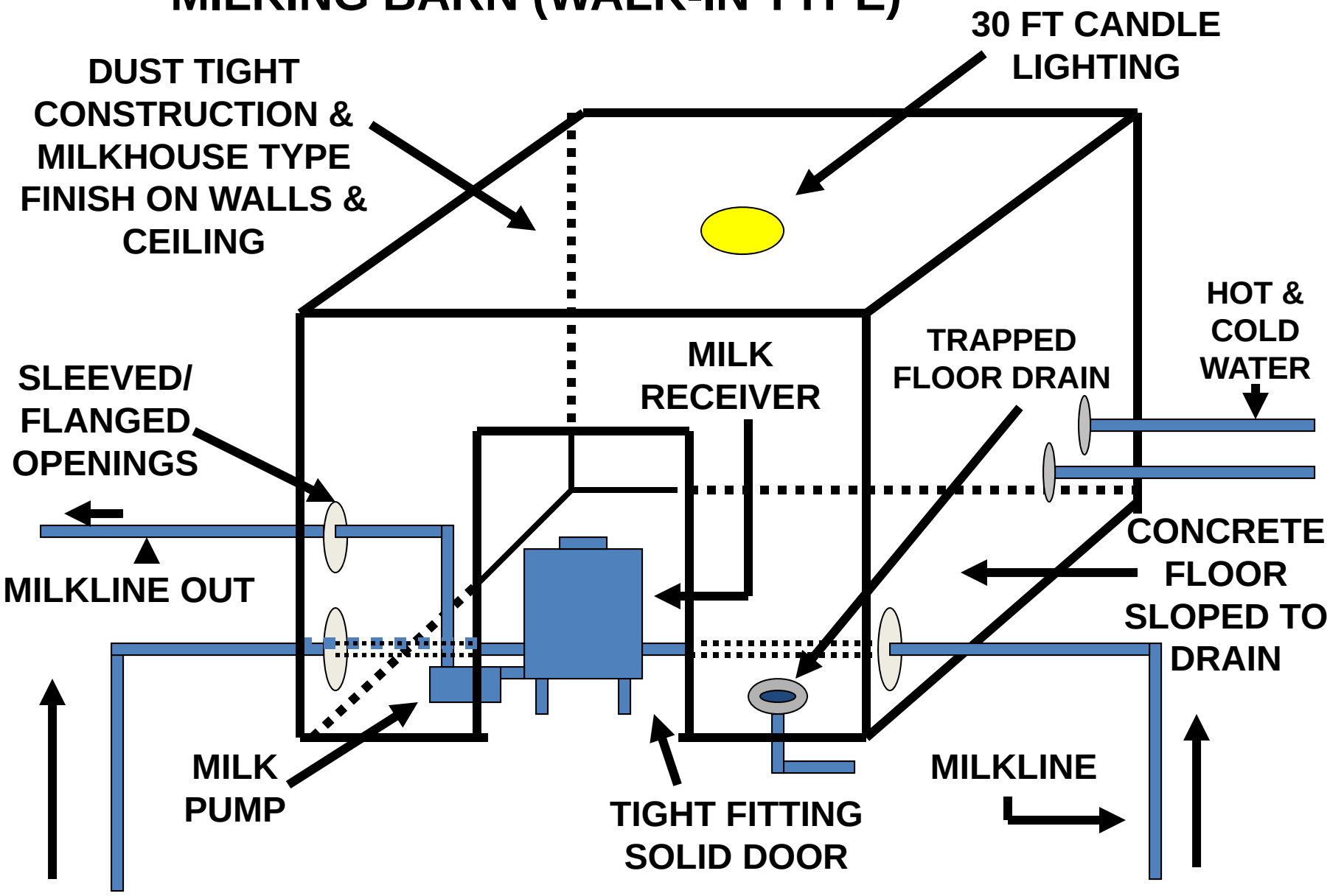
Mini-Milkhouse Option

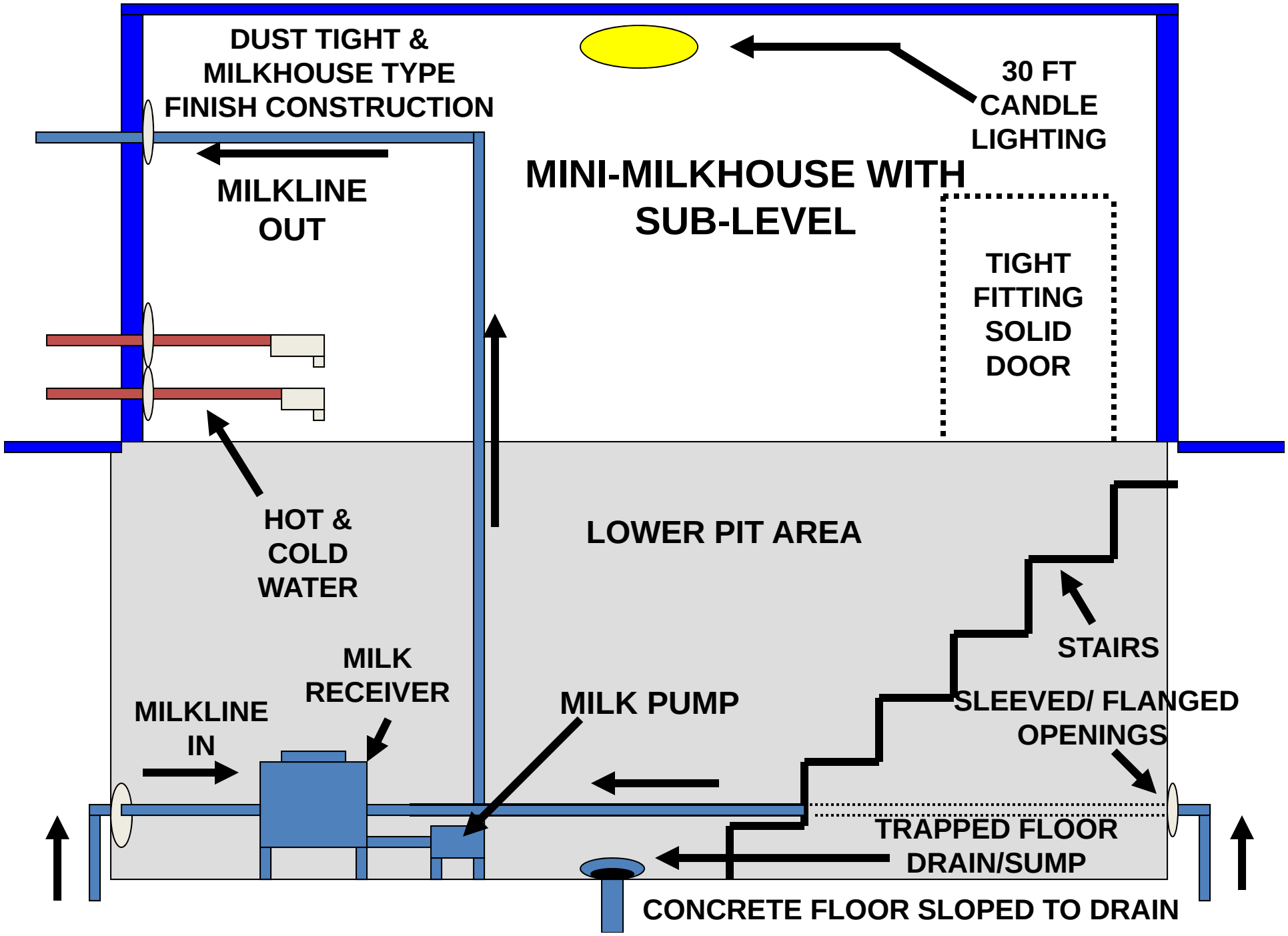


REQUIREMENTS FOR A MINI-MILKHOUSE/ PUMPHOUSE

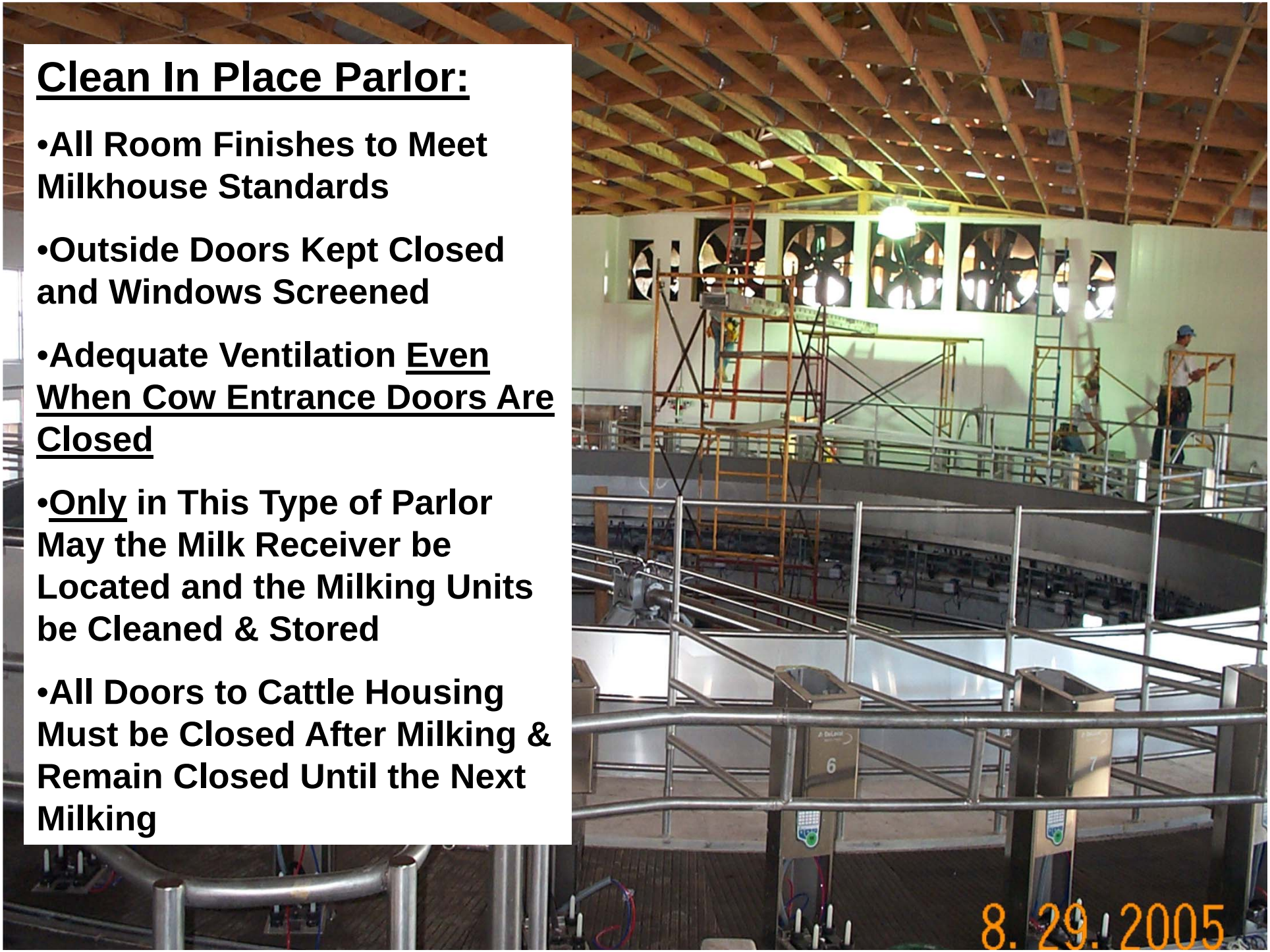
- **Items in Mini-Milkhouse Are Limited to:**
  - **Milk Receiver**
  - **Milk Pump**
  - **Milk Line Drain**
  - **Moisture Trap**
- **Construction Requirements:**
  - **Provide 30 Ft-Candles of Light**
  - **Walls, Floor, & Ceiling to Comply With Milkhouse Standards**
  - **Provide Trapped Floor Drain**
  - **Adequate Room For Service & Inspection (Always Accessible)**
  - **Access Can be From Milking Barn**
  - **All Access Points Into Structure to be Dust Tight**
  - **Provide Hot & Cold Running Water**

MINI- MILKHOUSE ACCESSED FROM MILKING BARN (WALK-IN TYPE)



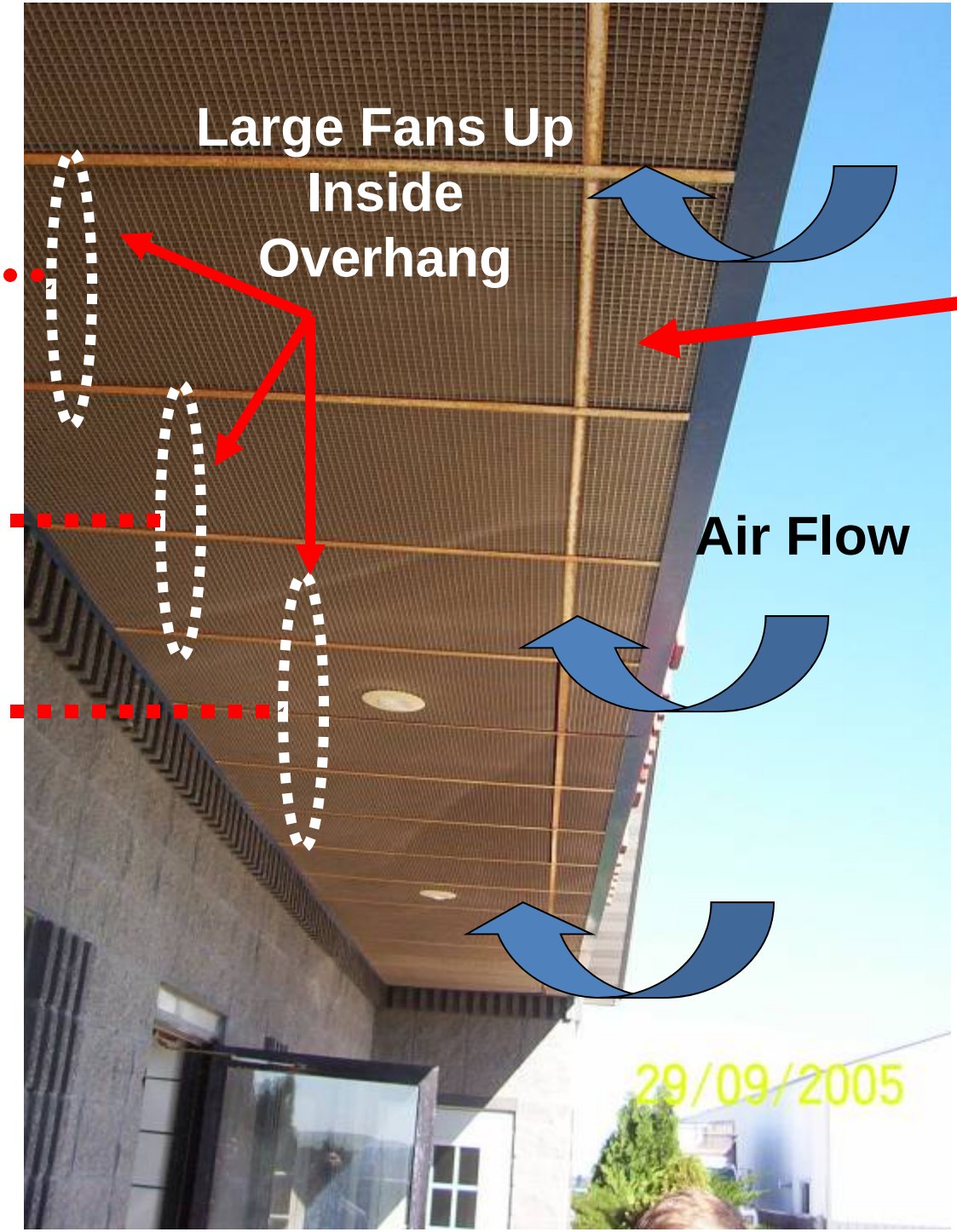

DUST TIGHT &
MILKHOUSE TYPE
FINISH CONSTRUCTION
30 FT
CANDLE
LIGHTING
MILKLINE
OUT
MINI-MILKHOUSE WITH
SUB-LEVEL
TIGHT
FITTING
SOLID
DOOR
HOT &
COLD
WATER
LOWER PIT AREA
STAIRS
MILK
RECEIVER
MILKLINE
IN
MILK PUMP
SLEEVED/ FLANGED
OPENINGS
TRAPPED FLOOR
DRAIN/SUMP
CONCRETE FLOOR SLOPED TO DRAIN


Milking Parlor
Construction

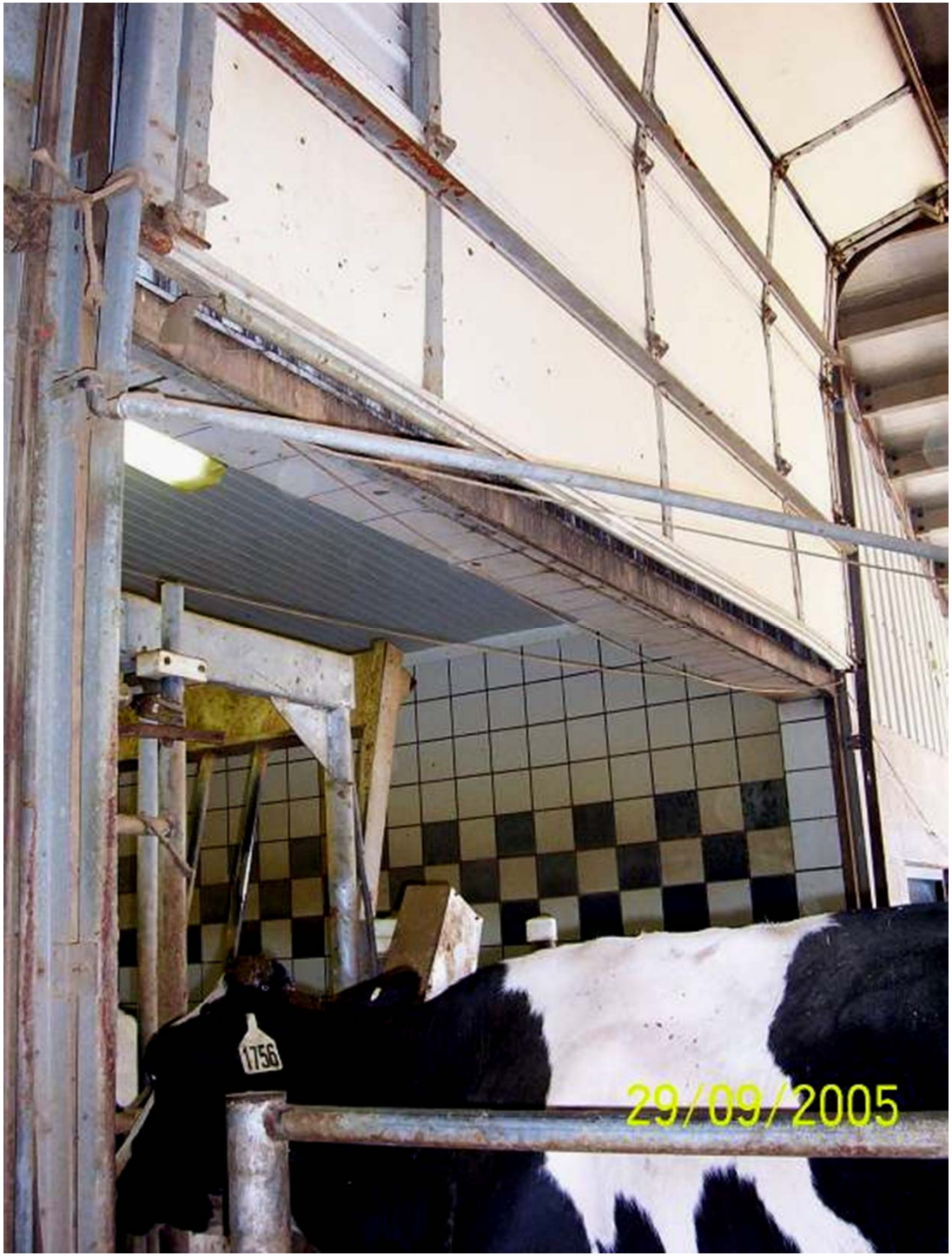


Clean In Place Parlor:

- All Room Finishes to Meet Milkhouse Standards
- Outside Doors Kept Closed and Windows Screened
- Adequate Ventilation Even When Cow Entrance Doors Are Closed
- Only in This Type of Parlor May the Milk Receiver be Located and the Milking Units be Cleaned & Stored
- All Doors to Cattle Housing Must be Closed After Milking & Remain Closed Until the Next Milking



A Plastic Grid Covering the ventilation over hang to a Parlor is allowed. Pest Entrance Does Not Appear to be a Concern With This Type of Ventilation



Cow Entrance Doors Into Clean In Place Parlors:

- **Must be Constructed of a Durable, Non-Absorbent, Solid Material**
- **The Door Must be <u>Easy</u> to Operate**
- **Must be <u>Tight Fitting Along All Edges</u>**

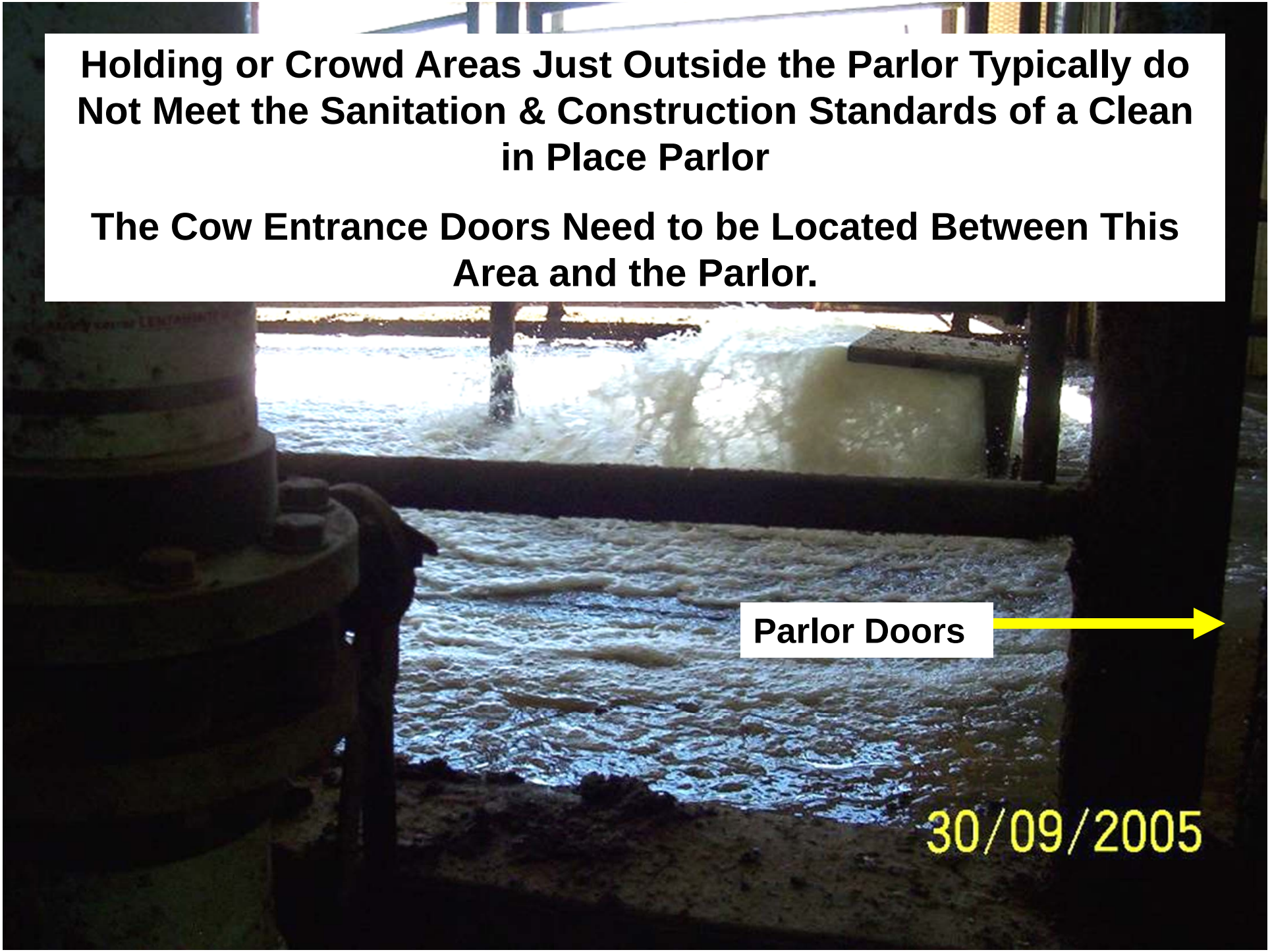
If Reinforced Plastic or Other Suitable Flexible Material is Used:

- The Edges Must be Held Tightly in Place by the Use of a Track or Other Easy & Effective Means
- Velcro Has Been Shown to be <u>Ineffective</u> for This Application, (Not Durable)


Plastic Strip Curtains Are Not Acceptable as the Sole Method of Room Separation
APR 2005

Holding or Crowd Areas Just Outside the Parlor Typically do Not Meet the Sanitation & Construction Standards of a Clean in Place Parlor

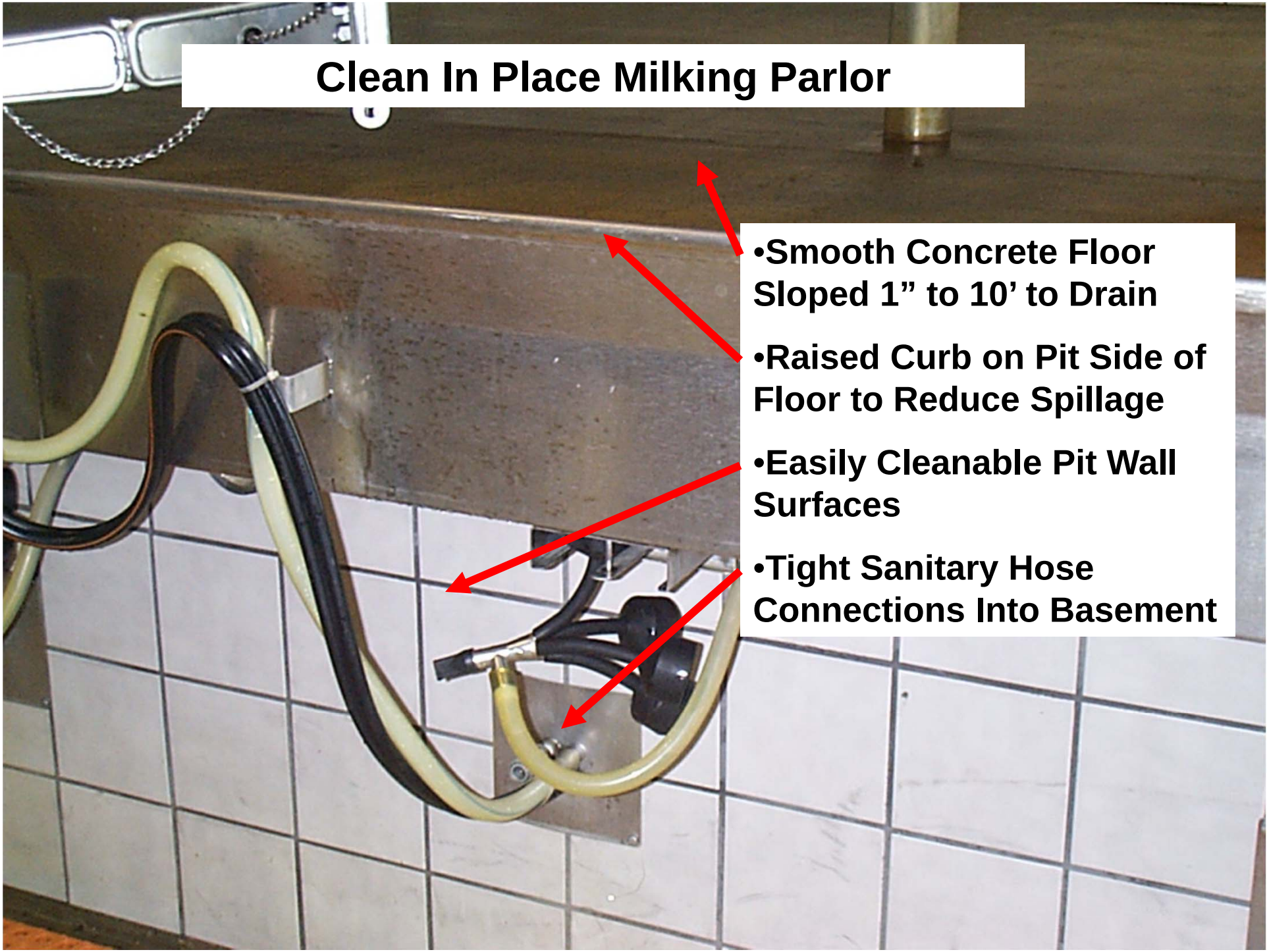
The Cow Entrance Doors Need to be Located Between This Area and the Parlor.

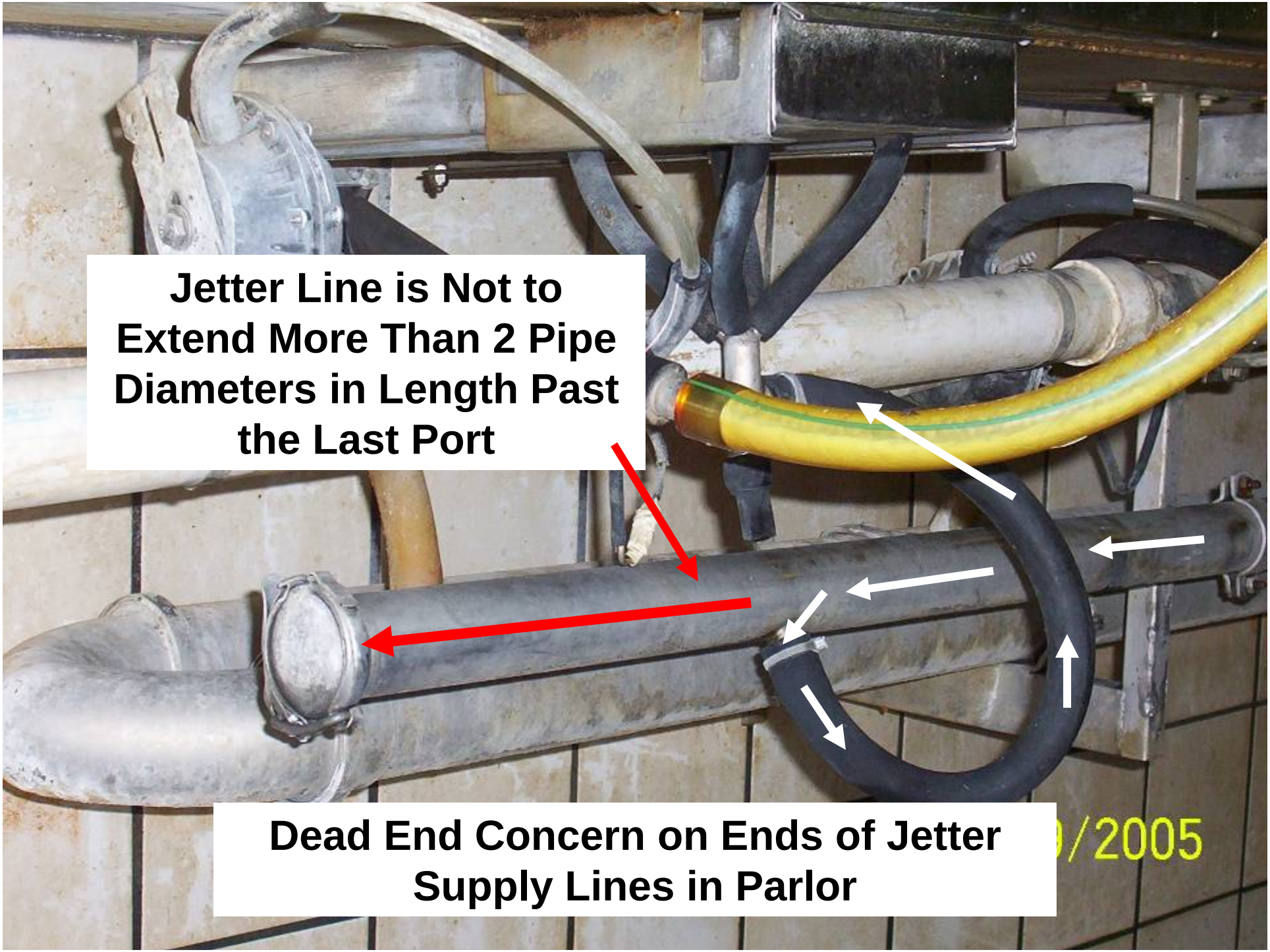


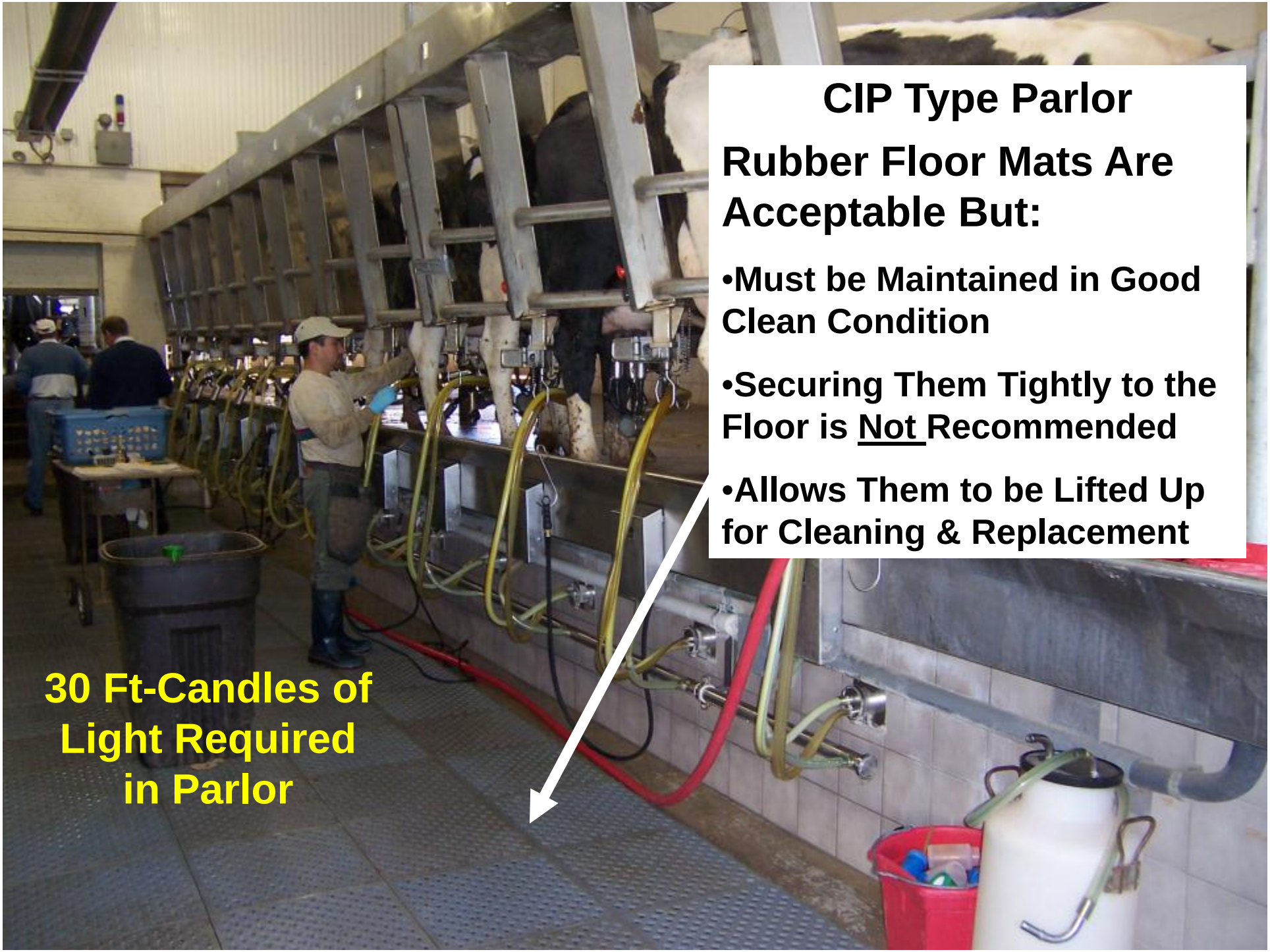
Semi-Solid Waste Lift Stations Located in Milking Parlor Basements Must be Properly Vented to the Outside Environment to Prevent the Build Up of Potentially Deadly Methane Gas

Basement Areas Need to be Properly Constructed & Maintained (As Shown in This Photo) Because They Are Either Considered Milkhouse or CIP Parlor

Clean In Place Milking Parlor




Jetter Line is Not to Extend More Than 2 Pipe Diameters in Length Past the Last Port
Dead End Concern on Ends of Jetter Supply Lines in Parlor
/2005


CIP Type Parlor
Rubber Floor Mats Are Acceptable But:
•Must be Maintained in Good Clean Condition
•Securing Them Tightly to the Floor is Not Recommended
•Allows Them to be Lifted Up for Cleaning & Replacement
30 Ft-Candles of Light Required in Parlor

Conversion of Stanchion Barn to Milking Parlor

- Cover Gutter or fill with concrete
- Milk house drain line to gutter not permitted.


Traditional Flat Barn Parlor:
•Can Be Flat, Raised Platform, or Full Depth Pit
•Units Are Washed & Stored in Milkhouse
•Milk Receiver Must be in Milkhouse or in Complying Mini-Milkhouse
•Facility Meets Milking Barn Standards

Traditional Flat Barn Parlor

From CIP Wash Vat

Sanitary Stainless CIP Supply Line

Milk Line

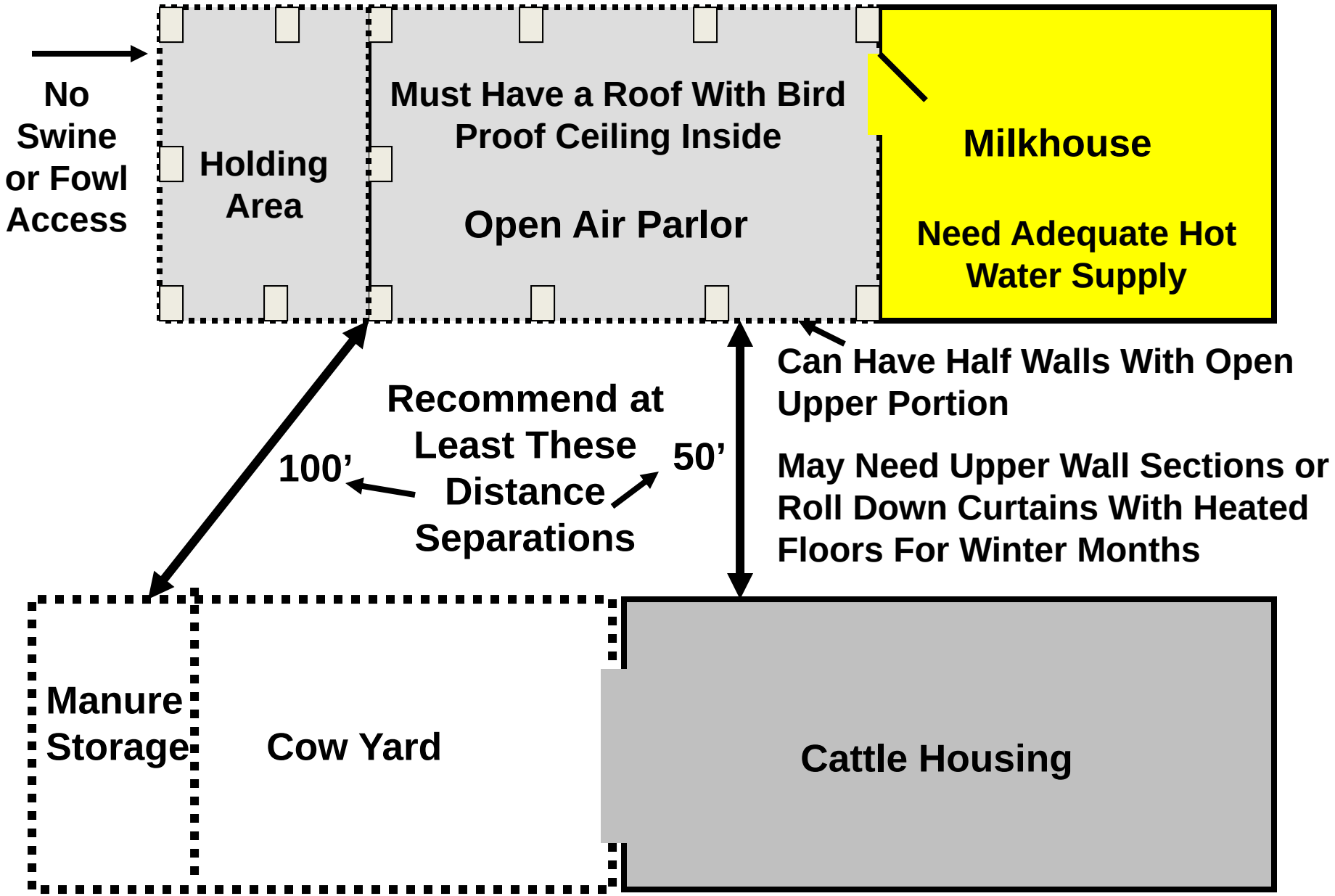
Flow Sensors Can Remain Connected to the Milkline

Sanitary Cap Placed on Inlet During Milking. Caps to be Stored in Milkhouse

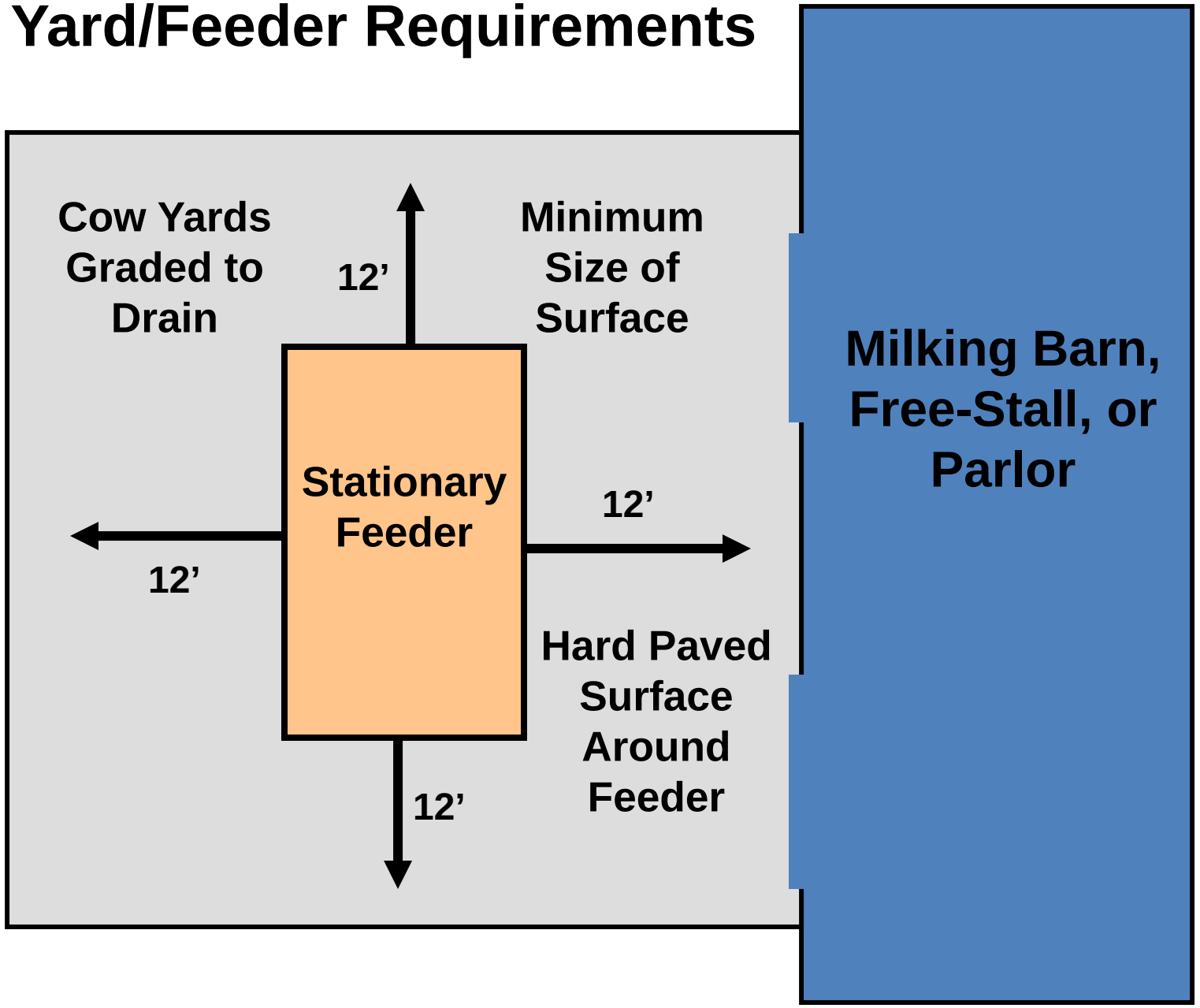
CIP Jumper Hose Attached Only During CIP. Otherwise it is Stored in the Milkhouse

Remainder of Milking Unit is Washed & Stored in Milkhouse

Open Air Parlor Concept (By Formal Variance Only)



Cow Yard/Feeder Requirements



Equipment Concerns

Steve Stoner
Division of Food Safety
Steve.stoner@wi.gov
(715) 653-4300

Overview

- Pipeline Fittings
- Milking System Cross-Connections
- Bulk Tanks
- Air Systems
- Plate Coolers
- Miscellaneous

Rolled-on Fittings

- Effective January 1, 2001, recessless or rolled-on ferrules are no longer acceptable for most milking pipeline installations.
- 3-A Accepted Practice for the Design, Construction, and Installation of Milking and Milk Handling Equipment, Number 606-05 states that recessless or rolled-on fittings are acceptable only when modifying or repairing existing on-site farm milk handling systems with fittings installed with no cracks or crevices

Rolled-on Fittings

- Rolled-on fittings acceptable when modifying or repairing existing on-site farm milk handling systems.
- Fittings shall be installed with no cracks or crevices.

Rolled-On Fittings
Q & A

When relocated to a different farm

- Existing fittings in good repair – accepted
- Existing fittings in poor repair – replace with a welded fitting.
- Changes to original pipeline configuration – new fittings are a welded fitting.

Rolled-On Fittings
Q & A

Modifications to existing milk handling system

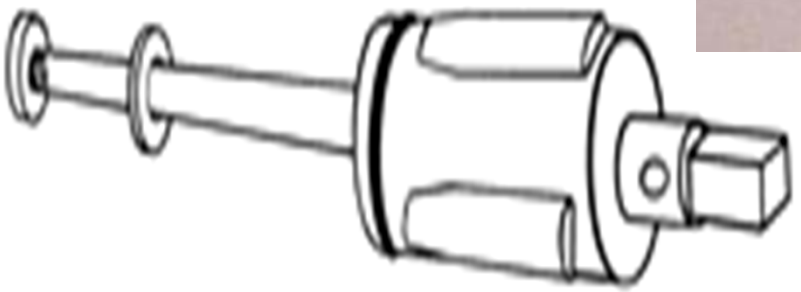
- Existing fittings in good repair – accepted
- Existing fittings in poor repair – replace with a welded fitting.
- Changes to original pipeline configuration – new fittings are a welded fitting.

Rolled-On Fittings
Q & A

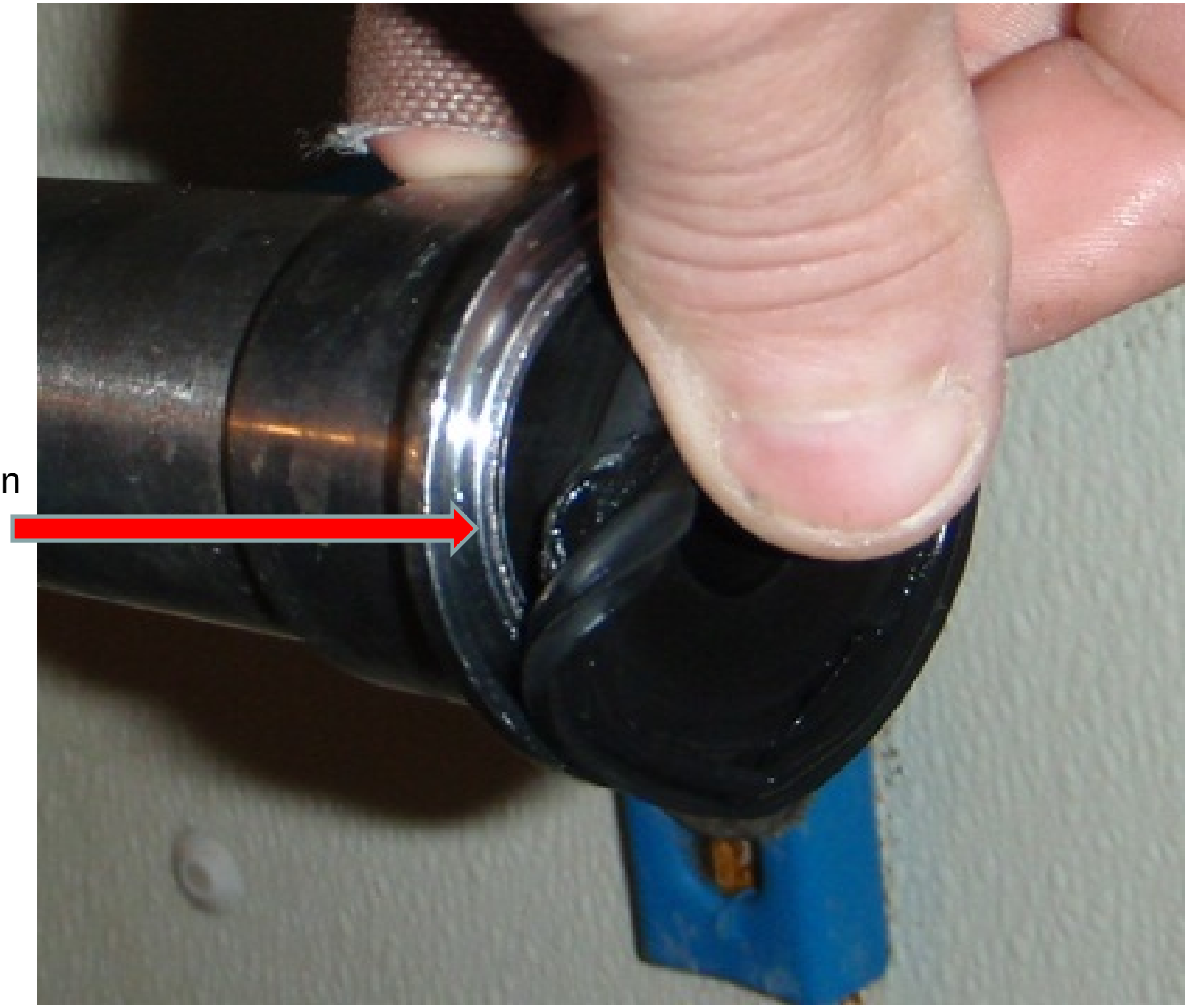
Repairs to existing systems

- Acceptable for emergency repair only.
  - Considered a temporary repair.
- Replaced with a welded fitting as soon as practical.

Rolled-on Ferrules



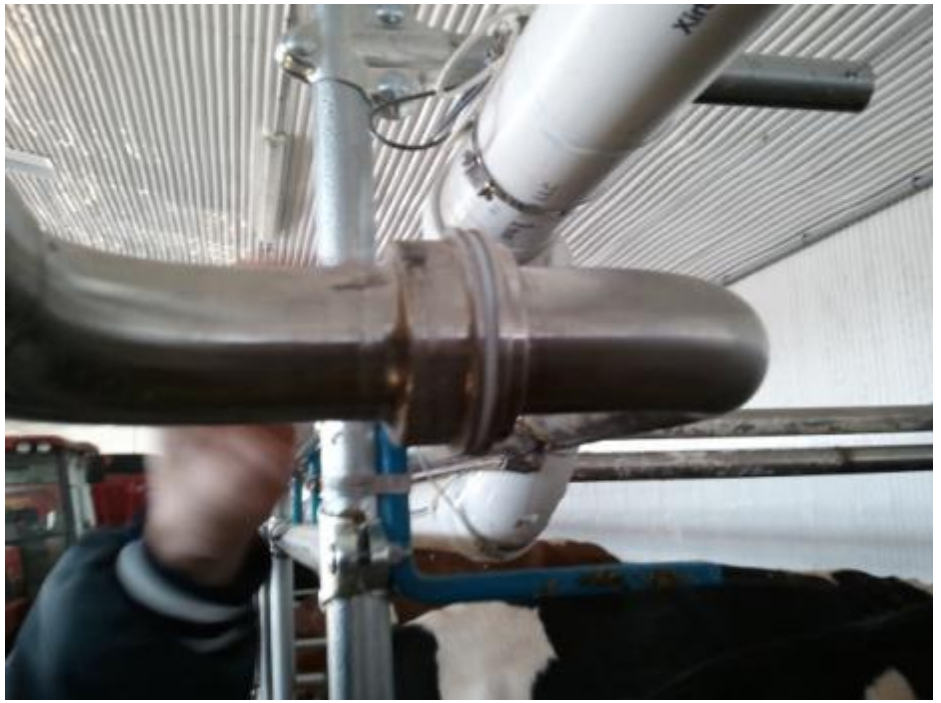
Improperly faced roll-on ferrule




05/17/2007

Swivel Joints

Swivel Joints



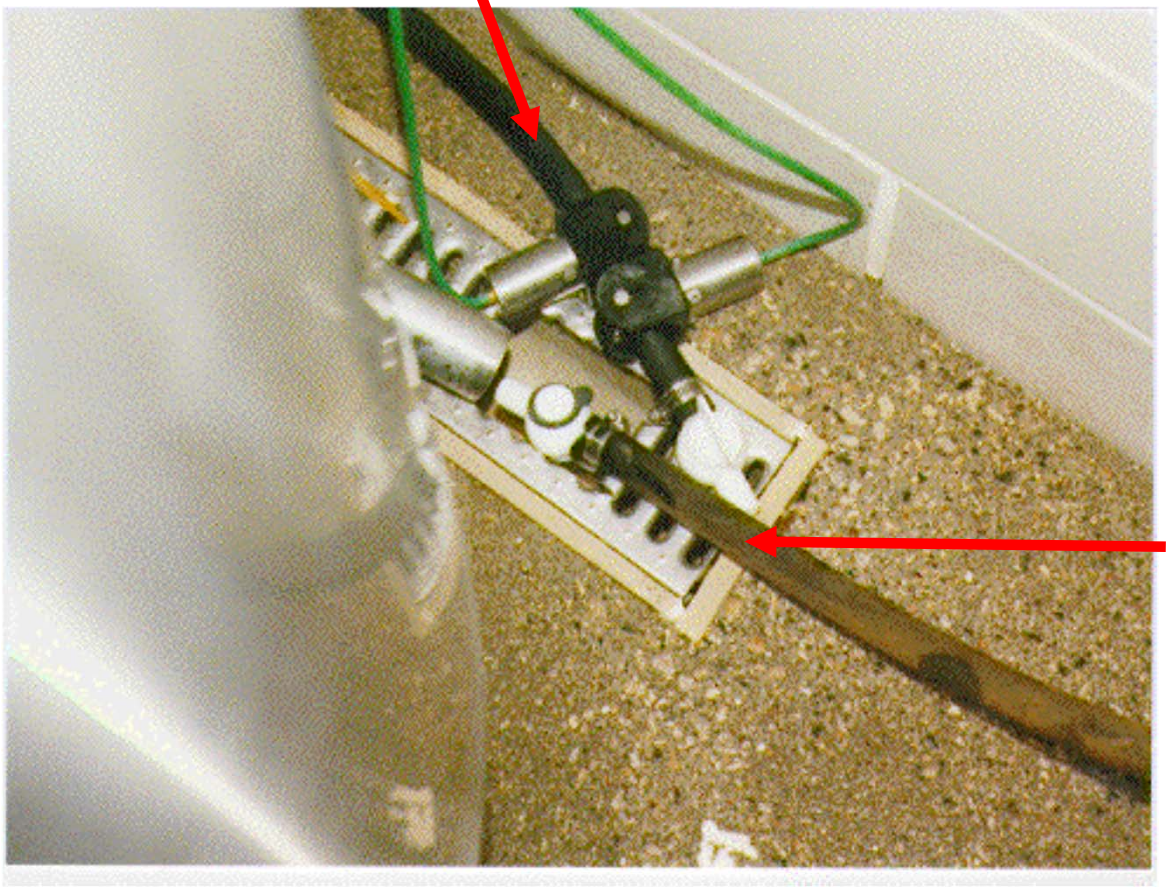
Swivel Fitting Concerns

- Not designed for CIP Cleaning
- Does not meet minimum construction requirements w/o minor modification

Milking System Cross-Connections

- Milking System to Floor Drains
  - Receiver Jar Drains
  - Plate Cooler Drains
- Vacuum System to Floor Drains
  - Vacuum Moisture Trap to Floor Drain
- Milking System to CIP System
  - Supplemental CIP Lines

Drain Hose From Milk Pump



Drain Hose From Plate Cooler

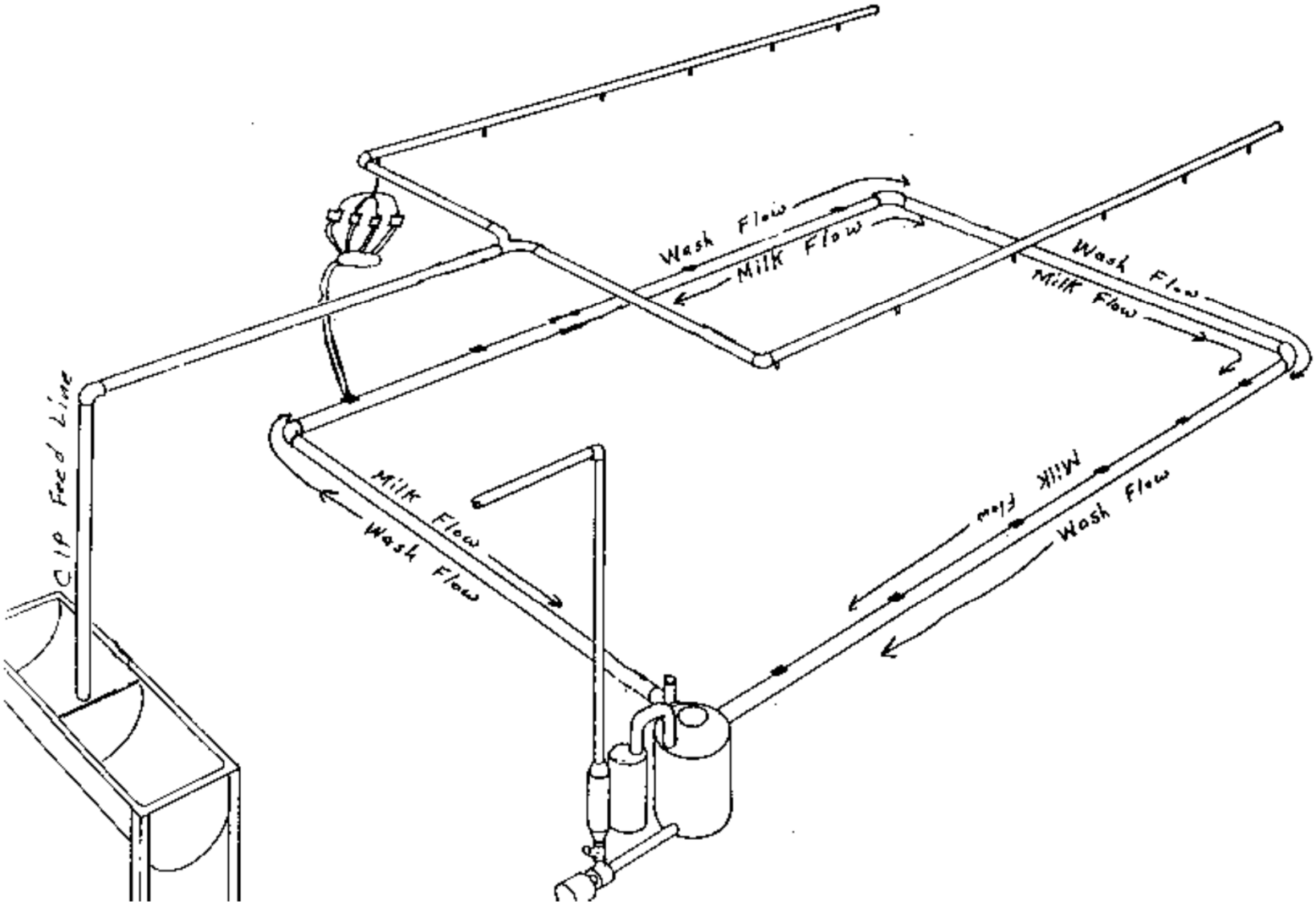
These Drain Hoses Must Not Extend Into the Milkhouse Drain System

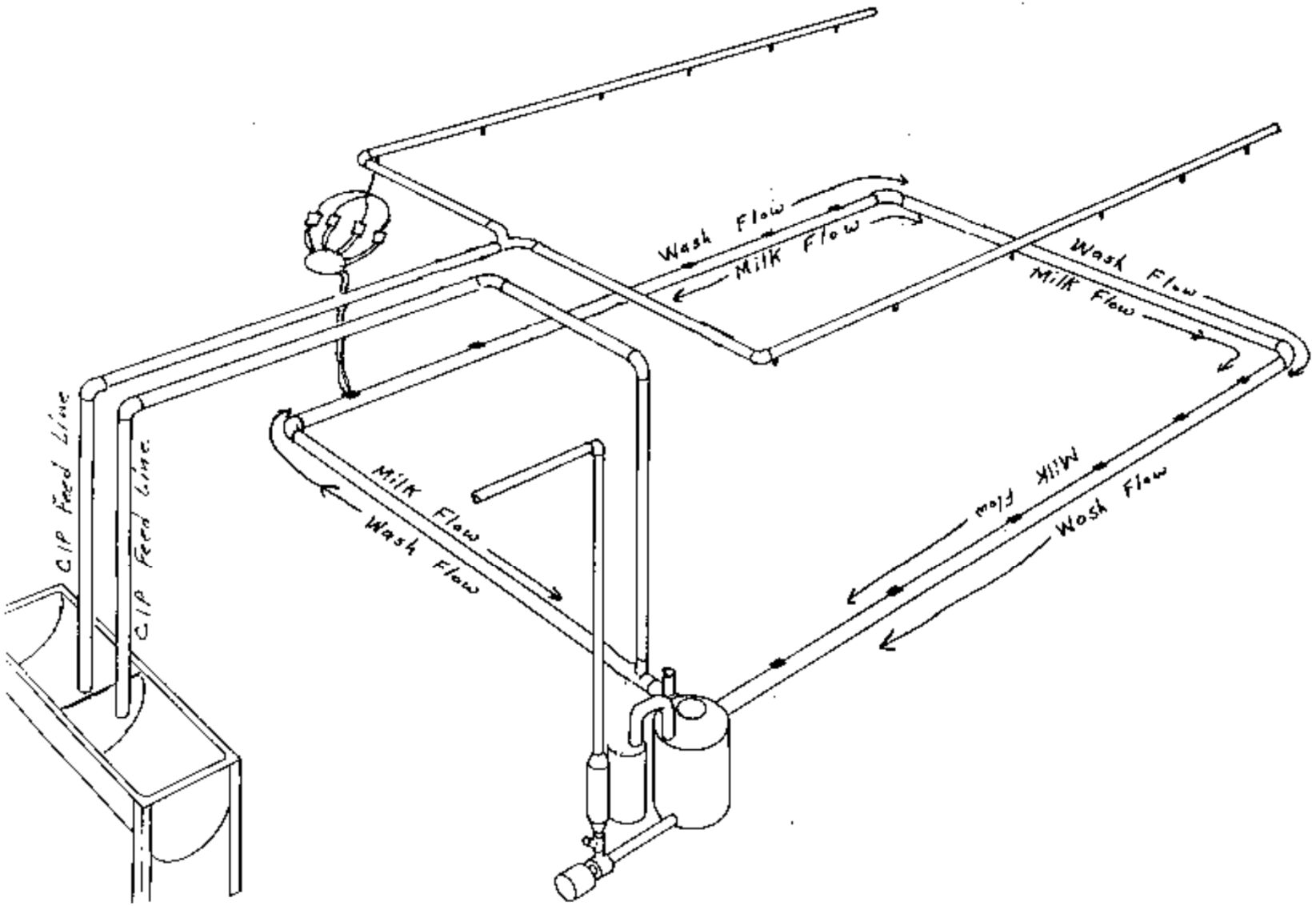
Drain Tube Refresher

- Shut-off Location
  - As near as possible to the point of application.
- Construction
  - Accessible for inspection and cleaning
- Protected
  - Do not allow contact with floor or other sources of contamination.

Milk System
Cross-Connections

- **CIP Cross-Connections**
  - **There may be no cross-connection between the cleaning system and the milk lines *during milking.***


CIP Feed Line
Wash Flow
Milk Flow
Wash Flow
Milk Flow
Milk Flow
Wash Flow
Milk Flow
Wash Flow

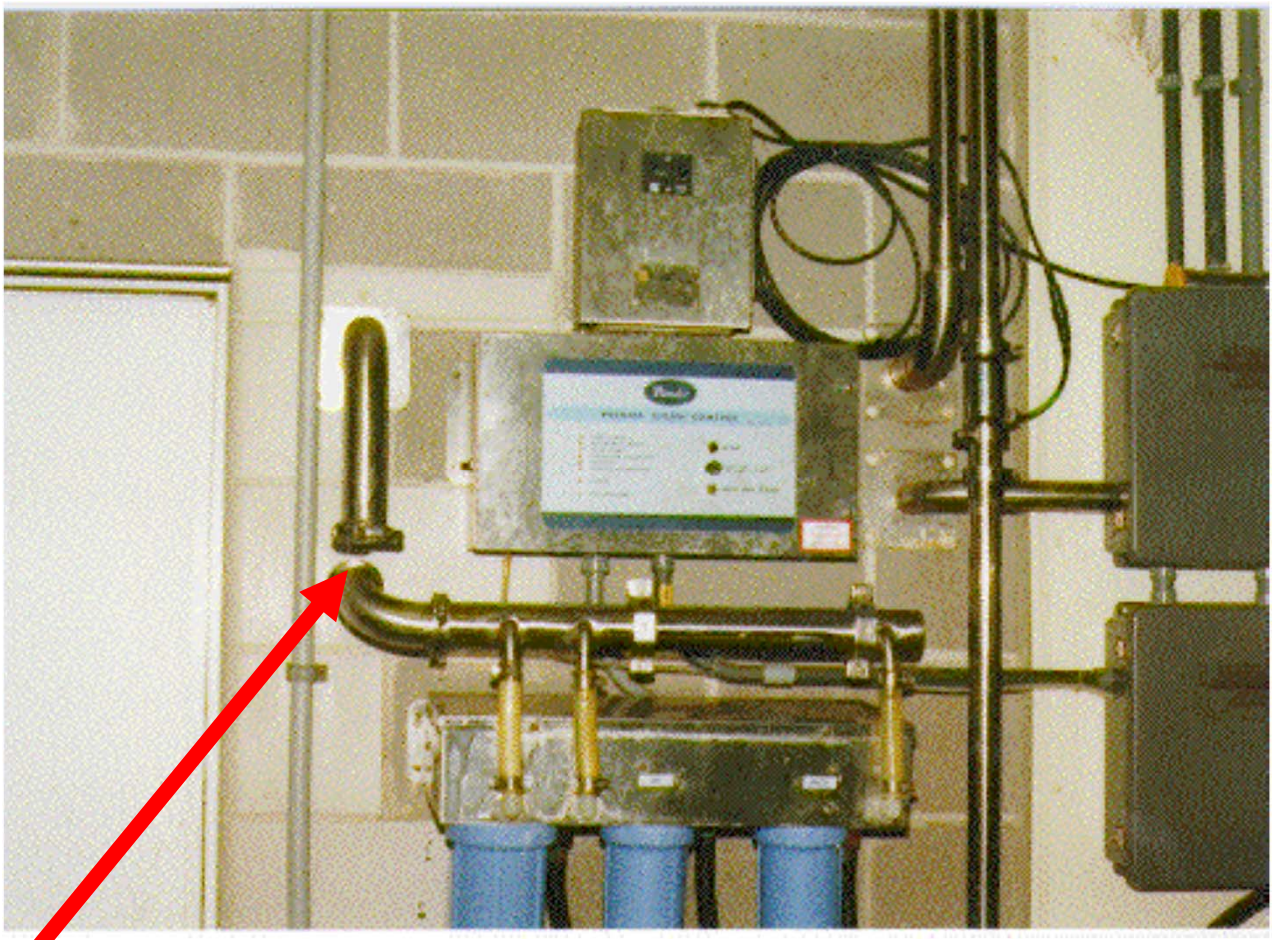

CIP Feed Line
CIP Feed Line
Wash Flow
Milk Flow
Wash Flow
Milk Flow
Milk Flow
Wash Flow
Milk Flow
Wash Flow

CIP Suction Line Extends Into CIP Make-up Vat

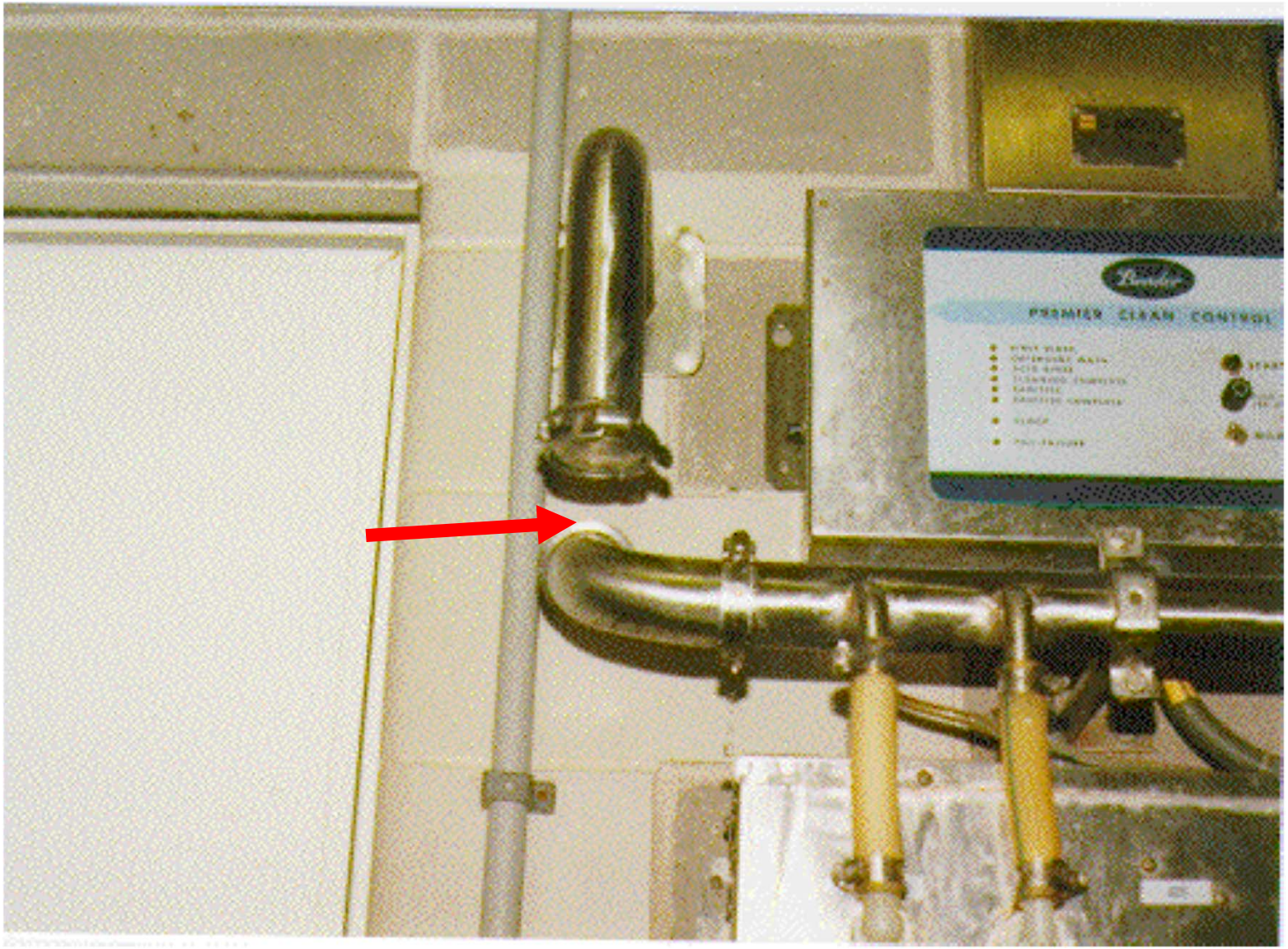

Valve separation not accepted
CIP cross-connection

CIP Line To Spray Ball In The Milk Surge Tank

CIP Circuit Must Be Separated From Product Circuit **During Milking**



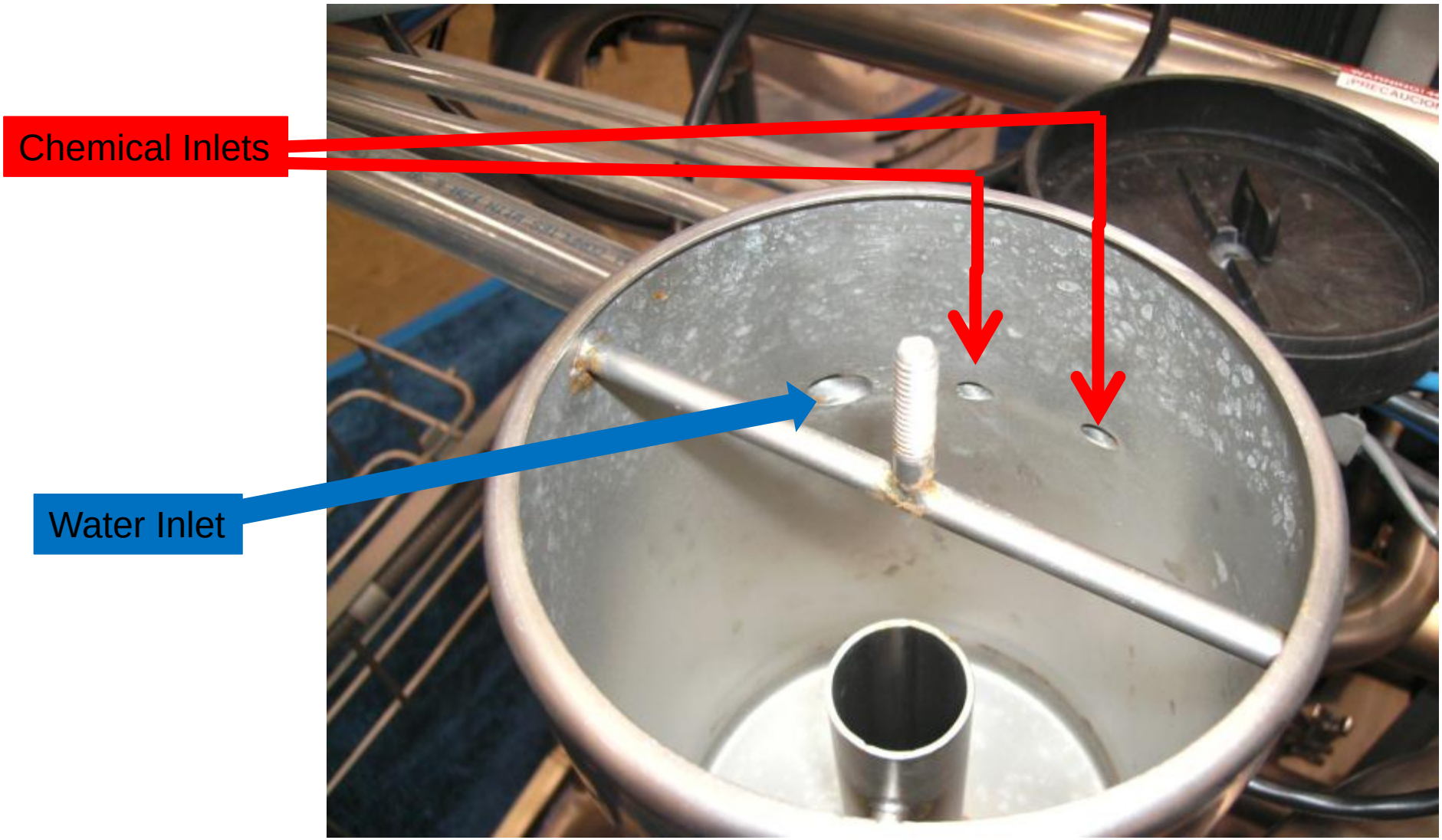
CIP Line Disconnected From The Washer Manifold <u>During Milking</u>


PREMIER CLEAN CONTROL

Cleaning Solution Feed Line is Disconnected From the Milk Surge Tank *During Milking*

Cross-Connection to Drains

Water to Chemical Cross-Connection



Bulk Tank

- CIP Cross-connections
- Recording Thermometers
- Agitator Protection
- Seasonal Storage

Bulk Tank

- CIP Cross-Connection
  - Cleaning system cannot be connected to the bulk tank while milk is in the tank.

Cross-Connection

Mueller Sentry III

CIP Set-up

- Install CIP cap on side panel.

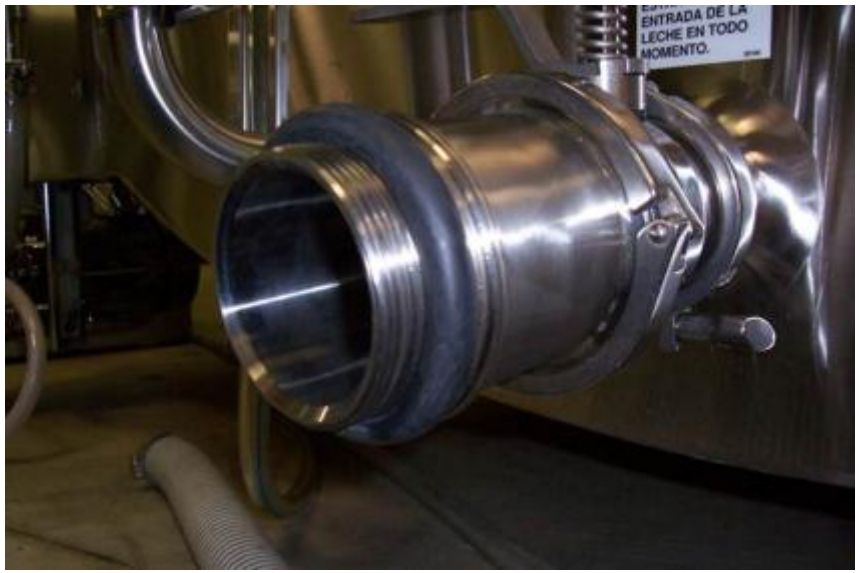
CIP Set-up

- Install plastic cap over outlet to trap cleaning solution and return it via the CIP pump.

Milking Storage

Installing Ring

Ring Installed



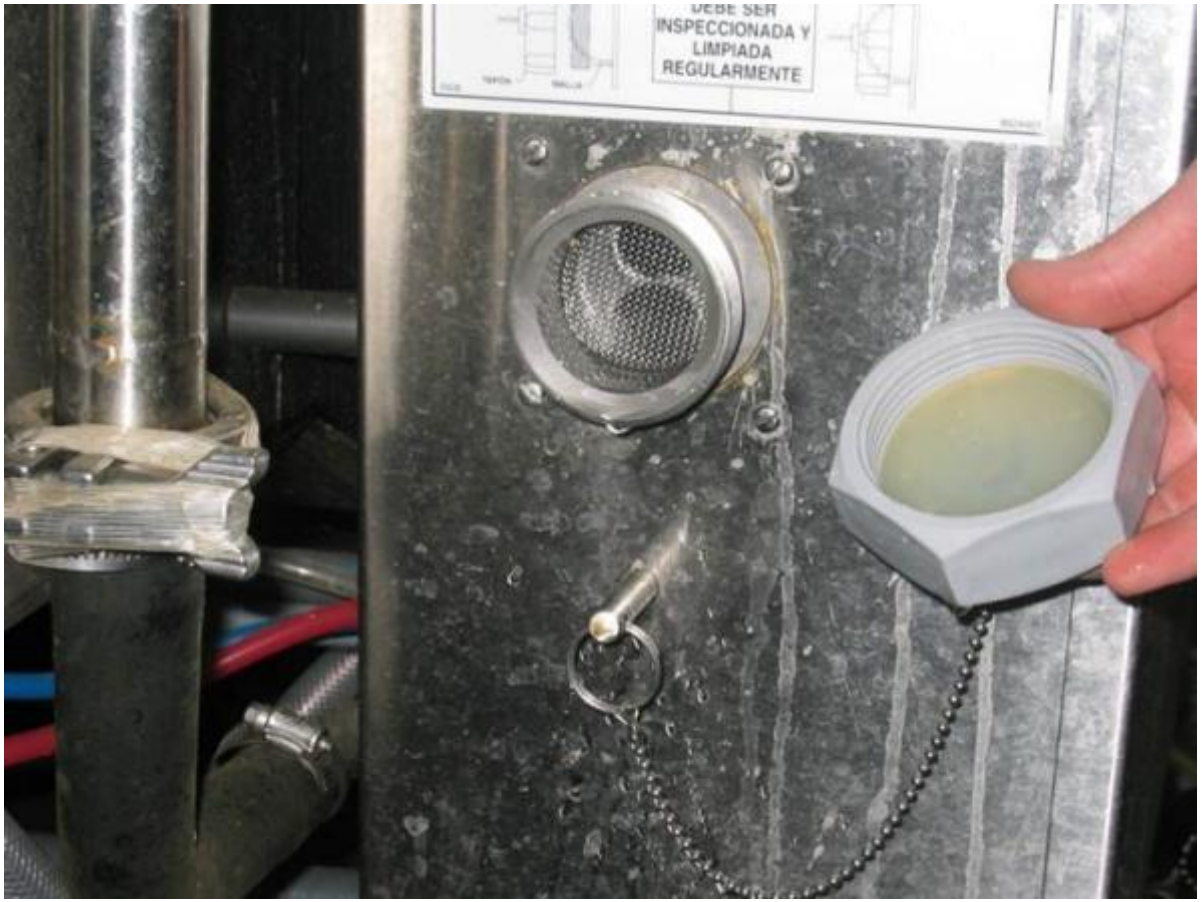
Milk Storage

Milk line for bottom fill

Oops forgot the ring!!!

Milk Storage

- Follow Instructions
- Remove cap



Recording Thermometers

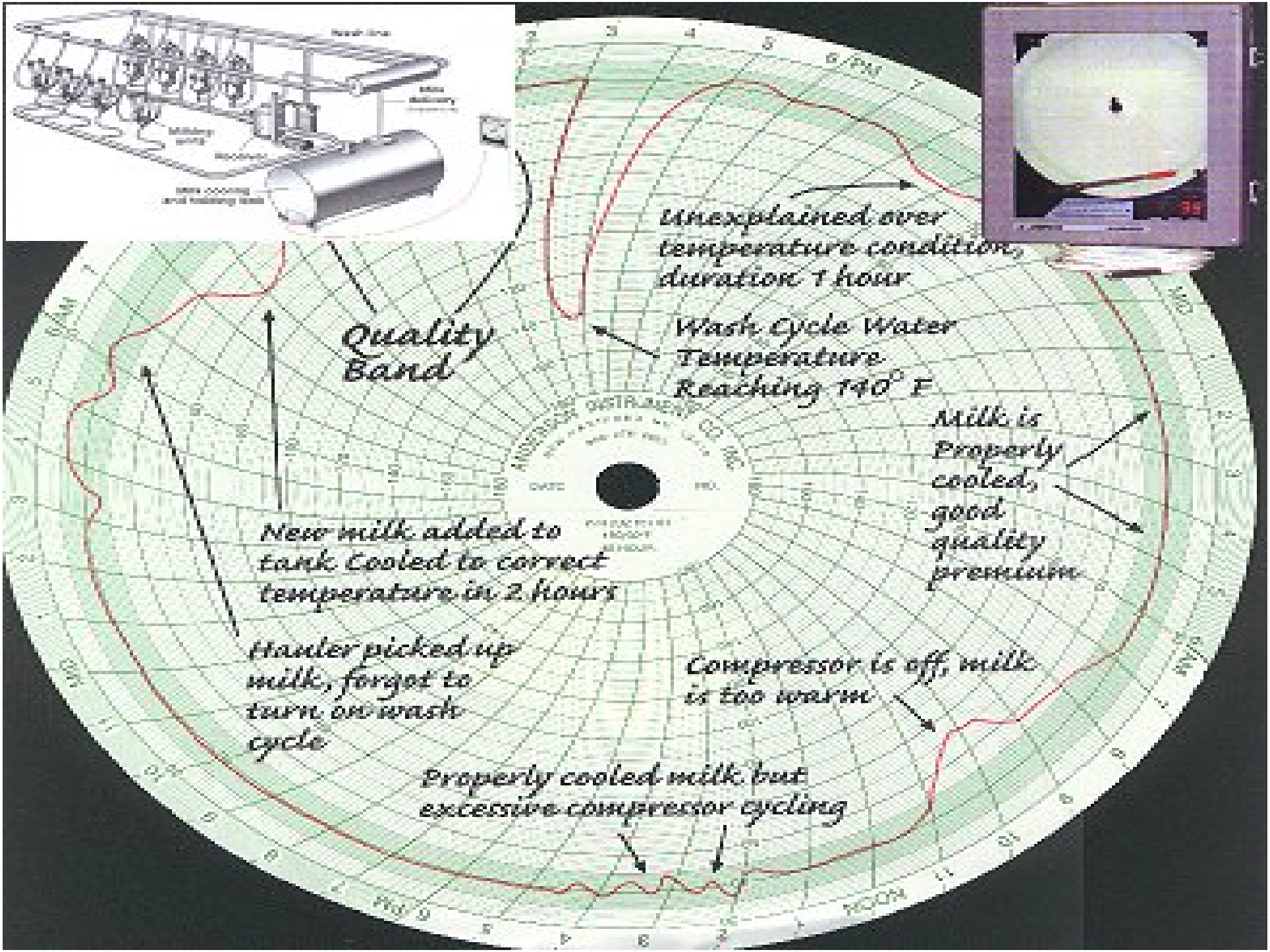
- Required on tanks manufactured after Jan 1, 2000
- Verified for accuracy within ± 2° F every six months by the dairy plant field representative and properly documented.
- Retain records for 6 months

Bulk Tank Chart Requirements

- Range of at least 50° F
  - Including normal storage temperature ± 5° F
- Record temperatures to 180° F
- 2° F graduations below 100° F
- Maximum 7 day chart

Bulk Tank Chart Annotations

- Producer
- Date
- Signature of the person removing the chart
- Tank Identification if more than one tank
- Unusual occurrences


Unexplained over temperature condition, duration 1 hour
Quality Band
Wash Cycle Water Temperature Reaching 140° F
Milk is Properly cooled, good quality premium
New milk added to tank Cooled to correct temperature in 2 hours
Hauler picked up milk, forgot to turn on wash cycle
Compressor is off, milk is too warm
Properly cooled milk but excessive compressor cycling

Bulk Tank Agitator Protection

Seasonal Milk Storage

- Transfer from one bulk tank to another
- Utilize hard piping or seamless hose
- Transfer lines cleaned and sanitized prior to use
- Milk transferred without contamination
- Ability to properly clean and store transfer hose
- **Tank must have refrigeration!!!**

Air to Milk Contact

- Air blow-down systems
- Air injectors for cleaning

Product Air Blow Systems

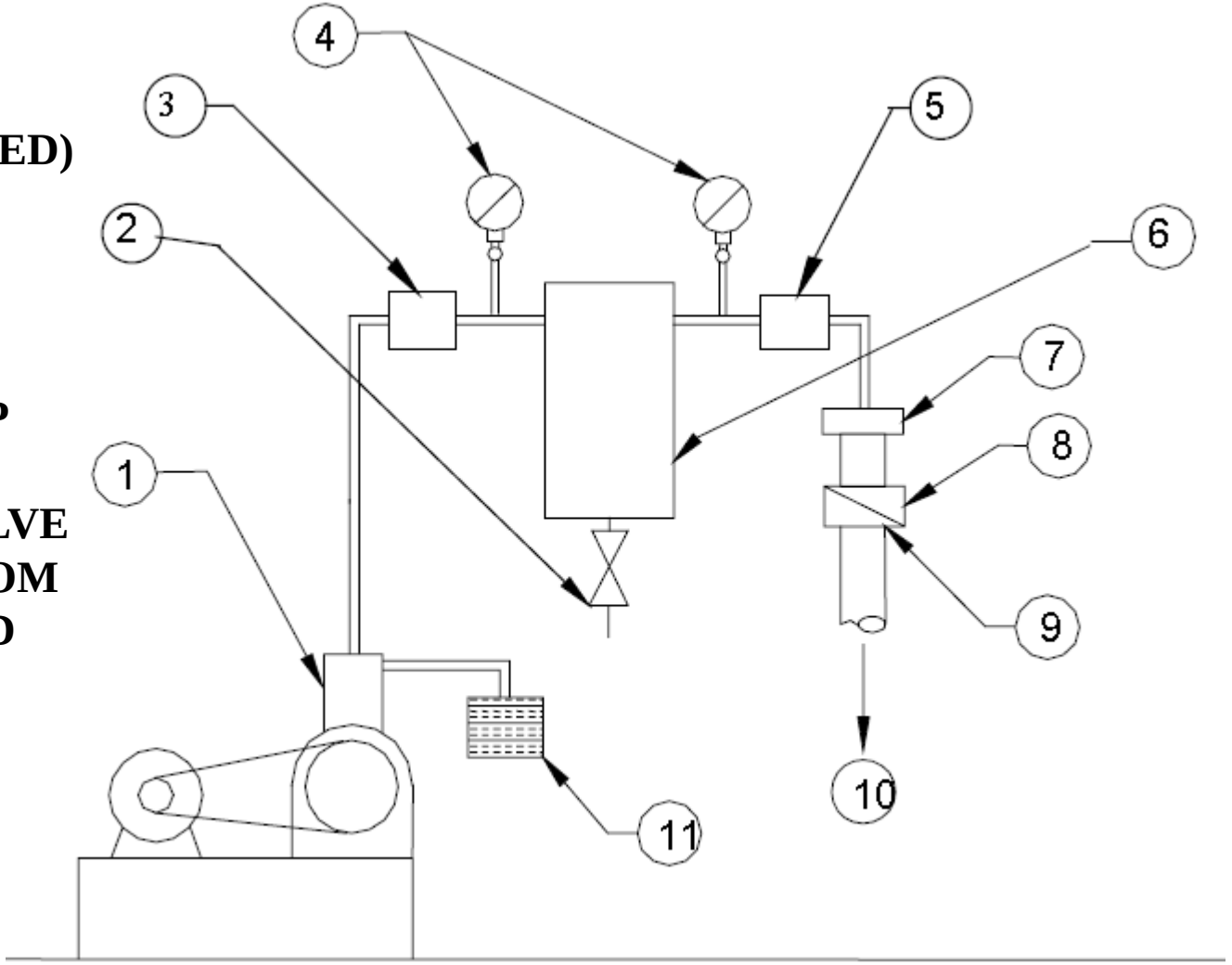
- **Air Blow Systems**
  - ***3-A Accepted Practices - Supplying Air Under Pressure in Contact with Milk, Milk Products, and Product Contact Surfaces; Number 604-04.***

Principle Components

- Compressor with Air Inlet Filter
- Coalescing Filter and Moisture Trap
  - Method to indicate filter replacement
- Single Service Final Filter
  - Filter Media Properly Stored
- Sanitary Check Valve
  - Sanitary piping downstream of Check Valve

Compressor Components

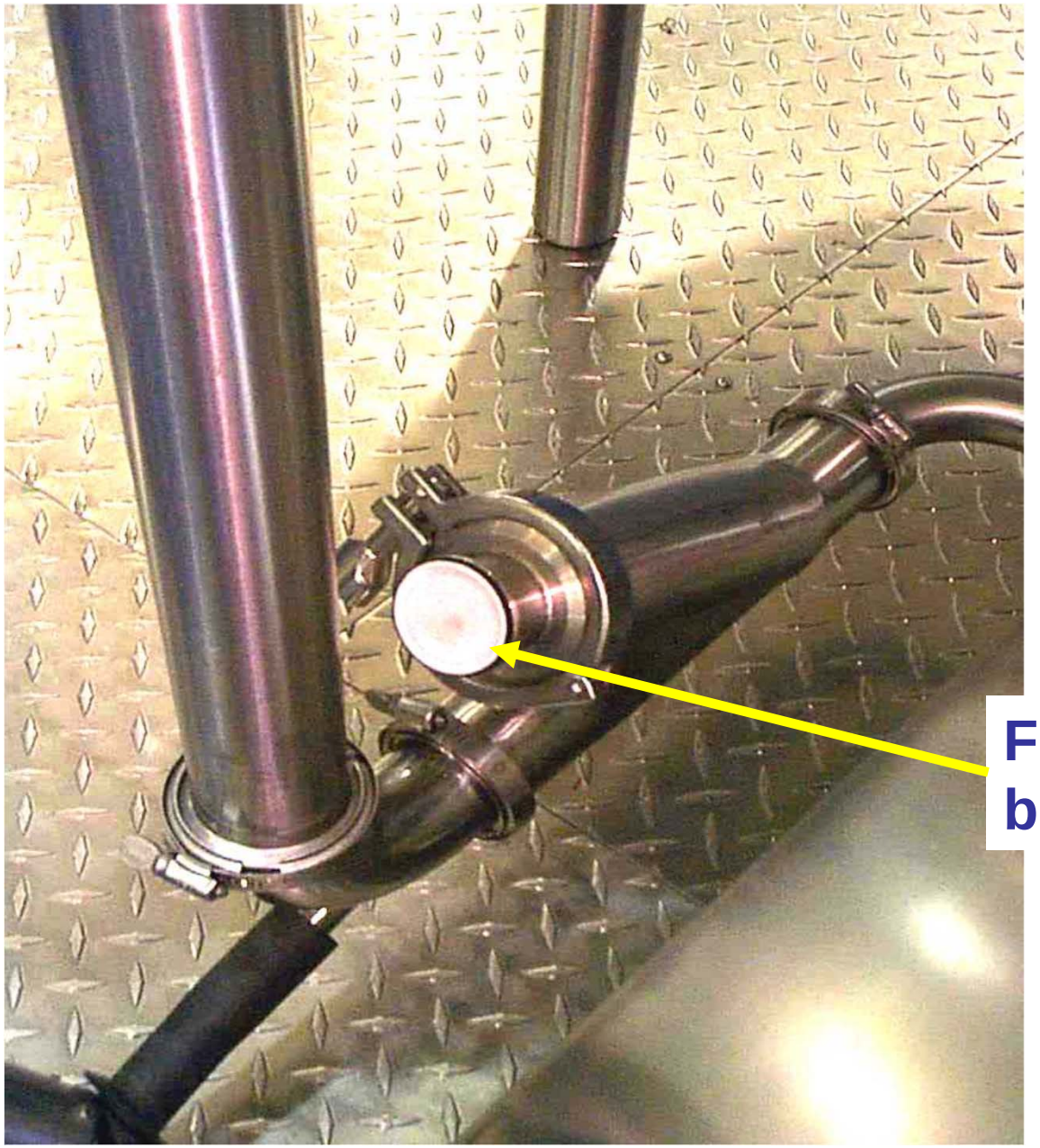
1. COMPRESSOR
2. DRAIN VALVE
3. AFTERCOOLER (IF USED)
4. PRESSURE GAUGE (OPTIONAL)
5. DRYER (WHEN USED)
6. COALESCING FILTER AND MOISTURE TRAP
7. FINAL FILTER
8. PRODUCT CHECK VALVE
9. SANITARY PIPING FROM THIS POINT FORWARD
10. TO POINT OF APPLICATION
11. INTAKE AIR FILTER



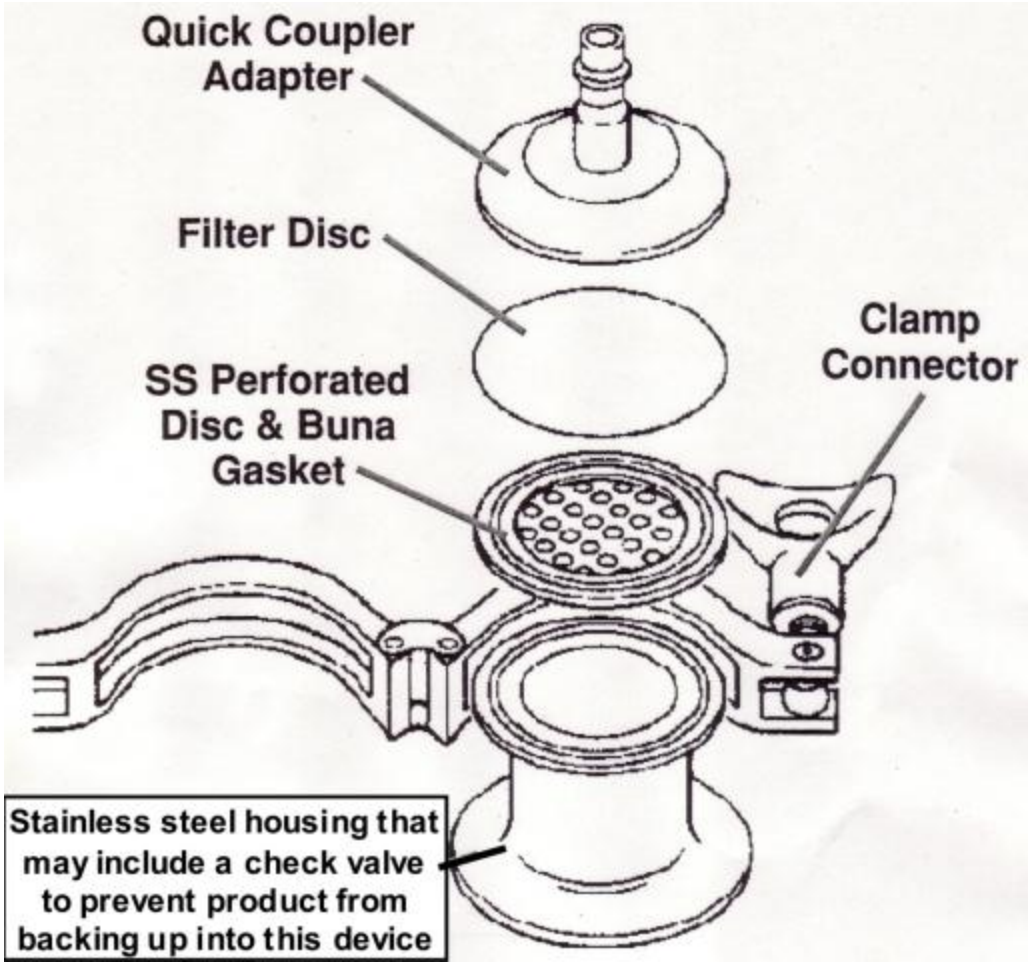
Air-Blow Fitting

The Air-Blow Fitting Must be Accessible for Inspection, Cleaning and Maintenance

The Air-Blow Must be Filtered


Filter disk for air blow assembly

Sanitary Air Blow



Air Injector

- Installed in Milkhouse or CIP Parlor only
  - CIP Parlor installation w/ proper filter
- Milkline Installation
  - Sanitary Design
  - Close Coupled

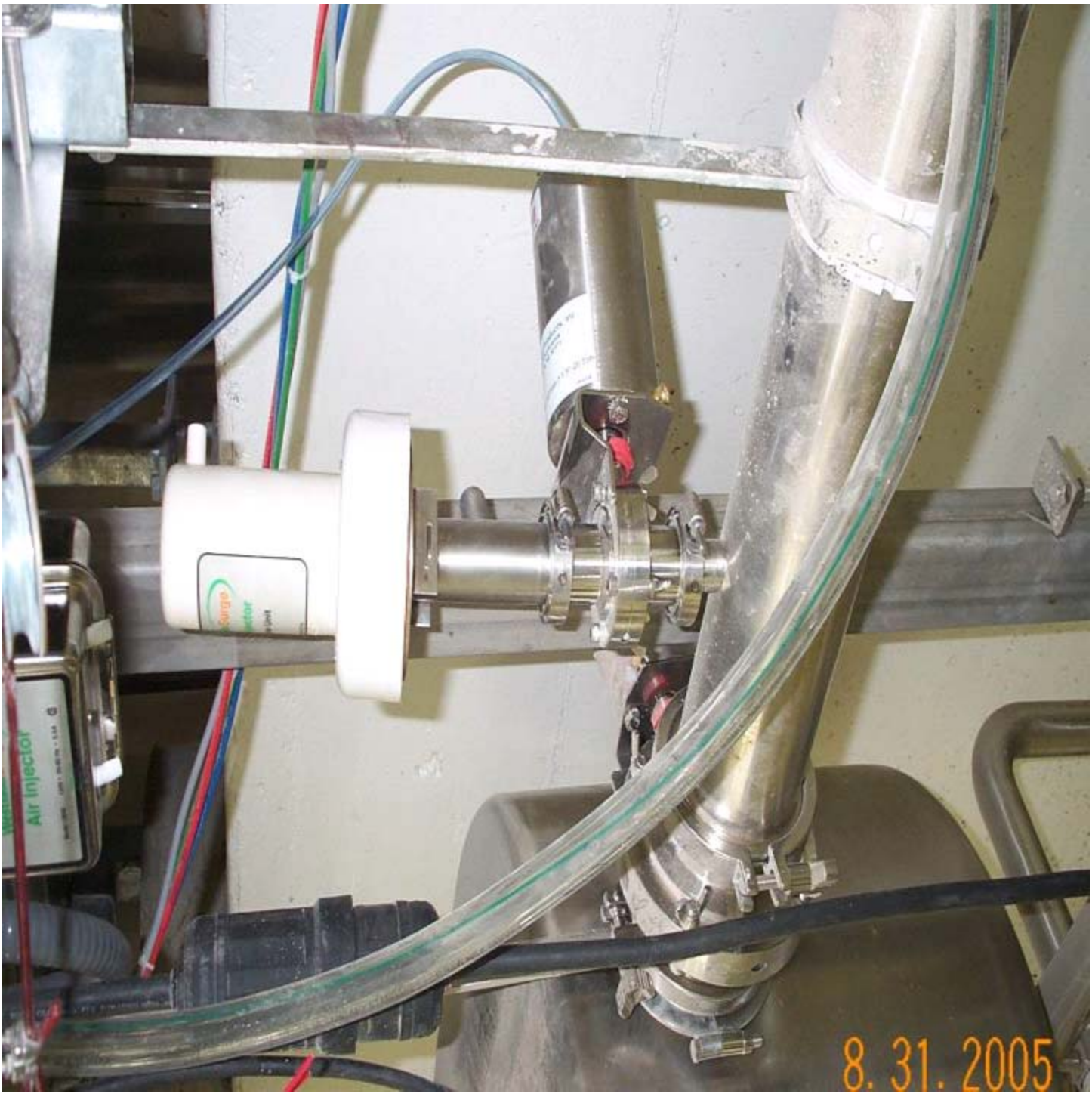
Air Injector

- Acceptable on Milk Line

Air Injector

- Installation on wash line only

25 6:16 PM
T15


Air injector
8. 31. 2005


1
AIR INJ
30/09/2005


Air Injector on long dead end

Plate Coolers

- Backflow Requirements
- CIP By-pass
- Additives
  - Cooling suppression
  - Microbial agents

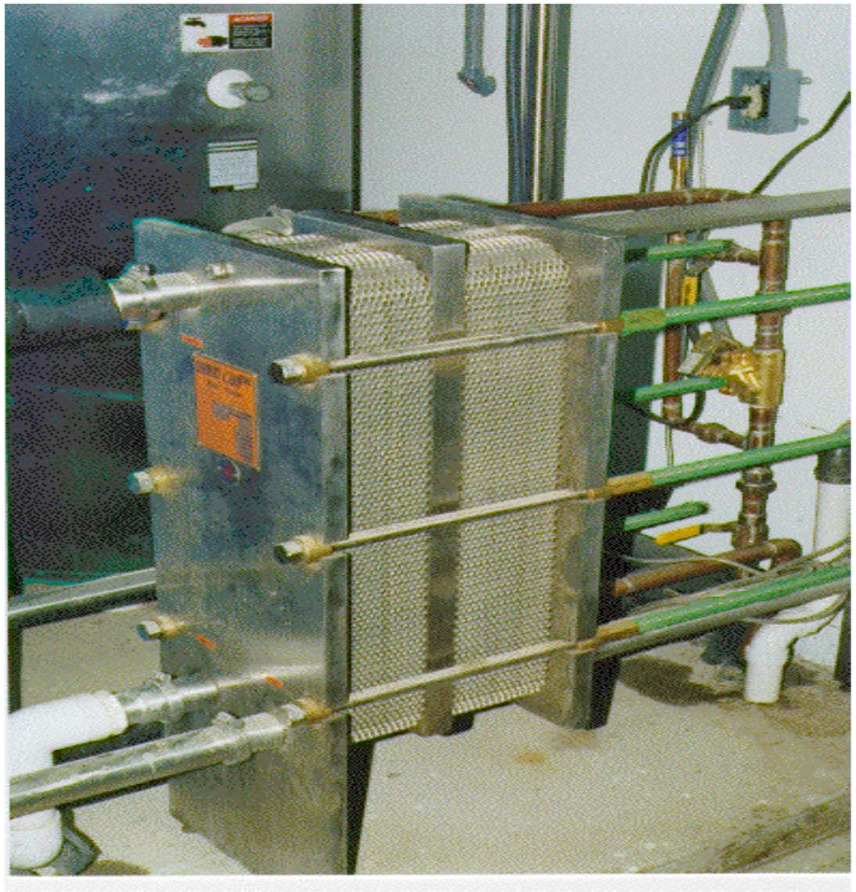
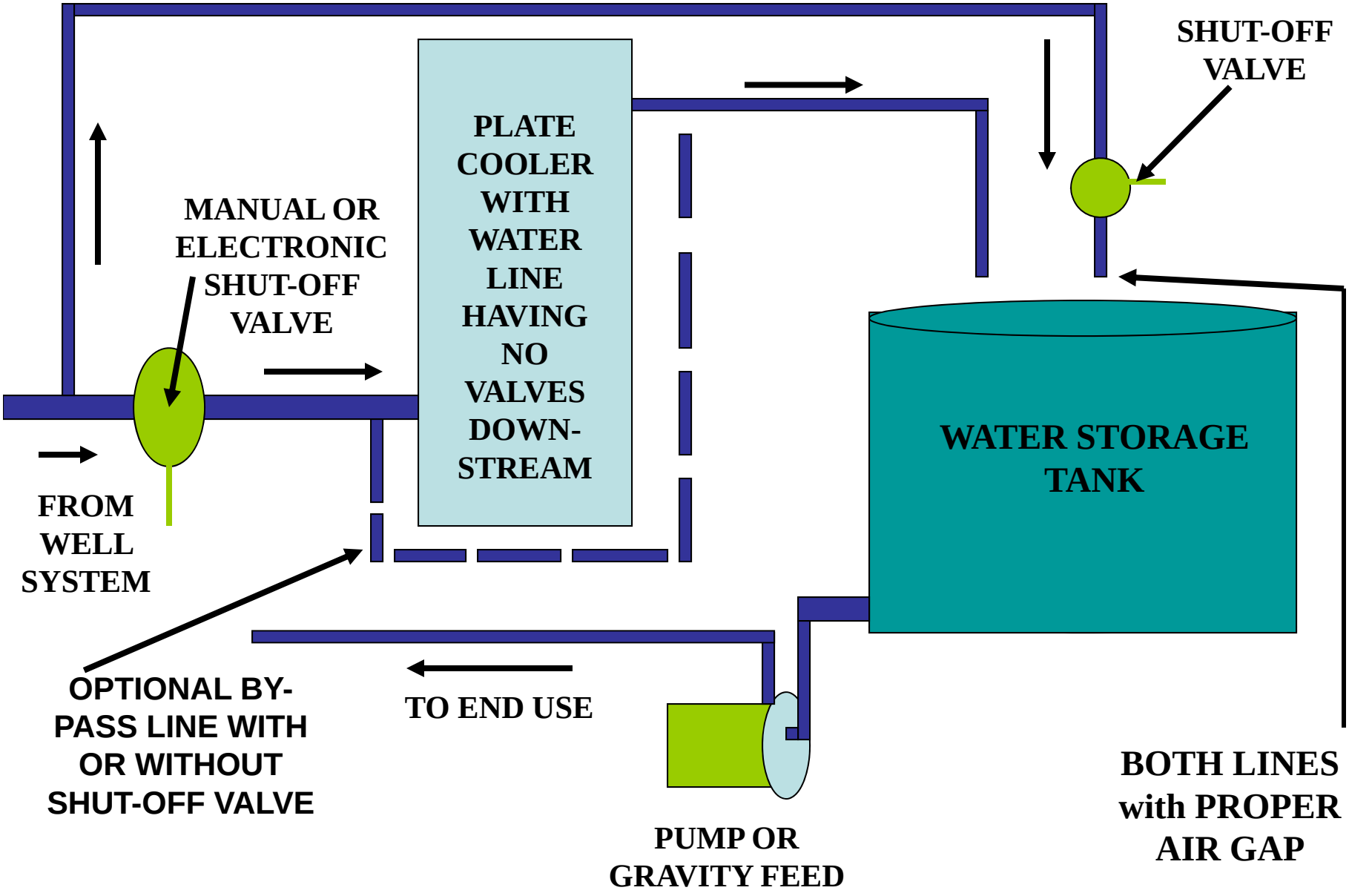


PLATE COOLER INSTALLATION WHERE NO BACKFLOW PREVENTION IS REQUIRED



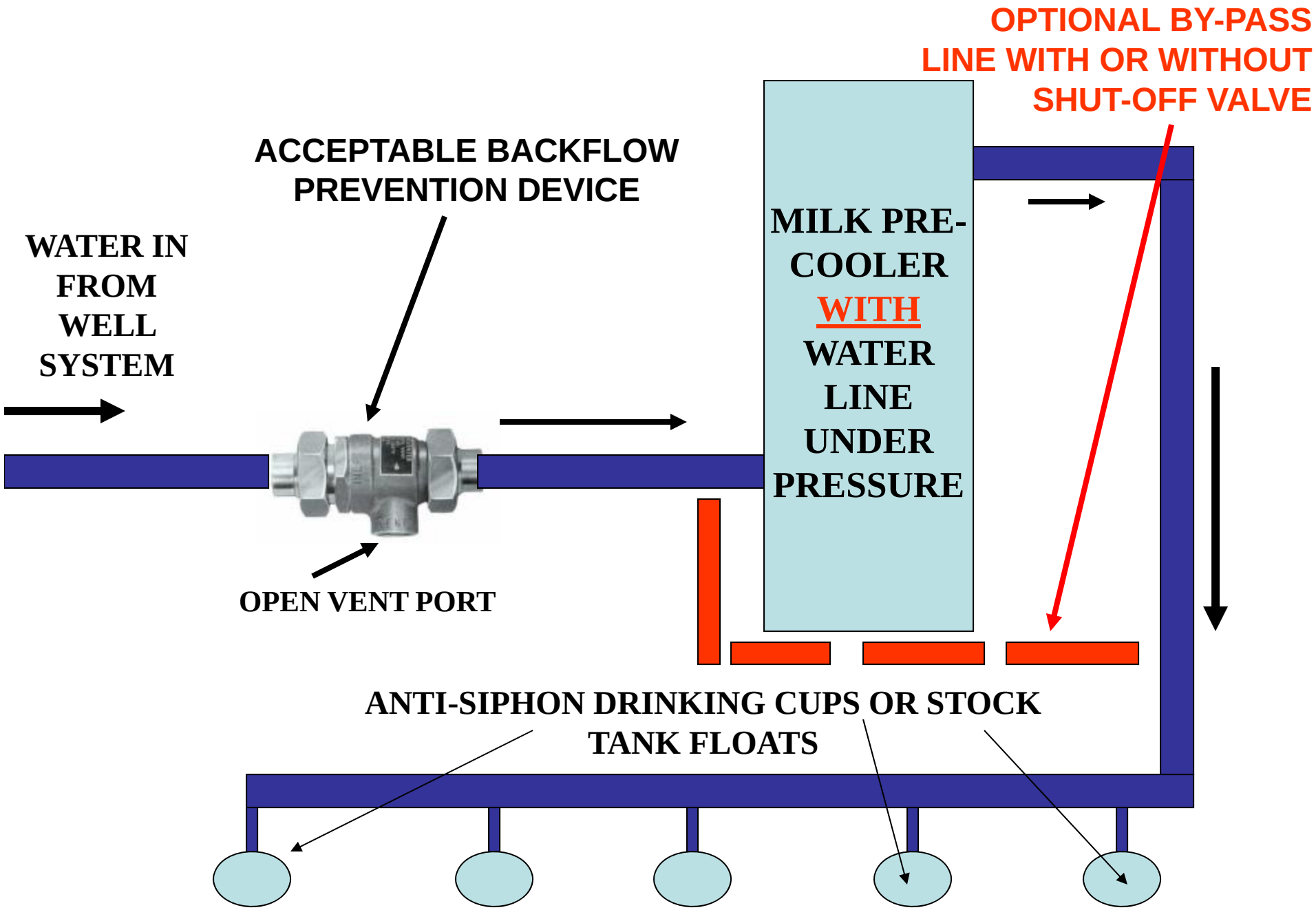
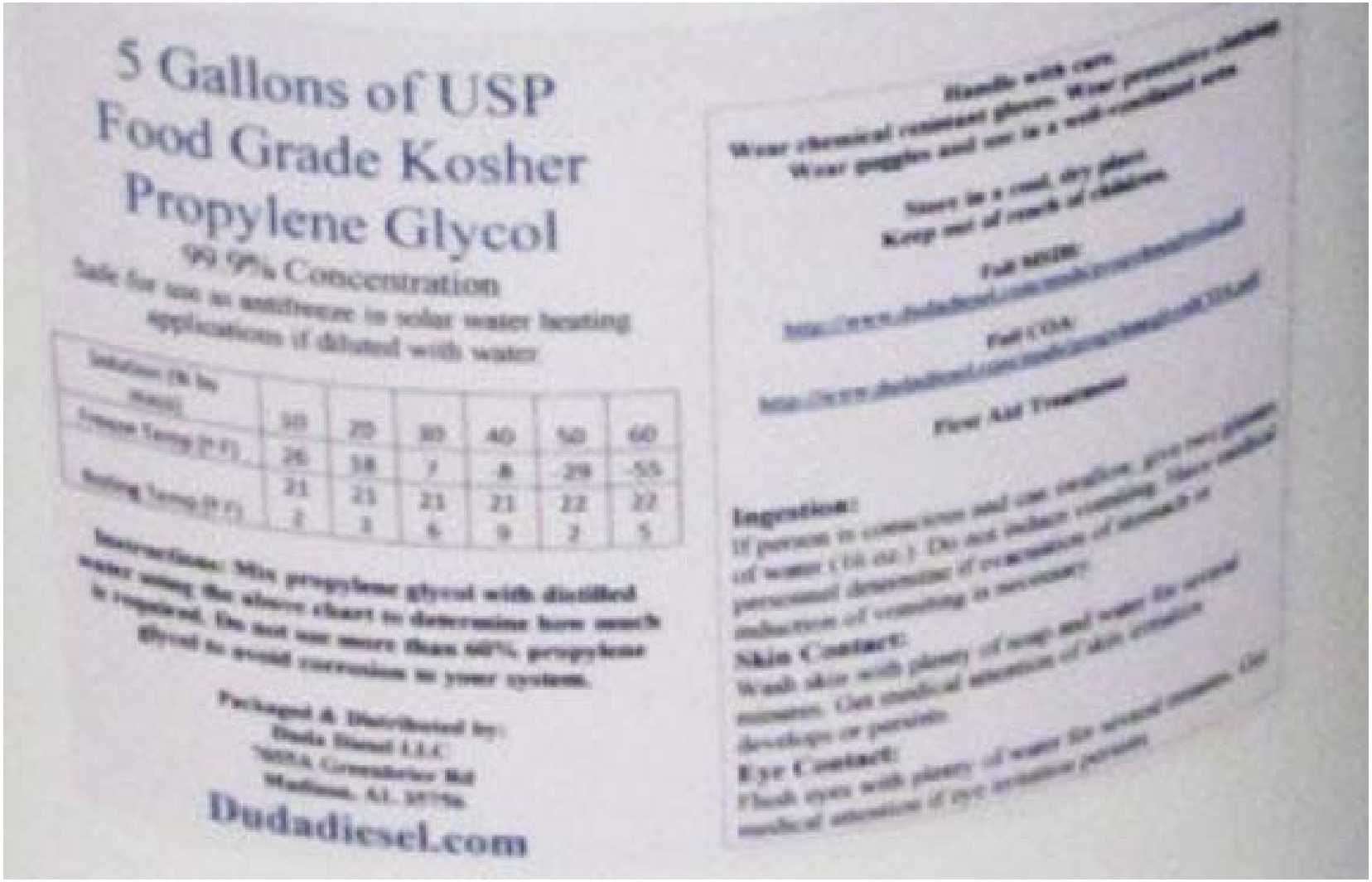

OPTIONAL BY-PASS
LINE WITH OR WITHOUT
SHUT-OFF VALVE
ACCEPTABLE BACKFLOW
PREVENTION DEVICE
WATER IN
FROM
WELL
SYSTEM
MILK PRE-
COOLER
WITH
WATER
LINE
UNDER
PRESSURE
OPEN VENT PORT
ANTI-SIPHON DRINKING CUPS OR STOCK
TANK FLOATS

Plate Cooler CIP Bypass

- Creates Product Dead-end

Glycol Documentation



5 Gallons of USP
Food Grade Kosher
Propylene Glycol

99.9% Concentration

Safe for use as antifreeze in solar water heating applications if diluted with water.

Solution (% by mass)	10	20	30	40	50	60
Freeze Temp (F°)	26	18	7	-8	-29	-55
Boiling Temp (F°)	213	215	218	221	222	227

Instructions: Mix propylene glycol with distilled water using the above chart to determine how much is required. Do not use more than 60% propylene glycol to avoid corrosion to your system.

Packaged & Distributed by:
Duda Diesel LLC
[illegible]
Madison, AL 35756

DudaDieselCom

Ingestion:

Skin Contact:

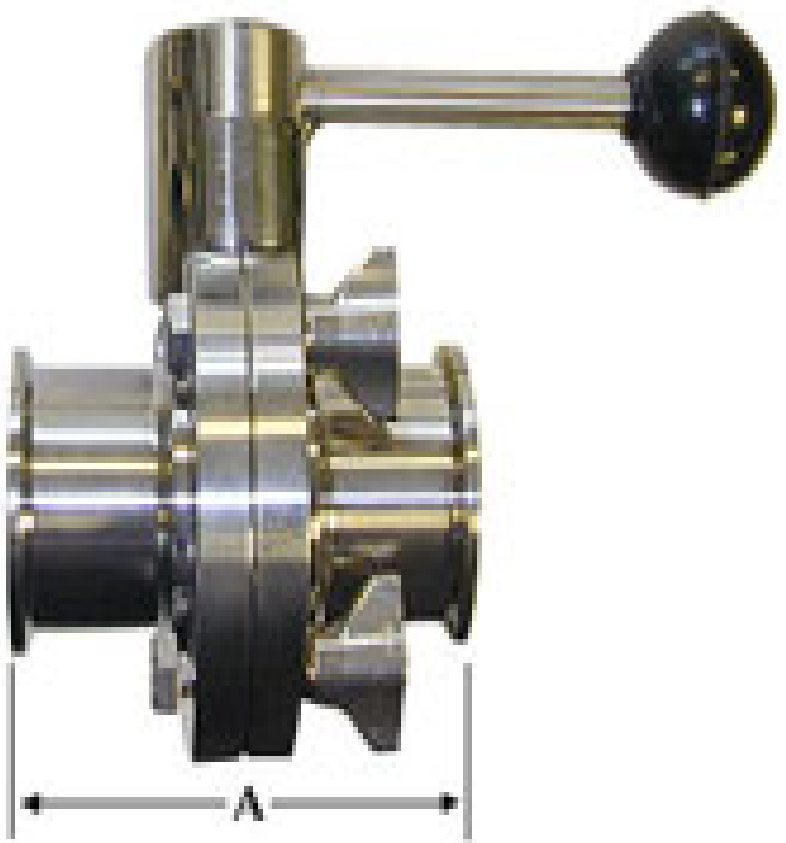
Eye Contact:

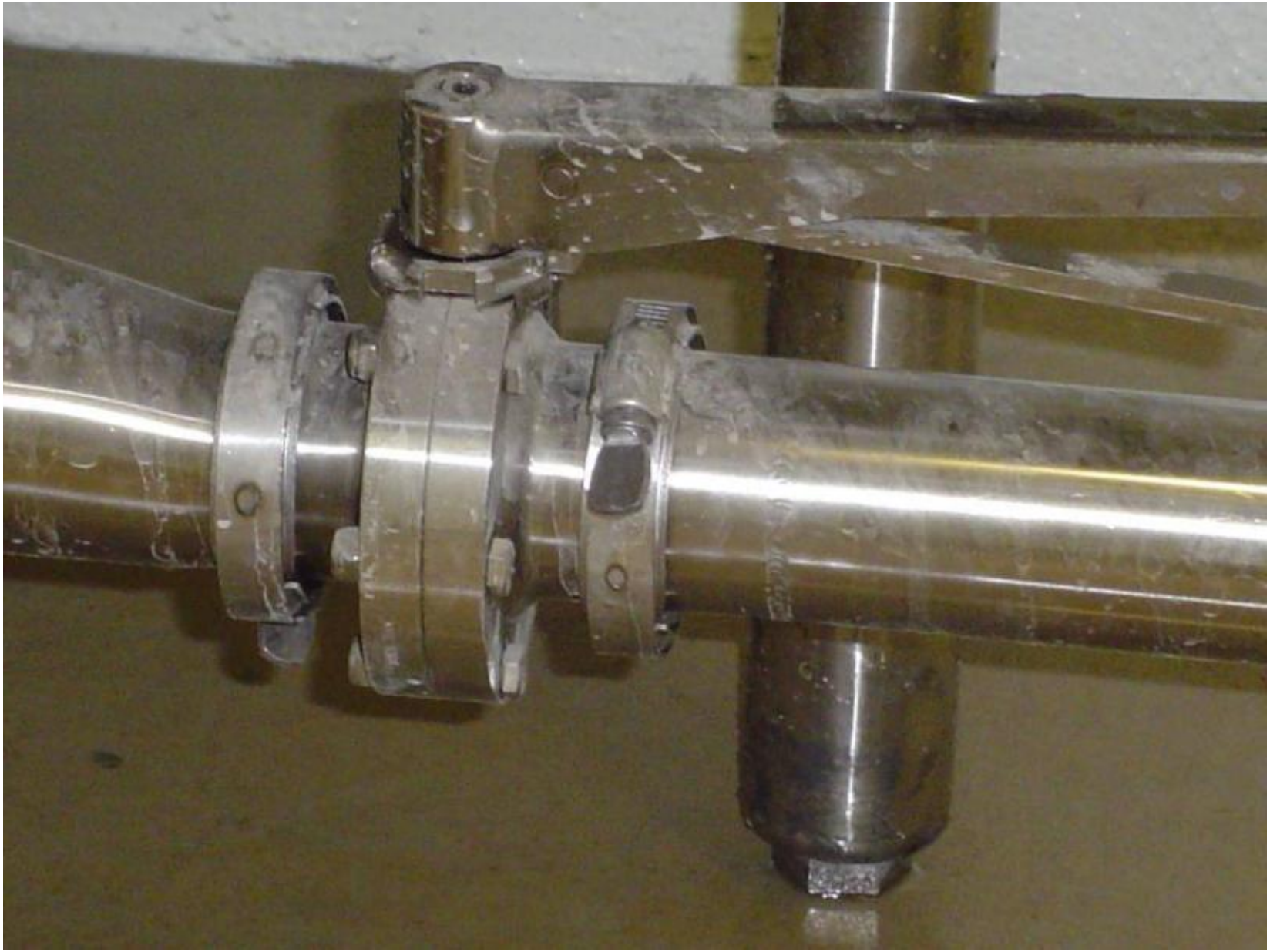
Miscellaneous

- Butterfly Valves
- Direct Ship Temperature Checks
- CIP Manifold Dead-ends
- Receiver Jar Accessibility

Butterfly Valves

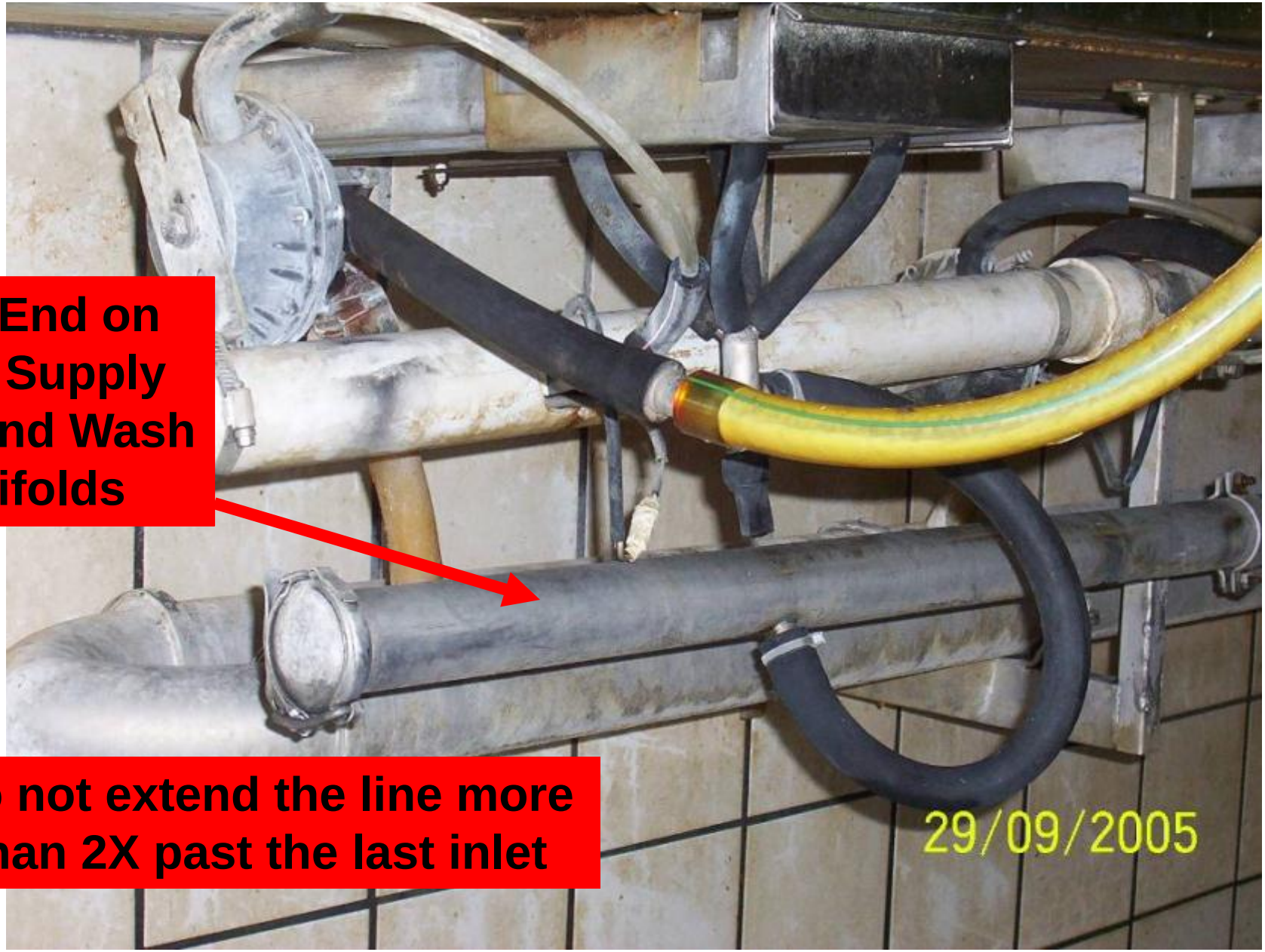
- Accessible for cleaning and inspection
- Simple hand tools
- Requires routine cleaning and maintenance



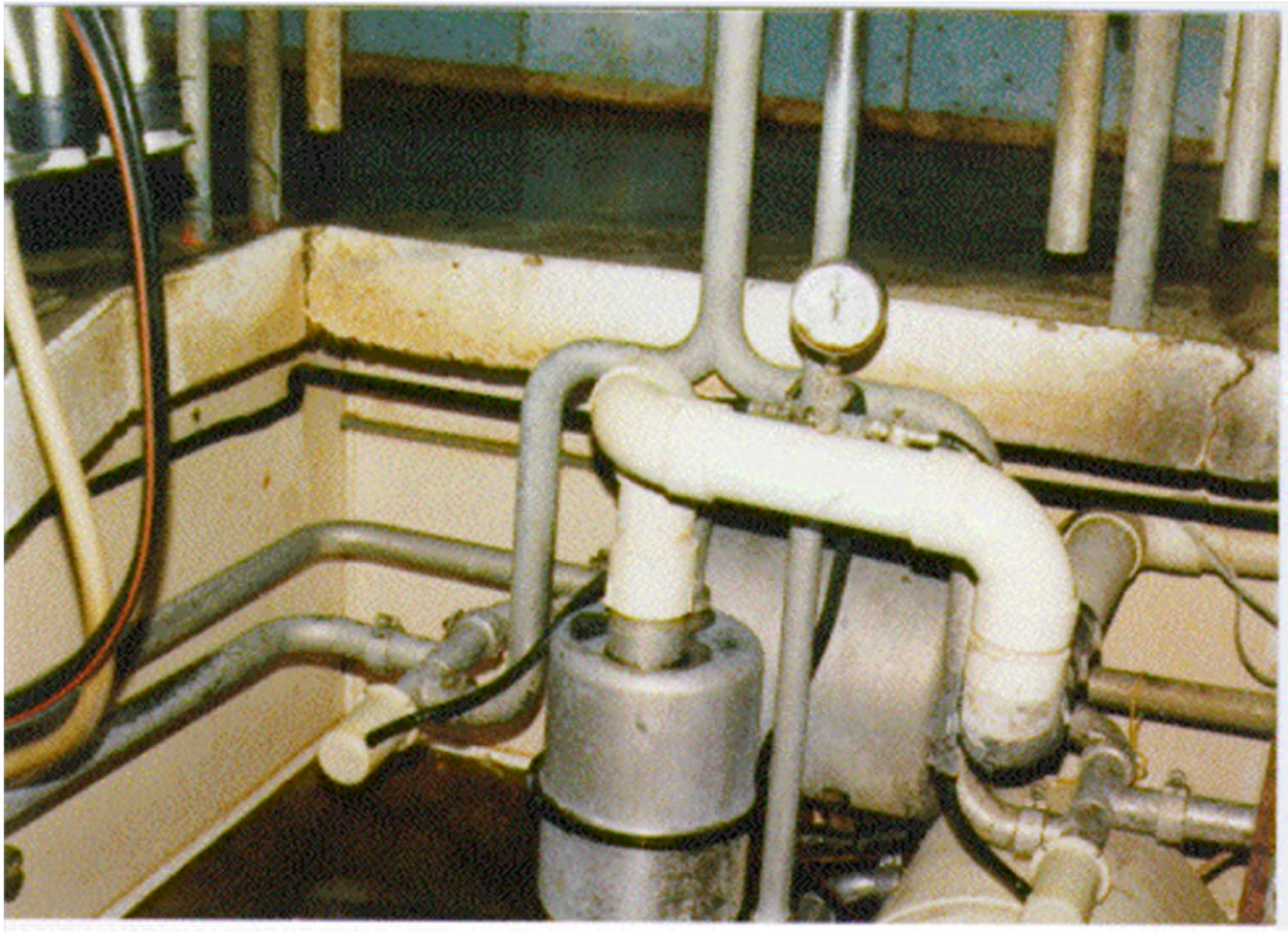


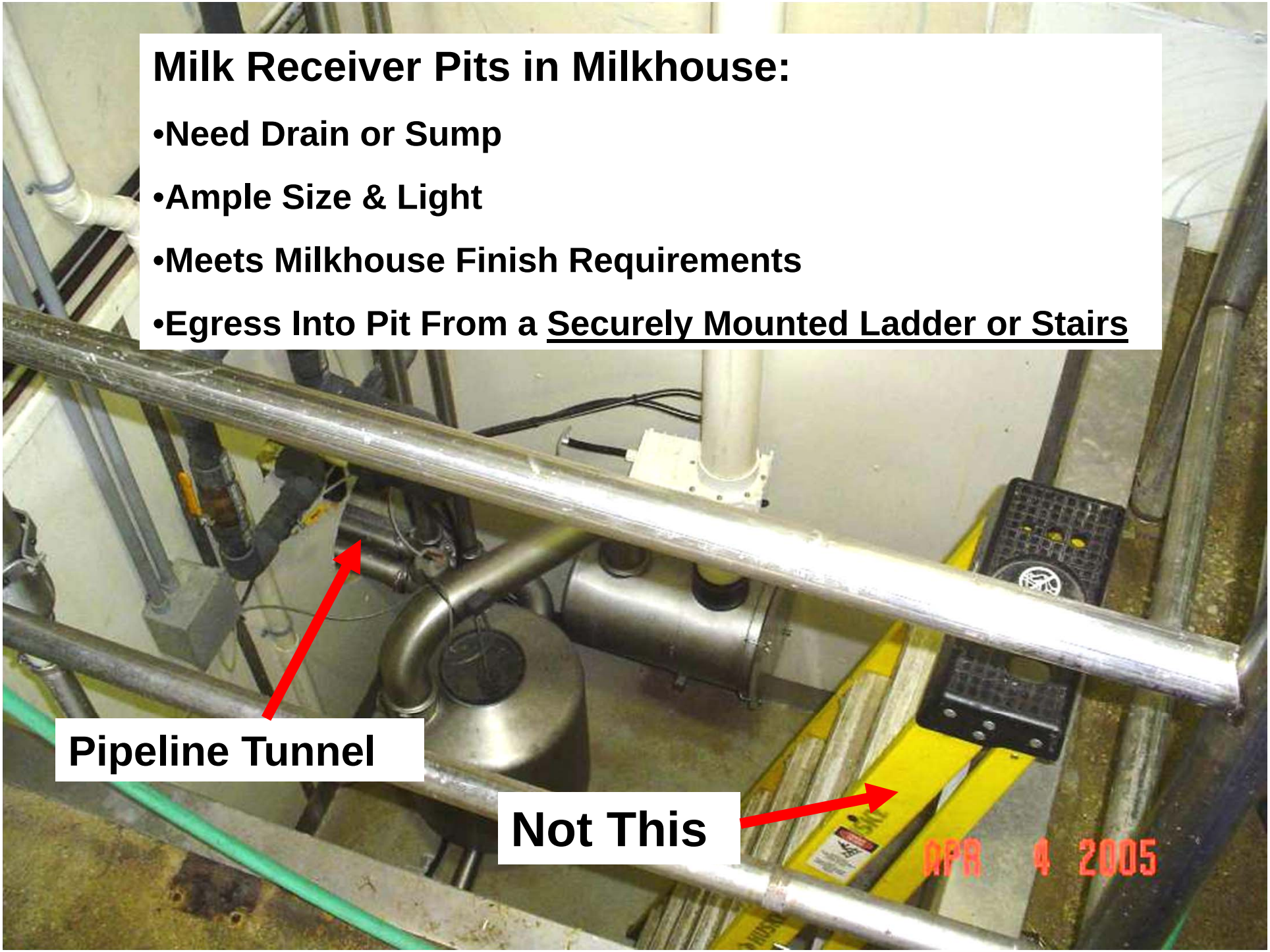
Direct Ship Temperature Check

A method **must** be provided to verify the accuracy the temperature sensors


Dead End on Jetter Supply Lines and Wash Manifolds
Do not extend the line more than 2X past the last inlet
29/09/2005

Receiver Jar Accessibility

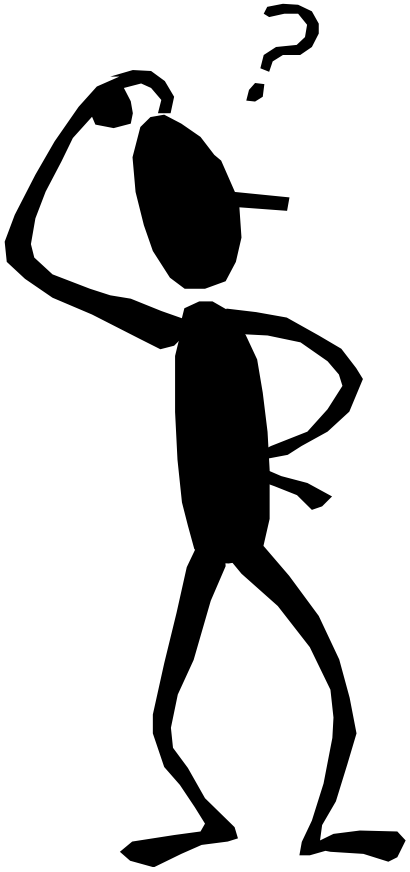



Milk Receiver Pits in Milkhouse:
•Need Drain or Sump
•Ample Size & Light
•Meets Milkhouse Finish Requirements
•Egress Into Pit From a Securely Mounted Ladder or Stairs
Pipeline Tunnel
Not This
APR 4 2005

Food for Thought

- ATCP 60.10(6)(b) No manufacturer or distributor of milking or milk handling systems may sell, or distribute for sale in this state, any portion of a milking or milk handling system unless specifications or prototype equipment are first reviewed by the department.

Questions



DIRECT TANKER DAIRY FARM REQUIREMENTS

Presenter
FOOD & DAIRY SPECIALIST
Lee Larsen

Direct Shipment of Milk

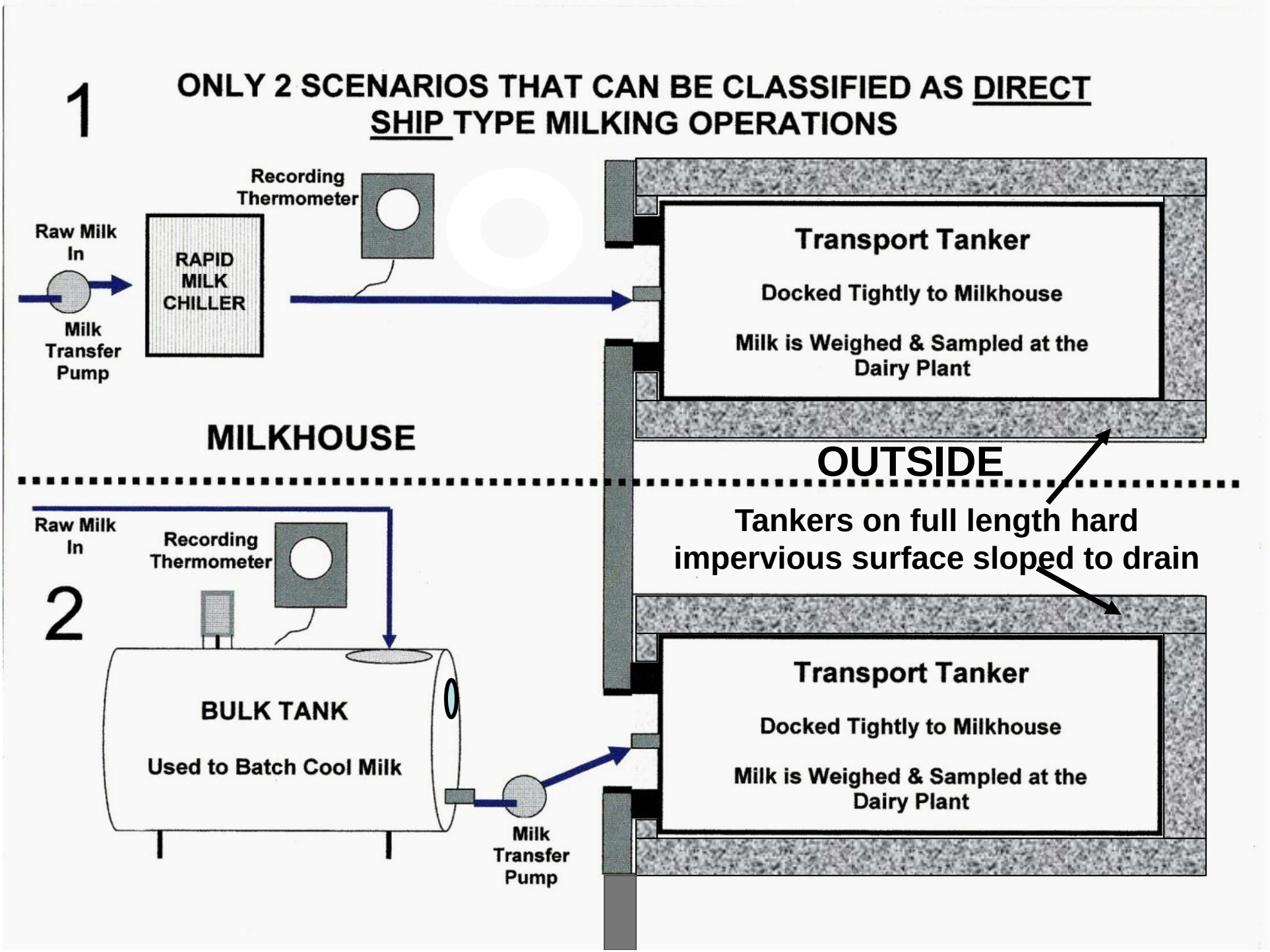
Definition:

A facility in which a transportation tanker is used to store milk on the dairy farm.

The tanker may be located in an enclosed structure, it must be adjacent to, but not part of the milkhouse. The structure must comply with all milkhouse construction criteria,

Or

The milk tanker is not kept sheltered, and the following special facility criteria applies:


1
ONLY 2 SCENARIOS THAT CAN BE CLASSIFIED AS DIRECT SHIP TYPE MILKING OPERATIONS
Recording Thermometer
Raw Milk In
RAPID MILK CHILLER
Milk Transfer Pump
Transport Tanker
Docked Tightly to Milkhouse
Milk is Weighed & Sampled at the Dairy Plant
MILKHOUSE
OUTSIDE
Tankers on full length hard impervious surface sloped to drain
Raw Milk In
Recording Thermometer
2
BULK TANK
Used to Batch Cool Milk
Milk Transfer Pump
Transport Tanker
Docked Tightly to Milkhouse
Milk is Weighed & Sampled at the Dairy Plant


Tankers Docked Tight to Milkhouse
Parked on Concrete or Equivalent Type Surface
Extends Out Full Length of Tanker
Sloped to Drain

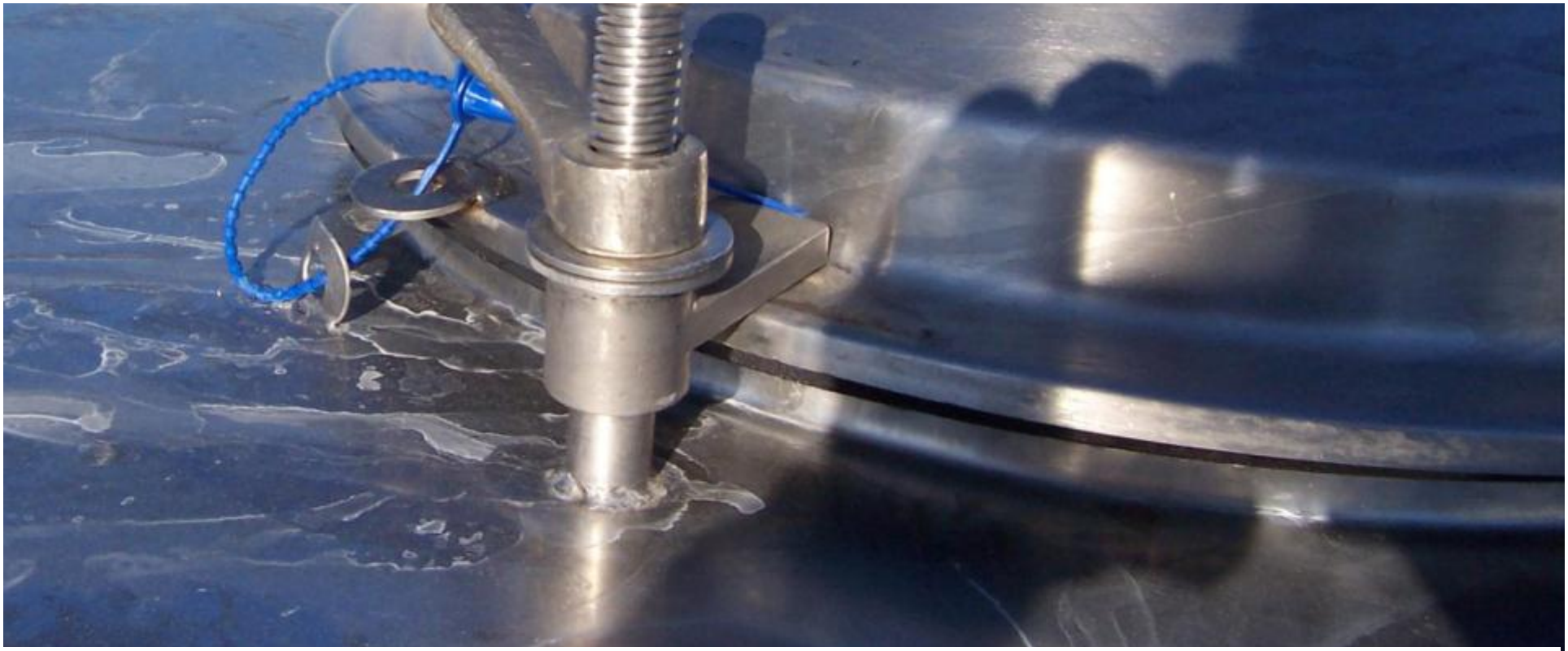
Example of a Side Drainage Tanker Pad That Extends Out Only Past the Support Legs

Tanker Requirements

- **Licensed as Wisconsin Bulk Milk Tanker**
- **Meets 3-A requirements (3A 05-15)**
  - **Construction, Finish, Insulation, etc**
- **Outlet valve close-coupled**
  - **< 2 pipe dia in length, never > 5”**
- **Valve located in cabinet or under effective dust cover during transport.**
- **Access cover is sealable**

Tanker Access Ports Covers Sealed Immediately After Washing

Tankers to be Washed at the Dairy Plant or at a Properly Permitted Wash Facility



PMO: Milk tank truck shall be cleaned and sanitized prior to use. When time after cleaning and sanitizing >96 hours the tank must be re-sanitized.

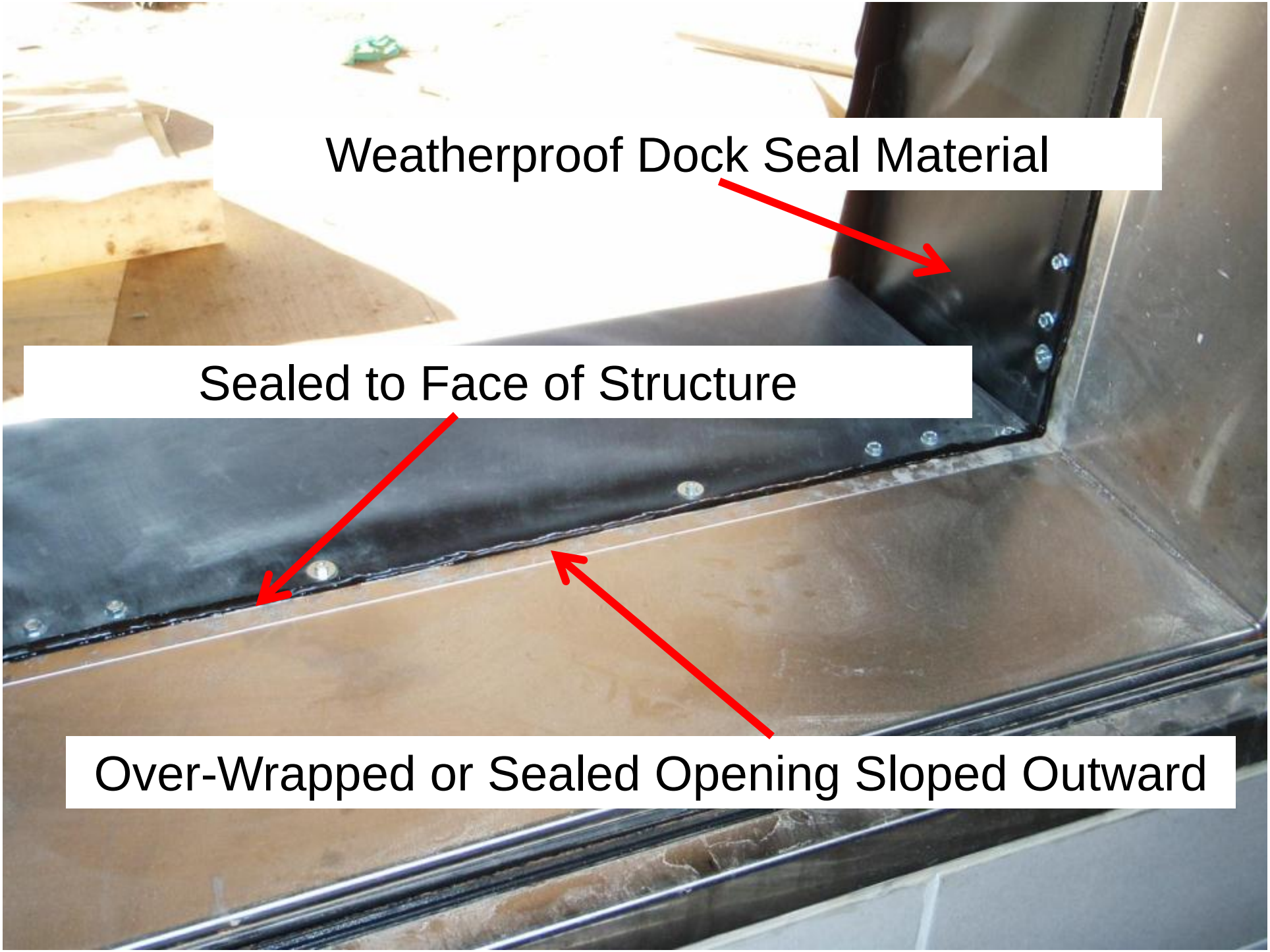

The Tanker Outlet Valve Tightly Docked to the Milkhouse
Durable Non-Absorbent Dock Seal Bumpers Surround Entire Opening
Reinforced Tanker Stop Posts
Keep area clean & trim grass/weeds

A Tight Connection to the Milkhouse is Required:

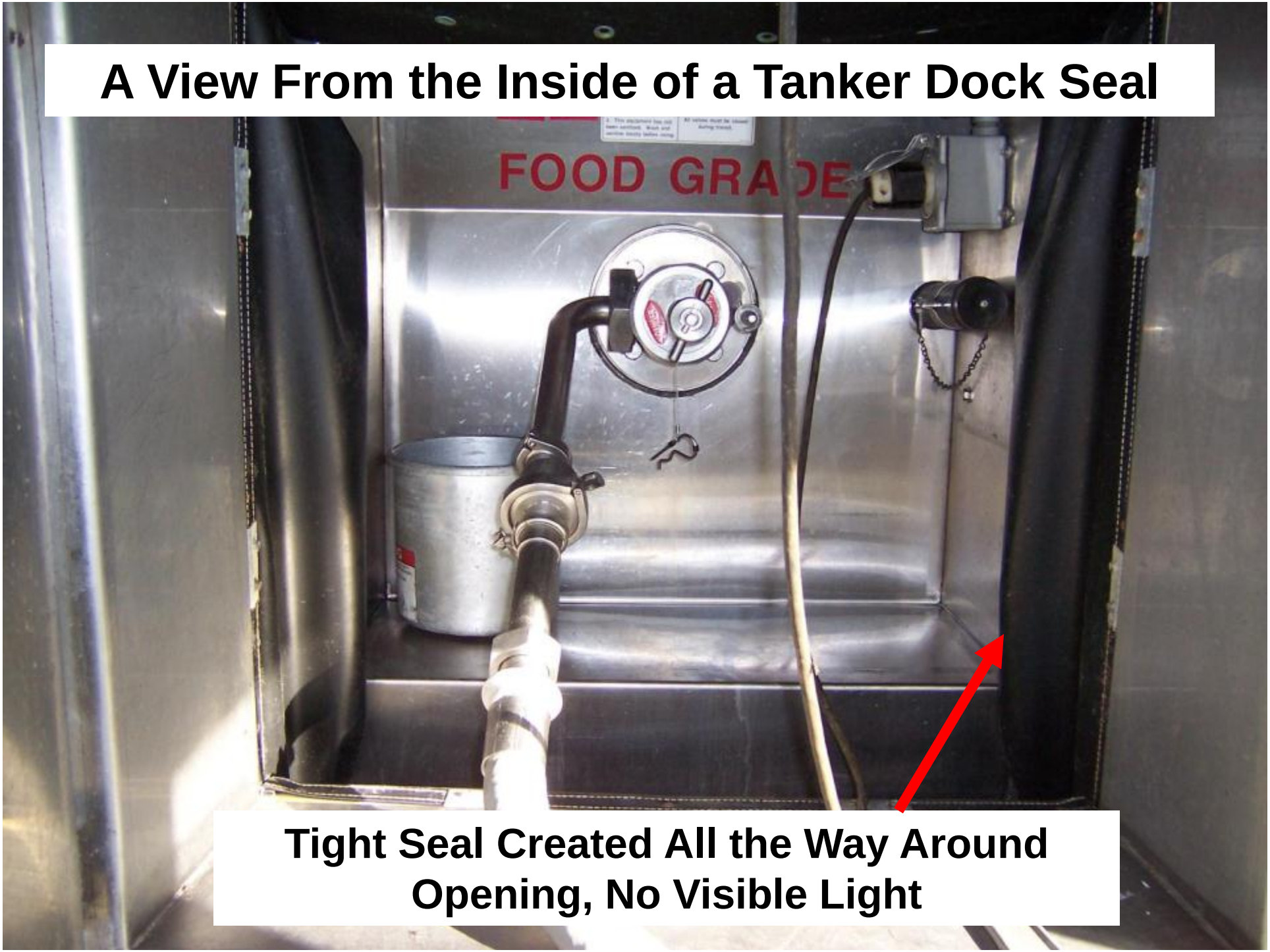
- **May Require Tanker Modifications to Create Tight Seal**
- **May Require Extra Material to Fill in All Gaps**
- **All Tanker Modifications to Meet Sanitary Design Criteria**

Direct Shipment of Milk

- **The outlet valve must be capped and the dust cover shall be in place, or the cabinet doors shall be closed whenever the tanker is not docked tightly to the milkhouse.**

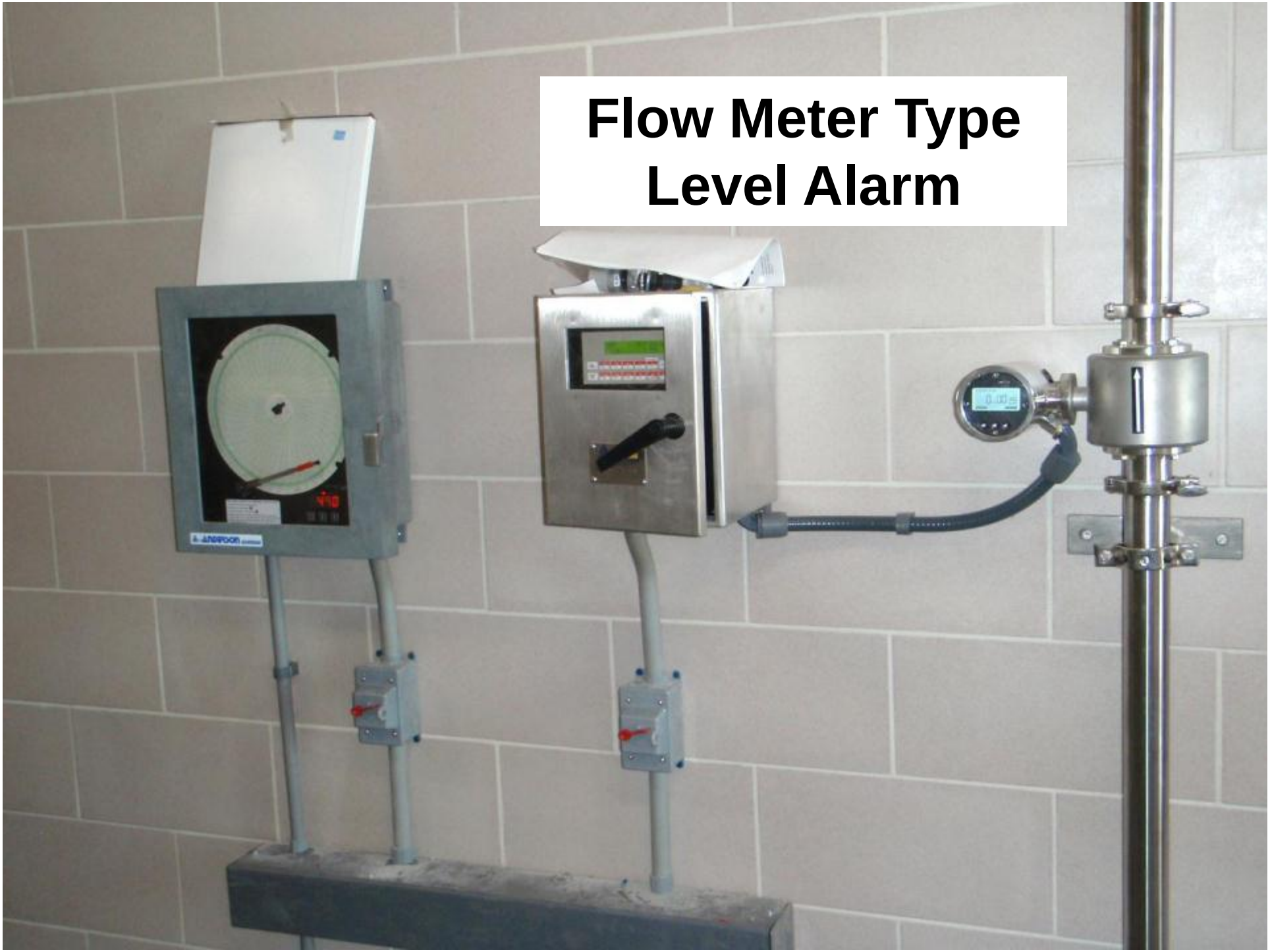

Weatherproof Dock Seal Material
Sealed to Face of Structure
Over-Wrapped or Sealed Opening Sloped Outward

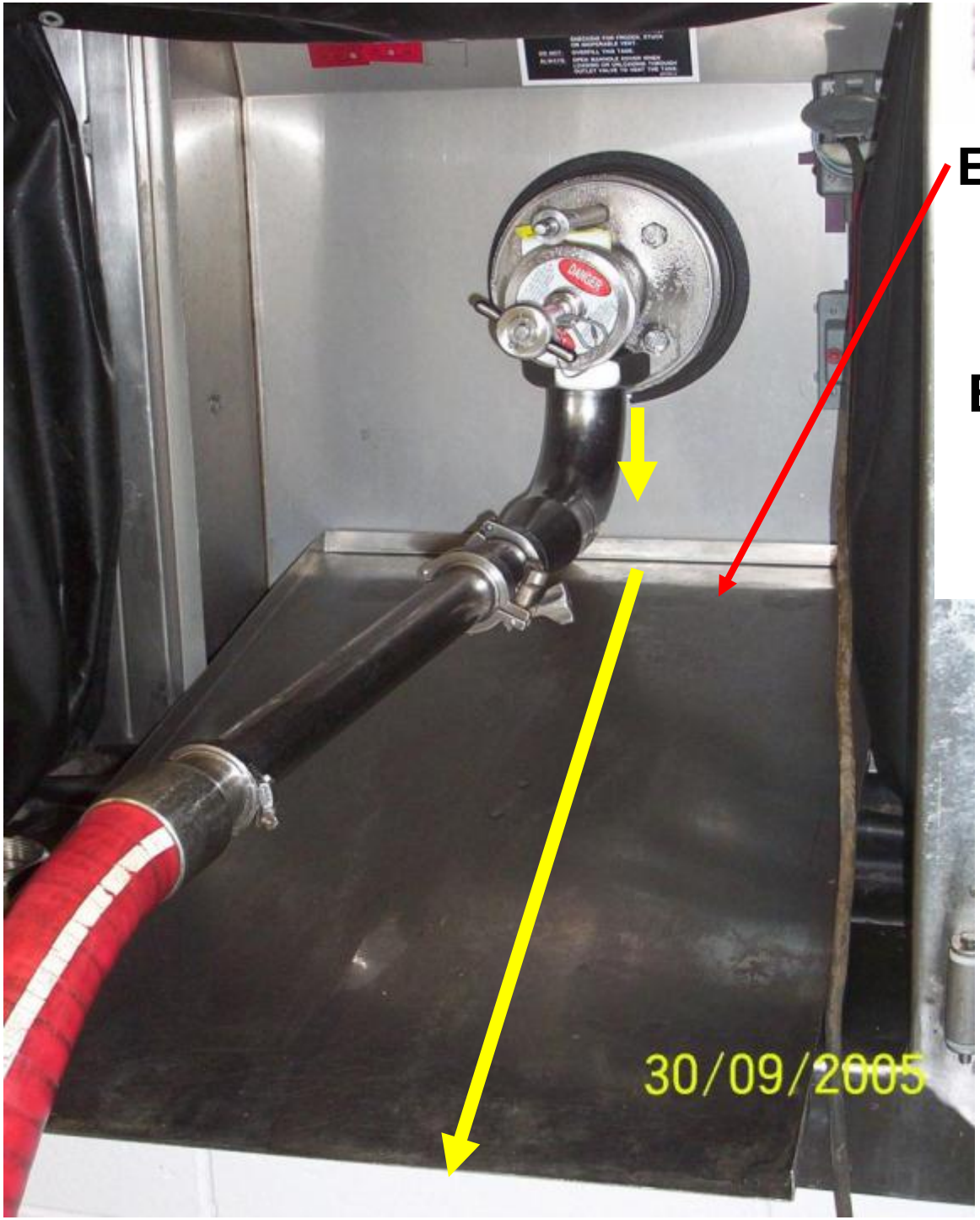
A View From the Inside of a Tanker Dock Seal



Tight Seal Created All the Way Around Opening, No Visible Light


Tanker Level Sensor Is Not Required, but
Highly Recommended
Whatever Device Used Must be Sanitary in Design & Construction
29/09/2005


Flow Meter Type
Level Alarm

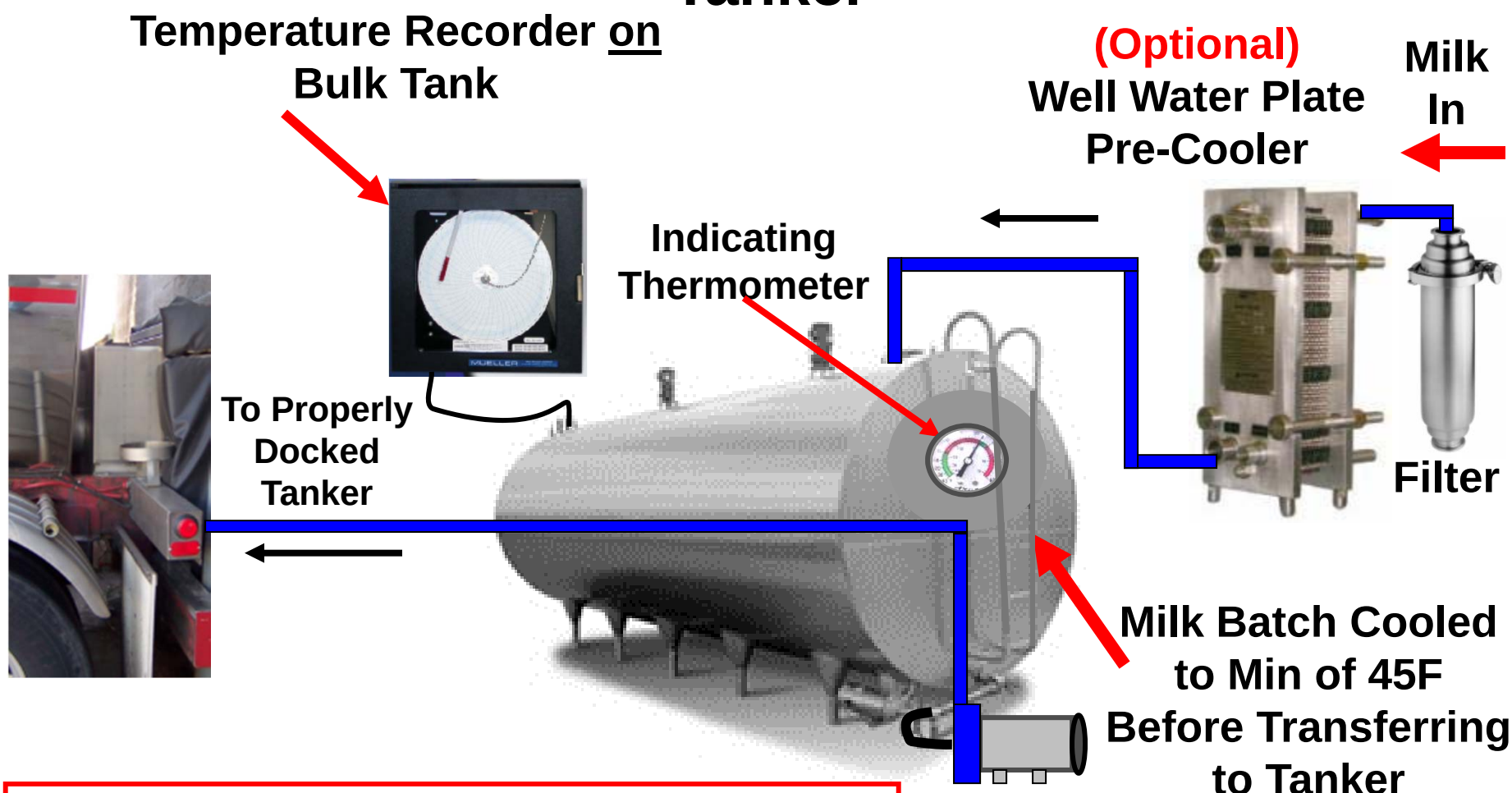


Effective Sanitary Drip Pan Required

Can Be Shared Between Tanker Bays

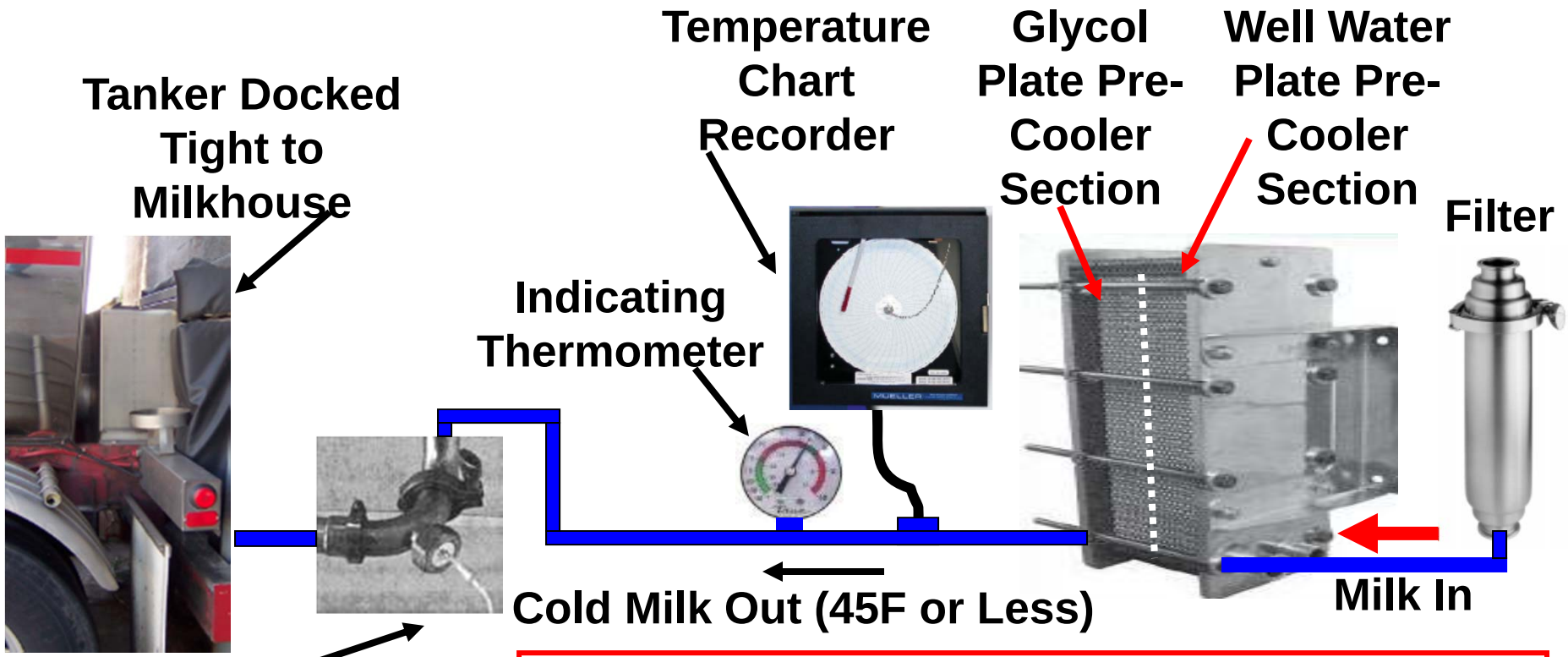
Directs Waste Onto Milkhouse Floor

Batch Cooling (Bulk Tank) Method of Direct Tanker



Pump, & Lines Must be Washed/Sanitized After Each Use . Bulk Tank Must be Washed When Emptied

Traditional Continuous Rapid Milk Cooling for Direct Ship Farms



All Milk Contact Surfaces Must be Washed/Sanitized After Each Use or at Least Once in 24 Hours if Milking Continuously (Includes Internal Surfaces of Tanker Outlet Valve Up to the Closed Seat)

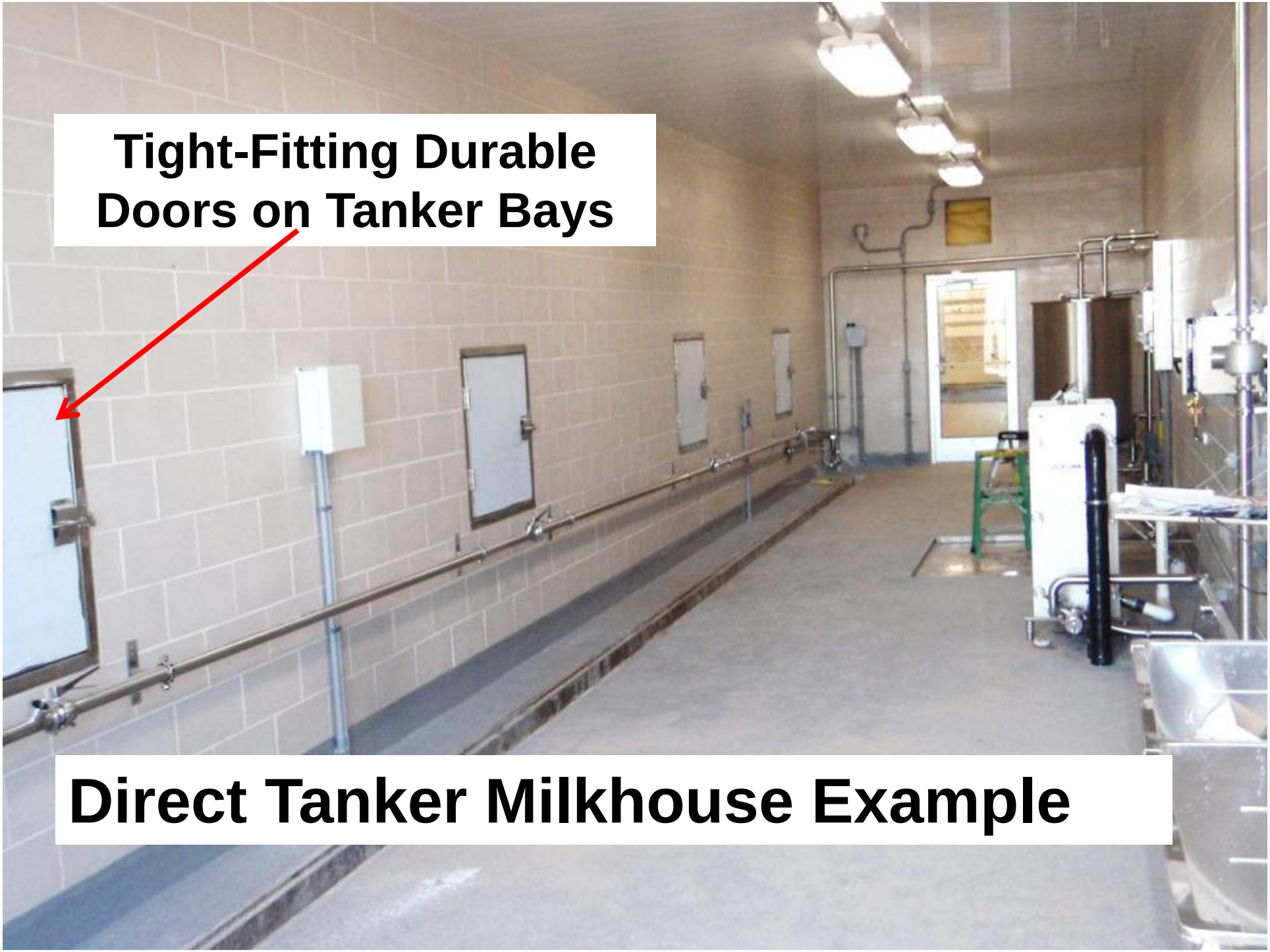
Optional Equipment

In-Line Sampling

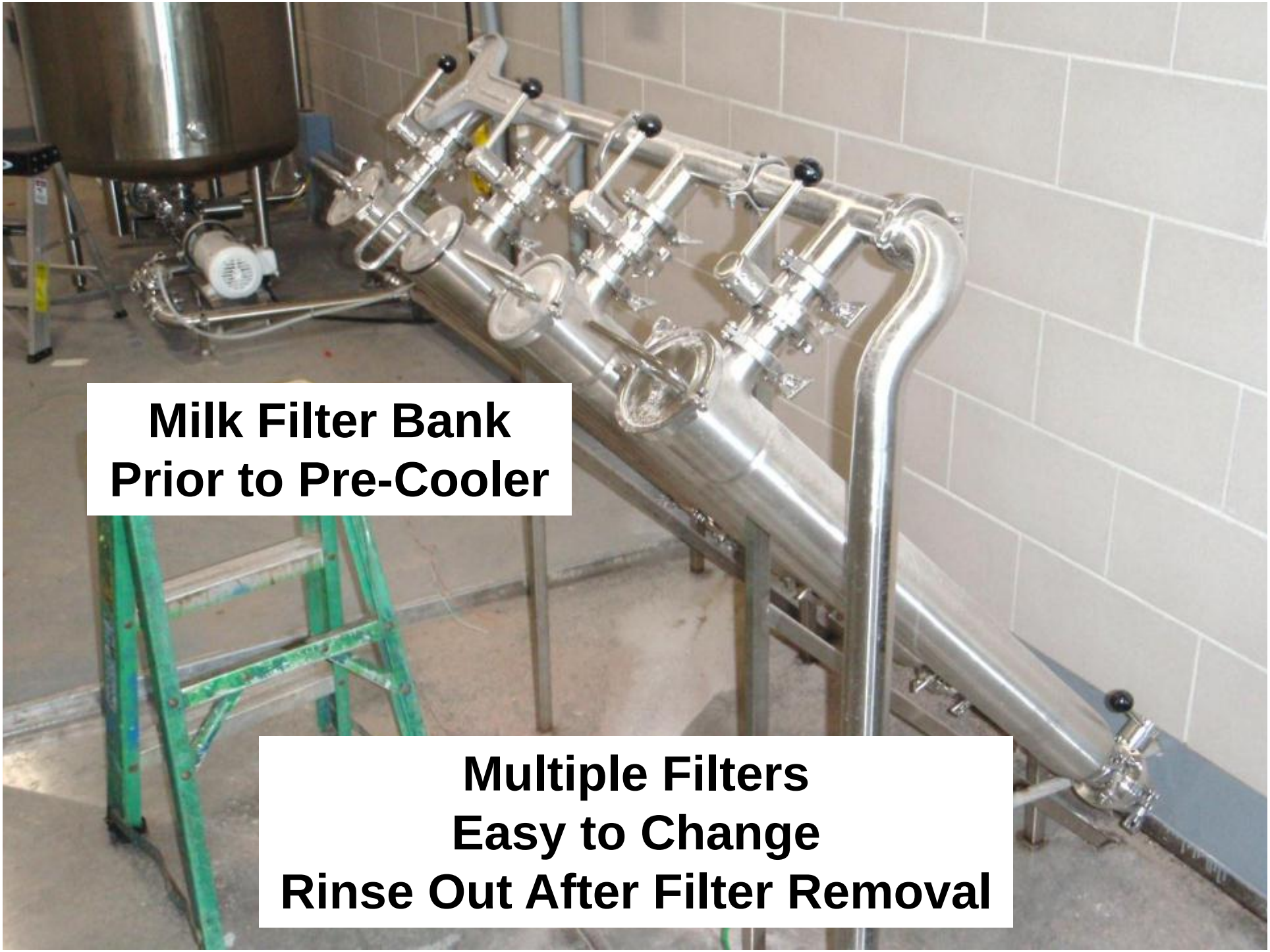
- **A sanitary device may be used by the producer to collect a sample for <u>unofficial</u> on-farm drug residue screening tests.**
- **2011 PMO – Does have provisions for the use of an in-line sampling device for the collection of an <u>official sample</u> for payment purposes. <u>Prior approval by the regulatory agency is required.</u>**

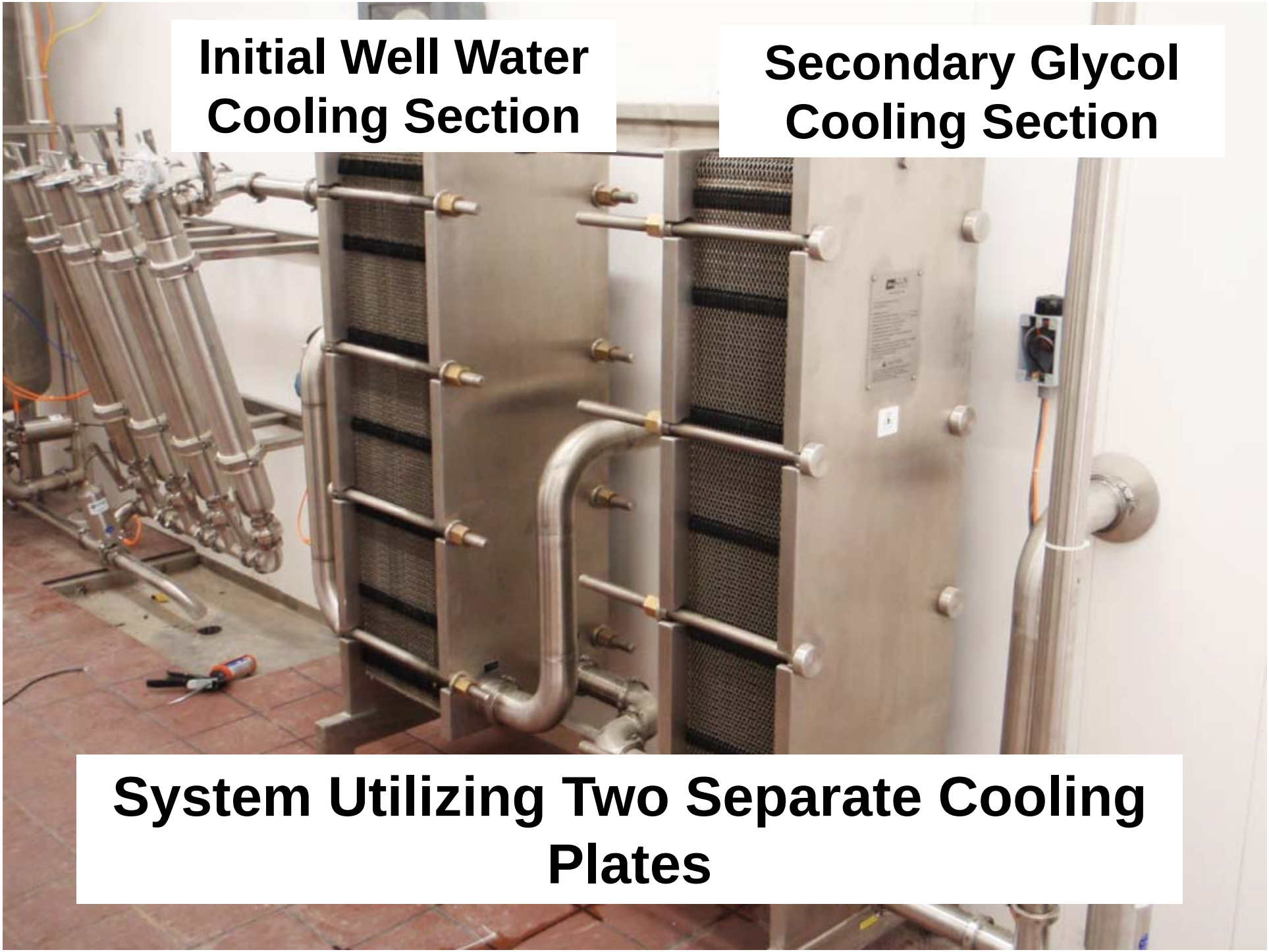
2011 PMO (Page 134 Section II)

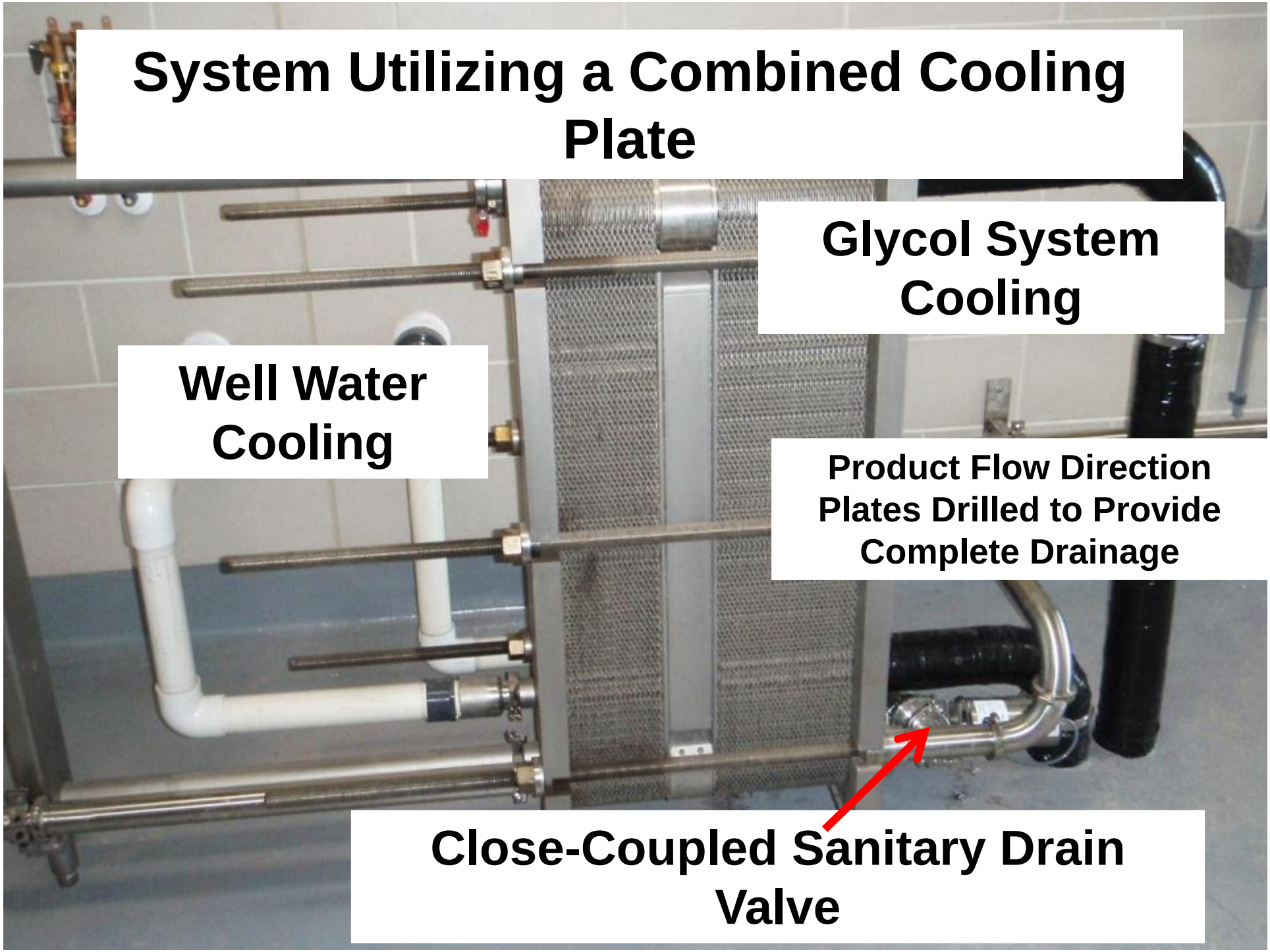
- Approved In-Line Samplers (ISO-LOK, Anderson Instruments and QMI) For The Collection Of Dairy Farm Samples From Direct Load Tankers As Required In Section 6 of the Grade “A” PMO



Direct Tanker Milkhouse Example


Milk Filter Bank
Prior to Pre-Cooler
Multiple Filters
Easy to Change
Rinse Out After Filter Removal


Initial Well Water Cooling Section
Secondary Glycol Cooling Section
System Utilizing Two Separate Cooling Plates


System Utilizing a Combined Cooling Plate
Glycol System Cooling
Well Water Cooling
Product Flow Direction Plates Drilled to Provide Complete Drainage
Close-Coupled Sanitary Drain Valve

ATCP 60.11 (4) (g)
Coolant used in cooling devices shall be food grade coolant approved by the FDA

The dairy plant operator who procures milk from the milk producer shall test the coolant semiannually for Coliform, (Post results in milkhouse).

United States Pharmacopeia (USP) Grade Propylene Glycol is an approved ingredient for low-temperature heat-transfer fluids involving indirect food contact, such as brewing and dairy uses.

Dow Propylene Glycol USP - OK
Dowfrost Propylene Glycol - ?

Propylene Glycol (PG) – USP is similar to its industrial counterpart. However, how it is handled and packaged allows for USP, FDA, and FCC approval applications. These approvals allow for its use in the food & pharmaceutical industries.

Typical Properties:	**PG**	**PG – USP**
Color, APHA, max.	10	10
Spec Gravity 20/20°C	1.038	1.038
Purity, % wt., min.	**99.0**	**99.5**
Other Glycol, % wt.	**1.0**	**0.5**
Acidity, % wt., max.	0.005	0.005
Water, % wt., max.	0.2	0.2
Boiling Point , °C	187.4	187.4
Pour Point, °C	-59.5	-59.5
Refractive Index, 20°C	1.432	1.432
Vapor Pressure,	0.017	0.017
Flash Point, °C	99	99

EXAMPLE: LAMINATE or PLACE in PLASTIC HOLDER and AFFIX to SIDE of GLYCOL TANK

BRAND NAME

PROPYLENE GLYCOL - USP

GENERIC NAMES	1,2 propanediol
DESCRIPTION	A relatively nontoxic liquid that is practically colorless, odorless, and tasteless.
APPLICATIONS	A solvent for flavors, extracts, drugs, and food antioxidants: a heat transfer medium; an emollient and humectant and plasticizer for tobacco products, baked goods, coconut, cellophane, cork, adhesives, and paper products; a lubricant and mold inhibitor for food processing equipment; a humectant for pet food.

SALES SPECIFICATIONS

This product meets the requirements of the Propylene Glycol monograph listed in the United States Pharmacopoeia (USP), latest edition, European Pharmacopoeia (EP), and Food Chemicals Codex (FCC).

Property	Specifications	Test Method *
Acidity (as acetic acid), wt.%	0.002 max.	ST-31.46, B
Appearance	Substantially free of suspended matter	ST-30.1
Ash, wt.%	0.005 max.	ST-31.12
Chlorides as Cl, ppm	0.5 max.	ST-4.44
Color, Pt-Co	10 max.	ST-30.12
Heavy metals as Pb, ppm	5 max.	ST-31.30
IR spectra	Passes	USP
Propylene Glycol, area % by gas chromatography	99.5 min.	ST-35.102
Specific gravity, 25/25°C	1.0350 min. 1.0370 max.	ST-30.31
Sulfate, ppm	60 max.	USP
Volatile organic impurities	Passes	USP-NF
Water, wt.%	0.2 max.	ST-31.53

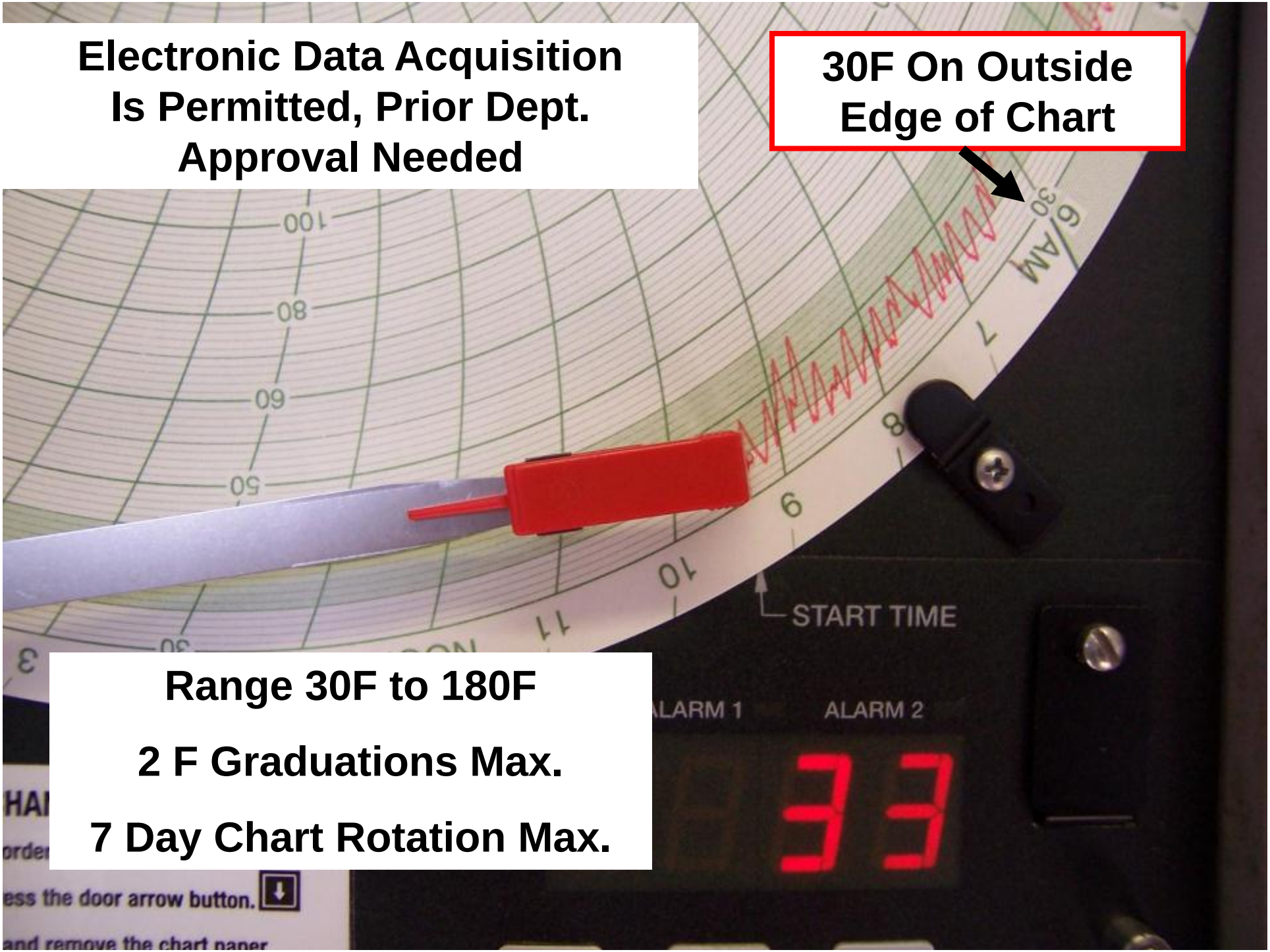
Customer:
AgroChem Inc
3 Duplainville Rd
Saratoga Springs, NY 12866

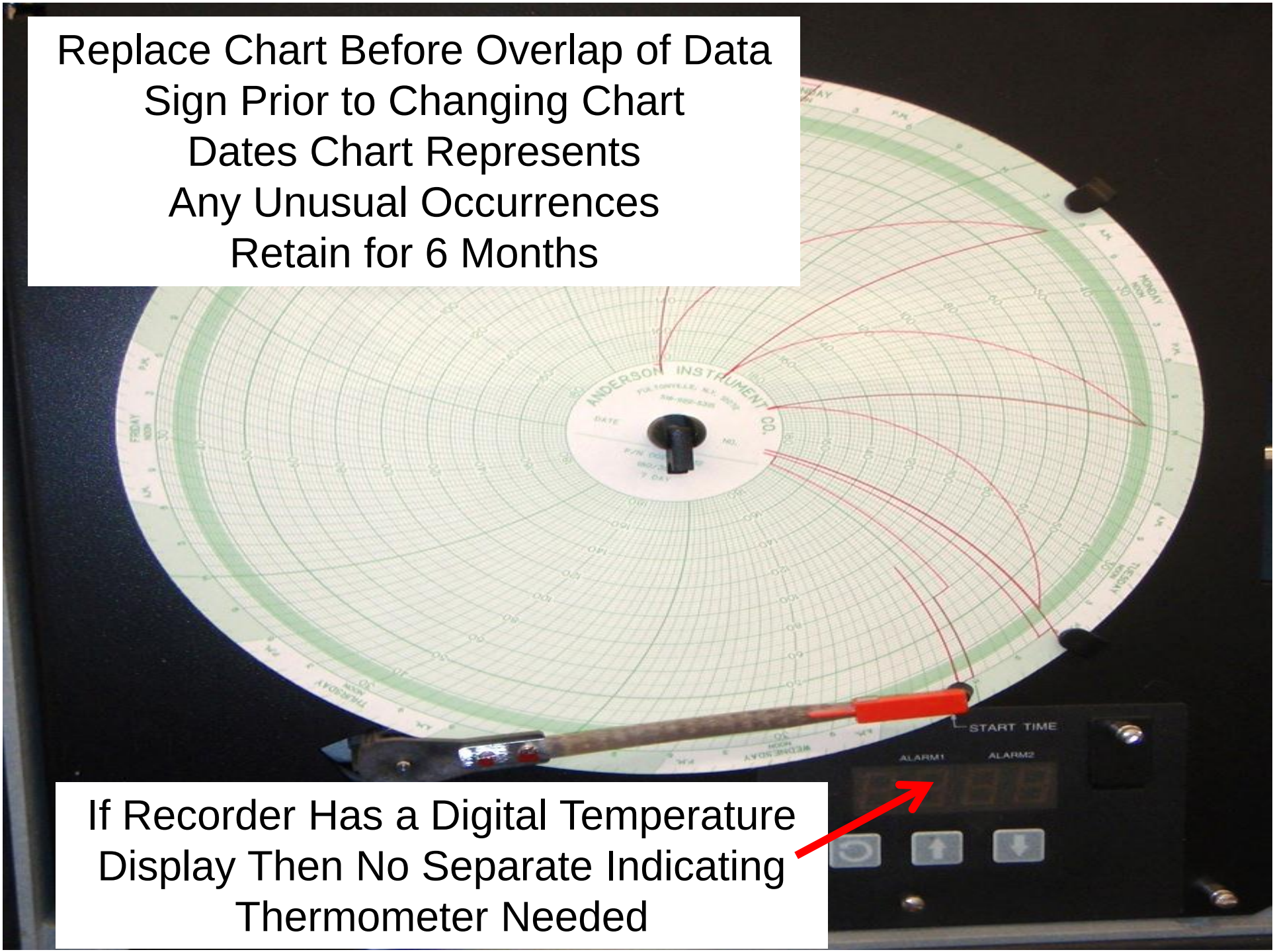
PROPYLENE GLYCOL USP

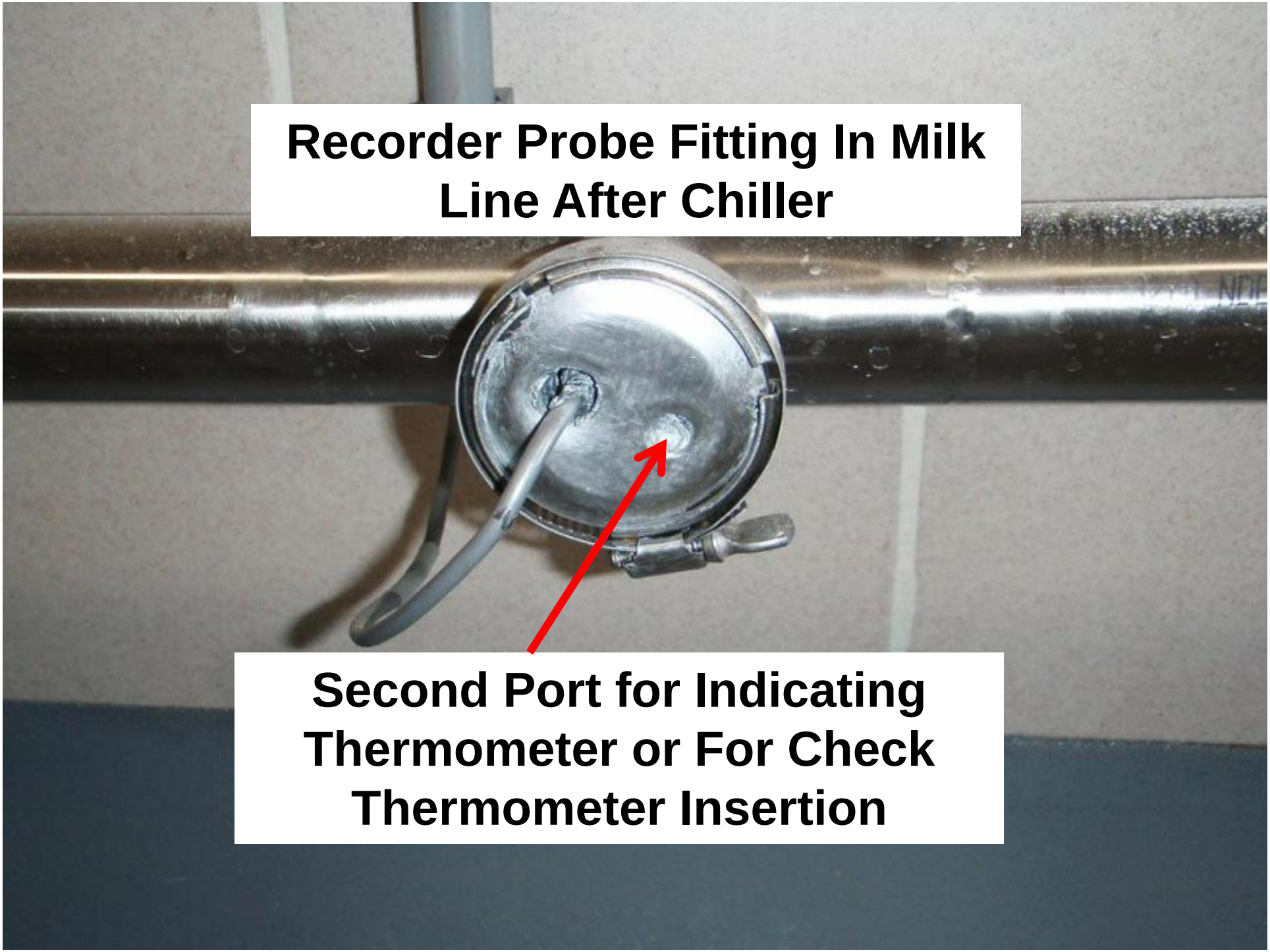
Parameter	Results
Batch CL093445	
Acidity, as Acetic Acid	<0.001
Appearance	Passes
Ash, Sulfated	<0.001
Arsenic	<1
Assay, GC	99.88
Chloride, as Cl	<0.1
Color	5
Heavy Metals as Lead	<1.0
Infrared Scan	Passes
Iron as Fe	<0.02
Organic Volatile Impurities	Passes
Specific Gravity, 20/20° C	1.0378
Specific Gravity 25/25° C	1.0360
Sulfate	<60.0
Water ~	0.03
Refractive Index, 20	1.4327
IBP	186.0
DP	189.0
	081209

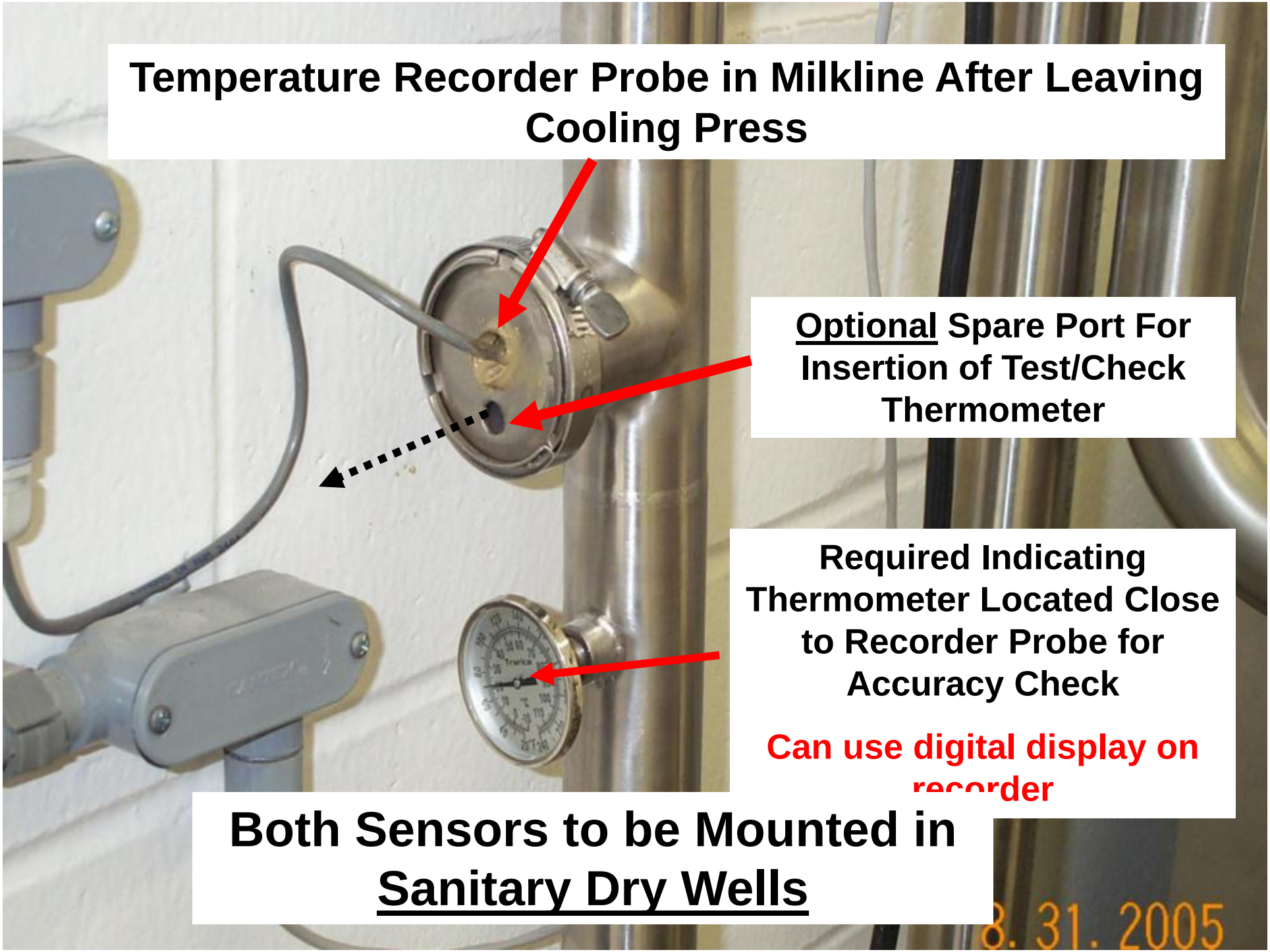
Glycol/Water Chiller Tank

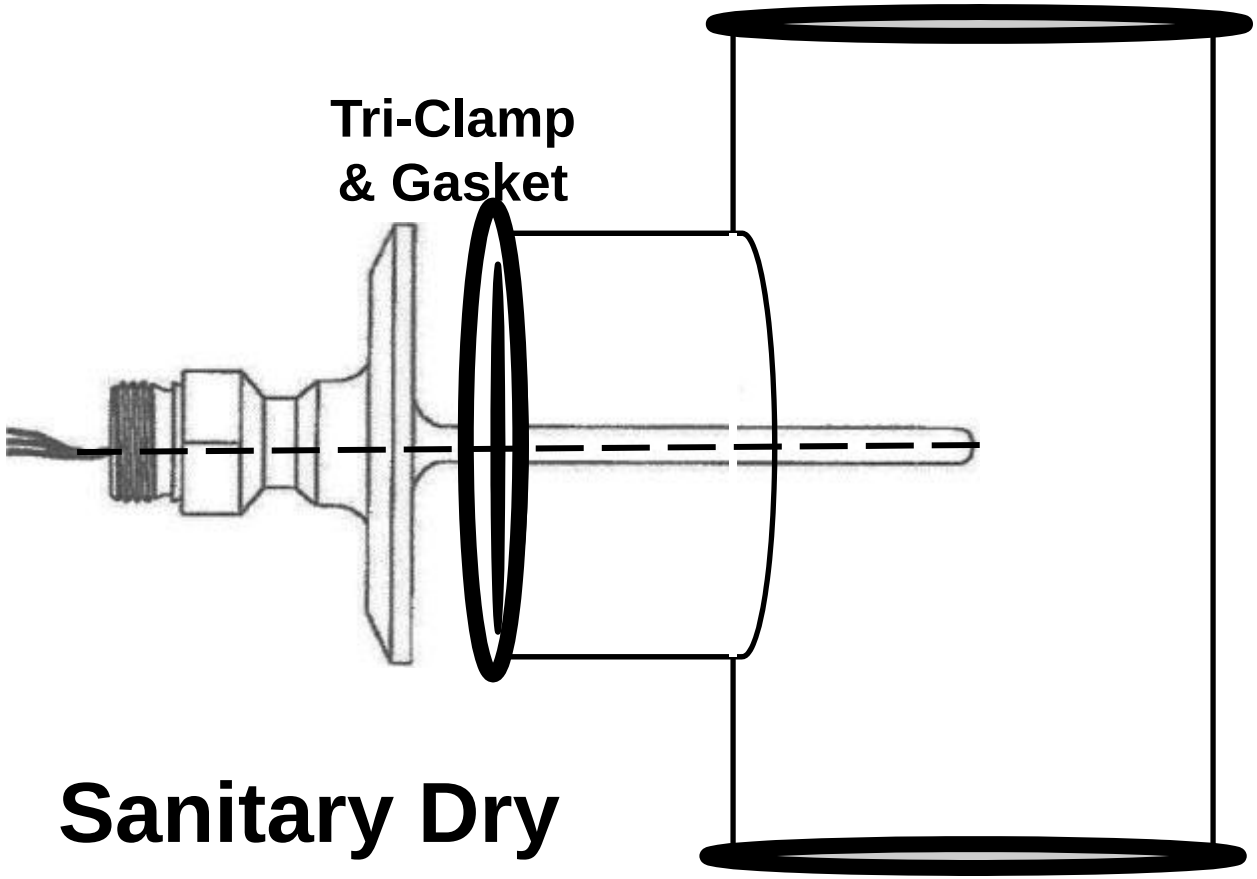
Required Temperature Recorder with RTD Probe Installed in Milk Line After Cooling


Electronic Data Acquisition
Is Permitted, Prior Dept.
Approval Needed
30F On Outside
Edge of Chart
START TIME
ALARM 1
ALARM 2
Range 30F to 180F
2 F Graduations Max.
7 Day Chart Rotation Max.


Replace Chart Before Overlap of Data
Sign Prior to Changing Chart
Dates Chart Represents
Any Unusual Occurrences
Retain for 6 Months
ANDERSON INSTRUMENT CO.
START TIME
ALARM1
ALARM2
If Recorder Has a Digital Temperature Display Then No Separate Indicating Thermometer Needed


Recorder Probe Fitting In Milk Line After Chiller
Second Port for Indicating Thermometer or For Check Thermometer Insertion


Temperature Recorder Probe in Milkline After Leaving Cooling Press
Optional Spare Port For Insertion of Test/Check Thermometer
Required Indicating Thermometer Located Close to Recorder Probe for Accuracy Check
Can use digital display on recorder
Both Sensors to be Mounted in Sanitary Dry Wells
8. 31. 2005



Sanitary Dry Sensor Well Example


100
120
80
140
60
160
40
180
20
200
0
220

There Are Many Acceptable Line & Hose Configurations to Deliver the Milk to the Tanker Bays

- **Lines Must Slope to Drain**
- **Be Securely Mounted**
- **Hoses Must Be Adequately Supported To Completely Drain**

Hose Section Supported By A Stainless Steel Trough To Maintain Proper Slope

All milk transfer systems are to be designed to use the <u>shortest</u> length of hose as possible.

Install sanitary stainless line that is properly supported and sloped to drain.

In This Configuration the Hoses Are Held In a Vertical Position as a Part of the CIP Loop

All Hoses Used In the Milkhouse Need to be the Type Approved for CIP Cleaning,

025 = 1/4"
037 = 3/8"
050 = 1/2"
062 = 5/8"
075 = 3/4"
100 = 1"
150 = 1 1/2"
200 = 2"
250 = 2 1/2"
300 = 3"
400 = 4"
600 = 6"

Pre-molded on end fittings seamless sanitary hoses

Reusable Sanitary Fitting

PART NUMBER	HOSE SIZE	CLAMP SIZE	O.D.	I.D.
SR050-TC	.50"	.50" MINI TC	.986"	.370"
SR075-TC	.75"	.75" MINI TC	.986"	.620"
SR100-TC	1.00"	1.00" MINI TC	1.984"	.870"
SR150-TC	1.50"	1.50" MINI TC	1.984"	1.370"
SR200-TC	2.00"	2.00" MINI TC	2.516"	1.870"

Equipment Storage

- **Transfer piping or hoses and tanker cabinet valves shall be capped when not in use.**
- **Caps shall be stored in the milkhouse during milking and cleaned & sanitized before each use.**
- **Transfer hose(s) must be drained and properly stored in the milkhouse.**


Butterfly Valves Are Acceptable Only When They Are Readily Accessible For Inspection & Hand Cleaning
Wing Nut Fasteners Are Preferred Otherwise Wrench to be Available
Position Valves to Eliminate Long Dead Ends
8. 31. 2005

Spring Clip Type Check Valves Need to be Hand Cleaned

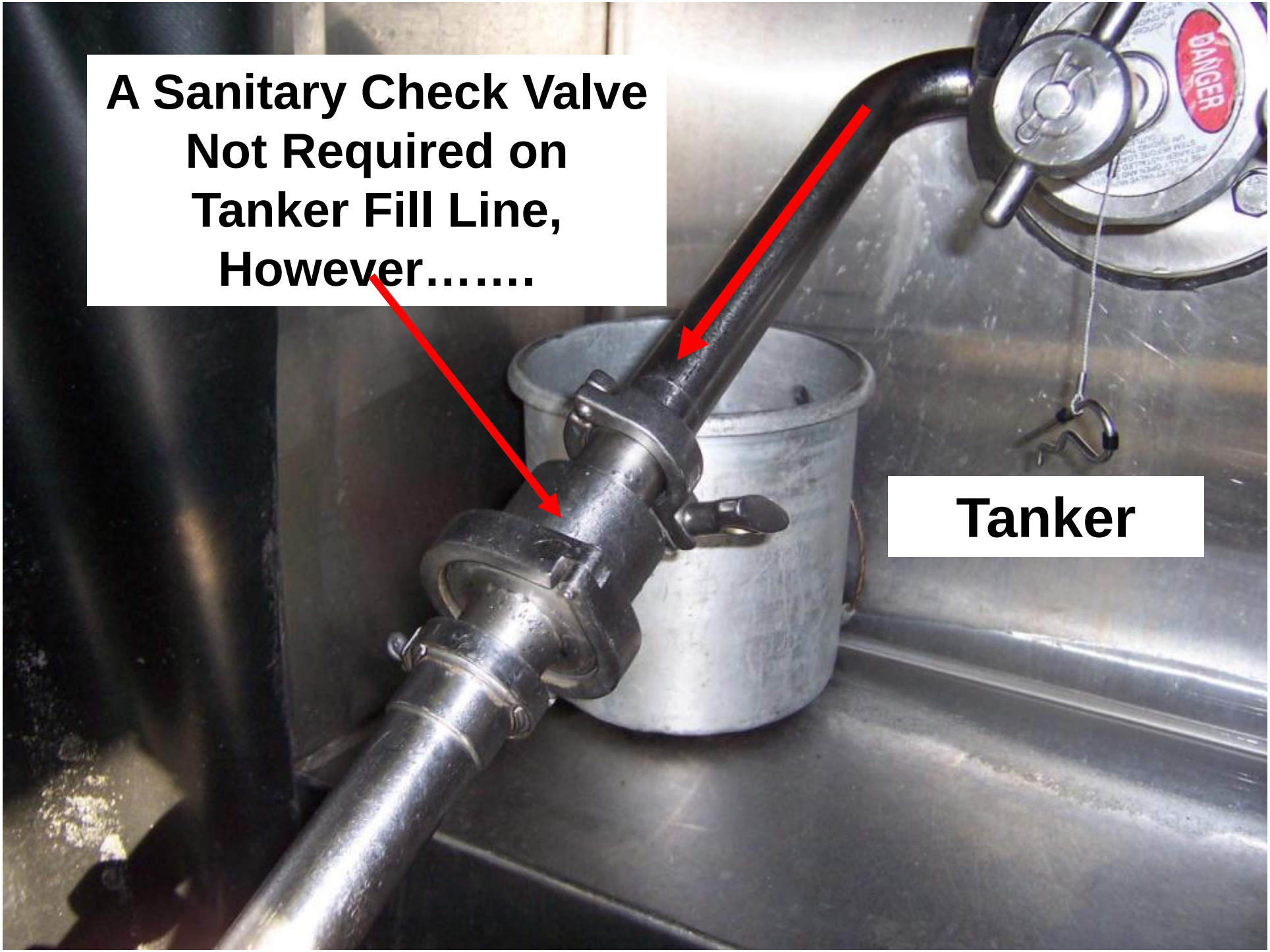
Sanitary Type Check Valves

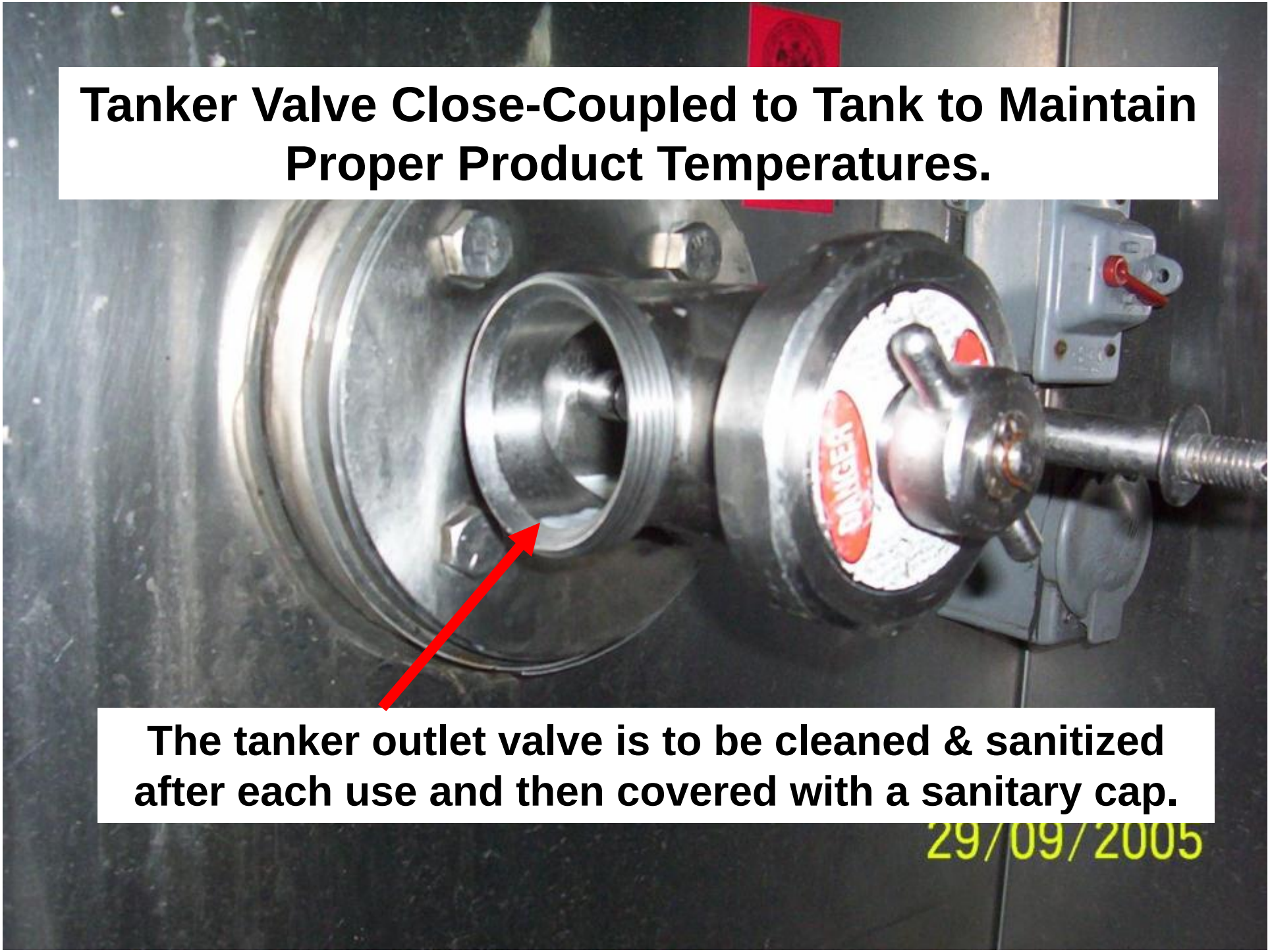
These types of check valves can be cleaned in place and should be used in applications where routine disassembly is not practical.

Vertical mount only for proper drainage (unless specifically designed)

Can be mounted vertically or horizontally

(check ball cavity must face upward)


A Sanitary Check Valve Not Required on Tanker Fill Line, However…….
Tanker
DANGER



Tanker Valve Close-Coupled to Tank to Maintain Proper Product Temperatures.

The tanker outlet valve is to be cleaned & sanitized after each use and then covered with a sanitary cap.

A Sanitizing Hose Station Like This Should be Conveniently Located to Reach All Tanker Bays

Provide Method of Testing Sanitizer Strength at Hose End to Assure Its Effectiveness

Cleaning Requirements

- **Tanker outlet valve washed & sanitized prior to connecting the transfer hose.**
- **Cooling device(s) & transfer hose cleaned & sanitized after each use or at least once every 24 hours if <u>milking continuously.</u>**
- **FDA recommends a maximum of 72 hours of milking before tanker delivers to dairy plant.**
- **Limited to only 2 days if milk violates ATCP 60.15 quality standards** (82.10 (1)

Dairy Plant Procedures

- **Sampling**
  - **Drug Residue Screen** (Every Load)
  - **Quality Testing** (Official)
    - **Licensed Bulk Weigher & Sampler**
    - **Following proper agitation** (To ensure a homogeneous product establish an agitation protocol in compliance with Standard Methods for the Examination of Dairy Products, Section 3.042 B.)
    - **Appropriate sampling location**
  - **Record temperature of load**
  - **Duplicate copy of weight collection**
    - **Posted at farm (following day)**

Dairy Plant Procedures

- **Weighing**
  - Establish a weighing method that meets the criteria outlined in ATCP 92, Wis. Adm. Code, (Weights and Measures Rule).
  - Truck Scale, Meters, etc
  - Recommend signed agreement between parties
- **Agitation**
  - Mechanical or Air Agitation
  - Reviewed by regulatory for sanitary design & construction as part of the application process.

2011 PMO Language
5r Page 40

Provided, based on Regulatory Agency acceptance, the direct
loading of milk from the milkhouse to the milk tank truck may be ……**or** by stubbing the milk transfer and associated CIP cleaned lines outside the milkhouse wall in accordance with ……

No Provision in Wisconsin Rule for This Due to Climatic Conditions

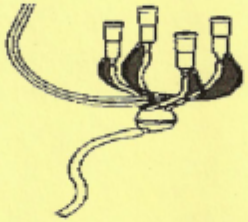
Questions?

Installer Manual
2010

Steve Stoner
Division of Food Safety
Steve.stoner@wi.gov
(715) 653-4300

MILKING EQUIPMENT INSTALLER MANUAL

2010 REVISION



WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION

F-fd-242	Food and Dairy Specialist Map	1 pg
	Contact List for Dairy Farm Equipment Installers List	1 pg
F-fd-39	Requirements for Milking Equipment Plans	1 pg
F-fd-31	Application for Milk Handling Equipment and Facility Construction	2 pgs
F-fd-329	Certification of Installation Completion	1 pg
F-fd-32	Wisconsin CIP Milking System Requirements and Milking System Sizing	2 pgs
F-fd-36	Wisconsin Dairy Farm Milk Pre-cooler Requirements	4 pgs
F-fd-33	Wisconsin Requirements For Locating Air Injectors	1 pg
F-fd-34	Wisconsin Milk House Construction Requirements	1 pg
F-fd-37	Wisconsin Bulk Tank Installation Requirements	2 pgs
F-fd-35	Wisconsin Requirements for Mini-Milkhouse/Pumphouse	1 pg
F-fd-114	Wisconsin Milking Parlor Construction Standards	2 pgs
F-fd-41	Recessless or Rolled on Ferrules on Milking Pipelines	1 pg
F-fd-71	Wisconsin Direct Tanker Shipping Requirements	4 pgs
F-fd-258	Supplemental Application for Direct Tanker Milking Operations	2 pgs
F-fd-344	Supplemental Application – Automatic Milking Installation (AMI)	2 pgs
	Questions and Answers from March 2010 Installer Meeting	4 pgs
	Various Manufacturers of Backflow Preventers	2 pgs
	Backflow Prevention Guide For Potable Water Applications	1 pg
	ASAE Standard S518.2 Not available on line. Contact DATCP for a copy	
	ASAE Standard EP445.1	

Question & Answers

- Overview of the 2010 Q & A
- Highlight of any changes

- 2012 Manual will contain the Q & A from these current training sessions.

Question and Answers
From March 2010 Installer Meetings

Application

Automatic Milking Installations

1. Q. How many robotic milking systems are currently installed in Wisconsin?

A. The division has received 18 applications, with some applications installing more than one robotic milking system.

Water Systems

1. Q. Can the water line enter the top of the tank as long as it is above the overflow?

A. Yes as long as the distance between the water inlet and the overflow and overflow size meets the dimensions as specified by the Commerce calculator.

2. Q. Where can I get a copy of the Department of Commerce Air Gap Calculator?

A. The division recommends that you contact the Department of Commerce, Don Hough at Donald.Hough@wisconsin.gov. This will be available on the Department of Commerce website in the near future.

3. Q. How is the overflow calculator documentation provided?

A. The person performing the calculation should provide the appropriate documentation.

4. Q. Please explain the difference between the PMO requirements and the DFS position on the low pressure cut-off switch for permanently installed high pressure washer

A. The PMO requirements should be the same as the DFS position based on determination by the Wisconsin water control authorities determination of acceptance of the ASSE 1013 RPZ backflow prevention device for this application.

5. Q. Do currently installed permanent high pressure washers using a low pressure cut-off switch need to be upgraded to a reduced pressure zone back-flow prevention device?

A. The ruling from the Department of Commerce calls for the installation of a reduced pressure zone backflow preventer (ASSE 1013).

6. Q. Can pre-cooler water be discharged to the gutter?

A. No, pre-cooler water may be discharged to a manure reception hopper with a proper air gap.

7. Q. How is the reclaimed water for potable purposes protected when an air-gap backflow prevention method is used? Is there an acceptable method to prevent contamination of the reclaimed potable tank when the tank is open at this point?

A. The installation would need to be evaluated on a case by case basis. An air gap may not be the best application, without some form of additional protection.

8. Q. I was under the assumption that once the water left the plate cooler it was no longer potable.

A. ATCP 60.08(7), Wis. Adm. Code and Appendix D, section VI of the 2009 Pasteurized Milk Ordinance (PMO) allow reclaiming water discharged from a plate cooler for potable purposes.

9. Q. Who is responsible for the semi-annual testing of the recirculated water system?

A. The producer is ultimately responsible for all aspects of the milking system.

Facility Requirements

1. Q. Is it correct that washer and dryers in a milkhouse will be debited on milk rating surveys?

A. Yes, this is correct. However Wisconsin Administrative Code ATCP 60, Dairy Farms does not consider this a violation when used solely for the washing and drying of towels used for udder preparation.

2. Q. Why is there a difference between the state and federal inspection programs on the acceptability of washer and dryers installed in a milkhouse or parlor?

A. This is a difference of inspection philosophy between the two inspection agencies. The Wisconsin Administrative Code ATCP 60, Dairy Farms does not consider this a violation when used solely for the washing and drying of towels used for udder preparation.

3. Q. Do solid doors on the milkhouse need to open outward?

A. Only screen doors on milkhouse need to open outward, solid doors may swing either way.

4. Q. Can utility room air be used in the parlor or milkhouse?

A. Yes, if the utility room is not directly connected to the cattle housing or parlor areas.

5. Q. May the rear of a bulk tank be placed directly against the wall?

A. Yes if properly sealed and all other distances are adequate for inspection and cleaning of the facility.

6. Q. Does the method of physical disconnect for a bulk tank washer need to meet any certain standard or material?

A. Soft metal fittings such as brass fittings are not permitted and deteriorate overtime from contact with the cleaning chemicals. A plastic fitting or other noncorrosive materials designed for contact with cleaning chemicals is required.

7. Q. May a milkhouse waste be allowed enter the gutter in flat barn parlor?

A. Waste water shall not be accessible to the cattle so the waste water shall be plumbed directly to a reception hopper or other approved waste disposal system.

Equipment Concerns

1. Q. Is an electronic thermometer permissible for a replacement bulk tank thermometer?
A. Yes

2. Q. Are there any differences between hospital milking parlors and parlors used for milking production for human food?
A. Hospital milking systems are not inspected since the milk is not sold for human consumption. Ensure the farm water supply system is not exposed to cross-connection or other forms of contamination.

3. Q. Must a ball style check valve be installed in only a horizontal position?
A. A vertical or horizontal placement is acceptable when installed in accordance with manufacturer's recommendations.

Direct Tanker Requirements

1. Q. Is it permissible to agitate the milk tanker on the farm?
A. Milk must be agitated at the point of sampling, without an approved sampling facility this could not be done at the farm.

2. Q. Can air be used for agitation of tankers?
A. Yes air can be used if the method uses air of sanitary quality and it meets the current Standard Methods for the Examination of Dairy Products for milk agitation.
3. Q. How long after agitation must the official sample be taken?
A. The sample should be taken as soon as possible after agitation. Refer to the Standard Methods for the Examination of Dairy Products.

4. Q. How is temperature verification done on a direct ship?
A. It is recommended that the temperature probe be installed in a sanitary well that allows for removal during production and checked on ice for accuracy.

5. Q. What is the recommended procedure for the field representative to verify the temperature accuracy if there is only one probe?

A. Either by placing the check thermometer in adjacent thermometer well or by removing temperature sensor and placed on ice to verify accuracy against the check thermometer.

6. Q. Who is responsible for cleaning the bulk milk transport tank?

A. The bulk milk tanker operator is responsible for cleaning and sanitizing the transport tank. A written agreement is recommended that outlines the specific responsibilities of each party involved in the transport and cleaning of bulk milk transport tanks.

7. Q. How long can a producer milk into a tanker?

A. Based on ATCP 60.17, Wis. Adm. Code the producer may milk into the tanker indefinitely as long as the milk does not violate the quality standards outlined in ATCP 60.15, Wis. Adm. Code, which would then require collection of milk every 2 days. The PMO allows milking into the tanker up to 72 hours.

Installer Manual On-line

- http://datcp.wi.gov/index.aspx
  - Food tab
  - Food Code Fact Sheets
  - Milking Equipment Installer Manual
- http://datcp.wi.gov/uploads/Food/pdf/F-fd-259Full2010Manual.pdf

http://datcp.wi.gov/ Wisconsin Department of A...

File Edit View Favorites Tools Help

Home | Consumer | Licenses | Business | Farms | Food | Animals | Environment | Plants | Programs

Official Website of the Wisconsin Department of Agriculture, Trade and Consumer Protection

+ Main Office Number
+ I Want To...
+ Rules & Statutes
+ Top Publications
+ Online Services

Meet the Secretary

TOP 10 consumer complaints

Top Ten Consumer Complaints of 2011

The nation's fastest growing crime is now the source of Wisconsin's fastest rising group of consumer complaints. Making its first appearance on the annual top ten chart, identity theft ranks fifth in the "Top Ten Consumer Complaints of 2011" list released today by DATCP.

Read more>> Other news >>

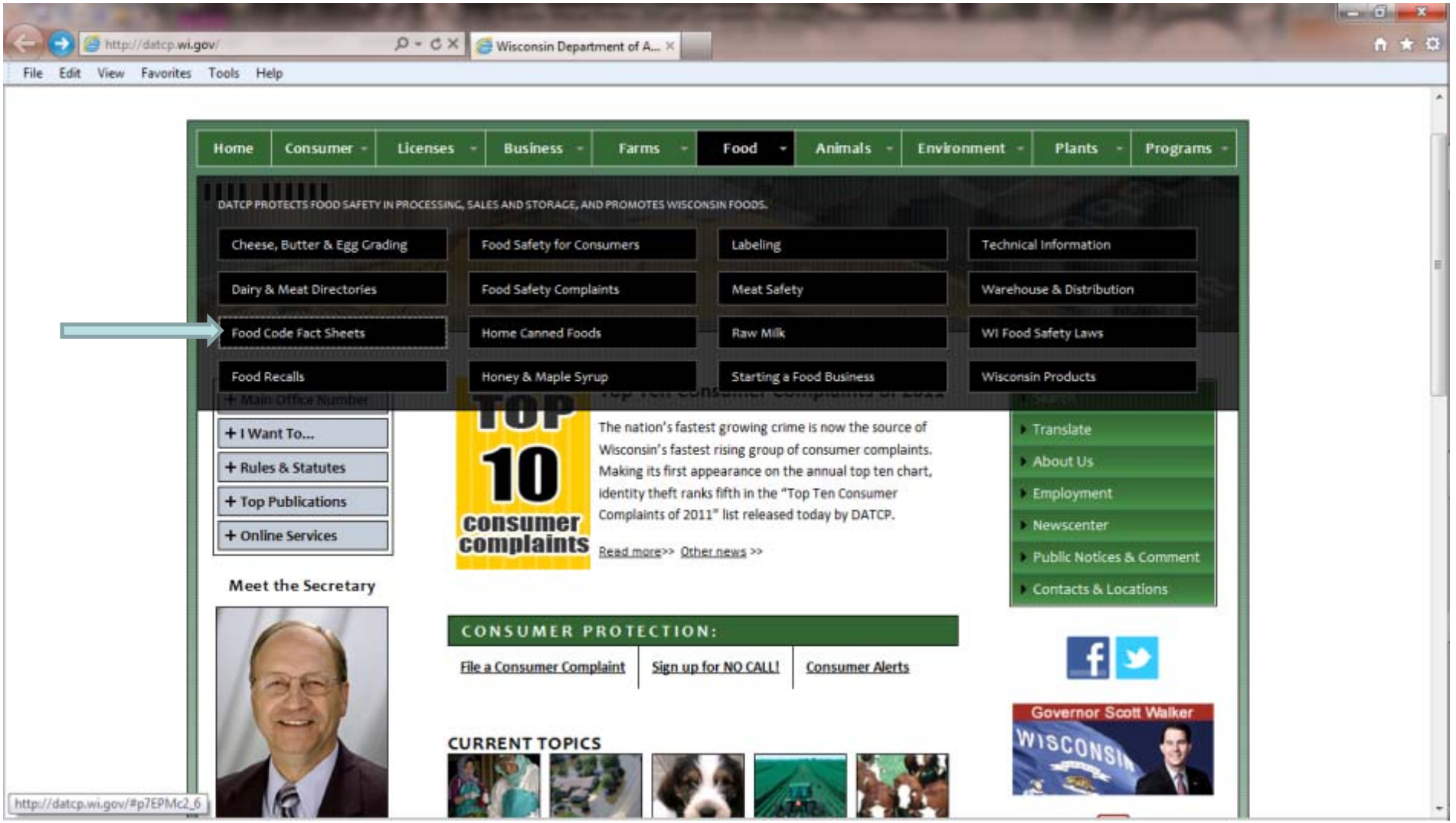
CONSUMER PROTECTION:

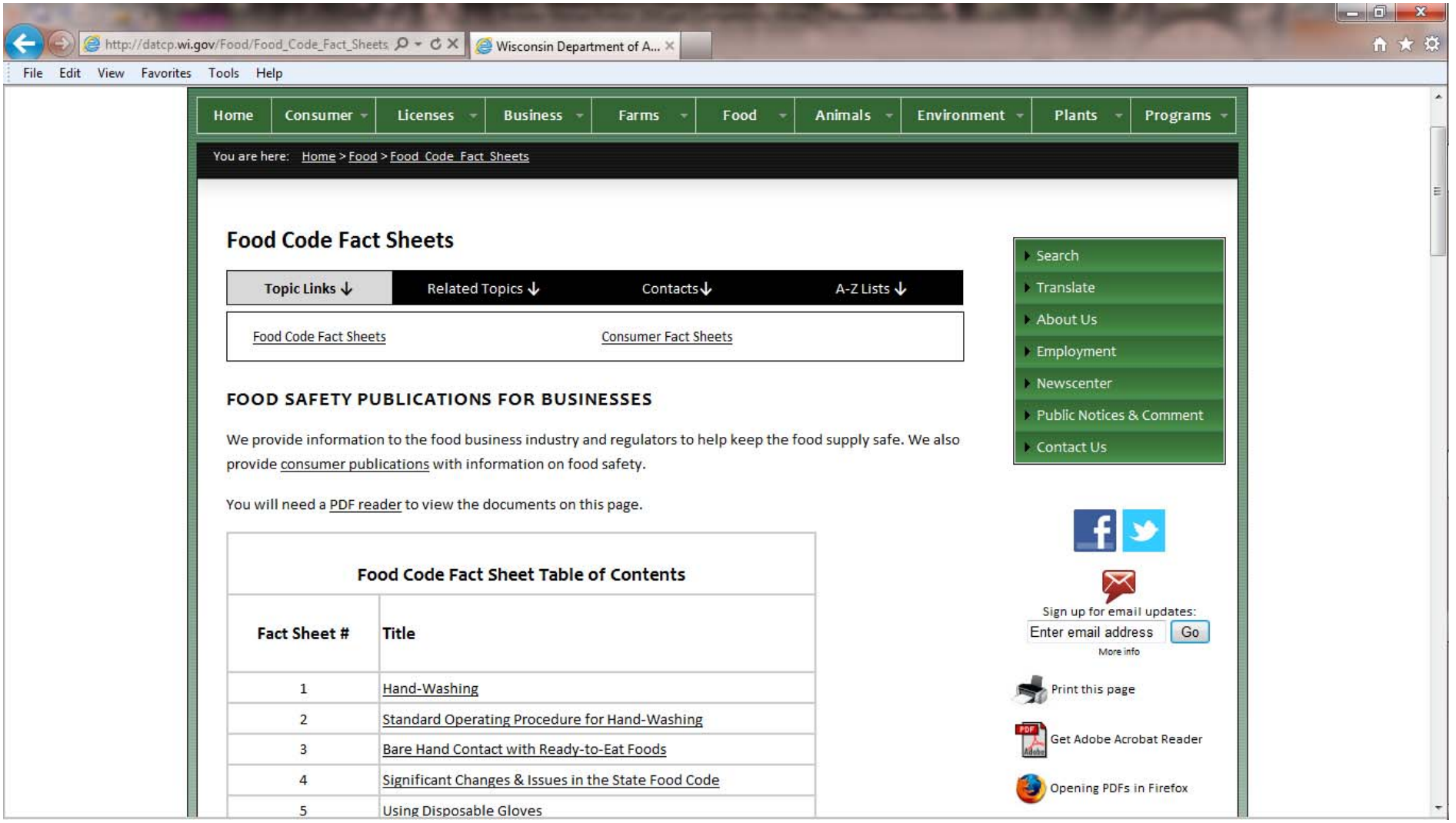
File a Consumer Complaint | Sign up for NO CALL! | Consumer Alerts

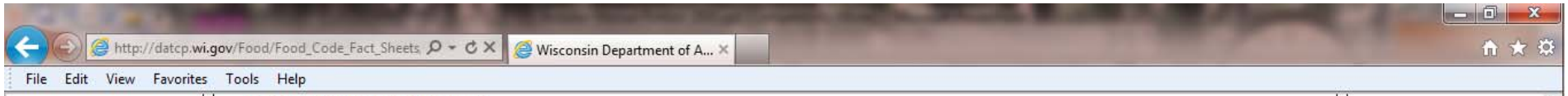
CURRENT TOPICS

- Search
- Translate
- About Us
- Employment
- Newscenter
- Public Notices & Comment
- Contacts & Locations

Governor Scott Walker


http://datcp.wi.gov/
Wisconsin Department of A...
File Edit View Favorites Tools Help
Home
Consumer
Licenses
Business
Farms
Food
Animals
Environment
Plants
Programs
DATCP PROTECTS FOOD SAFETY IN PROCESSING, SALES AND STORAGE, AND PROMOTES WISCONSIN FOODS.
Cheese, Butter & Egg Grading
Food Safety for Consumers
Labeling
Technical Information
Dairy & Meat Directories
Food Safety Complaints
Meat Safety
Warehouse & Distribution
Food Code Fact Sheets
Home Canned Foods
Raw Milk
WI Food Safety Laws
Food Recalls
Honey & Maple Syrup
Starting a Food Business
Wisconsin Products
+ I Want To...
+ Rules & Statutes
+ Top Publications
+ Online Services
TOP 10 consumer complaints
The nation's fastest growing crime is now the source of Wisconsin's fastest rising group of consumer complaints. Making its first appearance on the annual top ten chart, identity theft ranks fifth in the "Top Ten Consumer Complaints of 2011" list released today by DATCP.
Read more>> Other news >>
Translate
About Us
Employment
Newscenter
Public Notices & Comment
Contacts & Locations
Meet the Secretary
CONSUMER PROTECTION:
File a Consumer Complaint
Sign up for NO CALL!
Consumer Alerts
Governor Scott Walker
WISCONSIN
CURRENT TOPICS
http://datcp.wi.gov/#p7EPMc2_6


http://datcp.wi.gov/Food/Food_Code_Fact_Sheets
Wisconsin Department of A...
File Edit View Favorites Tools Help
Home Consumer Licenses Business Farms Food Animals Environment Plants Programs
You are here: Home > Food > Food_Code_Fact_Sheets
Food Code Fact Sheets
Topic Links ↓ Related Topics ↓ Contacts ↓ A-Z Lists ↓
Food Code Fact Sheets
Consumer Fact Sheets
FOOD SAFETY PUBLICATIONS FOR BUSINESSES
We provide information to the food business industry and regulators to help keep the food supply safe. We also provide consumer publications with information on food safety.
You will need a PDF reader to view the documents on this page.
Food Code Fact Sheet Table of Contents
Fact Sheet # Title
1 Hand-Washing
2 Standard Operating Procedure for Hand-Washing
3 Bare Hand Contact with Ready-to-Eat Foods
4 Significant Changes & Issues in the State Food Code
5 Using Disposable Gloves
Search
Translate
About Us
Employment
Newscenter
Public Notices & Comment
Contact Us
Sign up for email updates:
Enter email address
Go
More info
Print this page
Get Adobe Acrobat Reader
Opening PDFs in Firefox



Meat and Poultry Publications

Direct Marketing Meat and Poultry - 2 page PDF
Direct Marketing Meat - 135 page PDF
Meat Product Formulation and Labeling - 2 page PDF
Organic Meat Labeling Information - 1 page PDF

Food Safety Publications

Food Emergency Contacts - 1 page PDF
Regional state contacts offering assistance in food emergencies.

Dairy Publications

Guidelines for the Design and Construction of Dairy Processing Equipment - 26 page PDF
Milking Equipment Installer Manual (PDF)

Wash Hands (English) - 1 page PDF
"WASH HANDS BEFORE RETURNING TO WORK " poster. Also available in Spanish and Hmong.

F-fd-259 (Rev 6/2010)

MILKING EQUIPMENT INSTALLER MANUAL

2010 REVISION

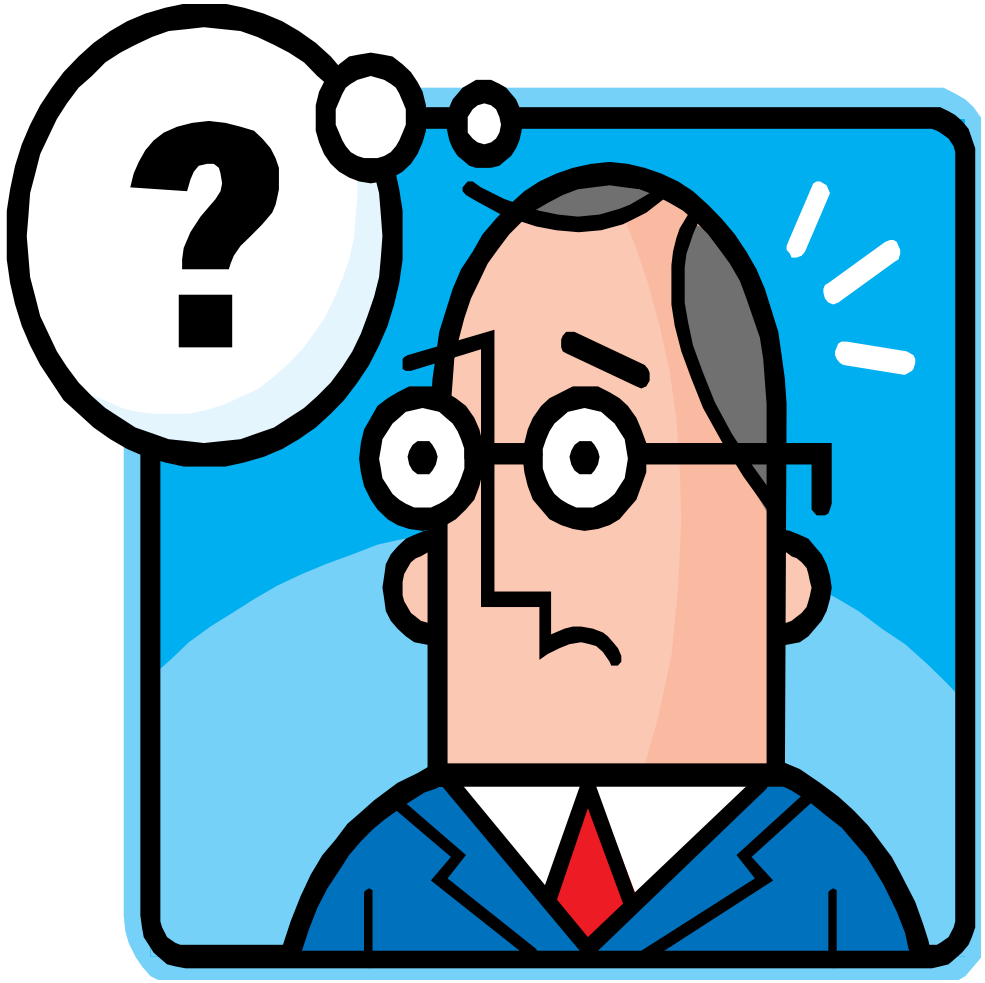
WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION

MILKING EQUIPMENT INSTALLER MANUAL

TABLE OF CONTENTS

Thank You

- Any Questions?



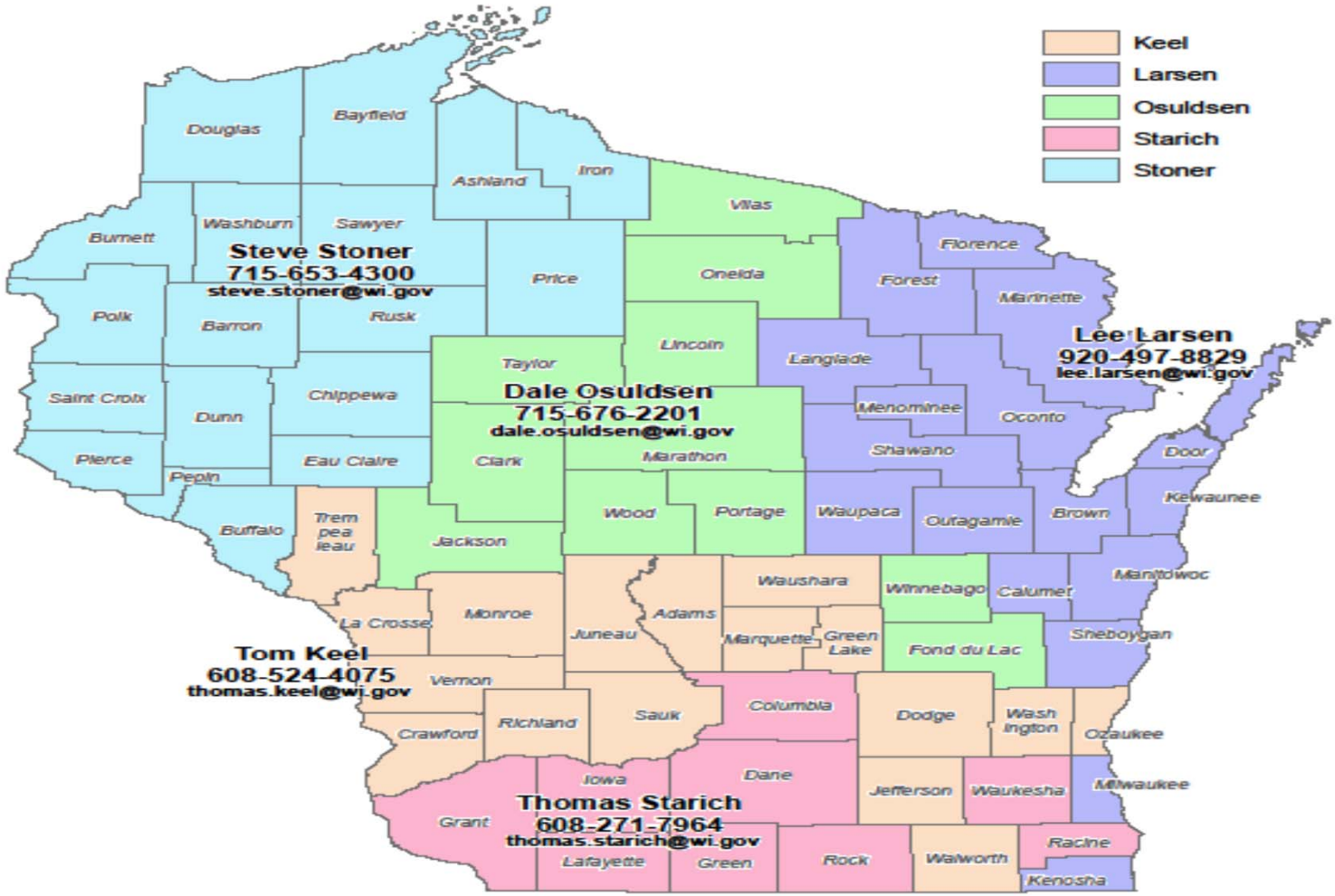
Other Issues

- ASAE Standards
  - Vacuum Requirements
  - Line Size
  - Units Per Slope
  - Other Vacuum Related Issues
- Booklets will be available after the meetings

Further Questions For The Group

Division of Food Safety
Food & Dairy Specialist Areas

WI Department of Agriculture, Trade and Consumer Protection



Food Safety Supervisor -Technical: Glenn Goldschmidt
715-823-5344
glenn.goldschmidt@wi.gov

2/20/2012

F-fd-242