SUBJECT: Product, Personnel & Equipment Flow	03-A-01
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Sections A.2.1 (8 & 9), 2.5.2, 3.1.2, B.1.1 (2 & 3), 2.2.2, C.1.1.1	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

Meat and meat products are subjected to many potential sources of contamination during handling and processing.

To minimize chances of contamination there must be a continuous flow of product, to increasingly cleaner areas, from where raw materials arrive to the finished product.

Note: The design of new facilities or plans for renovations to existing ones should enhance this one way flow.

The backtracking of product, employees, or equipment, from dirtier areas to cleaner areas, must be avoided.

Note: Backtracking is defined as the movement of product back through an area where earlier processing steps were performed. An example of backtracking would be the movement of an inspected and approved carcass, to the chill cooler, back through the area where hide removal or evisceration takes place. This practice greatly increases the chance of contamination.

Steps must be taken to reduce the chance of contamination if it is not possible to eliminate backtracking. A complete change of clothing would be an example of a step that could be taken to mitigate the chance of contamination that would be present if an employee has to move from one processing area to another.

Documenting and analyzing processing steps and the movement of personnel and equipment are important in reducing food safety hazards due to cross contamination.

Note: These activities should identify potential cross contamination sites that could result in food safety hazards.

OBJECTIVE/OUTCOME

Meat and meat products will move in one continuous direction, from receiving to shipping, without any crossing over, or backtracking.

Note: In abattoirs there shouldn't be any crossing over, or backtracking, from the point where the live animals are received all the way through the slaughtering, dressing, chilling, processing and packaging areas and into the storage area.

Blueprints, or drawings, demonstrating the proper flow of product, personnel and equipment, will be on file.

Physical or operational separations will be implemented in cases where there is a potential for the contamination of meat, or meat products.

Note: This is necessary when ideal flow patterns are not possible due to deficiencies in design or construction.

Employee movement from dirtier areas to cleaner areas will be kept to a minimum and when this occurs precautionary measures (e.g. use of footbaths) will be implemented to minimize the chance of contaminating product.

Note: Under ideal conditions employees would always move from cleaner to dirtier areas during the course of their duties.

Inedible materials will **always move away from edible products** and directly to the storage area for inedible products.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Product, Personnel & Equipment Flow"** will be met when:

1. A facility specific blueprint, or schematic drawing, is on file, showing appropriate personnel and product flow patterns.

   Note: A blueprint is required for new facilities and for facilities that have been recently modified. For older facilities a schematic drawing is the minimum requirement.

2. Written **"Physical, or Operational, Procedures"** to prevent contamination of product have been implemented.

   Note: This is essential in situations where the blueprints, schematics, or analysis of product, personnel and equipment flow reveal a sub-optimal flow pattern.

RELATED SECTIONS OF TIPM

02-A-01 New Facility Blueprint Submission & Approval
02-A-02 New Facility Final Inspection Process
02-C-01 Design - Layout & Separation of Incompatible Materials
02-C-02 Design - Location of Entrances & Exits
02-C-03 Design - Product & Personnel Flow

SUBJECT: Internal Premises Inspection	03-A-02
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Sections A. 2.1 (1-8), 2.3, 2.5, 3.1,	**Initial Release** Sept 1, 2009 **Page 1 of 1**

RATIONALE

A "Licensed Meat Facility" (facility) must be maintained in a manner that ensures the production of safe wholesome meat and meat products.

Note: Regular inspections are a means of ensuring that this is being done.

A structured **"Interior Inspection Procedure and Record"** ensures that detailed inspections are conducted and that corrective actions are undertaken on a scheduled and timely basis.

Having a regular **"Interior Inspection Program"** ensures that any deficiencies that may contribute to contamination are identified without significant delay.

Note: It is the facility's responsibility to ensure that the set frequency of inspections identifies and address deficiencies in a timely manner.

OBJECTIVE/OUTCOME

A written "Internal Inspection Procedure" for the facility will be on file.

Regular inspections will be conducted in accordance with the written procedure

Maintenance issues will be identified promptly and dealt with appropriately.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Internal Premises Inspection"** will be met when:

1. An up-to-date, facility specific, written **"Internal Inspection Procedure"** is on file
2. **"Internal Inspection Records"** are on file
3. **"Internal Inspection Records"** demonstrate that deficiencies of the internal premises are identified, prioritized and, if necessary, corrected in a timely manner.

RELATED SECTIONS OF TIPM

02-A-01 New Facility Blueprint Submission & Approval
02-A-02 New Facility Final Inspection Process
02-C-01 Design - Layout & Separation of Incompatible Materials
02-C-02 Design - Location of Entrances & Exits

SUBJECT: External Premises Inspection	03-A-03
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Sections A.1.1 (1 & 2)	**Initial Release** Sept 1, 2009 **Page 1 of 1**

RATIONALE

A "Licensed Meat Facility" (facility) must be maintained in a manner that ensures the production of safe wholesome meat and meat products.

Note: Regular inspections are a means of ensuring that this is being done.

Structured **"Exterior Inspection Procedures and Records"** ensure that detailed inspections are conducted and that corrective actions are undertaken on a scheduled and timely basis.

Note: The primary food safety hazards, associated with the exterior of the facility, are those that promote the development of vermin (mice and insects). Defects in the doors, windows and walls will allow these pests to enter the facility. Regular inspections should detect potential entry points and allow corrective action to be taken before they become problems.

Having a regular **"Exterior Inspection Program"** ensures that any deficiencies that may contribute to contamination are identified without any significant delay.

Note: It is the facility's responsibility to ensure that the set frequency of inspections identifies and address deficiencies in a timely manner.

OBJECTIVE/OUTCOME

Written **"External Inspection Procedures"** be on file in the facility.

Regular inspections are conducted in accordance with the written procedure

"External Premises Inspection Records" are on file in the facility.

Note: All observed deficiencies are recorded.

Appropriate actions will be taken to address deficiencies that have been detected.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"External Premises Inspections"** will be met when:

1. Written, up-to-date, facility specific, "**External Premises Inspection Procedures"** are on file.
2. Up-to-date **"External Inspection Records"** are on file**.**
   Note: These records should demonstrate that appropriate corrective actions have been taken to deal with any detected deficiencies.
3. On site observations reveal that deficiencies with the external premises have been identified, prioritized (if necessary) and corrected in a timely manner.

RELATED SECTIONS OF TIPM

02-B-02 Protection against Pests & Environmental Contaminants

05-A-04 Livestock Yards & Holding Pens

SUBJECT: Plumbing Preventative Maintenance	03-A-04
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Sections 15.1 & 18(1)(e) Meat Facility Standards (MFS) Section A.2.4.1	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

A properly functioning plumbing system is critical for food safety. Incoming water must be protected from contamination and contamination of product from contact with waste water, or sewage must be prevented.

There are a number of hazards associated with defective plumbing, including:

1. Direct contamination of meat, or meat products, due to backing up of sewage, or waste water from plugged drains, or sinks.

2. Contamination of potable water from cross-over connections between incoming and outgoing lines, or from backflow through plumbing connections.

A written **"Plumbing Preventative Maintenance Program"** is the best way of ensuring that food safety is not compromised by defective plumbing.

Note: Elements of the plumbing program could be included in the overall **"Preventative Maintenance Program".**

OBJECTIVE/OUTCOME

Written **"Plumbing Preventative Maintenance Procedures"** will be on file.

Note: The plumbing system includes components such as: drains, fixtures, stacks, traps, vents, waste disposal facilities, filters, back-flow/back-siphoning devices, pump-out tanks, septic tanks, wells, etc.

The written procedures will be implemented

Note: This will ensure that the plumbing system works properly particularly the drainage and sewage components, which need to be equipped with traps and vents.

Records detailing preventative maintenance activities will be on file.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Plumbing Preventative Maintenance"** will be met when:

1. Up-to-date, written, plant specific, **"Plumbing Preventative Maintenance Procedures"** are on file.

   Note: These procedures should contain but are not limited to:

   a) a written list of all of components requiring maintenance;

   b) required maintenance activities and procedures;

   c) maintenance frequency;

   d) personnel responsible for maintenance

   These procedures can be included as part of the facility's **"Preventative Maintenance Program"** if so desired.

2. **"Service/Maintenance Records"** are on file

   Note: These records should provide details of all plumbing activities that have been performed.

3. On site observations reveal that all aspects of the plumbing system are functioning properly.

RELATED SECTIONS OF TIPM

02-J-01 Drains

02-J-02 Sewage - Handling of

03-B-04 Preventative Maintenance Procedures - Records of

SUBJECT: Lighting Intensity Measurement Records	03-A-05
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Sections 5.1 & 18(1)(e) Meat Facility Standards (MFS) Sections A .2.1 (1 & 2)	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

Proper lighting is essential to ensure that inspectors and plant personnel can perform their tasks efficiently, safely and with minimum stress.

Note: Lighting intensity must be such that any contamination is readily visible.

Lighting intensity needs to be monitored regularly to ensure that proper intensities, which will vary from area to area, are maintained.

Note: The operator of the meat facility is responsible for keeping sufficient records, to demonstrate that they are in compliance with lighting requirements.

OBJECTIVE/OUTCOME

Lighting intensities, throughout the "Licensed Meat Facility" (facility) will meet recommended guidelines for all areas in the facility.

Lighting intensities will be monitored by measuring lux levels, at suitable frequencies, throughout the facility.

Note: The **lux** is the international **unit of illumination**. One lux is the amount of illumination received by a surface at a distance of 1 meter from a light source whose intensity is taken as unity. It equals 0.0929 foot candles or 1 lumen per square meter.

A functional, calibrated light meter must be used to take lux measurements.

Depending on compliance levels the frequency of monitoring may vary between facilities and/or areas within the same facility.

The following "Common Industry Practice" recommendations will be met.

1. 2000 lux in
   a) high volume poultry post-mortem inspection stations
   b) high volume poultry salvage stations
2. 540 lux in
   a) Post-mortem inspection areas
   b) returned product examination areas
   c) ante-mortem and suspect pen inspection areas
3. 220 lux in
   a) carcass dressing area of the kill floor
   b) meat processing, packaging and labeling areas

4. 110 lux in
    a) storage areas including all areas where meat products and/or ingredients are stored in dry storage, under refrigeration or in freezers
    b) all other rooms and areas such as maintenance closets where no meat products are stored

    Note: The preceding lux levels are also recommended by the Canadian Food Inspection Agency (CFI A).

Records will show that:

1. Proper lighting intensities have been maintained in all areas of the facility.
2. Appropriate corrective actions have been taken in instances where lighting intensity was found to be substandard.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for "**Lighting Intensity Measurement Records"** will be met when:

1. An up-to-date **"Lux Measurement Procedure"** is on file at the facility

    Note: These procedures must contain but are not limited to

    a) how lux measurements will be performed;

    b) where lux measurements will be taken;

    c) minimum acceptable lux levels for each room, or area

2. Accurate and up to date "**Lux Measurement Records"** are on file.

    Note: These records must demonstrate that lux deficiencies are identified and corrected in a timely manner.

    Lux measurement records may be incorporated as part of the facility's **"Internal Inspection Program"**

3. On site observations demonstrate that lighting intensities are suitable throughout the facility.

RELATED SECTIONS OF TIPM

02-I-01 Lighting Intensity

SUBJECT: Potable Water- Written Program	03-A-06
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Sections 15.1 & 18(1)(e) Meat Facility Standards (MFS) Section A. 4.1.1	**Initial Release** Sept 1, 2009 **Revision Date** Sept 1, 2011 **Page 1 of 3**

RATIONALE

Having adequate amounts of potable water is an absolutely indispensable element for a licensed meat facility.

Note: Potable means suitable for human consumption.

Potable water is required for:

1. Slaughtering and dressing operations

   Note: This includes water used to chill poultry carcasses.

2. Cleaning of facilities and equipment
3. Personal hygiene of facility personnel

Water, for the above purposes and that used to make ice, or steam, must meet the potable water requirements recommended in the latest edition of "*Guidelines for Canadian Drinking Water Quality*".

Note: This document is published by Health Canada and is available at:

http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/sum_guide-res_recom/index-eng.php

To ensure that water, used for the above purposes, remains potable it is necessary to submit samples, at regularly set intervals for testing.

Note: Laboratory testing includes microbiological testing as well as ensuring that other constituents such as minerals are at acceptable levels and that there are no toxic chemicals in the water.

OBJECTIVE/OUTCOME

Sufficient, hot and cold, potable water, which meets the requirements of the local Regional Health Authority (RHA) and/or Health Canada's publication called "Guidelines for Drinking Water Quality", is available and used as required.

Note: Potable water must be used whenever water, steam, or ice, comes into contact with edible meat products or surfaces that will contact edible meat products.

Testing is done according to the following schedules:

1. Private Water Sources (e. g. wells, dugouts, etc.)

   a) Bacterial Counts – every 30 days

b) Chemical Composition - at least once a year (a maximum of 12 months)

Note: Records of bacteria testing must be on file at the facility at a frequency of not more than 30 days from one potability record to the next. Chemical analysis records must be on file at the facility at a frequency of not more than 12 months from one chemical analysis to the next.

2. Municipal Water Supplies

a) Bacterial Counts - at least once a year

Note: These samples must be taken from taps in the facility.

b) Chemical Composition – at least once per year

Note: More frequent testing should be done if there is any indication that the municipal source is having any chemical composition problems.

3. Ice

A bacterial count on ice must be done at least once a year

Note: Samples, for this testing, must be taken from the site most likely to be contaminated, which in most instances is the ice machine.

Substandard test results [tests that reveal the presence of bacteria (total coliforms and/or E. coli) and/or chemicals] are **deemed to be non-potable** and will be dealt with as follows:

1. Water

All slaughter and processing activities will cease until such time as a satisfactory water sample has been obtained or an acceptable interim solution is instituted.

Note: The RHA is responsible for helping the facility operator make the necessary corrections. This includes “boil water advisory” situations.

2. Ice

a) Ice made since the last satisfactory test results is discarded

b) An investigation to determine the source of contamination is conducted

Note: The first step should be to test the water supply to make sure it is not the source.

c) Once the source has been determined a thorough clean-up and sanitation of all ice making equipment (e. g. ice room, chutes, ice machine etc.) is performed.

d) Newly made ice is submitted for testing

Note: The new ice must meet potable water specifications before it can be used.

3. Inadequate Test Results

   If test results come back marked "**Inadequate Test**" the water and any ice or steam made from that water must be handled as if it were **non-potable**.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS 2006)

Requirements for "**Potable Water - Written Program"** will be met when:

1. Written, plant specific **"Potable Water Testing Procedures"** are on file.

   Note: These procedures must be approved by the local RHA. They must describe the procedures used to take water, ice, or steam samples for testing.

2. The **"Potable Water Testing Procedures"** have been implemented.

3. Records show that water samples are being submitted to an approved laboratory, for testing, in accordance with the written procedures.

   Note: The laboratory used also has to be approved by the local RHA.

   A file of all **"Water Potability Reports"** is on file at the facility

   Note: This file must go back a minimum of three years.

4. **"Water Potability Reports"** demonstrate that the operator is following the written **"Potable Water Testing Procedure"**

   Note: Records should show that any deviations have been identified and that appropriate corrective actions have been taken in the event of substandard test results.

RELATED SECTIONS OF TIPM

02-M-02 Potability of Water, Ice & Steam

02-M-04 Water Treatment Systems

SUBJECT: Water Treatment - Written Program	03-A-07
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Sections 15.1 & 18(1)(e) Meat Facility Standards (MFS) Section 4.1 (2 & 5)	**Initial Release** Sept 1, 2009 **Page 1 of 4**

RATIONALE

Having adequate amounts of potable water is an absolutely indispensable element for a "Licensed Meat Facility" (facility).

Note: Potable means suitable for human consumption.

Potable water is required for:

1. Slaughtering and dressing operations

   Note: This includes water used to chill poultry carcasses.

2. Cleaning of facilities and equipment
3. Personal hygiene of facility personnel

Water, for the above purposes and that used to make ice, or steam, must be potable.

Municipal water supplies are the **most reliable** source of **potable water** but unfortunately this source is **not available** to **all facilities**.

Facilities without a municipal water supply have to rely on private water sources.

Note: Private water sources include wells and dugouts.

Private water sources often have problems with quality.

Note: Common quality problems include, but are not restricted to, items such as:

a) turbidity;
b) hardness;
c) high mineral content;
d) contamination with bacteria, primarily coliforms (bacteria found in manure)

There is no way to ensure that wells, or dugouts, are protected from contamination, thus water from these sources must be continuously disinfected to meet potable water standards.

Only approved methods of disinfecting can be used and continuous disinfecting requires continuous monitoring of chemicals added and results achieved.

This document **applies to facilities that have to treat their water to ensure** that it is **potable,** or **choose** to treat their water for quality purposes.

OBJECTIVE/OUTCOME

The facility will use an approved water treatment system.

Note: Normally only facilities that are using a private water source have to treat their water to make it potable but the local Regional Health Authority (RHA) have the authority to require a facility, with a municipal water source, to use a water treatment system following a number of unacceptable potable water test results.

Following treatment the water will meet the standards, for potable water, that are set out in Health Canada's publication entitled "*Guidelines for Drinking Water Quality*".

Note: This document is published by Health Canada and is available at:

http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/sum_guide-res_recom/index-eng.php

Water treatment methods will be capable of providing continuous disinfection while the water system is in operation.

Note: Approved methods for continuous disinfection include:

a) addition of chlorine;

b) addition of iodine;

c) treatment with ozone;

d) exposure to ultraviolet light

A comprehensive water analysis must be performed prior to choosing a comprehensive water treatment process.

To ensure that the water has been suitably disinfected, the system should be equipped with instruments that will monitor and record the level of disinfecting agent(s) used.

Some approved methods do not lend themselves to routine monitoring. In these cases the operator must operate and maintain the water treatment equipment according to manufacturer's recommendations then follow documented maintenance procedures and keep records proving that such maintenance has been performed.

Two approved systems that allow routine monitoring include chlorination and the use of ozone.

In both systems the operator must use an approved testing method to check for residuals on a daily basis to ensure they don't pose a chemical hazard. Daily test results must be recorded.

When **automatic chlorinators** are used, there are two requirements that are fundamental for the control of chlorine levels. These are:

a) a metering device, for the addition of the correct concentration of chlorine relative to the water flow rate, that is designed to readily indicate malfunctions and

b) twice daily testing to determine the level of totally available chlorine at a specific point remote from the chlorine application site but prior to distribution to the plant system

The facility will continue to perform regular potable water tests in accordance with TIPM document 03-A-06.

Note: A **water treatment system does not absolve** the facility **from** conducting **regular** potable **water tests**.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS 2006)

Requirements for "**Water Treatment - Written Program"** will be met when:

1. Written, plant specific **"Water Treatment Procedures"** are on file

   Note: These procedures must describe:

   a) disinfect(s) used;

   b) amounts used;

   c) frequency of addition;

   d) how treatment activities were performed;

   e) who is responsible for performing treatment activities

2. A schematic drawing of the water treatment system is on file

   Note: These drawings should show:

   a) location of water intake valves;

   b) all water treatment equipment in use at the facility;

   c) points where disinfectants are added;

   d) filter points

3. A written, detailed, plant specific **"Water Testing Procedure"** is on file**.**

   Note: These procedures must describe:

   a) how treated water is tested;

   b) critical limits (upper and lower if applicable) for all disinfectant(s) used;

   c) frequency of testing;

   d) who is responsible;

   e) where test results are recorded

   If a commercial water treatment system is being used the manufacturer's **"Operating Manual"** must be on file.

REQUIREMENTS FOR AN AUDITABLE SYSTEM MFS 2006) (continued)

4. An accurate file of **"Water Test Records"** is on file at the facility.

   Note: These records must go back a minimum of three years and must include records of all tests conducted.

5. **"Water Testing Records"** demonstrate that the operator is following the written **"Water Treatment Procedures".**

   Note: Records should show that deviations have been identified and corrective actions have been taken whenever testing reveals chemical levels beyond those specified in the **"Water Treatment Procedure"**.

RELATED SECTIONS OF TIPM

02-M-02 Potability of Water, Ice & Steam

02-M-04 Water Treatment Systems

03-A-06 Potable Water - Written Program

SUBJECT: Receiving Procedures & Records	03-B-01
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Sections B.2.1 (1 & 2), B.2.2.2	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

It is important to ensure that all incoming food products (meat and ingredients) arrive and remain wholesome and suitable for human consumption.

Note: All incoming products should come with a statement, from the supplier, indicating that the product is free of hazards and has been shipped in a clean vehicle, or other means of conveyance.

All products arriving at a "Licensed Meat Facility" (facility) must be in good condition.

Note: This means:

a) packaging materials will be clean and covered;

b) ingredient containers (e.g. spice bags) are intact without any leakage of contents.

Non-compatible materials (i.e. non-food products) must be transported in a manner that prevents the contamination of meat, meat products, or ingredients

Note: Bulkheads, or dividers, are examples of ways that food and non-food materials can be separated during shipment.

Having detailed written procedures for the receiving of food and non-food materials will go a long way in reducing any risk of contamination.

OBJECTIVE/OUTCOME

The facility will have an up-to-date written **"Receiving Procedure"**.

Facility personnel, responsible for receiving, will follow the written procedure.

There will be accurate and up-to-date **"Receiving Records"**.

Receiving areas for carcasses, meat products, ingredients, cleaning supplies, packaging supplies etc. will be maintained in an orderly and functional condition.

Note: This must be done to ensure that materials used in the preparation, packaging and labeling of meat products are received and handled in a manner that prevents their contamination.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Receiving Procedures and Records"** will be met when*:*

1. An up-to-date written **"Receiving Procedure"** has been developed and is on file.

   Note: This procedure will contain, but is not limited to, the following:

   a) a description of acceptable criteria for all incoming product (perishable and non-perishable, packaging materials, chemicals, letters of guarantee, etc) and

   b) a description of how incoming materials will be inspected, as they arrive, to ensure that they will not be a source of contamination for any meat, meat products, or ingredients while in the facility.

2. On site observation demonstrates that the **"Receiving Procedure"** is being followed.

3. Accurate and up-to-date **"Receiving Records"** are on file at the facility.

   Note: These records should verify that the temperature of all perishable products was taken upon arrival. This is done to ensure that all perishable goods were at 4^0 C, or lower, at the time they were received.

RELATED SECTIONS OF TIPM

02-E-01 Shipping & Receiving Facilities

02-E-07 Returned Products - Receiving of

SUBJECT: Storage Procedures & Records	03-B-02
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Sections B.2.1 (1 & 2), B.2.2 (2, 3 & 4), B.2.3 (1 & 2)	**Initial Release** Sept 1, 2009 **Revision Date** Sept 1, 2011 **Page 1 of 3**

RATIONALE

Improper storage of meat and non-meat products at a "Licensed Meat Facility" (facility) can lead to biological, chemical and physical contamination.

Note: Examples of unacceptable storage conditions that are likely to result in contamination include, but are not limited to:

a) improper storage temperatures;

b) damaged containers;

c) storage on the floor.

Inadequate storage temperatures allow biological agents (bacteria, molds, fungi, etc.) to multiply. These agents may cause disease or lead to deterioration of meat, or meat products.

The integrity of packaging materials is critical in minimizing any chance of contamination of meat, or meat products.

All meat products and ingredients must be kept at least 4 inches (10 cm) off of the floor.

All chemicals and non-food ingredients must be stored away from any processing areas.

In facilities where un-inspected meat is processed, or stored, there must be a system in place that ensures complete physical separation from inspected meat at all times.

OBJECTIVE/OUTCOME

The facility will have up-to-date written **"Storage Procedures"**.

Note: Proper procedures will:

a) protect meat and meat products from potential sources of contamination;

b) protect them from damage likely to render them unsuitable for human consumption;

c) provide an environment that effectively controls the growth of pathogenic (disease causing) or spoilage micro-organisms and the production of toxins by these micro-organisms.

Meat products and materials used in the preparation, packaging, or labeling of meat products will be stored in a manner consistent with the written procedures.

Note: The following minimum standards must be met for each of the following:

a) incoming materials;

b) un-inspected products;

c) finished products;

d) non-food chemicals

Incoming Materials

1. Meat, meat products, or ingredients, requiring refrigeration will be stored at 4^0 C (40^0 F) or less.
2. Frozen meat, meat products, or ingredients, will be stored at temperatures that keep them frozen (-18 °C (0 °F) or less)
3. Temperatures will be monitored.
4. Ingredients and packaging materials will be stored in a manner that prevents damage and/or contamination.

   Note: Ingredients can't be stored on the floor. They should be elevated at least 10 cm (4 inches).
5. Ingredients and packaging materials sensitive to humidity will be stored under conditions that will prevent deterioration.
6. Ingredients and packaging materials will be stored in a manner that facilitates proper rotation so that storage times are not prolonged.

Uninspected Product

Un-inspected meat and meat products will be:

1. Kept completely separated from inspected products at all stages of processing and packaging.
2. Marked as "**UN-INSPECTED - NOT FOR SALE**"

   Note: This applies to carcasses, portions of carcasses and all packaged products.

Finished Products

Finished products will be stored under conditions that:

1. Minimize deterioration and prevent contamination.

   Note: This means refrigerated or frozen as necessary.
2. Minimize any chance of damage.
3. Facilitate stock rotation.

   Note: Stock rotation is an important method of minimizing spoilage that might present a human health hazard.
4. Clearly identifies and isolates any returned defective, or suspect, meat, or meat products.

   Note: If at all possible, these products should be stored in a designated area

until they can be disposed of.

Non-Food Chemicals

Non-food chemicals will be stored in:

1. A dry, well ventilated area.
2. Designated areas.

   Note: This is done to remove the possibility of contaminating meat, meat products, or meat contact surfaces.
3. Clean and correctly labeled containers.
4. A manner that prevents contamination of meat, meat products, meat contact surfaces, or packaging materials when they have to be stored, for ongoing use, in meat, or meat product, handling areas.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Storage Procedures & Records"** will be met when*:*

1. An up-to-date, facility specific, written procedure is on file.

   Note: This procedure must describe criteria and instructions for the storage of different items such as perishable and non-perishable products, packaging materials, chemicals, etc.

   It must also state how storage will be monitored to ensure there is no contamination of edible meat, or meat products.
2. On site observations demonstrate that the written **"Storage Procedures"** are being followed.
3. Accurate and up-to-date **"Storage Records"** are on file at the facility.

   Note: These records must include:

   a) issues that have been identified;

   b) corrective actions taken;

   c) any other observations

   All entries must be signed and dated.
4. Storage facilities, including temporary facilities such as trailers, are included in the **"Sanitation Schedule"**.

   Note: The frequency of cleaning and sanitation must be documented.

RELATED SECTIONS OF TIPM

02-E-01 Shipping & Receiving Facilities
02-E-02 Dry Storage Areas
02-E-07 Returned Products - Receiving of
02-G-06 Separation of Un-inspected Meat
02-G-07 Product Protection during Freezing & Refrigeration
03-E-04 Sanitation Schedule
03-B-01 Receiving Procedures & Records

SUBJECT: Shipping Procedures & Records	03-B-03
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Sections B.1.1 (1 & 2), B.1.2 (1 & 2)	**Initial Release** Sept 1, 2009 **Revised on** Sept 1, 2010 **Page 1 of 3**

RATIONALE

Improper shipment of meat and non-meat products, from a "Licensed Meat Facility" (facility) can lead to biological, chemical, or physical contamination.

Note: Examples of unacceptable transportation conditions likely to result in contamination include, but are not limited to:

a) poor shipping facilities;

b) improper shipping temperatures;

c) damaged packaging;

d) use of an unsuitable vehicle

Shipping practices must not present a potential contamination risk for finished meat products.

Note: Under ideal conditions there will be a dedicated area for the shipment of finished product.

Common shipping and receiving docks are undesirable and under no circumstances should meat, or meat products, be shipped from a dock that handles inedible materials.

Perishable products must be shipped at an appropriate temperature

Note: The standard recommended temperature, for refrigerated product, is 4^0 C (40^0 F). Shipping product above these temperatures will allow biological agents (bacteria, molds, fungi, etc.) to multiply. These agents may cause disease or lead to deterioration of meat, or meat products.

Product must be protected from contamination during shipment.

Note: The commercial carrier must be constructed and maintained in a manner that prevents contaminants from entering the cargo compartment.

The integrity of packaging materials is also critical in minimizing any chance of contamination of meat, or meat products.

OBJECTIVE/OUTCOME

The facility will have appropriate written **"Shipping Procedures"**.

Note: These procedures must ensure that all meat and meat products under the facility's control are shipped under conditions that will:

a) protect them from potential sources of contamination;

b) protect them from conditions that will render them unsuitable for human consumption;

c) provide an environment that will control the growth of pathogenic (disease causing) or meat spoiling micro-organisms

Perishable product will not be shipped until it is at, or below, the required temperature of 4^0 C (40^0 F).

Note: Shipment must be done in a manner that ensures that the mode and time of transportation will not result in temperatures rising above 4^0 C.

Operators who wish to ship meat products that are not yet at or below 4 °C to another provincially licensed facility may be permitted to follow a modified shipping process, provided the following conditions are met:

a) Refrigerated vehicles must be used to ensure that the product continues it's continuous cooing performance standard;

b) A validated and facility specific written program has been developed and implemented by both the shipper and the receiver (this includes the use of a modified shipping record), and

c) Prior written approval has been given to both the shipper and the receiver by the Area Manager (AM) of RSD

Note: The **primary** use of the modified shipping process is to allow the shipping of carcasses from a Multi-Location abattoir to a provincially licensed facility for further processing.

A shipping temperature of no more than 7 °C surface is strongly recommended.

Commercial carriers will be properly prepared before product is placed in them.

Note: Proper preparation includes:

a) a thorough inspection for potential hazards;

b) correction of any hazards that were detected;

c) cleaning as necessary

Appropriate "Shipping Records" will be kept.

Note: These records should include but are not limited to details of:

a) product temperature;

b) condition of the finished products;

c) condition of the commercial carrier;

d) corrective actions required, etc.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Shipping Procedures and Records"** will be met when*:*

1. Up-to-date, facility specific, written **"Shipping Procedures"** are on file

   Note: These procedures should:

   a) describe criteria and instructions for the shipment of perishable and non-perishable products;

   b) state how shipments will be monitored to ensure that the product remains suitable for human consumption during transportation;

   c) include the roles of responsible personnel;

   d) frequency of and instructions for proper cleaning and sanitizing of transportation vehicles

2. On site observations demonstrate that the procedures are being followed

3. Accurate and up-to-date **"Shipping Records"** are on file.

   Note: These records must include, but are not restricted to:

   a) temperature of the product;

   b) temperature of the commercial carrier (where applicable);

   c) condition of the commercial carrier;

   d) condition of the finished product;

   e) issues that have been identified;

   f) corrective actions taken;

   g) any other observations

   All entries must be signed and dated.

   Facilities using a modified shipping process must use a modified shipping record that monitors product temperatures and product cooling from the point of shipment to the point of receiving. A modified shipping record template is attached to this document.

RELATED SECTIONS OF TIPM

02-E-01 Shipping & Receiving Facilities
02-E-03 Shipping Vehicles - General Condition of
02-E-04 Shipping Vehicles - Incompatible Goods
02-E-05 Product Protection during Transportation
02-E-06 Product Temperature during Transportation
03-B-04 Custom Order Pickup

TECHNICAL INTERPRETATION POLICY MANUAL (TIPM)

ATTACHMENT-TIPM DOCUMENT 03-B-03- MODIFIED SHIPPING RECORD

Government of Alberta ■
Agriculture and Rural Development

SECTION A-SHIPPING INFORMATION								SECTION B- RECEIVING INFORMATION				SECTION C- COOLING			
Ship Date YR/MM/DD	**Time of Loading** AM/PM	**Truck Temp at Loading**	**Product Description**					**Receiving Facility Name/License Number**	**Time of Arrival**	**Truck Temp At Arrival**	**Product Temp At Arrival**	**Total Time Transit**	**Temp Change during Transit** See note below	**Initials (Ship)**	**Initials (Rec.)**
			Quantity	**Product Name/Description**	**Fresh**	**Frozen**	**Product Temp at Shipping**								

NOTE: The Shipping Facility must use an appropriate refrigerated shipping vehicle at all time. Shipments that do not show an acceptable temperature decrease during shipment must show deviations and appropriate corrective actions taken and documented on the back of this record.

Both the shipping and receiving facilities must have a written shipping program which includes the use of this record.

SUBJECT: Custom Order Pickup	03-B-04
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1	**Initial Release** Sept 1, 2009
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RATIONALE

From a food safety perspective, it is essential for a "Licensed Meat Facility" (facility) to transport carcasses, portions of carcasses and other meat products under their control in a manner that maintains their safety and suitability.

Note: Detailed transportation requirements, including the need to keep meat and meat products at a temperature of 4^0 C or less, can be found in TIPM document 03-F-03 Shipping Procedures & Records.

Often customers choose to pick-up and transport their own meat products in a manner that does not meet all of the recommended shipping and transportation protocols.

In these instances it is highly recommended that the facility operator keep records to show the safety and suitability of products upon customer pickups.

Note: **"Custom Pickup Records"** should document that the product was in a safe and suitable condition when it left the facility's control.

"Custom Pickup Records" should be signed by the customer.

Note: This will acknowledge that the products were received in an acceptable condition. This acknowledgement is required to release the facility from liability should the customer file a complaint later.

OBJECTIVE/OUTCOME

The temperature of all outgoing perishable meat products will be recorded.

The records should be signed by the person picking up the product.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Custom Order Pickup"** will be met when:

1. The facility's written **"Shipping Procedures"** include record keeping requirements for proving that custom ordered products were safe and suitable upon pickup.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

2. Accurate and up-to-date **"Custom Pickup Records"** are on file.

   Note: These records will include the condition of the product at the time of pickup, including product temperature, which should be 4^0 C, or less.

RELATED SECTIONS OF TIPM

02-E-03 Shipping Vehicles - General Condition Of

02-E-04 Shipping Vehicles - Incompatible Goods

02-E-05 Product Protection during Transportation

02-E-06 Product Temperature during Transportation

03-E-03 Shipping Procedures & Records

SUBJECT: New Equipment Approval Procedures	03-C-01
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Sections C.1.1 (1 & 2)	**Initial Release** Sept 1, 2009 **Page 1 of 3**

RATIONALE

Equipment surfaces that come into contact with meat, or meat products, are potential sources of contamination.

The chances for contamination increase with:

1. Improper sanitation procedures
2. Improper maintenance

Note: Contamination with micro-organisms (bacteria, fungi, molds, etc.) will occur if contact surfaces are not properly sanitized.

Poor maintenance could lead to the leakage of potentially toxic lubricants, or other materials, onto meat contact surfaces.

Equipment must be designed for easy cleaning and sanitizing and resistance to contamination.

Note: Equipment design should ensure that:

a) there are no areas that easily trap soil or organic matter;
b) all parts are readily accessible for cleaning;
c) contamination due to the leakage of lubricants, metal filings, or other substances doesn't occur

Meat contact surfaces, of equipment, must be constructed with material that is easily cleaned and sanitized.

Note: This means that material on contact surfaces should be:

a) smooth;
b) corrosion resistant;
c) non-toxic;
d) non-absorbent;
e) durable enough to withstand repeated cycles of cleaning and sanitizing

Wood is not suitable as a construction material because it:

a) can't be cleaned and disinfected properly;
b) deteriorates rapidly under moist conditions;
c) it has a porous structure;
d) provides an excellent environment for harboring large numbers of micro-organisms

Corroded metals contain small grooves, crevices and pits that trap micro-organisms. It is also impossible to properly clean pitted material.

It is also important for equipment to be properly located in the facility

Note: This includes locating equipment a sufficient distance from walls and ceilings to allow easy access for cleaning and sanitizing and to avoid niche areas where soil will tend to accumulate.

Having castors, on the equipment, is an alternative to providing sufficient space between walls and ceilings.

Equipment should also be located to ensure a one-way flow of product from raw to finished, without backtracking or crossover.

OBJECTIVE/OUTCOME

All equipment will be **designed**, **constructed** and **installed** in a manner that **minimizes** any chance of **contamination** of **meat**, **meat products**, **ingredients**, **packaging**, or the **facility** itself.

Note: "Common Industry Practice" recommends that equipment be built in accordance with international standards that have been established for the sanitary design and construction of equipment intended for slaughtering food animals and the handling of meat products.

Following are a number of information sources, from the National Sanitation Foundation (NSF), re international standards for equipment for meat facilities.

a) Hygiene Requirements for the Design of Meat and Poultry Processing Equipment - American National Standard ANSI/NSF/3A 14159-1 – (refer to **www.nsf.org**);

b) Hygiene Requirements for the Design of Hand Held Tools used in Meat and Poultry - American National Standard ANSI/NSF/3A 14159-2 (refer to **www.nsf.org**);

c) Assessment for Cleanability of Belting Materials used in Meat and Poultry Processing Equipment - American National Standard ANSI/NSF/3A 14159-3 (refer to **www.nsf.org**);

d) 3-A Sanitary Standards – (refer to **www.3-A.org**);

e) National Sanitation Foundation International Standards: (for a complete list of standards please refer to **www.nsf.org**).

For a listing of European standards, for Food Processing Machinery, refer to (**www.cenorm.be**).

All new, or used, equipment, will be monitored and documented prior to and following installation for compliance to design criteria.

Note: Appropriate design criteria will ensure that the equipment is:

a) suitable for its intended use;

b) constructed of corrosion resistant material;

c) free of any parts, or constituents, that could contaminate product;

d) capable of withstanding repeated washing and sanitation;

e) easily accessible for cleaning, sanitation and inspection;

f) readily disassembled for cleaning, sanitation and inspection

"Operating Manuals", printed by the manufacturer, will be on file at the facility for any commercially built new equipment.

Note: The manual must include, but is not restricted to, instructions for installation, cleaning and maintenance.

A customized **"Operating Manual"** will be on file for any, rebuilt or custom-built equipment.

Note: This manual, will be prepared by the supplier of the equipment, or the operator, and must contain the same information as manuals for commercially built new equipment.

Information from equipment "Operating Manual(s)" relating to cleaning, sanitation and maintenance, of equipment, will be included in the facility's written sanitation and equipment maintenance programs.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"New Equipment Approval Procedures"** will be met when*:*

1. Up-to-date, written, plant specific, **"Equipment Approval Procedures"** are on file.

   Note: These procedures will describe criteria for new and used equipment and utensils and how they will be inspected prior to and following installation to ensure that contamination risks are minimized.

2. Accurate up-to-date **"Equipment Inspection Records"** are on file.

   Note: These records must demonstrate that deficiencies relating to criteria for equipment and maintenance are identified, prioritized (if necessary) and corrected in a timely manner.

3. **"Operating Manuals**" are on file, at the facility, for all new, or used, equipment.

RELATED SECTIONS OF TIPM

02-N-01 Equipment Construction & Installation

SUBJECT: Non-food Maintenance Chemicals - Approval List	03-C-02
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section C.1.1.1	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

Chemicals and other products used for the routine maintenance of equipment and utensils must be approved for use in a "Licensed Meat Facility" (facility).

Note: Approval is required because of the ever present possibility of contact between these agents and meat, or meat products.

To prevent possible mix-ups and cross contamination it is necessary to store food grade chemicals used for maintenance or sanitation of food contact surfaces, or of areas where carcasses, parts of carcasses and meat products are processed, packaged, labeled, shipped or otherwise handled separate from maintenance chemicals that are **not used** for these purposes.

Note: It is common practice for non-food chemicals to be stored in a locked cabinet separate from other food ingredients.

All chemicals must be stored properly and have proper labels attached to them at all times.

Note: This is essential in preventing the possible misuse of chemicals.

OBJECTIVE/OUTCOME

Non-food chemicals will be:

1. properly labeled;
2. of food grade;
3. used in a manner that prevents contamination of meat, meat products or other ingredients

   Note: This applies to chemicals used for maintenance where carcasses, parts of carcasses and meat products are processed, packaged, labeled, shipped or otherwise handled).

Documentation will be present to show that non-food chemicals are acceptable for use in a facility.

Note: A list of approved chemicals can be accessed at:

http://www.inspection.gc.ca/english/fssa/reference/refere.shtml

Examples of non-food chemicals in use include but are not restricted to:

a) water treatment chemicals;
b) boiler treatment chemicals;
c) chemicals for sanitation;
d) pesticides;
e) coatings;
f) paints;
g) lubricants and other materials used for food contact surfaces

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **Non-Food Maintenance Chemicals-Approval/List** will be met when an up-to-date **"List of Non-Food Chemicals"** is on file**.**

Note: This list should contain any of the following:

a) CFIA approval numbers, or letters;
b) Letters of "No Objection" from Health Canada

RELATED SECTIONS OF TIPM

03-C-01 New Equipment Approval Procedures

SUBJECT: Calibration Procedures - Records of	03-C-03
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section C.1.2.2	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

Devices used to measure items, or factors that have an impact on food safety must be properly calibrated to ensure that all measurements are consistent and accurate. For example a serious microbiological food safety hazard could occur if a thermometer measuring refrigeration temperature was reading lower than the actual temperature. In this case the operator of the "Licensed Meat Facility" (facility) would be led to believe that the storage temperature was low enough to control bacterial growth when in fact it wasn't.

Note: Examples of equipment that need to be calibrated include, but are not limited to:

a) smokehouse temperature dials;
b) temperature probes, or guns;
c) thermometers for temperature controlled areas where meat is processed and stored;
d) scales, for weighing preservatives/nitrates etc;
e) pH meters;
f) humidity meters

Not only must thermometers be calibrated, they must be calibrated for the temperatures they are expected to function at.

Note: This means calibrating thermometers used to measure high temperatures in reference to the boiling point (100^0 C) and thermometers used to measure cold temperatures in reference to freezing (0^0 C).

Accurate calibration records must be kept in order to prove that critical equipment was properly calibrated.

OBJECTIVE/OUTCOME

An equipment and instrument calibration program will be developed and implemented.

Note: **"Calibration Programs"** provide assurance that equipment, or devices, that may impact food safety, are functioning properly.

"Process Control Instruments" will be calibrated on a regular, assigned frequency. The assigned frequency will be based on the manufacturer's manuals and may be dependant on the use of the instrument.

Note: Where not specified by the manufacturer's manual(s), examples of regularly assigned frequencies, for calibration, include, but are not restricted to calibrating:

a) scales, used to weigh nitrite, nitrates, or prague powders, at least once a year;

More frequent calibration may be required depending on the amount of product produced and the nitrite levels used. For very fine measurements the accuracy of the scale becomes more critical.

b) thermometers, used to monitor product temperature, at least once a month;

(Thermometers with an up-to-date yearly calibration certificate, on file at the facility, are exempt from the requirement for monthly calibration.)

c) temperature monitoring devices in climate controlled spaces (e.g. coolers and freezers), at least once every 6 months;

d) smoking, cooking, or baking, chambers should be checked for the presence of cold spots upon installation and at least once a year thereafter

Calibration will be done by authorized and trained personnel.

Calibration will meet acceptable standards.

Note: An example of a calibration standard is the requirement to ensure that product thermometers read accurately within a range of no more than +/- 0.6^0 C.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Calibration Procedures- Records Of"** will be met when:

1. An up-to-date, plant specific **"Calibration Procedure"** is on file at the facility.
   Note: This procedure should contain, but is not limited to:
   a) a list of equipment, or instruments, requiring regular calibration;
   b) methods of calibration;
   c) critical limits;
   d) frequencies;
   e) names of trained individuals responsible for calibrating
2. Documentation detailing equipment and instrument calibration methods and frequencies established and provided by the manufacturer is on file.
3. An up-to-date **"Training Record"** is on file.
   Note: This file should identify the training provided for all designated and formally trained personnel identified in the **"Calibration Procedures"**.
4. Up-to-date **"Calibration Records"** are on file.
   Note: Information in the "Calibration Records" includes but is not restricted to the following:
   a) equipment calibrated;
   b) date of calibration;
   c) initials of facility personnel doing the calibration;
   d) specifications and calibration limits;
   e) calibration results;
   f) corrective actions taken (if necessary)

RELATED SECTIONS OF TIPM

02-G-03 Temperature Recording Devices

03-G-03 Nitrate &Nitrite Addition

SUBJECT: Preventative Maintenance Procedures - Records of	03-C-04
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section C.1.2.1	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

Equipment used to slaughter animals, dress carcasses and handle meat and meat products, in a "Licensed Meat Facility" (facility) must be maintained in a satisfactory operating condition. Failure to do so will lead to an increased risk of contaminating carcasses, parts of carcasses and meat products due to malfunctions or breakdowns.

Note: Examples of contamination hazards, from poorly maintained equipment, include but are not restricted to such things as:

a) leakage of lubricating fluids;
b) accumulation of metal filings;
c) dust, gases or other noxious contaminants;
d) poor sanitation because of pitting or cracking of meat contact surfaces;
e) foreign bodies, in meat products such as nuts or bolts;
f) lubricant contamination due to excessive use

A well developed **"Preventative Maintenance Program"** will minimize food safety hazards associated with defective equipment.

Note: This program should state the frequency of maintenance requirements, which in turn is largely dependant on the extent and conditions of use as well as the design and durability of the equipment.

Maintenance procedures must be performed in a manner that doesn't create any risk of contamination of meat, or meat products.

Note: The best way of reducing risk is to remove all meat and meat products from the area prior to starting maintenance procedures.

If an emergency situation makes it impossible to remove the meat products they must be suitably protected from contamination.

Scheduled preventative maintenance must be conducted at times when meat and meat products are not present.

Procedures to protect meat products must be part of the written **"Preventative Maintenance Procedures"**.

Maintenance procedures also have to be documented in order to monitor the effectiveness of the program through an examination of maintenance records and observation of the operating status of the equipment.

In addition to enhancing the production of a safe product a sound **"Preventative Maintenance Program"** saves money from reduced breakdowns which causes down time, product loss, employee overtime, etc.

OBJECTIVE/OUTCOME

An "**Preventative Maintenance Program**" will be:

1. developed;
2. implemented;

3. maintained;
4. updated (as required)

Note: This program will serve to ensure that equipment and devices with a potential impact on the safety of meat, or meat products, or that may affect the proper stunning of food animals are functioning as it should.

Meat and meat products will be protected from contamination while preventative maintenance activities are being performed.

Note: Common methods of ensuring meat, or meat products, are not contaminated is to remove them from the area during maintenance or to move the equipment, being maintained, to an area of the plant where meat is not handled, processed or stored.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for "**Preventative Maintenance Procedures - Records of"** will be met when:

1. Up-to-date, plant specific written **"Preventative Maintenance Procedures"** are on file.

   Note: These procedures should contain, but are not limited to the following:

   a) a list of equipment and their maintenance frequencies;
   b) roles and responsibilities of maintenance personnel;
   c) instructions for the proper conduct of preventative maintenance activities;
   d) methods of avoiding contamination of carcasses, parts of carcasses and meat products during maintenance and repair activities

2. **"Equipment Manuals"** provided by the manufacturer are on file.
3. Up-to-date **"Maintenance Records"** are on file.

   Note: These records, which must be **retained for** at least **one year**, should contain, but are not limited to the following:

   a) equipment serviced;
   b) date of servicing;
   c) initials of facility personnel doing the servicing;
   d) deficiencies detected;
   e) corrective actions taken

4. **"Maintenance Records"** confirm that maintenance activities are occurring according to written **"Preventative Maintenance Procedures"** and that deficiencies are followed up and repaired within a timely manner.
5. On site observations demonstrate that the premises, equipment and utensils are maintained in a constant state of general good repair.

RELATED SECTIONS OF TIPM

03-C-03 Calibration Procedures - Records of
03-D-04 Equipment Maintenance & Calibration Training
12-B-06 Mechanical Hazards

SUBJECT: Inedible Containers & Utensils - Control of	03-C-05
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section C.1.1.3	**Initial Release** Sept 1, 2009 **Page 1 of 1**

RATIONALE

Inedible meat products must be kept separate from edible meat products at all times.

Note: This is done to ensure that there is no mixing of edible and inedible materials.

To ensure separation, all containers and utensils, used for inedible product, must be clearly identified as such.

Note: The method of identifying containers and utensils used for inedible material must be permanent to ensure that these items are never used in areas where edible product is handled thus minimizing the risk of contaminating edible meat product.

OBJECTIVE/OUTCOME

Equipment, or utensils, used to collect, convey, or store, inedible meat products will be clearly identified.

Note: Identification can be accomplished by color coding or by clearly **marking** these items with the word "**INEDIBLE**".

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Inedible Containers & Utensils- Control of"** will be met when:

1. A facility specific written policy relating to the control of all containers and utensils used to handle or store inedible material has been developed.
2. Equipment, or utensils, used for inedible material, is clearly distinguishable from equipment, or utensils, used for edible material.

   Note: Labeling and/or color coding are the usual means of identifying equipment and utensils used for inedible materials.

   It is advisable to use color coding and/or labeling for items that are used for edible product as well.
3. The identification system for edible and inedible equipment:
   a) has been clearly communicated to facility personnel;
   b) is understood by all facility personnel

   Note: It is "Common Industry Practice" to put up posters that explain the identification system.
4. On site observations confirm that use of inedible and edible equipment is being controlled as described in the written policy.

RELATED SECTIONS OF TIPM

02-D-01 Inedible Facilities, Equipment & Containers
10-A-01 Inedible Material - Handling & Storage of - General
10-A-02 Inedible Material (condemned) - Handling & Storage of
10-A-03 Inedible Material (non-condemned) - Handling & Storage of
10-A-04 SRM Removal & Control Program
10-A-05 Inedible Material - Removal & Receipt of

SUBJECT: Health & Hygiene Policy	03-D-01
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section D.2.1 (1 & 2), D.2.2 (1, 2 & 3)	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

Two types of individuals are a hazard to the safety of meat and meat products:

1. Those with transmissible diseases.

   Note: A transmissible disease is one that is easily spread, either directly (person to person), or indirectly, through contamination of meat, or meat products, to the consumer of these products. Diseases of the digestive tract (e.g. diarrhea) are particularly dangerous.

2. Those who don't maintain an appropriate degree of personal cleanliness.

The operator of a "Licensed Meat Facility" (facility) must make facility personnel aware of the risk they pose of contaminating meat, or meat products with microbiological (bacteria, molds, fungi, etc.) agents particularly if they are sick or fail to practice appropriate personal hygiene.

Once they are aware of the hazards they need to be shown how to avoid contamination and be given the proper equipment to prevent contamination.

Note: A facility specific **"Health and Hygiene Policy"** is a key component of such training.

OBJECTIVE/OUTCOME

An acceptable, written, **"Health & Hygiene Policy"** will be developed and on file.

Note: The **"Health & Hygiene Policy"** must address items in D.2 of the MFS

The contents of the policy will be communicated to all facility personnel.

All staff will observe the rules set out in the **"Health & Hygiene Policy"**.

Note: It is critical that personnel working in meat processing, or storage areas, abide by this policy. The policy also applies to personnel working in ingredient and packaging material storage areas.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for the **"Health & Hygiene Policy"** will be met when*:*

1. An up-to-date written **"Health & Hygiene Policy"**, which addresses all of the criteria in section D.2 of the MFS, is on file at the facility.

   Note: The policy must be signed yearly, by the owner of the facility, or the highest ranking employee otherwise it won't be considered to be up-to-date.

2. The policy is posted in a prominent location.

   Note: The posting must be located so that it is visible to all personnel, inspectors, visitors and contractors.

3. Inspections confirm that the policy is being implemented by all personnel.
4. Training records reveal that all personnel have received training in matters pertaining to health and personal hygiene.

RELATED SECTIONS OF TIPM

03-D-02 Cleanliness & Protective Clothing
03-D-03 Hand Washing & Gloves
03-D-04 Non-hygienic Behavior - Avoidance of
03-D-05 Hygienic Behavior for Inspectors
03-D-06 Hygienic Behavior for Visitors & Contractors
03-D-07 Hygiene Training

SUBJECT: Cleanliness & Protective Clothing	03-D-02
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section D.2.1.1	**Initial Release** Sept 1, 2009 **Revised on** Sept 1, 2011 **Page 1 of 4**

RATIONALE

To ensure that personnel handling meat and meat products, in a "Licensed Meat Facility" (facility) are not a source of contamination suitably washed and maintained work clothing must be available to replace, or completely cover, any outerwear that may come into contact with meat, or meat products.

Jewellery (including wrist watches, badges, buttons, etc) in addition to being a food safety hazard, are also a risk to the safety of personnel, particularly those that have to work near moving equipment.

Note: For this reason the wearing of **exposed jewellery** is **prohibited** in **food processing areas**.

Items of jewellery that cannot be removed such as tight fitting weddings bands, medic alert bracelets, or necklaces, etc. must be properly covered. Using a "band-aid", or tape, to cover a wedding band is not acceptable. Band-aids and tape can't be cleaned and may become dislodged contributing further to product contamination. The only acceptable means of covering is to wear a glove.

Facial adornments that cannot be removed, or are normally not removed for any reason (e.g. religious, cultural, etc.), must be adequately covered when worn where meat, or meat products are handled.

In addition to jewellery, items such as pens, pencils, thermometers, etc. are also hazards because they may accidentally fall into meat products. These types of items must not be carried in coat, or shirt, pockets.

Employees should attempt to keep their outer garments as clean as possible during operation. For example aprons should be cleaned continuously during operations and when not in use they should be kept in the place provided for them.

Note: Putting aprons, or other items, on the floor, for cleaning, is not acceptable. This practice leads to re-contamination.

Dirty boots are particularly hazardous in transferring contamination, including filth and micro-organisms, between different areas of a meat plant.

Note: To prevent contamination boots must be kept clean at all times and they should be washed before leaving areas like the kill floor.

Foot baths should be strategically located and used at entrance and exit areas of different parts of the plant.

Work clothing and equipment such as knives, hooks, steels, mesh gloves, etc. should be

stored in a central location, at or near the workstation.

Note: At the end of operations, all such equipment should be cleaned, sanitized and placed where they can be seen during the pre-operational inspection.

Cleanliness is jeopardized if these types of equipment are stored in the employee's locker. When security is an issue separate equipment storage lockers are preferable.

Falling hair is another contamination hazard therefore personnel working in, or entering into, areas where meats, or meat products, are exposed must wear appropriate head covering.

Note: To be effective coverings **must cover** all exposed **hair.**

OBJECTIVE/OUTCOME

Facility personnel will meet the minimum requirements that are outlined in this document for:

1. Jewellery
2. Work clothing
3. Footwear
4. Protective gear
5. Hair covering

Note: In this document the word **personnel applies to plant employees, inspectors, visitors, contractors**, or anyone else entering areas where meat, or meat products, are handled, processed or packaged.

Jewellery

All exposed, or visible, jewellery such as, but not restricted to, watches, rings, earrings, bracelets, etc. will be removed.

Note: Plain wedding bands, or rings that are too tight for removal, must be covered with a glove.

Work Clothing

All work clothing will be clean (i.e. suitably washed and maintained) at the start of operations.

Note: The word clothing applies to all facility apparel including, but not restricted to: aprons, shirts, pants, smocks, coveralls, etc.

Meat Inspection Branch (MIB) Inspectors have the authority to declare work clothes unsuitable at any time and can require that clothing be changed, or washed.

"Common Industry Practice" suggests that durable, neat-fitting clothing be worn.

Note: Loose fitting clothing is more dangerous around moving equipment, or machinery.

Smocks, or aprons, must completely cover outerwear.

Note: The use of smocks over coveralls should be encouraged, even on the kill floor.

Coveralls are not as sanitary because they are more difficult to remove when

they are being put on or removed.

"Common Industry Practice" suggests that shirts and smocks shouldn't have pockets.

Note: If pockets are essential, personnel must be aware of items likely to fall into meat and restrict these items to pockets that are located below the waist.

Waterproof smocks and aprons will be washed frequently during operations and before leaving and returning to the kill floor.

Work clothes will not be worn, or stored, in incompatible areas such as outside of the plant or in washrooms, lunchrooms, lockers, used for street clothing, etc.

Footwear

Footwear will be:

1. Dedicated to and not removed from the facility.
2. Designed for the workplace
3. Made of suitable material

   Note: Footwear for the kill floor must be waterproof.
4. Capable of being cleaned and placed in footbaths and
5. Have steel toes and
6. Good grips on the sole

   Note: The last two items on this list are important safety issues.

Boots will be dipped in an approved sanitizer when personnel move to a cleaner area.

Protective Gear

Protective gear such as helmets, wrist guards, aprons, steel-meshed gloves, scabbards, etc. must be of made of materials that can be cleaned and kept in a clean condition.

Note: If a "Wizard Glove" is used it must be covered with a rubber glove to reduce contamination and maintain cleanliness during processing.

All protective gear and other personal equipment that becomes grossly contaminated during operations (e.g., contact with fluid from a ruptured abscess) will be cleaned and sanitized immediately.

Hair coverings

Hairnets will be worn in all processing areas.

Note: The mesh must be small enough to prevent the escape of loose hair.

On the kill floor a suitable hair covering (e.g. hard hat, clean baseball cap, etc) may be worn instead of a hairnet providing the person's hair is no longer than shoulder length. If the **hair** is **longer than shoulder length a hairnet must be worn**.

Religious hair coverings are acceptable providing they are clean and all the hair is covered.

Beard nets (snoods) will be used to cover all exposed facial hair in processing areas.

Note: Other body hair (e.g. arm hair) must be kept under control.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Cleanliness & Protective Clothing"** will be met when*:*

1. A **written**, up-to-date **"Health & Hygiene Policy"** is on file at the facility.

   Note: This policy will include the requirements for cleanliness and appropriate dress for all plant personnel, visitors and contractors.

2. The policy is fully implemented.
3. On site observations demonstrate that all facility personnel, visitors and contractors are appropriately dressed and maintain an appropriate degree of cleanliness while the facility is in operation.

RELATED SECTIONS OF TIPM

03-D-01 Health & Hygiene Policy
03-D-03 Hand Washing & Gloves
03-D-04 Non-hygienic Behavior - Avoidance of
03-D-05 Hygienic Behavior for Inspectors
03-D-06 Hygienic Behavior for Visitors & Contractors
03-D-07 Hygiene Training

SUBJECT: Hand Washing & Gloves	03-D-03
REGULATORY REFERENCES: AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 AR 31/2006 *Food Regulation* Sections 30(1), (2), (3) & (4) Meat Facility Standards (MFS) Sections D.2.1 (1 & 2), 2.2.3	**Initial Release** Sept 1, 2009 **Page 1 of 4**

RATIONALE

In a "Licensed Meat Facility" (facility) the hands of plant personnel, inspectors, contractors and visitors are serious potential sources of contamination for meat and meat products.

To minimize the chance of contamination anyone entering into, or working in, a facility must wash their hands frequently and thoroughly using an approved liquid soap under running warm water.

Note: Instruction on how to properly clean hands and protect them afterwards must be provided.

If used properly, gloves will protect against contamination of meat and meat products. They also protect personnel from contacting disease causing organisms in the meat.

Note: When gloves are used they must be intact, clean and sanitized.

Gloves must be washed any time that the hands would normally be washed.

Note: Additional training of personnel is required to ensure that they know how to use gloves properly. This training should include prohibitions on touching any contaminated items such as equipment handles, doors knobs, wooden pallets, etc.

The use of cloth gloves should be discouraged because they soil quickly and subsequently contaminate meat products.

OBJECTIVE/OUTCOME

Facility personnel will meet the minimum requirements set out in this document for hand washing and the wearing of gloves.

Note: The word **personnel** applies to **plant employees, inspectors, visitors, contractors**, or anyone else entering areas where meat, or meat products, are handled, processed or packaged.

Hand Washing

Facility personnel will:

1. be adequately trained in proper hand washing procedures

   Note: Hands must be washed as follows:

   a) rinse with warm water;

   b) apply an approved liquid soap;

   c) scrub for 15-20 seconds;

   d) rinse soap off with warm water;

   e) thoroughly dry with a single service paper towel

   The flow of hot and cold water should be controlled with a remote device, (e.g. knee, or foot, controls).

   Proper hand washing has been shown to decrease bacterial counts by 90% providing the hands are thoroughly dried. Wet hands are more likely to spread germs than dry ones.

   Alcohol based cleansers and "no water" hand sanitizers do not destroy all bacteria, therefore **CANNOT BE RELIED ON as the only hand cleaner** in the facility.

   Following washing personnel must not touch their head, face, other parts of the body, etc., or place their fingers in, or around, the mouth or nose. If this is done the hands must be washed again.

2. wash their hands after the following activities:

   a) entering and leaving the kill floor

   b) **immediately before handling** any **meat**, or meat products

   c) between different in-facility activities

   d) after handling raw, or contaminated material

   e) immediately after using the washroom

   f) after sneezing or coughing

   g) after all breaks

   h) after smoking

   i) after any other event that may contaminate the hands

3. be supervised and/or monitored during hand washing procedures

   Note: Supervision and monitoring is essential to ensure that personnel follow appropriate sanitary hand washing procedures.

Hand washing facilities will be located at the entrance of all production areas.

Hand washing notices will be posted in prominent places throughout the facility.

Note: Hand washing notices must give instructions on when and how to properly wash hands.

Gloves

Gloves used to handle food will be:

1. Completely intact
2. Clean and sanitary at the start of the shift
3. Washed any time that hands would normally be washed

Note: Facility personnel must be aware that they must not touch anything with their gloved hands other than the meat products they are working on.

They must be aware that gloves have to be washed and sanitized if they touch anything other than meat, or meat products, including equipment handles, door knobs, wooden pallets, etc.

The routine **use of cloth gloves** will be **discouraged**.

Note: Cloth gloves soil quickly and can subsequently contaminate meat products.

"Common Industry Practice" suggests that when cloth gloves are used they should be covered with a disposable plastic or rubber glove.

Uncovered cloth gloves may be permitted in boning and cutting, or similar operations, where safety may be a factor. However, such use should be minimized and, preferably, the gloves should be covered by an accepted impervious material.

When used without a covering, cloth gloves must be changed regularly to prevent excessive soiling thus reducing the chances of cross contamination. .

Cloth gloves will **NOT BE USED to handle** exposed, **ready-to-eat** (RTE) meat **products**.

Note: Employees handling RTE products should wear disposable gloves that are:

a) sanitized before use;

b) changed frequently;

c) changed between products;

d) changed any time there are incompatible contacts, or activities

All protective gloves (e.g. "Wizard Gloves") with the exception of mesh gloves (metal) will be covered with an impervious material (e.g. rubber glove).

Note: This is done to prevent the buildup of contaminating material in the cracks and crevices of these types of gloves.

Personnel with bandages on cuts, burns, or abrasions, can wear disposable gloves providing they completely cover the bandaged area and are cleaned regularly during use.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Hand Washing & Gloves"** will be met when*:*

1. The facility's written **"Health & Hygiene Policy"** includes instructions on hand washing and the proper use of gloves.

   Note: These requirements apply to all plant personnel, visitors and contractors.

2. On site observations confirm that all facility personnel, visitors and contractors wash their hands properly and appropriately use the proper type of gloves.

RELATED SECTIONS OF TIPM

03-D-01 Health & Hygiene Policy
03-D-02 Cleanliness & Protective Clothing
03-D-04 Non-hygienic Behavior - Avoidance of
03-D-05 Hygienic Behavior for Inspectors
03-D-06 Hygienic Behavior for Visitors & Contractors
03-D-07 Hygiene Training

SUBJECT: Non-hygienic Behavior - Avoidance of	03-D-04
REGULATORY REFERENCES: AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section D.2.1 (1 & 2)	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

The activities, or in some cases the lack thereof, of personnel, in a "Licensed Meat Facility" (facility) can be a significant source of contamination for meat and meat products.

Note: Personnel that come into direct contact with meat and meat products present the greatest risk.

Many aspects of personal hygienic behavior (e. g. use of tobacco, spitting, unprotected sneezing, etc.) can cause contamination of meat, or meat products.

Note: Non-hygienic behavior must be prohibited where meat, or meat products, are handled, processed, packaged, labeled, stored, or transported.

Personnel must be closely monitored for non-hygienic behavior.

Note: The operator of the facility is responsible for establishing a program to monitor the health and behavior of facility personnel.

OBJECTIVE/OUTCOME

Preventative measures will be in place to ensure that personnel avoid behaviors that could result in the contamination of meat, or meat products.

Note The word **personnel** applies to **plant employees, inspectors, visitors, contractors**, or anyone else entering areas where meat, or meat products, are handled, processed or packaged.

Examples of behaviors that could result in the contamination include, but are not limited to:

a) eating;
b) smoking;
c) chewing tobacco;
d) chewing gum;
e) spitting;
f) scratching the head, face, etc;
g) placing fingers in the nose, or mouth;
h) unprotected coughing;
i) unprotected sneezing;
j) placing objects (e.g. tags, pins, cords) in the mouth that will directly contact meat, or meat products

Personnel that scratch or place their fingers in their nose, or mouth, must be required to wash their hands after each occurrence.

Sneezing, when unavoidable, must be directed into the individual's arm or shoulder.

Eating and drinking will be confined to designated lunchroom areas.

Note: An exception to this requirement is the drinking of water from fountains, or water dispensers (plastic bottles), that are used in place of fountains.

Hand care will include the treatment and appropriate covering of all cuts and sores.

Note: Nail polish should not be worn by personnel that handle meat, or meat products.

Personnel with infected wounds, infections and sores will not be allowed to handle meat, or meat products.

Note: They can be reassigned to other duties in the facility.

Personnel handling inedible materials will wash their hands and change their clothing before handling meat, or meat products.

The movement of personnel between incompatible areas will be controlled.

Note: Incompatible areas include, but are not restricted to: raw vs. cooked product areas, dirty areas vs. clean areas, etc.

Personnel that have, or are suspected of having, a communicable disease will not be allowed to handle any meat, or meat products, at any stage of processing, packaging, or storage.

Note: The facility's **"Health & Hygiene Policy"** must include a requirement for personnel to report any illness, or condition, which may lead to the contamination of meat, or meat products.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Non-hygienic Behavior- Avoidance of"** will be met when*:*

1. The facility's **"Health & Hygiene Policy"** includes a section on hygienic behavior.

   Note: The requirements, for hygienic behavior, apply to all plant personnel, visitors and contractors.

2. On site observations demonstrate that personnel are observing appropriate hygienic practices.

RELATED SECTIONS OF TIPM

03-D-01 Health & Hygiene Policy
03-D-02 Cleanliness & Protective Clothing
03-D-03 Hand Washing & Gloves
03-D-05 Hygienic Behavior for Inspectors
03-D-06 Hygienic Behavior for Visitors & Contractors
03-D-07 Hygiene Training

SUBJECT: Hygienic Behavior for Inspectors	03-D-05
REGULATORY REFERENCES: AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section D. 2.1 (1 & 2)	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

Anyone that works in, or enters, a "Licensed Meat Facility" (facility), including inspectors, is a potential source of contamination.

Note: For the purpose of this document the term inspector refers to any individual employed by Alberta Agriculture and Rural Development (ARD) (e.g. meat inspectors, auditors, administrative personnel, etc.) or the Canadian Food Inspection Agency (CFIA).

Inspectors are bound by all of the rules of hygienic behavior including, but not restricted to:

1. Appropriate clean clothing
2. Hair covering
3. Sanitary footwear
4. Good personal hygiene, etc.

The intent of this document is to re-enforce that all inspectors are subject to the same rules of hygiene that apply to facility personnel, contractors and visitors, plus some additional ones.

OBJECTIVE/OUTCOME

Inspectors will abide by the **"Health & Hygiene Policy"** established by the facility and specifically with all of the requirements of TIPM documents 03-D-02, 03-D-03 & 03-D-04 without exception.

Inspectors are expected to set a good example, for other personnel, thus they are also bound by the following **special requirements**.

Note: The following requirements apply primarily to meat inspectors. Other government employees do not have to abide by all of the following (e.g. the requirement to wear white shirts and pants) but the general principals of cleanliness and clothing that is appropriate apply to these individuals.

All MIB Inspectors will:

1. Wear white shirts and pants at all times while on duty

   Note: Long sleeved shirts will be issued during the winter months to provide appropriate covering for under garments.

TIPM – 03-D-05 Page 2 of 2 – OBJECTIVE/OUTCOME (continued)

2. Be properly groomed and dressed in a manner that gives them a professional appearance

   Note: Dirty, worn, or torn, clothing is not acceptable and inspectors must not wear their facility clothing while travelling to and from the facility.

3. Wear a blue smock in live animal areas and a white smock in processing areas

   Note: A suitable place must be provided, close to the entrance to the live animal and processing area, where the smocks can be hung

   It is recommended that the facility adopt the same requirements, including the use of the same color, for facility personnel that have to move from one area to another.

4. Disinfect and sanitize their boots between each kill and between facilities
5. Keep their protective gear and other equipment clean and hygienic throughout operations
6. **NEVER use clothes** that were **used in another facility** unless they have been laundered between.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Hygienic Behavior for Inspectors"** will be met when*:*

1. The facility's **"Health & Hygiene Policy"** specifically states that inspectors are subject to the policy.
2. On site observation confirms that inspectors are observing the facility's hygiene requirements while conducting their duties.

RELATED SECTIONS OF TIPM

03-D-01 Health & Hygiene Policy
03-D-02 Cleanliness & Protective Clothing
03-D-03 Hand Washing & Gloves
03-D-04 Non-hygienic Behavior - Avoidance of

SUBJECT: Hygienic Behavior for Visitors & Contractors	03-D-06
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section D.2.1.2	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

Anyone that works in, or enters, a "Licensed Meat Facility" (facility) is a potential source of contamination.

Note: This is particularly true of those that enter parts of the facility where meat is handled, processed, packaged, or stored, or where ingredients are present.

Visitors and contractors must abide by all of the rules of hygienic behavior including, but not restricted to:

1. Appropriate clean clothing
2. Hair covering
3. Sanitary footwear
4. Good personal hygiene, etc.

Note: Entrance must be denied to anyone not willing to comply with facility policies.

The entry of visitors and contractors into processing or storage areas should be discouraged.

Note: If entry to these areas is essential the facility operator must monitor and control both the access and subsequent behavior of all visitors and contractors.

The intent of this document is to re-enforce that all visitors and contractors are subject to the same rules of hygiene that apply to facility personnel.

OBJECTIVE/OUTCOME

Access of visitors and contractors, to the facility, will be strictly controlled.

Note: The entry of visitors and contractors into processing or storage areas should be discouraged unless absolutely necessary.

Visitors and contractors will be made aware of the **"Health & Hygiene Policy"** established by the facility. They will also be advised that they are expected to abide by the policy including specific requirements covered in TIPM documents 03-D-02, 03-D-03 & 03-D-04.

Note: "Common Industry Practice" suggests that visitors and contractors sign a log book when they enter and exit the facility and sign a document indicating that they have been informed of the **"Health & Hygiene Policy"** of the facility and that they agree to abide by all aspects of the policy.

Notices outlining the facility's visitor policy should be posted in a conspicuous location near the entrance to the facility.

TIPM – 03-D-06 Page 2 of 2 – OBJECTIVE/OUTCOME (continued)

Appropriate clothing and protective equipment will be provided to visitors and contractors that need it.

Note: Admission must be refused to anyone that does not agree to wear appropriate clothing.

Visitors and contractors will be monitored by designated facility personnel.

Note: This is done to ensure that all of the rules of hygiene are followed without exception.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Hygienic Behavior for Visitors & Contractors"** will be met when*:*

1. The facility's **"Health & Hygiene Policy"** specifically states that visitors and contractors are subject to the policy.

2. On site observation demonstrates that visitors and contractors, in meat processing, packaging or storage areas, are properly dressed and observe the facility's hygiene requirements while conducting their duties.

3. On site observation confirms that visitors and contractors are accompanied and monitored by facility personnel.

4. Visitors and contractors, where appropriate, sign in and out when they enter and exit the facility and acknowledge that they will abide by **"Health &Hygiene Policy"** of the facility.

RELATED SECTIONS OF TIPM

03-D-01 Health & Hygiene Policy
03-D-02 Cleanliness & Protective Clothing
03-D-03 Hand Washing & Gloves
03-D-04 Non-hygienic Behavior - Avoidance of

SUBJECT: Hygiene Training	03-D-07
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section D.1.1	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

Training in personal hygiene and food handling practices is essential for "Licensed Meat Facility" (facility) personnel to understand what is required to prevent contamination of meat, or meat products from poor hygiene and food handling practices.

Basic sanitation and handling procedures, including the prevention of contamination and the importance of temperature control are essential topics.

Note: Other topics that need to be covered include:

a) the importance of meat hygiene to public health;

b) personal hygiene practices such as hand washing;

c) use of protective clothing;

d) sanitation and proper use of equipment;

e) personnel health requirements;

f) legislated requirements relating to hygiene

OBJECTIVE/OUTCOME

The facility will have a written **"Hygiene Training Program"** that **all personnel** will be required to **complete**.

Note: This program will include but is not restricted to:

a) examining, handling and slaughter of food animals;

b) examining, processing, or handling meat products, ingredients, packaging and labeling materials;

c) maintenance of equipment;

d) handling of chemical cleaning products;

e) cleaning and sanitizing equipment and the facility;

f) developing, implementing, maintaining and supervising prerequisite programs, HACCP (Hazard Analysis Critical Control Point) plans and other control programs, where applicable.

The **"Hygiene Training Program"** will ensure that personnel receive training in:

1. Basic hygienic practices.
2. Personal hygiene.
3. How to perform their assigned activities effectively and hygienically.

Note: "Common Industry Practice" suggests that personnel be required to demonstrate their knowledge before being signed off as adequately trained.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Hygiene Training"** will be met when*:*

1. An appropriate written **"Hygiene Training Program"** has been developed.

   Note: An appropriate training program includes, but is not restricted to, the following:

   a) personal hygiene;
   b) hygienic handling of meat and meat products;
   c) a review of the facility's **"Health & Hygiene Policy"**

2. Training is delivered in an appropriate manner

   Note: Appropriate delivery includes:

   a) training at the beginning of employment;
   b) reinforcement and updating at appropriate intervals, or as required

   Examples of when additional training is required include personnel showing repeated non-compliance or a change in duties.

3. **"Hygiene Training Records"** are on file at the facility:

   Note: As a minimum these records should:

   a) identify personnel that received the training;
   b) identify the type of training received;
   c) contain documentation that the trainees understood the training;
   d) be updated at least once a year.

4. On site observations demonstrate that facility personnel are knowledgeable of and are abiding by the **"Health & Hygiene Policy"** of the facility.

RELATED SECTIONS OF TIPM

03-D-01 Health & Hygiene Policy
03-D-02 Cleanliness & Protective Clothing
03-D-03 Hand Washing & Gloves
03-D-04 Non-hygienic Behavior - Avoidance of
03-D-05 Hygienic Behavior for Inspectors
03-D-06 Hygienic Behavior for Visitors & Contractors

SUBJECT: Sanitation Training	03-D-08
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section D.1.2 (3 & 4)	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

Cleaning and sanitation practices have two inherent food safety hazards:

1. Failure to eliminate microbiological agents (bacteria, molds, fungi, etc.) if not done properly.
2. Contamination of meat, or meat products, from:
    a) direct contact with cleaning, or sanitizing, agents;
    b) contact with surfaces contaminated with cleaning, or sanitizing, agents

Personnel responsible for cleaning and sanitation, and those responsible for conducting **"Pre-Operational Inspections"** and the completion of **"Sanitation Records"** must have appropriate training.

Note: Training is required to ensure that all personnel understand what is expected of them and to ensure that their tasks are completed properly without contamination of meat, or meat products.

OBJECTIVE/OUTCOME

There will be a written **"Sanitation Training Program"**.

ALL personnel involved in the development, implementation, maintenance and supervision of cleaning and sanitation activities **will complete this program**.

Note: Personnel required to take this training include those that perform "Pre-Operational Inspections", those that monitor personnel doing the cleaning and sanitizing, those completing the "Pre-Operational (Sanitation) Record" and those that actually do the cleaning and sanitizing.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for the **"Sanitation Training Program"** will be met when*:*

1. An appropriate written program has been developed.

    Note: An appropriate program includes, but is not restricted to, the following:

    a) handling of cleaning and sanitation chemicals;
    b) cleaning and disinfecting principles and methods;
    c) details on the cleaning and sanitizing of specific pieces of equipment;
    d) proper monitoring and recording of cleaning effectiveness.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

2. Training is delivered in an appropriate manner

   Note: Appropriate delivery includes:

   a) delivery to all personnel involved with cleaning and sanitation in any way including those who perform the "Pre-operational Inspection" or maintain "Cleaning and Sanitation Records";

   b) training at the beginning of employment;

   c) reinforcement and updating at appropriate intervals, or as required.

      Examples of when additional training is required include personnel showing repeated non-compliance or a change in duties.

3. **"Sanitation Training Records"** are on file at the facility:

   Note: These records should:

   a) identify personnel that received training;

   b) identify the type of training received;

   c) contain documentation that trainees understood the training; be updated at least once a year

4. On site observations demonstrate that facility personnel are knowledgeable of proper sanitation and that they are cleaning, sanitizing and completing the "**Pre-Operational Sanitation Record"** in a satisfactory manner.

RELATED SECTIONS OF TIPM

03-E-02 Approved Chemicals & Chemical Listing

03-E-03 Sanitation Procedures

03-E-04 Sanitation Schedule

03-E-05 Sanitation Records - Pre-Operational Inspections

SUBJECT: Manufacturing Control Training	03-D-09
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section D.1.2 (1 & 4)	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

"Manufacturing Controls", or critical control points, are points in the process where control must be applied in order to ensure the production of meat and meat products that are safe for human consumption.

Training is the only way to ensure that "Licensed Meat Facility" (facility) personnel understand **"Manufacturing Controls"** and have the necessary skills to ensure that control points are effective.

Note: Training is particularly important for personnel that are monitoring, verifying and supervising activities relating to critical control points.

Knowledgeable personnel will ensure that immediate and appropriate action is taken if the manufacturing control process does not function as intended.

It is essential that proof of personnel training be available.

Note: Records need to be kept verifying what training was offered, when it was offered and to whom it was offered.

It is also important to verify that facility personnel have learned enough from the training program to perform their jobs properly

Note: Two common ways of verifying what participants have learned are written examinations and first hand observation as they perform new tasks.

OBJECTIVE/OUTCOME

A written **"Manufacturing Control Training Program"** will be developed.

This program will be presented to **all** personnel **involved** with manufacturing controls.

Note: Involved personnel include those that develop, monitor, supervise, verify and record manufacturing control activities as well as those actually implementing the controls.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Manufacturing Control Training"** will be met when*:*

1. An appropriate written **"Manufacturing Control Training Program"** has been developed.

   Note: An appropriate training program includes, but is not restricted to, the following:

   a) explanation of the importance of manufacturing controls;

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

b) critical limits;

c) monitoring procedures;

d) actions to be taken when limits are not met;

e) records that must be kept

2. Training is delivered in an appropriate manner

   Note: Appropriate delivery includes:

   a) delivery to all personnel with job responsibilities for manufacturing controls including personnel that monitor, verify, supervise and those that maintain **"Manufacturing Control Records"**;

   b) training at the beginning of employment;

   c) reinforcement and updating at appropriate intervals, or as required

      Examples of when additional training is required include personnel showing repeated non-compliance, or a change in duties.

3. **"Manufacturing Control Training Records"** are on file at the facility:

   Note: These records should:

   a) identify personnel that received training;

   b) identify the type of training received;

   c) contain documentation that the training was understood;

   d) be updated at least once a year.

4. On site observations and records confirm that facility personnel are knowledgeable about manufacturing control principles and are following them properly.

RELATED SECTIONS OF TIPM

03-G-01 Dressing Procedures - Red Meat Animals
03-G-02 Evisceration Procedures - Poultry
03-G-03 Nitrate & Nitrite Addition
03-G-04 Fermented Meats
03-G-05 Dried - Dehydrated Products
03-G-06 Product Cooking
03-G-07 Cooked Product Cooling
03-G-08 Carcass Cooling - Red Meat
03-G-09 Carcass Cooling - Poultry
03-G-10 Written Recipes
03-G-11 Ready to Eat (RTE) Storage & Handling
03-G-12 Allergen Control Program
03-G-13 Grinding Procedures

SUBJECT: Equipment Maintenance & Calibration Training	03-D-10
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Sections D.1.2 (2 & 4)	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

All equipment in a "Licensed Meat Facility" (facility) must be maintained in peak operating condition. This is particularly important for equipment used in a manufacturing control process. Often these pieces of equipment require calibration in addition to maintenance.

Note: A cooker would be an example of a piece of equipment involved in a control process. Cookers must be maintained and calibrated to ensure and verify that proper cooking temperatures were reached. Proper cooking is essential to kill micro-organisms (bacteria, molds, fungi, etc.) that can cause disease or spoilage of meat and meat products.

Personnel responsible for maintenance and calibration must receive appropriate training to ensure that equipment is properly maintained and calibrated.

Note: It is important to verify, or prove that personnel have received appropriate training. There should be records showing:

a) what training was offered;

b) when it was offered;

c) who received the training

It is also important to verify that facility personnel have learned enough from the training program to perform their jobs properly.

Note: Two common ways of verifying what participants have learned are written examinations and first hand observation as they perform their new tasks.

OBJECTIVE/OUTCOME

A written **"Equipment Maintenance & Calibration Training Program"** will be developed.

This program will be presented to **all** personnel **involved** with equipment maintenance and calibration manufacturing controls.

Note: Involved personnel include those that develop, monitor, supervise, verify and record equipment maintenance and calibration activities as well as those actually performing the tasks.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Equipment Maintenance & Calibration Training"** will be met when*:*

1. An appropriate written **"Equipment Maintenance and Calibration Training Program"** has been developed.

   Note: An appropriate training program includes, but is not restricted to, information relating to the proper methods of maintaining and calibrating equipment that may impact the safety of meat and meat products.

2. Training is delivered in an appropriate manner

   Note: Appropriate delivery includes:

   a) delivery to all personnel with job responsibilities for equipment maintenance and calibration including those who monitor, verify and supervise those that perform equipment maintenance and calibration;

   b) training at the beginning of employment;

   c) reinforcement and updating at appropriate intervals, or as required

   Examples of when additional training is required include personnel showing repeated non-compliance or a change in duties.

3. **"Equipment Maintenance & Calibration Training Records"** are on file:

   Note: These records should:

   a) identify personnel that received training;

   b) identify the type of training received;

   c) contain documentation that trainees understood the training;

   d) be updated at least once a year.

4. On site observations and records confirm that facility personnel have sufficient knowledge to properly maintain and calibrate equipment.

RELATED SECTIONS OF TIPM

03-C-03 Calibration Procedures - Records of

03-C-04 Preventative Maintenance Procedures - Records of

SUBJECT: Role of the Inspector - re Sanitation	03-E-01
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Sections 15.1, 39(1), (2) & (3) Meat Facility Standards (MFS) Section E.1.1 (2 & 3)	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

Unsanitary or dirty equipment and/or facilities are significant food safety hazards because they contribute directly to the contamination of meat products.

To eliminate this food safety risk a **"Sanitation Program"** must be put into place.

Meat Inspection Branch (MIB) Inspectors will verify that equipment has been properly cleaned and sanitized by conducting a **"Pre-operational Inspection"**.

Note: It is not the role of the inspector to develop or carry out the "Sanitation Program". His/her responsibility is to verify that the operator of the "Licensed Meat Facility" (abattoir) is performing sanitation in accordance with the facility's written **"Sanitation Program"**.

The inspector's verification role doesn't absolve abattoir operator from conducting their own regular **"Preoperational Inspection"**, nor is the inspector responsible for the completion of the facility's "Pre-Operational (Sanitation) Record".

A spirit of cooperation, between the abattoir operator and the "MIB Inspector" enhances the ability of the inspector to verify implementation of any portion of the facility's documented **"Sanitation Program"**.

OBJECTIVE/OUTCOME

A written **"Sanitation Program"** will be developed and implemented

Note: Strict adherence to this program will ensure that the premises and facility are properly cleaned and sanitized.

Note: The facility's "Sanitation Program" must function independently from the presence of and/or aid of an inspector therefore it is not appropriate to give the meat inspector a formally assigned position in the program.

The MIB Inspector, assigned to the abattoir will, as part of their regular duties:

1. Conduct a **"Pre-operational Inspection"**

   Note: The kill will not be allowed to start until the inspector is satisfied that facilities and all equipment display an appropriate level of sanitation.

2. Initiate action whenever facility and/or equipment sanitation is deemed to be unsatisfactory.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for the **"Role of the Inspector"** will be met when:

1. A pre-operational inspection protocol has been developed for the facility.
2. Requirements for satisfactory cleaning and sanitizing are communicated to plant management.
3. Plant management is immediately advised about any deficiencies that are serious enough to result in suspension of the kill.
4. Plant management understands the consequences of non-compliance.

   Note: In increasing severity, consequences of non-compliance include:

   a) delay of the kill while sanitation deficiencies are corrected;

   b) written warnings for habitual deficiencies;

   c) suspension of inspection services for refusal to comply
5. The inspector is given sufficient time to conduct a thorough and complete **"Pre-operational Inspection"**.

   Note: In most facilities 10-15 minutes should be sufficient.

RELATED SECTIONS OF TIPM

02-F-01 Facilities & Equipment - Adequacy of

03-E-03 Sanitation Procedures

03-E-05 Sanitation Records – Pre-operational Inspections

SUBJECT: Approved Chemicals & Chemical Listing	03-E-02
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 AR 31/2006 *Food Regulation* Sections 20(2) & 29 Meat Facility Standards (MFS) Section E.1.1.1	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

The use of chemicals that have not been approved by the Canadian Food Inspection Agency (CFIA) and/or the Health Protection Branch of Health Canada could result in serious food safety hazards should these products contaminate any meat, or meat products.

Note: Only approved cleaners, disinfectants, sanitizers and other chemicals can be used in a "Licensed Meat Facility" (facility)

Approved chemicals must also be used and stored in accordance with specific recommendations.

Note: Direct, or indirect, contamination, of meat and meat products, may occur when chemicals are used at improper concentrations or through accidental contact due to improper storage.

Approved chemicals are effective, for their stated purpose, at the concentration indicated on the label and should only be used at that level.

Failure to meter, or measure chemicals, to ensure proper concentration is a common cause of chemical contamination.

Detailed information about non-food chemical agents can be found in a publication entitled the "*Reference Listing of Accepted Construction Materials, Packaging Materials and Non-Food Chemical Products*".

Note: This document can be accessed at:

http://www.inspection.gc.ca/english/ppc/reference/cone.shtml

OBJECTIVE/OUTCOME

Only CFIA or Health Canada approved non-food chemicals will be used at the facility.

Non-food chemicals will be:

1. Transported, stored, labeled and used in a manner that prevents the accidental contamination of meat, meat products and other materials that may contact meat or meat contact surfaces.
2. Used in accordance with the manufacturer's directions.

   Note: Strict adherence to the manufacturer's recommendations for the transportation, application and storage of non-food chemicals is the best assurance against accidental contamination of carcasses, parts of carcasses, meat products, or ingredients.

The facility will have:

1. A list of all non-food chemicals in use, or stored, at the facility.
2. CFIA approval numbers for all chemicals, or a "letter of no objection" from Health Canada.
3. Written "Sanitation Procedures".
4. "Mixing Logs".
5. "Service Records" for any automatic dispensing machines that are used.

Only properly trained facility personnel will use non-food chemicals.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Approved Chemicals & Chemical Listing"** will be met when:

1. An up-to-date **list of** all **non-food chemicals** is on file.

   Note: This list applies to chemical agents used for cleaning and sanitizing, in parts of the facility where carcasses, parts of carcasses and other meat products are processed, packaged, labeled, shipped or otherwise handled. There must be evidence, on the list, that all agents are CFIA or Health Canada approved.

2. All non-food chemicals, used for cleaning and sanitizing, are properly described and used according to the manufacturer's instructions.
3. **Written "Sanitation Procedures"** have been developed and are in use for all cleaning and sanitizing chemicals.

   Note: These procedures will include, but are not restricted to, instructions for mixing, storing and use, as well as instructions on monitoring chemical concentrations to ensure that they are in conformity with the manufacturer's recommendations.

4. All non-food chemical agents are stored in accurately labeled containers.
5. A "**Mixing Log"** will be on file if the facility manually mixes cleaners and sanitizers.

   Note: Log entries should:

   a) be made at least once a week;

   b) verify the concentration of chemicals, sanitizers, or boot dips, that have been used

6. "**Service Records"** will be on file if the facility uses equipment that automatically dispenses predetermined concentrations of non-food chemicals.

   Note: These records must demonstrate that tips of all dispensing devices are regularly serviced and checked by a qualified, trained person (e.g. a representative of the company that made the dispensing device).

RELATED SECTIONS OF TIPM

02-F-04 Non-Food Chemicals - Storage of

03-C-03 Sanitation Procedures

12-A-03 WHMIS Program for Chemicals

SUBJECT: Sanitation Procedures	03-E-03
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 AR 31/2006 *Food Regulation* Sections 29 (1) & (2) Meat Facility Standards (MFS) Sections E.1.1 (1 & 2)	**Initial Release** Sept 1, 2009 **Page 1 of 3**

RATIONALE:

A sound "Sanitation Program" is essential for the prevention of food safety hazards due to the contamination of meat products with waste organic and inorganic materials.

Note: Common organic waste materials encountered, in a "Licensed Meat Facility" (facility), include fats, greases, oils, protein from blood and meat, carbohydrates from binding ingredients, etc.

Scale, from hard water, is a common inorganic material that has to be dealt with.

These wastes pose a significant food safety risk because they are commonly contaminated with micro-organisms (bacteria, fungi, molds, etc.).

An effective "Sanitation Program" will ensure the removal of all organic matter and a significant number of micro-organisms.

To ensure consistency, sanitation practices must be documented (recorded).

Note: Without documentation, procedures will not be performed, in a consistent manner, when there are changes in personnel or supervisory personnel.

OBJECTIVE/OUTCOME:

Comprehensive, written "**Sanitation Procedures**" will be developed and implemented.

Note: These procedures will include cleaning schedules and methods that will minimize, or prevent, contamination of the premises, facilities, equipment, meat products, ingredients, packaging materials and other materials.

The **"Sanitation Program"** will include:

1. Preliminary preparation.

Note: This includes:

a) removal of edible meat products;

b) removal of garbage;

c) removal of materials that must not get wet (e.g. packaging materials);

d) review of instructions for the dismantling of equipment to be cleaned;

e) protection of water sensitive equipment (e.g. non-water resistant motors, electrical boxes, etc.)

2. A dry clean up process.

   Note: During this phase brooms, squeegees, shovels, etc. are used to remove all loose debris on tables, equipment surfaces and floors.

3. A "Pre-Rinse" phase.

   Note: Water that is hot enough to melt fats and grease but not enough to coagulate proteins should be used.

   Although not essential, water under pressure will make this process more effective.

   It is important to remove all pieces of meat, fat and other debris from floors, walls, equipment, etc. Detergents are not effective on dirty surfaces.

4. Application of the cleaning compound.

   Note: Application methods that increase contact time between the detergent and soiled surfaces are the most successful. The use of a foaming agent is a good way of increasing contact time.

5. Sanitizing.

   Note: The purpose of sanitizing is to significantly reduce the number of micro-organisms on surfaces. It is particularly important that the vegetative (active growth stages) forms, of common disease causing micro-organisms are killed during sanitizing.

   Cleaning gets rid of visible contaminants but **only** the **sanitizers get rid of micro-organisms**.

   It may be necessary to repeat the sanitizing step. A good example where this is needed would be the case of a kill room that is only used once a week. An effective cleaning and sanitizing program, in this instance, would involve cleaning and sanitizing immediately after use followed by flood sanitizing immediately before to the next use in order to destroy any micro-organisms that have been deposited on surfaces in the interim through dust and air movement, etc.

Equipment will be cleaned and sanitized between species.

In addition to written "**Sanitation Procedures**" the following documents will be on file, at the facility:

1. Operational Sanitation and Housekeeping Procedures
2. Sanitation Training Records

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for "**Sanitation Procedures"** will be met when:

1. Up-to-date **written**, plant specific **"Sanitation Procedures"** are on file.

   Note: These procedures must have detailed step-by-step procedures, for all rooms and equipment, which include:

   a) cleaning and sanitizing methods;

   b) the person responsible;

   c) the frequency of cleaning;

   d) a description of sanitation equipment;

   e) chemical agents to be used;

   f) concentrations, temperatures and other specifications for the cleaning chemicals;

   g) applicable disassembly and assembly instructions;

   h) monitoring activities to demonstrate the effectiveness of sanitation (e.g. swabbing to culture micro-organisms);

   i) special cleaning and sanitation procedures, e. g. mid-shift cleanup for processing rooms that operate in excess of 10^0 C (50^0 F), control of chemical sanitizers, additions to and concentrations of boot baths, removal of inedible waste, clean-up after hitting a cyst or abscess, clean up of human blood, etc.).

2. On site observations demonstrate that the facility, equipment and utensils are cleaned and sanitized in accordance with the written **"Sanitation Procedures"**.

3. "**Sanitation Training Records"** are on file at the facility.

   Note: These records should demonstrate that personnel involved with cleaning and sanitizing activities have been properly trained.

RELATED SECTIONS OF TIPM
03-D-08 Sanitation Training
03-E-02 Approved Chemicals & Chemical Listing
03-E-04 Sanitation Schedule
03-E-05 Sanitation Records - Pre-operational Inspections

SUBJECT: Sanitation Schedule	03-E-04
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 AR 31/2006 *Food Regulation* Sections 29 (1) & (2) Meat Facility Standards (MFS) Section E.1.1 (1 & 2)	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

All areas of a "Licensed Meat Facility" (facility) and the equipment used in it must be thoroughly cleaned and, where appropriate, sanitized in order to maintain a hygienic (clean) environment and prevent the contamination of meat products.

The degree and type of use, of individual areas and pieces of equipment, varies greatly in the facility. This means that one cleaning schedule cannot apply to all areas and/or to all pieces of equipment.

Note: Examples of variable needs for sanitation include:

a) kill floors which require immediate sanitation after each use;

b) coolers which may only need to be cleaned once a week;

c) freezers which may only need to be cleaned twice a year

Because of this variability, separate schedules may be needed to ensure that each area and/or item receives appropriate attention at appropriate times.

A **"Sanitation Schedule"** may be required to keep track of and record the implementation of the various schedules needed for the cleaning of rooms, areas and equipment that are not cleaned every day (e.g. smokehouses, coolers, cooling units, screens, water storage facilities, spice rooms, storage areas, delivery vehicles, etc.).

OBJECTIVE/OUTCOME

The facility will have a fully developed **"Sanitation Schedule",** if required.

Note: The "Sanitation Schedule" must clearly identify sanitation schedules for all rooms and/or items that are not cleaned and/or sanitized on a daily basis.

The **"Sanitation Schedule"** will be.

1. Fully implemented
2. Continuously updated

The **"Sanitation Schedule"** will be used as a record of the cleaning of any area and/or equipment not included on the "Daily Pre-Operational Inspection Record".

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for a "**Sanitation Schedule"** will be met when a **written**, facility specific, "**Sanitation Schedule"** is on file which:

1. Contains detailed **written "Sanitation Procedures"**

   Note: These procedures will include the following details for all equipment, rooms and areas in the facility:

   a) frequency of sanitation;

   b) personnel responsible;

   c) methods;

   d) tools;

   e) chemicals

2. Demonstrates that all sanitation activities have been recorded.
3. Shows evidence of continuous up-dates as required.

RELATED SECTIONS OF TIPM

03-E-02 Approved Chemicals & Chemical Listing

03-E-03 Sanitation Procedures

03-E-05 Sanitation Records - Pre-operational Inspections

SUBJECT: Sanitation Records - Pre-operational Inspection	03-E-05
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 AR 31/2006 *Food Regulation* Sections 29 (1) & (2) Meat Facility Standards (MFS) Section E.1.1(2 & 3)	**Initial Release** Sept 1, 2009 **Page 1 of 3**

RATIONALE

"Licensed Meat Facility" (facility) sanitation practices have a direct impact on the safety and quality of meat and meat products.

The production of safe meat and meat products requires the processing environment to be free from environmental and microbiological contamination.

Sanitation of equipment surfaces that come into direct contact with meat products is of primary importance.

Note: Items in this category include table tops, saws and the interior surfaces of most processing equipment.

Equipment used to process meat products must be dismantled to facilitate effective cleaning and sanitation.

It is **important** for these pieces of equipment **to remain disassembled until completion of** the "Pre-operational Inspection".

Next in order of importance are room surfaces such as floors, walls, ceilings and overhead fixtures.

Note: In addition to normal cleaning these surfaces must be kept free of cracks, dust, rust, and other extraneous material.

Allowing condensation to form above product processing areas is not acceptable. Condensation must be consciously looked for in every daily "Pre-operational Inspection".

Although of a lower level of importance **the external and under-surfaces of equipment**, such as product trucks, emulsifiers, mixers, etc., **must be kept clean**.

Note: Although these items do not come into direct contact with product, contamination can be transferred to product contact areas by hands, clothing and equipment.

The sanitation of employees' equipment, including knives, steels, hooks, mesh gloves, aprons, etc., is also a component of the "Sanitation (Pre-Operational) Record".

To ensure an effective program, sanitizers must be checked, regularly, to ensure that they have the ability to function correctly and are applied at the required temperature.

Periodic swabbing of production areas, to determine whether micro-organisms (bacteria, fungi, molds, etc.) are present or not, is an excellent way to verify that the cleaning processes and the chemicals/sanitizers are effectively eliminating micro-organisms as well as visual debris.

OBJECTIVE/OUTCOME

Detailed written records of all "Pre-operational Inspections" will be kept on file, at the facility, for at least one year.

Note: These records must contain any corrective actions implemented to ensure that the premises, utensils and equipment are properly cleaned.

The records will demonstrate that:

1. A thorough "Pre-operational Inspection" of all production areas was conducted each time the facility was put into operation.

   Note: This inspection is necessary to ensure that sanitary standards have been met prior to the start of operations.

2. All areas of the facility and equipment was properly cleaned and sanitized sufficient to maintain a clean environment and prevent contamination of meat products.

All personnel designated to carry out sanitation procedures must have appropriate training and records of personnel training are kept on file, at the facility.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Sanitation Records – Pre-operational Inspection"** will be met when:

1. An up-to-date, **written**, facility specific **"Pre-Operational Inspection Procedure"** is on file.

   Note: This document must describe how the "Pre-operational Inspection" will be performed and identify all of the records associated with "Pre-operational Inspections".

2. "**Pre-Operational Records**" are completed during and as part of the onsite "Pre-Operational Inspection".

3. Accurate and up-to-date, facility specific "**Pre-Operational Inspection Records**", are on file.

   Note: These records, which must be kept for at least a year, may include, but is not limited to:

   a) date of inspection;

   b) areas inspected;

   c) statement of satisfactory sanitation or, **if** they have **not** been **cleaned to satisfaction;**

   d) an explanation of the deficiencies;

   e) corrective actions taken;

   f) initials of the person that performed the inspection and the person verifying that the inspection took place.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

1. "**Pre-Operational Inspection Records**" demonstrate that the sanitation program is effective and includes effective monitoring and control of sanitation activities.
2. **"Sanitation Training Records"** are on file.

   Note: These records should demonstrate that the individuals conducting the "Pre-operational Inspections" and maintaining the "Pre-operational Inspection Records" have received appropriate training.

RELATED SECTIONS OF TIPM

03-D-08 Sanitation Training

03-E-03 Sanitation Procedures

03-E-04 Sanitation Schedule

SUBJECT: Pest Control Procedures	03-E-06
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Sections 15.1 & 20 AR 31/2006 *Food Regulation* Section 21 Meat Facility Standards (MFS) Section E. 2.1.1	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

The presence of pests in a "Licensed Meat Facility" (facility) can cause serious food safety problems therefore every effort needs to be made to keep them out of the facility.

Note: Pests include mice, birds and other vermin as well as flying and crawling insects.

The issue of pest control is serious enough that specific legislation has been developed to deal with this issue. Both the Alberta *Meat Inspection Regulation* (AR 42/2003) and the Alberta *Food Regulation* (AR 31/2006) speak to this issue.

Section 15.1 of AR 42/2003 gives legal authority to the MFS which in turn has specific requirements relating to pest control

Section 21(1) of AR 31/2006 states that commercial food establishments and any surrounding area, premises, or facilities supporting the commercial food establishment must be kept free of pests and of conditions that lead to the harbouring or breeding of pests.

Section 21(2) of AR 31/2006 requires that a written record of all pest control measures used in the commercial food establishment and surrounding area, premises and facilities referred to in subsection (1) must be maintained.

Pest prevention and control requires:

1. Adequate construction and maintenance.
   Note: Adequate construction includes using a variety of screens, or other protection devices, designed to keep pests out of the facility.
2. Effective housekeeping practices to ensure cleanliness of the facility and surrounding premises
   Note: The absence of food scraps, in the facility, reduces the attraction to pests while cleanliness of the surrounding grounds will eliminate, or reduce, ideal breeding conditions for pests.
3. Regular inspections to determine whether pests are present.
   Note: Regular inspections serve to identify evidence of pest infestation before damage and contamination has occurred.
4. Regular monitoring of pest control devices.
   Note: The presence of pests should be recorded.

It may be advantageous to hire an outside agency, or company, to look after pest control.

Note: Whether pest control is looked after in house, or contracted out, the requirements are the same for inspections, documentation, etc.

OBJECTIVE/OUTCOME

There will be written **"Pest Control Procedures".**

The program will be:

1. Implemented;
2. Documented;
3. Maintained;
4. Updated as required;
5. Effective in covering the requirements of sections 5-6 (a) to (e) of the MFS.

The program will include effective and safe, schedules and methods for the prevention of contamination of the premises, equipment, utensils, meat products and ingredients.

Regular inspections, for the presence of pests, will be conducted by the individual(s) person(s) identified in the written **"Pest Control Procedures"**.

Note: "Common Industry Practice" indicates that inspections should be conducted at least once a week.

Results of the **"Pest Control Procedures"** will be monitored and recorded regularly.

Note: Records should include the details of any short, or long, term corrective actions that were required and/or undertaken.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **Pest Control Procedures** will be met when*:*

1. There is up-to-date **written**, plant specific, **"Pest Control Procedures"**.

   Note: The activities and responsibilities, of any outside individual, or company, contracted for pest management and control, must be documented in the written program.

2. The procedures are fully implemented as written, including the documentation of findings.
3. Inspection frequencies, in the written procedures, are determined to be effective in the prevention of pest issues.
4. On site observation demonstrates that there is no evidence of pests in the facility.
5. Potential pest entry sites are regularly monitored and maintained for effectiveness as part of the "**Interior and Exterior, Inspection Procedures and Records"**.

RELATED SECTIONS OF TIPM

03-A-02 Internal Premises Inspection
03-A-03 External Premises Inspection
03-E-07 Pest Control Devices
03-E-08 Pest Control Records
03-E-09 Pesticide Use & Listing

SUBJECT: Pest Control Devices	03-E-07
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Sections 15.1 & 20 AR 31/2006 *Food Regulation* Section 21 Meat Facility Standards (MFS) Section E.2.1.1	**Initial Release** Sept 1, 2009 **Page 1 of 3**

RATIONALE

Many pests carry disease causing micro-organisms (bacteria, fungi, molds, etc.) and parasites.

Note: Pests include mice, birds and other vermin as well as flying and crawling insects.

Micro-organisms are present in the urine, manure and other bodily secretions of pests. When these agents come into contact with meat, or meat products, serious food safety hazards can develop thus it is imperative that appropriate pest control measures be put in place.

In general pest control is achieved through:

1. Proper construction.
2. Maintaining the “Licensed Meat Facility” (facility) in a good state of repair.
3. Using housekeeping practices that keeping the facility clean and ensure that no food scraps are left out.
4. Using screens, or other protection devices, on entrances.
5. Elimination of nearby pest breeding grounds by ensuring cleanliness of the outside premises.
6. Using pest control companies
7. Using traps or other pest control devices.
8. Regular inspections of the premises and pest control devices

   Note: Inspections are needed to identify evidence of pest infestation before damage and contamination occur and to monitor the effectiveness of control measures.

The improper use and/or storage of chemicals, or biological, agents, intended for pest control, introduce their own a potential food safety hazards. These products must be used in a manner that minimizes any risk.

OBJECTIVE/OUTCOME

The facility will:

1. Develop written **"Pest Control Procedures"** that effectively prevent the entry of pests into the facility and effectively eliminate them should they gain access.

   Note: These procedures must include:

   i) location of exterior traps;

   ii) location of interior traps;

   iii) details of baits that are used;

   iv) inspection schedules

2. Implement all of the measures in the written **"Pest Control Procedures"**.
3. Conduct regular inspections to ensure that the control procedures are effective.
4. Document inspection findings and any mitigation steps required.
5. Have on file a map indicating the location of all internal and external pest control devices.

   Note: Pest control devices include:

   a) interior pest traps;

   b) exterior bait stations;

   c) devices designed to electrocute insects;

   d) traps that lure insects with light

   These devices may be purchased and installed by the facility or provided by an outside pest management company.

   General Recommendations for Internal Pest Control

   All traps must be accessible to pests, at all times, and maintained in proper working order.

   Any type of **open**, or **snap trap** (with or without bait) is **not acceptable for use** inside the facility.

   Exposed glue boards and/or sticky tapes are not acceptable for use in the facility. When these devices are used inside they must be placed in an easily viewable container, and changed frequently to ensure that the surface remains shiny and sticky, with no build up of dust, or debris.

   "Common Industry Practice" suggests that internal pest control devices should be placed in close proximity to every outside opening (one on each side of the entrance, if possible) and every 25 feet along interior perimeter walls and along the walls of all enclosed dry food and packing storage areas. At least one device should be placed along walls that are less than 25 feet long.

It is not necessary to place devices in office areas and they don't have to be placed in wet areas, or areas of high traffic, providing devices are present on either side of the closest exterior door(s).

All traps should be on the floor and placed so that the opening is flush to the wall. Access to the trap should not be blocked by any boxes or other materials.

When devices designed to electrocute, or trap, insects are used in processing rooms; they must be positioned at least 10 feet from covered/protected product, or packaging material, and at least 30 feet from exposed meat products, equipment, or packing material.

General Recommendations for External Pest Control

"Common Industry Practice" suggests that outside bait stations, or trapping devices, should be in close proximity to secured doorways, or other openings. The use of outside trapping devices is most important where there is vegetation around, or in close proximity to, the facility.

Poisonous bait stations consist of an enclosed device (sometimes a plastic housing) with poison bait inside. Openings must be small enough to prevent the entry of any animal only than pests.

The **use of bait stations is prohibited inside the facility**. **Only approved baits may be used on the exterior.**

All baits stored in the facility must be properly labeled, stored under controlled access and handled only by designated and trained personnel. Chemical and **approval numbers** must be kept on file, at the facility.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **Pest Control Devices** will be met when:

1. An up-to-date, **written** plant specific **"Pest Control Procedure"** is on file.
2. An up-to-date **map of** all **pest control devices** is on file.
3. Devices are located as specified on the map.
4. Devices are of an acceptable type.
5. An adequate number of devices are in place.
6. All devices are clean and in working condition.
7. Bait station chemicals are recorded and **approval numbers** on file at the facility.
8. Devices are monitored and recorded in accordance with the procedures".

RELATED SECTIONS OF TIPM

03-E-06 Pest Control Procedures
03-E-08 Pest Control Records
03-E-09 Pesticide Use &Listing

SUBJECT: Pest Control Records	03-E-08
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 AR 31/2006 - *Food Regulation* Section 21(2) Meat Facility Standards (MFS) Section E. 2.1.1	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

It is mandatory for a "Licensed Meat Facility" (facility) to keep records pertaining to "Pest Control Activities".

Note: Any surrounding area, premises or facilities supporting a commercial food establishment must be kept free of pests and of conditions that lead to the harbouring or breeding of pests.

A written record of all pest control measures used in the commercial food establishment and surrounding area, premises and facilities must be maintained.

The facility's "Pest Control Program" calls for pest devices to be monitored.

Note: Problems noticed, in any part of the plant, must be documented and both short and long-term (if indicated) corrective action must be initiated.

Keeping records of pest inspection findings, and corrective actions is an essential component of any monitoring program.

Note: Records serve to:

a) identify problems;

b) provide a record of intervention procedures;

c) document the effectiveness of intervention procedures

Consistently finding large numbers of pests in the traps verifies that pests are entering the facility.

Note: Simply recording pest sightings without solving the root cause of the problem does not constitute an effective "Pest Control Program.

OBJECTIVE/OUTCOME

Up-to-date **"Pest Control Records"** will be on file.

Note: These records will document the inspection of all pest control devices in the facility and all corrective actions instituted to ensure that pests are eliminated from the facility.

The **"Pest Control Records"** will contain the following minimum information:

1. Date the devices were checked.

2. Number of pests found in each device (if any).
3. Corrective actions taken (if required, both short and long term).
4. Initials of the person doing the monitoring.
5. Dates when baits and/or bait stations were replaced (if applicable).

The operator of the facility will monitor the records and activities of any outside contractors that are hired to look after pest control.

Note: Monitoring is required to ensure that the facility's "Pest Control Program" is being followed.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Pest Control Records"** will be met when*:*

1. Up-to-date **"Pest Control Records"** are on file, at the facility.

   Note: These records must accurately reflect the results of monitoring the **"Pest Control Program"**.

2. Monitoring results are recorded on the day of monitoring and kept on file for at least one year.
3. There is an accurate record of short and long term corrective actions for pest control.
4. Records show that follow up activities were implemented, as required, to address any occurrences of pests in the facility.

RELATED SECTIONS OF TIPM

03-E-06 Pest Control Procedures
03-E-07 Pest Control Devices
03-E-09 Pesticide Use & Listing

SUBJECT: Pesticide Use & Listing	03-E-09
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 AR 31/2006 *Food Regulation* Section 21(2) Meat Facility Standards (MFS) Section E.2.1.1	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

The use of approved pesticides, in a "Licensed Meat Facility" (facility), is only **allowed if** all **other** pest control **measures fail**.

The presence of **pesticide residue** in meat or on surfaces of equipment that comes into contact with meat is a **serious contamination** issue.

Note: For this reason the use of chemical agents, to control pests, should only be undertaken by professionals or under the direct supervision of personnel trained in the proper application and storage of these agents.

The application and storage of chemical pesticide agents must be conducted in a manner that protects the safety of meat and meat products at all times.

Note: The National Meat and Poultry Regulations and Code states "The use of chemical controls such as residual bug sprays, within the facility, shall be limited to non-production areas. Mechanical controls shall be used in production areas. Rodent chemical baits are limited to exterior use only, and must be of a covered variety. Pest Control agents applied in an establishment shall be applied in accordance with all applicable laws."

OBJECTIVE/OUTCOME

All pesticides will be transported, stored, labeled and used in a manner that prevents contamination of meat, meat products and other materials that contact meat products such as ingredients and packaging material.

Note: This requires that all pesticides be:

a) used in accordance with the manufacturer's instructions;
b) locked up during storage;
c) stored away from food and food handling and storage areas;
d) stored in appropriate containers;
e) accurately labeled

The application of pesticides **while meat,** or meat products**,** are being **handled, or processed,** will be **strictly prohibited**.

Note: This prohibition also applies to spraying, or fogging, of pesticides

All food products will be removed before any pesticides are applied.

All food handling surfaces will be protected during pesticide application.

Following spraying, or fogging, all food contact surfaces will be thoroughly washed, rinsed and sanitized.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **Pesticide Use & Listing** will be met when*:*

1. All pesticides in use, at the facility, are registered under the Agriculture and Agri-Food Canada; *Pest Control Act and Regulations*.

   Note: The Pest Management Regulatory Agency (PMRA) of Health Canada is responsible for the regulation of pesticides in Canada, including the setting of residue limits and testing methods. The PMRA web site can be viewed at:

   http://www.pmra-arla.gc.ca/english/index-e.html

   PMRA can be contacted using their feedback form found at:

   http://www.pmra-arla.gc.ca/english/main/contact-e.html

2. An up-to-date **list** of all pesticides used**,** or stored, on the premises will be on file.

   Note: This list must include CFIA approval numbers and "Material Safety Data Sheets" (MSDS sheets) (if applicable).

3. A file entitled **"Record of Pesticide Usage"** is on file at the facility.

   Note: This record should have information on:

   a) concentrations used;

   b) locations where pesticides were applied, or used;

   c) dates of application

4. A written **"Pest Control Procedure"** is in place.

   Note: The procedures must address effective storage, handling and labeling instructions for all pesticides used, or stored, in the facility.

5. All pesticides are used in accordance with the manufacturer's instructions.

6. Activities of a third party individual, or company, contracted for pest control are clearly identified in the **"Pest Control Procedures"**.

RELATED SECTIONS OF TIPM

03-E-06 Pest Control Procedures

03-E-08 Pest Control Records

12-A-03 WHMIS Program for Chemicals

SUBJECT: Recall Team	03-F-01
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Sections 15.1 & 29 Meat Facility Standards (MFS) Section F.1.1.1	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

Despite the best efforts of a "Licensed Meat Facility" (facility) to produce a product that is safe for human consumption the possibility always exists for a unsafe product, or one that is or suspected of being unsafe, to be released.

When this happens the offending product must be removed from the market, through a **"Recall Process"**, as soon as possible.

To ensure that a recall is handled efficiently it is necessary to establish a **"Recall Team"**

Note: An established **"Recall Team"** is required so members can be contacted, at any time, so they can start working as soon as the need for a recall is determined.

The size of the **"Recall Team"** will vary with the size of the facility.

Once established the "Recall Team" should practice recall procedures so that they are prepared to act in an appropriate manner when an actual recall takes place.

OBJECTIVE/OUTCOME

A facility **"Recall Team"** will be established.

Note: The **"Recall Team"** consists of facility personnel that have been given the responsibility of conducting recalls as required.

There will be a **"Recall Team List"** which will:

1. Identify all team members.
2. Provide 24 hour contact phone numbers.
3. Have a list of assigned duties for each team member.

Note: The general duties of the recall team include but are not restricted to:

a) contacting affected customers;

b) contacting appropriate regulatory bodies;

c) contacting media as required;

d) collecting recalled product(s);

e) keeping track of any suspect, or recalled product remaining in the plant or any that has been returned to the plant;

f) completing the required paperwork

Appropriate regulatory bodies include, but are not restricted to, agencies such as the:

a) Regional Health Authority (RHA);

b) Meat Inspection Branch (MIB) of Alberta Agriculture and Rural Development (ARD);

c) Canadian Food Inspection Agency (CFIA), etc.

Required paperwork includes, but is not restricted to, items such as:

a) product recall sheets;

b) recall summary records;

c) records required by the RHA, MIB, or CFIA, etc.

The **"Recall Team"** will be thoroughly familiar with the recall procedures.

Note: Familiarity is essential to ensure the conduct of complete, comprehensive and rapid recalls. Conducting "Mock Recall Exercises" is an effective way of ensuring familiarity.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for the **"Recall Team"** will be met when*:*

1. The facility has up-to-date, written **"Recall Procedures"**

   Note: These procedures will include:

   a) a list of all recall team members;

   b) identification of each team member's position on the team;

   c) alternates for each position;

   d) responsibilities of each position;

   e) a description of how responsibilities are to be performed;

   f) contact numbers during working hours;

   g) after hours contact numbers;

2. Personnel assigned to the recall team are aware and knowledgeable about their role(s) as part of the team.

RELATED SECTIONS OF TIPM

03-F-02 Recall Procedures

03-F-05 Mock Recalls

SUBJECT: Recall Procedures	03-F-02
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Sections 15.1 & 29 Meat Facility Standards (MFS) Section F.1.1.1	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

Despite the best efforts to produce a product that is safe for human consumption the possibility always exists that an unsafe product, or one that is or suspected of being unsafe, could be released for sale to the public from a "Licensed Meat Facility" (facility).

An effective **"Recall Plan"**, that includes all of the elements needed to ensure a rapid and effective recovery of any meat products that are a real, or potential, health hazard to consumers, must be in place.

Note: A product coding system and distribution list are essential for the successful implementation of a recall. Distribution lists must be kept on file for a period of not less than 2 years.

OBJECTIVE/OUTCOME

The facility will have written "**Recall Procedures**" on file.

Note: These procedures must outline the steps to be taken to complete a recall and provide proof that the recall system has been tested for effectiveness.

They must include, but are not limited to the following:

a) the person, or persons, responsible for conducting a recall;

b) position, or area of responsibility, of team members (e.g. recall coordinator);

c) 24 hour contact information for all team members;

d) who is responsible for the coordination and implementation of a recall;

e) methods available to identify, locate and control recalled product including a method of notifying affected customers;

f) procedures for investigating other products that may be affected by the hazard thus need to be included in the recall;

g) methods of evaluating the effectiveness of the recall.

A "**Recall Team**" will be established

Note: The "Recall Team" is responsible for conducting and evaluating all recall activities.

The "**Recall Team**" will be competent.

Note: Competence can be demonstrated by:

a) records of training for personnel;

b) formal evaluation documentation following training;

c) successful "Mock Recall" results

TIPM – 03-F-02 Page 2 of 2 – OBJECTIVE/OUTCOME (continued)

A product coding system will be instituted.

Note: There must be codes, or lot numbers, on each pre-packaged product, which must identify the:

a) facility;
b) day;
c) month;
d) year

The product must also be linked to ingredients and/or packaging lots.

For more detail on coding see TIPM document 03-H-03.

A distribution list for all products will be on file.

Note: A proper distribution list will contain the following minimum information:

a) product identification (name and code, or lot, number);
b) amount of product (e.g. total weight, cases, boxes, etc.);
c) customer information including names, addresses & phone numbers.

For more detail on distribution lists see TIPM document 03-H-03.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Recall Procedures"** will be met when:

1. Written, facility specific **"Recall Procedures"** are on file.

   Note: These procedures should provide a concrete plan that can be followed if it is ever necessary to conduct an actual recall.

   The procedures may be depicted in the form of a flow chart.

2. A **"Recall Team"** has been established.
3. **"Recall Team"** members have been trained in their responsibilities and have demonstrated that they are capable of performing a successful recall.

   Note: The competence of **"Recall Team"** members can be shown by:

   a) records of training received;
   b) formal evaluation (e.g. oral, or written examination) results;
   c) acceptable performance in regular **"Mock Recall"** exercises

4. All meat products have been coded and distribution lists are on file for at least the last two years.

RELATED SECTIONS OF TIPM

03-F-01 Recall Team
03-F-03 Batch & Distribution Records
03-F-04 Regulatory Contacts for Recalls
03-F-05 Mock Recalls

SUBJECT: Batch & Distribution Records	03-F-03
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Sections 15.1 & 29 Meat Facility Standards (MFS) Sections F.1.1.1, F.1.2 (1 & 2)	**Initial Release** Sept 1, 2009 **Page 1 of 3**

RATIONALE

Despite the best efforts to produce a product that is safe for human consumption the possibility always exists that an unsafe product, or one that is or suspected of being unsafe, could be released for sale to the public from a “Licensed Meat Facility” (facility).

When this happens affected product has to be recalled.

In order to conduct a recall the product has to be properly identified therefore it is essential for the facility, to keep accurate and complete records pertaining to the distribution of meat products as well as records of all ingredients that were used to produce each product, including records of animals slaughtered.

Note: In addition to assisting with recalls, accurate and complete records aid in monitoring the control of processing steps.

All products must be identified with a batch, or lot number.

Note: Identifying a customer that has received packages without a production number, or lot code, is useless because there is no way of knowing exactly what batch, or quantity, is in their possession.

To reduce the scope of a recall it is “Common Industry Practice” to link the lot, or batch, numbers of ingredients (e.g. spices, casings) and food contact packaging material (if possible) to the batch, or lot numbers, of product produced in the facility.

Note: **REWORK** is a large and potentially dangerous issue. When product is reworked it is difficult to track and retain linkage to an original lot, or batch, production date. When a recall is conducted the facility must be able to account for **ALL** of a particular lot, or date, code including any product that was reworked.

OBJECTIVE/OUTCOME

“Batch & Distribution Records”, for all products produced, will be on file.

Note: This includes records made during processing including live animal (slaughter) records and records of **ALL** products (including by-products) that were distributed, or sold, from the facility.

Batch and distribution records will identify the origin of meat products to the level of the primary producer.

Note: To identify to the level of the primary producer the records must contain:

a) name and address of the person from whom animals were purchased, or acquired;

b) dates of purchase, or acquisition;

c) number and type of animals;

d) number of animals slaughtered;

e) date of slaughter

Batch and distribution records will contain the name, address and phone number of all purchasers.

Note: Facilities that operate a retail portion must treat the retail section as one large external customer. The amount of product placed in the retail cabinet must be tracked to allow for an efficient and effective recall.

Large bulk and custom orders must be recorded.

Batch and distribution records will link all products to a lot, batch, or production date code that identifies the date the products were produced.

Note: Batch and distribution records must account for the entire quantity of product, and track all products to the first external customer.

All products will be labeled (identified) in a manner that links them to lot, batch, or production date codes.

Lot, batch, or production codes will be linked to the lot, or batch, codes of all ingredients and if possible to food packaging lots.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Batch & Distribution Records"** will be met when:

1. All products, produced in the facility, have permanent, legible codes, or lot numbers, on the package.

   Note: The code, or lot number, must identify the facility and the day, month and year the product was produced, or packaged.

2. Batch numbers and production codes are linked to the lot, or batch numbers, of:

   a) ingredients (e.g. spices, etc.)

   b) packaging that contacts the meat, or meat products

3. Reworked product has been recorded and tracked with its original code, or batch numbers.

4. An up-to-date list of customer names, addresses and phone numbers is on file.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

5. Up-to-date records of production, inventory and distribution by lot, or batch number, are on file.

   Note: Batch and distribution records must be retained by the facility for a period of not less than 2 years.

6. Distribution (shipping) records contain the following information:

   a) product identification;

   b) product amount (e.g. weight, cases, boxes, combos, etc);

      Note: When the **packages** are all the **same weight** the amount can be recorded either as the total weight or as the number of packages.

      When **packages** are of **random weights** both the weight and the number of packages must be recorded.

   c) code, or lot, numbers;

   d) name, address & phone number of the purchaser

RELATED SECTIONS OF TIPM

03-F-01 Recall Team

03-F-02 Recall Procedures

SUBJECT: Regulatory Contacts for Recalls	03-F-04
REGULATORY REFERENCES: AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Sections 15.1 & 29 Meat Facility Standards (MFS) Section F.1.1.2	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

The operator of a "Licensed Meat Facility" (facility) may not be sure whether a recall is needed when information is received that a meat product is, or may be, contaminated. In this situation the operator is obligated to seek advice regarding the best way of dealing with the situation.

Note: **Uncertainty** about what to do is **not an excuse for inaction**. Anyone that is uncertain about what to do should seek expert advice immediately.

Rapid and accurate information gathering and the involvement of appropriate regulatory authorities will clarify whether a recall is needed and if so what the response should be.

Many different regulatory agencies may be involved in a recall. In most instances the main ones that will be involved will be the:

a) Meat Inspection Branch (MIB) of Alberta Agriculture and Rural Development (ARD)

b) Regional Health Authority (RHA)

c) Canadian Food Inspection Agency (CFIA)

Note: In the event of any disputed authority the federal jurisdiction of the CFIA would over-ride the provincial jurisdiction of the MIB.

It is important for the facility operator to have current contact information for all agencies.

Note: It is also important for the facility operator to be aware of the types of documents and records that may be required by these agencies.

OBJECTIVE/OUTCOME

The facility's written "**Recall Procedures**" will include the roles and responsibilities of the MIB, RHA and CFIA.

A list of contact numbers will be available for the MIB, RHA and CFIA.

The operator, or designated individual on the "**Recall Team**", will assume responsibility for notifying the MIB as soon as information is received about the possibility a carcass, or meat product, from the facility, is, or may be, unsafe for human consumption.

Note: Notification should include, but is not limited to:

a) a description of what may have gone wrong during handling, processing, packaging, labeling, storing or shipping of the product in question with particular reference to any breaches of AR 42/2003 or the MFS;

b) the nature of the contamination (if applicable);

c) the type of carcass, or meat product;

d) the quantity of carcasses, or meat product, that may be affected;

e) the distribution records for the affected products.

Following notification the MIB will give instructions regarding further actions, investigations, or notifications that may be required.

Note: The MIB should also know whether the RHA, or CFIA, needs to be notified.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Regulatory Contacts for Recalls"** will be met when*:*

1. Written **"Recall Procedures"** include a list of all current regulatory contacts:

   Note: The list of contacts must include, but is not limited to, the names and daytime and after hours phone numbers and fax numbers for the:

   a) MIB - Regional Manager

   b) CFIA

   c) RHA

2. Designated recall team personnel are aware of the information required by various regulatory authorities.

RELATED SECTIONS OF TIPM

03-F-01 Recall Team

03-F-02 Recall Procedures

03-F-03 Batch & Distribution Records

SUBJECT: Mock Recalls	03-F-05
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Sections 15.1 & 29 Meat Facility Standards (MFS) Section F.1.1.1, F.1.2.2	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

To ensure that **"Recall Procedures"** are effective and timely and to ensure that designated personnel are capable of conducting an actual recall the "Licensed Meat Facility" (facility) must conduct at least one annual **"Mock Recall"** exercise.

Note: The "Mock Recall" must be structured to test the effectiveness of recalling any type of product produced by the facility, including carcasses.

In addition to testing capabilities **"Mock Recalls"** are also a valuable training tool for personnel that have, or will be, given responsibility for conducting recall activities.

Usually a member of the **"Recall Team"** is given the task of organizing the details of the **"Mock Recall"** and generally the exercise is started by selecting a certain day of production, or a lot number, that needs to be recalled for an imaginary reason.

Results of the **"Mock Recall"** must be recorded and analyzed with the view to improving performance.

If acceptable standards are not achieved adjustments should be made then another "Mock Recall" should be run.

Note: All deficiencies should be documented along with corrective measures that will be taken and the results of these corrective measures.

OBJECTIVE/OUTCOME

Documentation will be on file showing that **"Mock Recalls"** for carcasses, raw cuts and other meat products have been conducted at least once a year.

Note: **"Mock Recalls"** are done to test the system and must be done:

a) only on products that were shipped from the facility;

b) on a different product for each **"Mock Recall"**

Documentation will show whether the **"Mock Recall"** met acceptable standards, or not.

Note: There must be a calculation of the mock recall efficiency, which is defined as the percentage of the full lot of product that could be traced.

To be considered acceptable the recall efficiency of cooked, batched products must be high (90-100%).

All of the results of the **"Mock Recall"** will be documented and if deemed to be ineffective the facility will:

1. re-evaluate and amend the procedures;
2. validate the effectiveness of the amended procedures.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Mock Recalls"** will be met when records of annual **"Mock Recalls"** are on file.

Note: These records should:

a) document corrective actions that were taken and the results of these corrective actions when **"Mock Recall"** procedures were shown to be less than 100%;

b) show that **"Mock Recalls"** were performed on a variety of different products (if applicable)

RELATED SECTIONS OF TIPM

03-F-01Recall Team

03-F-02 Recall Procedures

03-F-03 Batch & Distribution Records

SUBJECT: Dressing Procedures - Red Meat Animals	03-G-01
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section 3.3	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

All "Red Meat Animals" harbor disease causing and/or food spoilage organisms (bacteria, viruses, fungi, parasites, etc.) on, or in, their bodies.

Certain parts of the animal are more likely sources of these organisms.

Note: This is particularly true of the hide and intestinal tract.

The "Licensed Meat Facility" (facility) must implement sanitary dressing procedures to minimize the chance of contamination of meat and meat products.

Removal of the hide presents the greatest potential for contamination of the carcass thus great care must be taken to ensure that the outer surface of the hide doesn't make contact with the skinned portion of the carcass.

Note: It is particularly important that high risk activities only be performed by properly trained personnel.

Similarly evisceration (removal of the guts) requires skill in order to ensure that the gut is not cut thus avoiding contamination, of the carcass, from spillage of intestinal contents.

Knives used to skin carcasses must be carefully cleaned and sanitized between carcasses to prevent cross contamination between carcasses.

OBJECTIVE/OUTCOME

The facility will have a written **"Dressing Procedure".**

Note: To reduce the risk of contamination of the carcass all written procedures must be based on "Common Industry Practice" methods.

All carcasses will be skinned and dressed, immediately after slaughter and in accordance with the facility's written procedures.

Evisceration will only be done after proper pre-evisceration steps have been completed.

Note: These steps must also be included in the written "Dressing Procedures".

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for "**Dressing Procedures- Red Meat Animals"** will be met when*:*

1. Facility specific written **"Dressing Procedures"** are on file.

   Note: These procedures must address all of the requirements of section 3-3 (a)-(f) of the MFS.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

Examples of items to be addressed include but are not restricted to:

a) knife designation and sanitation during dressing procedures;
b) sticking/bleeding practices;
c) segregating the esophagus (rodding/tying/clipping the weasand);
d) placement of the carcass on the cradle;
e) removal of front and hind legs;
f) hide removal;
g) udder and pizzle removal;
h) midline cut;
i) hoisting the animal;
j) dropping the bung including bagging it;
k) evisceration;
l) splitting the carcass;
m) SRM removal and related considerations;
n) trimming of visible contamination;
o) washing of the carcass

The above procedures apply equally to cradle and rail dressing. The only difference may be a slightly different order of steps.

2. Carcass dressing is performed only by designated, trained personnel.
3. All carcass dressing is done in accordance with the written procedures.
4. An up-to-date "**Training Record"** is on file.

Note: These records will identify all personnel that have received training in proper skinning and dressing procedures.

RELATED SECTIONS OF TIPM

03-D-09 Manufacturing Control Training
07-B-01 Dressing Procedures - Cattle & Calves
07-B-02 Dressing Procedures - Hogs
07-B-03 Dressing Procedures - Sheep, Goats & Deer
07-B-04 Dressing Procedures - Elk & Bison
07-B-05 Dressing Procedures - Rabbits (Domestic)
07-B-07 Dressing Procedures - Ratites
07-B-08 Meat By-product Harvesting - Beef
07-B-09 Meat By-product Harvesting - Pork
07-B-11 Meat Product Harvesting - Miscellaneous Species
07-B-12 Intervention Strategies - Red Meat Animals

SUBJECT: Dressing Procedures - Poultry	03-G-02
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Sections 15.1 & 18(1)(a) Meat Facility Standards (MFS) Section 3-3	**Initial Release** Sept 1, 2009 **Page 1 of 3**

RATIONALE

All classes of poultry harbor disease causing and/or food spoilage organisms (bacteria, viruses, fungi, parasites, etc.) on, or in, their bodies.

Certain parts of the bird are more likely sources of these organisms.

Note: This is particularly true of the skin, feathers and intestinal tract.

The "Licensed Meat Facility" (facility) must implement sanitary dressing procedures to minimize the chance of contamination of meat and meat products.

To minimize the chance of contamination, de-feathering and evisceration must be done in an appropriate manner.

From a food safety perspective the evisceration process is one of the most hazardous activities in the dressing of poultry carcasses. For this reason every effort must be made to ensure that the intestines are not ruptured during the evisceration process.

Providing designated personnel with appropriate training and using well maintained equipment that is well designed for the purpose of evisceration is critical in preventing accidental rupture of the intestines.

OBJECTIVE/OUTCOME

The facility will have written **"Poultry Dressing Procedures**".

Note: To reduce the risk of contamination of the carcass all written procedures must be based on "Common Industry Practice" methods.

Proper withdrawal of feed and water is necessary for sanitary dressing and processing procedures and food safety. Feed and water withdrawal should be kept to the minimum level consistent with "Common Industry Practice".

All poultry carcasses will be dressed in accordance with the written procedures including evisceration immediately after slaughter.

Note: Evisceration will not be done until appropriate pre-evisceration steps, which should be detailed in the written procedures, have been completed.

Evisceration and other dressing procedures will only be performed by trained personnel. .

Evisceration will be conducted in a manner that minimizes the chance of contaminating the carcass with intestinal contents.

Note: Examples of evisceration procedures that are considered to be "Common Industry Practice" include:

a) hanging the bird in a manner that minimizes the chance of contact with spilled intestinal contents;

b) use of equipment designed to minimize the rupture of any part of the gastro-intestinal tract;

c) use of evisceration equipment made of smooth, non-corrosive, non-absorbent, non-toxic material

An evisceration fork will be used for all species of poultry with the possible exception of turkeys, ducks and geese.

Note: Manual evisceration of turkeys, ducks and geese, is allowed but an evisceration fork has to be used with care. The stronger internal attachments of the intestinal tract, in these species, makes rupture of the intestines more likely when an evisceration fork is used.

The evisceration fork will be appropriately sanitized at all times.

Note: Appropriate sanitation of the evisceration fork requires it to be free of any visible contamination when it is inserted into the abdomen and frequent rinsing with water at 82^0 C or greater.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for "**Poultry Dressing Procedures"** will be met when*:*

1. Written, plant specific, **"Dressing Procedures"** are on file all requirements specified in section 3-3 (a)-(f) of the MFS.

   Note: These procedures must address all of the requirements of section 3-3 (a)-(f) of the MFS.

   Examples of items to be addressed include but are not restricted to:

   a) sticking/bleeding practices;

   b) scalding;

   c) plucking and carcass washing;

   d) transfer practices (re-hanging);

   e) removal of oil glands, head and feet;

   f) venting;

   g) evisceration;

   h) salvaging practices;

   i) by-product harvesting practices;

   j) final carcass washing;

   k) trimming practices;

   l) washing of the carcass;

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

1. Dressing is performed only by designated, trained personnel.
2. Dressing is done in accordance with the written procedures.
3. An up-to-date "**Training Record"** is on file.

   Note: These records will identify all personnel that have received training in proper dressing procedures.

RELATED SECTIONS OF TIPM

03-D-09 Manufacturing Control Training
07-B-06 Dressing Procedures - Poultry
07-B-10 Meat By-product Harvesting - Poultry
07-B-13 Intervention Strategies - Poultry

SUBJECT: Nitrate & Nitrite Addition	03-G-03
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Sections 3.2, 3.3	**Initial Release** Sept 1, 2009 **Page 1 of 6**

RATIONALE

Curing is defined as the treatment of meat products with nitrite, or nitrate, salts, or both, in combination with salt (NaCl), spices, etc.

Note: The **lethal dose of nitrate, or nitrite, salts**, for humans, **is 1 to 2 grams**.

Due to their poisonous nature (toxicity) strict control procedures need to be developed to ensure that the amounts added are within the minimum and maximum allowances for the products being cured.

There is less risk of nitrate, or nitrite, toxicity when commercially prepared curing mixes are used. These mixes usually contain enough salt to ensure that the final product would be unpalatable if excessive amounts were used.

Note: Commercial mixes also have the advantages of being readily soluble in water and more easily weighed than bulk nitrates, or nitrites.

Curing is done to:

1. Delay the growth of undesirable micro-organisms and their toxins
2. Improve color
3. Improve texture
4. Improve flavor

Note: With the exception of shelf stable meat products, cured meat products must be refrigerated.

Curing can be done in a number of ways. One of the most common is to inject the cure then immerse the product in a curing brine to allow for equilibration and uniform distribution.

Note: Curing brine should not be mixed up in advance. It should be used as soon as it is made.

The immersion portion of the curing process should be kept as short as possible, both for maintenance of product quality as well as for safety.

Curing solutions should not be re-used as this practice can lead to contamination of meat products.

Spices are used primarily for flavoring purposes.

Note: Curing agents must not be mixed with the spices before adding them water to make the brine. Mixing them before favors the formation of nitrosamines which have been implicated as possible carcinogens (cancer causing agents).

OBJECTIVE/OUTCOME

All ingredients used, in the "Licensed Meat Facility" (facility), for the production of manufactured products, or cures, will meet all of the requirements of the *Food and Drug Act (Canada)* and associated Regulations including the use of stipulated amounts.

Note: Sodium and potassium nitrates and nitrites are considered to be the only acceptable curing salts that will impede the growth of the bacterium called *Clostridium botulinum.* The toxin produced by this bacterium causes the disease called botulism. This is a particularly dangerous type of food poisoning

All cured meat products will contain at least 100 parts per million (ppm) of curing salt.

Note: This is considered to be "Common Industry Practice".

For wet curing the amount of **nitrate/nitrite** salts used **must not exceed**:

1. **120 ppm** in **side bacon**.
2. **200 ppm** in **all other products**

For dry rub cured meat products, on racks, the maximum levels allowed per 100 kg (kilograms) of meat product are:

1. **62 g** (grams) of sodium **nitrite** salt
2. **186 g** of sodium **nitrate** salt

Note: If **potassium** nitrite, or nitrate, salts are used **instead of sodium** nitrite or nitrate salts, **the above limits** are **increased by 1.23** times.

Strict **control procedures** will be in place **to ensure** that the **amount** of nitrite, or nitrate, **used is within** the minimum and maximum **allowable** limits.

Note: Nitrates should only be used for long term curing processes, such as fermented sausage, or dry cured hams.

To determine the amounts required the reader is referred to the calculation examples that are located in the next section of this document

Bulk nitrite or nitrate salts will be kept **locked** up and records will be kept which account for their use.

Note: Binder units must have the curing salts packaged separately in a distinctly marked container.

The above requirement, for locking up, only applies to bulk nitrite & nitrate salts. It does not apply to premixes.

Salt [Sodium chloride (NaCl)] **will be used in all cured products**.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Nitrate and Nitrite Addition:** will be met when*:*

1. Written "**Curing Procedures"** are on files that specifically address the addition of ingredients and cure agents for each cured product produced at the facility are on file.

   Note: These procedures must specifically address the addition of ingredients, and cure agents, for each type of cured product produced at the facility and at a minimum they must include, for each product:

   a) nitrite or nitrate salt level calculations;

   b) percent gain calculations;

   c) brine machining instructions;

   d) pumping and tumbling instructions;

   e) formulation and mixing instructions (recipes)

2. All cured products are produced in accordance with the written procedures.
3. When bulk nitrite, or nitrate, salts are used they will be stored under lock and key.
4. Up-to-date **"Curing Records"** and **"Percentage (%) Pickup Records"** are on file.

   Note: The **"Curing Records"** must account for every use of bulk nitrite, or nitrate, salts.

   "Percentage (%) Pickup Records" may not have to be kept for each batch. The frequency required depends on the pumping or injecting process, amounts and types of products produced, etc.

5. All ingredients used in curing mixes conform to the standards of the *Food and Drug Act (Canada).*
6. The amount of each ingredient used is carefully calculated and measured every time.

   Note: Ingredients should actually be weighed every time.

7. Spices are not added to the cure before the brine is added.
8. All scales used to weigh curing agents are calibrated.

   Note: Up-to-date **"Calibration Records"** must be on file.

Following are some general calculations and examples;

Calculating the ppm of Nitrite in a Sausage Mix

General Calculations:

Formula #1

This formula is used to determine the ppm of nitrite in the final product

$$\text{ppm nitrite} = \frac{\text{sodium nitrite (kg)} \ X\ 10^6}{\text{Wt of emulsion (kg)}}$$

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

Formula #2

This formula is used to determine the ppm of nitrite in Prague powders

$$\text{Grams of nitrite in Prague powders} = \frac{(\%\ \text{sodium nitrite})\ X\ \text{grams of Prague powder}}{100}$$

Examples of Nitrite Calculations in Sausage Formulations

Example #1

In this example there are:

a) 114 kg of sausage mix

Note: The mix includes all spices, binders, seasonings, and water.

b) 23 g of sodium nitrite (bulk)

Note: 23 grams of sodium nitrite is the same as 0.023 kg of sodium nitrite.

Adding the two together **gives** us **a total** meat emulsion **of 114.023kg**

Note: The meat emulsion includes all spices, binders, seasonings, Prague powders (nitrates/nitrites), and water.

Total ppm of sodium nitrite in this example is calculated as follows:

$$\text{ppm sodium nitrite} = \frac{0.023\ \text{kg}\ X\ 10x^{6}}{114.023\ \text{kg}} = \frac{23{,}000\ \text{kg}}{114.023\ \text{kg}} = 201.71\ \text{ppm}$$

Note: The above **recipe is <u>unacceptable</u>** because **201.71 ppm** of sodium nitrite **<u>exceeds</u>** the maximum allowable limit of **200 ppm**.

Example #2

In this example there are:

a) 114 kg sausage mix

b) 350 g of Prague powder

Note: The Prague powder contains 6.25% sodium nitrite

The amount of nitrite in 350 grams of Prague powder is determined in the following manner:

$$\text{kg of sodium nitrite in Praugue powder} = \frac{6.25\ X\ 350}{100} = \frac{2{,}187.5}{100} = \frac{2{,}187.5g}{1000} = 0.021875\ kg$$

Adding the two together **gives** us **a total** meat emulsion **of 114.350 kg**

Total ppm of sodium nitrite in this example is calculated as follows:

$$\text{ppm of sodium nitrite} = \frac{0.021875\ kg\ X\ 10^{6}}{114.350} = \frac{21{,}875}{114.350\ kg} = 191.30\ \text{ppm}$$

Note: This **recipe is <u>acceptable</u>** because the **191.30 ppm** of sodium nitrite is **<u>less than</u>** the maximum allowable amount of **200 ppm**.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

Calculating Nitrites in Brined, Injected, Pumped or Tumbled Products

Formula #1

This formula is used to determine the % gain for any cured product that will have a pickup.

Note: The green weight (weight of the emulsion before the addition of brine) and the finished weight (weight of the emulsion after injection, tumbling, or immersion, but before smoking) must be known before the % gain can be determined.

A few pieces of representative product from each batch can be used to calculate a batch average.

$$\%\,\text{gain} = \frac{\textit{pumped weight } X\ 100}{\textit{green weight}} - 100$$

Note: In the above formula the term "pumped" is used as an example. The formula applies equally to products that are injected, tumbled, or immersed.

Following is an example of how this formula is used given the following:

a) The green weight is 3.5 kg

b) Weight of the brine = 2.5 kg

Note: The weight of the brine includes the water, the cure unit, salts, sugars, and any other additives that are put in.

c) The pumped weight is 5.6 kg

Note: The pumped weight is the sum, or total of the green weight and the weight of the brine picked up.

$$\%\,gain = \frac{5.6\,X\,100}{3.5} - 100 = 160 - 100 = 60$$

Note: In the case of bone-in meat cuts, the pump percentage must be calculated on a boneless basis. On average the amount of bone in a bone-in ham is approximately 15% by weight thus the green weight must be reduced by 15% before starting any calculation of the % gain.

After the % gain has been calculated the following formula is used to calculate the level of nitrites in the injected, immersed, pumped or tumbled product.

$$\text{ppm nitrite} = \frac{\textit{sodium nitrite kg}}{\textit{brine kg}} X \frac{\%\ \textit{gain}}{\textit{gain} + 100} X\ 10^6$$

Examples of Nitrite Calculations in Boneless Hams and Side Bacon

Example #1 - Boneless Hams

In this example the cure unit consists of

a) Sodium tripolyphosphate 6.42 kg

b) Sodium **nitrite** 0.28 kg

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

c) Sodium erythorbate 0.84 kg

d) Spices 0.70 kg

Total 8.23 kg

The brine is formulated as follows:

a) Cure unit 8.23 kg

b) Water 134.00 kg

c) Salt 40.00 kg

Total 182.23 kg

The % gain is 15

$$\text{ppm nitrite} = \frac{0.28\ kg\ sodium\ nitrite}{182.23\ kg\ brine} X \frac{15}{15+100} X\ 10^6$$

$$= 0.0015365\ X\ .130\ X\ 10^6 = 199.7\ ppm$$

Note: This is an **acceptable recipe** for hams because the **199.70 ppm** of sodium nitrite is **less than** the maximum allowable amount of **200 ppm**.

Example #2 - Side Bacon

In this example the cure unit is 2.25 kg of Prague Powder which is 6.4% nitrite.

$$\text{kg of nitrite in 2.25 kg of Prague powder} = \frac{6.4\ X\ 2.25}{100} = \frac{14.4}{100} = 0.144\ kg$$

The Pickle Formulation consists of

a) Water 347.75 kg

b) Cure unit 2.25 kg

Total 350.00 kg

The % gain is 60.

$$\text{ppm nitrite} = \frac{0.144\ kg\ sodium\ nitrite}{360\ kg\ brine} X \frac{60}{60+100} X\ 10^6$$

$$= 0.0004114\ \text{X}\ .375\ \text{X}\ 10^6 = 154.2\ \text{ppm}$$

Note: This **recipe is unacceptable** because **154.2 ppm** of sodium nitrite **exceeds** the maximum amount allowed in bacon which is **120 ppm**.

RELATED SECTIONS OF TIPM

03-C-03 Calibration Procedures - Records of
03-D-09 Manufacturing Control Training
03-G-04 Fermented Meats
03-G-10 Written Recipes

SUBJECT: Fermented Meats	03-G-04
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section 3.2, 3.3	**Initial Release** Sept 1, 2009 **Revised on** Sept 1, 2011 **Page 1 of 20**

RATIONALE

Various methods of fermentation have been used for hundreds of years to preserve meat products.

Fermentation creates an environment that is unsuitable for the survival of disease and/or meat spoilage micro-organisms (bacteria, molds, fungi, etc.). It also imparts a particular flavor to meat products.

Note: Fermentation is initiated through the use of starter cultures. Starter cultures are living bacteria. They are available in both the freeze-dried and frozen state.

Most starter cultures contain bacteria from the genus (family) Lactobacilli, or Streptococci, but some cultures are from the genus Pediococci. They may be used separately or in combination in the fermentation process.

During the fermentation process bacterial action breaks down carbohydrates which results in the production of lactic acid.

Unlike cooked meat products, where micro-organisms are killed by heat the manufacture of fermented meat products relies on a complex and precise combination of time, temperature, nitrites, salt concentration, pH and a_w factors to control micro-organisms.

Note: **pH** is a **measure of acidity**. The pH is actually the negative logarithm of hydrogen ion, or proton, concentration. On the pH scale a reading of 7 is neutral. Readings below 7 indicate increasing degrees of acidity while readings above 7 indicate increasing degrees of alkalinity. Because pH is a logarithmic scale each step on the scale goes up by a factor of ten times. This means that a pH of 5 is 10 times as acidic as a pH of 6, a reading of 4 is 100 times more acidic than 6, a reading of 3 is 1,000 times more acidic, etc.

a_w is a **measure of water activity**. The a_w of a meat product is the ratio of the water vapor pressure of the meat product to that of pure water at the same temperature. **A_w** is measured on a scale of 0.00 to 1.00 with 0.00 being totally dry and 1.00 is pure water.

Many food borne pathogens (disease causing micro-organisms) can affect fermented meat products, however a few are considered to be of particular importance.

In Canada we need to be particularly concerned about *Escherichia coli*, including *E.coli* 0157:H7 and certain strains of a bacterium called *Staphylococcus aureus.*

At temperatures above 15.6^0 C, *S. aureus* will multiply and produce toxins (poison). A pH of 5.3 will stop both multiplication and toxin production. For this reason producers of

fermented meat products must verify that their product has attained a pH of 5.3 within pre-defined degree/hours limits.

The following are three **common fermentation methods:**

1. Backslopping

   This method uses a portion of a previously successful mixture of fermented meat mix as a source of lactic acid-producing micro-organisms to initiate the fermentation process in the next batch.

   This method depends on luck and serious problems could arise if viable (living) pathogenic or other undesirable (food spoilage) bacteria were present in the portion used.

   To avoid this care must be taken in the handling and storage of the portion from the previous batch. Storage conditions must be hygienic (clean) and storage temperatures must be controlled. Samples must be taken by the trained fermentation operator only.

2. Chemical Acidification:

   In this method fermentation is achieved by adding an approved chemical agent to acidify the product.

   Note: Examples of approved chemical agents include citric acid and glucono delta lactone.

3. Natural Fermentation:

   This method relies on self initiated fermentation by micro-organisms naturally present in the product. In this method commercial starter cultures, or portions from a previous batch, are not used. There is a high potential for failure because of the uncontrolled nature of the process.

   Note: **This method** of fermentation is **not acceptable**.

Regardless of the method of fermentation the success of the process depends on the rate of drying thus it is essential that the drying step be strictly controlled.

Note: Rapid drying causes a condition called casehardening. Drying too slow leaves the surface of the sausage soft and mold may develop. Air movement during drying is critical. If it is too slow mold growth will be encouraged and if it is too fast drying will be excessive.

OBJECTIVE/OUTCOME

Written **"Fermentation Procedures and Recipes"** will be on file, at the "Licensed Meat Facility" (facility).

Note: There must be an individual recipe for each type of fermented product produced in the facility.

Separate "Fermentation Procedures" must be written for each of the following methods of fermentation:

a) Backslopping;

b) Chemical acidification;

c) Natural.

(See the "Rationale" section of this document for more detail on these methods.)

Fermented products will be **produced in accordance with** their **specific recipes**.

All raw **materials**, including cultures, will be **stored and used in accordance** with the **recommendations of the manufacturer**.

Note: Recommendations for the storage and use of these materials must be detailed in the written "Fermentation Procedures".

Specific rooms and/or areas of the facility **will be assigned** for the production and drying of fermented meat products.

Note: For example, if the recipe calls for fermented sausages to be smoked, the smokehouse cannot be used unless it has been specifically designed and equipped for smoking fermented products. This means that the smokehouse must be commercially designed and built and equipped with a drying cycle.

Process controls will be in place to ensure that the required pH has been reached within appropriate time and temperature restraints.

Note: For details see the text entitled "Process Controls for Fermented Meat Products" in the next section of this document.

Written records, on all batches of fermented products, will be maintained.

Note: These records should be sufficient to prove that the product has been handled and processed properly. This is necessary to ensure that the product has been rendered safe for human consumption.

All recording devices will be routinely checked and calibrated and **"Thermometer Calibration Records"** will be kept.

Note: Recording devices, including thermometers, must be installed in the fermentation, drying and smoking areas in order to ensure that all stages of the process are monitored appropriately. In the smokehouse both the product and smokehouse temperatures must be recorded.

The **pH** of each lot **will be measured** and the time that it took, from the moment of formulation until the pH of the sausage achieved a pH of 5.3, or less, must be recorded.

Note: This is usually done when each batch of product leaves the fermentation room.

An inspector will be notified whenever a batch fails to reach a pH of 5.3 within specified time limits.

Note: See the next section of this document for information on the determination of specified degree/hours limits, required testing of products and disposition of product after unsatisfactory test results have been received.

Fermented Meat Products will be dried in accordance with the recommendations in the next section of this document

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Fermented Meats"** will be met when*:*

1. Up-to-date, written **Recipes** are available for each fermented meat product.

2. The recipe for each fermented meat product will be followed during production.

3. Up-to-date, written **"Fermentation Procedures"** will be on file.

   Note: The manufacturer's specifications for the storage, handling and adding of starter cultures to products must be detailed in these procedures.

   When the "backslopping" method is used, the portion of the previous mix that is to be used for a new batch must be stored under hygienic conditions at 4^{o}C or less and at a pH of 5.3 or lower. These storage conditions must be verified in a **"Storage Temperature Record"** and in the new **"Batch Record"**.

4. Specifications for starter cultures, in the **"Fermentation Procedures"**, are followed.

5. The **"Fermentation Procedures"** specify how fermented meat products that fail to meet the degree/hour requirements may be disposed of.

6. Recording devices are routinely checked and calibrated.

   Note: This is done to ensure that they are accurate and functioning properly.

7. "**Thermometer Calibration Records"** are on file.

   Note: These records are required to verify that calibration has been done.

8. A "**Fermentation Batch Record"** is on file, which tracks each batch of product through the full fermentation process.

   Note: This record tracks each batch through the fermentation process. It includes, but is not limited to proving that:

   a) a proper pH was maintained throughout the fermentation process;

   b) appropriate temperatures of the room, or surface of the product, were maintained throughout the fermentation process;

   c) a pH of 5.3 was achieved;

   d) "degree/hours" were calculated, recorded and met throughout the process;

   e) temperatures, relative humidity and air movement throughout the drying process were within acceptable limits;

   f) "Shelf stable" meat products have reached:

      i) a pH of 4.6 or less,

      ii) an a_w of 0.85 or less OR

      iii) a pH in the range of 4.6 - 5.3 and an a_w of 0.90 or less.

9. Fermented meat products that do not meet shelf stable requirements are refrigerated and labeled as “Keep Refrigerated”.

Procedural Items Required

The following procedural items must be addressed and are outlined in the remainder of this document:

1. Raw Materials
2. Maximum Allowable Hours to Reach a pH of 5.3
3. Dealing with Fermented Products that Don’t Reach a pH of 5.3 within Specified Time Limits.
4. Drying and Shelf Stability of Fermented Meat Products
5. Requirements for controlling ***Escherichia coli***-Health Canada’s Guideline 12
6. Requirements for controlling **Trichinella Spiralis** for pork

1. Raw Materials

Regardless of its’ form, the starter culture must be stored under appropriate conditions prior to use.

Note: Commercially available starter cultures must be stored in accordance with the recommendations of the manufacturer.

Cultures must be propagated in a manner that ensures that there are enough bacteria present to ensure that sufficient amounts of lactic acid are produced.

All cultures must be handled in a sanitary manner to avoid contamination by any of the undesirable, or pathogenic, micro-organisms.

When the “backslopping” method of fermentation is used a measurement of the pH, of “backslopped” portion, must be taken.

Note: A pH in the range of 5.0 to 5.3 usually indicates that the culture is safe.

For chemical acidification, controls must be in place and records kept to ensure that a pH of 5.3 or lower is achieved by the conclusion of the acidification process.

2. Reaching a pH of 5.3 in an Acceptable Time

Note: It is critical for the fermentation process to result in the achievement of a pH of 5.3 within a minimal amount of time. This provides assurance that pathogenic bacteria have not had an opportunity to multiply and produce toxins.

Judgment about the effectiveness of the fermentation process is based on a measurement of a combination of time and temperature. This measurement is expressed as “Degree/Hours”.

Note: Degree/Hours are determined by multiplying the time (in hours), at a particular temperature, by the number of degrees of temperature in excess of 15.6°C. For

example one hour at 18.6^0 C is equal to 3 Degree/Hours.

15.6^0 C is used as the base point because this is the temperature at which staphylococcal bacteria exhibit effective growth.

The fermentation process is considered to be **acceptable** when the product consistently reaches **a pH of 5.3** in less than:

1. **665 degree/hours** when the highest fermentation **temperature** is **less than 33^0 C.**
2. **555 degree/hours** when the highest fermentation **temperature** is **between 33^{0}C and 37^0 C**.
3. **500 degree/hours** when the highest fermentation **temperature** is **greater than 37°C**.

Note: Degree/Hours must be calculated for each temperature used in the process. The limitation of the number of degree/hours indicated in points 1), 2) and 3) above depends on the highest temperature in the fermentation process prior to the time that a pH of 5.3 or less is attained.

When there are variable fermentation temperatures the limit of degree/hours that will be allowed is based on the allowable limit if the highest temperature was constant throughout.

Processors are encouraged to measure temperatures at the surface of the product but if this is not possible the temperature of the fermentation room can be used.

Note: The following table and examples are based on fermentation room temperatures. Temperature and humidity should be uniform throughout the fermentation room.

Calculation of Degree/Hours at a Constant Fermentation Temperature

If fermentation is done at a constant temperature the number of "Degree/Hours can be determined by:

a) using the following table **OR**

b) by calculation

Degrees-hours limit for the corresponding temperature	Fermentation Room Temperature (C)	Maximum Allowed Hours to Achieve a pH of 5.3 (Based on Guideline)
665	20	150.0
665	22	103.4
665	24	78.9
665	26	63.8
665	28	53.6
665	30	46.2
665	32	40.5
555	33	31.8
555	34	30.1

555	35	28.6
555	36	27.2
555	37	25.9
500	38	22.3
500	40	20.5
500	42	18.9
500	44	17.6
500	46	16.4
500	48	15.4
500	50	14.5

b) Using the Calculation method for constant temperature processes

Example #1

Note: In this example:

a) fermentation room **temperature** is constant at **26°C**

b) a **pH of 5.3** is reached in **55 hours**

Calculation

Number of **degrees above 15.6° C** = 26 - 15.6 = **10.4**

Hours to reach pH of 5.3: **55**

Degree/Hours = 10.4 x 55 = **572**

Conclusion

The process in this example **meets the guideline** because a pH of 5.3 was reached in 572 degree/hours which is less than the 665 degree/hours allowed when fermentation temperatures are below 33^0 C.

Example #2

Note: In this example:

a) fermentation room **temperature** is constant at **35^0 C**

b) a **pH of 5.3** is reached in **40 hours**

Calculation

Number of **degrees above 15.6^0 C** = 35 - 15.6 = **19.4**

Hours to reach pH of 5.3: **40**

Degree/Hours = 19.4 x 40 = **776**

Conclusion

The process in this example **does not meet the guideline** because a pH of 5.3 was only reached after 776 degree/hours which is more than the 555 degree/hours allowed when fermentation temperatures are between 35 and 37^0 C.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

Calculation of Degree/Hours at Variable Fermentation Temperatures

When fermentation is not done at a constant temperature each step involving a different temperature must be analyzed to determine the number of degree/hours at each step.

Note: The degree/hours limit, for the entire fermentation process, is based on the highest temperature reached during fermentation.

Calculating total degree/hours when there are temperature variations during the fermentation process

Note: In this example

a) it takes 35 hours to reach a pH of 5.3 or less;

b) for the first 10 hours the fermentation room temperature is 24^0 C;

c) for the next 10 hours the temperature is 30^0 C;

d) for the final 15 hours the temperature is 35^0 C

The following table shows the calculation of total degree/hours for the entire process.

Hours	Fermentation room temperature (°C)	Critical Temperature Adjustment	Degrees above 15.6°C	Degree/hours
10	24°	(24°-15.6°)	= 8.4°	84
10	30°	(30°-15.6°)	= 14.4°	144
15	35°	(35°-15.6°)	= 19.4°	*291*
pH=5.3			Total:	519

During the process the highest temperature reached was 35^0 C therefore the acceptable degree/hour limit = 555 (i.e. between 33 and 37^0 C)

Conclusion

The process in this example **meets the guideline** because a pH of 5.3 was reached in 519 degree/hours which is less than the 555 degree/hours allowed when fermentation temperatures are between 33 and 37^0 C.

3. Dealing with Fermented Products that Don't Reach a pH of 5.3 within Specified Time Limits

Batches that have exceeded the degree/hours limit before reaching a pH of 5.3 must be held while samples are submitted for microbiological laboratory examination.

Note: The microbiological examination must be done after the drying period has been completed.

Minimum analysis should include an examination for the presence of the bacterium *Staphylococcus aureus* and its enterotoxin, and for principal bacterial disease causing organisms such *E. coli* O157:H7, *Salmonella, Listeria*

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

monocytogenes, etc.

Based on the microbiological analysis one of the following 3 conditions will apply:

1. Samples with **less than 104** *Staphylococcus aureus* **organisms per gram** and **no enterotoxin, or other pathogens,** detected may be sold providing the product is **labeled as requiring refrigeration**.
2. Samples with more than 104 *Staphylococcus aureus* organisms per gram **BUT no enterotoxin** present, **OR** if **other pathogens are present in very low numbers**, the product **may be used in cooked product** providing the heating process destroys all of the pathogens that are present.
3. When ***Staphylococcus aureus* enterotoxin** is **detected** the **product MUST BE DESTROYED** regardless of the number of *Staphylococcus aureus* or other organisms.

   Note: In this situation destruction is required because **cooking will not destroy** or neutralize the **enterotoxin**

4. Drying and Shelf Stability of Fermented Meat Products

To be considered shelf-stable fermented meat products must have:

1. a pH of 4.6 or less;
2. water activity level of 0.5, or less, OR;
3. a combination of pH range of 4.6 - 5.3 and a water activity level of 0.9, or less.

   Note: These products must also contain a minimum of 100 ppm of nitrite/nitrate and 2.5% salt.

Because monitoring of the pH is mandatory during the fermentation process it is not necessary to determine water activity levels, during the drying process, on a routine basis. Reaching an acceptable pH generally provides assurance that normal drying process will be sufficient.

Note: Notwithstanding the above statement “Common Industry Practice” still recommends monitoring and documenting the water activity of dried products on a regularly scheduled frequency.

Any products that don’t meet the requirements for shelf stable products must be labeled **“Keep Refrigerated”.**

5. Health Canada’s Guideline 12-Requirements for Controlling *Escherichia coli*

In order to suitably control this hazard, facilities which manufacture fermented sausages are required to use one of the following interventions for the control of verotoxinogenic *E. coli* including*E. coli* O157:H7 and Salmonella when they make this type of product.

If an establishment does not follow one of the interventions described, they are automatically considered to be using intervention 3, **End Product Testing**. End product

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

testing is to be conducted at the operator's expense.

Intervention 1- Using a heat process which is scientifically recognized as controlling E.coli 0157:H7

Time and temperature controls should be documented in the same manner as is required for other similar cooking processes. Under this intervention, it is **not** required to test product for *E. coli* O157:H7.

Minimum internal temperature maintained during the entire process		Minimum processing time in minutes after the minimum temperature has been reached
(°F)	(°C)	
130	54.4	121
131	55	97
132	55.6	77
133	56.1	62
134	56.7	47
135	57.2	37
136	57.8	32
137	58.4	24
138	58.9	19
139	59.5	15
140	60	12
141	60.6	10
142	61.1	8
143	61.7	6
144	62.2	5
145	62.8	4[1]

Intervention 2- Using a process which has already been scientifically validated to achieve a 5D reduction in E.coli 0157:H7.

Manufacturing processes used to make fermented sausages are only considered effective against *E. coli* O157:H7 if it is shown that they reduce the level of E.coli O157:H7 by 5 logs (for example from 100,000 cfu/g to less than 1 cfu/g). This is referred to as a 5D process. Under this intervention, it is **not** required to test product for *E. coli* O157:H7. or a 5 log reduction.

The operator must maintain suitable records to demonstrate that all of the critical control points for the process have been met (e.gs. casing diamter, fermentation room thermographs, ph at end of fermentation step, a_w, etc.)

The following processes have been scientifically validated as achieving a 5D or greater

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

reduction in E.coli 0157:H7:

Fermentation chamber temperature		pH at the end of fermentation process	Casing diameter	Subsequent process (dry, hold or cook)	Ref.
°F	°C				
70	21	≥ 5.0	≤ 55 mm	HEAT (1hr @ 110°F and 6 hrs @ 125°F)	1
90	32	≤ 4.6	≤ 55 mm	HOLD @ 90°F for ≥ 6 days	1
90	32	≤ 4.6	≤ 55 mm	HEAT (1hr @ 110°F then 6 hrs @ 125°F)	1
90	32	≤ 4.6	56 to 105 mm	HEAT (1hr @100°, 1hr @110°F, 1hr @120°F, then 7hrs @ 125°F)	1
90	32	≥ 5.0	56 to 105 mm	HEAT (1hr @100°, 1hr @110°F, 1hr @120°F, then 7hrs @ 125°F)	1
96	36	≤ 5.0	≤ 55 mm	HEAT (128°F internal product temperature x 60 minutes) and DRY (at 55°F and 65% Relative Humidity to a Moisture Protein Ration of ≤ 1.6:1)	2
110	43	≤ 4.6	≤ 55 mm	HOLD @ 110°F for ≥ 4 days	1
110	43	≤ 4.6	56 to 105 mm	HOLD @ 110°F for ≥ 4 days	1
110	43	≤ 5.0	56 to 105 mm	HOLD @ 110°F for ≥ 7 days	1

[1]- Nicholson, R., et al, *Dry fermented sausage and Eshcerichia coli O157:H7*.National Cattlemen's Beef Association, Research Report No. 11-316, Chicago, IL, 1996.
[2] - Hinkens, J.C., et al, *Validation of Pepperoni Processes for Control of Escherichia coli O157:H7*, Journal of Food Protection, Vol. 59, No. 12, 1996, pp. 1260-1266.

Intervention 3- Microbiological End-Product Testing Performed on Each Production Lot.

All lots are to be held pending results, and the following parameters must be met:

a) **Definition of "Lot"-** The definition of "lot" for purposes of sampling must be statistically sound and must correspond to product manufactured under the same conditions.

(b) **Sampling plan**: For each lot, the operator shall take **30** samples of finished product and submit them for analysis. The sample plan must be representative of the lot.

(c) **Sample size**: Each sample shall consist of at least **25 g** of product. Samples must be taken in accordance to standard microbiological techniques to avoid contamination of product and sampling of intact product packages is strongly recommended. It is unacceptable to take multiple samples from one intact package as this is not considered statistically representative of the lot.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

(d) **Compositing of samples** by the laboratory for analysis: It is acceptable to combine a **maximum of three (3) samples** into a composite for purposes of analysis when testing is done for *E. coli* O157:H7 and *Salmonella*.

(e) **Organisms to be tested:** At a minimum, each composite sample shall be tested for the presence of *E. coli* O157:H7 and *Salmonella.*

(f) **Laboratory requirements**: **CAUTION** - Since *E. coli O157:H7* are pathogenic to humans, the tests should be done in a laboratory that has the proper equipment for containment by personnel trained in handling level 2 pathogens.

(g) **Method used**: The method used to analyze the end product samples shall be one of the methods listed in Health Canada's Compendium of Analytical Methods, Vol. 3 Health Canada (ISBN 0-921317-17-4).

(h) **Reporting of results**: Results shall be reported in writing. Results shall be identified to the lot of product being tested and shall include individual results for each test performed, method used, minimum sensitivity of the test used, lot for which these results apply.

(i) **Release of product**: Product will be held under the control of the operator until the written results of analysis have been reviewed and found acceptable (i.e. negative for the presence of *E. coli* O157:H7 and *Salmonella*).

(j) **In case of a positive result** for either *E. coli* O157:H7 or *Salmonella*: the entire lot must be held and either submitted to process verified to achieve a minimum 5D reduction or the product must be destroyed. Possible cross-contamination of other lots shall also be assessed.

(k) **Keeping of records**: Records of test results shall be kept for a minimum of 24 months beyond the release date of the product.

Intervention 4- Implement a full HACCP plan for the product AND a process which has already been scientifically validated to achieve a 2D reduction in E.coli 0157:H7.

To be eligible to use this intervention, the operator must have implemented a HACCP system which meets the requirements of the CFIA's FSEP approach (Related information could be found on CFIA's Web site at http://www.cfia-acia.agr.ca/ english/ppc/haccp/ haccp.html). Sampling of raw batter must be done in accordance to the requirements set out in parts (a) to (k) below.

a)**Definition of "lot":** The definition of "lot" for purposes of sampling must be statistically sound and must correspond to like production practices. Provided that effective controls for tracing product are in place and all corresponding dry fermented sausage manufacturing processes have been validated as achieving at least a 2D reduction of *E.coli* 0157:H7, it would be acceptable to conduct one single series of sampling on batter which may be used thereafter in different sausages.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

(b) **Sampling plan**: For each lot, the operator shall take 15 samples of raw batter and submit them for analysis. The sample plan must be representative of the lot.

(c) **Sample size**: Each sample shall consist of at least **25 g** of product. Samples must be taken in accordance to standard microbiological techniques to avoid contamination of product. It is unacceptable to take multiple samples from one site as this is not considered statistically representative of the lot.

(d) **Compositing of samples** by the laboratory for analysis: It is acceptable to combine a **maximum of three (3) samples** into a composite for purposes of analysis when testing is done for *E. coli* O157:H7 and *Salmonella*.

(e) **Organisms to be tested:** At a minimum, each composite sample shall be tested for the presence of *E. coli* O157:H7 and *Salmonella.*

(f) **Laboratory requirements**: **CAUTION**! - Since *E. coli O157:H7* are pathogenic to humans, the tests should be done in a laboratory that has the proper equipment for containment by personnel trained in handling level 2 pathogens.

(g) **Method used:** The method used to analyze the end product samples shall be one of the methods listed in Health Canada's Compendium of Analytical Methods, Vol. 3, Health Canada (ISBN 0-921317-17-4).

(h) **Reporting of results**: Results shall be reported in writing. Results shall be identified to the lot of product being tested and shall include individual results for each test performed, method used, minimum sensitivity of the test used, lot for which these results apply.

(i) **Release of product**: Product will be held under the control of the operator until the written results of analysis have been reviewed and found acceptable (i.e. negative for the presence of *E. coli* O157:H7 and *Salmonella*).

(j) **In case of a positive result** for either *E. coli* O157:H7 or *Salmonella*: the entire lot must be held and either submitted to a 5D reduction process or be destroyed.

(k) **Keeping of records**: Records of test results shall be kept for a minimum of 24 months beyond the release date of the product.

The operator must maintain suitable records to demonstrate that all of the critical control points for the process have been met for the 2D reduction (e.gs. casing diamter, fermentation room thermographs, ph at end of fermentation step, a_w, etc.)

The following processes have been scientifically validated as achieving a 5D or greater reduction in E.coli 0157:H7:

Fermentation chamber temperature	pH at the end of fermentation	Casing diameter	Subsequent process	Ref.

°F	°C			(dry, hold or cook)	
70	21	≥ 5.0	56 to 105 mm	HEAT (1hr @ 110°F and 6 hrs @□125°F)	[1]
90	32	≤ 4.6	56 to 105 mm	HOLD @ 90°F for 7 days then dry	[1]
90	32	≥ 5.0	56 to 105 mm	HOLD @ 90°F for 7 days then dry	[1]
110	43	≥ 5.0	≤ 55 mm	HOLD @ 110°F f□r 7 days then dry	[1]
110	43	≥ 5.0	56 to 105 mm	HEAT (1hr @ □10°F and 6 hrs @ 125°F)	[1]

[1]- Nicholson, R., et al, *Dry fermented sausage and Escherichia coli O157:H7.*National Cattlemen's Beef Association, Research Report No. 11-316, Chicago, IL, 1996.

Intervention 5- Use an alternative manufacturing process which is scientifically proven against E.coli 0157:H7.

The facility operator may make a request for the evaluation of an alternative manufacturing process by Health Canada, Director, Bureau of Microbial Hazards, Food Directorate, HPB Ottawa (i.e. a 5 D process that differs from those outlined in Intervention 2 or a 2D process with raw batter testing that differs from intervention 4). To allow the process to be evaluated, manufacturers shall use the same challenge protocol that was developed by the USDA and described below under Annex 1 Challenge Protocol. Because of the complex nature of the protocol, it is strongly recommended that the services of an experienced food technology center be retained.

Upon completion of a successful evaluation, the establishment shall be receive a letter of no objection indicating that the process has been evaluated for its ability to control *E. coli* O157:H7 and found acceptable. Until such confirmation is received, the operator will have to manufacture product in accordance to one of the other four interventions outlined above.

6. Requirements for Controlling Trichinella Spiralis in Pork

All smokehouses or other cooking devices, freezers, and any other room/device, used for the destruction of *Trichinella* in pork or pork products shall be equipped with accurate automatic devices that **continuously** record time/ temperature.

Time/temperature recorders and thermometers used in registered establishments shall be tested for accuracy against a known accurate standard thermometer and clock. Such tests shall be performed just prior to installation and at least once a year thereafter or more frequently as may be necessary to ensure their accuracy. A dated record of such tests shall be kept, along with the responsible person, and the necessary information on deviations and appropriate corrective actions.

For freezing, heating and curing methods used to ensure the destruction of viable *Trichinella* in striated pork muscle or meat product containing striated pork muscle, the operator is responsible for keeping current and accurate records which document all parameters required for process control (e.g. lot identification, time/temperature records,

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

% salt, casing diameter, etc.), the critical limits which must be respected as well as the actual measurements confirming that the critical limits were met and, when a process deviation has occurred, the corrective action taken.

All operator control records shall be verified on a regular basis and kept at the establishment for at least one year or for the duration of the shelf life of the product if the latter is greater than one year. Records shall be available to the inspector upon request.

The inspector is responsible to maintain a freezing log book in addition to the operator's control records.

Heating

All parts of the pork muscle tissue shall be heated according to one of the time/temperature combinations listed in Table B.2

Table B.2
Thermal treatments to ensure the destruction of *Trichinella* in Pork Meat

Minimal Internal Temperature (°C)	Minimum time[1]
49	21 hrs.
50	9.5 hrs.
52	4.5 hrs.
53	2.0 hrs.
54	1.0 hr.
55	30 min.
56	15 min.
57	6 min.
58	3 min.
59	2 min.
60	1 min.[2]
62	1 min.[2]
63	Instant[2]

[1] The time to raise internal product temperature from15°C to 49°C shall not exceed 2 hours unless the product is cured or fermented.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

[2] Time, when in combination with internal product temperatures of 59°C to 62°C, does not need to be monitored if the product's minimum thickness exceeds 5.1 cm and refrigeration of the product does not begin within 5 minutes of attaining 59°C.

The operator shall use procedures which ensure the proper heating of all parts of the product. It is important that each piece of sausage, ham, and other product treated by heating in water be kept entirely submerged throughout the heating period; and that the largest pieces in a lot, the innermost links of bunched sausage or other massed articles, and those pieces placed in the coolest part of a heating cabinet, compartment or cooking vat be included in the temperature test.

Temperature monitoring shall therefore be conducted at the center of the largest pieces and at the coldest spot of the vat, heating cabinet or smokehouse. The operator shall keep records of their monitoring procedures including results, process deviations and corrective actions. Both the operators monitoring procedures and records should be routinely verified by the inspector as per the Compliance Verification System (CVS) program.

Freezing

Highlights of the various approved freezing methods for destroying trichinae

In methods #1 and #2, room temperature is controlled for the purposes of establishing that the process for destroying trichinae is compliant. Products are put in the freezer after chilling (i.e., once they have reached a temperature no higher than 4°Cwithout being frozen). Owing to these two factors, spacers must be used. The boxes may not be shrink-wrapped.

In method #3, products are already frozen when the treatment for destroying trichinae begins. The entire treatment needs to be monitored using a properly installed thermocouple. Spacers are not required in this method and the boxes may be shrink-wrapped.

Method #4 uses both types of monitoring (i.e., first the thermocouple, then room temperature) to ensure the destruction of trichinae. Spacers are not required and the boxes may be shrink-wrapped.

Method #5 has been developed for meat products frozen in bulk containers according to a specific protocol; the trichinae destruction treatment uses the time/temperature combinations adopted in method #3. Given the size of the containers, spacers cannot be used. Boxes may not be shrink-wrapped.

Freezing Method #1:

When this method is used, pork striated muscle or products containing pork striated muscle tissue, after preparatory chilling to a temperature of 4°C or less, shall be kept frozen at the indicated temperature for an **uninterrupted** length of time equal or longer to the one specified in the following table.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

Table B.3.1
Freezing method #1 to ensure the destruction of *Trichinella*
(Temperature -25°C)

Group	Time
Group 1 pork products with maximum thickness of 25 cm	10 days
Group 2 pork products with thickness between 25 - 50 cm	20 days

Insulating packaging material shall be removed prior to the commencement of the freezing process. Boxes shall be stacked in such a way as to permit air circulation and to permit product to reach the freezing room temperature as quickly as possible **(spacers required and no shrink wrap)**.

Freezing time calculation shall begin only from the moment that the freezer's temperature reaches the specified value. In cases where the freezer temperature exceeds the specified maximum temperature indicated in the freezing schedule, the operator shall either use a different time-temperature schedule which allows for the higher temperature or shall restart the counting of the number of uninterrupted freezing days from the moment that the freezer temperature returns below the specified maximum.

Freezing method # 2:

When this method is used, pork muscle or products containing pork muscle tissue, after preparatory chilling to a temperature of 4°C or less, shall be kept frozen at the indicated temperature for an **uninterrupted** length of time equal or longer to the one specified in Table B.3.2.

Insulating packaging material shall be removed prior to the commencement of the freezing process. Boxes shall be stacked in such a way as to permit air circulation and to permit product to reach the freezing room temperature as quickly as possible **(spacers required and no shrink wrap)**.

Freezing time calculation shall begin only from the moment that the freezer's temperature reaches the specified value. In cases where the freezer temperature exceeds the specified maximum temperature indicated in the freezing schedule, the operator shall either use a different time-temperature schedule which allows for the higher temperature or shall restart the counting of the number of uninterrupted freezing days from the moment that the freezer temperature returns below the specified maximum.

Table B.3.2
Freezing Method # 2 to Ensure Destruction of *Trichinella*

Freezer Temperature (°C)	Min. # of Days (uninterrupted)	Min. # of Days (uninterrupted)

	Group 1	Group 2
-15	20	30
-23	10	-
-25	-	20
-29	6	12

Group 1: 15 cm thickness or less
Group 2: 15 to 50 cm thickness

Freezing Method # 3:

In lieu of the methods prescribed in Freezing Method # 1 and Freezing Method # 2 above, products containing pork striated muscle may be treated by means of commercial freeze drying or controlled freezing.

When using this method # 3, **there is no obligation to use spacers and the use of shrink wrap around pallets is acceptable**.

Product brought in already frozen shall be treated in accordance with one of the time/product internal temperature combinations specified in Table B.3.3. For **each lot**, the **internal temperature** is to be monitored by a thermocouple placed in the CENTRE of the thickest piece of meat and in the warmest location of the freezer (not close to cooling equipment). The temperature shall be measured with properly calibrated thermoelectric instruments (recording thermometers) and continuously recorded. The charts shall include pertinent information and, at least, the lot number, its description, the number of boxes, date in, date out, and the signature of the inspector.

Table B.3.3
Freezing Method # 3 to Ensure Destruction of *Trichinella*

Product Internal Temperature (°C)	Minimum Time (hours)
-18.00	106
-21.00	82
-23.50	63
-26.00	48
-29.00	35
-32.00	22
-35.00	8
-37.00	½

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

Temperature, when measured in degrees Celsius, shall be measured to the next lowest tenth of a degree Celsius or, in the case of temperature measuring devices unable to attain such a degree of accuracy, to the next **lowest** degree Celsius. For example, if a thermometer is not accurate enough to read -23.5°C, the meat shall be frozen to -24°C.

Freezing method # 4:

For methods # 1 and # 2, the control of the freezing temperature is accomplished by monitoring the freezer's ambient temperature. For method # 3, the same control is exerted through the use of a thermocouple in the centre of the warmest piece of meat.

A fourth method has been found acceptable. This method is based on both types of controls to ensure the destruction of trichina.

When using this method # 4, **there is no obligation to use spacers and the use of shrink wrap around pallets is acceptable**.

This method is done in two steps.

Step 1:

The purpose of this first step is to ensure that the temperature of all products of the lot to be treated has attained a temperature equilibrium with the freezer temperature. For **each lot**, the **internal temperature** is to be monitored by a thermocouple placed in the CENTRE of the thickest piece of meat and in the warmest location of the freezer (not close to cooling equipment). For doing so, as soon as the product is brought into the freezer, a thermocouple is placed at the centre of the warmest box of the lot. This box is then placed at the centre of the largest pallet. The temperature shall then be measured with properly calibrated thermoelectric instruments (recording thermometers) and continuously recorded until product temperature at the centre of this box is the same as the freezer's ambient temperature.

Step 2:

At this time, the thermocouple may be removed. The freezing time calculation may begin. The treated products shall be kept frozen at the indicated temperature for an **uninterrupted** length of time equal or longer to the one specified in Table B.3.1 or B.3.2.

For each lot treated, the operator shall keep the charts of the two steps to clearly demonstrate the control that is exerted. Records for the two steps shall be kept on file for each lot. The charts shall include all pertinent information and, at least, the lot number, its description, the number of boxes, date in, date out, the freezing method used and the signature of the monitor.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

Freezing method # 5

This method is based on the protocol for freezing meat products in bulk containers (Table B.3.3. It **applies only to big cuts of meat** in bulk containers (e.g., a ham with bone) and has two steps.

Step 1:

The first step consists in ensuring that all refrigerated products that will be put in bulk containers will reach a temperature of -18°C or lower.

From the outset of the freezing process, **core temperature** must be monitored for **each lot** to be treated using a thermocouple inserted in the MIDDLE of the biggest cut of meat located in the warmest part of the freezer (not close to a refrigeration unit). Temperature must be recorded on a continuous basis using properly calibrated thermoelectric instruments (recording thermometers).

Step 2:

Freezing time for the treatment to destroy trichinae starts now. Treated products must be kept at the prescribed temperature without interruption for the amount of time specified in Table B.3.3.

The thermographs for each lot processed in each step should be preserved to clearly demonstrate that the proper controls have been applied. The temperature recordings for both steps must be kept, along with all pertinent information, notably the lot number, lot description, number of bulk containers, date of entry and removal, and the monitor's signature.

RELATED SECTIONS OF TIPM

02-G-03 Temperature Recording Devices
03-C-03 Calibration Procedures - Records of
03-D-09 Manufacturing Control Training
03-G-05 Dried - Dehydrated Products
03-G-10 Written Recipes
09-A-01 Trichinosis - Control of

SUBJECT: Dried - Dehydrated Products	03-G-05
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section 3.2, 3.3	**Initial Release** Sept 1, 2009 **Revised on** Sept 1, 2011 **Page 1 of 3**

RATIONALE

Drying is an effective method of preserving meat products. Lack of moisture creates an environment that is unsuitable for the growth and multiplication of micro-organisms (bacteria, molds, fungi, etc.) that cause spoilage and which may transmit diseases.

Drying can be accomplished by:

1. Exposure to air.
2. Heating.
3. Freeze drying.

Drying leads to a reduction in the water activity in the product.

Note: It is important to realize that **drying DOES NOT DESTROY micro-organisms or** their **toxins**. It only delays the subsequent growth of these agents.

It is essential for drying to be conducted properly.

Proper drying requires strict control of a number of factors including temperature, air movement through the room, relative humidity, etc.

Note: If drying occurs too fast there will be hardening of the product, particularly the outer surface. If drying takes too long the surface of the sausage will be soft and mold may develop. Excessive air movement will lead to fast drying and if it is too slow the growth of molds will be enhanced. Excess humidity will also slow down the rate of drying.

OBJECTIVE/OUTCOME

The "Licensed Meat Facility" (facility) will have written **"Dehydration Procedures"** on file.

Note: Drying procedures must be available for each different type of product.

The facility will have **"Dehydration Records"** on file.

Note: These records provide proof that the product has been handled and processed in a manner that ensures it is safe for human consumption.

All ingredients used in the production of dehydrated products, including the meat, will be handled and stored under conditions that limit the growth of micro-organisms (e.g. refrigeration).

Note: It is important that there be a limited number of micro-organisms in the initial product because the process of dehydration doesn't destroy them, it only slows their growth. The more there are at the start the faster the finished product will deteriorate.

Special rooms and areas will be designated for the production and drying of fermented meat products.

Note: These rooms, or areas, must be separated and designed in such a manner that the product only moves in one direction. One way movement serves to eliminate any chance of cross-contamination.

Drying can be done **in** the **smokehouse IF** it has been **specifically designed** and equipped with a drying cycle.

Drying will meet the requirements for temperature, relative humidity, time, pH, etc. that are set out in the next section of this document.

If a dehydrated product is made with beef (e.g. beef jerky), the manufacturing process **must** include a **kill step** specifically designed for ***E. coli* O157:H7** prior to dehydration. The following methods have been found acceptable for this purpose:

(a) cooking the product so it reaches an internal temperature of 71°C for 15 seconds before starting the drying process;**OR**
(b) use of a process validated as achieving a 5D reduction in *E. coli* O157:H7. **AND**
(c) an alternative challenge study of a design acceptable to the CFIA and Health Canada achieving a 5D reduction in *E. coli* O157:H7 can be used.

Note: This step is mandatory because this dangerous organism is reasonably likely to be present in beef products. The operator is responsible for selecting the appropriate kill step. This kill step must be monitored and documented.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Dried-Dehydrated Meat Products"** will be met when*:*

1. Written **"Cooking and/or Dehydrating Procedures"** are on file for each dried meat product.

   Note: Drying may be done at temperatures of 13-18^0 C (55-65^0 F) and at a relative humidity of 65-70% for a period of 21-90 days. Regular checks should be made to ensure that the daily weight loss during drying does not exceed 0.7%.

2. "**Cooking & Water Activity Records"** are on file

   Note: These records should prove that all dehydrated meat products were produced in accordance with the written **"Cooking and Dehydrating Procedures"**.

   In general meat and meat products can be dried to whatever is specified in the written procedures providing there is no temperature abuse of the product before, or during, the drying process and the growth of mold is suppressed. **This general statement does not apply to products**, including fermented products, **labeled and sold as "Shelf Stable"**.

3. **For products** to be **labeled** as **"Shelf Stable"** production records will prove that one of the following conditions has been met:

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

a) The a_w of the finished product is 0.85 or less, regardless of final pH.

Note: **a_w** is a **measure of water activity**. The a_w of a meat product is the ratio of the water vapor pressure of the meat product to that of pure water at the same temperature. **A_w** is measured on a scale of 0.00 to 1.00 with 0.00 being totally dry and 1.00 is pure water.

b) The pH of the finished product is 4.6 or less.

Note: **pH** is a **measure of acidity**. The pH is actually the negative logarithm of hydrogen ion or proton concentration. On the pH scale a reading of 7 is neutral. Readings below 7 indicate increasing degrees of acidity while readings above 7 indicate increasing degrees of alkalinity. Because pH is a logarithmic scale each step on the scale goes up by a factor of ten times. This means that a pH of 5 is 10 times as acidic as a pH of 6, a reading of 4 is 100 times more acidic than 6, a reading of 3 is 1,000 times more acidic, etc.

In addition to meeting one of the above requirements all **products containing <u>beef</u>**, **other than** those that have been **fermented verification that a <u>kill step</u>**, for *E. coli* 0157:H7, **was used** before the drying process was started. (e.g. heating the product to 71° C for 15 seconds) **is required**.

For **<u>Fermented Products</u>** production records must show that the pH has been reduced to below 5.3 or lower at the end of the fermentation period, the A_w is less than 0.90 and the product contains not less than 100 ppm nitrite or nitrate with salt at the moment of formulation.

4. Written **"Calibration Procedures"** and **"Calibration Records"** are on file.

Note: These records should contain details on all equipment, used in the dehydrating process, that require calibration (e.g. thermometers, water activity recorders, etc.).

5. Personnel **"Training Records"** are on file.

Note: These records should provide the names of personnel that are responsible for dehydration activities and they should detail the type of training that was provided.

RELATED SECTIONS OF TIPM

02-G-03 Temperature Recording Devices
03-C-03-Calibration Procedures - Records of
03-G-04 Fermented Meats
03-G-10 Written Recipes
09-A-01Trichinosis - Control of

SUBJECT: Product Cooking	03-G-06
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section 3.2, 3.3	**Initial Release** Sept 1, 2009 **Revised on** Sept 1, 2011 **Page 1 of 4**

RATIONALE:

Cooking can render many foods digestible, palatable, bring them to enjoyable eating temperature, and kill or injure viruses, parasites or vegetative forms of bacteria. Microorganisms, however, may survive depending on time-temperature exposure, previous treatments and characteristics of contaminating organisms (e.g. *Salmonella*). Experience has shown that the main risk to public health from meat products is due to food-poisoning organisms such as salmonellae, staphylococci and *Clostridium perfringens*.

In order to avoid risks of this nature, the temperature and duration of the cooking process for heat treated meat products employed in registered establishments should be such that the heat treatment alone or in combination with other preserving processes is sufficient to destroy all vegetative forms of these pathogens

Note: Time and temperature are critical factors in ensuring the destruction of pathogens. Specific internal temperatures must be reached in the product to effectively destroy any viable pathogens.

Required temperatures will vary with the type of meat product.

It is important to ensure that there is sufficient heat penetration, throughout, to ensure that the entire meat product has been properly cooked.

Note: A calibrated thermometer must be used to ensure that the desired internal temperature was reached. This is the only way that the operator can be sure that the final product is safe.

OBJECTIVE/OUTCOME

Microorganisms that may be distributed throughout meat during cure injection, reforming, or preparation of an emulsion. Cooking to 71ºC or maintaining temperatures above 60 ºC for an adequate period of time generally ensures that all vegetative forms of pathogens are destroyed, and takes into consideration some room for error in thermometer readings.

Note: Further information on cooking requirements can be found in the CFIA manual of procedures Section 4.3-Cooking at http://www.inspection.gc.ca/english/fssa/meavia/man/ch4/4-3-4e.shtml#a4-3

Cooking equipment used must be capable of consistently (lot by lot) delivering the specified cooking process.

Measuring and/or recording equipment must be suitable to accurately and consistently measure and/or record the data used to verify that the control limits identified in the manufacturing process are being met

Written “Cooking Procedures” will be developed, implemented, and maintained.

Note: These procedures must provide details on precautions taken to prevent, eliminate, or reduce, hazards to an acceptable level.

Cooking meat products to an instantaneous kill temperature of 71ºC is generally the easiest method to achieve a fully cooked, RTE product, however, time and temperature charts can be used (an example is depicted below), provided that validation documentation is provided.

Table 1 - Times for a given temperature, minimum holding time at that temperature (minimum dwell time) needed to obtain a 6.5D lethality of *Salmonella* spp.- Products containing NO chicken.

Degrees Celsius	Minimum Time to 6.5D reduction	Degrees Celsius	Minimum Time to 6.5D reduction
54.4	112 min	63.3	169 sec
55.0	89 min	63.9	134 sec
55.6	71 min	64.4	107 sec
56.1	56 min	65	85 sec
56.7	45 min	65.6	67 sec
57.2	36 min	66.1	54 sec
57.8	28 min	66.7	43 sec
58.4	23 min	67.2	34 sec
58.9	18 min	67.8	27 sec
59.5	15 min	68.3	22 sec
60.0	12 min	68.9	17 sec
60.6	9 min	69.4	14 sec
61.1	8 min	70	Instant
61.7	6 min	70.6	Instant
62.2	5 min	71.1	Instant
62.8	4 min	-	-

Note: Cooking time/temperature requirements are dependant on the species of meat used. Further cooking charts can be found in CFIA Manual of Procedures, Annex D at http://www.inspection.gc.ca/english/fssa/meavia/man/ch4/annexde.shtml

Validation involves verifying and demonstrating that the manufacturing process:

(a) is designed to deliver the necessary amount of thermal lethality to reach food safety; **and**
(b) that the operating procedures and equipment used to make meat products on a day-to-day basis will deliver the manufacturing process as designed.

Further detailed requirements on validation can be found in section 4.3.2.2 of the CFIA manual of procedures at http://www.inspection.gc.ca/english/fssa/meavia/man/ch4/4-3-4e.shtml#a4-3-2-2

If the operator has no validation that the process provides at least the minimum needed amount of thermal lethality, the product must be considered as a heat treated non RTE meat product.

In order to meet these requirements, the operator must conspicuously label the meat product to prevent it from being mistaken for a cooked RTE product and provide clear preparation instructions that when followed by the consumer will fully cook the product (i.e. provide enough thermal lethality instructions to achieve a 6.5D or 7.0D reduction in *Salmonella* spp.).

Records of cooking times and temperatures will be kept for all edible meat products.

Note: These records must be kept for a minimum of one year from the date that the products were made.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **Cooked Meat Products** will be met when*:*

1. Written plant specific "**Product Cooking Procedures"** are on file.

   Note: These procedures must meet all of the requirements of section 3-3 subsections (a) to (f) of the MFS.

2. Meat products are cooked in accordance with the procedure and reach the temperature specified in the procedure.
3. Calibrated thermometers are used to determine the internal temperature of cooked product.

   Note: **"Calibration Records"** for the thermometers must be on file.

4. Accurate and up-to-date, **"Cooking Records"** are kept.

   Note: As a minimum these records must include:

   a) Date;
   b) Time;
   c) Product name;
   d) Amount of product;
   e) Internal temperature reached (and time, if applicable);

f) Initials of responsible personnel (including verifier)

RELATED SECTIONS OF TIPM

02-G-03 Temperature Recording Devices
03-C-03 Calibration Procedures - Records of
03-D-09 Manufacturing Control Training

SUBJECT: Cooked Product Cooling	03-G-07
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section 3.2,3.3	**Initial Release** Sept 1, 2009 **Page 1 of 3**

RATIONALE

Most common food poisoning bacteria will grow from 0^0 C up to 54^0 C, but their range of rapid growth is from 27^0 C to 54^0 C. It is important to cool product effectively and continuously, but it is particularly important to have rapid cooling during the rapid growth range temperatures of 27^0 C to 54^0 C.

There is always the possibility that a few micro-organisms (bacteria, molds, fungi, etc.) might survive the cooking process. These survivors have been heat-shocked, but not completely destroyed.

Note: The vegetative forms, of these micro-organisms, will have died but spores may survive. Spores are bacterial forms that have a tough outer cover which makes them more resistant to heat. These opportunistic micro-organisms waits until the temperature gets to the point where it is not too hot, yet warm enough to multiply. If the temperature remains in the optimum range long enough, some of these spore forming organisms are capable of producing a toxin (poison) that is strong enough to kill.

OBJECTIVE/OUTCOME

The "Licensed Meat Facility" (facility) will use appropriate cooling methods of all heat processed (cooked) meat products.

Note: Appropriate cooling means using one of the methods outlined in the procedures section of this document.

Approved cooling methods include:

a) Slow Cooling Rate for Specific Heat Processed Products
b) Rapid Cooling Rate
c) Interrupted Cooling Rate

Proper use of these methods ensures that micro-organisms won't have an opportunity to multiply and produce toxins.

Written **"Cooling Procedures"** will be on file.

Note: There must be a written procedure for each type of heat-processed product detailing how the product will be cooled and the time frame for events to occur.

The cooling process will be verified.

Note: The process for each product must be verified. Verification must occur at specified frequencies to ensure that the time/temperature results comply with regulatory guidelines.

"Cooling Records" will be on file.

Note: These records must be retained for 2 years.

COOLING GUIDELINES

Slow Cooling Rate for Specific Heat Processed Products

These following guidelines apply to formulated products, i.e. products that have been cured and have added nitrites and salt and reduced water activity:

a) with a water activity (a_w) of above 0.92, no less than 120 ppm of sodium nitrite (or its equivalent in KNO_2) and a salt concentration* of 3.5% or more in the finished product; OR

b) with a water activity (a_w) of above 0.92, no less than 40 ppm of sodium nitrite (or its equivalent in KNO_2) and a salt concentration* of 6% or more in the finished product; OR

c) with a water activity (a_w) that is less than or equal to 0.92 at the beginning of the cooling process, with or without nitrite (such as dried products); OR

d) with a water activity (a_w) of above 0.92, no less than 180 ppm of sodium nitrite (or its equivalent in KNO_2) and a salt concentration* of 2.3% or more in the finished product.

Note: $$\text{Salt Concentration} = \frac{\%\text{ salt}}{\%\text{ salt} + \%\text{ moisture in end product}} \times 100$$

Example

Example: If there is 2.8% salt in the formulation and the end product has a moisture level of 72%:

$$\text{Salt Concentration} = \frac{2.8}{2.8 + 72} \times 100 = 3.74\%$$

The slow cooling guidelines can also be used if the products meet one of the above conditions (a-d) and ALSO meets the following condition 1 **and** one of the choices in condition 2:

1. The *internal* temperature does not remain between 49^0 C and 4^0 C ($120.^0$ F to 40^0 F) for more than 20 hours **AND**
2. The cooling process:
   a) causes a continuous drop in the product temperature; **OR**
   b) controls the product's surface temperature so that it does not stay between 49^0 C and 20^0 C (120.2^0 F to 68^0 F) for more than 2 hours.

Rapid Cooling Rate

With the exception of products included above in section (1), the operator shall use the rapid cooling rate to rapidly and continuously cool all other heat processed products.

There are 2 choices for a rapid cooling rate:

1. During cooling, the product's maximum internal temperature should not remain between 54^0 C and 27^0 C (129.2^0 F to 480.6^0 F) for more than 2 hours; nor between 27^0 C and 4^0 C (80.6^0 F to 40^0 F) for more than 5 hours [i.e. from 54^0 C to 4^0 C (129.2^0 F to 40^0 F) in a total of 7 hours] except for products listed in #2 below.

2. Product consisting of pieces of intact (not tenderized muscle) such as turkey breast, or pork loin, may be cooled within 7.5 hours from the initiation of the cooling process as long as chilling begins immediately after the cooking cycle is completed and the internal temperature of the product is 5^0 C (41^0 F) or less within 7½ hours from the initiation of the cooling process, while taking no more than 2 hours for the 50^0 C to 20^0 C temperature zone.

Interrupted Cooling Rate

This guideline applies to heat processed products kept in intermediate storage temperatures. This means that they are not cooled completely to 4^0 C in a continual cooling stage, but that the cooling is done in more than one stage. Products heat processed to 69^0 C (156.2^0 F) or more and then cooled from 54^0 C to 18^0 C (129.2^0 F to 64.4^0 F) within 2 hours may be held for up to 4 hours **IF THEY ARE**:

1. Kept below 18^0 C (64.4^0 F) during the 4 hours, **AND**
2. Protected from post cooking contamination (e.g. covered, wrapped, etc), **AND**
3. Cooled to 4^0 C (40^0 F) within 2 hours *immediately* at the end of the 3 hour long holding period.

Note: For permission to use a cooling process that DOESN'T meet any of the preceding guidelines the operator must provide the appropriate regulatory authority and describe the cooling process and relevant data for evaluation.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Cooked Product Cooling"** will be met when*:*

1. Written **"Cooling Procedures"** are on file at the facility.

   Note: These procedures must meet, all of the requirements of subsections (a) – (f) of Section 3-3 of the MFS for each heat processed meat product.

2. All meat products are cooled in accordance with the procedures.
3. Accurate and up-to-date **"Cooling Records"** are on file.

   Note: These records should verify that:

   a) cooling times and temperatures comply with regulatory guidelines

   b) temperatures are taken at the frequencies specified in the procedures

4. Calibrated probe thermometers are used to take temperature.
5. Thermometer **"Calibration Records"** are on file.

RELATED SECTIONS OF TIPM

02-G-03 Temperature Recording Devices

03-C-03 Calibration Procedures - Records of

03-D-09 Manufacturing Control Training

SUBJECT: Carcass Cooling - Red Meat	03-G-08
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Sections 15.1 & 52 AR 31/2006 *Food Regulation* Section 25(1) Meat Facility Standards (MFS) Section 3-3	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

Meat will spoil if stored under conditions that allow the growth of micro-organisms (e.g. bacteria and fungi).

The warm temperature and moistness of recently slaughtered carcasses provides ideal conditions for the growth and development of bacteria and fungi.

Cooling is an effective method of preventing the growth and development of food spoiling micro-organisms therefore all carcasses must be:

1. Cooled quickly to an internal temperature of 4^0 C (40^0 F), or less,
2. Maintained at this temperature, or lower, until they are shipped, or processed.

OBJECTIVE/OUTCOME

All edible red meat carcasses, cuts and offal will be chilled immediately after the final carcass inspection has been completed.

Cooling of the carcass will meet the following regulatory standards:

1. Cooling will be continuous.
2. The surface temperature will reach 7^0 C (44.6^0 F), or less, within 24 hours.
3. The internal temperature (warmest part) of the carcass will be 7^0 C (44.6^0 F), or less before cutting starts
4. Following cutting the temperature must decline steadily to reach 4^0 C (40^0 F), or less, as soon as possible.
5. Once a temperature of 4^0 C (40^0 F) has been reached the carcass must remain at that temperature, or lower, until it is shipped.

Note: In order to meat these requirements the equipment and facilities must be capable of cooling meat and meat products in a timely and efficient manner.

Specific cooling procedures, including cleaning and pre-cooling of coolers, will be developed and followed.

Note: The cooler should be empty before the start of the kill and cooled to at least 4^0 C. It is “Common Industry Practice” to bring the temperature down to 2^0 C to ensure a suitable temperature is maintained after warm carcasses have been put in.

There will be adequate cooler space.

Note: Coolers must not be overcrowded. Carcasses must not touch each other nor should they touch the floor.

"Cooling Rate Records" will be kept for each day of slaughter.

Note: These records must be kept a minimum of 1 year.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **Carcass Cooling- Red Meat** will be met when*:*

1. Written plant specific "**Carcass Cooling Procedures"**, are on file

   Note: These procedures must meet all of the requirements of section 3-3 subsections (a) to (f) of the MFS.

2. Onsite observation and records demonstrate that the procedures are being followed.
3. Carcass temperatures are monitored and recorded during the cooling process.
4. Up-to-date "**Carcass Cooling Records"** are on file.

   Note: These records and onsite observations should demonstrate that:

   a) cooling starts immediately after the final carcass inspection;

   b) cooling is continuous

5. **"Calibration Records"** are on file for the probe thermometers used to take carcass temperatures.
6. **"Storage Records"** are on file.

   Note: These records should verify that temperatures were monitored regularly as carcasses were added.

RELATED SECTIONS OF TIPM

02-G-03 Temperature Recording Devices
03-B-02 Storage Procedures & Records
03-C-03 Calibration Procedures - Records of
03-D-09 Manufacturing Control Training

SUBJECT: Carcass Cooling - Poultry	03-G-09
AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Sections 15.1 & 18(1)(c) AR 31/2006 *Food Regulation* Section 25(1) Meat Facility Standards (MFS) Section 3.3	**Initial Release** Sept 1, 2009 **Revised on** Sept 1, 2010 **Page 1 of 2**

RATIONALE

Poultry products will spoil if they are stored under conditions that allow the growth of micro-organisms (e.g. bacteria and fungi).

The warm temperature and moistness of recently slaughtered birds provides ideal conditions for the growth and development of bacteria and fungi.

Cooling is an effective method of preventing the growth and development of food spoiling micro-organisms therefore it is important to rapidly chill poultry carcasses and giblets immediately after dressing and inspection procedures have been completed.

Poultry carcasses and other edible products can be chilled by refrigeration or by immersion in cold water.

Note: Most provincially licensed abattoirs use cold water for chilling. Satisfactory chilling requires refrigeration of the water or the continuous addition of ice.

Chilling rates will be affected by:

1. Temperature of the water;
2. Processing room temperature;
3. Water overflow and replacement rate;
4. Size of birds;
5. Number of birds in the chill tank

Records are required to verify that product has been properly chilled.

Note: Deep muscle temperatures, taken periodically throughout the chilling process, must be recorded.

OBJECTIVE/OUTCOME

All dressed poultry carcasses and other edible poultry products (e.g. giblets) will be chilled immediately after evisceration and washing.

Temperatures of **4^0 C,** (40^0 F) **or lower,** will be reached within the times specified in the following table:

Weight of finished poultry	Time for cooling (maximum)
Under 1.8 kg (4 pounds)	4 hours
Between 1.8-3.6 kg (4-8 pounds)	6 hours
Over 3.6 kg (8 pounds)	8 hours

Giblets, carcass parts harvested during dressing procedures, including detached necks and salvaged portions	2 hours
Chicken feet (paws)	4 hours
Turkey breasts, breast fillets, legs, drumsticks and thighs	4 hours

Note: Chilling equipment must be capable of meeting the above parameters, and, where possible, is located where cooling will occur most efficiently.

Ice must be used as a chilling agent unless the chill tanks, or other chilling mechanisms, are refrigerated

To avoid unnecessary water absorption, poultry must be removed from chill tanks as soon as possible after reaching the required temperature.

Written **"Carcass Cooling (Chilling) Procedures"** will be developed and followed.

Daily **"Carcass Cooling (Chilling) Records"** will be maintained.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for the **Carcass Cooling- Poultry** will be met when:

1. Written plant specific "**Carcass Cooling (Chilling) Procedures"**, are on file.

   Note: These procedures must meet all of the requirements of section 3-3 subsections (a) to (f) of the MFS.

2. Cooling begins immediately after evisceration and washing.
3. Deep muscle temperatures are monitored and recorded in accordance with the written procedures for each slaughter day.
4. Chill water is maintained at 0 to 2^0 C.

   Note: It is "Common Industry Practice" to continuously replace the water in order to achieve proper cooling.

5. Up-to-date **"Carcass Cooling (Chilling) Records"** are on file.

   Note: These records should show the time frame taken to reach an internal temperature of 4^0 C and demonstrate that:

   a) cooling starts immediately after the final carcass inspection;

   b) cooling is continuous

6. **"Calibration Records"** are on file for the thermometers used to take temperatures.

RELATED SECTIONS OF TIPM

02-G-03 Temperature Recording Devices
02-G-08 Poultry Chilling Equipment
02-O-03 Giblet Salvaging Station(s)
03-C-03 Calibration Procedures - Records of
03-D-09 Manufacturing Control Training

SUBJECT: Written Recipes	03-G-10
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section 3.1,3.2, 3.3	**Initial Release** Sept 1, 2009 **Page 1 of 1**

RATIONALE

The operator of a "Licensed Meat Facility" (facility) is responsible for establishing and adopting procedures that will ensure that all products they manufacture are completely safe for human consumption.

To minimize the chance of error all instructions (recipes) should be in writing.

Note: Recipes should fully describe methods of production and they should specify the control and monitoring of such methods.

Practices relating to monitoring the quantity of the ingredients, used in preparing meat products, are of particular importance.

Note: Some ingredients, particularly nitrites and nitrates, are toxic (poisonous) when added in excess. For this reason ingredients, in processed meat products, must be accurately measured. Guesswork, or estimation, in the measurement of ingredients is hazardous and must be avoided.

Due the possibility of poisoning only ingredients that have been approved by the Canadian Food Inspection Agency (CFIA) can be used.

Note: Only amounts deemed to be safe can be used.

OBJECTIVE/OUTCOME

Written recipes and methods of preparation for all meat products requiring the addition of any ingredient(s) will be kept on file at the facility.

Note: All recipes must state accurate amounts of and ingredients that are to be added and the written methods of preparation must state, in detail how the product is to be made, including methods and times of preparation, cooking, cooling, etc.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Written Recipes"** will be met when:

1. Written **"Recipes",** for all meat products produced at the facility, are on file.

   Note: These recipes must provide specific details on any ingredients that are to be added.

2. All recipes are in compliance with the *Food and Drug Act* (Canada) and it' s associated Regulations pertaining to the ingredients that are to be added.

RELATED SECTIONS OF TIPM

03-G-03 Nitrate & Nitrite Addition
03-G-04 Fermented Meats
03-G-05 Dried - Dehydrated Products
03-G-06 Product Cooking
03-G-12 Allergen Control Program
03-G-13 Grinding Procedures

SUBJECT: Ready to Eat (RTE) Storage & Handling	03-G-11
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section 3.1, 3.2, 3.3	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

"Ready to Eat" (**RTE**) **products** have been cooked, or otherwise processed (e.g. fermented) in a manner that makes them **safe to eat without further cooking**.

Because these products can be eaten without further cooking makes it **essential to avoid** any **contamination** through poor handling, packaging, or storage practices.

To protect against contamination it is important for the "Licensed Meat Facility" (facility) to develop and adhere to processing controls that enhance food safety.

Note: Implementation of **process controls** is **more effective** in ensuring product safety **than testing** of the finished product.

Complete separation of RTE products, from raw product, at all times, is of utmost importance to prevent contamination. Separation is essential in processing and storage areas.

Note: Separation in storage can be achieved by:

a) use of impervious packaging;

b) storage in separate coolers

Keeping meat at 4^0 C, or less, is essential in preventing the growth of bacteria and molds.

Note: This temperature requirement applies to all stages of storage, handling and transportation.

Poor hygienic practices, by facility personnel, are a potential cause of cross contamination, between RTE and raw product.

Note: Under ideal procedures only designated personnel will work with RTE products. If this is not possible specific rules such as separate protective clothing (e.g. smocks and gloves) must be strictly enforced.

If a common area has to be used for handling and packaging of RTE products as well as raw, or semi-cooked, products the handling and packaging of RTE products should be conducted before the other products are worked with.

Note: These areas must be thoroughly cleaned and sanitized before they are used again for RTE products.

OBJECTIVE/OUTCOME

The facility will have specific procedures for the handling, storage, and packaging of RTE products.

Note: These procedures must be:

a) written;

b) implemented;

c) communicated to all staff

RTE products will be separated from raw meat, or raw meat products, at all times.

RTE products will be handled, stored and packaged:

1. In dedicated rooms.
2. By dedicated personnel that are dressed appropriately.

Note: Dedicated rooms and personnel is the ideal situation. If dedication is not possible the procedures must designate specific areas for handling, storage and packaging of RTE products and/or specify criteria that must be followed to minimize any chance of cross contamination.

Personnel working with RTE products will be trained appropriately.

Note: Appropriately trained personnel will understand the precautions needed to prevent contamination of RTE product with raw product and they will be able to implement appropriate procedures.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for the "**RTE Storage & Handling"** will be met when:

1. Detailed written "**RTE Storage & Handling Procedures"** are on file at the facility

   Note: These procedures must provide details about how the facility is preventing, or eliminating, the chance of contamination of RTE products.

2. Onsite observations demonstrate that RTE products are handled and packaged in accordance with the written procedures.
3. All RTE products are stored in a manner that effectively controls the growth of pathogenic micro-organisms and protects the product from physical damage.

RELATED SECTIONS OF TIPM

03-D-01 Health & Hygiene Policy
03-D-02 Cleanliness & Protective Clothing
03-D-03 Hand Washing & Gloves
03-D-09 Manufacturing Control Training
03-G-07 Cooked Product Cooling

SUBJECT: Allergen Control Program	03-G-12
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section 3.1, 3.2, 3.3	**Initial Release** Sept 1, 2009 **Page 1 of 3**

RATIONALE

Food ingredients can cause life threatening allergic reactions in susceptible individuals.

For this reason an effective allergen control program is essential to reduce this very real and serious risk.

Note: Allergens are materials that are capable of causing an allergic reaction.

By law, the presence of common **allergens**, in any food product, including meat products, **must be declared on the label**.

Note: At the time this document was written the official list of common allergens included:

a) Peanuts;

b) Tree nuts;

c) Eggs and egg products;

d) Milk and dairy, products;

e) Crustaceans;

f) Fin fish;

g) Soy;

h) Wheat;

i) Sesame seeds;

j) Sulfites

k) Mustard seed

As new allergens are identified the list of allergens will expand.

All products containing any of the above common allergens that are stored, in a “Licensed Meat Facility” (facility), must be labeled by color coding, or other means, to identify that it contains allergens.

Note: The facility operator is responsible for developing and implementing procedures, at all stages of production, to ensure that cross-contamination does not occur between allergens and non-allergenic products.

OBJECTIVE/OUTCOME

A written **"Allergen Control Program"** will be on file at the facility.

Note: The purpose of this program is to ensure that allergens used, or stored, in the facility do not cross-contaminate any non-allergenic products, or ingredients.

All **allergen** containing products and **ingredients will be identified and controlled** at all stages of production.

Final **products that contain allergens will be accurately labeled** to identify the allergenic ingredients.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for an effective **"Allergen Control Program"** will be met when:

1. An up-to-date, written **"Allergen Control Program"** is on file.

   Note: This program will include a:

   a) master list of all ingredients, processing aids and packaging that clearly identifies those which are allergenic or that contain, allergens;

   b) listing of secondary ingredients (e.g. spices, flavorings, additives, release agents, colorings, etc.);

   c) master list of all finished products which clearly identify all products that contain allergens;

   d) requirement for the suppliers of ingredients to have an effective allergen control program

   The term "up-to-date" means that the program has been modified as required and as new allergens are identified.

2. **"Written Allergen Procedures"** are in place relating to the transportation, receiving and storage of ingredients and finished products that contain allergens.

   Note: These procedures must ensure that items containing allergens are segregated, clearly labeled and handled in a manner that minimizes the chance of contamination of other ingredients, packaging materials or finished products.

3. Procedures are in place to dedicate processing equipment, or areas of the facility, **OR** to segregate production through scheduling whenever ingredients, or products, containing allergens are processed.

   Note: Allergens, equipment, packaging materials and personnel should be kept in mind when scheduling, or rescheduling of production occurs and procedures must be in place to control allergens during product change over.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS) (continued)

4. Written **"Sanitation Procedures"** are in place for equipment used to handle products that contain allergens
5. Written **"Rework Procedures"** are in place to control any rework and/or reformulation activities for products that contain allergens
6. **"Training Records"** for personnel involved with handling of ingredients and/or products that contain allergens are on file.

   Note: These records should:

   a) identify the topics that were covered;

   b) name personnel that received the training;

   c) indicate that the training was understood (e.g. examination results)

7. Products that contain allergens are properly labeled so that all allergens are identified.

   Note: In addition procedures must be in place to ensure that labels remain current and accurate after reformulation.

RELATED SECTIONS OF TIPM

03-D-09 Manufacturing Control Training

03-E-03 Sanitation Procedures

11-C-04 Ingredient Listing & Allergen Information

SUBJECT: Grinding Procedures	03-G-13
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section 3.3	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

Ground meat products are considered to be a higher risk product than other raw cuts of meat because micro-organisms (bacteria, fungi, molds, etc.), when present, will be spread throughout the product.

Note: A bacterium called ***E. coli* O157:H7** is of **particular concern in ground beef**.

Appropriate processing practices can significantly reduce the possibility of contamination.

Note: Appropriate processing practices, of importance, include but are not limited to:

a) strict rules of hygiene for personnel doing the grinding;

b) frequent cleaning and sanitation of equipment and storage tubs particularly between batches;

c) prompt processing to minimize the chance of microbial growth;

d) proper storage temperatures for both raw materials and finished product;

e) no carry over (i.e. re-working of a product);

f) no double grinding

OBJECTIVE/OUTCOME

Written **"Grinding Procedures"** will be on file and implemented.

Note: These procedures must provide details about precautions that need to be taken, during processing that will have the effect of preventing, eliminating, or reducing hazards to an acceptable level.

Grinding will be done without delay (as soon as possible after cutting) and under conditions that will prevent the initial contamination of the product and minimize the chances of further development of any pathogenic (disease causing) micro-organisms that might get into the product.

Note: Failure to do so could lead to the spoilage of the product or the presence of dangerous numbers of pathogens in the product.

Meat, or meat products, that are going to be ground will be stored at a proper temperature and in a manner that reduces the possibility of contamination, before, during and after the grinding process.

Note: Under ideal conditions grinding would take place in a separate refrigerated area. When that is not possible specific procedures need to be developed to minimize the risks.

Appropriate records, of all batches, will be on file.

Note: These records are of utmost importance in case of a recall of ground meat product.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **"Grinding Procedures"** will be met when:

1. Facility specific, written "**Grinding Procedures"** are on file

   Note: These procedures must meet all of the requirements of section 3-3, subsections (a) to (f) of the MFS.

2. The procedures detail all of the operational controls that need to be practiced before, during and after grinding.

   Note: This should also include handling and storage procedures.

3. Grinding equipment is included in the facilities written **"Sanitation Program"**,

   Note: The frequency of cleaning must be specified.

4. Onsite observations demonstrate that the written procedures are followed.
5. Any testing procedures, for the presence of pathogens, are specified.
6. Appropriate facilities (e.g. separate processing areas with temperature controls) are available OR written **"Operational Control Procedures"** are on file.

   Note: These procedures must ensure that hazards are minimized if the location of the grinding area may pose an increased risk (e.g. a non-refrigerated processing area).

RELATED SECTIONS OF TIPM

02-G-01 Processing Rooms - Temperature Requirements

03-D-09 Manufacturing Control Training

03-F-03 Batch & Distribution Records

SUBJECT: Intervention Strategies	03-G-14
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section 3.3	**Initial Release** Sept 1, 2011 **Page 1 of 2**

RATIONALE

A primary goal of the slaughter process is to minimize contamination of the carcass with micro-organisms (bacteria, molds, fungi, etc.) and to effectively remove contamination that may have occurred.

Note: Most contaminants, micro-organisms, chemical, or physical, have the potential to cause harm to consumers of meat, or meat products.

Sanitary dressing procedures are the primary means of reducing contamination of poultry carcasses, by micro-organisms, but in reality, no matter how careful the dressing procedure is conducted, it is almost impossible to dress a carcass without some bacterial contamination.

Note: Many bacteria found in the manure (e.g. Salmonella, Campylobacter, etc.) and on the skin of animals are capable of causing serious disease in humans.

The unavoidability of bacterial contamination is the reason that “Intervention Protocols” are necessary as a manufacturing control.

OBJECTIVE/OUTCOME

Written **“Chemical Intervention Procedures”** will be on file and implemented.

Note: These procedures must provide details about precautions that need to be taken, during processing that will have the effect of preventing, eliminating, or reducing hazards to an acceptable level.

Chemical intervention will be performed as detailed in the written procedures and under conditions that will prevent hazards to the carcasses or to facility workers.

Note: Failure to perform chemical intervention properly could lead to the spoilage of the product or the presence of dangerous levels of chemicals on/in the product.

Chemical intervention is to be performed in a suitable part of the facility.

Note: Chemical intervention is usually performed on the kill floor or in the drip cooler, to minimize the risk of cross contamination to other finished products.

Appropriate records of intervention application will be on file.

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for “**Intervention Strategies- Red Meat Animals**” will be met when**:**

1. **Written**, abattoir specific, **“Intervention Procedures”** are on file.

   Note: Written protocols must include monitoring procedures and records, including tests of the concentrations (and temperature, if applicable) of any solutions used in the protocol at least once every shift.

These procedures must include:

a) the method of intervention;
b) the person responsible;
c) cleanliness requirements for the equipment;
d) descriptions for the proper utilization of the equipment;
e) the site and rate of application including solution flow rate and pressure;
f) safe and sanitary storage requirements for chemical agents;
g) chemical concentrations, temperatures and other specifications;
h) a description of actions taken if the method of intervention does not follow the written program

2. An up-to-date **list of all non-food chemicals** in use, or stored, on the premises.

   Note: There should also be documentation indicating that these chemicals have been approved for use in it's specific application.

3. All microbial control treatment solutions and/or treated water are tested and the test results are captured by a continuous recorder, or if recorded manually, a minimum of once every 4 hours.

   Note: Records must show ongoing compliance with:

   a) Maximum allowable concentrations (and if applicable, temperature and/or time) as indicated by Health Canada for use on raw poultry; and
   b) minimum concentration (and if applicable, temperature and/or time) needed to ensure effective control of microbial organisms.

4. **"Intervention Strategies"** do not result in the contamination of any non-compatible products, ingredients or packaging material.
5. All facility personnel involved in the performance of **"Intervention Strategies"** are in compliance with Occupational Health and Safety Requirements.

   Note: A current "Material Safety Data Sheet" (MSDS) must be on file, at the facility, for each microbial control agent in use.

6. "**Intervention Training Records"** are on file at the premises**,** for personnel responsible for conducting the intervention.

   Note: Training must include MSDS training for chemicals being used.

7. On site observations by demonstrate that the abattoir is performing the **"Intervention Strategies"** in accordance with the written protocol.

RELATED SECTIONS OF TIPM

03-C-02 Approved Chemicals & Chemical Listing

03-D-09 Manufacturing Control Training

03-G-01 Dressing Procedures - Red Meat

03-G-02 Dressing Procedures - Poultry

SUBJECT: Smoking of Non-RTE Products	03-G-15
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) Section 3.2, 3.3	**Initial Release** Sept 1, 2011 **Page 1 of 3**

RATIONALE

Cooking can render many foods digestible, palatable, bring them to enjoyable eating temperature, and kill or injure viruses, parasites or vegetative forms of bacteria. Microorganisms, however, may survive depending on time-temperature exposure, previous treatments and characteristics of contaminating organisms (e.g. *Salmonella*).

Non-RTE meats (e.g. smoked and cold smoked products) include products which have been subjected to a further process of smoking or a heat treatment that does not raise the product temperature to a temperature and time combination that guarantees that all vegetative bacteria have been destroyed (fully cooked temperatures).

When product is held at temperatures above 15.6^0 C, *S. aureus* can multiply and produce toxins (poison). These toxins are heat stable and may not be killed with partial cooking.

Proper cold smoking will **limit** the growth of these toxins.

Note: Control of the time and temperature that smoked products are exposed to within critical zones are critical factors in ensuring that the growth of these toxins are limited

Note: A calibrated thermometer and accurate measurement of time/time frames must be used to ensure that smoked products are not held in these critical zones past critical time limits.

Note: These products are **not** considered "**Ready To Eat**" and do require to be labeled as such as further cooking is required by the consumer after purchase.

OBJECTIVE/OUTCOME

All smoked meat products will be processed in a manner that will limit the production of toxins.

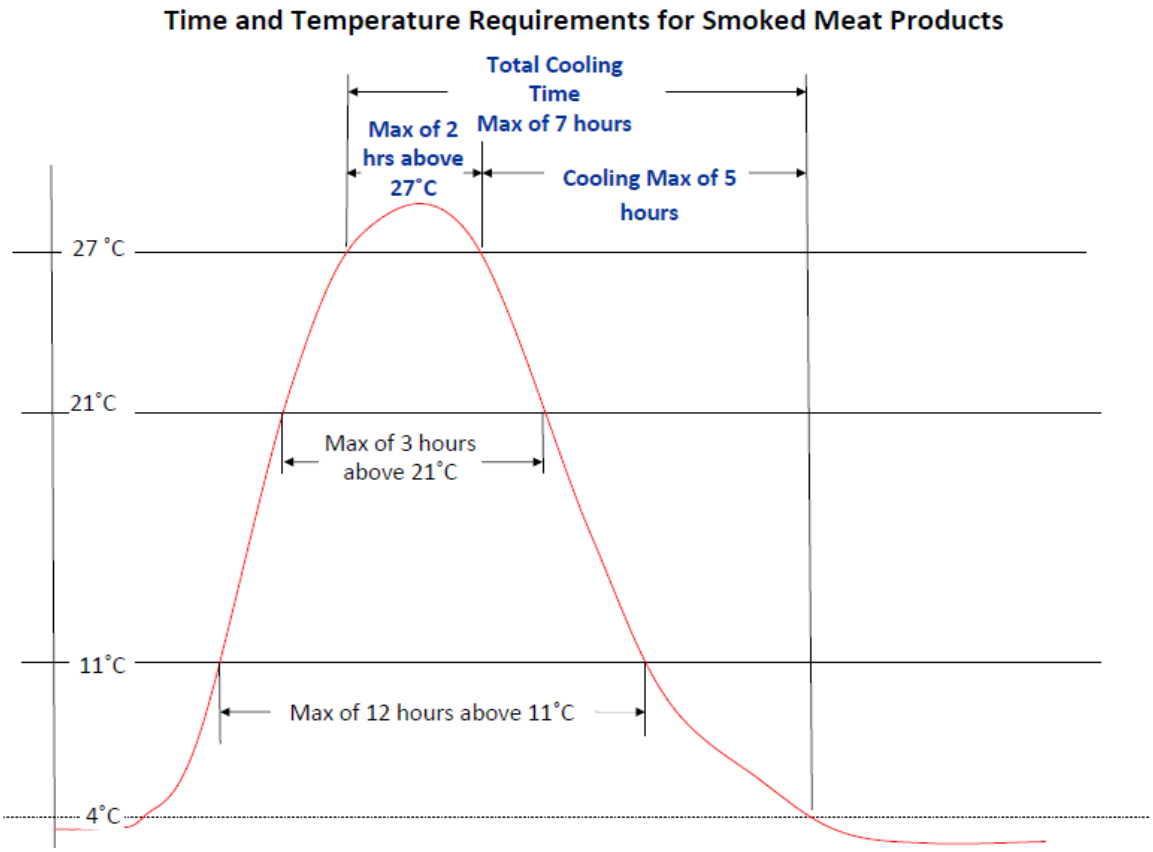
Note: To accomplish this, the operator must meet all of the time and temperature requirements for the product being produced.

Written "Smoked Product (NRTE) Procedures" will be developed, implemented, and maintained.

Note: These procedures must provide details on the criteria that will be used to limit the growth of hazards.

Records of smoking times and temperatures will be kept for all edible meat products.

Note: These records must be kept for a minimum of one year from the date that the products were made.



Note: The above temperature requirements do not apply for NRTE bacons and hams, as they have multiple other hazard controls (e.g. salt, nitrate/nitrite levels)

Any NRTE product labels clearly state that the product is **NOT RTE**, with the words "must be cooked", "raw product", "uncooked", or any equivalent words or word that indicates that the product requires further cooking before consumption.

Product labels include a preparation instruction, that when followed by the consumer will fully cook the product (e.g. cook to 71.1 °C)

REQUIREMENTS FOR AN AUDITABLE SYSTEM (MFS)

Requirements for **Smoking of Non-RTE Products** will be met when*:*

1. Written plant specific "**Product Smoking Procedures"** are on file.

   Note: These procedures must meet all of the requirements of section 3-3 subsections (a) to (f) of the MFS including temperatures specified by regulation.

2. Meat products are smoked in accordance with the procedure and are not kept in the Critical temperature zones for longer than the maximum allowable time frames.
3. Calibrated thermometers are used to determine the internal temperature of Smoked product.

   Note: **"Calibration Records"** for the thermometers must be on file.

4. An accurate method of measuring how long smoked products are within each temperature zone.
5. Accurate and up-to-date, **"Smoking Records"** are kept.

    Note: As a minimum these records must include:

    a) Date;

    b) Time;

    c) Product name;

    d) Amount of product;

    e) Time frames that product were within the critical temperature zones;

    f) Initial of monitor and verifier

RELATED SECTIONS OF TIPM

02-G-03 Temperature Recording Devices

03-C-03 Calibration Procedures - Records of

03-D-09 Manufacturing Control Training

SUBJECT: Audits - General	03-H-01
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) All Sections	**Initial Release** Sept 1, 2009 **Revised on** Sept 1, 2010 **Page 1 of 2**

RATIONALE

In 1997 a “Joint Policy” was signed by the Ministries of Alberta Health and Wellness (AHW) and Alberta Agriculture and Rural Development (ARD).

In this agreement it was determined that, by January 2002, all “Licensed Meat Facilities”, in the Province of Alberta, would comply with the standards set out in a document called the “Meat Facility Standards” (MFS).

Note: The MFS includes both “Prerequisite Program Criteria” (e.g. Sanitation program, Recall program etc.) and “Manufacturing Controls Criteria”, which include the 7 *Codex alimentarius* principles of HACCP (Hazard Analysis Critical Control Point).

Prior to the publishing of the first edition of the MFS, in 1999, food safety assurance, in ARD licensed facilities, relied entirely on enforcement of meat inspection legislation through the traditional meat inspection system.

Once the authority of the MFS was mandated in section 15.1 of AR 42/2003 a shift occurred from assuring food safety through traditional inspection to assuring food safety through a combination of traditional inspection and the audit approach.

Note: Section 20 of AR42/2003 read as follows: “An operator shall ensure that the meat facility standards are met in regard to matters dealt with in this Part.”

ARD uses the MFS as the basis for the development and maintenance of written, preventative, science-based food safety programs in provincial meat facilities.

Note: Following implementation of the 1999 version of the MFS the Regulatory Services Division (RSD) of ARD recognized the need for improvements. In particular there was a need to clarify criteria and strengthen process control requirements for ARD licensed facilities. In response the MFS was modified, following industry consultation. The modified version of the MFS is the document that the RSD uses to audit facilities licensed by the RSD at the time this document was developed.

ARD will work to ensure the continued relevance of the MFS as changes occur in the meat industry. The MFS will be modified, as required, as the ARD strives to ensure the continued competitiveness of our meat industry and continued food safety excellence of products produced by ARD licensed facilities.

The Meat Inspection Branch (MIB) of the RSD is responsible for the inspection of slaughter and dressing procedures in provincially licensed red meat and poultry abattoirs.

Through their legislated authority the MIB will continue to be responsible for monitoring ongoing compliance, of all licensed facilities, to the *Meat Inspection Act* (Alberta) (MIA) AR 42/2003 and the MFS.

TIPM – 03-H-01 Page 2 of 2 – RATIONALE (continued)

Note: MIB Inspectors and RSD Auditors, knowledgeable about the requirements of AR 42/2003 and the MFS will act to ensure the safe production of meat products on a continual basis.

As part of their responsibilities for ensuring continued excellence in food safety and the competitiveness of the meat industry, in Alberta the RSD has developed a program called the **"RSD Audit Program"**.

Note: This program is a vital component for achieving continued excellence and further enhancement of food safety within Alberta.

To remain eligible for licensing it is mandatory for facilities to comply with AR 42/3003 and the MFS.

Note: Compliance includes being prepared for audits that are conducted under the **"RSD Audit Program"**.

To properly prepare for audits, abattoir managers need to be committed to:

a) developing, implementing and maintaining written programs (including manufacturing controls);
b) maintaining required records;
c) ensuring that abattoir personnel are properly trained;
d) providing any assistance required by RSD and/or MIB personnel during audit activities

OBJECTIVE/OUTCOME

The facility operator will be committed to working towards full compliance with provincial meat inspection legislation (MIA & AR 42/2003) and the MFS.

An annual audit will be conducted in accordance with the "RSD Audit Program".

Note: An audit is a systematic, independent examination of a facility's compliance to the MIA, AR 42/2003 and the MFS. The intent is to provide a clear picture of the facility's food safety performance with respect to legislation and the MFS. Current meat inspection regulations and MFS criteria will form the basis of the audit.

All audits will be conducted by appointed auditors. Appointed auditors will be RSD personnel, including MIB Inspectors, or independent auditors contracted by ARD.

To be appointed, as an auditor, an individual must:

a) have in-depth, practical meat industry experience;
b) excel at the interpretation of regulations and food safety standards;
c) be trained and certified in audit protocol

Abattoir operators will receive advance notice of the audit.

The results of consecutive audits will demonstrate increasing levels of compliance with The MIA, AR 42/2003 and the MFS.

RELATED SECTIONS OF TIPM

03-H-02 Annual Audits

SUBJECT: Annual Audits	03-H-02
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1 Meat Facility Standards (MFS) All Sections	**Initial Release** Sept 1, 2009 **Revised on** Sept 1, 2010 **Page 1 of 3**

RATIONALE

The intent of this document is to clearly outline the process for the conduct of an "Annual Audit".

OBJECTIVE/OUTCOME

A full **"Annual Audit"** will be conducted in every 12 month period.

Note: The purpose of an annual audit is to verify that the "Licensed Meat Facility" (facility) is in compliance with the current MFS and meat inspection legislation (Meat Inspection Act and Regulations).

The **intent** of the **"Annual Audit"** is to **stimulate** the desire for **continuous improvement** , and to ensure that facilities meet, or exceed, regulatory requirements.

Annual audits must always **be announced**. Annual audits are completed within a 40 day guideline and may involve one (1) to three (3) onsite visits.

Annual Audits will be conducted as follows:

1. The audit will be scheduled by telephone, with the facility owner/operator**.**

   Note: Scheduling is the responsibility of the RSD Auditor. If at all possible, the audit should be **scheduled** at least **3 weeks in advance**.

   Following this call the agreed upon audit appointment date will be confirmed by fax. The fax should also remind the operator of the facility about the scope of the audit.

   Annual audits may be conducted on a kill or a non-kill day.

2. The Auditor will notify the Area Manager (AM), Regional Supervisor (RS) and the Food Safety Audit Manager, by e-mail, of the annual audit date(s)

   Note: The AM may attend the onsite portion of all annual red meat audits, at a minimum, and the RS may attend the onsite portion of all annual poultry audits. A designated mobile inspector will attend mobiler facilities.

3. A brief opening meeting will be held before the start of the audit.

   Note: Attendees at this meeting will include the auditor, the owner/operator (or designate) at a minimum, and the AM/RS, if present.

   The purpose of this meeting is to ensure that the facility owner/operator is

aware of scope and requirements of the audit.

4. The audit is conducted.

   Note: The owner/operator, or designate is required to accompany the auditor during the audit.

   The AM/RS, or designated "mobiler" inspector may also accompany the auditor during the onsite portion of the audit.

5. Upon completion of the full audit the auditor will document all findings.

   Note: Documentation includes completion of the full "MFS Annual Audit Checklist/Report". A copy of this document can be obtained from any RSD auditor at any time.

   Significant findings will be summarized in the "Annual Audit Summary Report".

6. Before the closing meeting the auditor will go over key audit findings with the AM/RS (or "mobiler" inspector)

7. A closing meeting is held.

   Note: Attendees at this meeting include the auditor, the facility owner/operator, and the AM/RS (or "mobiler" inspector).

   During this meeting, the auditor will summarize the priority non-conformances identified during the audit. Details concerning significant findings will be discussed with the facility owner/operator.

   The full "Annual Audit Report" and "Annual Audit Summary" is not given to the facility representative at this time. The representative will be advised that a copy will be given to them by the AM/RS, upon completion of the internal audit review process.

   The owner/operator will also be told that they will be sent a copy of the full report and summary by MIB.

8. The RSD Auditor will send reviewed and completed reports, by e-mail to the AM, RS, and Food Safety Program Manager. The Auditor will schedule an internal corrective action plan (CAP) meeting with the AM or RS within 5 business days.

9. The AM/RS will schedule a meeting with the facility owner/operator within 5 business days of receiving the completed audit report.

10. The "Annual Audit Summary Report" will be signed by owner/operator upon completion of the Corrective Action Plan (CAP) meeting.

    Note: Copies of the signed "Annual Audit Summary Report" and the "Annual Audit Report" will be left with the owner/operator and the designated MIB Inspector for follow-up.

11. There will be appropriate follow-up for the "Annual Audit".

    Note: The MIB Resident Inspector, or delegate, is responsible for follow-up and documentation of non-conformances and corrective actions.

    Timelines for the performance of corrective actions must include:

a) an action plan;

b) date(s) by which deficiencies are to be corrected or for a corrective action plan to be submitted to the RS and/or AM;

c) date for inspection to verify that timelines were adhered to

The MIB inspector is responsible for recording agreed upon timelines and following up with the facility representative and/or designated MIB Inspectors to ensure that timelines have been met. Compliance monitoring of non-conformances will be maintained at the regional office level by designated MIB inspection staff.

If compliance monitoring shows that the facility operator is unwilling or able to comply with CAP items and dates, the AM, in consultation with the MIB Head and RSD Executive Director, may recommend the involvement of the Inspection/Investigation Branch (IIB), for investigation and handling of noncompliance.

RELATED SECTIONS OF TIPM

03-H-01 Audits - General

SUBJECT: Partial Audits	03-H-03
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1	**Initial Release** Sept 1, 2009 **Page 1 of 2**

RATIONALE

The intent of this document is to clearly outline the process for the conduct of a partial audit.

OBJECTIVE/OUTCOME

Partial audits will be conducted as required by the Meat Inspection Branch (MIB).

Note: The purpose of a partial audit is to verify that a "Licensed Meat Facility" (facility) is operating in compliance with the MFS and current meat inspection legislation (Meat Inspection Act & Regulations).

The frequency of partial audits will be determined by MIB, and will be based on risk calculations for each specific facility. Each facility will receive, at a minimum, one (1) partial audit in a 12 month period.

Additional partial audits may be conducted based on the receipt of food safety complaints or other relevant information through the MIB Area Managers (AM) and/or Regional Supervisors (RS) or external sources.

Animal welfare criteria will be assessed in at least one partial audit each year.

Audits will be conducted as follows:

1. All audits will be scheduled by telephone unless special circumstances require the conduct of an unannounced audit,

   Note: Scheduling is the responsibility of the Auditor. At least **24 hours notice is required** for all announced partial audits.

   Formal notification of the audit will be sent to the owner/operator of the facility, by fax, if requested.

2. The Auditor will notify the AM, RS and Regional Administrative Support Staff of the audit dates for each facility in the region.

   Note: This notification will give the AM/RS or their delegate, an opportunity to have a representative MIB Inspector present during the audit if desired. The presence of the resident MIB Inspector, or a representative, is encouraged.

3. A brief opening meeting will be held before the start of the audit.

   Note: Attendees at this meeting will include the Auditor, a facility representative and a MIB Inspector, if available.

   The purpose of this meeting is to ensure that the facility representative is aware of scope and requirements of the audit.

4. The audit is conducted.

   Note: The facility representative must be on the premises during the audit and is strongly encouraged to accompany the auditor during the audit.

   The MIB Inspector and the RS are encouraged to accompany the auditor.

5. The Auditor will document audit findings.

   Note: Documentation includes completion of the "Partial Audit Report" and "Animal Welfare Audit Report" (if applicable).

   Significant findings will be summarized in the "Audit Summary with Inspection Findings" and "Animal Welfare Report" (as applicable).

6. Before the closing meeting the Auditor will go over key audit findings with the MIB Inspector, or representative (if they are available).

7. A closing meeting is held.

   Note: Attendees at this meeting include the Auditor, a facility representative and the MIB Inspector, or representative (if available).

   During this meeting, the Auditor will present the "Partial Audit Report" and the "Animal Welfare Audit Report" (if applicable).

   Details concerning significant findings will be discussed with the facility representative. Dates will be set for non-conformances at this meeting. If this is not feasible (i.e. a long term corrective action plan or major construction is required), a designated MIB inspector and the BA will communicate on acceptable timelines, and the MIB inspector will follow up to ensure that all timelines are set for non-conformances identified on the "Summary Report".

8. Audit reports will be signed.

   Note: A copy of the signed "Audit Summary Report" and "Animal Welfare Audit Report" (where applicable) will be left with the facility representative and the MIB Inspector.

   The BA will retain the signed copy of the report(s) and send the copy to the head office of the MIB, in Edmonton for filing.

9. Completed reports are e-mailed to the AM and/or RS, Meat Safety Program Manager and the Regional Administrative Support person.

There will be appropriate follow-up for the "Partial Audit".

Note: The MIB Resident Inspector, or delegate, is responsible for follow-up.

Timelines for the performance of corrective actions must include:

a) an action plan;

b) date(s) by which deficiencies are to be corrected or for a corrective action plan to be submitted to the RS and/or AM;

c) date for inspection to verify that timelines were adhered to

The MIB inspector is responsible for documenting agreed upon timelines and following up with the facility representative and/or designated MIB Inspectors to ensure that timelines have been met. Compliance monitoring of non-conformances will be maintained at the regional office level by designated MIB inspection staff.

RELATED SECTIONS OF TIPM

03-H-01 Audits - General
03-H-02 Annual Audits
05-D-01 Animal Welfare Audits - Red Meat Abattoirs
05-D-02 Animal Welfare Audits - Poultry Abattoirs

SUBJECT: HACCP Systems - General	03-I-01
REGULATORY REFERENCES None	**Initial Release** Sept 1, 2009 **Page 1 of 4**

RATIONALE

The purpose of this document is to provide the reader with some general information on "Hazard Analysis Critical Control Point" (**HACCP**).

Note: Provincially **licensed facilities** are **not required to have a** complete **HACCP system.**

Even though a HACCP system is not a legal requirement **licensed facilities** are **required to comply with the "Meat Facility Standards"** (MFS), which is based on the principles of HACCP.

Note: The MFS are based on the principles of HACCP and Sections 10 & 20 of AR42/2003 *Meat Inspection Regulation* provides the legal requirement for licensed facilities to comply with the MFS.

Federal facilities must have a recognized **HACCP** system.

Implementation of the MFS requires some basic understanding of HACCP principles.

GENERAL INFORMATION ABOUT HACCP

History

The first HACCP system was developed by the Pillsbury Company in conjunction with the "National Aeronautics and Space Administration" (NASA).

Note: The intent of this original HACCP system was to ensure the safety of food products intended for space travel.

This original concept has developed to the point where **HACCP is** now **an internationally recognized**; science based food safety **system** that focuses on preventing, eliminating, or reducing to an acceptable level, all potential food safety hazards.

Intent

The intent of a HACCP system is to ensure continuing production, processing, distribution and marketing of safe foods.

Note: HACCP ensures food safety by analyzing and controlling biological, chemical and physical hazards associated with ingredients and processing rather than relying solely on inspection systems and finished product testing.

HACCP systems are designed to be **pro-active** rather than re-active.

Note: **Pro-active** means that steps are taken to **prevent problems rather than** waiting for them to develop then trying to **react**.

Advantages of HACCP Systems

HACCP systems are generally cost effective and have been proven to be successful in controlling food safety hazards, which may occur all along the continuum, from production through to the retailing sectors.

By controlling food safety hazards a successful HACCP system will instill confidence, in the safety of the product by both the processor and members of the public.

Note: Customer confidence can be a distinct market advantage.

HACCP in Canada

In **1986** various federal departments started to work closely together to establish minimum federal food safety inspection standards based on HACCP principles.

Note: Departments involved included:

a) Agriculture Canada

b) Health and Welfare Canada

c) Fisheries and Oceans Canada

d) Consumer and Corporate Affairs Canada

In **1989** the Food Production and Inspection Branch of Agriculture Canada presented the Food Safety Enhancement Program (FSEP).

In **November 2005** it became mandatory for all federally registered establishments to have a HACCP system.

Food Safety Enhancement Program

The Canadian Food Inspection Agency (CFIA) relies on FSEP to ensure that the conditions under which food products are manufactured and the ingredients used in their manufacture lead to the production of safe food.

Note: FSEP applies to the following commodity groups:

a) meat and poultry;

b) dairy;

c) processed fruit and vegetables;

d) shell eggs;

e) processed eggs;

f) hatcheries;

g) honey;

h) maple sugar

FSEP is recognized, internationally as being consistent with the principles and application of the Hazard Analysis Critical Control Point (HACCP) system developed by “Codex Alimentarius”.

Note **Codex Alimentarius** is Latin for "food code" or "food book". The “Codex” is a collection of internationally recognized standards, codes of practice, guidelines and other recommendations relating to foods, food production and food safety.

Only FSEP registered facilities are considered to be CFIA **HACCP recognized and certified**.

Note: It is theoretically possible for a provincially licensed facility to be CFIA HACCP recognized and certified but this can only occur through the CFIA. To be recognized and certified a provincial facility would have to meet all of the requirements of the FSEP program as verified by a CFIA inspection.

CFIA HACCP recognition is required for the interprovincial sale of meat products.

Meat Facility Standards (MFS)

The original MFS were developed by a joint committee comprised of individuals from Alberta Health and Wellness and Alberta Agriculture, Food and Rural Development.

Note: The original MFS committee was formed in 1992 in response to a recognition that there was a need for standards that would apply to all licensed facilities, in Alberta, regardless of which department issued the license.

The MFS which came into effect in 1999:

1. Was based on the principles of the CFIA's FSEP.
2. Follows HACCP principles.
3. Specifies pre-requisite programs.
4. Have a Manufacturing Controls section.

Note: Although the "Manufacturing Controls" section of the MFS requires implementation of some of the HACCP principles. Implementation of **the MFS does not constitute a** recognized or **certified CFIA HACCP system**. As stated earlier a certified CFIA HACCP system requires a CFIA audit.

Section 15.1(a) of AR 42/2003 (consolidated up to 112/2009) requires licensed facilities to comply with the requirements of the MFS.

Note: Examples of Canadian HACCP systems include:

a) "Canadian Meat Hygiene Standard" (CMHS)

b) "Alberta HACCP Advantage" (AHA!).

c) CFIA FSEP

Alberta HACCP Advantage (AHA!)

AHA! is a **voluntary program intended for** the use of non-federally registered (**provincially licensed**) food processing **facilities in Alberta**.

Note: AHA! was developed by Alberta Agriculture and Rural Development (ARD), in cooperation with Agriculture and Agri-Food Canada.

AHA! provides:

1. A framework for food safety systems or HACCP systems development;
2. User friendly resource materials;
3. Formal government recognition of implemented systems.

Note: Information on the AHA! program can be obtained at:

www.agriculture.alberta.ca/aha

OBJECTIVE/OUTCOME

Operators of "Provincially Licensed Meat Facilities" will understand:

1. What HACCP is, in general terms.
2. How the MFS relates to HACCP.
3. The possible advantages of a recognized HACCP system.

Note: For more specific information on HACCP pre-requisites and implementation of the "12 Steps of HACCP" and the "7 Principles of HACCP" the reader is referred to the related sections of TIPM listed below.

RELATED SECTIONS OF TIPM

03-I-02 HACCP System - Pre-requisites

03-I-03 HACCP System - Implementation of

SUBJECT: HACCP Systems - Pre-requisites	03-I-02
REGULATORY REFERENCES AR 42/2003 *Meat Inspection Regulation* (Consolidated to 112/2009) Section 15.1	**Initial Release** Sept 1, 2009 **Page 1 of 3**

RATIONALE

Certain physical, environmental and operating conditions are essential for the production of safe food products.

Note: Under HACCP (Hazard Analysis Critical Control Point) these are referred to as "Prerequisite Programs".

Unlike **federal facilities,** which **must have** a recognized **HACCP** system, "**Provincially Licensed Meat Facilities"** are **not required to have a** complete **HACCP system.**

Even though they are not legally required to have a recognized HACCP system **"Provincially Licensed Facilities"** are **required to comply with the "Meat Facility Standards"** (MFS).

Note: The MFS are based on the principles of HACCP and Section 15.1 of AR 42/2003 *Meat Inspection Regulation* provides the legal requirement for "Provincially Licensed Facilities" to comply with the MFS.

A HACCP system can only be built upon a solid foundation of prerequisite programs.

Note: The existence and effectiveness of a facility's prerequisite programs should be reviewed during the design and implementation of each HACCP plan.

Prerequisite programs are established and managed separately from individual HACCP plans.

Note: **Prerequisite Programs** + HACCP Plan(s) = HACCP System

Prerequisite Programs include, but may not be limited to:

1. Premises

   Note: This includes items such as:

   a) building exterior;
   b) building interior;
   c) sanitary facilities;
   d) water/steam/ice quality and supply;

2. Equipment

   Note: This includes items such as:

   a) design;
   b) installation;
   c) maintenance;
   d) calibration

3. Sanitation and Pest Control

   Note: This includes:

   a) sanitation procedures;

   b) pest control procedures;

4. Personnel

   Note: This includes items such as:

   a) training in hygienic food handling practices;

   b) technical training for specialized procedures;

   c) personal hygiene and health requirements including:

      a) cleanliness;

      ii) personal conduct;

      iii) communicable disease;

      iv) injury

5. Transportation, Receiving and Storage

   Note: This includes items such as:

   a) transportation vehicles;

   b) temperature control during transportation;

   c) receiving of food ingredients and packaging materials;

   d) receiving of meat products;

   e) receiving and storage of non-food chemicals;

   f) storage of finished products, etc.

6. Recall

   Note: This includes items such as:

   a) complaint procedures;

   b) mock recall exercises;

   c) actual recall procedures;

   d) product coding and identification;

   e) distribution details

7. Allergens

   Note: This includes programs intended to control and reduce the risk of contamination of products with allergens (agents that cause allergic reactions) during processing.

The number of and naming of “Prerequisite Programs” depends on which HACCP standard is chosen by a facility.

TIPM – 03-I-02 Page 3 of 3 – RATIONALE (continued)

For more specific information on prerequisite programs, for HACCP, the reader is referred to the "**Alberta HACCP Advantage" (AHA!)**.

Note: **AHA!** is a **voluntary program intended for** the use of non-federally registered **(provincially licensed)** food processing **facilities in Alberta.** This program was developed by Alberta Agriculture and Rural Development (ARD), in cooperation with Agriculture and Agri-Food Canada.

Information on the AHA! program can be obtained at:

www.agriculture.alberta.ca/aha

OBJECTIVE/OUTCOME

All HACCP pre-requisite requirements will be met.

RELATED SECTIONS OF TIPM

03-I-01 HACCP Systems - General

03-I-03 HACCP Systems - Implementation of

SUBJECT: HACCP Systems - Implementation of	03-J-03
REGULATORY REFERENCES None	**Initial Release** Sept 1, 2009
	Page 1 of 9

RATIONALE

The purpose of this document is to outline the 12 steps (and 7 principles) that are required to establish a HACCP system that could be eligible for certification by the Canadian Food Inspection Agency (CFIA).

Note: A fully developed HACCP system includes development, implementation, verification and validation of prerequisite programs and having a HACCP plan for each product that the facility produces.

HACCP systems can be developed, implemented, audited and certified **in non-federally registered meat facilities** but they **are not recognized as CFIA HACCP certified** unless the audit was conducted by the CFIA.

Provincially licensed **facilities with HACCP systems that have passed** a **CFIA audit may** be allowed to market meat products **outside** of the Province of Alberta. Facilities with HACCP systems that haven't passed a CFIA audit are still restricted to selling their product within the Province.

There are twelve (12) steps to the development of a complete HACCP plan. These steps are:

1. Assembling a HACCP team;
2. Describing each product and identifying its intended use;
3. Listing product ingredients and incoming materials;
4. Development of process flow diagrams and plant schematics;
5. On-site verification that the flow diagrams and the plant schematics will work;
6. Identification and assessment of hazards **(Principle 1)**;
7. Determination of critical control points **(Principle 2)**;
8. Establishing critical limits **(Principle 3)**;
9. Establishing monitoring procedures **(Principle 4)**;
10. Establishing corrective actions **(Principle 5)**;
11. Establishing verification procedures **(Principle 6)**;
12. Establishing documentation and record keeping **(Principle 7)**

Note: Steps one to five (1-5) are considered to be preliminary tasks while steps six to twelve (6-12) incorporate the seven (7) principles of HACCP.

OBJECTIVE/OUTCOME

There will be a strong commitment, by management, to the development and implementation of a certifiable HACCP plan.

Note: A firm commitment to HACCP, by top management, emphasizes the importance of producing safe food products, to facility personnel.

The following 12 steps will be implemented to establish a HACCP System that would be eligible for certification.

Note: Establishment of a **certifiable HACCP system** is **not required** in a **"Provincially Licensed Meat Facility"** but establishment would ensure complete compliance with the Meat Facility Standards (MFS) and could provide a marketing advantage.

For more detail than what is provided in this document the reader is referred to a key resource that has been developed for the Alberta HACCP Advantage (AHA!) program. This resource is called the **"AHA! Guidebook"**

The "AHA! Guidebook" is a comprehensive, user-friendly manual that explains how to develop and implement an effective food safety or HACCP system. All of the forms that are mentioned, in the following text will be found in this publication.

The "AHA! Guidebook" is available online at:

www.agriculture.alberta.ca/aha

The 7 forms referred to in the following text will be found in this publication as well as other documents (e.g. records) that can be downloaded and utilized.

Step 1 - Assembling a HACCP Team

A HACCP team should consist of individuals that have knowledge and experience appropriate for the product and/or processing line that the HACCP plan will apply to.

This team will work together to:

1. Design the system;
2. Implement the system

Note: The team should include members from various departments within the facility, including but not limited to: production, quality, sanitation, maintenance, etc.

There should be a team leader that is capable of directing HACCP activities.

Note: Ideally all team members should be knowledgeable about food-safety hazards and HACCP principles but it is particularly important for the team leader to have extensive knowledge and training in HACCP.

Step 2 - Describing Each Product and Identifying its Intended Use

Each finished product, covered by the HACCP plan, must be fully described and identified.

Note: Information from the product description, along with ingredient and processing information, will help the team identify hazards.

The following **information** should be recorded **on Form #1** from the "AHA! Guide Book:

1. Generic name of the process and/or product type (e.g. HACCP plan for "Cooked Sausage")
2. Common name of the product (e.g. "Holy Smokes Sausage")
3. Properties of the product that will influence its safety (e.g. water activity, pH, salt, preservatives)
4. Intended use of the product (e.g. ready-to-eat, heat and serve, etc)
5. Type of packaging and packaging conditions (e.g. 5 kg pails, lined corrugated boxes, etc).
6. Shelf life of the product

   Note: Shelf life is the time that the product remains suitable, for human consumption under normal marketing conditions at a given storage temperature and humidity. The shelf life must be verified through testing, or other means of proving validity.
7. Where the product will be sold (e.g. retail, hospitals, restaurants, etc)
8. Labeling instructions (e.g. "best before" date, cooking instructions, storage requirements, etc)
9. Controls required during shipping and storage (e.g. temperature and humidity requirements)

Step 3 - Listing Product Ingredients and Incoming Materials

A full **description** of the **product** should be recorded **on Form #2** from the "AHA! Guide Book:

1. A general description of the food;
2. A listing of all ingredients;
3. Processing methods

   Note: The following list of possible items to be included in a complete description is intended to give examples and therefore is not fully inclusive:

   a) source of ingredients;
   b) properties of ingredients;
   c) specifications for ingredients;
   d) product formulation;
   e) incoming materials such as packaging material;
   f) procedures at each stage of processing;
   g) equipment used;
   h) time and temperature to which products are exposed;
   i) potential source of contamination before, during and after processing

Step 4 - Development of Process Flow Diagrams and Plant Schematics

A **process flow diagram** shows, in simple block or symbol form, a **clear outline of** the **steps required to manufacture and distribute a food product**, from receiving of raw materials through processing and distribution of the finished product.

Note: Process flow diagrams provide an important visual tool that the HACCP team can use to complete the remaining steps of the HACCP plan development.

Only a clear, simple, but complete, description of the process is needed.

Process flow diagrams can be **recorded** on **Form #3** from the AHA! Guidebook.

A properly drawn schematic diagram will show:

1. Flow patterns of all:
    a) Ingredients;
    b) packaging materials;
    c) finished product
2. Facility personnel movement:
    a) within processing areas;
    b) to and from washrooms
3. Locations of hand-wash stations and footbaths

Note: Schematic diagrams are helpful in identifying potential areas of cross-contamination.

Facility schematics can be **recorded** on **Form #4** from the AHA! Guidebook.

Step 5 - On-site Verification of Flow Diagrams and Facility Schematics

The HACCP team should perform an on-site review of the facility to verify the accuracy and completeness of flow diagrams and facility schematic drawings.

Note: An on site review is necessary because the accuracy of flow diagrams and facility schematic drawings are critical to conduct a complete hazard analysis.

It is best to perform the on site review while processing operations are taking place.

Modifications should be made to the diagrams and schematics as needed.

Note: If any step is missed, a significant food safety issue may not be addressed.

After these five preliminary tasks have been completed, the seven principles of HACCP are applied.

Step - 6 **HACCP Principle #1** - Identification and Assessment of Hazards

A thorough hazard analysis is essential for the development of an effective HACCP system.

It is the responsibility of the HACCP team to conduct the analysis.

Note: Hazards are any agents or activities that have the potential to make meat products unsafe for human consumption. Hazards may be:

a) physical;
b) chemical;
c) biological;
d) allergenic

A HACCP system will address and control all significant hazards associated with a particular product.

Note: In the process of identifying hazards the HACCP team must review:

a) all ingredients;
b) all processing steps and activities;
c) characteristics of the final products

Based on the above review a list is made of potential biological, chemical, physical, and allergenic hazards that may be introduced, increased, or controlled, at each step in the production process.

Note: As the process unfolds **potential hazards** can be noted on AHA! Guidebook forms 2, 3 and 4, following which they are **described fully** on **Form #5**

Detailed information must be provided, identifying specific organisms and other contaminants.

If the HACCP team is uncertain whether hazards exist with ingredients, in the process or with the operating practices, measurements and laboratory testing may be required.

Step - 7 **HACCP Principle #2** - Determination of Critical Control Points (CCP)

All CCPs must be determined (identified).

Note: A CCP is a location, or processing step where it is possible and essential to implement controls that are designed to:

a) prevent;
b) eliminate; or
c) reduce food safety hazards to an acceptable level

The determination of a CCP is based on:

1. Identified hazards;
2. Operational procedures;
3. Subsequent use of the product

Note: Examples of CCPs include:

a) chilling;
b) cooking (thermal processing);
c) metal detection, etc.

Use of a CCP "Decision Tree" can be used by the HAACP team to assist in determining CCPs.

Note: A decision tree is a tool that contains a series of questions, which serve as a guide in CCP determination. For an example the reader is referred to **Form #8** of the "AHA! Guidebook".

CCPs should be numbered sequentially and in a manner that identifies the type of hazard that is to be controlled.

Note: For example:

a) CCP – 1 B refers to Critical Control Point 1, which controls a biological hazard.

b) CCP – 2 BC refers to Critical Control Point 2, which controls both a biological and chemical hazard.

CCPs must be **recorded** on **Forms #5 & 7** from the AHA! Guidebook.

Note: CCPs should also be identified on the process flow diagram on **Form #3**.

After analyzing all hazards that may affect a product before, during and after the production process, it may be noted that some hazards are out of the facility's control. The HACCP team must document all biological, chemical and physical hazards, which are not addressed at the facility and were not determined to be CCPs.

Unaddressed Hazards are **described** on **Form #6** from the AHA! Guidebook.

Note: In addition to describing these hazards ways in which the unaddressed hazard could be mitigated must be recorded. Examples of ways to address these hazards include the placement of cooking instructions on the label, producer education, etc.

Step - 8 **HACCP Principle #3** - Establishing Critical Limits

Each CCP must operate within specific parameters to ensure all hazards are appropriately and effectively controlled.

The HACCP team needs to identify control methods and set the critical limits needed to control identified hazards.

Note: A critical limit is a maximum or minimum value to which a biological, chemical, or physical parameter must be controlled at a CCP to prevent, eliminate, or reduce, to an acceptable level, the occurrence of a food safety hazard.

A critical limit is used to distinguish between safe and unsafe operating conditions at a CCP.

Scientific research may be required to determine the limits that are both appropriate and acceptable for a given product.

Critical limits should not be confused with operational limits, which may be established for reasons other than food safety.

Criteria most frequently used for critical parameters are:

a) time;

b) temperature;

c) water activity;

d) pH;

e) amount, or concentration of, preservatives;

f) microbiological parameters;

g) sensory information.

Control measures need to be established to ensure that critical limits are met.

Control measures for each CCP **and** its associated **critical limits** are **recorded** on **Form #7** from the AHA! Guidebook.

Note: In summary the following information needs to be recorded on Form #7:

a) process step;

b) CPP number;

c) hazard description;

d) critical limits for each CPP

Critical limits can be based on items such as:

a) government regulations;

b) company standards;

c) scientific data

There can be more than one critical limit for each CCP.

It is important to ensure that critical limits are described in a clear and concise manner in order to avoid confusion amongst facility personnel.

Displaying the critical limits next to CCPs is an excellent way to assist facility personnel in the identification of processes that are out of control.

Step 9 - **HACCP Principle #4** Establishing Monitoring Procedures**- Form 7**

Once control measures are in effect and food safety criteria have been established, appropriate monitoring procedures must be determined.

Monitoring involves:

1. Defining how the CCP will be assessed;
2. Determining who will perform the monitoring;
3. Doing the monitoring, at appropriate time intervals;
4. Recording the monitoring

Note: Ideally monitoring will be continuous and all monitoring equipment will be carefully calibrated for accuracy. When continuous monitoring is not possible, a monitoring procedure must be selected that will ensure that processing that is out of control is detected immediately. The frequency of monitoring is an important consideration when monitoring can't be done continuously.

Examples of monitoring activities include:

a) visual observations;
b) temperature measurements;
c) measurements of time;
d) pH measurements;
e) determination of moisture levels

Monitoring activities are **recorded** on **Form #7** from the AHA! Guidebook.

Note: Form 7 asks:

a) who;
b) when;
c) what/how

These three questions are also asked in the following two sections dealing with deviation and verification procedures.

Step 10. - **HACCP Principle #5** Establishing Corrective Actions for Deviations

When monitoring results indicate that critical limits are not being met, action must be taken to:

1. Bring the process into control to ensure that no more hazardous product is produced.
2. Deal with hazardous product that was produced in an appropriate manner.

Note: Appropriate actions for dealing with hazardous products include:

a) detention (for testing);
b) reworking;
c) disposal

The HACCP team is responsible for determining what corrective actions are required for each CCP and critical limit.

Note: Generally the sooner deviations, from acceptable critical limits, are identified; the easier it is to institute corrective action thus minimizing any change of producing product that is out of conformance.

The action required will depend on the potential hazard that may occur.

Examples of corrective actions could include:

a) increased processing temperatures;
b) extended processing time;
c) reheating;
d) reprocessing;
e) ceasing, or stopping production;
f) holding product for investigation

All corrective actions taken must be recorded.

Note: Recording of corrective actions is done to:

a) verify that appropriate actions were taken;

b) identify recurring problems so that the HACCP plan can be modified

Deviation procedures are **recorded** on **Form #7** from the AHA! Guidebook.

Step 11 - **HACCP Principle #6** Establishing Verification Procedures

Verification procedures to prove the effectiveness of the HACCP system need to be established.

Note: **Verification procedures** are the methods, procedures, tests, and audits that are **conducted in addition to monitoring**. These procedures should determine compliance with the HACCP plan and identify whether the plan needs modification.

There are several ways to verify a HACCP system including:

a) auditing the HACCP system;

b) auditing HACCP records;

c) reviewing recorded deviations;

d) conducting tests on finished product to ensure conformity

Verification procedures are **recorded** on **Form #7** from the AHA! Guidebook.

Step 12 - **HACCP Principle #7** Establishing Documentation and Record Keeping

The HACCP team must ensure that there is proper documentation (written records) of all:

1. Monitoring data;
2. Deviations;
3. Corrective actions;
4. Verification results

Note: These records must:

a) specify who recorded the data;

b) specify who verified it;

c) be filed in a safe manner;

d) be readily available for use

HACCP records provide a complete product profile, which can be used if there are any subsequent problems.

RELATED SECTIONS OF TIPM

03-I-01 HACCP Systems - General

03-I-02 HACCP Systems - Pre-requisites