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Inspection Agency

Agence canadienne
d'inspection des aliments

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MEAT HYGIENE DIRECTIVE
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DIRECTIVE DE L'HYGIENE DES VIANDES
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SUBJECT: Chapter 17 – Annex D

OBJET : Chapitre 17 – Annexe D

Creation of the SRM annex.

Création de l'annexe portant sur les MRS.

ENGLISH AND FRENCH VERSION

VERSIONS ANGLAISE ET FRANÇAISE

Please put this annex in your Manual of
Procedures.

Veuillez ajouter cette annexe à votre Manuel
des méthodes.

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Att./p.j.

Canada

ANNEX D

TABLE OF CONTENTS

DEFINITIONS

PART I: REMOVAL OF SPECIFIED RISK MATERIALS (SRM)

1.0 INTRODUCTION

- 1.1 POLICY SUMMARY
- 1.2 HACCP PLANS
- 1.3 EXPORT REQUIREMENTS
- 1.4 EFFECTIVE DATE OF THE SRM POLICY

2.0 CATTLE IDENTIFICATION, AGE DETERMINATION, MARKING AND SEGREGATION OF CARCASSES UPON ARRIVAL AND DURING SLAUGHTER/DRESSING, CHILLING, CUTTING AND BONING PROCEDURES

- 2.1 AGE DETERMINATION, IDENTIFICATION AND MARKING OF CARCASSES
 - 2.1.1 DETERMINING AGE BY BIRTH DATE DOCUMENTATION
 - 2.1.2 DETERMINING AGE BY DENTITION EXAMINATION WHEN NO BIRTH DATE DOCUMENTATION IS PROVIDED
 - 2.1.3 IDENTIFICATION AND MARKING OF CARCASSES
- 2.2 CONTROL AND SEGREGATION OF CARCASSES DURING DRESSING, CHILLING, CUTTING AND BONING PROCEDURES
 - 2.2.1 SLAUGHTER ESTABLISHMENTS
 - 2.2.2 CUTTING/DEBONING ESTABLISHMENTS

3.0 STUNNING, DRESSING, CUTTING/BONING AND SRM REMOVAL

- 3.1 DEDICATED SRM TOOLS
- 3.2 STUNNING
- 3.3 HEAD SEPARATION AND REMOVAL OF SKULL, BRAIN, TRIGEMINAL GANGLIA, EYES AND TONSILS
- 3.4 PALATINE TONSILS
- 3.5 TONGUE AND CHEEK MEAT
- 3.6 REMOVAL OF THE DISTAL ILEUM
- 3.7 CARCASS SPLITTING
- 3.8 REMOVAL OF THE SPINAL CORD AND ITS VERIFICATION
- 3.9 REMOVAL OF THE DORSAL ROOT GANGLIA
 - 3.9.1 SLAUGHTER/SHIPPING ESTABLISHMENTS
 - 3.9.2 RECEIVING ESTABLISHMENTS
- 3.10 VERIFICATION BY THE OPERATOR OF SRM REMOVAL AND REWORK

4.0 SRM HANDLING AND DISPOSITION

- 4.1 HANDLING OF SRM WITHIN THE ESTABLISHMENT
- 4.2 FLOOR WASTE
- 4.3 SRM CONTAINERS
- 4.4 CLEANING OF SRM CONTAINERS

5.0 SRM CONTROLS

PART II: ENHANCED FEED BAN CONTROLS AND SRM MANAGEMENT

6.0 INTRODUCTION

- 6.1 POLICY OBJECTIVES
- 6.2 CONTROL PROGRAMS

7.0 COLLECTION, SEGREGATION AND STAINING OF SRM

- 7.1 SPECIFIED RISK MATERIALS (SRM)
 - 7.1.1 SRM REMOVED FROM CATTLE CARCASSES
 - 7.1.2 ANIMALS CONDEMNED AT ANTE MORTEM, POST MORTEM, DEADSTOCK AND BOVINE FETUSES
 - 7.1.3 FLOOR WASTE
 - 7.1.4 WASTEWATER MATERIALS
- 7.2 SRM CONTAINERS

7.3 SEGREGATION AND STAINING OF SRM

8.0 SHIPPING OF SRM FROM THE ESTABLISHMENT

8.1 SHIPPING OF SRM FROM THE INEDIBLE AREA OF THE ESTABLISHMENT

8.2 SHIPPING OF OTM CARCASSES CONTAINING DRG

8.2.1 SLAUGHTER/SHIPPING ESTABLISHMENTS

8.2.2 OTM CARCASS TRANSPORTERS

8.2.3 RECEIVING ESTABLISHMENTS

8.3 ON-SITE DISPOSAL

9.0 RECORD KEEPING

9.1 SRM RECORDS REQUIRED BY THE *HEALTH OF ANIMALS REGULATIONS*

10.0 COMPLIANCE AND VERIFICATION

10.1 OPERATOR'S RESPONSIBILITIES

10.2 CFIA INSPECTION STAFF'S RESPONSIBILITIES

APPENDIX A

APPENDIX B

APPENDIX C

APPENDIX D

DEFINITIONS

For the purposes of this policy:

Cattle

means animals of the species *Bos taurus* or *Bos indicus*; but does not include other ruminants such as bison, muskox, yak or water buffalo.

Specified Risk Materials (SRM)

means the skull, brain, trigeminal ganglia, eyes, palatine tonsils, spinal cord and dorsal root ganglia (DRG) of cattle aged 30 months or older, as well as the distal ileum of cattle of all ages.

Note: The brain, trigeminal ganglia, eyes, palatine tonsils, spinal cord, dorsal root ganglia and distal ileum are designated as SRM because, in Bovine Spongiform Encephalopathy (BSE) infected cattle, these tissues contain the BSE agent and may transmit the disease. The OTM skull, excluding the mandible and horns, is designated as well because of the high probability of it becoming contaminated at the time of stunning and during manipulation of the other tissues if their separate removal was permitted.

UTM

means cattle that are under thirty months of age.

OTM

means cattle that are thirty months of age and older.

Federally inspected establishment

means either:

- an establishment registered under the *Meat Inspection Regulations, 1990*; or
- a provincially registered establishments receiving Canadian Food Inspection Agency (CFIA) meat hygiene inspection services as part of a contractual agreement between CFIA and the provincial authority of British Columbia, Manitoba or Saskatchewan.

Federally registered establishment

means an establishment registered under the *Meat Inspection Regulations, 1990*.

PART I: REMOVAL OF SPECIFIED RISK MATERIALS (SRM)

1.0 INTRODUCTION

The Canadian government has adopted this policy on the removal of Specified Risk Materials (SRM) from cattle slaughtered in Canada in order to prevent tissues that may contain BSE infectivity from entering the human food chain.

Every operator involved in the slaughter of cattle and/or the cutting/boning of bovine carcasses/quarters, shall implement the practices described in this Annex, as required.

1.1 POLICY SUMMARY

The purpose of this document is to describe the minimum standards that beef slaughter and cutting/boning establishments must meet in producing dressed carcasses, cuts and deboned products.

The standards are designed to meet the following objectives:

1. to ensure removal of all specified risk materials (SRM); and
2. to prevent cross contamination of edible meat products by SRM during slaughter and cutting/boning operations.

1.2 HACCP PLANS

Operators are required to reassess their HACCP plans to ensure the hazard associated with SRM (i.e. BSE infectivity) is identified on Food Safety Enhancement Program (FSEP) Form 5 (or equivalent). Critical Control Points (CCPs) are clearly identified in HACCP plans for animal aging (either by dentition examination or birth date documentation) and SRM removal. The operator is responsible for the development, implementation, and maintenance of control programs that address all components of this SRM removal policy. These control programs are to be reviewed and approved by the VIC (or IIC as is appropriate) and their implementation must demonstrate ongoing and effective control, including but not limited to, control over animal identification and aging, OTM carcass identification and marking, SRM removal and OTM carcass segregation. If these requirements are not fully met by the operator, the Veterinarian-in-Charge (VIC) or Inspector-in-Charge (IIC) will review the situation and will take appropriate compliance action.

1.3 EXPORT REQUIREMENTS

In order to export beef and bison products to certain countries, the operator may be subject to other restrictions and required to implement different or additional controls and procedures regarding SRM than the ones described in this Annex (e.g. OTM meat labelling). For more information consult the appropriate importing country's section in Chapter 11 of this manual. In order to export beef or bison to the United States refer to Annex Z.

1.4 EFFECTIVE DATE OF THE SRM POLICY

This policy came into effect on **July 24, 2003**. Subsequent amendments are effective on the date of publication of the associated Meat Hygiene Directive.

2.0 CATTLE IDENTIFICATION, AGE DETERMINATION, MARKING AND SEGREGATION OF CARCASSES UPON ARRIVAL AND DURING SLAUGHTER/DRESSING, CHILLING, CUTTING AND BONING PROCEDURES

Operators slaughtering or cutting/deboning UTM and OTM cattle must establish and implement procedures for identifying and separating these two types of cattle from their arrival at the

establishment throughout the slaughter process, and during chilling, and/or cutting/deboning operations.

At the slaughter establishment the identity of the cattle carcass and all its parts must be maintained until their final disposition is known. To achieve this, the Canadian Cattle Identification Agency (CCIA) and Agri-Traçabilité Québec (ATQ) ear tag shall be attached, after its insertion into a plastic bag, to the fore shank of the carcass following hide removal. Alternative procedures that assure, with equal confidence, maintenance of the identity of the carcass and all its parts until their final disposition is known, may be approved by the VIC.

2.1 AGE DETERMINATION, IDENTIFICATION AND MARKING OF CARCASSES

Operators are required to reassess their HACCP system and to develop a Critical Control Point (CCP) for age determination procedures (e.g. by date of birth documentation review and/or dentition examination). CFIA Inspectors audit the company's HACCP system as per the FSEP verification protocol.

For the purposes of this policy, the age of cattle can be established by using reliable documentation that indicates the birth date of the animal or by examining the teeth. The birth date document, rather than dentition, provides the best means for determining the age of cattle. When documentation is available it shall be used as the primary means of determining the age of animals.

Operators must maintain records of the age and identity of slaughtered cattle. The records shall include information regarding the procedures used to determine the age of animals. If age is determined by documentation, the document shall be maintained with the records for a period of two years from the date of slaughter.

2.1.1 DETERMINING AGE BY BIRTH DATE DOCUMENTATION

Submission of accurate birth date information by producers is strongly supported by the CFIA. Birth date information in the Canadian Cattle Identification Agency (CCIA) database, or the Agri-Traçabilité Québec (ATQ) database in the case of Quebec, is accepted by the CFIA as an alternative to dentition for domestic meat inspection purposes, and live animal or meat exports. The availability of acceptable birth date information on a timely basis will mean that dentition assessment should not be necessary.

The CFIA also recognizes the original copies of official birth date documents issued by registered breed associations. The registered breed associations include associations established under the Canadian *Animal Pedigree Act*. Information about national breed associations can be found on the AAFC website.

http://www.agr.gc.ca/redmeat/index_eng.htm

Acceptable methods for determining the age of an animal in the CCIA or the ATQ database include either the actual date on which a calf is born or the first day of the calving period in which a group of calves was born. In cases where "estimated" birth dates are provided based on other methods, the date of birth is not to be accepted, and dentition will be used for aging.

As part of ante mortem inspection procedures, CFIA inspectors will examine birth date documentation used by the operator for determining the age of cattle. If the Veterinarian in Charge (VIC) concludes that the document is accurate and reliable, the document will be accepted as verification of the age of the cattle. However, if the VIC finds significant reasons for questioning the validity of the document, the cattle in question will be processed as a lot and the document will be further verified in consultation with the original issuing authority. If verified by the issuing authority, the lot is released. If the lot can not be verified by the issuing authority, then dentition will be used for age determination. If considered appropriate, an observation report will

be forwarded by the VIC to the Area CFIA individual responsible for identification and traceability for possible follow-up actions on a case by case basis.

Similarly if an animal's birth date documentation has been deemed acceptable on ante mortem inspection but at head inspection by the CFIA, a head is observed where the fifth permanent incisor tooth is above the gum line, the animal will be deemed an OTM and will be treated accordingly. The inspector will note the discrepancy between birth date documentation and physical appearance of the head as a deviation. If considered appropriate, an observation report will be forwarded by the VIC to the Area CFIA individual responsible for identification and traceability. This would flag clusters of improper age determination/identification by producers and allows for follow-up actions on a case by case basis.

Loss of identification or no identification will result in the animal being aged by its dentition.

2.1.2 DETERMINING AGE BY DENTITION EXAMINATION WHEN NO BIRTH DATE DOCUMENTATION IS PROVIDED

For the purposes of this policy, cattle are considered to be aged 30 months or older (OTM) when they have more than two permanent incisor teeth erupted (i.e. the first pair of permanent incisors and at least one tooth from the second pair of permanent incisors).

Note: For the purpose of this policy, a permanent tooth is considered erupted when any part of the tooth is protruding through the gum. This will include teeth that have erupted behind or in front of the existing deciduous incisor. Cattle will be considered as less than 30 months of age (UTM) as long as the erupting third permanent incisor is not above the surface of the gum. See Appendix A of this annex for diagrams of bovine incisor teeth and the corresponding age.

Visual examination of the incisor teeth of each carcass must occur at or before the head inspection station.

The operator examines the incisor teeth of each carcass, and determines if the carcass is derived from an OTM animal. The designated trained employee examining the teeth must be able to recognize permanent incisor teeth and be knowledgeable of this policy. Alternatively the operator may decide to treat all slaughtered animals as being derived from OTM animals. In such a case, examination of the incisor teeth would not be required.

CFIA inspectors verify the effectiveness and accuracy of age determination performed by the operator by examining the incisor teeth of all carcasses of cattle during the inspection of the head. The inspector is to record errors in age determination by plant personnel and immediately notify the operator for implementation of appropriate corrective and preventive actions.

2.1.3 IDENTIFICATION AND MARKING OF CARCASSES

The identification and marking of both sides of the carcasses of OTM animals must be done as soon as possible after the carcass has been aged. The operator shall apply one of the marks described in Appendix D by means of a stamp (e.g. using blue edible ink) to each side of the OTM carcass.

The mark must be visible to the employee responsible for splitting carcasses in order to ensure the use of appropriate splitting saw. When a single saw is used for splitting all carcasses, it shall be cleaned and sanitized after splitting an OTM carcass if it is to be subsequently used to split a UTM carcass.

Control and identity of the carcass, head and parts must be maintained. The head is identified as OTM by means acceptable to the VIC.

The operator must apply edible blue ink to exposed surfaces of the vertebral column of each OTM carcass side following removal of the spinal cord and before chilling. For proper identification the operator shall apply edible blue ink to the vertebral canal and may include the vertebral body, however, the spinous (dorsal) processes should not be stained with ink as it compromises grading. All vertebrae including the sacrum must be stained with blue edible ink in order to achieve a readily visible mark at the time of cutting/boning.

Application of the blue ink to the vertebrae shortly after the carcass has exited the carcass wash, must only occur when the operator has a written program in place which has been approved by the VIC that can demonstrate ongoing effective controls, including a carcass identification and marking system that will ensure all OTM carcasses are properly identified and marked.

Operators of slaughter establishments may be able to reduce or eliminate the need for certain requirements under this part providing the same outcome is achieved. For example, an operator may decide to treat all slaughtered cattle, or cattle slaughtered from a particular lot, as being derived from OTM animals. In such a case, SRM would be removed from all carcasses regardless of their age and there would be no need to examine incisor teeth for the purpose of age determination. However there would still be a requirement to apply one of the marks described in Appendix D by means of a stamp to each carcass side if the operator also slaughters UTM. Every vertebral column of OTM carcasses must be marked and stained as per the above requirements.

2.2 CONTROL AND SEGREGATION OF CARCASSES DURING DRESSING, CHILLING, CUTTING AND BONING PROCEDURES

2.2.1 SLAUGHTER ESTABLISHMENTS

Operators of federally registered establishments that slaughter UTM and OTM cattle shall ensure that OTM animals are slaughtered as a definable group. The CFIA strongly recommends that the slaughter of the OTM group(s) proceed at the end of the production day, in order to facilitate operational control and verification of SRM removal. If an operator chooses to slaughter and segregate OTM cattle using alternative methodology, a written control program, that is able to achieve the same outcome, must be reviewed and found acceptable to the VIC prior to implementation. The operator is responsible to ensure that the proposed segregation method meets all the eligible exporting requirements.

However, operators of all federally registered slaughter establishments are required to visibly group the carcasses of OTM cattle in the cooler and to schedule the cutting/deboning of such carcasses at the end of the production day. Alternatively, an operator of a federally registered establishment could ship the carcasses to another federally registered establishment for cutting/deboning.

Operators of all federally registered slaughter establishments are required to track the number of OTM cattle slaughtered in the establishment. The number of OTM cattle must be recorded after CFIA examination of the head is complete and before the carcasses have left the kill floor. The total number of OTM carcasses identified on the kill floor must reconcile with the number of carcasses found in the carcass cooler and the number of carcasses entering the cutting/deboning room or shipped from the establishment.

2.2.2 CUTTING/DEBONING ESTABLISHMENTS

Operators of cutting/deboning establishments that receive sides and/or quarters of OTM cattle are required to develop and implement written procedures to maintain the identity of these products until the vertebral column is removed and disposed as SRM. The procedures must include:

1. recording of the number of OTM carcasses/sides/quarters received and reconciliation of this number with the number of OTM carcasses deboned and cut-up;

AND

2. cutting/deboning of such carcasses/sides/quarters at the end of the production day.

For domestic purposes it is not required to segregate meat by age category when boning of the vertebral column has been completed.

3.0 STUNNING, DRESSING, CUTTING/BONING AND SRM REMOVAL

3.1 DEDICATED SRM TOOLS

The operator must use, except as detailed later in the following section of this Annex, dedicated tools (e.g. knives), identified by colour-coding or another visual system, for all procedures involving the incision and direct or indirect handling of the tissues designated as SRM.

3.2 STUNNING

The use of a penetrating percussion device which injects air into the cranial cavity or the use of pithing rods is not permitted.

The operator must develop, implement and maintain an effective control system to collect brain tissue that has been externalized at the time of stunning prior to bleeding of OTM cattle or from all animals if UTM and OTM cattle are not identified before stunning. This control system must include measures to ensure brain matter does not enter or contaminate meat products, animal food products (e.g. hides saved for gelatin or collagen, blood salvaged for edible and/or animal food including blood meal that can be used as feed for calves).

Brain tissue that has fallen on the floor must be discarded as SRM.

When OTM cattle are stunned by captive bolt, there is a strong likelihood that blood may be contaminated with SRM (neural tissue). The following methods are approved to prevent SRM-contamination of bovine blood that may be used in feeds and food for animals:

1. blood collected by open method from age verified UTM will be considered exempted material if it does not contain blood from a OTM animal (zero tolerance);
2. humane stunning using a non-penetrative method (e.g. electrical kill stunning, ritual slaughter, etc.);
3. closed blood collection method (e.g. hollow knife or cannula); or
4. any other method approved by the CFIA.

More information on the CFIA's policies on prevention of cross-contamination of blood from neural tissue and procedures for development, evaluation and approval of blood collection protocols is available at the following CFIA web sites:

<http://www.inspection.gc.ca/english/anima/heasan/disemala/bseesb/enhren/enhrene.shtml>

<http://www.inspection.gc.ca/english/anima/heasan/disemala/bseesb/enhren/blosane.shtml>

Refer to the tables below for disposition of face plates, i.e., head hides from bovines. The operator must present the CFIA with a purpose specific control program for this purpose.

Options		Outcome
1	Face plates from UTM animals	
	UTM Animals stunned by a penetrating or non-penetrating stunning device.	Routine (non-SRM) inedible stream* provided no cross-contamination with brain material or any other SRM from OTM animals takes place.
2	Face plates from OTM animals	
2A	OTM animals stunned by a non-penetrating stunning device (e.g. electrical kill stunning, ritual slaughter, etc.)	Routine (non-SRM) inedible stream* unless cross-contamination with brain material or any other SRM from OTM animals takes place.
2B	OTM animals stunned by a penetrating stunning device.	Routine (non-SRM) inedible stream* provided the leakage of brain tissue from the stun hole is prevented with CFIA approved methods such as the application of edible grease, tampons or other equivalent devices, and grossly visible brain material is removed from the face plate by trimming, washing, scraping and/or vacuuming.
2C	That are not processed as per options 2A or 2B	SRM

* i.e., leather manufacturing, non-ruminant feed, pet food and fertilizer.

3.3 HEAD SEPARATION AND REMOVAL OF SKULL, BRAIN, TRIGEMINAL GANGLIA, EYES AND TONSILS

Cattle age should be determined prior to removing the head from the carcass. If this is not possible due to plant design, the head removal process is performed by using a knife not dedicated for SRM to cut most of the muscles and connective tissue attaching the head to the carcass. This results in partial separation of the head at the junction of the occipital condyles and the first cervical vertebrae.

A knife dedicated, uniquely identified (i.e. colour coded) for SRM removal is used to sever the spinal cord and is rinsed and sanitized after each animal. A non-dedicated knife is then used to complete the removal of the head. Both knives are adequately rinsed and sanitized after each animal.

The skull including the brain, trigeminal ganglia, eyes, palatine tonsils of OTM cattle must be disposed of as SRM. The removal of the head must be achieved without contamination of the carcass or other meat products with SRM (i.e. spinal cord, brain) or other contaminants. The operator must take measures to prevent the contamination of edible products (head meat and tongues for example) by SRM.

As soon as the inspection of the head is completed and the tongue and cheek meat have been harvested, the remainder of the head shall be placed without delay into a SRM leak proof container of suitable dimensions to prevent subsequent contact between the SRM head and any other meat products. Boning of the occipital area of the head including the area of the foramen magnum of OTM cattle is not permitted.

3.4 PALATINE TONSILS

Palatine tonsils are removed from the head of all cattle during the preparation of the head for inspection. Palatine tonsils are considered inedible material for cattle of all ages, and SRM for OTM cattle.

3.5 TONGUE AND CHEEK MEAT

The removal of the tongue, cheek meat and other edible portions must be achieved without contamination of the carcass and other edible meat products with SRM (i.e. spinal cord, brain) or other contaminants.

3.6 REMOVAL OF THE DISTAL ILEUM

The distal ileum of all cattle, regardless of their age, is designated as SRM. Therefore, the distal ileum must be removed and disposed of as SRM in accordance with the requirements of this Annex. The operator complies with this requirement by choosing one of the following two options:

1. Removal and disposal of all cattle small intestines as SRM; or
2. Removal of the distal ileum from the small intestine and disposes of the removed distal ileum as SRM. To ensure the complete removal of the distal ileum, the ileo-cecal junction and at least 200 cm of the attached and uncoiled small intestine proximal to the ileo-cecal junction must be removed (see Appendix C of this Annex for a diagram of the cattle gastrointestinal tract). After the removal of the distal ileum, the remainder of the small intestines from cattle of all ages can be harvested as edible meat products, provided the intestines were found free of pathological defects, and are from carcasses approved for human consumption.

Under this option, the operator must develop, implement and maintain a control program within their HACCP system that ensures that the entire distal ileum is removed according to the specifications stated above. The program must include a description of the landmarks, procedures and equipments used to define and measure the distal ileum to be removed. In place of a measuring device, an alternate piece of equipment that consistently provides the same outcome is acceptable. Prior to its implementation, the control program must be reviewed and found acceptable to the VIC.

The operator must also ensure that no piece of the distal ileum is included with any edible meat product or animal food product. If the large intestine is salvaged, there must be a control program in place that identifies the landmarks for the portion being salvaged. See Appendix C of this Annex.

3.7 CARCASS SPLITTING

For the carcass splitting saw the operator has the option either to use dedicated equipment or to ensure that the equipment used on an OTM cattle carcass is cleaned and sanitized before being used on a UTM cattle carcass or on carcasses and parts of carcasses of other food animal species. The level of cleaning required is equivalent to what is required when the carcass splitting saw becomes contaminated (i.e., the organic material must be removed to ensure adequate sanitation). A device (e.g. catch tray/ screen) must be installed to capture SRM fragments in areas where potential for SRM cross contamination exists.

The carcass splitting saw should separate the vertebral column in the midline to facilitate removal of the spinal cord. If the saw is equipped with an automatic rinse system, the exhaust water must be ducted away from carcasses and other edible and inedible products. The water-exhaust effluent should be adequately trapped. The trap should be emptied, cleaned and renewed as and when necessary. All residues should be treated as SRM and emptied into a SRM container.

The operator shall immediately identify any incorrectly split carcasses and ensure that the spinal cord is properly removed in the evisceration area. Incorrectly split carcasses will not be approved by CFIA until the spinal cord is properly removed. The operator must take appropriate corrective measures to prevent the occurrence of incorrectly split carcasses.

3.8 REMOVAL OF THE SPINAL CORD AND ITS VERIFICATION

The spinal cord of OTM cattle is SRM. It must be removed in its entirety prior to stamping of the carcass sides with the meat inspection legend and before the carcass leaves the kill floor. Lifting the spinal cord out of the vertebral canal can be achieved using a knife. Other specialized tools can be used, but chain link gloves are not recommended unless covered with intact rubber/latex gloves to minimize the risk of gross cross-contamination.

The spinal cord of UTM cattle is not designated as SRM. Nevertheless, it must still be completely removed from all split carcasses on the kill floor before the final carcass wash. This is required to prevent incorporation of spinal cord tissue into any meat products (adulteration), ensuring compliance with established meat product standards and simplifying verification measures.

Hand tools used for spinal cord removal should be uniquely identified (e.g., colour coded) and dedicated to this purpose. Specialized spinal cord removal equipment, including vacuums can be used on all age categories of cattle. However, if used before final carcass inspection, specialized spinal cord removal equipment must be sanitized between each carcass. If used after carcasses have been approved, they must be sanitized as required and after each time they are used on an OTM cattle carcass before being subsequently used on UTM cattle carcasses or on carcasses of other food animal species.

Operator verification of the complete spinal cord removal is one of the most important control points. The operator must make a thorough check of every carcass side to ensure that no remnants of spinal cord are present before the carcass is marked with the meat inspection legend. When any spinal cord remnant is discovered, the carcass must be retained for immediate rework by the operator (i.e. zero tolerance policy applies).

In the case of carcasses that are split after chilling (veal carcasses), the spinal cord must be removed during boning/cutting operations if the vertebral column is split in a federally inspected establishment.

3.9 REMOVAL OF THE DORSAL ROOT GANGLIA

It is the operator's responsibility to ensure SRM is not incorporated into any edible meat products. The dorsal root ganglia (DRG) from OTM carcasses must be removed and disposed of as SRM. The vertebral column removal will most likely be done in the cutting and boning room after carcass chilling. In order to ensure complete removal of DRG, the vertebral column of OTM cattle (excluding the vertebrae of the tail, the dorsal and transverse processes of the thoracic and lumbar vertebrae and the wings of the sacrum) must be removed and disposed of as SRM. Cutting and boning procedures used to remove the OTM vertebral column shall not cause the removal of DRG with the edible muscle tissue. As a best practice, the cut separating the edible muscle from the vertebral column should be made approximately 2.5 cm (1 inch) from the vertebral arch to ensure no DRG is inadvertently included with the edible meat.

OTM carcass sides or quarters with the vertebral column attached (i.e. DRG not removed) can be shipped under CFIA permit from a federally registered slaughter establishment to another federally registered establishment if the following controls are in place. Shipping OTM carcass sides or quarters with the vertebral column attached to non-federally registered facilities is not permitted.

3.9.1 SLAUGHTER/SHIPPING ESTABLISHMENTS

Slaughter establishments that do not remove DRG from vertebral columns on-site will have to implement identification and shipping control system satisfactory to the VIC. The controls shall include written confirmation that the receiving plant has a verifiable control system in place and an agreement and notification system regarding the number of carcasses sides or quarters to be expected exist between both establishments. CFIA officials will be responsible to verify the operator's compliance using the corresponding CVS tasks.

3.9.2 RECEIVING ESTABLISHMENTS

The receiving establishment must have a CFIA permit to receive carcasses containing SRM. The receiving establishment must have a verifiable control system in place which will demonstrate to the satisfaction of the IIC that the sections of the vertebral column containing DRG are removed and appropriately disposed of as SRM. The receiving establishment must also advise the slaughter establishment of the number of OTM carcasses that they have received. CFIA officials will be responsible to verify the operator's compliance using the corresponding CVS tasks.

Note:

The vertebral column of OTM cattle must not be used as raw material in the preparation of mechanically separated meat or finely textured meat.

3.10 VERIFICATION BY THE OPERATOR OF SRM REMOVAL AND REWORK

The operator must verify the complete removal of all SRM. Any carcass or part that is found to be harbouring fragments of SRM (e.g. spinal cord) must be retained by the operator for immediate rework and subsequent presentation for further examination by the operator. The operator should have a system which allows retention and rework of carcasses harbouring residual SRM to occur successfully and without gross SRM cross contamination to meat products. The operator must demonstrate control of the system at all times.

4.0 SRM HANDLING AND DISPOSITION

This section describes effective separation of SRM from the carcass, provisions for storage of SRM and hygienic standards associated with floor waste and inedible containers. Because of structural differences between establishments, procedures for separating and isolating the various SRM may vary. Generally, separation of SRM should occur as soon as possible and care must be taken to avoid contamination of edible and inedible products and the establishment environment by SRM.

4.1 HANDLING OF SRM WITHIN THE ESTABLISHMENT

SRM should be separated from carcasses at the earliest opportunity during the dressing process. SRM should be placed in dedicated containers without delay and regularly moved to a designated area in the inedible products section for staining. This must include all SRM separated from the carcass, SRM from the floor and all other debris collected in the SRM areas. Basic principles of hygiene must be observed at all times.

4.2 FLOOR WASTE

Areas where SRM is removed or handled must be regularly attended to by plant employees assigned this function. Systems for containing gross debris and operational cleaning of these areas are important. Carcass material and debris shovelled or squeegeed from the floor in areas where SRM is removed or handled and any debris collected from the channels and drain covers/traps derived from these areas must be disposed of as SRM and deposited in dedicated SRM containers. Collection of SRM from drain covers and traps must occur daily.

Where there are effective controls to prevent floor from contact with SRM, floor waste and debris collected from the corresponding drain covers and traps do not need to be disposed of as SRM. An acceptable method of containing SRM in areas where SRM is removed or handled to prevent extensive floor contamination with SRM is through the implementation of strategic physical barriers such as troughs, trays, raised floor curbs or barriers of equivalent effects. The Operators should have a written program in place, to the satisfaction of the VIC with consultation of the Area program specialist and Regional Veterinarian Officer (RVO), to prevent the cross-contamination of floor from SRM tissues in these specific areas (see sections 7.1.3 and 7.1.4).

4.3 SRM CONTAINERS

It is important that all SRM and debris are contained within dedicated leak proof containers clearly and indelibly marked on the outside with the words “Specified Risk Material / Matériel à risque spécifique” or “SRM / MRS” in both official languages.

4.4 CLEANING OF SRM CONTAINERS

All equipment and containers used in the handling of SRM shall be cleaned and sanitized after being emptied and prior to reuse. Dedicated inedible and SRM containers must at all times be visibly clean. If containers are being returned by a rendering company in an unclean state they shall not be used until they are cleaned and sanitized.

Cleaning of SRM containers should not occur in area where potential contamination of the meat products may occur. The cleaning and sanitizing of SRM containers should be an integral part of the cleaning schedule of the premises, and verified during the pre-operational inspection.

Dedicated inedible containers and equipments, such as chutes, augers etc, must be cleaned and sanitized using a CFIA approved non-food chemical following accidental contamination with SRM and prior to reuse.

5.0 SRM CONTROLS

The operator is responsible for the development, implementation, and maintenance of documented control programs that address all the components of this SRM removal policy including ante mortem inspection, age determination, carcass identification and SRM removal. The control programs must ensure compliance with the relevant provisions of the Meat Hygiene Manual of Procedures (MOP), the Meat Inspection Regulations, 1990 and the Health of Animals Regulations with respect to the control and disposition of bovine SRM and inedible material, including animals that are found dead on arrival or die of the causes other than the slaughter in the establishment. Operators are required to reassess, and if required modify, their HACCP system so that the food safety hazards of BSE are clearly stated and controlled.

The operator and all staff directly involved should have demonstrable knowledge of the establishment’s SRM control programs and be able to demonstrate with accurate records that the SRM controls they have put in place have been implemented in practice, resulting in full compliance with the regulations and policy requirements. The operator’s SRM control programs must be auditable and verifiable.

CFIA staff shall verify the operator’s full compliance with all relevant regulations and this policy through the completion of relevant inspection tasks and audits.

PART II: ENHANCED FEED BAN CONTROLS AND SRM MANAGEMENT

6.0 INTRODUCTION

The Canadian government implemented a ruminant to ruminant feed ban in 1997 to limit the spread of BSE. That feed ban prohibited the feeding of most mammalian proteins to ruminant animals, such as cattle, sheep and goats. The enhanced feed ban controls prevent accidental exposure of susceptible animals to BSE and accelerate the time for the eradication of BSE from the national cattle herd. The enhanced feed ban controls require the removal and redirection of all SRM tissues from animal feed, pet food and fertilizers, as are removed from human food (Part I of this Annex). To effectively implement these controls, all SRM be segregated from other edible and inedible materials, identified by staining; and handled appropriately until disposal.

In every establishment where SRM is handled, the operator shall implement the practices described in Part II of this Annex, as required.

6.1 POLICY OBJECTIVES

The enhanced feed ban regulations came into effect on July 12, 2007. The policy standards are designed to ensure removal of all SRM from the animal food chain in a manner that minimizes risks associated with:

1. potential adulteration or cross-contamination of ruminant animal feed with prohibited proteins of ruminant origin; and
2. potential on-farm misuse of feed containing prohibited protein of ruminant origin.

6.2 CONTROL PROGRAMS

The operator is responsible for the development, implementation, and maintenance of documented control programs that address all components of this enhanced feed ban control policy. These control programs are to be reviewed and approved by the VIC (or IIC as is appropriate) and their implementation must demonstrate ongoing and effective controls over SRM segregation, staining, shipping/ transportation, record keeping and compliance with the CFIA permitting process. If these requirements are not fully met by the operator, the VIC or IIC will assess the situation and will take appropriate compliance action.

7.0 COLLECTION, SEGREGATION AND STAINING OF SRM

7.1 SPECIFIED RISK MATERIALS (SRM)

Operators involved in the slaughter of cattle and/or the cutting/boning of bovine carcasses/quarters shall collect and dispose of the following materials as SRM.

7.1.1 SRM REMOVED FROM CATTLE CARCASSES

This includes SRM tissues removed from cattle carcasses during slaughter, dressing or cutting/deboning operations (Part I of this Annex).

7.1.2 ANIMALS CONDEMNED AT ANTE MORTEM, POST MORTEM, DEADSTOCK AND BOVINE FETUSES

Animals condemned at ante mortem and cattle that die from causes other than slaughter must also be handled as SRM, unless the SRM has been removed from these carcasses. The operator must convey immediately and directly the dead stock to a designated area in the inedible product section for staining and disposal in accordance with the Health of Animals Regulations (see section 7.3).

Carcasses of condemned or dead animals from which the SRM has not been removed must be denatured by staining with a wide stripe from head to tail (contrasting with the animal's coat colour) before shipping to another location under CFIA permit (see section 7.3). Deadstock being collected by companies solely dedicated to SRM (all trucks, all equipment, entire premises) may mark a lesser amount of the deadstock carcasses (e.g. just the head). Denaturation of such carcasses by injecting a CFIA approved agent is optional.

The bovine carcasses condemned at post mortem inspection must be treated as SRM unless they have had all the SRM removed. Once SRM has been removed, the rest of the carcass can be disposed of according to Section 54 (1) of the *Meat Inspection Regulations, 1990*.

An unborn fetus/calf recovered from the uterus of a cow slaughtered in a federally registered establishment is non-SRM. Any term-fetus with body hair or newborn calf that is found on the ground inside the establishment is SRM, unless the distal ileum has been removed from such animals.

7.1.3 FLOOR WASTE

In beef slaughter establishments, the floor waste from areas where SRM is removed or handled will be considered SRM. When there are no effective controls to contain the floor waste generated from areas where SRM is removed or handled, carcass material and debris shovelled or scraped from the floor and debris collected from the channels and drain covers associated with these areas must be disposed of as SRM.

Where there are effective controls to prevent floor from contact with SRM, floor waste and debris collected from the corresponding drain covers and traps do not need to be disposed of as SRM. An acceptable method of containing SRM in areas where SRM is removed or handled to prevent extensive floor contamination with SRM is through the implementation of strategic physical barriers such as troughs, trays, raised floor curbs or barriers of equivalent effects. The operators should have a written program in place, to the satisfaction of the VIC with consultation of the Area program specialist and Regional Veterinarian Officer (RVO), to prevent the cross-contamination of floor from SRM tissues in these specific areas.

The floor waste generated in other areas, without any contact with SRM tissues, will not be considered SRM. This is also applicable in areas where the distal ileum (slaughter establishments) and the OTM vertebral columns (cutting and boning rooms) are removed because the SRM is effectively contained within these tissues. However, the operators should have a written program in place, to the satisfaction of the VIC, to limit the cross-contamination of floor from SRM tissues in these areas.

7.1.4 WASTEWATER MATERIALS

In beef slaughter establishments, the animal material and debris recovered from wastewater must be disposed of as SRM if there are no controls in place to protect the floor from SRM contamination in areas where SRM is handled or removed. To retrieve this material, a screening system consisting of screens with apertures or a mesh size of no more than 4 mm diameter must be in place as a step in the treatment of wastewater. All animal materials and debris retained in this screening system shall be collected and disposed of as SRM. No grinding or maceration shall take place which could facilitate the passage of animal material through the pre-treatment process. The wastewater beyond this screening system will not be subjected to CFIA's SRM controls but shall be treated in accordance with relevant provincial, municipal or environment legislations.

Animal material and debris recovered from wastewater screening systems and/or any downstream treatment system, will not need to be treated as SRM if, there are effective controls in place to prevent the wastewater and floor debris from becoming contaminated in areas where SRM is handled or removed. The operator must be able to demonstrate that materials and debris recovered originated from a non-SRM or SRM controlled area and/or that SRM effluent

originating from an SRM area has been treated by passing through a screening system consisting of screens with apertures or mesh size of no more than 4 mm diameter. Operators who wish to exempt the materials and debris recovered from the wastewater derived from the slaughter floor as SRM must have written program in place to the satisfaction of the VIC with consultation of the Area Program Specialist and the Regional Veterinarian Officer (RVO).

7.2 SRM CONTAINERS

SRM must be collected and placed in dedicated leak proof SRM containers without delay and regularly moved to a designated area in the inedible products section for staining. The SRM containers must be clearly and indelibly marked on the outside with the words “Specified Risk Material / Matériel à risque spécifié” or “SRM / MRS” in both the official languages.

Contaminants, such as hydraulic fluids, heavy metals and other chemicals, must not be discarded into SRM containers since tallow extracted from rendered SRM is used in animal feeds, cosmetics, soap, etc. The inclusion of such contaminants may pose animal and public health risks.

7.3 SEGREGATION AND STAINING OF SRM

The operator is responsible for the segregation and staining of SRM after its removal during slaughter or cutting/ deboning. All SRM must be transferred to a dedicated leak proof container/ trailer in a designated area in the inedible products section for staining. It must be conspicuously stained with an indelible marking dye approved by the CFIA (e.g. denaturing agent). Carcasses containing SRM (i.e. vertebral columns of OTM carcasses containing DRG) must also be conspicuously stained with an indelible marking dye approved by the CFIA (i.e. blue meat marking ink).

The stain should be applied to each layer of SRM so that the stain is visible on all surfaces i.e. every time the SRM is transferred to a common SRM staining container or trailer, it has to be stained by spraying. A complete list of approved denaturing agents and dyes can be obtained from the CFIA Web site (i.e. [Reference Listing of Accepted Construction Materials, Packaging Materials and Non-Food Chemical Products](#)).

The operator must develop, implement and maintain control programs with the following measures:

1. Segregating and staining of SRM in dedicated SRM containers following its removal from cattle carcasses.

Notes:

- a) If the operator chooses not to segregate SRM from other inedible tissues, all inedible material mixed with the SRM will be considered to be SRM and will have to be stained.
 - b) Staining requirements would not apply if all the inedible parts of cattle carcasses do not leave the premises (on-site disposal).
2. Marking carcasses of condemned or dead animals from which the SRM has not been removed with a wide stripe down the back of the head and length of the spine using a dye (contrasting with the animal’s coat colour) that is conspicuous, indelible and safe for consumption by animals before shipping to another location under CFIA permit. Deadstock being collected by companies solely dedicated to SRM (all trucks, all equipment, entire premises) may mark a lesser amount of the deadstock carcasses (e.g. just the head). This requirement would not apply if the carcasses do not leave the premises (on-site disposal).

8.0 SHIPPING OF SRM FROM THE ESTABLISHMENT

8.1 SHIPPING OF SRM FROM THE INEDIBLE AREA OF THE ESTABLISHMENT

The *Health of Animal Regulations* require that no person shall transport SRM to another premise unless it is stained in accordance with the provisions of the Acts and Regulations and it is in a container marked on the outside with the words “Specified Risk Material / Matériel à risque spécifié” or “SRM / MRS” in both official languages.

Operators of cattle slaughter and/or cutting/deboning establishments must collect SRM in dedicated leak proof containers (see section 7.0). Only properly identified and stained SRM can be shipped from federally registered establishments. The establishment operator and SRM transporter must maintain records for SRM shipped from the establishment in accordance with section 9.1 of this Annex.

All SRM, if moving from the premises of origin to another location, in any form with the sole exception being laboratory submissions (level 2 or higher laboratory), must be transported under a CFIA permit. The operator of the shipping establishment must develop, implement and maintain a control program that ensures only transport vehicles with a valid CFIA permit are used to remove SRM from the establishment. The responsible CFIA Inspector will verify the operator’s control program.

8.2 SHIPPING OF OTM CARCASSES CONTAINING DRG

8.2.1 SLAUGHTER/SHIPPING ESTABLISHMENTS

Slaughter establishments that do not remove vertebral columns containing DRG from OTM carcasses on-site have to implement identification, segregation and shipping controls satisfactory to the VIC (see parts 2.2.1 and 3.9.1 of this Annex). The operator of a slaughter/ shipping establishment must keep daily records that contain the information stated in section 9.1 of this Annex.

8.2.2 OTM CARCASS TRANSPORTERS

All SRM, if moving from the premises of origin to another location, in any form with the sole exception being laboratory submissions (level 2 or higher laboratory), must be transported under a CFIA permit. Operators and owners of companies or vehicles who wish to transport OTM carcasses should contact the VIC/IIC of the establishment or the local CFIA Animal Health District Office for permit application information. Transportation of the SRM must be done in accordance with the conditions of the permit. The transporter must keep records in accordance with the issuance of the permit, the *Health of Animals Regulations* and section 9.1 of this Annex. The vehicle/trailer transporting OTM carcasses must be cleaned prior to reloading in accordance with the operator’s written program.

8.2.3 RECEIVING ESTABLISHMENTS

The receiving establishment must have a CFIA permit to receive carcasses containing SRM. Establishment operators who wish to receive SRM must submit a permit application to the VIC/IIC of the establishment or local CFIA Animal Health District Office. The application includes written procedures documenting design and operating parameters for the site/facility. The receiving establishment must have a verifiable control system in place (see sections 2.2.2 and 3.9.2). The receiving establishments must keep records that contain the information stated in section 9.1 of this Annex.

8.3 ON-SITE DISPOSAL

Inquiries regarding the acceptability of an on-site disposal method should be directed to local CFIA Animal Health District Office. When SRM is treated, confined, or destroyed on-site, the

operator must keep daily records that include the name and address, date of slaughter and SRM removal, the combined weight of SRM or the number of carcasses (if applicable), the number of the approved tags (CCIA, ATQ etc.) and the date on which and the manner in which the SRM or the carcasses were treated, confined or destroyed (refer to section 9.1 of this Annex).

9.0 RECORD KEEPING

9.1 SRM RECORDS REQUIRED BY THE *HEALTH OF ANIMALS REGULATIONS*

Section 6.23(1-2) of the *Health of Animals Regulations* requires that SRM records be maintained for at least 10 years by every person who:

1. is required to remove or stain SRM;
2. collects the carcasses of cattle containing SRM that died or were condemned at the ante mortem; or
3. receives SRM or carcasses containing SRM from another person.

In addition to the requirements of this section, the operator of federally inspected establishments must maintain additional SRM records as indicated earlier in this Annex.

The operator of an establishment that removes (at pre-slaughter, slaughter or OTM deboning), stains, ships, transfers or receives SRM (including meat products containing SRM) shall keep a record for each day on which the SRM is removed, stained or received or the carcasses containing SRM are collected or received. The operator must maintain records for 10 years that contain the following information where applicable:

- a) The name of the operator and address of the establishment;
- b) The date of SRM removal, staining, shipping, transporting or receiving;
- c) The weight of the SRM, as well as the number of carcasses if applicable, that is shipped; transported or received;
- d) The number of deadstock and animals condemned at ante mortem;
- e) The name of the dye used to identify the SRM or carcasses;
- f) From deadstock containing SRM, the approved ear tag number (CCIA or ATQ) as defined in section 172 of the *Health of Animals Regulations*; or the information referred to in the paragraph 187(2)(a);
- g) The name and address of the person, company or establishment that transports the SRM or carcasses containing SRM from the establishments or to the establishment; and
- h) The name and address of the person or company that received or will receive the SRM (renderers, deadstock collectors, OTM receiving establishments, etc.).

10.0 COMPLIANCE AND VERIFICATION

10.1 OPERATOR'S RESPONSIBILITIES

The operator is responsible for the development, implementation, and maintenance of documented control programs that address all components of enhanced feed ban control policy including SRM collection, segregation and staining, shipping/ transportation, record keeping and compliance with CFIA permitting process. The control programs must ensure compliance with the relevant provisions of the CFIA Meat Hygiene Manual of Procedures (MOP), the *Meat Inspection*

Regulations, 1990 and the Health of Animals Regulations with respect to the control and disposition of bovine SRM and inedible material, including animals that are found dead on arrival or die of the causes other than the slaughter in the establishment. The operator's SRM control programs must be auditable and verifiable to the satisfaction of the CFIA officials.

10.2 CFIA INSPECTION STAFF'S RESPONSIBILITIES

CFIA staff shall verify the operator's full compliance with all relevant regulations and this policy through the completion of relevant inspection tasks and audits.

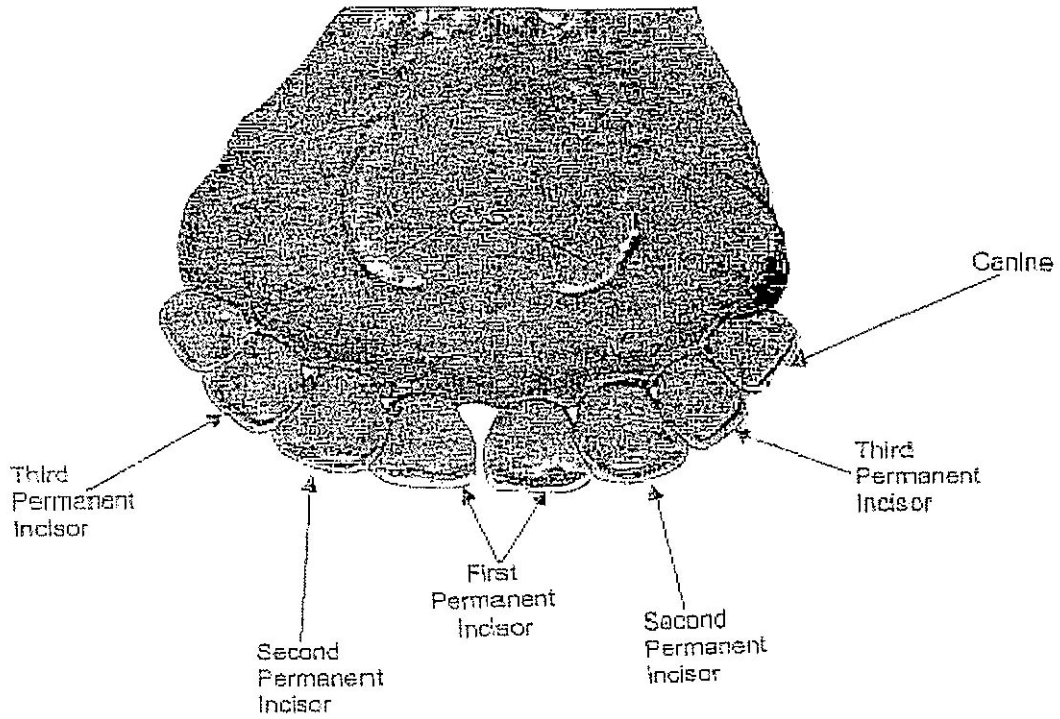
CFIA inspection staff shall oversee the removal, segregation, handling and staining of SRM (including deadstock or condemned carcasses from which SRM has not been removed), compliance to permit conditions and record keeping at federally inspected establishments. CFIA inspection staff shall take appropriate enforcement action when non-compliant situations are detected.

APPENDIX A

Cattle Dentition

Figure I

Permanent Teeth Lingual Aspect
Incisor and Canine Teeth of Ox 5 Years of Age



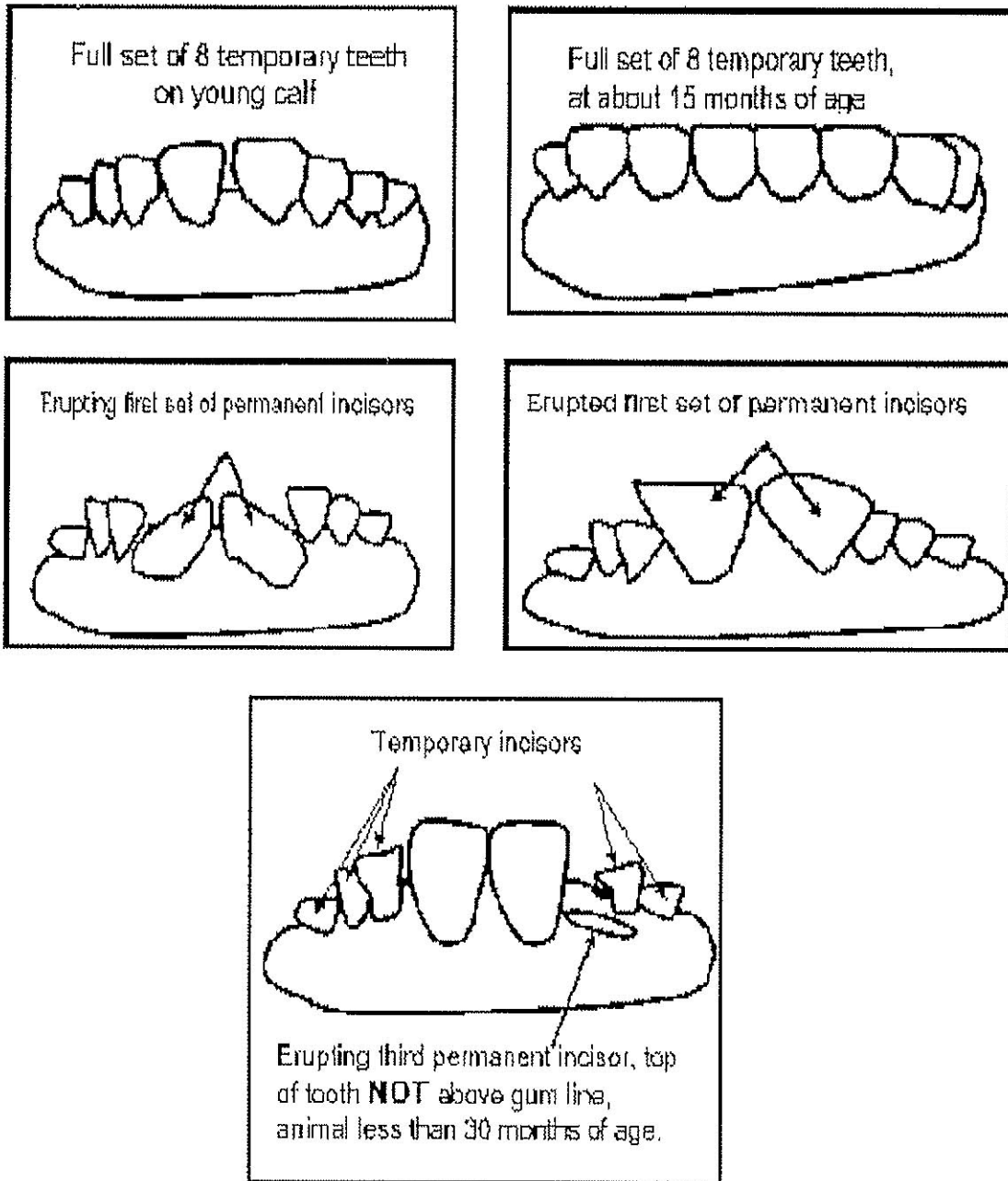
Extracted from: Sisson and Grossman's *The Anatomy of the Domestic Animals* Volume I

APPENDIX A

Cattle Dentition

Figure II

Illustration of Dentition for Cattle Under Thirty Months (UTM)



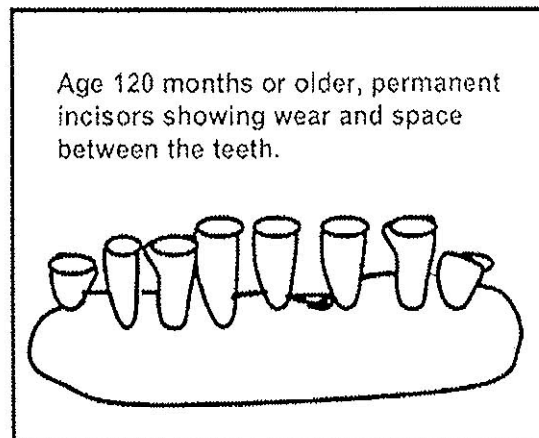
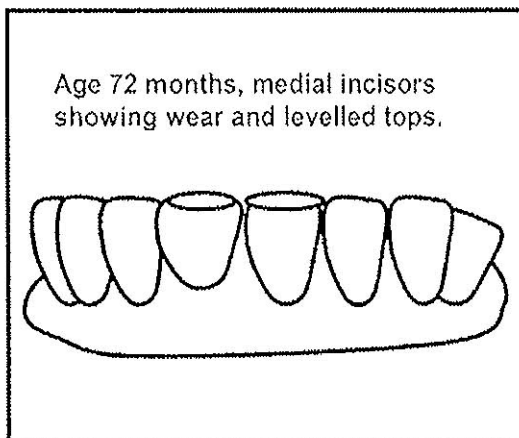
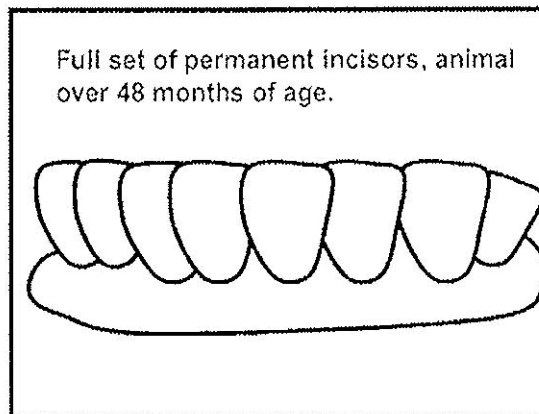
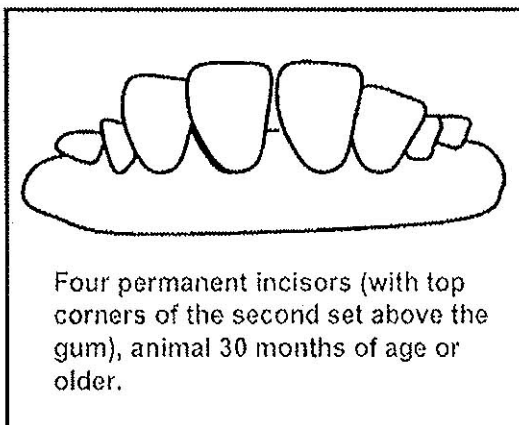
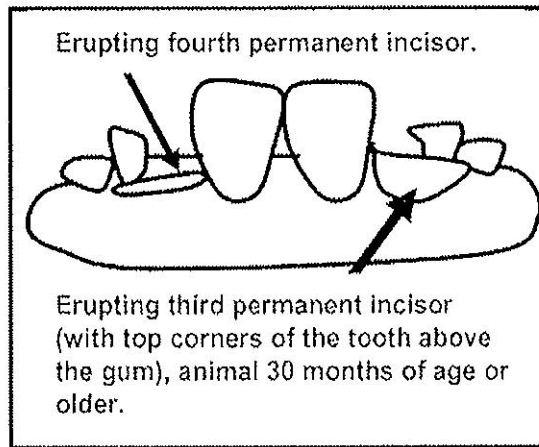
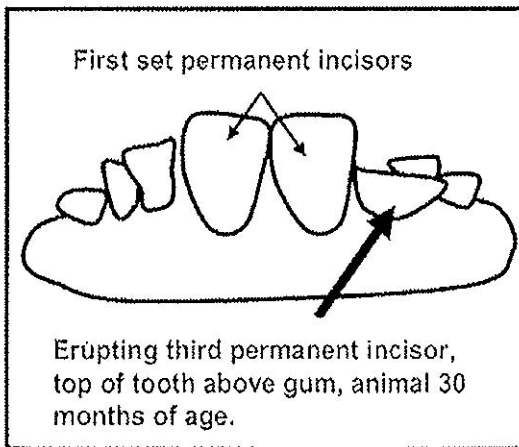
Extracted from: FSIS Notice 5-04, January 12, 2004

APPENDIX A

Cattle Dentition

Figure III

Illustration of Dentition for Cattle Aged 30 Months or Older (OTM)



Extracted from: FSIS Notice 5-04, January 12, 2004

APPENDIX B

Cattle Vertebral Column
Figure I

RUMINANT

FIGURE 35-1. Bovine dura mater enclosed spinal cord; dorsal view (spinal cord segment indicated by broken lines).

1. Wing of first cervical vertebra; 2. eighth cervical spinal n. exiting through the intervertebral foramen;
3. fourth thoracic spinal n. exiting through the lateral vertebral foramen; 4. tenth thoracic rib.

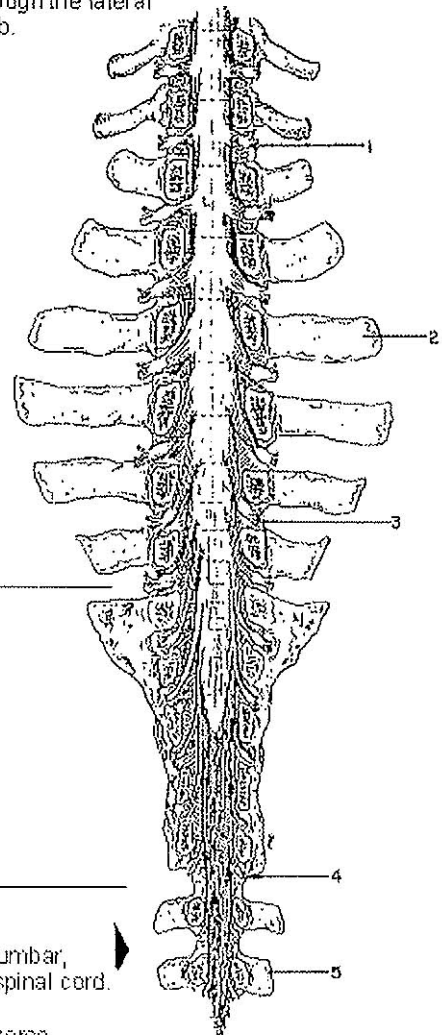
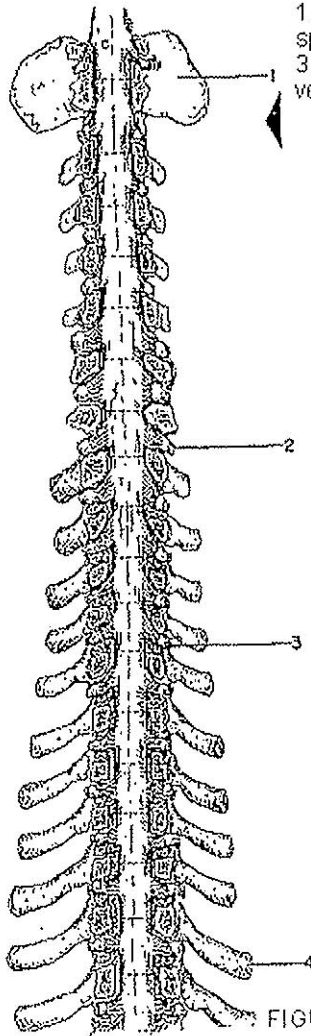


FIGURE 35-2. Bovine caudal thoracic, lumbar, sacral and caudal dura mater enclosed spinal cord.

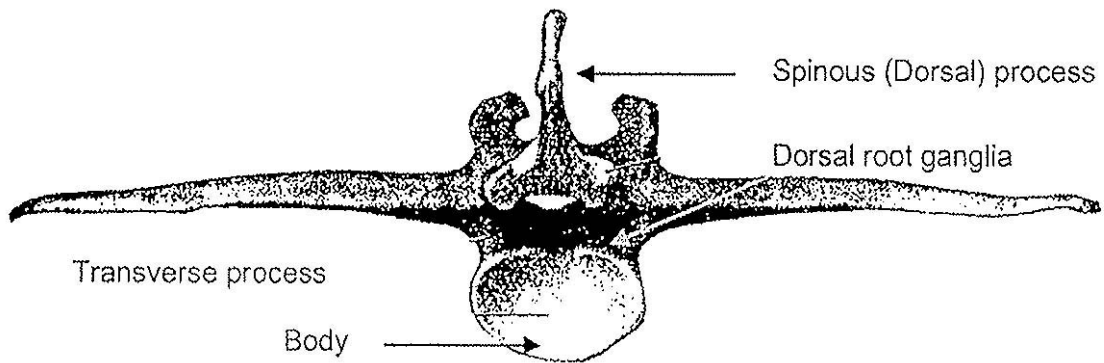
1. Thirteenth thoracic spinal n.; 2. transverse process of third lumbar vertebra; 3. sixth lumbar spinal n.; 4. fifth sacral spinal n.; 5. second caudal (coccygeal) vertebra.

Extracted from: Sisson and Grossman *The Anatomy of the Domestic Animals - Volume 1*

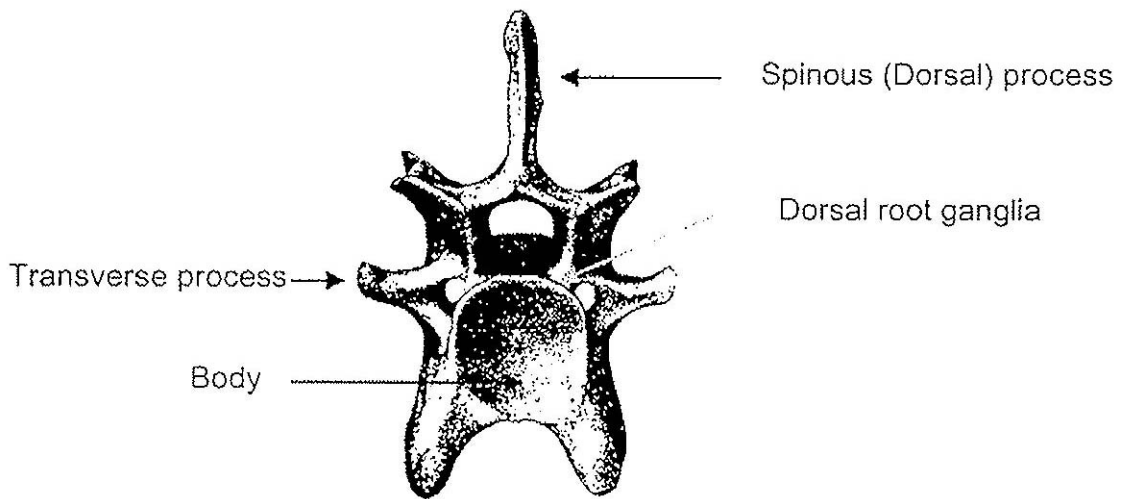
APPENDIX B

Cattle Vertebral Column
Figure II

Bovine lumbar vertebra



Bovine cervical vertebra



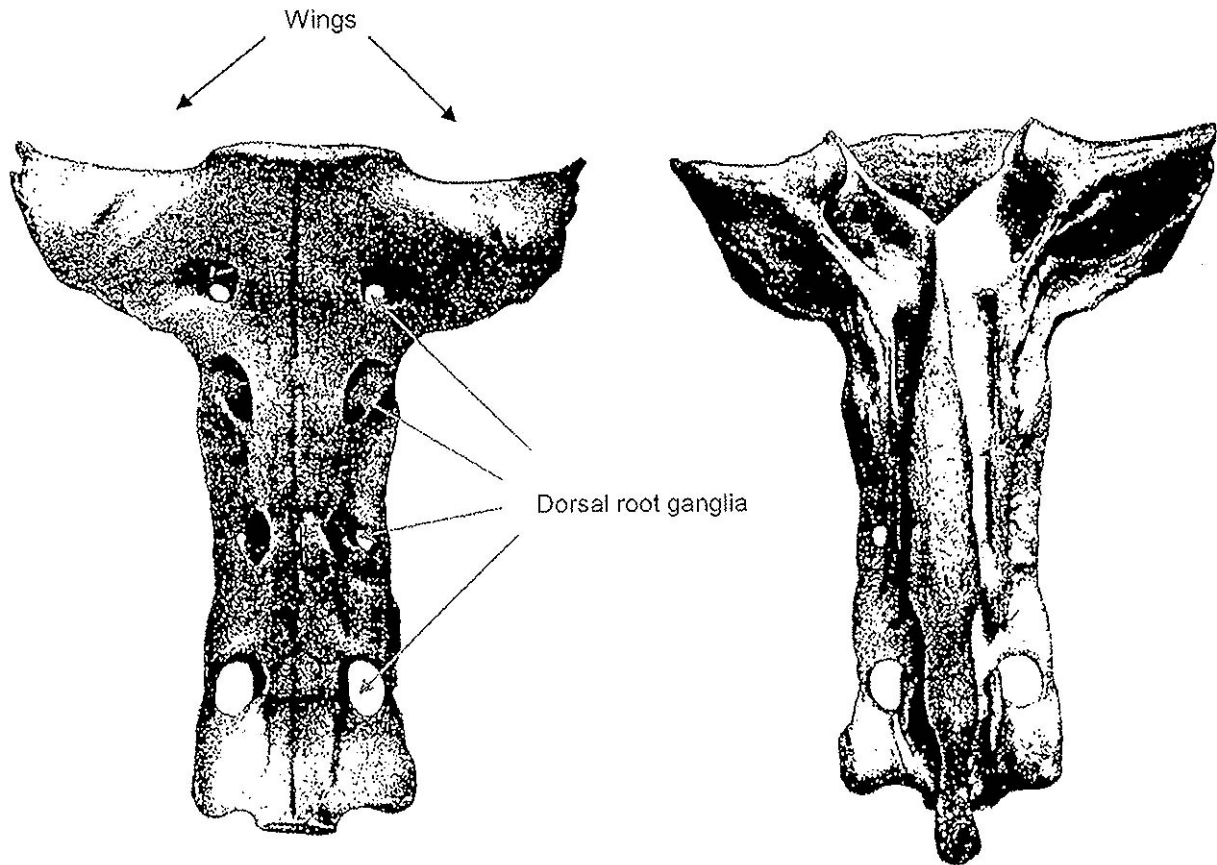
Note: The Dorsal Root Ganglia may protrude from the intervertebral foramen into the space that lies between the body and transverse processes of adjoining vertebrae. The ribs are attached to shortened transverse processes in the thoracic region.

Extracted from: Sisson and Grossman *The Anatomy of the Domestic Animals - Volume 1*

APPENDIX B

Cattle Vertebral Column
Figure III

Bovine sacrum



Sacrum of ox; ventral view

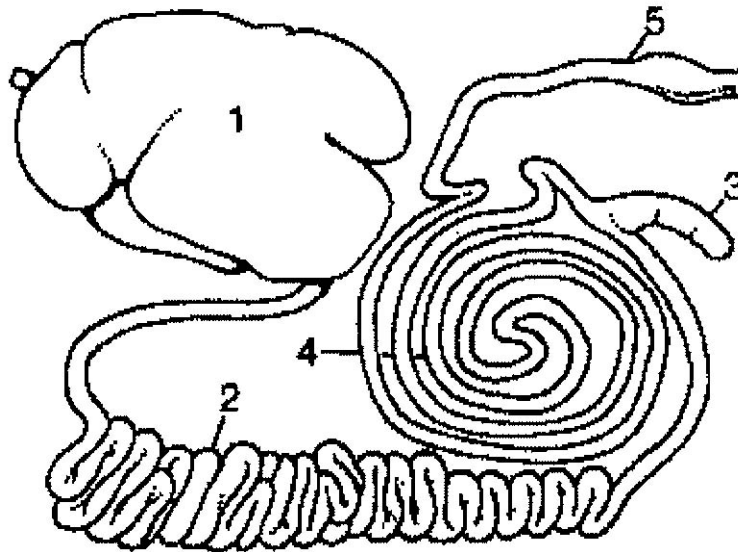
Sacrum of ox; dorsal view

Extracted from: Sisson and Grossman *The Anatomy of the Domestic Animals - Volume 1*

APPENDIX C

Cattle Vertebral Column

Gastrointestinal tract of cattle laid out in one plane.

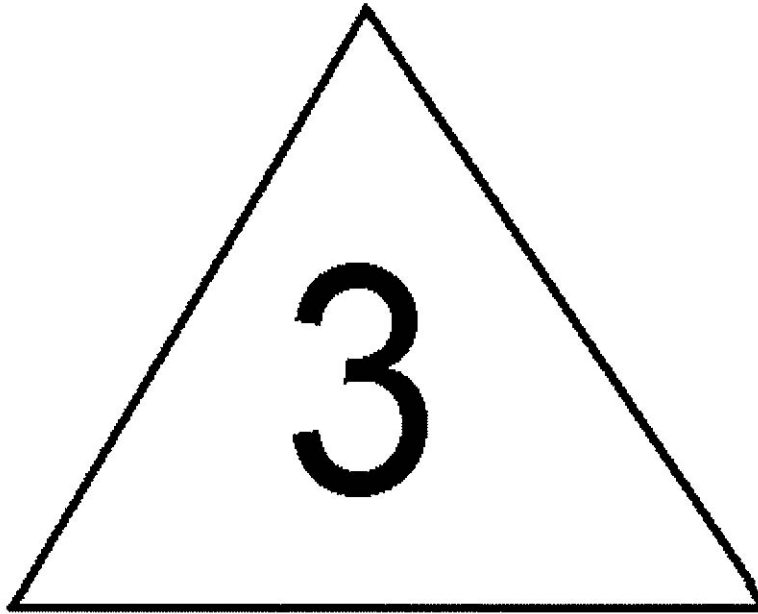


1. Stomach
2. Small intestine
3. Cecum
4. Ascending colon
5. Descending colon

Extracted from: Dyce, Sack and Wensing *Textbook of Veterinary Anatomy, 3rd edition*

APPENDIX D

Identifying Marks: Carcass of Cattle Aged 30 Months or Older



or

