

Antemortem and Humane Handling in Red Meat

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Inspection Agencies

Federal Meat Inspection



- United States Dept. of Agriculture (USDA)
- Food Safety and Inspection Service (FSIS)

State Meat Inspection



- Louisiana Dept. of Agriculture and Forestry (LDAF)
- Meat and Poultry Inspection Program (MPIP)
- Compliance

Species requiring wholesale inspection:

Cattle, swine, goats, sheep, equine

Domestically-raised chickens, turkeys, ducks, geese, guineas, ratites or squabs

Federal Health Inspection



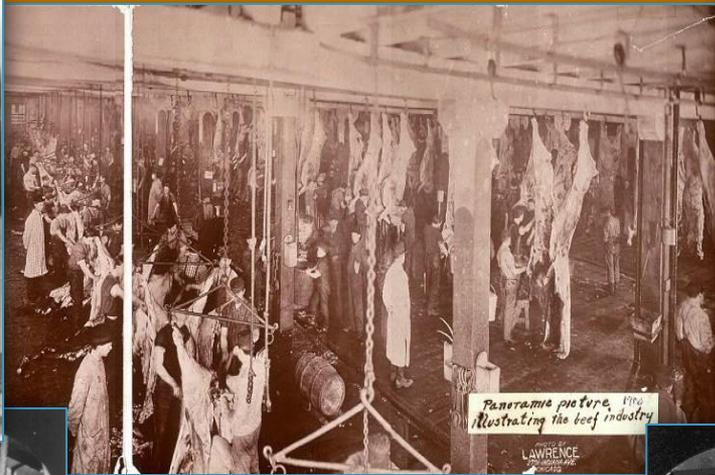
- Food and Drug Association (FDA)

State Health Inspection



- Louisiana Dept. of Health (LDH)
- Food and Drugs
- Retail

Where we came from



The Jungle

In 1904, Upton Sinclair wrote novel The Jungle about the struggles of poor immigrants in Chicago

- » Public was shocked by the few sections about the meat packers
- » Human suffering caused by deplorable conditions
- » Food contamination by rats, chemicals, filth, dead bodies, etc.

The fallout in 1906

- » Pure Food and Drug Act (FDA)
- » Meat Inspection Act (USDA)

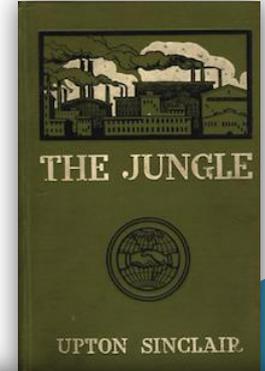
Upgrades in 1957 & 67

- » Poultry Products Inspection Act
- » Wholesome Meat Act

Today

- » Self-policing inspection systems – HACCP and SSOP
- » Third party audits required by customers
- » Lawsuits and bad press

“I aimed at the public's heart and by accident I hit it in the stomach” ~Upton Sinclair



Where we are



Humane Handling

Regulations – 9 CFR §313

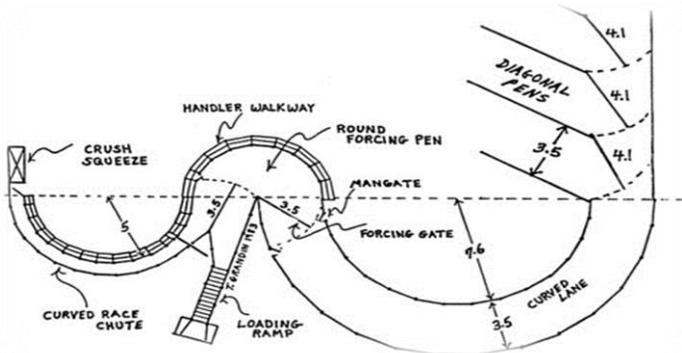
- § 313.1 Livestock pens, driveways and ramps.
- § 313.2 Handling of livestock.
- § 313.5 Chemical; carbon dioxide.
- § 313.15 Mechanical; captive bolt.
- § 313.16 Mechanical; gunshot.
- § 313.30 Electrical; stunning or slaughtering with electric current.
- § 313.50 Tagging of equipment, alleyways, pens, or compartments to prevent inhumane slaughter or handling in connection with slaughter.



Humane Handling

Livestock pens, driveways and ramps.

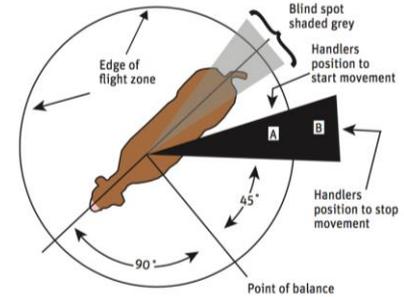
- » Good repair, clean and well-drained
- » Free from sharp, protruding objects that could harm animals
- » Good footing – e.g. Slip resistant, waffled floor, cleated ramps, sand in winter
- » Suspect pens – Covered to protect from weather
- » Driveways – Minimize sharp corners and reversals



Humane Handling

Handling of livestock

- » Minimum of excitement and discomfort to the animals. Normal walking speed.
- » Electric prods, canvas slappers, or other implements used as little as possible. Excessive use is prohibited. Plugged-in electrical prods must be at lowest setting, <50 volts
- » Pipes, sharp or pointed objects that would cause injury or unnecessary pain prohibited
- » Disabled livestock and other animals unable to move (non-ambulatory):
 - Shall be separated from normal ambulatory animals and put in Suspect Pen
 - Dragging conscious, disabled animals and other animals unable to move is prohibited. Stunned animals may, however, be dragged.
 - Disabled conscious animals may be moved on suitable equipment (stone-boats, sleds)
 - Animals shall have access to water in all holding pens and, if held longer than 28 hours, access to feed. There shall be sufficient room in the holding pen for animals held overnight to lie down.
 - Stunning methods approved in §313.30 shall be effectively applied to animals prior to their being shackled, hoisted, thrown, cast, or cut.



Humane Handling

Chemical; carbon dioxide

- Usage of a tunnel or chamber with a conveyor must be done by one skilled operator
- Must produce *surgical anesthesia* before and throughout being shackled, hoisted, thrown, cast or cut.
- Asphyxia or death is not allowed, except in swine which are far more susceptible to death by CO₂
- Equipment must be properly designed for the species
- Gas systems must produce uniform concentration and have an exhaust



Humane Handling

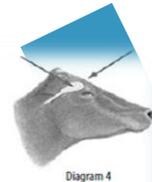
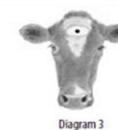
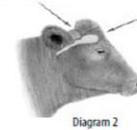
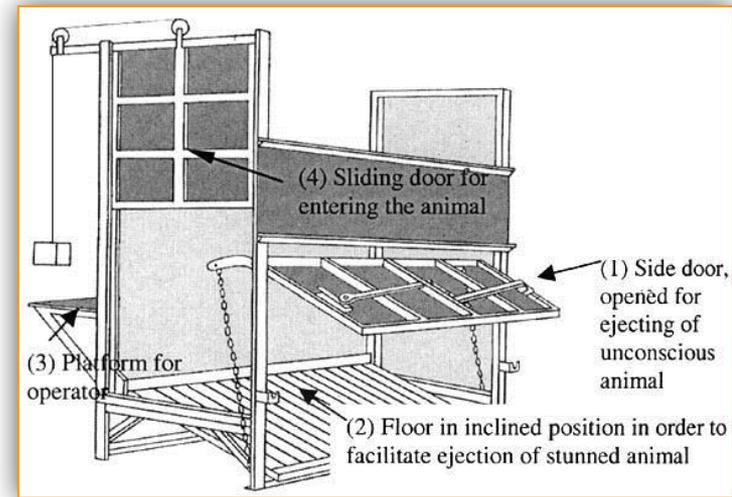
Mechanical; Captive bolt

Immediate unconsciousness with a minimum of excitement and remain that way throughout

- » Skull penetrating or non-penetrating
- » Gunpowder (.22 or .25 blanks) or compressed air (gauged)
- » Trigger-fired or contact-fired

Operator must be skilled and adjust technique to match the type of animal

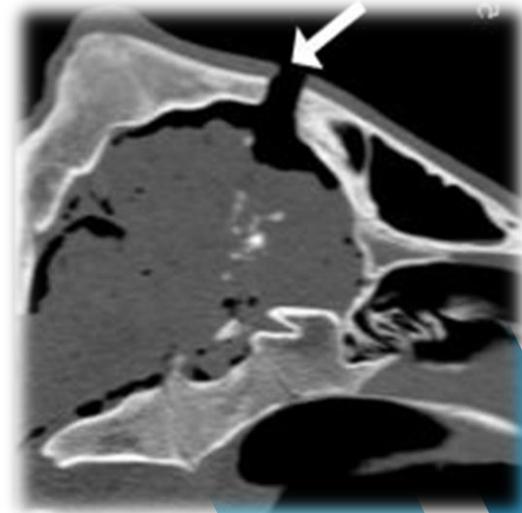
Stunners that inject compressed air into the skull are not allowed



Humane Handling

Mechanical; Gunshot

- » Shooting is considered humane for cattle, calves, sheep, swine, goats, horses, mules, and other equines
- » Immediate unconsciousness with a minimum of excitement or discomfort
- » Unconsciousness must last throughout shackling, sticking and bleeding
- » Acceptable ammunition:
 - ◇ Hollow point bullets
 - ◇ Frangible iron plastic composition bullets
 - ◇ Powdered iron missiles
- » Close proximity, directed away from operation area
- » Must provide notification to Inspector and time for he/she to exit the immediate area
- » Firearms must be in good repair and should have a safety device.
- » Shooter must be skilled and use correct ammo/method to achieve desired result
- » Edible meat on the head (cheek meat, brains, trimmings) must be condemned (bullet fragments)
- » The tongue can be saved for human food
- » Small bore firearms should be reconsidered for larger/tougher animals



Humane Handling

Electrical; stunning or slaughtering with electric current

Electric current is considered humane for cattle, calves, sheep, swine, goats. Not equine

- » Immediate unconsciousness with a minimum of excitement or discomfort
- » Unconsciousness must last throughout shackling, sticking and bleeding
- » The application must be enough not to cause hemorrhaging
- » Operator must be skilled and use correct voltage/method to achieve desired result
- » Equipment must be in good repair
- » All parts must be available for inspection by USDA or LDAF personnel

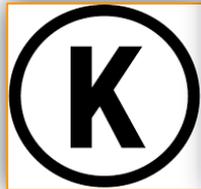


Ritual Slaughter

Religious exemption

Inspectors do not regulate the kill step – “Ritual Bubble”

Halal and Kosher are the most common

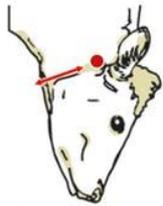


SLAUGHTER METHODS

RITUAL SLAUGHTER

Cattle are conscious before their throats are slit and blood drained

Jewish Kosher method

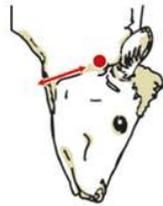


- A certified butcher or **shochet** makes a transverse cut throughout all tissues and blood vessels in the neck using a special sharp knife (the **hallaf**)

- Parts of the animal forbidden for food such as blood and the sciatic nerve are removed

- The slaughtered animal is hung upside down to allow the blood to drain

Muslim Halal method



- Placed in the **direction of Mecca**, the animal must be awake at the time of slaughter

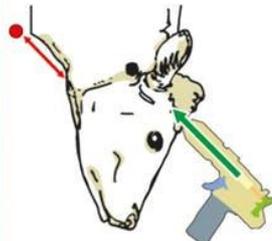
- A Muslim butcher makes a **quick and deep incision with a sharp knife at the animal throat and says "bismillah"** (in God's name)

- The animal is then left to bleed to death

Source: *idé*

NON-RELIGIOUS METHOD

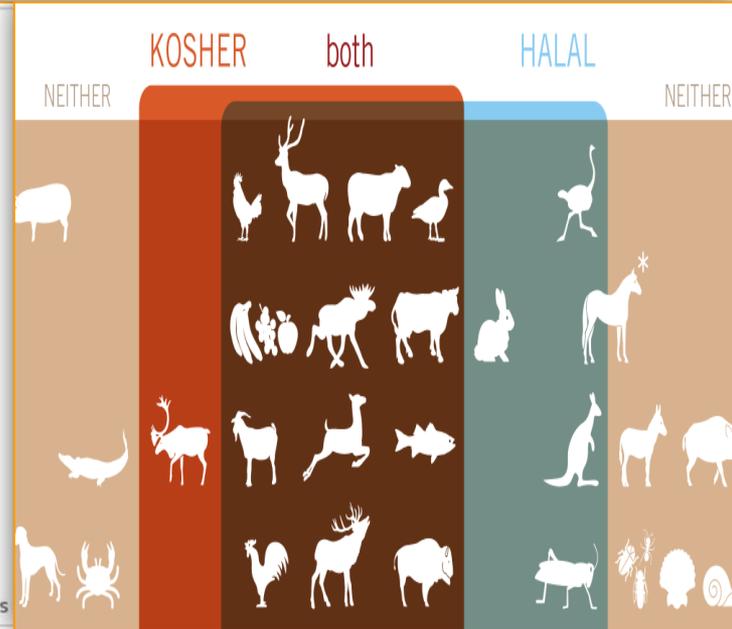
The animal is stunned first



- **Electronarcosis** (anesthesia by electric current) is applied before killing the animal

- The animal is bled to death by **cutting its neck or sticking its chest**

idé REUTERS



Egregious Treatment

1. Making cuts on or skinning conscious animals;
2. Excessive beating or prodding of ambulatory or non-ambulatory disabled animals or dragging of conscious animals;
3. Driving animals off semi-trailers over a drop off without providing adequate unloading facilities (animals are falling to the ground);
4. Running equipment over conscious animals;
5. Stunning of animals and then allowing them to regain consciousness;
6. Multiple attempts, especially in the absence of immediate corrective measures, to stun an animal versus a single blow or shot that renders an animal immediately unconscious;
7. Dismembering conscious animals, for example, cutting off ears or removing feet;
8. Leaving disabled livestock exposed to adverse climate conditions while awaiting disposition, or
9. Otherwise causing unnecessary pain and suffering to animals, including situations on trucks.

SUSPENDED

Antemortem

The Basics

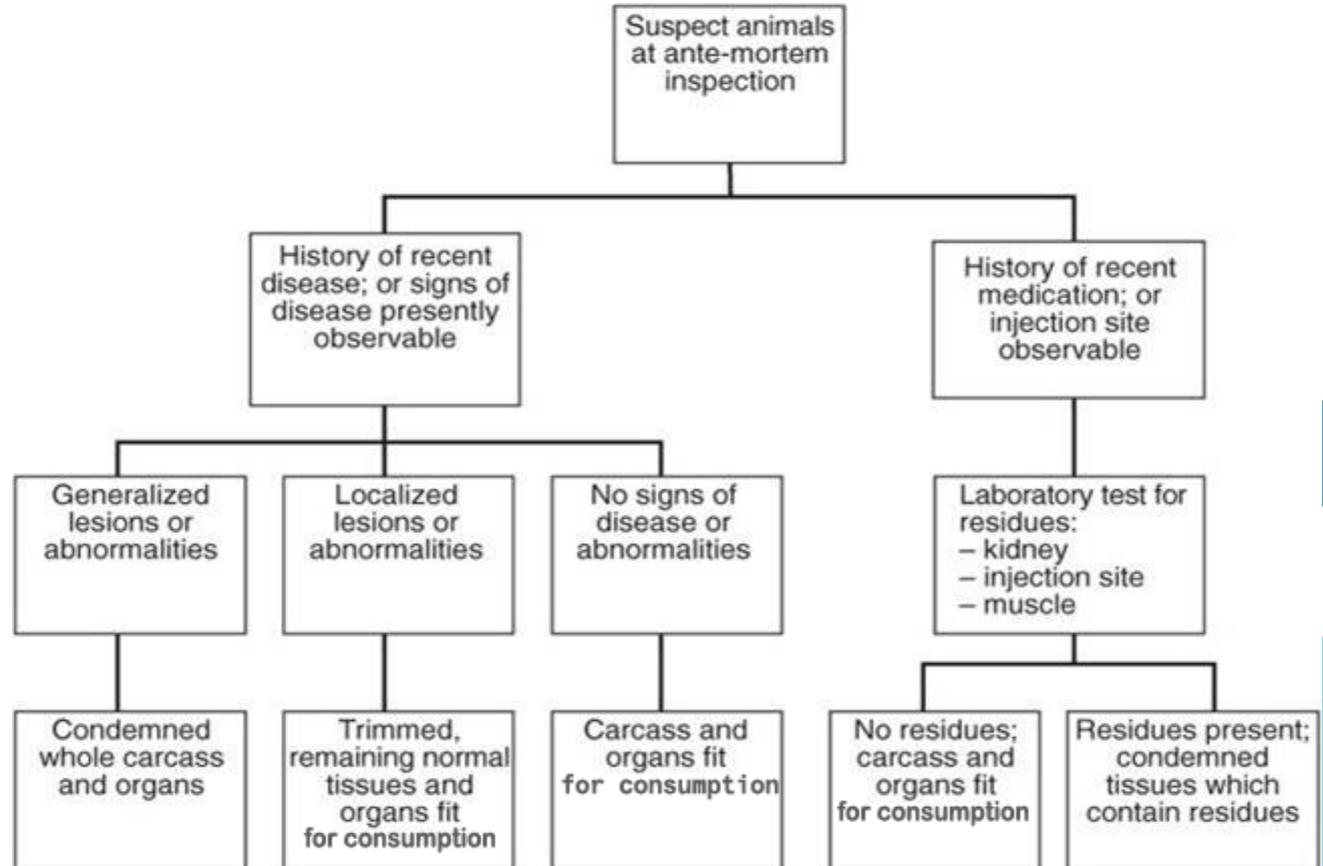
- » “Before death”
 - ◇ Antemortem is performed the day of and before slaughter
 - ◇ Prior to entering establishment
- » Enforcement
 - ◇ 9 CFR §309 – Federal regulation
 - ◇ FSIS Directive 6100.1 – Federal policy
- » Records
 - ◇ Plant supplies adequate animal identification (“pen cards” or “drive cards”) presented to Inspector
 - ◇ Establishment maintains records of the buyer and seller of livestock
- » Performed once per shift by Inspection personnel
- » Is required to be able to mark “Inspected and Passed”
- » All livestock presented for inspection before operations begin - §307.2(a); §309.1(a)
- » Performed by a Veterinarian or Food Inspector under a Veterinarian’s supervision
- » Humane handling requirements, like good footing, are observed



Antemortem

Three Outcomes

- » Passed for slaughter
- » Suspect >>>>
- » Condemned



Antemortem

How to perform an at-rest antemortem inspection

- » Position yourself at various locations outside the pen.
- » Observe all of the animals and note their general behavior while they're at rest.
- » Look at the heads, necks, sides, rumps, and legs of as many animals as you can see.
- » Make a note of any abnormalities.

How to perform an in-motion antemortem inspection

- » Larger animals - Position yourself outside of the pen next to the open gate.
- » Smaller animals - Stand inside or outside the pen for best viewing.
- » Direct the establishment employee to move all of the animals slowly and individually past you.
- » Observe each animal for abnormalities by viewing the head, neck, shoulder, flank, legs, and rump.
- » Be alert and think safety.



Antemortem

What to look for:

- » Abnormal behavior patterns
- » Excessive excitability
- » Labored breathing
- » Sores/lesions
- » Shaking (CNS disease)
- » Non-ambulatory
- » Bruising
- » Abnormal discharges
- » Swelling
- » Severe depression
- » Off color membranes - Eyes, gums
- » Injection sites - residues
- » Fever

- » Common 3
 - ◇ Lumpy Jaw
 - ◇ Cancer Eye
 - ◇ Wooden Tongue



Antemortem

Suspect and Diseased Livestock §309.2

Suspect animals must be kept identified until disposal

ID'd as Suspect and disposed of properly

- » [Tuberculin](#) reactors
- » [Leptospirosis](#) or [Anaplasmosis](#) reactors
- » [Epithelioma of the eye or orbital area](#)
- » [Listeriosis](#)
- » Seriously crippled and non-ambulatory disabled animals

Potentially Treated

- [Anasarca](#) (edema - swelling)
- [Swine Erysipelas](#)
- [Vesicular Exanthema](#)
- [Vesicular Stomatitis](#)
- Immature

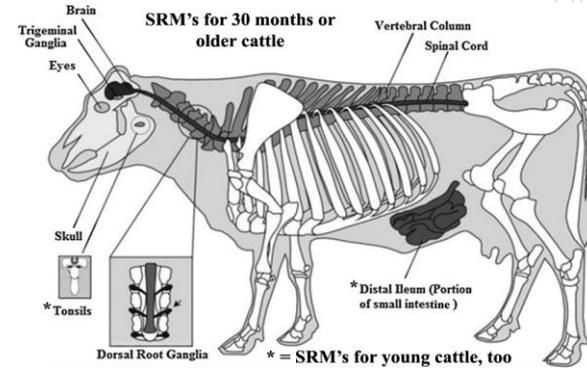


Antemortem

Bovine Spongiform Encephalopathy (BSE)

§310.22 – Specified Risk Materials (SRM's)

- » Prions - Infectious agent made only of protein
- » Non-ambulatory - Cannot walk
- » Identification
 - ◇ Dentition
 - ◇ "30 mos. and Older" plant tags
- » Segregation
 - ◇ Younger animals
 - ◇ Older animals
- » Documented cleanups
- » Disposal



SRM's		
Less than 30 months	30 months and Older	
Tonsils	Tonsils	Vertebral Column
Small Intestine	Small Intestine	Dorsal Root Ganglia
	Skull	Trigeminal Ganglia
	Brain	Eyes

Antemortem

Condemnable Conditions

§311

- § 311.1 [Disposal of diseased or otherwise adulterated carcasses and parts: general.](#)
- § 311.2 [Tuberculosis.](#)
- § 311.3 [Hog cholera.](#)
- § 311.5 [Swine erysipelas.](#)
- § 311.6 [Diamond-skin disease.](#)
- § 311.7 [Arthritis.](#)
- § 311.8 [Cattle carcasses affected with anasarca or generalized edema.](#)
- § 311.9 [Actinomycosis and actinobacillosis.](#)
- § 311.10 [Anaplasmosis, anthrax, babesiosis, bacillary hemoglobinuria in cattle, blackleg, bluetongue, hemorrhagic septicemia, icterohematuria in sheep, infectious bovine rhinotracheitis, leptospirosis, malignant epizootic catarrh, strangles, purpura hemorrhagica, azoturia, infectious equine encephalomyelitis, toxic encephalomyelitis \(forage poisoning\), infectious anemia \(swamp fever\), dourine, acute influenza, generalized osteoporosis, glanders \(farcy\), acute inflammatory lameness, extensive fistula, and unhealed vaccine lesions.](#)
- § 311.11 [Neoplasms.](#)
- § 311.12 [Epithelioma of the eye.](#)
- § 311.13 [Pigmentary conditions: melanosis, xanthosis, ochronosis, etc.](#)
- § 311.14 [Abrasions, bruises, abscesses, pus, etc.](#)
- § 311.15 [Brucellosis.](#)
- § 311.16 [Carcasses so infected that consumption of the meat may cause food poisoning.](#)
- § 311.17 [Necrobacillosis, pyemia, and septicemia.](#)
- § 311.18 [Caseous lymphadenitis.](#)
- § 311.19 [Icterus.](#)
- § 311.20 [Sexual odor of swine.](#)
- § 311.21 [Mange or scab.](#)
- § 311.22 [Hogs affected with urticaria, tinea tonsurans, demodex folliculorum, or erythema.](#)
- § 311.23 [Tapeworm cysts \(cysticercus bovis\) in cattle.](#)
- § 311.24 [Hogs affected with tapeworm cysts.](#)
- § 311.25 [Parasites not transmissible to man; tapeworm cysts in sheep; hydatid cysts; flukes; gid bladder-worms.](#)
- § 311.26 [Emaciation.](#)
- § 311.27 [Injured animals slaughtered at unusual hours.](#)
- § 311.28 [Carcasses of young calves, pigs, kids, lambs, and foals.](#)
- § 311.29 [Unborn and stillborn animals.](#)
- § 311.30 [Livestock suffocated and hogs scalded alive.](#)
- § 311.31 [Livers affected with carotenosis; livers designated as "telangiectatic," "sawdust," or "spotted."](#)
- § 311.32 [Vesicular diseases.](#)
- § 311.33 [Listeriosis.](#)
- § 311.34 [Anemia.](#)
- § 311.35 [Muscular inflammation, degeneration, or infiltration.](#)
- § 311.36 [Coccidioid granuloma.](#)
- § 311.37 [Odors, foreign and urine.](#)
- § 311.38 [Meat and meat byproducts from livestock which have been exposed to radiation.](#)
- § 311.39 [Biological residues.](#)



Antemortem

Official Identification Devices

- » Ear Tags, Back Tags, Locks, Clips, Lab Security Seals
- » Retain, Reject, Suspect
- » Only USDA or LDAF personnel can remove them
- » Necessary to keep potentially dangerous items from entering the food supply

A white identification tag with a black section at the top. The black section contains the text "LA. REJECTED" and "LA. RETAINED" with checkboxes. Below this, there are fields for "ITEM TAGGED AND LOCATION", "REASON FOR TAGGING", "TAG APPLIED BY", "DATE", "REMARKS", and "PLANT OR EST. EMPLOYEE NOTIFIED". At the bottom, it says "AAHS-09-19 (R.655)".

Antemortem

Emergency Antemortem > Emergency Slaughter

- » Special provision can be made for seriously injured animals (e.g. A trucking accident involving swine occurs)
- » Not for sick or dying
- » Not for cattle
- » Establishment must attempt to contact Inspection personnel to explain the situation
- » The carcass and all parts must be kept for Postmortem inspection by the Inspector
- » Designed to limit unexpected suffering of livestock



Antemortem

4D Animals

§309.3

- » 4D = Dead, Dying, Disabled, Diseased
- » Must be identified as “Condemned” and disposed of - §309.13
- » Also applies to comatose or semicomatose animals
- » Non-ambulatory cattle must be condemned and disposed of
- » Plant employee must notify Inspector if an animal becomes non-ambulatory after antemortem inspection

- » Veterinarian may decide to take a rectal temperature of a Suspect animal to check for fever
 - ◇ Animals with too high of a temp are condemned
 - ◇ Animals with lower temps may be held for observation



Normal Animal Temperature Ranges				
	Cattle	Swine	Sheep	Horses
Maximum	102.5	104.0	104.0	100.5
Average	101.5	102.5	102.5	100.0
Minimum	100.0	100.5	102.0	99.0
PHV Condemns on ante-mortem if:				
	105.0	106.0	105.0	105.0

Antemortem

Facility Needs

§307 – Inspection facilities provided by the establishment

- » Inspector's office space
- » Pens in good repair, clean and well-drained
- » Covered and labeled "Suspect Pen"
- » Sufficient lighting and tables for inspection
- » Equipment for holding variety meats until carcass passes inspection
- » Watertight receptacles for holding and handling condemned carcasses and parts labeled "Condemned"
- » Hand wash stations with soap
- » Equipment sanitizing stations
- » Final Inspection station – hot water, lavatory, sterilizer, tables
- » Retention rooms or cages labeled "Retained"
- » Condemned product disposal area
- » Suitable lockers for secure inspection items/changing area



Humane Handling and Antemortem

Giving us safer animals and safer products



Questions?

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