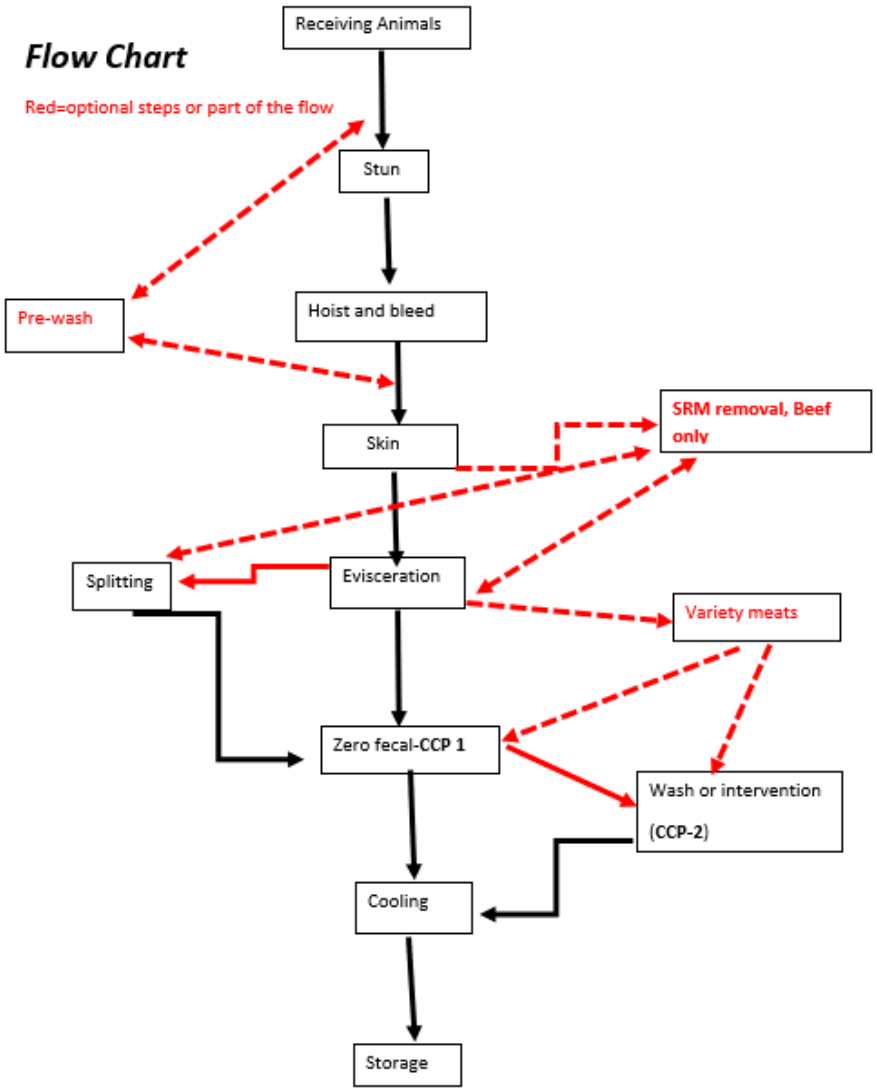
DEPARTMENT OF AGRICULTURE

## How to use this document:

*The diagram and tables in this document illustrate the slaughter process, slaughter Hazard Analysis, and slaughter Hazard Analysis and Critical Control Points (HACCP) Plan design. Use these examples as references when conducting your own establishment's slaughter Hazard Analysis and developing a slaughter HACCP plan. Exact procedures and methods may vary from one establishment to another, as well as chart layouts or designs, but the level of detail in a Hazard Analysis and HACCP Plan should compare with what is found in the following examples.*

# Slaughter Flow Diagram

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# Slaughter Hazard Analysis Example

| PROCESSING STEP | HAZARD<br>Biological (B), Physical (P), or Chemical (C) | Is the Hazard Reasonably Likely to Occur | Basis | If yes in column 3, what measures could be applied to prevent, eliminate, or reduce the hazard to an acceptable level | CCP |
|---|---|---|---|---|---|
| Receiving Animals | B=E-coli 0157:H7, STEC, Salmonella | Yes | Dirty animals are likely to have fecal contamination, raw meat is a known source of bacteria | Later CCP to verify that no visible contamination has occurred on the meat.<br>Pre-skinning wash may be used to reduce the risk of carcass contamination if animal is presented for slaughter with a large amount of feces present. | See **CCP-1** |
| | P=Foreign Materials, (needles, hardware, etc.) | No | Visual inspection of both the live animal and carcass to verify no foreign materials are present | | |
| | C=Antibiotic residue | No | Signed letter from producer certifying all withdrawal times have been met. Inspection will | | |



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| | | | conduct random KIS test to verify. | | |
| Pre-Wash | B= E-coli, STEC, Salmonella | Yes | Dirty animals are likely to have fecal contamination, raw meat is a known source of bacteria. Animals deemed excessively dirty can be washed or trimmed to reduce the amount of mud and debris that may be reintroduced to the carcass during cutting. | Later CCP to verify that no visible contamination has occurred on the meat. | |
| | P=none | | | | |
| | C=none | | | | |
| Stun | B=none | | | | |
| | P=bone or bullet fragments | No | If firearms are used the head will be discarded. If a captive bolt5 is used the head will be inspected for bone fragments before moving on to the next step. | | |
| | C=none | | | | |
| Hoist and bleed | B=Introduction of above listed | No | ***SOP*** for bleeding process | Later CCP to verify that no visible contamination has | |

| | | | | | |
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| | bacteria into carcass | | | occurred on the meat. | |
| | P=None | | | | |
| | C=none | | | | |
| Skin | B=Introduction of above listed bacteria into carcass | No | ***SOP*** for slaughter processing, Careful employee practices included in sanitary dressing procedures or operational sanitation procedures. | Later CCP to verify that no visible contamination has occurred on the meat. | |
| | P=none Unless Firearm is used | No | Head and cheek meat are disposed of (9 CFR 310.18 (b)) | | |
| | C=None | | | | |
| Evisceration | B=Introduction of above listed bacteria into carcass | No | Broken bowels or intestines may be cause of contamination; Minimize contamination and cross-contamination through sanitary dressing procedures, ***SOP***; ***Sanitation SOPs***. | Later CCP to verify that no visible contamination has occurred on the meat. | See **CCP-1** |



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| | | | | | |
|---|---|---|---|---|---|
| | B=Prion (cattle) | No | BSE SRM procedures | | |
| | P=none | | | | |
| | C=none | | | | |
| Splitting<br>(optional) | B= Introduction of above listed bacteria into carcass<br><br>B=Prion (cattle) | No<br><br>No | ***SOP*** for slaughter processing<br><br>BSE SRM procedures | Later CCP to verify that no visible contamination has occurred on the meat. | |
| | P=Material fragments from equipment | No | ***SSOP***<br>*(be sure that the written SSOP accounts for monitoring equipment for breakages as part of the pe-op or operational sanitation checks)* | | |
| | C=none | | | | |
| Zero Fecal<br>**CCP-1** | B=Presence or contamination | Yes | Pathogens are known to be present on beef | The visual inspection of the carcass to verify | **CCP-1** |

| | | | | | |
|---|---|---|---|---|---|
| | of ingesta, fecal, or milk | | carcasses and are also reasonably likely to be present on head meat and variety meats. Removal of visible contamination is required by 9 CFR 310.18(a). **CCP-1** | zero fecal, milk, or ingesta is conducted here; | |
| | P=none | | | | |
| | C=none | | | | |
| Wash or Intervention | B=Presence<br><br>Or Growth | Yes/No (presence)<br><br>No (growth) | Pathogens are known to be present on beef carcasses and are also reasonably likely to be present on head meat and variety meats.<br><br>Carcass intervention spray reduces likelihood of pathogens remaining on carcass to an acceptable level and prevents pathogen growth during transfer of carcass to chiller. | | **CCP-2 (cattle)** |
| | P=none | | | | |



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|---|---|---|---|---|---|
| | C=none | | | | |
| Cooling | B=Pathogen Growth | No | Storage of carcass less than or equal to 41ºF in accordance with ***SOP*** for final product storage, makes growth of pathogens (if present) unlikely. | | |
| | P=none | | | | |
| | C=none | | | | |
| Storage | B=bacterial growth | No | ***SOP*** for cold storage | | |
| | P=none | | | | |
| | C=none | | | | |
| SRM removal (cattle) | B=prions | No | ***SRM SOP*** followed | | |
| | P=none | | | | |
| | C=none | | | | |
| Variety Meats | B= Presence or contamination of ingesta, fecal, or milk<br><br>B=Growth of pathogens | No<br><br>No | **CCP-1**<br><br>**Cold Storage SOP** | Variety meats will also be monitored for contamination.<br><br>Variety meats will be placed in cooler in lugs after separation from the carcass or hung on the carcass to cool. | **CCP-1** |
| | P=none | | | | |
| | C=none | | | | |

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# Slaughter HACCP Plan Example

| | | |
|---|---|---|
| **CCP #** | CCP #1: E-coli 0157:H7, STEC, Salmonella | CCP #2: E-coli 0157:H7, STEC, Salmonella |
| **Critical Limits** | Zero visible fecal material, ingesta, or milk present | Hot water wash (temp X, duration X, pressure X); Lactic acid spray (concentration X, duration X) |
| **Monitoring Procedures & Frequency** | Visual inspection of each carcass ½ or ¼, head, head or cheek meat, or variety meat; Record kept for every beef, every 5 hogs; Initial validation conducted for 13 consecutive days of slaughter - every carcass recorded to support outlined procedures | Hot water wash or lactic acid spray applied to each carcass ½ or ¼, head, head or cheek meat, or variety meat; Record kept for every 3 beef, every 5 hogs; Initial validation conducted for 13 consecutive days of slaughter - every carcass recorded to support outline procedures |
| **HACCP Records** | Slaughter Log | Slaughter Wash Log; Slaughter Acid Spray log; Acid Mixing Log |
| **Verification Procedures and Frequency** | Establishment owner/designee reviews Slaughter Log, Corrective Action Log 1x/week; Establishment owner/designee observes monitoring of trim zero tolerance at least 1x/month | Establishment owner/designee reviews Slaughter Wash Log, Slaughter Acid Spray Log, Acid Mixing Log, Corrective Action Log 1x/week; Establishment owner/designee observes monitoring of wash parameters at least 1x/month |
| **Corrective Actions** | If deviation from critical limit occurs, establishment owner/designee follows corrective action protocol per 9 CFR 417.3: 1) Cause of deviation identified and eliminated; 2) CCP under control after corrective action taken; 3) Measures to prevent recurrence established; 4) No product injurious to health or otherwise adulterated due to deviation permitted to enter commerce | If deviation from critical limit occurs, establishment owner/designee follows corrective action protocol per 9 CFR 417.3: 1) Cause of deviation identified and eliminated; 2) CCP under control after corrective action taken; 3) Measures to prevent recurrence established; 4) No product injurious to health or otherwise adulterated due to deviation permitted to enter commerce |



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