A Generic HACCP Model for Poultry Slaughter

The United States Department of Agriculture (USDA) published the Pathogen Reduction/Hazard Analysis Critical Control Point (HACCP) Systems Final Rule in July 1996. The HACCP regulations (9 CFR Part 417) require establishments to develop and implement a system of controls designed to address safety hazards reasonably likely to occur in their production process. Therefore, this HACCP model's focus, and the focus of the other HACCP models, is on product safety, not product quality characteristics.

With the rule, FSIS made available a guidebook for the preparation of HACCP plans and a generic model for each food processing category defined in regulation 9 CFR 417.2(b)(1). The guidebook and the generic models have been updated since their initial publication to be consistent with current science and policy. FSIS recommends you use the updated Guidebook for the Preparation of HACCP Plans when developing an establishment-specific HACCP plan.

Generic models serve as useful examples of how to meet the regulatory requirements. Each model represents a food processing category. Each processing category may contain numerous products. Therefore, each single model represents a category of products and, as such, the models do not demonstrate unique products or novel processes. The generic models are not intended to be used "as is". FSIS recommends that establishments tailor the model(s) to fit the establishment's operation.

The model's critical control points (CCPs) do not necessarily apply to all operations or products in the product category. Products or operations may require fewer or more CCPs depending on the operation. The flow diagram demonstrates a general production process and should be modified to reflect the processes used at the establishment. The food safety critical limits selected must come from scientific documents or other reliable sources to meet regulatory validation requirements. Each model includes references for guidance on the selection of critical limits.

FSIS published two poultry slaughter HACCP models. This model can be used with the Streamlined Inspection System (SIS), New Evisceration Line Speed (NELS), New Turkey Inspection System (NTIS) and Traditional poultry slaughter inspection systems. The other published model can be used with the New Poultry Inspection System (NPIS). The defining difference between this model and the NPIS model is the additional NPIS responsibility of sorting and disposing of carcasses and viscera exhibiting septicemic and toxemic conditions. Many Small and Very Small poultry slaughter establishments operate under Traditional Inspection and this is the model best suited for those operations.

The records produced while documenting a HACCP plan, including all documentation used to support the hazard analysis, are HACCP records ((CFR 417.5(a)). The selection of a poultry slaughter HACCP model is a preliminary step to completing a hazard analysis. The documents produced during the selection process are HACCP records. Ensure you maintain the documents produced while developing a HACCP plan.

For further assistance with developing HACCP plans see the Guidebook for the Preparation of HACCP Plans and the guidance materials available on the FSIS HACCP webpage.

EXAMPLE PRODUCT DESCRIPTION[1]

Process / Product Name: Poultry Slaughter[2]

Whole Carcasses, Parts, Other Intact Poultry Products

Process / product type name	Young Ready-to-Cook chicken, other types of whole dressed poultry carcasses (turkeys, ducks, geese), single ingredient intact poultry products, such as parts, giblets, paws, and turkey fries
Important product characteristics (A_w, pH, preservatives, etc.)	Not Applicable
How it is to be used	For further processing at this facility or another establishment or Intended for cooking by end consumer
Packaging (durability and storage conditions)	Vacuum packaged, tray packs, giblets in plastic sealed containers, bulk pack boxes with liners.
Shelf life and at what temperature[3]	Refrigerated - 10 Days at 40ºF Frozen – 180 Days at <10°F
Where it will be sold (specify intended consumers, especially at-risk populations[4])	Sold direct to household consumers through retail outlets or distributed to hotels, restaurants, and institutions (HRI).
Labeling instructions	Product name, inspection legend and establishment number, handling statement, net weight statement, address line, nutrition facts, and safe handling instructions.
What special distribution controls are required?	Keep Refrigerated < 40°F Keep Frozen < 10°F

DATE: _____ APPROVED BY: _____

[1] Prior to developing the HACCP plan please read the FSIS Guidebook for the Preparation of HACCP Plans for detailed descriptions of the worksheets and hazard analysis. This information is best suited for small and very small establishments seeking assistance in understanding the requirements in Title 9 Code of Federal Regulations (9 CFR) Part 417. The HACCP model is for demonstration purposes only. The model does not represent requirements that must be met. Establishments are required to develop HACCP plans specific to their facilities, production practices, and products.

[2] This poultry slaughter model can be used with SIS, NELS, NTIS and Traditional poultry slaughter inspection systems.

[3] Each establishment may have their own defined shelf life.

[4] At-risk populations include young children, elderly, and immunocompromised persons.

EXAMPLE LIST OF PRODUCT INGREDIENTS AND INCOMING MATERIAL[5]

Process / Product Name: Poultry Slaughter

Whole Carcasses, Parts, Other Intact Poultry Products

Poultry and poultry by-products	Live birds
Non-meat food ingredients	None
Antimicrobials[6] and processing aids	Chlorine, Organic acid[7]
Packaging material	Plastic vacuum bags, retail trays, cardboard boxes, plastic liners
Restricted ingredients or allergens	None
Other	None

DATE: _____ APPROVED BY: _____

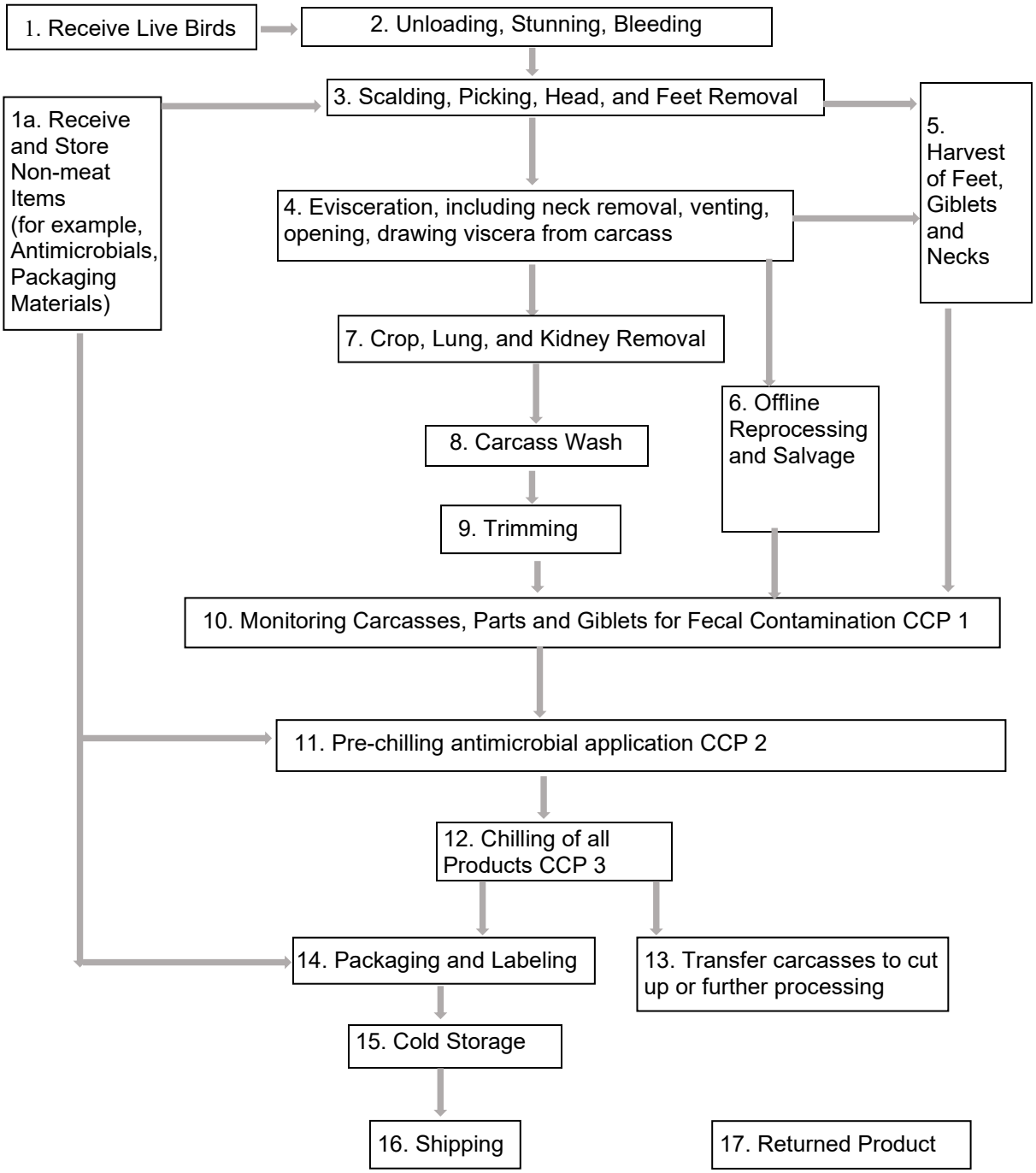
[5] List all meat, non-meat ingredients, restricted ingredients (for example, nitrites), processing aids, packaging material used in production of this product. This is important to help identify any special ingredients or processes to address in the HACCP plan. See the FSIS Compliance Guideline Allergens and Ingredients of Public Health Concern: Identification, Prevention and Control, and Declaration through Labeling for detailed information on allergens. To review restrictions on the use of nitrite and sodium ascorbate or sodium erythorbate, see 9 CFR 424.22(b).

[6] FSIS and the Food and Drug Administration (FDA) have a memorandum of understanding (MOU) that establishes the working relationship followed when responding to notifications for the use of food additives intended for use in the production of FSIS regulated products. FSIS determines the suitability of the use of food ingredients used in the production of meat, poultry, and egg products. FSIS consults, as necessary, with FDA on the requirements under the Food, Drug & Cosmetic Act and its implementing regulations. See FSIS Directive 7120.1, Safe and Suitable Ingredients Used in Meat Poultry and Egg Products for the list of suitable ingredients.

[7] "Organic acid" is a placeholder for the product to be used by the establishment.

EXAMPLE PROCESS FLOW CHART[8]

Poultry Slaughter / Whole Carcasses, Parts, Other Intact Poultry Products



[8] This is an example flow diagram. Establishments' flow diagrams for the same product may be different. Establishments determine which steps are included in their process. The steps must represent all relevant hazards in the hazard analysis.

EXAMPLE POULTRY SLAUGHTER HAZARD ANALYSIS[9]

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Ingredient / Process Step	**Potential Hazards (introduced or controlled) at this step[10]**	**Is the Potential Food Safety Hazard Reasonably Likely to Occur (RLTO)? (Yes or No)[11]**	**Justification / Basis for Decision[12]**	**If yes in Column 3 (hazard RLTO), What Control Measures Can Be Applied to Prevent, Eliminate, or Reduce the Hazard to Acceptable Levels[13]**	**Is this Step a Critical Control Point (CCP)?[14]**

[9] Refer to FSIS Meat and Poultry Hazards and Controls Guide and DRAFT FSIS Compliance Guideline For Controlling Salmonella and Campylobacter in Raw Poultry for suggested practices and controls.

[10] Hazards are grouped into three categories: Biological (B), Chemical (C), and Physical (P). Biological hazards are living organisms. Chemical hazards may be naturally occurring in foods, used, or added during the processing of foods, or administered to live animals. Physical hazards are a component in a food product that is unexpected, such as plastic, glass, metal, or bone in a boneless product. See the Guidebook for the Preparation of HACCP Plans for more information about hazards identification.

[11] Place the justification for your decision in column 4. Include control measures in column 4 for hazards not reasonably likely to occur and place them in column 5 for hazards reasonably likely to occur. If a hazard is reasonable likely to occur, then a CCP must be addressed at this step or a later step. See FSIS Meat and Poultry Hazards and Controls Guide for a list of frequently used controls.

[12] Scientific references are important in making decisions, providing justifications, and validating the HACCP system. When scientific references are used for decisions, the referenced article must be part of the HACCP records. If the scientific justification is from FSIS, then list the document name. If justification is not from an FSIS program, then HACCP system design must be supported by documentary evidence – that is, the theoretical principles, expert advice from processing authorities, scientific or technical data, peer-reviewed journal articles, pathogen modeling programs, or other information demonstrating that particular process control measures can adequately prevent, reduce, or eliminate specific hazards. These non-FSIS supporting documents must be kept for the life of the HACCP plan.

[13] Because the results obtained under prerequisite programs could affect decisions made in the hazard analysis, an establishment is required to maintain records associated with these programs as supporting documentation for its hazard analysis (9 CFR 417.5(a)). When an establishment determines that a potential hazard is not reasonably likely to occur because the implementation of a prerequisite program (e.g., Sanitation SOP, written sanitary dressing procedures incorporated into prerequisite programs, purchase specifications, antimicrobial interventions) prevents conditions that make the potential hazard likely, that prerequisite program then becomes part of the HACCP system and as a result, must be validated. This means that establishments must maintain scientific or technical support for the design of those prerequisite programs used to support decisions in the hazard analysis and must collect in-plant validation data to support that the programs are implemented as designed (see FSIS Compliance Guideline HACCP Systems Validation, page 5).

[14] To develop an effective CCP, see the FSIS Guidebook for the Development of HACCP Plans for a CCP decision tree and guidance on how to control, reduce, or eliminate a hazard.

Step	Hazard	RLTO	Justification / Basis	Controls	CCP
1. Receive Live Birds	B: Pathogens *Salmonella, Campylobacter*	Yes	Live birds may have pathogens on feathers, skin, feet, and in the digestive tract.	The hazard is controlled through subsequent visual examination, antimicrobial application and chilling (CCP 1, CCP 2, CCP 3). Truck Sanitation Standard Operating Procedure (SOP) for cage cleaning between flocks. Pre-Harvest Controls Feed Withdrawal SOP.	No
	C: Drug residues	No	Low risk per USDA, Compliance Guide for Residue Prevention.[15] Growers required to follow best pre-harvest practices, which include appropriate withdrawal requirements when antibiotics are prescribed.		
	P: Foreign objects in the gizzards of live birds	No	Establishment historical data[16] (that is, giblet quality monitoring) demonstrates low risk of foreign objects in gizzards after processing. Gizzard quality checks after chilling, which include monitoring for foreign objects, such as wire. Foreign Material SOP[17]		

[15] If the scientific justification is from FSIS, then list the document name. If justification is not from an FSIS program, then scientific or technical support is needed, and these non-FSIS supporting documents must be kept for the life of the HACCP plan

[16] NOTE: This "historic data" must be supported with evidence from the establishment through the establishment's history or validation data with reference to the SOP or prerequisite program. When historical data is not available (for example, a HACCP plan for a new process or product), then system design must be supported by other documentary evidence. Such as the FSIS Meat and Poultry Hazards and Controls Guide which states "Monitor giblets for foreign materials" and "Metal detection" as frequently used controls for foreign material hazards in poultry slaughter.

[17] This Foreign Material SOP (prerequisite program) should have details on how this procedure is preventing the hazard from occurring (such as metal prevention controls) as well as the on-going verification procedures. These controls should be evident within the written document upon review. The Foreign Material SOP and plant data related to on-going verification activities then become part of recordkeeping and historic data.

Step	Hazard	RLTO	Justification / Basis	Controls	CCP
1a. Receive and Store Non-meat Items (e.g., Antimicrobials, Packaging Materials)	B: Contamination with Pathogens	No	Proper storage of non-meat ingredients under temperature control if needed. Procedure to protect non-meat ingredients from pests and environmental contamination.		
	C: Inappropriate chemical or concentration received[18]	No	Establishment historical data shows low risk of receipt of inappropriate chemicals and inappropriate chemical compounds. Letters of Guarantee from suppliers. Identify and list all approved chemicals used in the operations. Check each chemical at receiving to assure that it is on the list at the correct concentration and is appropriately labeled. Safety Data Sheets (SDS)		
	P: Foreign Materials	No	Visual inspection for foreign material. Protect packaging materials from environment.		
2. Unloading, Stunning, Bleeding	B: Pathogens *Salmonella, Campylobacter*	Yes	Live birds may have pathogens on feathers, skin, feet, and in the digestive tract.	The hazard is controlled through subsequent visual examination, antimicrobial application and chilling (CCP 1, CCP 2, CCP 3). Proper application of stunning methods and maintenance of stunning	No

[18] Provide reference for scientific support and validation for effective concentrations and support for critical operational parameters that reduce biological hazards. FSIS Directive 7120.1, Safe and Suitable Ingredients Used in Meat, Poultry and Egg Products contains the list of substances that may be used in the production of meat and poultry products. The list contains the allowable amounts and the intended use of the approved antimicrobials. The list (Directive 7120.1) can be used as supporting documentation for chemical hazard controls (safety and suitability). Directive 7120.1 cannot be used as support for the control of biological hazards because the antimicrobial concentration needed to control bacteria is different from the concentrations required for safety and suitability.

Step	Hazard	RLTO	Justification / Basis	Controls	CCP
				equipment to reduce involuntary voiding of feces during stunning. Employee hygienic practices.	
	C: None				
	P: None				
3. Scalding, Picking, Head and Feet Removal	B: Pathogens *Salmonella, Campylobacter*	Yes	Scald water and picking machinery can increase pathogen cross-contamination. Pathogens can contaminate muscles of carcasses that are mutilated during picking.	The hazard is controlled through subsequent visual examination, antimicrobial application and chilling (CCP 1, CCP 2, CCP 3). Scalder operational procedures for freshwater intake and overflow, agitation of scald water. Scald water is not reused as scalding water or wash water. Optional use of brushes to remove dirt and debris from birds prior to scalding. Water pH maintained either above or below optimum pH for *Salmonella* and *Campylobacter* growth. Antimicrobials, acidifiers and anti-foam chemicals applied in the scald water as part of a multi-hurdle approach to reduce pathogen levels. Prerequisite program to monitor antimicrobial and any other chemical concentrations Trim mutilated portions from carcasses later in the process. Written Sanitation SOP for equipment cleaning and sanitation to prevent product contamination.	No

Step	Hazard	RLTO	Justification / Basis	Controls	CCP
	C: Antimicrobial, defoamer, or pH modifier not appropriately mixed to meet Generally Recognized as Safe (GRAS) parameters	No	Establishment historical data shows low risk of chemical contamination by use of defoamers and pH boosters in scalders. Written chemical mixing procedures and documented verification procedures to ensure that critical operating parameters are maintained. Chemicals are properly used to meet the chemical manufacturer's recommendations and GRAS parameters.		
	P: None				
4. Evisceration[19], including neck removal, venting, opening, drawing viscera from carcass	B: Pathogens *Salmonella, Campylobacter*	Yes	Pathogens introduced on live birds present on carcass skin and in the digestive tracts.	The hazard is controlled through subsequent visual examination, antimicrobial application and chilling (CCP 1, CCP 2, CCP 3). Written Sanitary Dressing Procedures to prevent contamination of carcasses and parts by enteric pathogens and fecal contamination throughout the slaughter and dressing operations incorporated as a prerequisite program to meet 9 CFR 381.65(g) requirements.[20] These requirements include sampling and analysis for microbial organisms to monitor and maintain process control.	No
	C: None				

[19] DRAFT FSIS Compliance Guideline for Controlling Salmonella and Campylobacter in Raw Poultry provides guidance on how to control pathogens throughout the slaughter operation.

[20] The required written procedures to prevent contamination may also include: an equipment maintenance program to ensure machinery functions as intended to prevent contamination with digestive tract contents throughout the evisceration process; programs to ensure the proper application of antimicrobials (for example, antimicrobial concentration and method of application); employee hygienic practices and an operational sanitation SOP.

Step	Hazard	RLTO	Justification / Basis	Controls	CCP
	P: Foreign Material	No	Foreign materials could be introduced from broken machinery parts, broken shackles, and insanitary overhead structures. Equipment and evisceration line maintenance to prevent metal or plastic contamination. Routine cleaning of shackle rails and overhead structures. Foreign Material SOP.		
5. Harvest of Giblets, Necks and Feet	B: Pathogens: *Salmonella, Campylobacter*	Yes	Delayed separation from inedible items may result in pathogen outgrowth.	The hazard is controlled through subsequent visual examination, antimicrobial application and chilling procedures (CCP 1, CCP 2, CCP 3). Chilling time and temperature critical limits monitored through CCP 3 to ensure that giblets, necks, and feet temperatures are promptly reduced to temperatures that prevent pathogen outgrown.[21] Antimicrobial added to immersion chiller media or applied through a spray or dip. Written Sanitary Dressing Procedures to prevent contamination of carcasses and parts by enteric pathogens and fecal contamination throughout the slaughter and dressing operations incorporated as a prerequisite program to meet 9 CFR 381.65(g) requirements.	No

[21] The FSIS Compliance Guide: Modernization of Poultry Slaughter Inspection: Chilling Requirements describes how establishments can meet the poultry chilling regulatory requirements.

Step	Hazard	RLTO	Justification / Basis	Controls	CCP
	C: Inappropriate concentration of antimicrobial	No	Establishment historical data shows low risk of inappropriate chemical application. Written chemical mixing procedures and documented verification procedures to ensure that critical operating parameters are maintained. Chemicals are properly used to meet the chemical manufacturer's recommendations and GRAS parameters.		
	P: Foreign material (rocks, wires, other building materials etc.) from birds pecking at litter during live production	No	Establishment historical data (giblet quality monitoring) demonstrates low risk of foreign objects in gizzards after processing. Foreign Material SOP. Giblet quality checks after chilling, which include monitoring for foreign objects, such as wire, that may be lodged in gizzards.		
6. Offline Reprocessing and Salvage[22]	B: Pathogens *Salmonella, Campylobacter*	Yes	Carcasses accidentally contaminated with digestive tract contents (feces and ingesta) at higher risk for pathogen contamination. Disease conditions may contain pathogens.	Digestive tract contaminants are addressed with *CCP 1: Monitoring Carcasses, Parts and Giblets for Fecal Contamination.* The presence of pathogens is addressed with *CCP 2 Pre-chilling antimicrobial application* and *CCP 3 Chilling*. Offline reprocessing procedures incorporated into HACCP system as a prerequisite program to comply with 9 CFR 381.91(b)(2). Written procedures to remove localized disease conditions (for example, airsacculitis, inflammatory processes)	No

[22] For an example hazard analysis for on-line reprocessing see step 13 of the HACCP Model for New Poultry Inspection System (NPIS) Poultry Slaughter.

Step	Hazard	RLTO	Justification / Basis	Controls	CCP
				and verify that establishment employees appropriately implement the procedures in a sanitary manner.	
	C: Inappropriate concentration of antimicrobial	No	Establishment historical data shows low risk of inappropriate chemical application. Written chemical mixing procedures and documented verification procedures to ensure that critical operating parameters are maintained. Chemicals are properly used to meet the chemical manufacturer's recommendations and GRAS parameters.		
	P: None				
7. Crop, Lung, and Kidney Removal	B: Pathogens *Salmonella, Campylobacter*	Yes	Carcasses accidentally contaminated with digestive tract contents (feces and ingesta) at higher risk for pathogen contamination. Crop removal may cause ingesta contamination, which increases the risk for pathogens. Kidneys with disease conditions, including airsacculitis lesions are required to be removed from carcasses.	The hazard is controlled at a later step with visual examination, antimicrobial application and chilling (CCP 1, CCP 2, CCP 3). Written Sanitary Dressing Procedures to prevent contamination of carcasses and parts by enteric pathogens and fecal contamination throughout the slaughter and dressing operations incorporated as a prerequisite program to meet 9 CFR 381.65(g) requirements.	No
	C: None	No			
	P: None	No			
8. Carcass Wash	B: Pathogens *Salmonella, Campylobacter*	Yes	Carcasses accidentally contaminated with digestive tract contents (feces and ingesta) at higher risk for pathogen contamination.	The hazard is controlled at a later step with visual examination, antimicrobial application and chilling (CCP 1, CCP 2, CCP 3). Written program to monitor that the carcass wash functions as intended.	No

Step	Hazard	RLTO	Justification / Basis	Controls	CCP
	C: Inappropriate concentration of antimicrobial	No	Establishment historical data shows low risk of inappropriate chemical application. Written chemical mixing procedures and documented verification procedures to ensure that critical operating parameters are maintained. Chemicals are properly used to meet the chemical manufacturer's recommendations and GRAS parameters.		
	P: None	No			
9. Trimming	B: Pathogens *Salmonella, Campylobacter*	No	Employee hygienic practices. Operational Sanitation SOPs.		
	C: None				
	P: None				
10. Monitoring Carcasses, Parts and Giblets for Fecal Contamination	B: Pathogens *Salmonella, Campylobacter*	Yes	Fecal material carries pathogens.	Monitoring for fecal contamination prior to the pre-chill antimicrobial application to ensure that poultry carcasses contaminated with visible fecal material do not enter the chiller (9 CFR 381.65(f)). Written Sanitary Dressing Procedures to prevent contamination of carcasses and parts by enteric pathogens and fecal contamination throughout the slaughter and dressing operations incorporated as a prerequisite program to meet 9 CFR 381.65(g) requirements. No (zero) fecal contamination to enter chilling system. Examine the inside and outside surfaces of carcasses for fecal contamination at a	Yes CCP 1

Step	Hazard	RLTO	Justification / Basis	Controls	CCP
				point prior to the pre-chill antimicrobial application. Examine parts and giblets for fecal contamination prior to chilling.	
	C: None				
	P: None				
11. Pre-chilling Antimicrobial Application	B: Pathogen outgrowth *Salmonella, Campylobacter*	Yes	Carcasses accidentally contaminated with digestive tract contents (feces and ingesta) at higher risk for pathogen contamination.	*CCP 2 Pre-chilling antimicrobial application.* Application of organic acid solution to carcasses, parts, giblets, necks and feet.[23]	Yes CCP 2
	P: None				
	C: Inappropriate concentration of antimicrobial applied	No	Establishment historical data shows low risk of inappropriate chemical application. Written chemical mixing procedures and documented verification procedures to ensure that critical operating parameters are maintained. Chemicals are properly used to meet the chemical manufacturer's recommendations and GRAS parameters.		
12. Chilling of all Products[24]	B: Pathogen Outgrowth *Salmonella, Campylobacter*	Yes	Delayed chilling may result in pathogen outgrowth.	Pathogen outgrowth is controlled with *CCP 3 Chilling*. Apply chilling procedures to lower internal temperatures of carcasses, giblets, necks, and feet. Written chilling procedures that address,	Yes CCP 3

[23] If an establishment implements a process consistent with the process specifications described in the scientific support, and the scientific support contains microbiological data specifying the level of pathogen reduction achieved by the intervention strategy for the target pathogen identified in the hazard analysis, the in-plant validation data collected during the 90 day initial validation period will consist of data on quantifiable characteristics of the critical operational parameters, such as pressure, temperature, and concentration. However, if an establishment implements different critical operational parameters in the process from the scientific support, or the scientific support identified does not contain microbiological data, then the establishment should collect in-plant data demonstrating the critical operational parameters that it has implemented can all be met AND should collect in-plant microbiological validation data or identify scientific support with microbiological data that demonstrates the effectiveness of those implemented critical operational parameter (FSIS Compliance Guideline HACCP Systems Validation, page 27).

[24] If products are ice chilled in vats the hazard analysis should address any hazards associated with ice manufacture, storage and handling.

Step	Hazard	RLTO	Justification / Basis	Controls	CCP
				at a minimum, the potential for pathogen outgrowth, the conditions affecting carcass chilling, and when the chilling process is complete (9 CFR 381.66(b)(3)).[25]	
	C: Inappropriate concentration of antimicrobial	No	Establishment historical data shows low risk of inappropriate chemical application. Written chemical mixing procedures and documented verification procedures to ensure that critical operating parameters are maintained. Chemicals are properly used to meet the chemical manufacturer's recommendations and GRAS parameters.		
	P: Foreign Material	No	Foreign material contamination from overhead structures and immersion system moving parts. Foreign Material SOP. Carcasses monitored 2 times per shift for extraneous material contaminants after chilling.[26]		
13. Transfer Carcasses to Cut up or Further Processing	B: Pathogen Outgrowth *Salmonella, Campylobacter*	No	Pathogen outgrowth may result if temperatures are not maintained at levels to prevent multiplication during transfer. Product is transferred to cut up or further processing to prevent product temperatures that promote pathogen outgrowth (Tompkin, R.B. 1996).[27]		

[25] The FSIS Compliance Guide: Modernization of Poultry Slaughter Inspection: Chilling Requirements describes alternative chilling procedures granted under the *Salmonella* Initiative Program (SIP)(page 5). The alternative procedures are validated to prevent the outgrowth of pathogens as product is being chilled.

[26] Post-chill Poultry Finished Product Standards tests monitor for extraneous materials in the chill media. The tests are performed every 2 hours of production time in Streamlined Inspection System, New Line Speed Inspection System, and New Turkey Inspection System establishments

[27] The establishment must prevent the outgrowth of pathogens on chilled product as long as the product remains at the establishment (9 CFR 381.66(b)(2)). The FSIS Compliance Guide: Modernization of Poultry Slaughter Inspection: Chilling Requirements includes the former regulatory provisions ("safe harbors") that an establishment can implement to prevent the outgrowth of pathogens in chilled product (page 4).

Step	Hazard	RLTO	Justification / Basis	Controls	CCP
	C: None				
	P: None				
14. Packaging and Labeling	B: Pathogens: *Salmonella, Campylobacter*	No	Pathogen outgrowth may result if temperatures are not maintained at levels to prevent multiplication. Product is packaged and placed in storage coolers or freezers to prevent product temperatures that promote pathogen outgrowth (Tompkin, R.B. 1996).		
	C: None				
	P: None				
15. Cold Storage	B: Pathogen Outgrowth *Salmonella, Campylobacter*	No	Pathogen outgrowth may result if temperatures are not maintained at levels to prevent multiplication during shipping. Written product storage procedures to maintain product at temperatures that prevent pathogen outgrowth (9 CFR 381.66(b)(1)(ii)).		
	C: None				
	P: None				
16. Shipping	B: Pathogen Outgrowth *Salmonella, Campylobacter*	No	Pathogen outgrowth may result if temperatures are not maintained at levels to prevent multiplication during shipping. Products shipped on refrigerated transport vehicles.		
	C: None				
	P: None				
17. Returned Product	Reinspection SOP implemented before accepting returned product. Product enters the appropriate step of the production system based on findings of product evaluation. Opened packages are not accepted. Notify FSIS personnel when product has been returned.				

EXAMPLE: Young Chicken Slaughter HACCP Plan[28]									
Critical Control Point (CCP)	**Significant Hazard(s)**	**Critical Limits for Each Control Measure**	**Monitoring Procedures**				**Corrective Action[29]**	**Verification**	**Records**
			What	**How**	**Frequency**	**Who**			
CCP 1 **Monitoring Carcasses, Parts and Giblets for Fecal Contamination**	Pathogens: *Salmonella, Campylobacter*	No fecal contaminants to enter chilling system.	Visual examination for fecal material.	Examine the inside and outside surfaces of 10 carcasses and all surfaces of 10 parts or giblets for fecal contaminants.	Check 10 carcasses and 10 parts or giblets per production hour. Select random times to perform the checks. If less than 10 units are available examine all available units.	Designated employee	If a deviation from the critical limit occurs, a manager will, per 9 CFR 417.3(a): 1. Hold all product produced after last acceptable check until appropriate disposition taken (no product injurious to health will enter commerce); 2. Determine and eliminate the cause of the deviation; 3. Restore process control; 4. Take measures to prevent recurrence.	A manager observes and then records the results of their verification of the CCP monitoring activity once each day of slaughter operations. A manager observes and then records the results of their observations of the corrective actions taken for each deviation from a critical limit. Records reviewed once a week 9 CFR 417.4(a)(2)(iii).	Zero Fecal Check Form Corrective Action Log Pre-shipment Review Form

[28] This example HACCP plan is best suited for small and very small establishments seeking assistance in understanding the requirements in Title 9 Code of Federal Regulations (9 CFR) Part 417. The HACCP model is for demonstration purposes only. The model does not represent requirements that must be met. Establishments are required to develop HACCP plans specific to their facilities, production practices, and products.

[29] Each establishment must develop written corrective action procedures in response to a deviation from the critical limit to determine what to do with the affected product (from the last acceptable check), to eliminate the cause of the deviation, to bring the CCP back into control, and to prevent future deviations (CFR 417.3).

Critical Control Point (CCP)	Significant Hazard(s)	Critical Limits for Each Control Measure	Monitoring Procedures				Corrective Action	Verification	Records
			What	How	Frequency	Who			
CCP 2 Pre-chilling Antimicrobial Application [30]	Pathogens: *Salmonella, Campylobacter*	600-700 ppm organic acid solution[31]	Monitor the preparation and mixing of the antimicrobial solution. Monitor the application of the solution.	Measure and record the amount of antimicrobial and the amount of water used to make the solution. Monitor the employee's application of the solution to carcasses, parts and giblets.	Check the amount of antimicrobial and water used to make up the solution once per shift. The application of the solution is monitored twice per shift.	Designated employees	If a deviation from the critical limit occurs, the production supervisor will, per 9 CFR 417.3(a): 1. Hold all product produced after the last acceptable check until appropriate disposition taken (no product injurious to health will enter commerce); 2. Determine and eliminate the cause of the deviation; 3. Bring the CCP under control; 4. Take measures to prevent recurrence.	Randomly, once per shift, a manager observes the monitoring activity and records their findings. Records Reviewed once per week (9 CFR 417.4(a)(2)(iii)	Organic Acid Spray Concentration Form. Corrective Action Log Pre-shipment Review Form

[30] If an establishment implements a process consistent with the process specifications described in the scientific support, and the scientific support contains microbiological data specifying the level of pathogen reduction achieved by the intervention strategy for the target pathogen identified in the hazard analysis, the in-plant validation data collected during the 90 day initial validation period will consist of data on quantifiable characteristics of the critical operational parameters, such as pressure, temperature, and concentration. However, if an establishment implements different critical operational parameters in the process from the scientific support, or the scientific support identified does not contain microbiological data, then the establishment should collect in-plant data demonstrating the critical operational parameters that it has implemented can all be met AND should collect in-plant microbiological validation data or identify scientific support with microbiological data that demonstrates the effectiveness of those implemented critical operational parameter (FSIS Compliance Guideline HACCP Systems Validation, page 27).

[31] Scientific or technical support is required to validate the critical limits and critical parameters (for example, time of exposure) of the organic acid spray. They are part of the hazard analysis and need to be maintained for the life of the HACCP plan (see FSIS Compliance Guideline HACCP Systems Validation); FSIS Directive 7120.1 Safe and Suitable Ingredients Used in the Production of Meat, Poultry, and Egg Products contains approved substances for use in poultry; however, each establishment must validate their own process.

Critical Control Point (CCP)	Significant Hazard(s)	Critical Limits for Each Control Measure	Monitoring Procedures				Corrective Action[Error! Bookmark not defined.]	Verification	Records
			What	How	Frequency	Who			
CCP 3 **Chilling of all Products**	Pathogen Outgrowth: *Salmonella, Campylobacter*	Carcass temperatures of 45 degrees or less within 6 hours.[32] Parts, giblets, feet, and necks chilled to 44 degrees or less within 4 hours from the time they are removed from the carcass.	Carcass internal temperatures. Parts, giblets, feet, and necks internal temperatures.	Handheld calibrated thermometer inserted into the thickest portion of the breast muscle of the carcass, or thickest portion of the part, giblet, neck or foot.	Check 10 carcasses and 10 parts or giblets per hour. Select random times to perform the checks. If 10 units are not available check all available units.	Designated employees	If a deviation from the critical limit occurs, the production supervisor will, per 9 CFR 417.3(a): 1. Hold all product produced after the last acceptable check until appropriate disposition taken (no product injurious to health will enter commerce); 2. Determine and eliminate the cause of the deviation; 3. Bring the CCP under control; 4. Take measures to prevent recurrence	A manager observes the monitoring of the CCP once each day of slaughter operations. Once per week, a manager will calibrate the thermometer per manufacturer's procedures. Records reviewed once a week 9 CFR 417.4(a)(2)(iii)	Carcass, Parts, Giblets, and Feet Chilling Form Thermometer Calibration Form Corrective Action Log Pre-shipment Review Form

[32] The critical limit—45 degrees or less within 6 hours—is derived from an alternative procedure implemented by establishments that participated in SIP (*Salmonella* Initiative Program). See the FSIS Compliance Guide: Modernization of Poultry Slaughter Inspection: Chilling Requirements for additional guidance on implementing this "safe harbor". For general guidance on establishing critical limits see the Guidebook for the Preparation of HACCP Plans (page 30).