

HACCP MODEL FOR POULTRY SLAUGHTER/FURTHER PROCESSING

The Hazard Analysis Critical Control Point (HACCP) system is a scientific approach to process control. It is designed to prevent the occurrence of problems by assuring that controls are applied at any point in a food production system where hazardous or critical situations could occur. Hazards include biological, chemical, or physical contamination of food products.

HACCP is a systematic and preventive approach to achieve food safety standards. Originally developed in the United States to guarantee the safety of astronauts' food in space, HACCP is now being adopted worldwide as a scientific, straightforward and effective approach to enhance food safety.

The HACCP approach can be used by all segments of the food production continuum and can be tailored to any individual product or process line. The advantage of using the HACCP system lies in the control it provides at all times over food safety in the processing plant, from receiving raw materials to shipping the final products.

For the food processor, producing a safe product will be structured around critical control points (CCPs). CCPs are designed to control potential hazards that are biological, chemical or physical in nature and that may pose a food safety risk.

The Seven Principles of HACCP

The HACCP approach is based on seven principles aimed at identifying hazards in food production, controlling hazards at critical control points in the process, and verifying that the system is working properly. The key element of the HACCP system is its preventive nature meaning that potential food safety hazards are controlled throughout the process. The application of HACCP principles in the production of food is recommended by Codex Alimentarius, the international standard-setting organization for food.

The seven basic principles of HACCP are:

1. Identify the hazards and list preventive measures to control them.
2. Determine the critical control points.
3. Establish limits at each critical control point.
4. Establish procedures to monitor the critical control points.
5. Establish corrective action to be taken in case of a deviation.
6. Establish procedures to verify that the systems are working correctly.
7. Establish effective record keeping.

Hazard Analysis

Hazard analysis is the first principle and starting point of the Hazard Analysis Critical Control Point (HACCP) system. Hazards can arise at any stage of food production, from growing, harvesting and dealing with raw materials and ingredients, through processing and manufacturing, and on through distribution, marketing, preparation and consumption of food products. Proper identification and analysis of hazards are central to the hazard analysis process. Hazards may vary from one processing plant to another due to differences in the source of ingredients, formulations, equipment, plant layout, preparation, etc.

A Five-step Process

The five steps of hazard analysis are:

1. Review the incoming material, including ingredients and packaging material.
2. Evaluate each step of the processing operations.
3. Observe the actual operating practices.
4. Take accurate measurements.
5. Analyze the measurements.

In each case, the analysis must consider all possible biological, chemical and physical hazards. Once all hazards have been identified and analyzed, the next stage of the HACCP approach is to determine the critical control points necessary to control the hazards.

Critical Control Points (CCP)

A Critical Control Point (CCP) is a point or step in the manufacturing process at which control can be applied and a food safety hazard can be prevented, eliminated or reduced to an acceptable level. For example, a specified heat process, applied for a prescribed time and temperature to destroy bacteria, is a CCP.

Determining CCPs required to control identified hazards is the second major principle of a Hazard Analysis Critical Control Point (HACCP) system. CCPs are located at any point in the food processing sequence where biological, physical and chemical hazards can be eliminated or controlled. CCPs can include cooking, chilling, sanitizing, formulation control, prevention of cross-contamination, employee hygiene and environmental hygiene.

It is very important that CCPs are developed and documented carefully. The success of controlling hazards depends on the care taken in determining the CCPs, the critical limits that must be met at each point, the monitoring procedures used to control each CCP and the corrective action taken when there is a deviation identified at a CCP. Plant

verification of each CCP will ensure that monitoring procedures are in place and are effective in controlling the potential hazard.

Definitions.

For purposes of this part, the following shall apply:

Corrective action. *Procedures to be followed when a deviation occurs.*

Critical control point. *A point, step, or procedure in a food process at which control can be applied and, as a result, a food safety hazard can be prevented, eliminated, or reduced to acceptable levels.*

Critical limit. *The maximum or minimum value to which a physical, biological, or chemical hazard must be controlled at a critical control point to prevent, eliminate, or reduce to an acceptable level the occurrence of the identified food safety hazard.*

Food safety hazard. *Any biological, chemical, or physical property that may cause a food to be unsafe for human consumption.*

HACCP System. *The HACCP plan in operation, including the HACCP plan itself.*

Hazard. *SEE Food Safety Hazard.*

Preventive measure. *Physical, chemical, or other means that can be used to control an identified food safety hazard.*

Process-monitoring instrument. *An instrument or device used to indicate conditions during processing at a critical control point.*

Responsible establishment official. *The individual with overall authority on-site or a higher level official of the establishment.*

HACCP PLAN

Assembling the HACCP Team:

An important step in developing a plan is to gain management commitment and assemble a HACCP team. Top management must be fully committed to product safety through HACCP to make the program effective. After commitment is obtained, the HACCP team should be assembled. The team should consist of individual(s) from all aspects of production and should include at least one HACCP trained individual.

Process Flow Diagram and Product Description

To begin using this model, the company's HACCP team should first describe the product(s) that are part of this process category and covered by this HACCP plan. The product(s) should be described in two ways:

- (1) by a simple diagram which shows the steps the company uses when it produces the product, and
- (2) in a brief written description that provides key facts about the product and its use.

Hazard Analysis

Once your product(s) are accurately described through the flow diagram and product description, the HACCP team should begin work on the **HAZARD ANALYSIS**. The hazard analysis is fundamental to developing a good HACCP plan and one that meets regulatory requirements. The regulatory requirements for a hazard analysis are found below:

Hazard Analysis and HACCP Plan.

(a) Hazard analysis.

(1) Every official establishment shall conduct, or have conducted for it, a hazard analysis to determine the food safety hazards reasonably likely to occur in the production process and identify the preventive measures the establishment can apply to control those hazards. The hazard analysis shall include food safety hazards that can occur before, during, and after entry into the establishment. A food safety hazard that is reasonably likely to occur is one for which a prudent establishment would establish controls because it historically has occurred, or because there is a reasonable possibility that it will occur in the particular type of product being processed, in the absence of those controls.

(2) A flow chart describing the steps of each process and product flow in the establishment shall be prepared, and the intended use or consumers of the finished product shall be identified.

Generic establishment X, which we are using for our example, is capturing these regulatory requirements on a 6-column **Hazard Analysis Form (See APPENDIX III & VII)**. A good way to use a form like this is to create the first column by using the Process Flow Diagram and the second by answering the question. Once the HACCP team has considered all the steps in the flow diagram and determined if a food safety hazard could be introduced, it needs to consider whether the hazard is "reasonably likely to occur". On the 6-column form used by generic establishment X, the third and fourth columns address this issue. If the establishment's HACCP team has decided that the hazard is not reasonably likely to occur, they enter "No" in column three, explain the basis for their determination in column four, and do not need to further consider activity to address this hazard.

If, however, the team has determined there is a "food safety hazard reasonably likely to occur" introduced at a certain point in the process, column five is used to describe a measure which could be applied to "prevent, eliminate, or reduce to acceptable levels" the food safety hazard identified in column three. Column six is used when a critical control point (CCP) is identified based upon the decision made in the hazard analysis. Each CCP has a number – the order corresponds to steps in the process. For example, 1 is the first CCP in the process flow, 2 the next, etc. The letter indicates whether the hazard is biological – B; chemical – C; or physical – P.

Developing Your HACCP Plan

The contents of the HACCP plan. *The HACCP plan shall, at a minimum:*

- (1) List the food safety hazards identified in accordance with paragraph (a) of this section, which must be controlled for each process.*
- (2) List the critical control points for each of the identified food safety hazards, including, as appropriate:*
 - (i) Critical control points designed to control food safety hazards that could be introduced in the establishment, and*
 - (ii) Critical control points designed to control food safety hazards introduced outside the establishment, including food safety hazards that occur before, during, and after entry into the establishment;*

(3) List the critical limits that must be met at each of the critical control points. Critical limits shall, at a minimum, be designed to ensure that applicable targets or performance standards established by the regulatory authority, and any other requirement set forth in this chapter pertaining to the specific process or product, are met;

(4) List the procedures, and the frequency with which those procedures will be performed, that will be used to monitor each of the critical control points to ensure compliance with the critical limits;

(5) Include all corrective actions that have been developed to be followed in response to any deviation from a critical limit at a critical control point; and

(6) Provide for a record keeping system that documents the monitoring of the critical control points. The records shall contain the actual values and observations obtained during monitoring.

(7) List the verification procedures, and the frequency with which those procedures will be performed, that the establishment will use.

Signing and dating the HACCP plan.

(1) The HACCP plan shall be signed and dated by the responsible establishment individual. This signature shall signify that the establishment accepts and will implement the HACCP plan.

(2) The HACCP plan shall be dated and signed:

(i) Upon initial acceptance;

(ii) Upon any modification; and

(iii) At least annually, upon reassessment, or as required by the regulatory authority.

Identifying CCPs

The first column on this particular form is used to enter information developed and contained on the hazard analysis form. The food safety hazards identified in the hazard analysis must be listed on the HACCP plan and that there be a CCP for each identified hazard. You will notice the hazard analysis form identified four points at which food safety hazards were reasonably likely to occur: physical contamination with fecal material and potential pathogen contamination at evisceration/presentation, pathogen

contamination at reprocessing, pathogen cross-contamination and proliferation at chilling, and pathogen proliferation at finished products storage (cold). The establishment HACCP team has chosen to have four CCPs to address these four hazards: proper evisceration/presentation, proper reprocessing, proper chilling of product, and proper maintenance of finished product temperatures during storage.

After identifying its CCPs, the HACCP team proceeded to consider critical limits, monitoring procedures and their frequencies, and verification procedures and their frequencies, and HACCP records.

In deciding what would be the critical limits, the HACCP team first considered whether there were any regulatory requirements which had to be met and would function as critical limits.

They found some regulatory requirements for chilling and realized that if the proper chiller procedures were not followed pathogen proliferation was possible. The HACCP team knew that the chilling process should start as soon as possible, so they set the critical limit for the temperature of product to reach 40° F or less within four hours from the stunning/killing step.

Once they had decided on their critical limits, they needed to identify how the monitoring procedures would be carried out and at what frequency.

For their chilling step, the establishment had the QA technician do a product temperature check at the end of the chilling procedure every hour of production. At the chilling step the carcass chiller and neck/giblet chiller temperatures are monitored continuously with recording charts.

These decisions by the HACCP team regarding critical limits, plus monitoring procedures and their frequencies are written up in columns two and three of the HACCP Plan.

The regulatory requirements for ongoing verification are:

(2) Ongoing verification activities. Ongoing verification activities include, but are not limited to:

- (i) The calibration of process-monitoring instruments;*
- (ii) Direct observations of monitoring activities and corrective actions; and*
- (iii) The review of records generated and maintained in accordance with regulations set by the competent authority.*

The HACCP team decided they could verify the chilling of product by checking the Chilling Log once per shift. The team also had the maintenance supervisor verify the

accuracy of the carcass chiller and necks/giblets chiller temperature recording charts once per shift.

There is a regulatory requirement for including as verification, the calibration of process-monitoring instruments. Each day QA checks the hand-held thermometers for accuracy in slush ice water and calibrates them to within 2° F accuracy.

The HACCP team described the verification procedures and their frequencies in the fifth column of their HACCP plan.

Records.

(a) The establishment shall maintain the following records documenting the establishment's HACCP plan:

(1) The written hazard analysis prescribed in this part, including all supporting documentation;

(2) The written HACCP plan, including decision making documents associated with the selection and development of CCP's and critical limits, and documents supporting both the monitoring and verification procedures selected and the frequency of those procedures.

(3) Records documenting the monitoring of CCP's and their critical limits, including the recording of actual times, temperatures, or other quantifiable values, as prescribed in the establishment's HACCP plan; the calibration of process-monitoring instruments; corrective actions, including all actions taken in response to a deviation; verification procedures and results; product code(s), product name or identity, or slaughter production lot. Each of these records shall include the date the record was made.

(b) Each entry on a record maintained under the HACCP plan shall be made at the time the specific event occurs and include the date and time recorded, and shall be signed or initialed by the establishment employee making the entry.

The HACCP team decided that since QA had a form that they had been using for measuring chilling temperatures, that they would modify that form. The form was modified to provide spaces for all entries necessary for the monitoring and verification activities at the product-handling step.

The Temperature Recording Chart for the carcass chill was already in use and the team knew that they needed to do some personnel training to ensure that all record keeping requirements are included on the recording chart.

QA already had a Thermometer Calibration Log and this form was modified to meet the HACCP regulatory record keeping requirements. The HACCP team decided that this form could be used by QA for more than one day because there are very limited numbers of thermometers issued for product temperature measurements. If at any time during the shift a thermometer is dropped or if the employee questions the accuracy of the thermometer he is to immediately take the thermometer to the QA lab for an accuracy check.

On its HACCP Plan, generic establishment X has listed the names of the forms it will be using for monitoring and verification records. The team also devised the antimicrobial intervention log to record monitoring results for pressure and antimicrobial concentrations.

There is one other form included in column four, where the establishment has described its record keeping system. That is the Corrective Actions Log; it is used to create the records of any corrective actions taken because of deviations from critical limits at CCPs. Column six references the planned corrective actions for each CCP. The HACCP team carefully reviewed the regulatory requirements for planned corrective actions.

Corrective actions.

(a) The written HACCP plan shall identify the corrective action to be followed in response to a deviation from a critical limit. The HACCP plan shall describe the corrective action to be taken, and assign responsibility for taking corrective action, to ensure:

(1) The cause of the deviation is identified and eliminated;

(2) The CCP will be under control after the corrective action is taken;

(3) Measures to prevent recurrence are established; and

(4) No product that is injurious to health or otherwise adulterated as a result of the deviation enters commerce.

The HACCP team has developed a specific corrective action plan that will be followed whenever there is a deviation from a critical limit at a CCP; each of the planned corrective actions meets regulatory requirements.

Planned Corrective Actions for CCP 3

1. QA will reject or hold product until temperature is achieved dependent on time and temperature deviation. For example, the ARS cooling program can be used to make a determination.
2. QA will identify the cause of the deviation and prevent reoccurrence by reassessment of the HACCP plan and review of the cause of the deviation. Monitoring will be more frequent to assure the process is in control.
3. QA will assure that no adulterated product has been shipped.

The HACCP team also develops planned corrective actions for each of the other CCPs and attaches them to the HACCP plan. Whenever a deviation from a critical limit occurs, company employees follow the corrective action plan and use the Corrective Action Log to create a record of their actions. The Corrective Action Log forms are available at CCPs, so they can be used immediately when an employee performing a monitoring check discovers and records a deviation. All Corrective Action Logs, which have been used during the day, are turned in to the HACCP coordinator.

There is one final verification/record-keeping requirement that the company must perform;

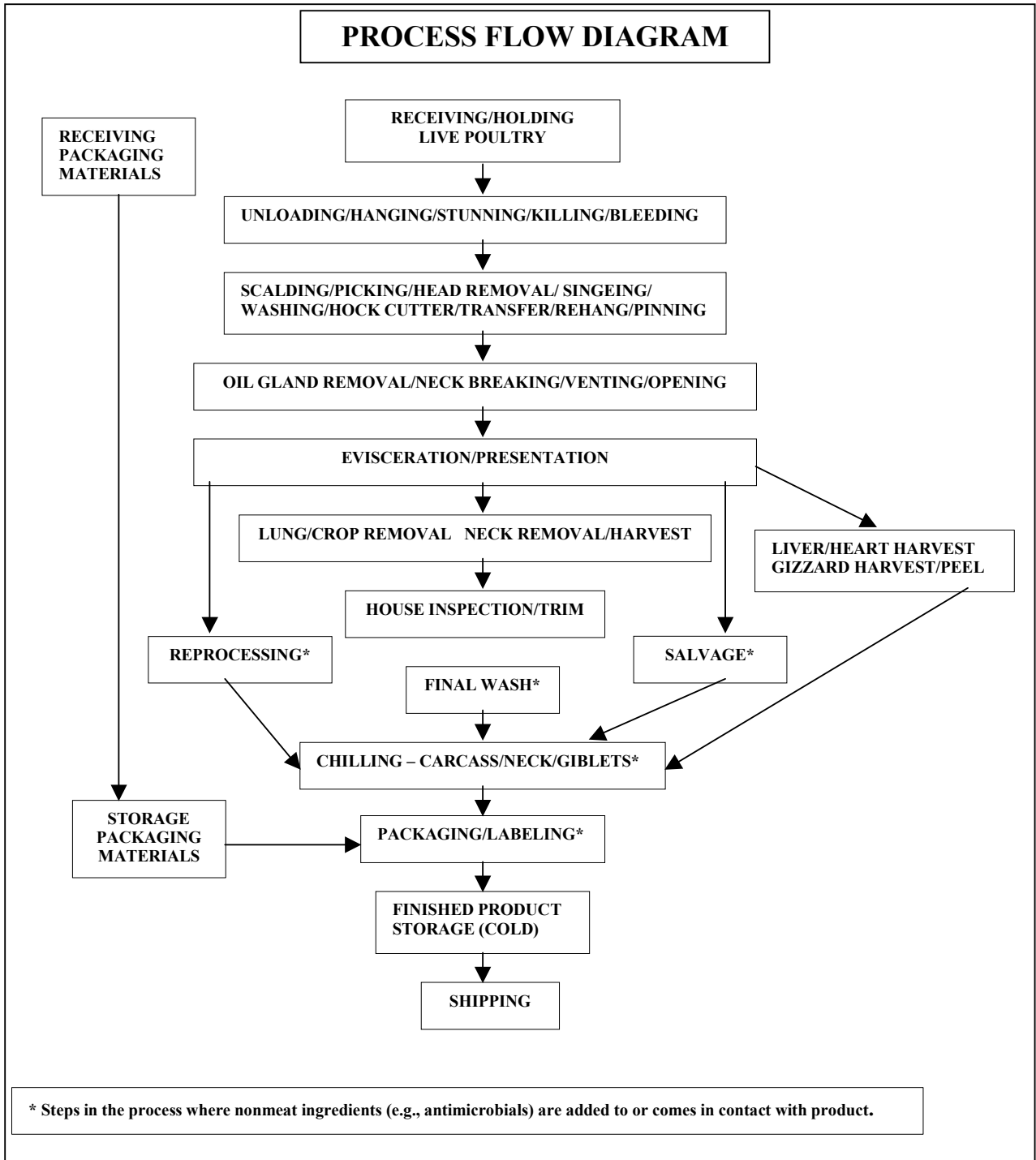
(c) Prior to shipping product, the establishment shall review the records associated with the production of that product, documented in accordance with this section, to ensure completeness, including the determination that all critical limits were met and, if appropriate, corrective actions were taken, including the proper disposition of product. Where practicable, this review shall be conducted, dated, and signed by an individual who did not produce the record(s), preferably by someone suitably trained, or the responsible establishment official.

In generic establishment X, product is shipped out, often in small lots, throughout the day. This means that pre-shipment verification checks must be as complete as possible when finished product is in storage, so that a shipment can be made up quickly and moved into distribution channels.

The establishment uses a half-day lotting system and a midshift clean up. While the midshift clean-up is being performed, QA personnel or the HACCP coordinator review results of monitoring and verification checks applied to that lot; if there were deviations from critical limits, they review the Corrective Action Logs to make sure all appropriate planned responses were carried out. If everything is in order and there are complete records showing that the establishment has controlled production of this product through its HACCP system, the HACCP coordinator will sign the pre-shipment review form that the HACCP team devised for this purpose.

The HACCP team believes it has now completed preparation of the documents that are necessary to meet regulatory requirements for a Hazard Analysis and a HACCP Plan for their poultry slaughter production process. They have secured a copy of Enforcement of Regulatory Requirements in Establishments Subject to HACCP System Requirements, the HACCP Basic Compliance Checklist that will be used by inspection program personnel. The HACCP team has modified the inspection form to make the statements into positives, and now has a checklist for its own use to make sure they have not omitted anything in their plan development and preparation. When they are confident that they have done what is necessary, they will turn their Hazard Analysis and HACCP Plan over to the establishment owner for decisions about implementation.

APPENDIX I



APPENDIX II

PRODUCT DESCRIPTION

PROCESS CATEGORY: SLAUGHTER	
PRODUCT: YOUNG CHICKEN	
1. COMMON NAME?	CHICKEN
2. HOW IS IT TO BE USED?	READY TO COOK CARCASSES/PARTS
3. TYPE OF PACKAGE? PACKAGED INDIVIDUALLY; PARTS – VACUUM PACKAGED, TRAY PACKS	CARCASSES – VACUUM
4. LENGTH OF SHELF LIFE, AT WHAT TEMPERATURE?	3-6 MONTHS AT 0° F OR BELOW; 7 DAYS AT 40° F
5. WHERE WILL IT BE SOLD? CONSUMERS? INTENDED USE?	WHOLESALE TO DISTRIBUTORS; RETAIL TO CONSUMERS
6. LABELING INSTRUCTIONS? KEEP REFRIGERATED OR KEEP FROZEN; COOKING LABEL	SAFE FOOD HANDLING LABELS;
7. IS SPECIAL DISTRIBUTION CONTROL NEEDED?	KEEP REFRIGERATED OR KEEP FROZEN

APPENDIX III

HAZARD ANALYSIS – YOUNG CHICKEN SLAUGHTER

Process Step	Food Safety 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?	Critical Control Point
Receiving/Holding – Live Poultry	Biological – None				
	Chemical – None				
	Physical – None				
Receiving – Packaging Materials	Biological – None				
	Chemical – Not acceptable for intended use	No	Letters of guaranty are received from all suppliers and packaging materials.		
	Physical – Foreign materials	No	Plant records demonstrate that foreign material contamination has not occurred during the past several years.		
Storage– Nonmeat Ingredients/Packaging Materials	Biological – None				
	Chemical – None				
	Physical – None				

HAZARD ANALYSIS – YOUNG CHICKEN SLAUGHTER

Process Step	Food Safety 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?	Critical Control Point
Unloading/Hanging/ Stunning/Killing/ Bleeding	Biological – None				
	Chemical – None				
	Physical – None				
Scalding/Picking/Head Removal/Singeing/ Washing/Hock cutter /Transfer/Rehang /	Biological – None				
	Chemical – None				
	Physical – None				
Oil Gland Removal/Neck Breaking/Venting/ Opening	Biological – None				
	Chemical – None				
	Physical – None				
Evisceration/ Presentation	Biological <i>Salmonella</i> <i>Campylobacter</i>	Yes	Significant contamination can occur from leakage of gut material, which may be associated with pathogens.	Proper adjustment of evisceration equipment and presentation training of employees will reduce the level of contamination. Visual inspection of carcasses for fecal contamination.	1B
	Chemical – None				
	Physical - Fecal contamination from gut breakage.	Yes			

HAZARD ANALYSIS – YOUNG CHICKEN SLAUGHTER

Process Step	Food Safety 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?	Critical Control Point
Lung/Crop Removal Neck Removal/Harvest	Biological – None				
	Chemical – None				
	Physical – None				
House Inspection/Trim	Biological – None				
	Chemical – None				
	Physical – None				
Reprocessing	Biological – Pathogens <i>Salmonella</i> Generic <i>E.coli</i>	Yes	Potential for contamination and pathogen proliferation. Subsequent chilling will help reduce the risk of pathogen growth.	Proper washing (use of an antimicrobial), trimming, and temperature control will reduce the numbers and limit the growth of pathogens.	2B
	Chemical – None				
	Physical – None				

HAZARD ANALYSIS – YOUNG CHICKEN SLAUGHTER

Process Step	Food Safety 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?	Critical Control Point
Salvage	Biological – Sep/Tox	No	Young chickens historically have a low incidence of sep/tox the only poultry disease of public health significance.		
	Chemical – None				
	Physical – None				
Final Wash	Biological – None				
	Chemical – None				
	Physical – None				
Liver/Heart Harvest Gizzard Harvest/Peel	Biological – None				
	Chemical – None				
	Physical – None				
Chilling – Carcass/Necks/Giblets	Biological cross-contamination <i>Salmonella</i>	Yes	Product to product contact. Literature indicates that improperly controlled chilling systems can result in higher prevalence of pathogens in the final product. FSIS performance standard for <i>Salmonella</i> can be met using an antimicrobial intervention at this process step.	Product will be chilled properly to prevent pathogen growth. Chlorine dioxide use can prevent further growth of <i>Salmonella</i> .	3B
	Chemical – None				
	Physical - None				

HAZARD ANALYSIS – YOUNG CHICKEN SLAUGHTER

Process Step	Food Safety 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?	Critical Control Point
Packaging/Labeling	Biological – None				
	Chemical – None				
	Physical – None				
Finished Product Storage (Cold)	Biological – Pathogens	Yes	Pathogens are reasonably likely to grow if temperature is not maintained at or below a level sufficient to preclude their growth.	Maintain product temperature at or below a level sufficient to preclude pathogen growth.	4B
	Chemical – None				
	Physical – None				
Shipping	Biological - None				
	Chemical – None				
	Physical – None				

APPENDIX IV

HACCP PLAN

PROCESS CATEGORY: SLAUGHTER
PRODUCT EXAMPLE: YOUNG CHICKEN

CCP# and Location	Critical Limits	Monitoring Procedures and Frequency	HACCP Records	Verification Procedures and Frequency	Corrective Actions
1P/B Evisceration/ Presentation	Zero visible fecal contamination after processing; equipment kept properly adjusted; no gut breakage due to improper equipment adjustment; range of 20-50 ppm chlorine or other approved antimicrobial rinse on equipment and product.	Visible check (at least once per hour of production); check chlorine or other approved antimicrobial rinse at start up and every 2 hours using documented random sampling procedures to demonstrate control. Designated Quality Assurance employee will record results in appropriate Log. Equipment adjustment will be checked at start of each shift.	Plant Finished Product Standards Form Antimicrobial Log Equipment Maintenance Log Corrective Action Log	Once per shift the QA supervisor will review the Plant Antimicrobial Log and observe chlorine level testing. Twice per shift Maintenance Supervisor will review Equipment Maintenance Log	QA will reject or hold product until zero fecal tolerance is achieved. Equipment will be properly adjusted to assure contamination is not occurring after line is stopped. All suspect product will be visually examined between evisceration and after final wash. Contaminated product will be condemned or reconditioned. Equipment maintenance and adjustments will be reviewed and compared to flock size and manufacturers specs. QA will identify the cause of the deviation and prevent reoccurrence.

Signature: _____

Date: _____

HACCP PLAN

PROCESS CATEGORY: SLAUGHTER
PRODUCT EXAMPLE: YOUNG CHICKEN

CCP# and Location	Critical Limits	Monitoring Procedures and Frequency	HACCP Records	Verification Procedures and Frequency	Corrective Actions
2P/B Reprocessing	Zero visible fecal contamination after re-processing; equipment kept properly adjusted; range of 20-50 ppm chlorine or other approved antimicrobial rinse on equipment and product.	Visible check on each lot (at least once per hour of production); check chlorine or other approved antimicrobial rinse at start up and every 2 hours using documented random sampling procedures to demonstrate control. Designated Quality Assurance employee will record results in appropriate Log.	Reprocessing Log (using Plant Finished Product Standards) Antimicrobial Log Equipment Maintenance Log Corrective Action Log	Once per shift the QA supervisor will review the Reprocessing Log and Antimicrobial Log. Twice per shift Maintenance Supervisor will review Equipment Maintenance Log	QA will reject or hold product until zero fecal tolerance is achieved. Product will be reworked and reinspected by QA for fecal contamination. Any equipment adjustments will be made. Frequency of monitoring will be reassessed and CCP will be monitored once per hour to assure it is under control. QA will identify the cause of the deviation and prevent reoccurrence.

Signature: _____

Date: _____

HACCP PLAN

PROCESS CATEGORY: SLAUGHTER
PRODUCT EXAMPLE: YOUNG CHICKEN

CCP# and Location	Critical Limits	Monitoring Procedures and Frequency	HACCP Records	Verification Procedures and Frequency	Corrective Actions
3B Chilling (All Products)	<p>Temperature of 40° F or less will be reached within 4 hours on all product.</p> <p>Chlorine dioxide level in chiller will be maintained at > 20 ppm.</p>	<p>Product temperature check monitored by QA technician at end of chilling procedure (every hour of production).</p> <p>Chill water will be tested for Chlorine level every 2 hours by QA.</p>	<p>Chilling Log</p> <p>Carcass Chiller Recording Chart</p> <p>Neck/Giblet Chiller Recording Chart</p> <p>Thermometer Calibration Log</p> <p>Corrective Action Log</p> <p>Antimicrobial Log</p>	<p>Once per shift the QA supervisor will review the Chilling Log, Plant Post Chill Product Standards Form, and Antimicrobial Log.</p> <p>Maintenance supervisor will verify accuracy of the carcass chiller and neck/giblet chiller temperature recording charts once per shift.</p> <p>QA will verify the chlorine concentration in the chiller once per week.</p> <p>QA will check all thermometers used for monitoring and verification for accuracy daily and calibrate to within 2° F accuracy as necessary.</p>	<p>QA will reject or hold product dependent on time, temperature and or antimicrobial level deviation.</p> <p>QA will identify the cause of the deviation and prevent reoccurrence.</p> <p>Maintenance will check chiller circulation and water exchange rate and make adjustments as required. Any necessary repairs will be made.</p> <p>QA will monitor temperature and antimicrobial level in chiller every 2 hours until assured that process step is under control.</p>

Signature: _____

Date: _____

HACCP PLAN

PROCESS CATEGORY: SLAUGHTER
PRODUCT EXAMPLE: YOUNG CHICKEN

CCP# and Location	Critical Limits	Monitoring Procedures and Frequency	HACCP Records	Verification Procedures and Frequency	Corrective Actions
4B Finished Product Storage (Cold) (Continued on next page.)	Finished product will not exceed 40° F.	Maintenance personnel will check product temperature on carcasses every two hours.	Chilling Log Thermometer Calibration Log Corrective Action Log	Maintenance supervisor will verify the accuracy of the product temperature log once per shift. QA will check all thermometers used for monitoring and verification activities for accuracy daily and calibrate to within 2° F accuracy as necessary. QA will observe maintenance personnel check finished product storage area once per shift.	If a deviation from a critical limit occurs, the following corrective actions will be taken: 1. The cause of the temperature exceeding 40° F will be identified and eliminated. 2. The CCP will be monitored hourly after the corrective action is taken to ensure that it is under control. 3. When the cause of the deviation is identified, measures will be taken to prevent it from recurring e.g., if the cause is equipment failure, preventive maintenance program will be reviewed and revised, if necessary.

Signature: _____

Date: _____

HACCP PLAN

PROCESS CATEGORY: SLAUGHTER
PRODUCT EXAMPLE: YOUNG CHICKEN

CCP# and Location	Critical Limits	Monitoring Procedures and Frequency	HACCP Records	Verification Procedures and Frequency	Corrective Actions
4B Finished Product Storage (Cold)					4. If product temperature exceeds the critical limit, the processing authority will evaluate the product time/temperature deviation before release for shipment. If time/temperature is not sufficient, product will be cooked in the establishment to ensure destruction of pathogens or condemned.

Signature: _____

Date: _____

GENERIC ESTABLISHMENT X: ROOM TEMPERATURE LOG

ROOM:_____ **DATE:**_____

TIME	TEMP	Deviation from CL? (Check if yes)	If Yes, Action?	Monitored by:	Verified by:

ESTABLISHMENT X: Antimicrobial Intervention Monitoring Log

Date	Lot #	Time	Solution Concentration	Pressure	Corrective Actions	Monitored by:	Verified by:

CORRECTIVE ACTIONS LOG

Product: _____

Lot # _____

CCP	Deviation/ Problem	Corrective Action Procedures/Explain	Disposition of Product	Responsible Person	Date/Time

SIGNATURE: _____

DATE: _____

PRE-SHIPMENT REVIEW LOG

Date: _____

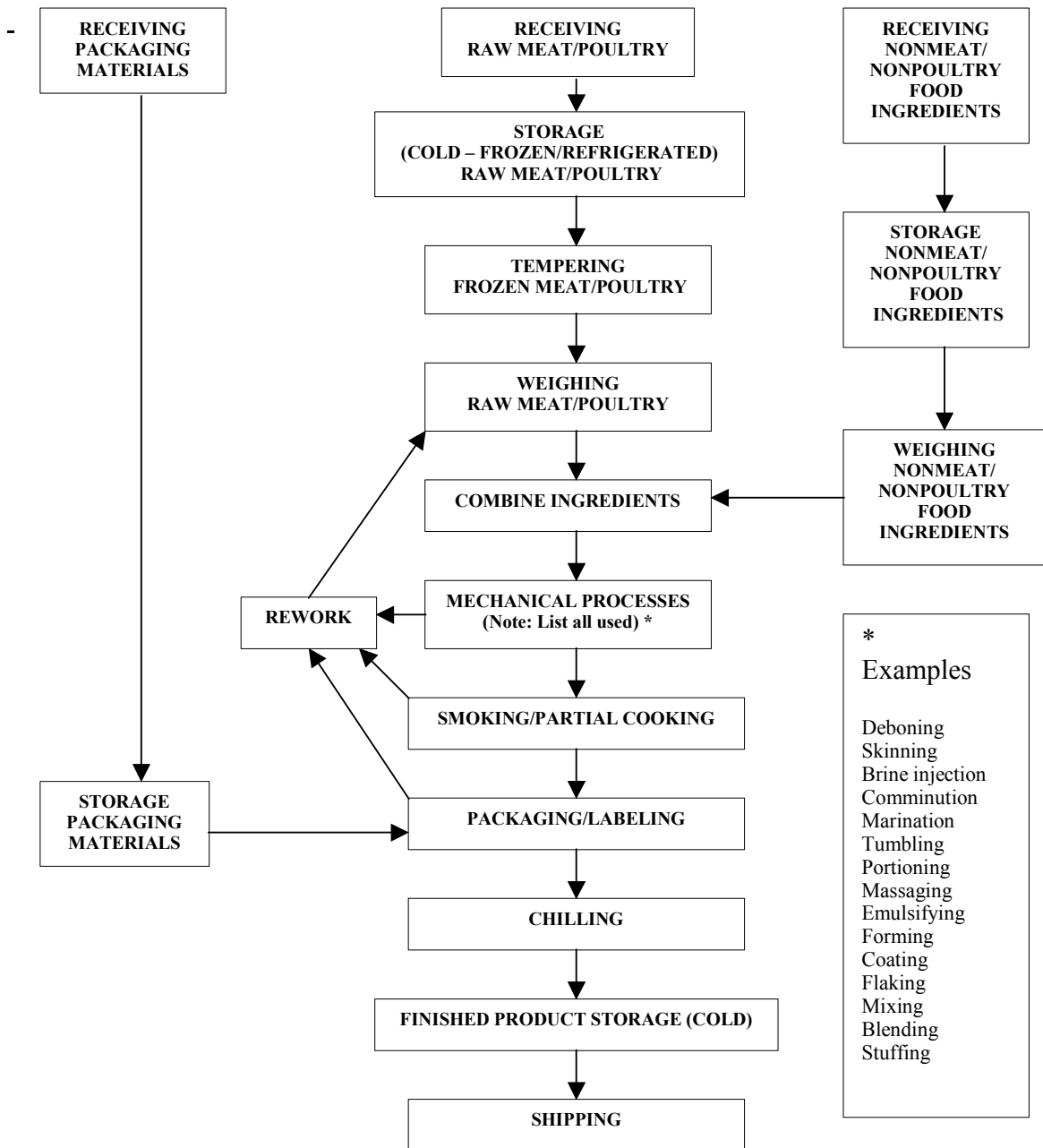
PRODUCT	LOT ID	TIME RECORDS REVIEWED	BY WHOM	LOT RELEASED FOR SHIPMENT? SIGNATURE	COMMENTS *

*Monitoring frequency as per plan; Critical limits met; Certification (if applicable) as per plan; Deviations if occurred were reviewed for appropriate corrective actions; Records complete and accurate.

APPENDIX V

PROCESS FLOW DIAGRAM

PRODUCT: SMOKED SAUSAGE, PARTIALLY COOKED CHICKEN PATTIES



APPENDIX VI

PRODUCT DESCRIPTION

PROCESS CATEGORY: HEAT TREATED BUT NOT FULLY COOKED,
NOT SHELF STABLE

PRODUCT: SMOKED SAUSAGE, PARTIALLY COOKED CHICKEN
PATTIES

1. COMMON NAME? COOKED CHICKEN PATTIES	SMOKED SAUSAGE, PARTIALLY
2. HOW IS IT TO BE USED? FOODS, SALADS	ENTREES, NUGGETS, SNACK
3. TYPE OF PACKAGE? BAG, VACUUM PACKED)	BULK-PACKED (E.G., PLASTIC
4. LENGTH OF SHELF LIFE, AT WHAT TEMPERATURE?	3-6 MONTHS AT 0° F OR BELOW; 7 DAYS AT 40° F
5. WHERE WILL IT BE SOLD? CONSUMERS? INTENDED USE?	WHOLESALE TO DISTRIBUTORS ONLY
6. LABELING INSTRUCTIONS? REFRIGERATED	KEEP FROZEN; KEEP
7. IS SPECIAL DISTRIBUTION CONTROL NEEDED?	KEEP FROZEN; KEEP REFRIGERATED

APPENDIX VII

HAZARD ANALYSIS – HEAT TREATED BUT NOT FULLY COOKED, NOT SHELF STABLE - Smoked Sausage, Partially Cooked Chicken Patties

Process Step	Food Safety 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?	Critical Control Point
Receiving – Raw Meat/Poultry	Biological: Pathogens <i>Salmonella</i> <i>Trichina</i>	Yes	<i>Salmonella</i> may be present on incoming raw product.	Certification from suppliers that product has been sampled for <i>Salmonella</i> meets performance standards	1B
	Chemical – None				
	Physical – Foreign materials such as broken needles, bone/ bone fragments	Yes	Bone/bone fragments (size/shape) that would represent a hazard to consumers have been found in incoming product.	Supplier specification that all product must have been run through a bone detector/bone collector in process or if whole muscle product received use of a bone detector/bone collector in process.	
Receiving – Nonmeat/Nonpoultry Food Ingredients; Packaging Materials	Biological – None				
	Chemical – Not acceptable for intended use	No	Letters of guaranty are received from all suppliers of packaging materials.		
	Physical – Foreign materials (wood, metal, glass, etc.)	No	Plant records demonstrate that foreign material contamination has not occurred during the past several years.		

**HAZARD ANALYSIS – HEAT TREATED BUT NOT FULLY COOKED, NOT SHELF STABLE -
Smoked Sausage, Partially Cooked Chicken Patties**

Process Step	Food Safety 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?	Critical Control Point
Storage – Nonmeat/Nonpoultry Food	Biological – None				
	Chemical – None				
	Physical – None				
Storage (Cold – Frozen/Refrigerated) – Raw Meat/Poultry	Biological <i>Salmonella</i> <i>Listeria monocytogenes</i>	Yes	Pathogens are reasonably likely to grow in this product if temperature is not maintained at or below a level sufficient to preclude their growth and coolers are not maintained to hold temperatures.	Maintain product temperature at or below a level sufficient to preclude or abate pathogen growth.	2B
	Chemical – None				
	Physical – None				
Tempering Frozen Meat/Poultry	Biological – None				
	Chemical – None				
	Physical – None				
Weighing Nonmeat/Nonpoultry Food	Biological – None				
	Chemical – None				
	Physical – None				

**HAZARD ANALYSIS – HEAT TREATED BUT NOT FULLY COOKED, NOT SHELF STABLE -
Smoked Sausage, Partially Cooked Chicken Patties**

Process Step	Food Safety 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?	Critical Control Point
Weighing Raw Meat/Poultry	Biological – None				
	Chemical – None				
	Physical – None				
Combine Ingredients	Biological – None				
	Chemical – None				
	Physical – None				
Mechanical Process * See list on flow chart on page 21	Biological – None				
	Chemical – None				
	Physical – Metal Contamination	Yes	Plant records show that during mechanical processing metal contamination is likely to occur.	Metal detectors are installed prior to packaging.	3P
Smoking/Partial Cooking	Biological – None				
	Chemical – None				
	Physical – None				
Rework	Biological – Pathogens	No	Rework at the end of the day is condemned		
	Chemical – None				
	Physical – None				

**HAZARD ANALYSIS – HEAT TREATED BUT NOT FULLY COOKED, NOT SHELF STABLE -
Smoked Sausage, Partially Cooked Chicken Patties**

Process Step	Food Safety 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?	Critical Control Point
Packaging/Labeling	Biological – Pathogens -parasitic (<i>Trichina</i>)	Yes	<i>Trichina</i> has historically occurred in raw pork products.	Labels that clearly indicate this is a raw product, along with cooking instructions	4B
	Chemical – None				
	Physical – None				
Chilling	Biological - Pathogens	Yes	Pathogens are reasonably likely to grow if improper	Proper chilling procedures are used.	5B
	Chemical – None				
	Physical – None				

**HAZARD ANALYSIS – HEAT TREATED BUT NOT FULLY COOKED, NOT SHELF STABLE -
Smoked Sausage, Partially Cooked Chicken Patties**

Process Step	Food Safety 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?	Critical Control Point
Finished Product Storage (Cold)	Biological – Pathogens	Yes	Pathogens are reasonably likely to grow in this product if temperature is not maintained at or below	Maintain product temperature at or below a level sufficient to preclude pathogen growth.	6B
	Chemical – None				
	Physical – None				
Shipping	Biological – None				
	Chemical – None				
	Physical – None				

APPENDIX VIII

HACCP PLAN

PROCESS CATEGORY: HEAT TREATED BUT NOT FULLY COOKED, NOT SHELF STABLE

PRODUCT EXAMPLE: SMOKED SAUSAGE, PARTIALLY COOKED CHICKEN PATTIES

CCP# and Location	Critical Limits	Monitoring Procedures and Frequency	HACCP Records	Verification Procedures and Frequency	Corrective Actions
1B Receiving – Raw Meat/Poultry	Supplier certification that product has been sampled for <i>Salmonella</i> must accompany shipment.	Receiving personnel will check each shipment for <i>Salmonella</i> certification.	Receiving Log Corrective Action Log	Every two months QA will request FSIS <i>Salmonella</i> data results from company for at least 2 suppliers.	Will not receive product unaccompanied by <i>Salmonella</i> certification. Product found not meeting <i>Salmonella</i> performance standards will not be accepted. If supplier has failed 2 consecutive sets of <i>Salmonella</i> tests, the supplier will not be used until they certify that the results of a sample set meets baseline standard.
2B Storage (Cold– Frozen/ Refrigerated – Raw Meat/Poultry	Raw product storage areas shall not exceed 40° F.	Maintenance personnel will check raw product storage area temperature every two hours.	Room Temperature Log Thermometer Calibration Log Corrective Action Log	Maintenance supervisor will verify accuracy of the Room Temperature Log once per shift and observe temperature checks. QA will check all thermometers used for monitoring and verification for accuracy daily and calibrate to within 2°F accuracy as necessary.	Product internal temperature will be determined. QA will reject or hold product dependent on time/temperature deviation. Volume or manner of storage will be adjusted if determined to contribute to the deviation. Cooling curve or Process Authority will be used to make product disposition determination. QA will identify the cause of the deviation and prevent reoccurrence. Cooler will be repaired & maintenance schedule revised if necessary.

Signature: _____

Date: _____

HACCP PLAN

PROCESS CATEGORY: HEAT TREATED BUT NOT FULLY COOKED, NOT SHELF STABLE
PRODUCT EXAMPLE: SMOKED SAUSAGE, PARTIALLY COOKED CHICKEN PATTIES

CCP# and Location	Critical Limits	Monitoring Procedures and Frequency	HACCP Records	Verification Procedures and Frequency	Corrective Actions
3P Mechanical Processes	No metal particles to exceed 1/32 inches.	Maintenance personnel will check the metal detector with a seeded sample once per shift & determine that kick out device is functioning as intended.	Metal Detection Log Corrective Action Log	Maintenance supervisor will verify metal detector is functioning and perform routine maintenance as required by manufacturer. QA will verify that the metal detector is functioning as intended by observing maintenance test with seeded sample once every other day.	Mechanical separation line supervisor will control and segregate affected product. Maintenance personnel will identify and eliminate the problem with the metal detector. Preventive maintenance program will be implemented and revised as required. QA will run seeded sample through metal detector after repair. All potentially contaminated product will be visually examined & metal removed. Product will be x-rayed prior to rework or shipment.

Signature: _____

Date: _____

HACCP PLAN

PROCESS CATEGORY: HEAT TREATED BUT NOT FULLY COOKED, NOT SHELF STABLE
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CCP# and Location	Critical Limits	Monitoring Procedures and Frequency	HACCP Records	Verification Procedures and Frequency	Corrective Actions
4B Packaging/ Labeling <i>(Trichina)</i>	Product must clearly be labeled as raw or partially cooked and requiring cooking. Cooking instructions must be on the package. Safe food handling statement must be part of the label.	Packaging line supervisor will select 2 packages of each type of product produced at the start & finish of each lot and ensure labeling requirements are met.	Labeling Log Corrective Action Log	QA will observe packaging line supervisor perform monitoring activity once per shift. QA will select 3 labels intended for use from label storage area twice weekly to ensure label accuracy. QA will check labels once a day on packaged product to ensure label accuracy on packaged product.	QA will segregate and hold all affected product. QA will ensure that proper labeling is applied to all affected product prior to shipment. Labeling equipment will be adjusted if required. Label manufacturer will provide certification that all required features are printed properly. Incoming labels will be examined to assure they are correct.

Signature: _____

Date: _____

HACCP PLAN

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CCP# and Location	Critical Limits	Monitoring Procedures and Frequency	HACCP Records	Verification Procedures and Frequency	Corrective Actions
5B Chilling	Internal product temperature < 70°F within 3 hours and will reach < 41°F within an additional 6 hours after reaching < 70 °F (Total chilling time of 9 hours).	QA technician will observe chilling handling procedures to ensure critical limits are met. Product coolers will be monitored and recorded continuously on temperature recording charts. QA technician will randomly select 5 samples of each type of product at 3 and 9 hours from start of chilling and determine internal temperature.	Product Chilling Log Product Coolers Temperature Recording Charts Thermometer Calibration Log Corrective Action Log	Once per shift the QA supervisor will review the Product Chilling Log and observe temperature monitoring activity. Maintenance supervisor will verify accuracy of the product cooler temperature recording charts once per shift. QA will check all thermometers used for monitoring and verification for accuracy daily and calibrate to within 2°F accuracy as necessary.	QA will reject or hold product dependent on time and temperature deviation. Internal product time/temperature curve will be determined & used to make product disposition. Product will be condemned or fully cooked. QA will identify the cause of the deviation and prevent reoccurrence. Cooler will be repaired if required & maintenance schedule revised if required.

Signature: _____

Date: _____

HACCP PLAN

PROCESS CATEGORY: HEAT TREATED BUT NOT FULLY COOKED, NOT SHELF STABLE
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CCP# and Location	Critical Limits	Monitoring Procedures and Frequency	HACCP Records	Verification Procedures and Frequency	Corrective Actions
6B Finished Product Storage (Cold) (Continued on next page)	Finished product storage areas will not exceed 40° F.	Maintenance personnel will check finished product storage areas temperatures every two hours.	Room Temperature Log Thermometer Calibration Log Corrective Action Log	Maintenance supervisor will verify the accuracy of the room temperature log once per shift. QA will check all thermometers used for monitoring and verification activities for accuracy daily and calibrate to within 2° F accuracy as necessary. QA will observe maintenance personnel check finished product storage area once per shift.	If a deviation from a critical limit occurs, the following corrective actions will be taken: 4. The cause of the temperature exceeding 40° F will be identified and eliminated. 5. The CCP will be monitored hourly after the corrective action is taken to ensure that it is under control. 6. When the cause of the deviation is identified, measures will be taken to prevent it from recurring e.g., if the cause is equipment failure, preventive maintenance program will be reviewed and revised, if necessary.

Signature: _____

Date: _____

HACCP PLAN

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CCP# and Location	Critical Limits	Monitoring Procedures and Frequency	HACCP Records	Verification Procedures and Frequency	Corrective Actions
6B Finished Product Storage (Cold)					<p>If a deviation from a critical limit occurs, the following corrective actions will be taken:</p> <p>7. If room temperature exceeds the critical limit, the processing authority will evaluate the product temperature to ensure the temperature is sufficient to preclude pathogen growth before release for shipment. If temperature is not sufficient to preclude pathogen growth, product will be cooked in the establishment to ensure destruction of pathogens or condemned.</p>

Signature: _____

Date: _____

FORM LETTER Confirming *Salmonella* Compliance with Performance Standards

Date

To: Plant XYZ

This is to confirm results of any *Salmonella* performance standard sample sets completed during the past six months from your establishment listed below.

Thank you.

Product	Date Results Received	Test Results	Two Consecutive Failed Tests

THERMOMETER CALIBRATION LOG
 Calibrate to 32⁰ F while thermometer is in slush ice water

Date	Time	Department or Area	Thermometer ID#	Personal Thermometer Reading	Adjustment Required (Yes or No)	Initials	Comments

1. If a thermometer is broken or taken out of service, document this in the comment column.

Reviewed by: _____

Date: _____

GENERIC ESTABLISHMENT X: ROOM TEMPERATURE LOG

ROOM: _____ **DATE:** _____

TIME	TEMP	Deviation from CL? (Check if yes)	If Yes, Action?	Monitored by:	Verified by:

GENERIC ESTABLISHMENT X: METAL DETECTION LOG

Date	Product	Lot #	Results	Seeded Sample	Time	Monitored By	Verified By

CORRECTIVE ACTIONS LOG

Product: _____

Lot # _____

CCP	Deviation/ Problem	Corrective Action Procedures/Explain	Disposition of Product	Responsible Person	Date/Time

SIGNATURE: _____

DATE: _____

PRE-SHIPMENT REVIEW LOG

Date: _____

PRODUCT	LOT ID	TIME RECORDS REVIEWED	BY WHOM	LOT RELEASED FOR SHIPMENT? SIGNATURE	COMMENTS *

*Monitoring frequency as per plan; Critical limits met; Certification (if applicable) as per plan; Deviations if occurred were reviewed for appropriate corrective actions; Records complete and accurate.