Inspection Methods

Student Study Guide

1 of 2

Only this printed Student Study Guide may be used during the test. Handwritten notes and highlights are allowed on the provided pages.

No additional pages, sticky notes, tabs, paper clips, or anything else added to the study guide is allowed.

Revised October 2022
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Welcome to the Inspection Methods Training Course!

Class hours: Class hours are from 9:00am to 6:00pm Eastern Time (ET) (adjust for local time zone), lunch break (1 hour) at approximately 1:00pm to 2:00pm ET.

Technical Support: Send chat message using the webinar chat to “All Panelists,” call 1-833-ASK-OEED (1-833-275-6333) during class hours, or email CFLHelpDesk@usda.gov.

Connect to the class webinar and login each day using the daily webinar link and access code. We recommend that you connect to the audio portion of the webinar using your computer audio, but you also have the option to connect by phone. You may connect to the webinar up to 15 minutes prior to the start of class.

You may ask questions by typing them into the chat panel to “All Panelists” or ask verbally by clicking on the raise hand button and you will receive a message to unmute your audio.

Ground rules: Start and end the class on time, listen carefully, turn off/mute personal cell phones, stay on topic, respect others, be receptive to new ideas, observe local health and safety precautions, and have fun.

Attendance: Your attendance and being punctual (be on time) is expected daily for the entire class. Attendance will be taken several times daily using the Webex Webinar polling feature—please mark in the poll that you are present. Please send a chat message to the instructors if you have approved leave and include the hours you will be away from the class. If you do not respond to the poll or chat messages, the instructors may contact your District or State program to inquire why you are not present in the class.

Post-test: The post-test is administered electronically. There are 54 multiple-choice questions to complete within 75 minutes. Passing score is 70%.

- The Agency has a zero-tolerance cheating policy.
- This class is Training as a Condition of Employment (TCOE) for CSI positions (see Directive 4338.1 for details).
- Test will be proctored on-site at the testing location.
- Online test is taken using the training laptop provided to you or using your Government laptop.
- No electronic devices are allowed to be used or present in the testing area (computers except the one for the testing), laptops, tablets, cell phones, smart phones, smartwatch, readers, music devices, cameras, etc.).
- No other programs can be used or open on the laptop while taking the test.
- Only the provided printed Student Study Guide version may be used during the test. Handwritten notes and highlights are allowed on the provided pages.
- No additional pages, sticky notes, tabs, paper clips, or anything else added to the study guide is allowed.
- No paper, pens, pencils, or writing devices are allowed in the testing area.
- No talking or interacting with other participants is permitted during testing.
- Your test result will be reported to you by your District Office or State program as a pass/fail result, they will receive notification of the results within 3 business days after the test date.
**Course Registration:** On the first day of class, the instructor will guide you to the link to complete the online registration form.

**Course Evaluation:** On the last day of class, the instructor will guide you to the link to complete the class evaluation form.

**FSIS Training Site:** Your username and password will be provided to you by your District Office or State program. Connect to the training website daily to access the class information, slides, notes, workshops, and other references at [https://fsistraining.fsis.usda.gov/](https://fsistraining.fsis.usda.gov/). Select the IM 18XX session course and the IM Resource course to open/view.

**Online Testing Site:** Your username and password will be provided to you by your District Office or State program. You will use this link to access the IM Practice Quizzes and the final test at: [https://usgov.questionmark.com/home/200010/assessments/classic](https://usgov.questionmark.com/home/200010/assessments/classic).

**IM Electronic Notebook:** Each course module has a set of detailed notes. On the first day of class, the instructor will guide you on how to download the electronic notebook files (located in IM Resources) to your computer at: [https://fsistraining.fsis.usda.gov/mod/folder/view.php?id=522](https://fsistraining.fsis.usda.gov/mod/folder/view.php?id=522). These same files are also posted on the FSIS website under Inspection Methods Course Materials at: [https://www.fsis.usda.gov/inspection/inspection-training-videos/inspection-mission-training](https://www.fsis.usda.gov/inspection/inspection-training-videos/inspection-mission-training). These electronic notebook files are more detailed than what is available in this condensed study guide. They provide more information, examples, and references and should be reviewed as part of your training.

**Online Learning Tips:**
- Understand online learning practices and expectations
- Eliminate distractions
- Create a regular study space, stay organized
- Actively participate, join discussions, ask questions
- Stay motivated, keep yourself accountable
- Treat this online course like a “real” course
- Identify learning objectives, build a study plan, set goals
- Ask for help when you need it
- Take study breaks

**Daily Agenda Outline:**

<table>
<thead>
<tr>
<th>Time (Eastern Time)</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00am - 9:30am</td>
<td>Morning briefing</td>
</tr>
<tr>
<td>9:30am - 1:00pm</td>
<td>Class instruction</td>
</tr>
<tr>
<td>1:00pm - 2:00pm</td>
<td>Lunch break</td>
</tr>
<tr>
<td>2:00pm - 2:30pm</td>
<td>Afternoon briefing</td>
</tr>
<tr>
<td>2:30pm - 5:30pm</td>
<td>Class instruction</td>
</tr>
<tr>
<td>5:30pm - 6:00pm</td>
<td>Evening briefing</td>
</tr>
</tbody>
</table>
02 Statutes (Acts)

Objectives
1. Identify and define where FSIS derives its authority

2. Relate subject matter in the Federal Meat Inspection Act (FMIA), Egg Products Inspection Act (EPIA), and the Poultry Products Inspection Act (PPIA) to food safety.

3. Describe how the FMIA, EPIA, and PPIA legally support the Sanitation Performance Standards (SPS), Standard Sanitation Operating Procedures (SSOP), and Hazard Analysis Critical Control Points (HACCP) regulations.

4. Explain the relationship between the Statutes, Regulations, Directives, and Notices.

FSIS Legal Authority: FSIS has the legal authority to regulate meat, poultry, and egg products. FSIS authority comes from and is based on the Federal Meat Inspection Act (FMIA), Poultry Products Inspection Act (PPIA), and Egg Products Inspection Act (EPIA), which were enacted by Congress. These are known as "Statutes" or "Acts."

Adulterated Product: Product that contains any poisonous or deleterious (harmful or deadly) substance which may render it injurious (harmful) to health. The following are some examples:

- If the product contains any pesticide chemical, food additive, color additive that are prohibited entirely or by amount or determined unsafe by regulation.
- If the product consists in whole or in part of any filthy, putrid, or decomposed substance.
- If the product has been prepared, packed, or held under insanitary (dirty or unclean) conditions.
- If the product from an animal which has died otherwise than by slaughter (for example: died from an illness, accident, poisoned, etc...).
- If the product’s container is composed, in whole or in part, of any poisonous or deleterious (harmful) substance which may render the contents injurious to health.
- If the product has been intentionally subjected to radiation unless the use of the radiation was in conformity with a regulation.
- If any valuable constituent of the product has been in whole or in part omitted or abstracted therefrom.
Sanitation – The development and application of sanitary measures for the sake of cleanliness and protecting health. To ensure that products are handled and held in a sanitary manner, establishments must follow the Hazard Analysis and Critical Control Point (HACCP) regulations. The HACCP regulations require establishments to identify the hazards to health that may arise as a result of their operation and to address those hazards.

Regulations – The documents that clarify the statutes are called regulations. Most of your work will be guided by the regulations. Citations from regulations are used when completing a Noncompliance Record (NR). Chapter III of Title 9 Code of Federal Regulations (CFR) lists the regulations for FSIS and covers Parts 300-592. Sanitation and HACCP are Parts 416 and 417, respectively.

Directives – Directives contain instructions to inspection personnel about how to implement and enforce the rules. Directives provide information about inspection methods, regulatory decision-making, documentation of noncompliance, and appropriate enforcement actions. Directives have no expiration date. Inspection personnel are to follow the information contained in the Directives until they are rescinded or replaced. Directives are numbered by topic area—for example, series 7000 deals with processing information.

Notices - Notices are instructions to FSIS inspection personnel to address a particular problem that has arisen. The need for Notices is often identified by the number of questions about a specific topic from the field. Notices specify an expiration date (usually 1 year). Notices are numbered sequentially based on the fiscal year in which they are issued.

Acts → Regulations → Directives → Notices → Performance

References:

Food Safety Acts:

Title 9 Code of Federal Regulations, Chapter III, Parts 300-599:
https://www.ecfr.gov/current/title-9/chapter-III

FSIS Directives and Notices:
03 Rules of Practice

Objectives

1. Define key terms.
2. Identify circumstances where prior notice of enforcement action is not required.
3. Identify circumstances where prior notice of enforcement action is required.
4. Describe the appeals process.

The Rules of Practice were published so that establishments will know the types of enforcement actions FSIS takes, and the processes FSIS uses to accomplish those actions. 9 CFR 500 are FSIS’s enforcement regulations.

Compliance means that the establishment’s processes are working properly in accordance with the laws and regulations.

Inspection includes all actions the Agency may take to examine the establishment and its processes, products, and systems.

Enforcement actions are those the Agency takes when an inspector determines that the establishment’s plans and systems are not in compliance with laws and regulations.

Due process rights mean that a fair “process” or proceeding must take place before the government interferes with an individual’s property or actions. This process might include notifications, hearings, or other activities. By following the Rules of Practice regulations, 9 CFR 500, FSIS assures that appropriate due process is afforded.

Types of Enforcement Actions

Regulatory Control Action (RCA) – Any action that inspection personnel take to control product or processes. It is commonly used by in-plant inspection personnel. An example of a regulatory control action is the application of the FSIS reject/retain tag to a piece of equipment that contains residue from the previous day’s production, found during pre-op inspection. The inspection personnel that is taking the action must immediately notify the establishment management. This can be done orally or in writing. The written notification will be a
noncompliance record (NR). The NR documents the noncompliance, and the description should include any FSIS reject/retain tag numbers issued.

**Withholding actions** – Withhold (to refrain from granting, giving, or allowing) the marks of inspection. Such actions may be taken against product produced by a particular process or all products in the establishment. The decision to take an immediate withholding action can be made by whomever is in charge for FSIS at the establishment (for example, the IIC or designee), the Frontline Supervisor (FLS), or the District Office (DO). A withholding action can be taken with or without prior notification of the establishment.

**Suspension** – Refers to the interruption in the assignment of inspection personnel to the establishment. A suspension of inspection also has a severe impact on an establishment. Because a federally inspected establishment cannot legally apply marks of inspection to product without an assigned inspector, this action stops all production. It can be applied to the entire establishment, or only to a specific production process. Suspension actions can be taken with or without prior notification being given to the establishment and can only be taken at the district office level or higher (District Manager or higher).

**Withholding Action or Suspension without Prior Notification** – FSIS may take withholding or suspension actions without giving the establishment prior notification if a situation involves an **imminent threat to public health**. Withholding the marks of inspection and suspending inspection services are significant enforcement actions. If FSIS takes a withholding action or imposes a suspension without providing prior notification, the establishment must be notified orally and then, as promptly (quickly) as the circumstances permit, in writing. The decision to take a withholding action can be made by the IIC or designee, the Frontline Supervisor, or the DO, whereas the decision to suspend is made only at the DO level or higher. The following are situations that FSIS may take a withholding action or impose a suspension without providing the establishment prior notification (FSIS regulation 500.3):

- The establishment produced and shipped adulterated or misbranded product.
- The establishment does not have a HACCP plan.
- The establishment does not have Sanitation Standard Operating Procedures.
- Sanitary conditions are such that products in the establishment are or would be rendered (declared) adulterated.
Withholding Action or Suspension with Prior Notification – If a withholding or suspension action is based on any reason other than those listed in the 500.3 regulation, FSIS must provide the establishment written notice before taking the action. This notice is called the Notice of Intended Enforcement (NOIE). Often these enforcement actions are based on repetitive noncompliance, such as systemic problems with the SSOP or HACCP systems. The following are situations that FSIS may take a withholding action or impose a suspension with prior notification (FSIS regulation 500.4):

- The HACCP system is inadequate, as specified in FSIS regulation 417.6, due to multiple or recurring noncompliances.
- The Sanitation Standard Operating Procedures have not been properly implemented or maintained as specified in FSIS regulations 416.13 through 416.16.
- The establishment has not maintained sanitary conditions as prescribed in FSIS regulations 416.2 through 416.6 due to multiple or recurring noncompliances.
- The establishment did not collect and analyze samples for *Escherichia coli* Biotype I and record results in accordance with FSIS regulations.

Notice of Intended Enforcement (NOIE)

- An NOIE is issued for noncompliances that do not pose an imminent (immediate) threat to public health, but that may warrant a withholding or suspension if not corrected.
- The NOIE will be issued to the establishment by the District Manager (DM).
- The NOIE provides the establishment an opportunity to propose immediate corrective actions and further planned preventive actions.
- The NOIE notifies the establishment that it has three business days to respond.
- The DM evaluates the establishment’s response to an NOIE and decides whether to accept the establishment’s plan, to implement the appropriate enforcement action, or to defer the decision (defer means delay the enforcement action to allow the establishment time to implement their proposed corrective actions plan).

Suspension held in Abeyance – (Abeyance - a state of temporary inactivity: SUSPENSION) Means that the establishment was under suspension, and the suspension is temporarily lifted, allowing the establishment to operate under mutually agreed upon conditions.
Verification Plans – When the DM decides to defer enforcement following the issuance of a NOIE, or to hold a suspension in abeyance, the Enforcement, Investigations, and Analysis Officer (EIAO) will develop a verification plan. The verification plan (VP) provides a systematic means for inspection program personnel (IPP) to verify that an establishment is effectively implementing the corrective measures that were proposed by the establishment. Note: In this document, the term IPP refers to Consumer Safety Inspectors and Public Health Veterinarians.

Appeal Process

- An appeal (request) is part of an establishment’s due process (Due process - a judicial requirement that enacted laws may not contain provisions that result in the unfair, arbitrary, or unreasonable treatment of an individual).
- Any NR or enforcement action may be appealed.
- The appeal process follows the Office of Field Operations (OFO) chain of command.
- The OFO chain of command starts with the Program employee who made the finding—for example, the Consumer Safety Inspector (CSI) or the Public Health Veterinarian (PHV).
- Next in the chain of command is the Inspector-in-Charge (IIC), possibly a supervisory PHV or Mini-Circuit Supervisor; then, Frontline Supervisor (FLS); then, District Manager (DM); then, Executive Associate for Regulatory Operations (EARO); then, OFO Assistant Administrator; then FSIS Administrator.
- Although FSIS does not enforce any time limit for appeals, FSIS recommends that the establishment appeal promptly.

Withdrawal of Inspection – Withdrawal (or taking away) of the grant of inspection is the most severe enforcement action that can be taken against an official establishment. Withdrawal terminates the grant of inspection. Once that happens, no portion of the establishment may operate as a FSIS federally inspected establishment. The final decision to withdraw the grant of inspection is made at the Administrator’s level.
04 Regulatory Process Overview

Objective:

1. Identify the four components of the regulatory process.

An establishment’s food safety system consists of several different parts, including the HACCP plan, a Sanitation SOP, and other programs, like sanitary dressing procedures. These programs ensure that the product the establishment produces is wholesome and not adulterated. Inspection Program Personnel (IPP) allow products to be labeled with the marks of inspection when they have verified the regulatory requirements and determine no product was adulterated.

The diagram on the next page shows the Regulatory Process. This diagram is used to illustrate the HACCP-based inspection process used by FSIS inspectors. It includes the following four components:

- **Inspection Methodology**
  - Performing inspection tasks
  - Verifying specific regulatory requirements

- **Decision-making**
  - Gathering (collecting) information, making observations, reviewing documentation, assessing the gathered information and arriving at a supportable compliance or noncompliance determination

- **Documentation**
  - Entering the results of inspection tasks in the Public Health Information System (PHIS)
  - Documenting noncompliance on a Noncompliance Record (NR)

- **Enforcement**
  - Following the Rules of Practice (ROP)
  - Providing the establishment with due process
Objectives:

1. Define what a System is and give examples
2. List two basic components of a food safety system and describe their relationship to each other
3. Describe “systems thinking” and its application to food safety systems and assessing inspection findings

System Definition

(Dictionary.com) – An assemblage or combination of things or parts forming a complex or unitary whole: a mountain system; a railroad system.

Note: Often systems exist within systems. Example: railroad system within the transportation system (composed of the engine/wagons/rails/employees/train stations/etc… all of those together make the railroad system).

(FSIS definition) – A coordinated body of methods or a scheme or plan of procedure

Note: This includes the HACCP plan in operation, which is made up of a Hazard analysis, HACCP plan, HACCP records, and supporting documentation (i.e., prerequisite programs). The food safety system also includes Sanitation Performance Standards, Sanitation Standard Operating Procedures, Good Manufacturing Practices, and any other prerequisite programs.

Food Safety System

Purpose: To produce safe food

Evidence of Failure: Deficiencies/noncompliances that evidence increased risk of producing unsafe food, reoccurring deficiencies or trends, the production of unsafe food, or foodborne illness/injury

Causes:
Design Deficiencies
• Hazards (dangers) or preventive measures not identified;
• Programs/plans are not supported and effective;
• Programs/plans not maintained/reassessed (not re-evaluated routinely, after failures, or upon changes).
Execution Deficiencies
• Poor execution of programs/plans—for example, not performing activities necessary to ensure product/process control, not maintaining records to demonstrate implementation and effectiveness of programs/plans, not taking appropriate follow-up actions to address deficiencies in execution of programs/plans, or not verifying that the programs/plans are being implemented.
**Consequences:**
- Lack/loss of control, but no resultant food safety hazard
- Isolated event (lower risk) vs. recurring events (higher risk)
- Lack/loss of control resulting in an unsafe food
- May impact another processor’s system
- Catastrophic lack/loss of control with food safety hazard AND illness/death

**Examples of Possible Failures of a Food Safety System:**
- The temperature of the oven is too low
- The product is not left in the oven long enough
- The product is too thick causing the heat not to reach the center of the meat

**Note:** The consequences of these failures would be that the meat product was not cooked to the appropriate temperature, which allowed microorganisms to grow in the product, causing illness, injury or death

**Hazard Analysis**

**Purpose:** To identify any food safety hazards that are reasonably likely to occur and identify preventative measures to control those hazards

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

**Reasonably Likely to Occur:** A hazard 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.

**Prerequisite Programs**

“Prerequisite” means required beforehand, precondition. The World Health Organization defines **prerequisite programs** as practices and conditions needed prior to and during the implementation of HACCP and which are essential for food safety. Prerequisite programs provide a foundation for an effective HACCP system. They are often facility-wide programs rather than process or product specific. They may reduce the likelihood of certain hazards. The purpose of prerequisite programs is to reduce the likelihood of certain hazards occurring in the food safety system.

**Prerequisite Program Examples**
- Cleaning and sanitation
- Pest control
- Facilities & grounds
- Air system/Ventilation
- Water quality
- Chemical control
- Production equipment
- Cross contamination prevention
- Allergen control
- Personal hygiene

- Training
- Supplier control
- Specifications
- Receiving, storage, shipping
- Traceability/Recall
- GMPs
Food Safety System Basic Components

**HACCP Plan:**
- Controls food safety hazards that are reasonably likely to occur
- Product and process specific

**Prerequisite Programs:**
- Measures, procedures, and programs that provide a foundation for the HACCP system
- Facility-wide
- May support determinations that a food safety hazard is not reasonably likely to occur

**Systems Thinking Concepts**

A system is:

- Composed of many interdependent parts that must work together to achieve a common goal (Remember the train system example covered before)
- Subject to external disturbances
- Dynamic - conditions change
- Conditions may include normal variation or represent loss of control
- Each system is unique

A holistic system is any set (group) of interdependent parts. The parts generally are systems themselves.

Understand the parts in **relation** to the whole (linkages).
Understand how things **influence** one another within a whole (interactions).
Understand the parts of a system in the context of relationships with each other and other systems, **rather than in isolation.**

**Purpose, Linkage (connection of one to the other), and Interaction**

Throughout or during this course, you should seek to understand how the components of the food safety system relate to each other and how changes or deficiencies in one part of the system may affect the adequacy of other parts of the system. Always consider your findings in the context of the food safety system. What do they indicate about the adequacy of the food safety system? To conduct a proper assessment, you will often need to gather or collect additional information. Consider whether the system is working or not working. Has adulterated product been produced and shipped? Are there recurring issues/trends indicating the food safety system is not working? Are there findings that when considered collectively indicate the system isn't working? Considering the “Big Picture” is crucial to protecting public health.
06 Food Microbiology and Specified Risk Materials (SRM)

Purpose:
This section will focus on helping inspectors develop an understanding of microorganisms that can grow and multiply in meat and poultry products. Understanding food microbes and the effects of microbial contamination is very important to food safety in slaughter and processing establishments and the environmental conditions in which products are produced in the establishments. This section will also cover specified risk materials (SRM) in cattle.

Objectives
1. Identify the 4 types of microbes
2. List important pathogens of concern
3. Describe the typical bacterial growth patterns and factors affecting bacterial growth
4. Describe sources of microbes in the establishment
5. Explain basic methods of controlling microbial contamination in meat and poultry establishments
6. Identify specified risk materials in cattle

What is microbiology?
Microbiology is a specialized area of biology dealing with organisms too small to be seen without sufficient magnification. Microbiologists study bacteria, fungi, parasites, and viruses, including their interactions with humans, animals, plants, and the environment.

Food microbiology is specifically concerned with the desirable and undesirable effects microbes can have on the quality and safety of food product. For example:
- **Pathogenic** microbes cause illness or disease.
- **Spoilage** microbes cause food products to smell, taste or look weird, but may not have an effect on the safety of the product.
- **Fermentation** microbes help produce a safe food product.

What are the 4 types of microbes?

**Bacteria** are small, single-celled organisms that occur in almost any natural environment. Common bacteria are too small to be seen individually without the aid of a microscope. Bacteria can multiply to form groups or colonies on a food source. After a sufficient number of replication cycles, a colony of bacteria can be seen with the naked eye on a petri plate. Viewed under a microscope, different kinds of bacteria will have different shapes or forms.
**Parasites** are living organisms that derive nourishment and protection from other living organisms, called hosts. These organisms live and reproduce within the tissues and organs of infected human and animal hosts. There are different types of parasites, and they range in size from single-celled protozoa to multi-cellular worms. They may be transmitted from host to host through consumption of contaminated food and water. Several parasites have emerged as significant causes of foodborne and waterborne illness.

**Fungi** consist of two major groups of microbes: molds and yeasts. Molds are multi-cellular organisms. Yeasts are single-celled organisms. Molds and yeasts tend to be significantly larger than bacteria. Both molds and yeasts are widely distributed in nature, both in the soil and in dust carried by air. Molds have a branching filamentous structure, and can develop into colonies visible as a colorful, furry or downy coating on food or surfaces. They reproduce by producing small spores, which are not related to bacterial spores (which will be discussed later). Mold spores can be picked up and spread by air currents. If mold spores settle on suitable surfaces, they will begin to germinate and produce new mold growth. Yeasts are usually egg-shaped and tend to be smaller than molds. Like molds, yeasts can be spread via air currents. They reproduce by a process known as budding. Visible colonies of yeast are generally slimy in appearance and creamy white in color.

**Viruses** are much smaller than bacteria. They are too small to be seen with a standard light microscope. An electron microscope is necessary to see viruses. A virus must invade a living host cell in order to replicate. Once inside the host cell, the viral genetic material directs the host cell’s “machinery” to make more virus particles, which interferes with normal host cell function and may result in destruction of the host cell.

**What are some common foodborne bacterial pathogens?**

Some common foodborne bacterial pathogens are *Salmonella* spp., *Clostridium perfringens, Campylobacter* spp., *Bacillus cereus, Listeria monocytogenes, Staphylococcus aureus, Clostridium botulinum, E. coli* O157:H7 and non-O157 Shiga toxin-producing *E. coli* (O26, O45,O103, O111, O121, and O145).
What is a spore? A spore is “a primitive, usually unicellular, often environmentally resistant dormant or reproductive body produced by plants, fungi, and some microorganisms and capable of development into a new individual either directly or after fusion with another spore” (from the online Merriam-Webster dictionary).

Spore formation in bacteria is a method of surviving in unfavorable conditions. The spore-forming bacteria can resist adverse conditions such as high or low temperatures, and extreme environmental conditions, including cleaning and sanitizing solutions. Examples: *Clostridium botulinum, Clostridium perfringens*. Bacterial spores are unable to reproduce; however, once conditions again become favorable for growth the spores reactivate and become vegetative (reproducing) cells again.

How do bacteria grow?

We will focus primarily on bacterial growth. If favorable environmental conditions exist, bacterial growth occurs. (We will use the term “growth” to refer to an increase in microbe numbers, not an increase in size of an organism). Bacteria reproduce by dividing, a process called binary fission. When a bacterial cell is ready to divide, the material within it gradually increases until the cell’s volume is almost doubled. The cell constricts in the middle. This constriction deepens until the cell contents are held in two distinct compartments separated by a wall. These two compartments finally separate to form two new cells, which are duplicates of the former cell and each other.

The first phase of growth is called the **lag phase**. The lag phase occurs when a bacterial population first enters a nutrient rich environment. The rate of growth is very slow because the bacterial cells are adjusting to their new environment. In a nutrient-rich environment, such as on a meat or poultry product, the lag phase is generally short; however, the length of the lag phase is the most variable of the four phases. Depending on environmental conditions and characteristics of the particular bacterial species, the bacterial cells begin to rapidly multiply. This phase is called the **log phase** because growth occurs exponentially. Bacterial growth can occur at an exponential rate, i.e., 1 cell becomes 2 cells, the 2 cells become 4, then 8, then 16, then 32, then 64, etc. With each successive replication, the total number of cells doubles. The time it takes for the population of bacteria to double is referred to as doubling time or generation time. This doubling time can vary among species of bacteria, but
for most is between 10 to 30 minutes under optimal conditions for growth. **Exponential Growth**

**Example:** Let’s assume a particular species of bacteria doubles every 30 minutes. After one hour, a single bacterium of that species becomes four. At the end of two hours, there will be 16 bacteria. After 15 hours, there will be 1,000,000,000 (one billion) cells.

The third phase is the **stationary phase**. In this phase the rate of bacterial growth is the same as the rate of bacterial death because the population of bacteria has reached its maximum due to limitations in the availability of nutrients and an increase in bacterial waste products.

The fourth phase is the **death phase**. In this phase, more bacterial cells are dying than those that are dividing. There is a net loss in the number of viable bacterial cells in the environment. This is the result of increasingly hostile environmental conditions associated with decreasing availability of nutrients and increasing waste products.

**What factors affect bacterial growth?**

Like all other living organisms, bacteria require favorable environment to live and grow. There are six basic environmental factors that impact bacterial growth. An easy way to remember these conditions is to use the memory device **FAT TOM**.

- **Food** – The word “food” refers to nutrients available to the microbes, which could be a human food product, product residue on equipment, or organic debris in some non-product contact growth niche. A suitable supply of nutrients is the most important condition affecting growth of bacteria.

- **Acidity** – Most microbes thrive when the pH is near neutral or slightly acidic, but there are exceptions. Most bacteria will not grow at pH levels below 4.6 because the environment is too acidic. Many molds and yeasts can grow at a lower pH than do bacteria. The pH of fresh meat ranges between 5.3 and 6.4 (i.e., high pH or low-acid). Meat with a pH in the 6.0 to 6.4 range spoils faster than meat in the lower pH range of 5.3 to 5.7, because spoilage microbes are more active in the pH range of 6.0 to 6.4.

- **Temperature** – All bacteria, molds, and yeasts have an optimum, maximum, and minimum temperature for growth. Environmental temperature not only impacts the rate of growth of
microbes but can determine which microbial species thrive. At temperatures above 140°F most microbes begin to die, although the time needed for cell destruction at a particular temperature will vary for different species of microbes and may depend on other environmental factors such as humidity. In food processing, the temperature range of 41 - 140°F is commonly referred to as the danger zone, because the optimum, maximum, and minimum temperature for growth of most microbes will fall somewhere within that range. Depending on other factors, the rate of growth of many pathogens may be extremely slow in the 40 to 50°F temperature range.

**Time** – Permitting sufficient time for microbes to adapt to their environment (lag phase) is necessary before they can enter the rapid growth phase (log phase). The doubling time for most bacterial species is between 10 and 30 minutes under optimal conditions for growth. Bacteria will grow much more slowly in meat and poultry products, especially if those products are properly handled and stored.

**Oxygen** – Oxygen availability can determine which microbes will be active. Microbes that have an absolute requirement for oxygen are called obligate aerobes. Those that require the total absence of oxygen are called obligate anaerobes. Some microbes are called facultative anaerobes, because they can grow in the presence or absence of oxygen. Molds require oxygen for growth. Yeasts grow best under aerobic conditions, but some can grow slowly under anaerobic conditions. Bacteria that cause food spoilage tend to be aerobes, but those that cause foodborne illness are typically anaerobes or facultative anaerobes.

**Moisture** – The availability of water in a food (referred to as water activity, or $a_w$) is an important factor for microbial growth. Nutrients for microbial growth must be in a soluble form for microbes to utilize them. Generally, bacteria have the highest $a_w$ requirements, molds have the lowest, and yeasts are intermediate. It is important to note that $a_w$ is not necessarily equivalent to measures of moisture content (e.g., Moisture Protein Ratio or MPR) in a product. Most moist food products will have greater water availability to support microbial growth than drier food products.

**Where are the microbes in the establishment?**

Excluding certain areas like the gastrointestinal tract (also known as "gut"), upper respiratory tract, and lower urinary tract, the internal tissues (e.g., muscle tissue) of normal healthy livestock and poultry are generally sterile (free of microbes). Nevertheless, raw and many
processed foods contain a variety of different bacteria, yeasts, molds, and viruses. Livestock and poultry, people, equipment, pests, water supplies, food ingredients, and air currents can all be important sources of microbes in the food-processing environment. Soil also contains a variety of microbes that can also contaminate the hides and feathers of live animals. While dressing animals during the slaughter process, these bacteria can easily be transferred from the hide, skin, feathers, and gastrointestinal tract to the carcass itself.

Disease conditions, like mastitis, pneumonia, gastroenteritis, and uterine infections may change the normal microbial flora and ecology in affected organs and tissues and represent additional sources of potential contamination of the slaughter environment and carcass. **People** traffic microbes throughout a processing area due to poor hygienic practices, including inadequate handwashing, wearing soiled clothing, and working around product while sick with an infectious disease. Failure to adequately design or implement such procedures and controls creates insanitary conditions with the potential to contaminate product. **Equipment** can serve as niches (hiding places) for the growth of certain microbes if environmental conditions are conducive to growth and sanitation practices are inadequate.

Inadequate **pest** management may lead to the contamination of product, equipment, ingredients, and packaging materials. Non-potable or contaminated supplies of water could be sources of microbial contamination. Water overspray from washing equipment or splashing of contaminated water onto product or food contact surfaces can also cause product contamination. In addition, standing water and damp areas of the facility could promote microbial growth and increase the possibility of cross-contamination.

Non-meat and non-poultry **food ingredients** are possible sources of contamination. Spices and seasonings may be contaminated with pathogens if improperly processed or stored and handled under insanitary conditions. Air currents move **dust** through a processing facility. The dust can be deposited onto surfaces of the facility, equipment and utensils, employee clothing, and product. **Microscopic moisture droplets** traveling in air currents can condense out onto cooler surfaces, leading to contamination of those surfaces and formation of condensate that potentially drips onto product or food contact surfaces.

Some bacteria, including many pathogens, can form **biofilms** on equipment surfaces as multiple bacteria attach to the surface and produce a protective matrix. Biofilms can be difficult to remove with routine cleaning and sanitizing procedures. Bacteria embedded in a biofilm can be up to 1,000 times more resistant to many sanitizers.
How are microbes controlled?
There are two fundamental ways to control microbial contamination of products and processing environments. The first involves reducing opportunities for microbes to enter processing environments and come into contact with products. This includes reducing the contamination or cross-contamination from live animals, processing procedures and equipment, employees and the environment. Cross-contamination refers to the transfer of microbes from a contaminated source to a previously clean or sanitized surface. Recognizing that bacteria will be present on meat and poultry products is important to keep the overall number of bacteria very low to minimize concern about bacterial pathogens as well as spoilage organisms. The second involves making the environment for microbes as inhospitable as possible to reduce their numbers and minimize their growth. Making a microbe’s environment as inhospitable as possible can involve a variety of control measures, all of which relate to the FAT TOM factors impacting microbial growth. Effective procedures for cleaning and sanitizing the facility provide the foundation for controlling microbes. In addition, temperature, acidity, salting and drying, or some combination of these, can be used to restrict the growth of pathogens.

It is impossible to completely eliminate all microbes from processing environments and food products. However, it is possible for establishments to implement effective control strategies designed to protect against pathogens and the undesirable effects of spoilage organisms.

Variety of control measures - Product handling
Product pH can also be manipulated, though, to inhibit certain microbes in certain products. For example, acidifying agents (acidulants) may be added to certain products to reduce the pH.

Drying, adding salt and lowering the water activity (a_w) in a product can be very effective in controlling the growth of some harmful bacteria, but some organisms (e.g., *Staphylococcus aureus*) can survive in high salt environments.

Maintaining adequate temperature controls are important on all classes of food products.

Packaging and processing steps such as reducing the oxygen level through vacuum packaging is a common method of enhancing the shelf life of food products. However, vacuum packaging reduces the growth of mainly spoilage microbes. Pathogenic bacteria, such as *Clostridium botulinum* and *Listeria monocytogenes* can still grow in vacuum packaged products.
Temperature controls

Maintaining products under refrigeration, or in a frozen condition, is one of the most important ways to inhibit microbial growth. Refrigeration temperatures between 40-45° F slows the growth of spoilage and pathogenic bacteria. Cooking product to temperatures adequate enough to eliminate pathogens of concern is another way to control microbes. Temperatures above 165° F are capable of destroying or inactivating some bacterial cells. Bacteria, toxins and spores can be very heat resistant though, and inactivation of toxins and spores requires thermal processing under very high temperatures under pressure, as found in canning operations. The time it takes for products to reach a particular temperature is also important in inhibiting microbial growth. Chilling raw, heat-treated, and fully-cooked products as rapidly as possible helps to ensure products do not linger in the “danger zone” for too long, which could result in the outgrowth of bacteria, including spore-forming bacteria and toxin-producing bacteria.

Variety of control measures - Environmental controls

Both pathogenic and spoilage microbes can be found throughout the slaughter and processing environment. This emphasizes the need for the effective control these organisms. Adequate cleaning and sanitizing procedures will help to ensure that little organic matter is available to support microbial growth. Altering the pH of a microbe's environment may involve the use (and rotation) of acid and alkaline sanitizing agents. Moisture control in the processing environment is an important means of protecting against microbial proliferation. This may occur through measures designed to keep the environment dry, adequate ventilation, or adequate plumbing to properly convey liquid waste out of the processing area. Employee hygiene, airflow, and traffic flow of people and equipment between areas are also important to protect against cross-contamination. Contamination can be minimized or avoided altogether by following appropriate sanitation procedures, good manufacturing procedures (GMPs), and procedures for employee hygiene. Good sanitary dressing process control measures in slaughter processes not only minimize contamination of carcasses, but also reduce the level of processing environment contamination. Effective pest control can help prevent the introduction of many microbes into the processing environment. Sound construction of the facility and maintaining its construction will reduce opportunities for microbial contamination of the processing environment.
Ultimately there is no single method of preventing or controlling microbes in food. It requires a so-called **multiple hurdle** approach. This can be represented by compliance with the Sanitation Performance Standards, maintaining effective Sanitation SOPs, and designing and implementing an effective HACCP plan.

**Foodborne Parasites**

Parasites are living organisms that derive nourishment and protection from other living organisms called hosts. These organisms live and reproduce within the tissues and organs of infected human and animal hosts. There are different types of parasites, and they range in size from single-celled protozoa to multi-cellular worms. Protozoan parasites are visible only through a microscope. Many adult parasitic worms are visible without a microscope; however, a microscope is necessary for detecting eggs and pre-adult forms of some worms. Identification of the adult forms of certain parasitic worms can also require microscopy.

The respective lifecycle of different parasites also varies. While some parasites use a permanent host, others go through a series of developmental phases using different animals or human hosts. They may be transmitted from host to host through consumption of contaminated food and water. Several parasites have emerged as significant causes of foodborne and waterborne illness.

Some important foodborne parasites are *Giardia duodenalis*, *Cryptosporidium parvum*, *Cyclospora cayetanensis*, *Trichinella spiralis*, *Taenia saginata* (beef tapeworm), and *Taenia solium* (pork tapeworm). Trichinosis (or trichinellosis), caused by *Trichinella spiralis*, was historically an important foodborne illness resulting from the consumption of undercooked pork products. Trichinosis has largely been eliminated due to changes in swine production practices, consumer education, and prescribed treatments for destruction of trichinae in certain classes of pork products (9 CFR 318.10).

**Prions**

What is a prion? A prion is a protein of unknown function that resides on the surface of brain cells (per Sidney Perkowitz from the online Merriam-Webster dictionary).

Mad Cow Disease, also known as Bovine Spongiform Encephalopathy (BSE) is the brain disease that affects cattle. The human version of BSE, known as variant Creutzfeldt - Jakob disease (vCJD) appears to be of relatively low incidence. BSE in cattle and vCJD in humans
are slowly progressive diseases. Initial symptoms in humans are generally psychiatric, e.g., depression. As the disease progresses, neurologic signs appear and worsen to the extent that patients are unable to care for themselves, until death occurs. Cattle can initially display behavioral changes progressing to neurologic signs, the inability to rise, and ultimately death. There are certain cattle tissues considered to be of high risk for prion contamination. These tissues are referred to as specified risk materials (SRMs).

<table>
<thead>
<tr>
<th>Cattle of All Ages 310.22(a)(2)</th>
<th>Tonsils and Distal Ileum (80 inches of small intestine)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle 30 Months or older 310.22(a)(1)</td>
<td>Tonsils, Distal Ileum, Skull, Brain, Eyes, Spinal Cord, Trigeminal Ganglia, Dorsal Root Ganglia, Vertebral Column excluding the vertebrae of the tail, the transverse processes of the thoracic and lumbar vertebrae, and the wings of the sacrum</td>
</tr>
</tbody>
</table>

Establishment SRM (Specified Risk Materials) Control Program

SRM must be removed from all cattle of any age that are presented for slaughter.

- Establishments must identify, remove, denature and dispose of SRM
- Specified Risk Materials are inedible and prohibited for use as human food
- All of the above safeguard against human exposure to BSE.

Establishments that slaughter cattle or process carcasses or parts of cattle must incorporate written procedures for the segregation, removal, and disposition of SRM into their HACCP plan, Sanitation SOPs or other prerequisite programs (9 CFR 310.22(e)(1)).

IPP verification responsibilities (see Directive 6100.4) are to:

- Review the SRM regulations;
- Review the establishment SRM procedures and records;
- Through direct observation, ensure that the establishment effectively removes, segregates, denatures and disposes of SRM; and
- Document regulatory compliance & noncompliance in PHIS.
07 Sanitation Performance Standard (SPS)
9 CFR 416.1 - 416.6

Objectives:
1. Identify the directive that provides instructions for the SPS Verification Task.
2. List the two activities used to identify compliance.
3. Describe the documents that are required by the SPS regulations.
4. Describe the appropriate enforcement actions that should be taken when the SPS regulations are not met.
5. Given scenarios, determine SPS compliance or noncompliance.
6. Identify when it is appropriate to cite 9 CFR 416.1.

Purpose:
Proper and effective sanitation is vital to every step of the food manufacturing (making) process. This section will focus on helping IPP develop a working knowledge of the Sanitation Performance Standards (SPS) regulations in the 9 CFR 416.1 through 416.5. IPP will learn how to perform the Sanitation Performance Standards Verification task using the “GAD” process that is used by FSIS. The GAD process involves gathering information, assessing the information, and determining if the establishment complies with the regulations or not. IPP will also understand their regulatory responsibilities under 9 CFR 416.6.

Facilities that must comply with the SPS regulations:

- Federal and State inspected meat and poultry establishments
- Import/Export facilities
- Identification (ID) warehouses
- Custom-exempt operations

Sanitation Requirements:

- 9 CFR 416.1 - 416.5
- FSIS Directive 5000.1, Revision 6, addresses the Sanitation Performance Standards (SPS) regulations and the SPS Verification task
Purpose of the SPS Verification task:
To verify compliance with the Sanitation Performance Standards (9 CFR 416.1 - 416.5), IPP will inspect conditions in and around the official premises of the establishment, review documents, and inspect the facility and equipment for overall sanitary conditions. The establishment designates the official premises during the grant of application process. IPP must conduct all inspection activities within the physical boundaries designated as the official premises of the establishment.

When performing the SPS task to verify SPS requirements:
IPP should directly observe conditions in one or more areas of the establishment. IPP or the IIC may also select standards based on the SPS noncompliance history of the establishment. When necessary, IPP will review the following documents:

- Water potability certificate
- Pesticide use information: EPA registrations, labels, and instructions for proper use
- Sewage disposal approval letter (when the establishment has a private sewer system)
- Cleaning compounds, sanitizing agents, processing aids, etc., documentation describing the safe and correct use of chemicals that are in the establishment

Under SPS, an establishment is NOT required to maintain daily records. There is no regulatory recordkeeping requirement in the SPS regulations. The SPS regulations require the establishments to continuously maintain some documents on file (water potability certificate, safety data sheets for chemicals, sewage disposal letter for private sewage system and information on pesticides used).

When performing the task, IPP should:
- Have a working knowledge of specific SPS regulations
- Ask questions specific to the regulations
- Directly observe areas relevant to the regulations
- Assess the establishment’s answers to those questions

How to determine compliance or noncompliance?
Use professional knowledge and good judgement (GAD)
- Gather information
- Assess each situation
- Determine if an insanitary condition has occurred.
416.1 General Rules
Sets overall requirement for the SPS, i.e., establishments must ensure operations in and around the establishments do not lead to insanitary conditions that would contaminate or adulterate product.

416.1 is only to be cited in situations where findings indicate that an establishment systematically fails to maintain sanitary conditions and that product adulteration may occur as a result.

What does “insanitary” mean?
“A state, condition, or occurrence which may lead to the contamination or adulteration of edible meat or poultry product when it is exposed, processed, handled, stored, or packaged.”

Sanitation Performance Standards:
FSIS Directive 5000.1, Rev. 6 - Verifying an Establishment’s Food Safety System
There are 11 Sanitation Performance Standards in the regulations that IPP will verify establishment compliance with.

- 416.2(a) Grounds and Pest Control
- 416.2(b) Construction
- 416.2(c) Lighting
- 416.2(d) Ventilation
- 416.2(e) Plumbing
- 416.2(f) Sewage
- 416.2(g) Water Supply, Water, Ice, Solution Reuse
- 416.2(h) Dressing Rooms, Lavatories, and Toilets
- 416.3 Equipment
- 416.4 Sanitary Operations
- 416.5 Employee Hygiene
SPS Regulations: 9 CFR Part 416.2 - 416.5:

416.2(a) Grounds and Pest Control: The grounds about an establishment must be maintained to prevent conditions that could lead to insanitary conditions, adulteration of product, or interfere with inspection by FSIS program employees. Establishments must have in place a pest management program to prevent the harborage and breeding of pests on the grounds and within establishment facilities. Pest control substances used must be safe and effective under the conditions of use and not be applied or stored in a manner that will result in the adulteration of product or the creation of insanitary conditions.

416.2(b) Construction:

416.2(b)(1) Establishment buildings, including their structures, rooms, and compartments must be of sound construction, be kept in good repair, and be of sufficient size to allow for processing, handling, and storage of product in a manner that does not result in product adulteration or the creation of insanitary conditions.

416.2(b)(2) Walls, floors, and ceilings within establishments must be built of durable materials impervious to moisture and be cleaned and sanitized as necessary to prevent adulteration of product or the creation of insanitary conditions.

416.2(b)(3) Walls, floors, ceilings, doors, windows, and other outside openings must be constructed and maintained to prevent the entrance of vermin, such as flies, rats, and mice.

416.2(b)(4) Rooms or compartments in which edible product is processed, handled, or stored must be separate and distinct from rooms or compartments in which inedible product is processed, handled, or stored, to the extent necessary to prevent product adulteration and the creation of insanitary conditions.

416.2(c) Lighting: Lighting of good quality and sufficient intensity to ensure that sanitary conditions are maintained and that product is not adulterated must be provided in areas where food is processed, handled, stored, or examined; where equipment and utensils are cleaned; and in hand-washing areas, dressing and locker rooms, and toilets.

416.2(d) Ventilation: Ventilation adequate to control odors, vapors, and condensation to the extent necessary to prevent adulteration of product and the creation of insanitary conditions must be provided.
416.2(e) Plumbing: Plumbing systems must be installed and maintained to:

416.2(e)(1) Carry sufficient quantities of water to required locations throughout the establishment.

416.2(e)(2) Properly convey sewage and liquid disposable waste from the establishment.

416.2(e)(3) Prevent adulteration of product, water supplies, equipment, and utensils and prevent the creation of insanitary conditions throughout the establishment.

416.2(e)(4) Provide adequate floor drainage in all areas where floors are subject to flooding-type cleaning or where normal operations release or discharge water or other liquid waste on the floor.

416.2(e)(5) Prevent back-flow conditions in and cross-connection between piping systems that discharge wastewater or sewage and piping systems that carry water for product manufacturing.

416.2(e)(6) Prevent the back up of sewer gases.

416.2(f) Sewage: Sewage disposal - Sewage must be disposed into a sewage system separate from all other drainage lines or disposed of through other means sufficient to prevent backup of sewage into areas where product is processed, handled, or stored. When the sewage disposal system is a private system requiring approval by a State or local health authority, the establishment must furnish FSIS with the letter of approval from that authority upon request.

Note: Sewage is "refuse liquids or waste matter usually carried off by sewers" (from the online Merriam-Webster dictionary).

416.2(g) Water supply, water, ice, solution reuse:

416.2(g)(1) A supply of running water that complies with the National Primary Drinking Water regulations (40 CFR part 141), at a suitable temperature and under pressure as needed, must be provided in all areas where required (for processing product, for cleaning rooms and equipment, utensils, and packaging materials, for employee sanitary facilities, etc.). If an establishment uses a municipal water supply, it must make available to FSIS, upon request, a water report, issued under the authority of the State or local health agency, certifying or attesting to the potability of the water supply. If an establishment uses a private well for its water supply, it must make available to FSIS, upon request, documentation certifying the potability of the water supply that has been renewed at least semi-annually.
416.2(g)(2) Water, ice, and solutions (such as brine, liquid smoke, or propylene glycol) used to chill or cook ready-to-eat product may be reused for the same purpose, provided that they are maintained free of pathogenic organisms and fecal coliform organisms and that other physical, chemical, and microbiological contamination have been reduced to prevent adulteration of product.

416.2(g)(3) Water, ice, and solutions used to chill or wash raw product may be reused for the same purpose provided that measures are taken to reduce physical, chemical, and microbiological contamination so as to prevent contamination or adulteration of product. Reuse that has come into contact with raw product may not be used on ready-to-eat product.

416.2(g)(4) Reconditioned water that has never contained human waste and that has been treated by an onsite advanced wastewater treatment facility may be used on raw product, except in product formulation, and throughout the facility inedible and inedible production areas, provided that measures are taken to ensure that this water meets the criteria prescribed in paragraph (g)(1) of this section. Product, facilities, equipment, and utensils coming in contact with this water must undergo a separate final rinse with non-reconditioned water that meets the criteria prescribed in paragraph (g)(1) of this section.

416.2(g)(5) Any water that has never contained human waste and that is free of pathogenic organisms may be used in edible and inedible product areas, provided it does not contact edible product. For example, such reuse water may be used to move heavy solids, to flush the bottom of open evisceration troughs, or to wash ante-mortem areas, livestock pens, trucks, poultry cages, picker aprons, picking room floors, and similar areas within the establishment.

416.2(g)(6) Water that does not meet the use conditions of paragraphs (g)(1) through (g)(5) of this section may not be used in areas where edible product is handled or prepared or in any manner that would allow it to adulterate edible product or create insanitary conditions.

416.2(h) Dressing rooms, Lavatories, and Toilets:

416.2(h)(1) Dressing rooms, toilet rooms, and urinals must be sufficient in number, ample in size, conveniently located, and maintained in a sanitary condition and in good repair at all times to ensure cleanliness of all persons handling any product. They must be separate from the rooms and compartments in which products are processed, stored, or handled.

416.2(h)(2) Lavatories with running hot and cold water, soap, and towels must be placed in or near toilet and urinal rooms and at such other places in the establishment as necessary to ensure cleanliness of all persons handling any product.
416.2(h)(3) Refuse receptacles must be constructed and maintained in a manner that protects against the creation of insanitary conditions and the adulteration of product.

416.3 Equipment & Utensils:

416.3(a) Equipment and utensils used for processing or otherwise handling edible product or ingredients must be of such material and construction to facilitate thorough cleaning and to ensure that their use will not cause the adulteration of product during processing, handling, or storage. Equipment and utensils must be maintained in sanitary condition so as not to adulterate product.

416.3(b) Equipment and utensils must not be constructed, located, or operated in a manner that prevents FSIS program employees from inspecting the equipment or utensils to determine whether they are in sanitary condition.

416.3(c) Receptacles used for storing inedible material must be of such material and construction that their use will not result in the adulteration of any edible product or in the creation of insanitary conditions. Such receptacles must not be used for storing any edible product and must bear conspicuous and distinctive marking to identify permitted uses.

416.4 Sanitary Operations:

416.4(a) All food-contact surfaces, including food-contact surfaces of utensils and equipment, must be cleaned and sanitized as frequently as necessary to prevent the creation of insanitary conditions and the adulteration of product.

NOTE: Many establishments will comply with the requirements of 416.4(a) through SSOP activities.

416.4(b) Non-food-contact surfaces of facilities, equipment, and utensils used in the operation of the establishment must be cleaned and sanitized as frequently as necessary to prevent the creation of insanitary conditions and the adulteration of product.

416.4(c) Cleaning compounds, sanitizing agents, processing aids, and other chemicals used by an establishment must be safe and effective under the conditions of use. Such chemicals must be used, handled, and stored in a manner that will not adulterate product or create insanitary conditions. Documentation substantiating the safety of a chemical's use in a food processing environment must be available to FSIS inspection program employees for review.

416.4(d) Product must be protected from adulteration during processing, handling, storage, loading and unloading at and during transportation from official establishments.
416.5 **Employee Hygiene:**

416.5(a) **Cleanliness.** All persons working in contact with product, food-contact surfaces, and product-packaging materials must adhere to hygienic practices while on duty to prevent adulteration of product and the creation of insanitary conditions.

416.5(b) **Clothing.** Aprons, frocks, and other outer clothing worn by persons who handle product must be of material that is disposable or readily cleaned. Clean garments must be worn at the start of each working day and garments must be changed during the day as often as necessary to prevent adulteration of product and the creation of insanitary conditions.

416.5(c) **Disease control.** Any person who has or appears to have an infectious disease, open lesion, including boils, sores, or infected wounds, or any other abnormal source of microbial contamination, must be excluded from any operations which could result in product adulteration and the creation of insanitary conditions until the condition is corrected.

416.6 **Tagging insanitary equipment, utensils, rooms or compartments.** When an FSIS program employee finds that any equipment, utensil, room, or compartment at an official establishment is insanitary or that its use could cause the adulteration of product, he will attach to it a “U.S. Rejected” tag. Equipment, utensils, rooms, or compartments so tagged cannot be used until made acceptable. Only an FSIS program employee may remove a “U.S. Rejected” tag.

**Custom Exempt 303.1a(2)(i)** Establishments that conduct custom exempt operations must be maintained and operated in accordance with the provisions of §416.1 through 416.6, except for §416.2(g)(2) through (6) of this chapter, regarding the water reuse and any provisions of Part 416 of this chapter relating to inspection or supervision of specified activities or other action by a program employee. If custom exempt operations are conducted in an official establishment, however, all of the provisions of Part 416 of this chapter shall apply to those operations.

**Compliance / Noncompliance**

IPP must verify compliance and noncompliance with the SPS regulations. Noncompliance is the failure of an establishment to meet one or more regulatory requirements. Every time IPP determine that the establishment is not meeting the SPS requirements, IPP must document the noncompliance on a Noncompliance Record (NR). If IPP determine that the SPS noncompliance is due to the establishment’s repeated failure to maintain sanitary conditions, IPP should consult with their FLS or IIC to determine if 416.1 should be added to the NR.
08 Sanitation Standard Operating Procedures (SSOP)

Objectives:

1. Identify the directives that provide instructions for the SSOP Tasks.
2. List the two activities (components) used to verify compliance.
3. Describe the tasks that are used when verifying compliance with the SSOP regulations.
4. Describe the appropriate enforcement actions that IPP should take when food contact surfaces are contaminated or when product is contaminated.
5. Given scenarios, determine SSOP compliance & noncompliance.

Purpose:

The purpose of SSOPs is to have procedures in place that prevent the contamination of product and food contact surfaces. IPP will develop their knowledge of the SSOP regulations (9 CFR 416.11 - 416.16). SSOPs provide an essential foundation for a HACCP food safety system.

IPP will learn how to perform the (4) SSOP Verification Tasks using the GAD process specified by inspection verification questions related to specific SSOP regulations. IPP will also understand their regulatory responsibilities (9 CFR 416.17).

How IPP Verify SSOP Regulatory Requirements:

The following table lists the four tasks used to verify compliance with Sanitation SOP requirements. IPP will verify compliance by:

1. **Reviewing** establishment records.
2. **Directly observing** the establishment employees performing procedures in their SSOPs and by **taking hands on measurements** and **comparing their results with the establishment's results**.

<table>
<thead>
<tr>
<th>Inspection Tasks</th>
<th>General Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Operational Sanitation SOP Record Review</td>
<td>Use the <strong>Recordkeeping</strong> verification activity to verify that the establishment implements the procedures in the Sanitation SOP effectively to prevent contamination of food contact surfaces or adulteration of products prior to operations.</td>
</tr>
<tr>
<td>Pre-Operational Sanitation SOP Review and Observation</td>
<td>Use the <strong>Review and Observation</strong> verification activity and the <strong>Recordkeeping</strong> verification activity to verify that the establishment implements the procedures in the Sanitation SOP effectively to prevent contamination of food contact surfaces or adulteration of products prior to operations. In PHIS, IPP should select the “Both” option on the Activity tab.</td>
</tr>
</tbody>
</table>
Operational Sanitation SOP Record Review

Use the **Recordkeeping verification** activity to verify that the establishment implements the procedures in the Sanitation SOP effectively to prevent contamination of food contact surfaces or adulteration of products during operations.

Operational Sanitation SOP Review and Observation

Use the **Review and Observation verification activity and the Recordkeeping** verification activity to verify that the establishment implements the procedures in the Sanitation SOP effectively to prevent contamination of food contact surfaces or adulteration of products during operations. In PHIS, IPP should select the “Both” option on the Activity tab.

While performing each SSOP task, IPP will verify compliance with:

- Basic Design (416.12)
- Implementation & Monitoring (416.13)
- Maintenance (416.14)
- Corrective Actions (416.15)
- Recordkeeping (416.16)

The Record Review Tasks: Pre-Operational and Operational

IPP use the **recordkeeping verification activity** to verify all **four** Sanitation SOP requirements (implementation, maintenance, corrective actions, and recordkeeping) while performing the Pre-Operational and Operational Sanitation SOP Record Review tasks.

During the Sanitation SOP record review tasks, IPP perform the following:

1) **Review the written Sanitation SOP** to be familiar with the establishment’s current pre-operational or operational sanitation procedures.

2) **Verify that the SSOP continues** to meet the design requirements of §416.12.

3) **Verify that the establishment has maintained daily records** that demonstrate that the establishment has implemented the pre-operational and operational procedures as written, monitored those procedures at least daily or at the specified frequency, and taken immediate or corrective action when necessary to meet the requirements of §416.13 & §416.15.

   - For instance, **IPP verify that the records** indicate that the establishment conducted monitoring daily prior to the start of operations. If the establishment observed a contaminated food contact surface (residue from previous day’s product) during pre-operational inspection, IPP verify that the establishment documented that the contaminated surface was re-cleaned, re-inspected and released before product passed over the surface. Similarly, if the establishment has documented the finding of contaminated product or food contact surfaces during operations, IPP verify that the documented corrective actions meet regulatory requirements.

4) **Verify all the recordkeeping requirements** of §416.16 and maintenance requirements of §416.14.

   - For instance, IPP verify that the establishment employee responsible for the implementation and monitoring of the procedure has authenticated the records with their initials and date.
The Review and Observation Tasks: Pre-Operational and Operational

IPP use both the review and observation verification activity and the recordkeeping verification activity when performing the Pre-Operational and Operational Sanitation SOP Review and Observation tasks. IPP are to verify that all four Sanitation SOP requirements (implementation, maintenance, corrective actions, and recordkeeping).

Each time IPP perform the review and observation tasks, they:

1) **Should review the written Sanitation SOP** so they are familiar with the establishment’s current pre-operational or operational sanitation procedures;

2) **Verify** that the SSOP continues to meet the requirements of §416.12;

3) **Observe the establishment conducting its monitoring** activities and implementing corrective action when they find that the pre-operational or operational procedures have failed to effectively clean and sanitize food contact surfaces;

4) **Inspect one or more areas** and perform an organoleptic examination of some of the establishment’s facilities, equipment, and utensils to assess sanitary conditions (sometimes referred to as “hands-on” inspection);

5) **Compare their findings** with the establishment records/findings, (which may not bedocumented until the start of the next production day for that specific shift), and

6) **Verify that the establishment meets the corrective action requirement** of 9 CFR 416.15 when they find that the establishment’s Sanitation SOP has failed to prevent product contamination or adulteration.

To perform the Pre-Op or Operational Sanitation SOP Review and Observation task, IPP should have:

- A flashlight.
- A pen or pencil.
- U.S. Rejected/U.S. Retained tags and some means (tape, string, rubber bands) of affixing these tags to equipment, departments, product, etc.
- A notepad to record their pre-operational findings.
- Been trained in lockout & tagout (Pre-Op SSOP).

**Note:** Recommend having a good flashlight to check dark areas or inside pipes/equipment.
Pre-Operational Sanitation SOP Review and Observation Task

**Note:** IPP not trained in lockout/tagout (FSIS Directive 4791.11) methodology shall not perform pre-op sanitation inspection on any piece of equipment requiring lock out.

- After establishment management informs IPP that an area is ready for FSIS pre-op inspection, IPP perform the review component of Pre-Op Sanitation SOP Review and Observation verification task.
- IPP use a risk-based approach to gather information to assist them in selecting equipment or areas for pre-op sanitation verification and deciding the extent of their pre-op sanitation verification. IPP are to focus on those areas and equipment that present the highest risk to public health.
  - The following factors would indicate higher risk to public health:
    - Equipment that will contact exposed product.
    - Equipment that will contact RTE product post-lethality.
    - Equipment that is difficult to clean.
    - Equipment that FSIS has not verified recently.
    - Equipment/areas with a history of noncompliance.
    - Testing results that suggest that specific pieces of equipment may present a risk to public health.
- When IPP have completed their examination of the selected area(s) and equipment, IPP should compare their findings to the establishment’s sanitation findings. If the written records are not yet completed, IPP may ask the establishment about its pre-operational findings and any actions taken. Note: IPP must verify the recordkeeping requirements before completing the task.
- When IPP observe contaminated direct food contact surfaces during the pre-op sanitation verification, they are to:
  - Take a Regulatory Control Action (RCA) and reject the affected equipment by placing a U.S. Rejected tag that will not get removed from the food contact surface, until the establishment has restored sanitary conditions;
  - Notify the establishment, and
  - Document the noncompliance on NR.
- The establishment has the responsibility to restore sanitary conditions (clean the contaminated food contact surface) in accordance with §416.13, and document the restoration of sanitary conditions under §416.16(a). In this instance the regulatory requirements of §416.15 do not apply. Preventive measures do not need to be developed and documented unless product has been contaminated or adulterated by the unclean surface. Note: IPP should not remove the U.S. Rejected tag until the establishment has restored sanitary conditions.

Operational Sanitation SOP Review and Observation Task

- IPP should review the written Operational SSOPs.
- IPP should observe the equipment, employees, and facilities to verify that product contamination is not occurring during operation.
- IPP should inspect direct food contact surfaces of equipment, facilities, and utensils.
- IPP should be aware of other potential sources of product contamination such as condensation, peeling paint, dead-end pipes and scaling rust from overhead fixtures where products are processed, handled, or stored can contaminate products.
- When possible, IPP should also observe the establishment conducting its monitoring
If IPP observe contaminated direct food contact surfaces or contaminated product during operations, there is a Sanitation SOP noncompliance, whether there is a procedure written in the establishment’s Sanitation SOP to cover that situation or not. **When IPP observe a noncompliance**, they are to:
- **Take a Regulatory Control Action** by applying a **U.S. Rejected tag** to the affected equipment and/or a **U.S. Retained tag** to the affected product by placing a reject tag that will not get removed from the food contact surface or product, until the establishment has restored sanitary conditions and attained an appropriate disposition on the product;
- **Notify** the establishment, and
- **Document** the noncompliance on NR.

- When IPP or establishment personnel find that the Sanitation SOPs have failed to prevent direct contamination of products, IPP are to review Sanitation SOPs records and, when possible, observe establishment employees implementing corrective actions to verify that establishment corrective actions meet all the requirements of §416.15.
- When IPP have completed their assessment of operational sanitation in one or more areas of the establishment, they should compare their findings with the establishment’s findings. If the records are not complete at the time, IPP might ask the establishment if it has conducted monitoring and what observations were made. Note: IPP must verify the recordkeeping requirements prior to completion of the task.
- IPP should be aware that there are times the responsible establishment employee might not be able to propose permanent preventive measures immediately. However, in these situations, the establishment should propose a tentative preventative measure of what they will do until they determine a permanent solution.

**Noncompliance Example**

You are a CSI assigned to an Egg Products establishment that produces Fully Cooked-Not Shelf Stable Whole Egg products and Raw Non-Intact Egg Yolks. You log into PHIS that morning and see that you have a routine task assigned: Pre-Operational Sanitation SOP Verification task scheduled. You review the task and see that the following should be inspected before a tanker is filled for cleanliness and adequate sanitizing:

- The interior of the tanker
- The inlet caps
- The dome gaskets
- The air vents
- The dismantled outlet valves
- The “O” rings

After the establishment has informed the CSI that they are ready for FSIS inspection, you find egg yolk residue in the interior of the tanker from the tanker’s previous load.

1) **Is there an insanitary condition?**
   
   Yes, the pre-op sanitation procedures in the Sanitation SOPs are to address, at a minimum, the cleaning of food contact surfaces of facilities, equipment, and utensils prior to use.

2) **If so, is it effecting product or food contact surfaces?**
   
   Yes. The interior of tankers are considered food contact surface(s).
3) Is this a noncompliance?

Yes. When IPP determine that there is noncompliance with the pre-op Sanitation SOP regulatory requirements, they are to document the noncompliance on a NR in PHIS in accordance with the instructions in FSIS Directive 5000.1. The description of the noncompliance is to clearly explain how the IPP's findings support the determination that the establishment did not meet regulatory requirements and include the problem, time of occurrence, and location. When IPP observe pre-op Sanitation SOP noncompliance that does not result in contamination of food contact surfaces (e.g. failure to initial records), they are not to take a regulatory control action.

If so, which regulation(s)?

416.13(a). 9 CFR 416, sections 416.11 through 416.17, Sanitation SOPs, requires establishments to implement procedures sufficient to prevent direct contamination or adulteration of products while under the control of the establishment.

4) Should you take a regulatory control action?

Yes. When IPP observe contamination of direct food contact surfaces during pre-op sanitation verification, they are to reject the affected equipment. Finding contamination during pre-op sanitation will not affect any product. IPP are to remove the USDA reject tag only after the establishment has restored sanitary conditions.

416.11 General rules.
Each official establishment shall develop, implement, and maintain written standard operating procedures for sanitation (Sanitation SOP's) in accordance with the requirements of this part.

416.12 Development of Sanitation SOP's.
(a) The Sanitation SOP's shall describe all procedures an official establishment will conduct daily, before and during operations, sufficient to prevent direct contamination or adulteration of product(s).
(b) The Sanitation SOP's shall be signed and dated by the individual with overall authority on-site or a higher-level official of the establishment. This signature shall signify that the establishment will implement the Sanitation SOP's as specified and will maintain the Sanitation SOP's in accordance with the requirements of this part. The Sanitation SOP's shall be signed and dated upon initially implementing the Sanitation SOP's and upon any modification to the Sanitation SOP's.
(c) Procedures in the Sanitation SOP's that are to be conducted prior to operations shall be identified as such, and shall address, at a minimum, the cleaning of food contact surfaces of facilities, equipment, and utensils.
(d) The Sanitation SOP's shall specify the frequency with which each procedure in the Sanitation SOP's is to be conducted and identify the establishment employee(s) responsible for the implementation and maintenance of such procedure(s).

416.13 Implementation of SOP's.
(a) Each official establishment shall conduct the pre-operational procedures in the Sanitation SOP's before the start of operations.
(b) Each official establishment shall conduct all other procedures in the Sanitation SOP's at the frequencies specified.
(c) Each official establishment shall monitor daily the implementation of the procedures in the Sanitation SOP's.
416.14 Maintenance of Sanitation SOP’s.
Each official establishment shall routinely evaluate the effectiveness of the Sanitation SOP’s and the procedures therein in preventing direct contamination or adulteration of product(s) and shall revise both as necessary to keep them effective and current with respect to changes in facilities, equipment, utensils, operations, or personnel.

416.15 Corrective Actions.
(a) Each official establishment shall take appropriate corrective action(s) when either the establishment or FSIS determines that the establishment's Sanitation SOP’s or the procedures specified therein, or the implementation or maintenance of the Sanitation SOP’s, may have failed to prevent direct contamination or adulteration of product(s).

(b) Corrective actions include procedures to ensure appropriate disposition of product(s) that may be contaminated, restore sanitary conditions, and prevent the recurrence of direct contamination or adulteration of product(s), including appropriate reevaluation and modification of the Sanitation SOP’s and the procedures specified therein or appropriate improvements in the execution of the Sanitation SOP’s or the proceduralsspecified therein.

416.16 Recordkeeping requirements.
(a) Each official establishment shall maintain daily records sufficient to document the implementation and monitoring of the Sanitation SOP’s and any corrective actions taken. The establishment employee(s) specified in the Sanitation SOP’s as being responsible for the implementation and monitoring of the procedure(s) specified in the Sanitation SOP's shall authenticate these records with his or her initials and the date.

(b) Records required by this part may be maintained on computers provided the establishment implements appropriate controls to ensure the integrity of the electronic data.

(c) Records required by this part shall be maintained for at least 6 months and made available to FSIS. All such records shall be maintained at the official establishment for 48 hours following completion, after which they may be maintained off-site provided such records can be made available to FSIS within 24 hours of request.

416.17 Agency Verification.
FSIS shall verify the adequacy and effectiveness of the Sanitation SOP’s and the procedures specified therein by determining that they meet the requirements of this part. Such verification may include:

(a) Reviewing the Sanitation SOP’s;

(b) Reviewing the daily records documenting the implementation of the Sanitation SOP’s and the procedures specified therein and any corrective actions taken or required to be taken;

(c) Direct observation of the implementation of the Sanitation SOP’s and the procedures specified therein and any corrective actions taken or required to be taken; and

(d) Direct observation or testing to assess the sanitary conditions in the establishment.

IPP will verify that establishments meet all four of the following regulatory requirements during the performance of each SSOP task:

a. Implementation and monitoring
b. Maintenance
c. Corrective actions
d. Recordkeeping
Objective: Carefully read the sample Sanitation SOP below. Evaluate the Sanitation SOP for compliance with §416.11 and §416.12. After you have evaluated the Sanitation SOP, answer the questions listed in the worksheet.

**BEEF SLAUGHTER ESTABLISHMENT M41777—Sanitation SOP**

Owner – Joe Green

This Sanitation SOP is for Beef Slaughter Establishment M41777 and becomes effective on January 28, 1998

**Pre-operational**

All food contact surfaces of the facility, equipment, and utensils on the kill floor will be cleaned daily after production by rinsing, soaping, and sanitizing.

All cleaning will be monitored daily by Joe Green before production begins the next day. Records will be kept on Form Pre-Op I by Joe Green.

**Operational**

Every day all equipment and surfaces on the kill floor will be kept as sanitary as necessary to prevent contamination or adulteration of the carcasses.

Every day all employees will follow hygienic practices to keep themselves from contaminating or adulterating carcasses. These actions will be monitored by Joe Green once each day. Records of this monitoring will be kept on Form Ops I by Joe Green.

Corrective actions taken during pre-operational sanitation inspection or during operations will be written on the back of the Form Pre-Op I or Form Ops I as necessary.

(Signature and date of 1/25/98) Joe Green

Modification Log
1. (signature and date of Joe Green, 12/11/2018)
2. (signature and date of Joe Green, 6/17/2019)
WORKSHOP #1- Identifying the Basic Elements
Objective: Verification of compliance with the basic development of SSOPs
*For Training Purposes Only*

<table>
<thead>
<tr>
<th>Relevant Regulatory Question</th>
<th>Yes</th>
<th>No</th>
<th>Student’s comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the establishment have written Sanitation SOP’s that describe the procedures the establishment conducts daily to prevent direct contamination or adulteration of product(s)? [§416.12 (a)]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do the establishment’s SSOPs identify which of the procedures are pre-operational procedures? [§416.12 (c)]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do the establishment’s pre-operational SSOP procedures address (at a minimum) the cleaning of food contact surfaces of facilities, equipment, and utensils? [§416.12 (c)]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do the establishment’s SSOPs specify the frequency with which the establishment will conduct each procedure? [§416.12(d)]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do the establishment’s SSOPs identify the establishment employee or employees responsible for implementing and maintaining specified procedures? [§416.12 (d)]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the establishment have records that identify the documentation and the implementation and monitoring of the SSOPs on a daily basis and any corrective actions taken? [§416.16 (a)]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did the individual with overall authority on-site or a higher-level official of the establishment sign and date the Sanitation SOP’s (1) Upon initial implementation, or (2) Upon modification [§416.12 (b)]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are there any failures to comply?</td>
<td></td>
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</tr>
</tbody>
</table>
09 Sanitation Scenarios

**Objective:** To provide practice applying the SPS and SSOP regulatory thought process to inspection scenarios.

1. You observe an open gap of approximately one-half inch around a window that opens to the outside. Upon a close further examination, you do not observe any dirt or debris on the equipment ready for use, and no product is in the area.

   Is there an insanitary condition?

   If so, is it affecting product or food contact surfaces?

   Is this a noncompliance?

   If so, which regulation(s)?

   Should you take a regulatory control action?

   Under which task should you document this?

   Would the establishment have to take any corrective actions? If so, which?

2. While passing through the fabrication department, you observe about 5 specks of a black substance on a piece of meat on the cutting table and about 20 more specks on the table surface. Further inspection reveals a heavy accumulation of grease and rust on an overhead rail.

   Is there an insanitary condition?

   If so, is it affecting product or food contact surfaces?

   Is this a noncompliance?

   If so, which regulation(s)?

   Should you take a regulatory control action?

   Under which task should you document this?

   Would the establishment have to take any corrective actions? If so, which?
Noncompliance

Objectives

1. Define the term "noncompliance"
2. Identify the information that must be recorded on the NR when IPP are documenting a trend in noncompliance
3. State the purpose of associating NRs
4. Identify the requirement for associating NRs
5. Identify the activity inspectors must perform before an NR can be completed

Noncompliance is defined as an establishment’s failure to meet a regulatory requirement. When IPP find regulatory noncompliance, they are to:

- Notify a representative of establishment management as soon as possible verbally.
- Document the noncompliance on a Noncompliance Record (NR, FSIS Form 5400-4) in PHIS and present the noncompliance to establishment management. The Noncompliance Record is the written notification of the noncompliance.
- Verify that the establishment takes necessary actions to bring itself into compliance with the applicable regulation.

The NR serves as FSIS’s official notification and documentation of the establishment’s failure to meet one or more regulatory requirements. NRs are legal documents. They are the basis for supporting further enforcement actions that the Agency may take against an establishment. Therefore, it is extremely important that IPP use good documentation practices and follow Agency policy when completing NRs.

IPP must ensure that the written description of noncompliance documented on an NR adequately supports the determination of regulatory noncompliance and the NR is accurately completed. IPP must provide establishment management with a copy of the NR. By notifying the establishment of noncompliance with the regulatory requirements both orally and in writing via the NR, IPP are providing the establishment with due process.
Only one NR is completed per inspection task when noncompliance is found. However, more than one noncompliance may be documented on the NR.

Noncompliance and NRs have a status displayed in PHIS. The noncompliance and NR statuses are defined in the following table.

<table>
<thead>
<tr>
<th>Status in PHIS</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noncompliance (NC)</td>
<td></td>
</tr>
<tr>
<td>Open</td>
<td>A noncompliance has been documented in PHIS</td>
</tr>
<tr>
<td>Finalized</td>
<td>The noncompliance is ready to deliver to establishment management</td>
</tr>
<tr>
<td>Noncompliance Record (NR)</td>
<td></td>
</tr>
<tr>
<td>Open</td>
<td>An NR has been created in PHIS</td>
</tr>
<tr>
<td>Completed</td>
<td>All of the mandatory regulations have been verified</td>
</tr>
<tr>
<td></td>
<td>The establishment has brought itself into compliance with the regulations for each noncompliance in the NR</td>
</tr>
</tbody>
</table>
When documenting noncompliance on a Noncompliance Record (NR), a good method to follow is to determine the **6W's** (*While, When, What, Where, Who, and Why*) and then document the details for each one of the W's.

This is an example outline created using the 6W method. It is an organized way to gather facts and help prepare an NR.

<table>
<thead>
<tr>
<th><strong>While</strong></th>
<th>While performing what inspection task?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Identify the scheduled inspection task. Provide a brief summary of the regulation(s) verified.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>When</strong></th>
<th>When was the noncompliance discovered? Date, time, operation status of the establishment. When did the noncompliance begin? When has this noncompliance happened before?</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>What</strong></th>
<th>What is the noncompliance? What were the exact conditions? Adulterant/contaminant – number, size, shape, color, and consistency. Environment – leaks, condensation, wall or floor quality. What documents or records were reviewed? What regulatory control actions were taken, if any? What action(s) did the establishment take or propose? A detailed description helps paint a picture for the reader.</th>
</tr>
</thead>
</table>

**Note:** Words like “filthy,” “dirty,” or “scummy” are not acceptable in describing noncompliant findings. The contamination must be accurately described with respect to size, shape, and consistency, such as “2 inch by 5-inch smear of a black oily substance” or “15 to 20 1/4 inch to 1 inch pieces of fat.”

<table>
<thead>
<tr>
<th><strong>Where</strong></th>
<th>Specific location within the establishment? A room, area within a room, outside. Other locations affected by the noncompliance?</th>
</tr>
</thead>
</table>

| **Who** | When a noncompliance is discovered, IPP have an obligation to immediately report it orally and then in writing to the establishment, especially when production is stopped and/or when meat, poultry, or egg products are retained. |

| **Why** | Why is there noncompliance? What regulations were not met? What procedure, plan or program was the establishment not following (e.g., Sanitation SOP, HACCP plan, or prerequisite program)? |
IPP are to associate NRs when they indicate an ongoing trend of similar noncompliance or systemic problems with the same aspect of the establishment’s food safety system. The trend may be caused by the establishment’s failure to implement its proposed preventive measures. Sometimes the establishment has implemented its proposed preventive measures; nevertheless, these measures are not effective in preventing the noncompliance from recurring. Frequently, SSOP or HACCP recordkeeping and corrective action NRs or SSOP or HACCP monitoring and corrective action NRs can be associated because they represent repetitive failure of the same aspect of the establishment’s food safety system.

**The reasons for associating the NR are:**

- Notify establishment of ineffective further planned actions
- Document the history or trend of repetitive noncompliances and the establishment’s failed further planned actions
- Provide the documentation to support further enforcement actions

**Procedures for associating noncompliance:**

Document (write up) the most recent NR number and date plus the specific further planned action/corrective measures that were either not implemented or were ineffective at preventing recurrence of the noncompliance in the description of the noncompliance (Block10) of the NR.

Record the reason for the decision to associate the noncompliance in the Inspection Notes in PHIS.

**At the weekly meeting, IPP are to:**

- Discuss associations between current and past noncompliances and explain why the associated NRs indicate a trend of noncompliance.
- Document the discussion of noncompliance trends and NR associations in a Memorandum of Interview (MOI).
- IPP should continue associating noncompliance that are similar and discussing associations and trends of noncompliance at weekly meetings until the issues are resolved or they determine that additional enforcement action is necessary to bring the establishment into compliance with the regulations.
- Always keep your supervisor informed.
11 HACCP Processing Categories

Objectives:

1. Distinguish between the different HACCP processing categories.
2. Identify common hazards for all raw products.
3. Identify common hazards for other product categories.
4. Identify the raw product processing categories.
5. Identify common meat and poultry slaughter steps.
6. Identify common processing steps for intact and non-intact raw product.
7. Explain the food safety significance of non-intact product.
8. Identify common lethality for ready-to-eat product.
9. Identify amenable fish species.

The HACCP (Hazard Analysis Critical Control Point) regulations set out 9 processing categories in which finished product can be identified, 9 CFR 417.2(b)(1):

(i) Slaughter – all species
(ii) Raw product – Non-Intact (ground)
(iii) Raw product – Intact (not ground)
(iv) Thermally processed – commercially sterile
(v) Not heat treated – shelf stable
(vi) Heat treated – shelf stable
(vii) Fully cooked – not shelf stable
(viii) Heat treated but not fully cooked – not shelf stable
(ix) Product with secondary inhibitors – not shelf stable

A food safety hazard is defined as any biological, chemical, or physical property that may cause a food to be unsafe for human consumption. These pathogens mostly enter the food chain with the live animal but may also exist in the production environment.

Slaughter Processing Category

This HACCP processing category applies to establishments that slaughter livestock or poultry. Slaughter is the process whereby healthy, live animals are humanely stunned, bled, de-hided, dehaired and eviscerated. The slaughter process has inherent food safety hazards that originate with the live animal. Therefore, the slaughter process has heightened food safety significance.

Slaughter establishments typically produce carcasses which are raw intact finished products. The food safety hazards identified for the slaughter process are also common to the Raw Product - Intact and Raw Product - Non-Intact processing categories.

Most of the food safety hazards inherent in raw processes originate with the live animals that enter the slaughter establishment. These hazards are common in all raw processes. Common hazards include the biological hazards of bacterial pathogens, the chemical hazards of allergens and drug residues, and the physical hazards of foreign material. These hazards could be present in raw product in any step of the food production process. We will now
address each of these three categories of hazards in more detail.

The following chart summarizes the common microbiological hazards in slaughter products: beef, lamb, pork, and poultry:

| Process Category | Species     | Biological Hazards, reasonably likely to be present and cause foodborne illness, denoted by "+
Salmonella        STEC, including E. coli O157:H7 Campylobacter | SRM |
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>SLAUGHTER</td>
<td>Beef</td>
<td>+</td>
<td>+</td>
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<tr>
<td></td>
<td>Sheep,</td>
<td>+</td>
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<tr>
<td></td>
<td>Goat</td>
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<td></td>
<td>Pork</td>
<td>+</td>
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<td></td>
<td>Poultry</td>
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</table>

The biological hazards of meat and poultry products result from the presence of pathogenic bacteria in and on the live animal or bird, including intestinal contents and exterior surfaces such as hide, hair, feathers, hooves, and the gastrointestinal tract contents.

The prevalence of the pathogen *Salmonella* in beef, lamb, pork, and poultry carcasses varies greatly. *Escherichia coli* is commonly found as part of the normal bacteria of the intestinal tract of humans and animals. Some strains, notably the *Shiga toxin-producing E. coli* (STEC) including *Escherichia coli* O157:H7, can cause serious illness in humans. Raw poultry is the major source of *Campylobacter*.

**Bovine Spongiform Encephalopathy (BSE)** is a progressive neurological disorder of cattle that results from infection by a protein, called a prion. High-risk tissues for BSE contamination, known as **Specified Risk Materials (SRM)**, include tonsils and distal ileum for cattle of all ages.

Animals may be presented at slaughter with violative levels of **chemical residues**. This hazard includes chemical residues resulting from use of, or exposure to, drugs, pesticides, and other compounds. Antibiotic residues at violative levels in tissues are of particular concern. Antibiotic residues are most often found in "Bob" veal calves and cull dairy cows due to their higher likelihood of illness.

Other examples of **environmental contaminants** that may be consumed by animals include lead, cadmium, mercury, arsenic, dioxins, or polychlorinated biphenyls (PCBs). **Industrial chemicals** such as dioxins may be of concern because they have the potential to cause endocrine effects or interfere with the immune system.

A physical hazard is a physical component of a food that is unexpected and may cause illness or injury to the person consuming the food. Physical hazards, such as pieces of metal, sometimes occur because equipment has not been properly maintained. Product may be received that is contaminated by foreign material, which if not controlled, may subsequently become incorporated into the finished product. Foreign material would include non-animal
objects such as metal, wood, rubber, glass, steel, lead, or other objects.

Raw Product - Non-Intact Processing Category

This HACCP processing category applies to establishments that further process product by comminuting product (grinding, injecting product with solutions, or mechanically tenderizing product by needling, cubing, pounding devices or other means of creating non-intact product).

Non-intact product presents an increased food safety concern due to the spread of pathogens throughout the product and pathogen penetration from the surface into the interior of the product. Beef products pose increased risk of adulteration from Shiga-toxin producing E. coli (STEC), including E. coli O157:H7. A very small dose of consumed E. coli O157:H7 can result in severe health consequences, and consumers frequently consume beef after preparations that do not destroy this pathogen.

Remember, the distinction between intact and non-intact product depends on whether the meat interior remains protected from pathogens migrating below the exterior surface and whether or not the depth of pathogen penetration is significant.

The biological hazards in the non-intact raw product are mostly carried over from the slaughtered carcass. Establishments that further process raw products are dependent on their suppliers to eliminate or reduce microbial hazards because antimicrobial treatments and interventions are most practical when the product is still intact.

Food allergies are responses by the immune system to naturally occurring proteins in certain foods that most individuals can eat without any adverse effects. Allergens are considered chemical hazards. The following “Big 8” foods can cause serious allergic reactions in some individuals and account for more than 90% of all food allergies. They are peanuts, soybeans, milk, eggs, fish, crustacean shellfish, tree nuts, and wheat.

Establishments conducting processes such as needle injection or comminution of product regularly use equipment with numerous moving metal parts. If this equipment is not properly maintained, it can easily lead to metal contamination of product and cause a physical hazard.

Raw Product - Intact Processing Category

This HACCP processing category refers to product that receives further processing directly after the slaughter processing steps or after receiving raw products. It includes all raw products that are intact in their final form.

Finished products such as raw poultry (in whole or in part) or raw meat products such as primal or subprimals are part of the Raw Product - Intact processing category. Beef manufacturing trimmings (e.g., pieces of meat remaining after steaks, roasts, and other intact cuts) are also an example of intact raw beef product. FSIS considers raw products to be intact unless they have
undergone any of the processes previously discussed, associated with the Raw Product - Non-Intact HACCP processing category. The distinction between intact and non-intact product depends on whether the interior remains protected from pathogens migrating below the exterior surface and whether the depth of pathogen penetration is significant.

The common hazards for raw intact product are the same as those identified in the Slaughter processing category. The common biological, chemical, and physical hazards in the intact raw product are mostly carried over from the slaughtered carcass. Establishments must address these hazards as they pertain to and affect their intact raw product.

**Thermally Processed - Commercially Sterile Processing Category**

This processing category includes canned meat products, some products processed in pouches and semi-rigid containers. Both the thermal process (high temperature/pressure) and special seal define the production in this category.

**Not Heat Treated - Shelf Stable Processing Category**

This processing category applies to products that are further processed by a curing, drying, or fermenting step as the sole means by which product achieves food safety. A low-level heat treatment may be applied, as long as the heat treatment is not used as the sole means to achieve food safety. The finished products produced are shelf stable.

Products in this category typically include dried sausage, such as salami and pepperoni. Semi-dry sausages may also be in this HACCP category, depending on the process steps. Dried whole muscle products which are mostly dry cured could also fall into this category. These products include dried hams, such as prosciutto, parma and country ham, and dried intact pieces of meat such as dried pork bellies (pancetta), dried pork shoulders (coppa), and dried beef rounds (bresaola, beef prosciutto, basturma). Products in this category could sometimes also be categorized in the Heat Treated - Shelf Stable processing category, based on the methods by which they are made.

**Biological hazards** which are common to these products differ from raw products. The lethality step(s) in these products kills the pathogens (e.g., *Salmonella*, *Campylobacter*, *Listeria monocytogenes*, and *E. coli* O157:H7) which may otherwise be present in the raw materials. However, there are other biological hazards of concern as a result of the different ingredients and process steps these products may undergo.

*Listeria monocytogenes* (*Lm*) is also a potential biological hazard that may re-contaminate the product. This could happen after lethality if products are exposed to food contact surfaces, raw products, or contaminated ingredients prior to final packaging.

Common **chemical hazards** include allergens, such as soy or milk byproducts which may be used as ingredients. Lactic acid or acetic acid may be used to speed acid formation. Nitrites are commonly used as part of the curing process and phosphates might also be used for binding, flavor and/or color. These latter chemicals may be considered hazards if they are not used in the proper quantities.
Like non-intact raw products, metal contamination from equipment with small and moving parts could pose potential **physical hazards** as well.

**Heat Treated - Shelf Stable Processing Category**

This processing category applies to products that receive further processing by using a heat treatment in combination with a curing, drying, or fermenting process step to achieve food safety. The heat treatment is the primary means of achieving lethality. Finished products produced under this processing category are safe to eat without refrigeration or further processing. This processing category typically includes popped pork skins, bacon bits, snack sticks or jerky, summer sausage, Lebanon bologna, thuringer, kippered beef, pickled sausages and rendered products.

Potential biological hazards include *Listeria monocytogenes*, which may contaminate the product after lethality.

Common chemical hazards include allergens, such as soy or milk byproducts which may be used as ingredients. Chemical accelerants, acidifiers and antioxidants may be used as part of the fermentation process or assist in the quality. These could pose hazards if not used in proper measurements.

There are no notable physical hazards unique to this process category. However, like non-intact raw products, metal contamination from equipment with small and moving parts could pose potential **physical hazards** as well.

**Fully Cooked - Not Shelf Stable Processing Category**

This processing category applies to establishments that further process products by primarily using a full lethality heat process step (e.g., cooking) to achieve food safety. These products have been processed in a manner that makes them **safe to eat, with no further preparation** required by the consumer.

Deli meats such as ham, roast beef, and smoked turkey breast all have very similar processes. Cured products, like ham, turkey ham, and corned beef, have nitrite in the solution. Another type of product in this category is the meat salad.

The cooking step in these products kills the pathogens. However, there are other biological hazards of concern as a result of the different process steps and procedures these products undergo. For example, *Listeria monocytogenes* could be introduced through recontamination.

Common chemical hazards include allergens, such as soy or milk byproducts which may be used as ingredients. Chemical accelerants, acidifiers and antioxidants may be used as part of the fermentation process or assist in the quality. These could pose hazards if not used in proper quantities.
Like non-intact raw products, metal contamination from equipment with small and moving parts could pose potential physical hazards as well.

**Heat Treated but Not Fully Cooked - Not Shelf Stable Processing Category**

This processing category applies to further processed products that are not ready-to-eat products (NRTE) processed products that are refrigerated or frozen throughout the product’s shelf life. They are produced using the criteria of one of two following heat processing steps:

1) **The heat processing step is not adequate to achieve food safety.** For example, products may be partially cooked or heated to set batter on a raw product. 2) The heat processing step is adequate to achieve food safety. However, product is further processed, assembled, or packaged in a way that results in the cooked product contacting product or ingredients that are not ready-to-eat. In this case, the final product is in a form that is inedible without additional preparation to achieve food safety.

Products in this category include not ready-to-eat bacon, cold smoked sausage, and partially cooked battered and breaded poultry.

Common biological hazards and controls for these products will be similar to the hazards for raw products because these products have not undergone a lethality step to rid the product of harmful pathogens.

Hazards and controls will vary based on the product and how it is processed.

**Products with Secondary Inhibitors - Not Shelf Stable Processing Category**

This processing category is seldom used and applies to product that has been further processed by curing or using other ingredients that inhibit bacterial growth. It should only be used when these types of products don’t fit into any of the other 8 categories. This category includes country ham, semi-dry fermented sausage and salt pork.

**Inspection of Fish of the Order Siluriformes**

**Background**

This inspection program covers domestic slaughter and processing establishments and import reinspection. In 2008, Congress made amendments to the FMIA to transfer inspection of “catfish” from FDA to USDA/FSIS. Congress made further amendments to the FMIA in the 2014 Farm Bill to clarify that “all fish of the order Siluriformes” (which includes catfish) are subject to inspection by FSIS.

The 2015 Final Rule created regulations 9 CFR 530-561 which requires mandatory inspection of official establishments that prepare or process amenable fish species.
Amenable Fish Species

Section 601(w)(2) was added to the FMIA and specified all fish of the order Siluriformes as amenable species under the act. FSIS has regulatory jurisdiction over all fish of the order Siluriformes produced for human food. The Siluriformes includes the family Ictaluridae (e.g., channel catfish and blue catfish, historically grown in the United States) as well as other catfish-like fish species (historically imported).

Siluriformes is an order of bony fish that includes all catfish and catfish-like species. As you may know the name catfish refers to the long barbels, or feelers, which are present about the mouth of the fish and resemble cat whiskers.

Products labelled as “catfish” must be of the family Ictaluridae.

Inspection of Egg Products

On October 29, 2020, FSIS published a final rule to modernize egg products inspection: Egg Products Inspection Regulations (85 FR 68640). The rule has staggered effective dates. Most provisions became effective on December 28, 2020. Provisions related to the implementation of Sanitation SOPs had become effective on October 29, 2021, while provisions related to the implementation of HACCP systems become effective on October 31, 2022. Plants that produce egg substitutes or freeze-dried egg products will be regulated by FSIS beginning on October 30, 2023.

<table>
<thead>
<tr>
<th>HACCP Processing Category</th>
<th>Finished Product Category</th>
<th>Product Group Category</th>
<th>Production Volumes Categories (by Product Groups)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw Non-Intact Raw non-intact egg products</td>
<td>Unpasteurized (bulk or packaged)</td>
<td>- Whole eggs or Yolks (&lt;2% added ingredients)</td>
<td>- Egg Yolk (with or without ingredients)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Whole eggs with added yolks (with &gt;2% salt or sugar)</td>
<td>- Egg yolks (with or without added ingredients)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Egg products (blends of whole egg, egg whites, and/or yolks w/wo added ingredients)</td>
<td>- Spray-dried egg whites (w/wo added ingredients)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Par-dried egg whites</td>
<td></td>
</tr>
<tr>
<td>Fully Cooked – Not Shelf Stable RTE fully cooked egg products Pasteurized (bulk or packaged)</td>
<td>- Whole eggs or yolks (&lt;2% added ingredients)</td>
<td>- Egg Yolk (with or without added ingredients)</td>
<td>- Egg products (blends of whole egg, egg whites, and/or yolks)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Whole eggs with added yolks (w &gt;2% salt or sugar)</td>
<td>- Whole egg or yolks (w &gt;2% salt or sugar)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Egg yolks (w/wo added ingredients)</td>
<td>- Egg whites (w/wo added ingredients)</td>
</tr>
<tr>
<td>Heat Treated – Shelf Stable RTE dried egg products Pasteurized Dried Egg Products</td>
<td>- Whole eggs or yolks (w/wo added ingredients)</td>
<td>- Egg yolks (with or without added ingredients)</td>
<td>- Egg products (blends of whole egg, egg whites, and/or yolks)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Whole eggs with added yolks (w &gt;2% salt or sugar)</td>
<td>- Spray-Dried Egg Whites (w/wo added ingredients)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Whole Eggs or Yolks (&lt;2% added ingredients)</td>
<td>- Whole Dried Egg Whites</td>
</tr>
</tbody>
</table>
12 HACCP Seven Principles

Objectives

1. Identify the HACCP Seven Principles
2. Define HACCP
3. Define the following terms:
   a. Hazard Analysis
   b. Prerequisite Program
   c. Critical Control Point
   d. Critical Limit
   e. Monitoring
   f. Verification
4. Explain the purpose of monitoring

FSIS requires all establishments that produce federally inspected meat and poultry products to design and operate HACCP (Hazard Analysis and Critical Control Point) systems. The seven principles of HACCP, which encompass a systematic approach to the identification, prevention, and control of food safety hazards include:

1. Conduct a Hazard Analysis
2. Determine Critical Control Points
3. Establish Critical Limits
4. Establish Monitoring Procedures
5. Establish Corrective Actions
6. Establish Recordkeeping and Documentation Procedures
7. Establish Verification Procedures

What is HACCP?

The National Advisory Committee on Microbiological Criteria for Food (NACMCF) working group created guidelines and redefined the seven basic principles of HACCP as an effective and rational means of assuring food safety from harvest to consumption. The working group published the HACCP principles and application guideline document in August 1997. This paper is not a regulatory document. However, it was used by FSIS when the HACCP regulation was developed and then published in the Federal Register. As regulators, you will be responsible for verifying compliance with the HACCP regulation. The HACCP guideline with the seven principles is not an enforceable document; however, it is helpful for inspection personnel to be familiar with the basis for the development of the HACCP plan is under Title 9 Code of Federal Regulation (CFR) Part 417.
Principle 1: Conduct a Hazard Analysis.

- **A thorough hazard analysis** is the key to preparing an effectively designed HACCP plan.
- **A hazard is a biological, chemical, or physical** agent that is reasonably likely to occur and will cause illness or injury in the absence of its control.
- During the development and design of the hazard analysis, establishments must consider all three types of hazards – biological, chemical, and physical – at each step they identify in the production process. Once the establishment has identified potential hazards, these hazards are evaluated to determine if each one is reasonably likely to occur (RLTO), or not reasonably likely to occur (NRLTO).
- If the establishment determines that the hazard is reasonably likely to occur, a **critical control point must be developed** to address the hazard, either at that step or later in the process.
- If the establishment determines the hazard is not reasonably likely to occur, they must provide justification for this decision.
- **A Prerequisite Program** is a procedure or set of procedures that is designed to provide basic environmental or operating conditions necessary for the production of safe, wholesome food. The programs provide a foundation for the development and implementation of an effective HACCP system.

Principle 2: Determine Critical Control Points

- **A critical control point** is defined as 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.
- **For each** hazard that is determined to be reasonably likely to occur, the establishment must identify critical control points and corresponding critical limits that are measurable or observable.

Principle 3: Establish Critical Limits

- **Critical limits** (CL) are the parameters (maximum and/or minimum) that indicate whether the control measure at the CCP is in or out of control.
- **CL is a maximum or minimum value** to which a biological, chemical, or physical parameter must be controlled at a CCP to prevent, eliminate, or reduce to an acceptable level the occurrence of a food safety hazard. Critical limits must be actual values that can be measured or quantified.
Principle 4: Establish Monitoring Procedures

- Monitoring is a planned sequence of observations or measurements to assess whether a CCP is under control and to produce an accurate record for future use in verification. Every CCP that is in the HACCP plan must be monitored to ensure that the critical limits are consistently met and that the process is producing safe product. Establishments must determine how often they need to monitor CCPs.

- There are three objectives to monitoring:
  - To track control of the process. This allows the establishment to identify trends in the process that may be leading to loss of process control. If monitoring detects a trend, establishments can take appropriate measures to restore process control before there is a deviation from the critical limit.
  - To determine when the process has deviated from the critical limit. This information lets the establishment know that process control has been lost and appropriate corrective actions must be taken.
  - To provide a written document to be used in verification. Monitoring results must be recorded on official HACCP records, and such records serve as the basis for verification activities.

Principle 5: Establish Corrective Actions

- The corrective actions must be determined for each CCP in cases where the CL is not met.

Principle 6: Establish Recordkeeping and Documentation Procedures

- Establishment must ensure that the HACCP system has an effective recordkeeping system.

Principle 7: Establish Verification Procedures

- HACCP systems must be systematically verified.
- Four processes are involved in the verification of the establishment's HACCP system.
  - Validation
  - Ongoing verification
  - Reassessment
  - Government verification
13 HACCP Regulatory Process

Objectives:
1. Define the term “HACCP system.”
2. Identify the components of a “HACCP plan in operation.”
3. Describe the four components that are part of the HACCP regulatory process.
4. Identify the two HACCP inspection tasks that IPP perform to verify the HACCP regulatory requirements.
5. Describe the two verification components used when performing HACCP inspection tasks.

The **HACCP system**, referenced in 9 CFR 417.4, is defined in 9 CFR 417.1 as “the HACCP plan in operation, including the HACCP plan itself.” The **HACCP plan in operation** includes the:

- Hazard analysis;
- HACCP plan;
- Supporting documentation including prerequisite programs used to make decisions in the hazard analysis, and
- HACCP records generated on an ongoing basis.

IPP must focus on the overall effectiveness of the establishment’s HACCP system.

HACCP Regulatory Process

- **Inspection Methodology (Procedure)**
  - Performing HACCP inspection tasks
  - Verifying specific HACCP regulatory requirements during the performance of the HACCP inspection task

- **Decision-making (GAD)**
  - **Gathering** information, making observations, and reviewing documentation;
  - **Assessing** the gathered information; and
  - Arriving at a supportable compliance or noncompliance **determination**.
- **Documentation**
  - Entering HACCP inspection task results (observations and determinations) in PHIS
  - Documenting noncompliance on a Noncompliance Record (NR)
  - Associating noncompliances from the same cause

- **Enforcement**
  - Following the Rules of Practice (ROP)
  - Providing the establishment with due process

**FSIS Responsibilities**

FSIS responsibilities for verifying an establishment food safety system are outlined in FSIS Directives 5000.1 and 5000.6.

The HACCP inspection tasks appear on the establishment’s inspection Task List as **routine** tasks according to the specific HACCP process categories (listed in 9 CFR 417.2(b)) entered in the Establishment Profile in PHIS. IPP may initiate **directed** HACCP inspection tasks when they observe HACCP regulatory noncompliance or are instructed to do so by their supervisor.

**HACCP Inspection Tasks**

IPP perform two HACCP inspection tasks to verify that establishments are complying with 9 CFR Part 417:

- **The Hazard Analysis Verification (HAV) task** directs the IPP to review the establishment’s hazard analysis for one HACCP plan, the HACCP plan, and any prerequisite programs or other documentation used to support the decision that a food safety hazard is not reasonably likely to occur in the process.

- **The HACCP verification task** focuses the attention of the IPP on the execution or implementation of the establishment’s HACCP plans, prerequisite programs and other supporting programs, i.e., implementation of the establishment’s HACCP system. IPP perform a HACCP verification task for each of the HACCP process categories listed in the establishment’s profile.

  Both HACCP verification tasks can be performed as a **routine** or **directed** task.
Each HACCP task has two verification components:

- **A recordkeeping component**
  - IPP gather information by looking at establishment records
  - These records might include the hazard analysis, prerequisite programs, HACCP plans, or HACCP records
- **A review and observation component**
  - IPP directly observe establishment employees performing procedures or activities
  - Take measurements to see if values obtained match those recorded by establishment
  - Observe the product or conditions within the establishment

IPP use either component or a combination of the components to verify regulatory compliance.

Regulation 9 CFR 417.5(f) requires the establishment to make all such records available for official review.

**Regulatory Decision-Making - A Thought Process**

When IPP perform both of the HACCP inspection tasks, they need to use the regulatory thought process described below.

**Gather, Assess, and Determine or GAD**

IPP are to **gather (collect)** all available information to help them determine regulatory compliance.

- Reviewing establishment hazard analyzes, HACCP plans, prerequisite programs and other supporting documentation.
- Reviewing establishment records documenting the implementation of HACCP plans, prerequisite programs and other supporting programs or procedures.
- Observing establishment employees implementing each HACCP plan, prerequisite program or other supporting program or procedure.
- Observing product and occasionally taking measurements as specified in the HACCP plans, prerequisite programs, or other supporting programs or procedures.

IPP are to **assess (evaluate)** the significance and meaning of information gathered.

- Comparing the information gathered to HACCP regulatory requirements.
- Considering what each piece of information, either taken separately or with other findings.
- Considering the information in the context of past findings to identify any patterns or trends.
IPP are to **determine (decide)** whether the information supports a finding of regulatory compliance.

- Has the establishment already identified the failure to meet regulatory requirements or deviation from a critical limit?
- If product is involved, has the establishment ensured product safety?
- Has the establishment taken immediate and further planned actions to correct the failure to meet regulatory requirements, or has it taken corrective actions to address the deviation in accordance with 9 CFR 417.3?
- Is a trend developing?

**HACCP Scenario Example**

You are a CSI assigned to an Egg Products establishment that produces Fully Cooked-Not Shelf Stable Whole Egg products and Raw Non-Intact Egg Yolks. You log into PHIS that morning and see that you have a routine task assigned: a Fully Cooked-Not Shelf Stable HACCP Verification task. You are reviewing the records for the tempering of the frozen whole eggs. You see that the establishment has tempered the eggs for 52 hours at a room temperature of 42° F.

**What directive would you check for instructions?**

Directive 5030.1 - Inspection Methodology Utilizing the Public Health Information System for the Verification of Regulatory Compliance in Egg Products Plants


When IPP verify that egg products plants meet food safety requirements, they are to evaluate the food safety procedures and associated activities observed in the plant. IPP are to verify that the plant meets the applicable food safety regulatory requirements (9 CFR 590.500-590) to ensure that products are not adulterated

**Is this a noncompliance?**

Yes.

**What do you do?**

IPP are to issue an NR when product does not comply with a non-food safety regulatory requirement and are to notify the plant orally of the finding. IPP are to consider all relevant factors when determining the amount of affected product. Factors IPP are to consider include such items as the plant's lot identification procedures, receiving records, and production records, as well as the average amount of product produced per shift or per production line. When necessary, IPP are to consult with their supervisor for assistance in determining the amount of affected product.

**What regulation(s) would you cite?**

9 CFR 590.539 Defrosting operations. Specifically, 9 CFR 590.539(d) Frozen whole eggs, whites and yolks, and yolks may be tempered or partially defrosted for not to exceed 48 hours at a room temperature no higher than 40°F or not to exceed 24 hours at a room temperature above 40°F. Provided, that no portion of the defrosted liquid shall exceed 50°F while in or out of the container.
14 The Hazard Analysis Verification (HAV) Task

Objectives:

1. Identify the eight steps for performing the HAV task
2. Describe how IPP use the Meat and Poultry Hazards and Controls Guide while performing the HAV task
3. Identify the elements of an establishment’s HACCP system that are verified while performing the HAV task
4. Identify issues that represent noncompliance when performing HAV task
5. Describe the two elements of validation
6. Identify examples of scientific or technical documentation that establishments use to support their HACCP system
7. Identify the types of issues or concerns that are to be discussed with a supervisor before determining compliance and completing the HAV task

Purpose:
The purpose of conducting the Hazard Analysis Verification (HAV) Task is more than simply identifying isolated cases of noncompliance. IPP are to consider what their HAV task findings show about the overall effectiveness of the establishment’s food safety system. IPP are to conduct the HAV task to verify that an establishment has performed and documented a hazard analysis that meets applicable regulatory requirements and has addressed all relevant food safety hazards associated with the establishment’s processes and products, and the intended uses for those products.

The HAV Task is performed quarterly and provides IPP with a powerful approach to verifying compliance with certain requirements of 9 CFR 417, specifically, those that pertain to certain foundational elements of an establishment’s HACCP system.

These foundational elements include the flow chart, hazard analysis, critical control points, critical limits and procedures and frequencies for HACCP monitoring and verification. The following list below summarizes what items IPP are to review when verifying compliance with these foundational elements.

- A flow chart that matches the actual production processes in the establishment
- A hazard analysis that accurately considers applicable food safety hazards given the nature of the process, product, and intended use of the product and determines whether each hazard is reasonably likely to occur (RLTO)
- Critical control points (CCPs) for hazards that are reasonably likely to occur in the process and documentation supporting those CCPs critical limits, and monitoring and verification procedures
• Prerequisite programs (or other supporting programs) for hazards that are not reasonably likely to occur (NRLTO) and documentation supporting the decision that a food safety hazard is not reasonably likely to occur (NRLTO) in the process

• Evidence supporting the validity (validation documents) of the HACCP system

• Reassessment of the HACCP system annually and anytime changes occur that could affect the hazard analysis or HACCP plan

Examples of technical and scientific support the establishment can use:
• Scientific Journal Articles
• Regulations
• Pathogen Modeling Program (PMP)
• Processing Authority (PA)
• Challenge Studies
• In-plant data
• Agency compliance/guidance documents
• Other decision-making documents

Examples of supporting documents the establishment can use to support a decision that a hazard is not reasonably to occur:
• LOG (Letters of Guarantee)
• COA (Certificates of Analysis)
• Product temperature controls
• Microbial testing programs

IPP are to review the supporting documents while performing the HAV task.

IPP may find that the Meat and Poultry Hazards and Control Guide (HCG) is a useful tool in verifying compliance while performing the HAV Task. The HCG was developed to help IPP evaluate all aspects of an establishment’s food safety system. The guide identifies process steps that are commonly used in each processing category, lists common food safety hazards for each process step, and cites some of the controls frequently used by processors to address these hazards.

A more detailed explanation of the 8 steps IPP are to take to verify compliance when conducting this task can be found in the HAV Task Summary Table found in Directive 5000.6 below.
### HAV Task Summary Table

Refer to Directive 5000.6 for additional information about each step.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Verification Questions</th>
<th>Regs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Review flow chart and compare to production process.</td>
<td>• Does the flow chart represent the actual production process?</td>
<td>417.2(a)(2)</td>
</tr>
</tbody>
</table>
| 2    | Review the hazard analysis and consider guidance in the FSIS Meat and Poultry Hazards and Controls Guide (HCG). | • Does the flow chart or hazard analysis identify the intended use or consumers of the product?  
• Does the hazard analysis appear to consider the relevant food safety hazards for the establishment's process, product, and intended use?  
• For each hazard, does the establishment consider it RLTO or NRLTO? | 417.2(a)(2), 417.2(a)(1) |
| 3    | For each hazard the establishment considers RLTO, verify that the HACCP plan includes one or more CCPs to control it. If no hazards are reasonably likely to occur, skip to step 4. | • Does the establishment have one or more CCPs to control the hazard in each product or process where it is reasonably likely to occur?  
• Does the establishment have information to support the CCPs, CLs, monitoring and verification procedures? | 417.2(c)(2), 417.5(a)(2) |
| 4    | For each hazard the establishment considers NRLTO, determine what evidence the establishment uses to support the decision, including prerequisite programs and other supporting programs (e.g., written programs, records, and employee activities). | • Does the establishment prevent the hazard by implementing a prerequisite or other supporting program (SSOP, GMP, SOP, etc.)? – proceed to step 5.  
• Does the establishment support the decision with other documentation besides a prerequisite or other supporting program? – proceed to step 6.  
• Does the written program appear to be designed to prevent the relevant hazard?  
• Do the records and your observations indicate the program is consistently being implemented as written?  
• Do the records and your observations indicate that the program continues to prevent the relevant hazard on an ongoing basis? | 417.5(a)(1) |
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</table>
| 5 | Review other supporting documentation | • Does the establishment have copies of the documents referenced in the hazard analysis?  
  • Do the documents appear to apply to the current establishment process? |
| 6 | Review establishment validation documents, including scientific supporting documents and validation data. | • Does the establishment maintain documents to support the scientific or technical basis for the CCPs and prerequisite programs used to support decisions in the hazard analysis?  
  • Does the establishment maintain in-plant validation data for the life of the plan? |
| 7 | Verify reassessment requirements. Check most recent signature date for each HACCP plan. | • Has the establishment reassessed at least once in the most recent calendar year?  
  • Has the establishment reassessed, if necessary, in response to any changes that could affect the hazard analysis?  
  • Has the establishment reassessed, if necessary, in response to any unforeseen hazard?  
  • Has the establishment documented the results of the reassessment? |
| 8 | Document your findings in PHIS. | • No problems detected – document HAV task results in PHIS.  
  • Clear case of noncompliance – document HAV task results and NR in PHIS and notify your supervisor.  
  • Concerns about the establishment HACCP system – discuss situation with your supervisor for assistance in determining how to proceed. Document HAV task results in PHIS. |
Examples of Noncompliances IPP may find while performing the HAV task and the applicable regulations:

- The establishment’s flow chart does not accurately represent all the steps in the establishment’s production process (417.2(a)(2))

- The establishment’s flow chart does not accurately describe product flow (417.2(a)(2))

- The hazard analysis identifies a hazard reasonably likely to occur (RLTO) but does not have an associated CCP at or after the point where the hazard is introduced (417.2(c)(2))

- The establishment does not have documentation to support the development of CCPs, critical limits, or monitoring and verification procedures (417.5(a)(2))

- The establishment does not maintain validation data (417.4(a)(1))

- The establishment did not perform a reassessment at least once in the previous calendar year (417.4(a)(3))

When to talk to your Supervisor:

When performing this task IPP should:
- Use the Meat and Poultry Hazards and Control Guide as an aid
- Ask the establishment for additional documents or explanation
- Discuss policy questions with their supervisor and utilize askFSIS for policy questions when needed
- Discuss noncompliance questions with their supervisor
- Notify your supervisor even in clear cases of noncompliance

Supervisors have a key role in supporting IPP in conducting the HAV Task. Supervisors should be actively engaged with askFSIS responses and assist in compliance decisions. Supervisors should respond to scientific and technical questions and/or assist in finding resources to support inspection decisions. As needed, supervisors may include Enforcement Investigations and Analysis Officers (EIAOs) and the District Office.
15 HACCP Verification Task

Objectives:

1. Identify the regulatory requirements verified with the HACCP verification task.
2. Explain how Inspection Program Personnel (IPP) is to perform the HACCP Verification task.
3. Identify issues that represent noncompliance with an establishment’s HACCP plan and inadequacy of the HACCP system.
4. Identify the type of issues or concerns that are to be discussed with supervision before determining compliance and completing the HACCP verification task.

Introduction

The HACCP verification task is for verifying that an establishment complies with the requirements of 9 CFR Part 417. There is one HACCP verification task for each of the nine HACCP processing categories. Each task corresponds to a specific HACCP processing category.

The HACCP Verification Task

Expectations of IPP in Conducting the HACCP Verification Task

IPP are to verify that the establishment implements its HACCP system in accordance with the regulations in 9 CFR Part 417 by performing the HACCP verification task.

IPP must be familiar with the establishment’s hazard analysis, HACCP plan, and any prerequisite or other programs that the establishment uses to support the decision(s) that specific food safety hazards are not reasonably likely to occur.

IPP use the recordkeeping and/or the review and observation components to verify that an establishment is effectively implementing the procedures set out in its HACCP plan.

IPP are to verify that establishments are meeting all the HACCP regulatory requirements.

IPP will document their findings in PHIS, including any noncompliance they find when performing their verification activities.

If IPP cannot complete the HACCP verification task in one day, know the steps to take until the task can be completed.
Four HACCP Regulatory Requirements

1. Monitoring
2. Verification
3. Recordkeeping
4. Corrective Actions

Performing the HACCP Verification Task

1. Select a product type within the specified HACCP process category and a specific production for the selected product type.

2. **Specific production** is a term that is used to refer to whatever method the establishment uses to group product, e.g., product produced during a specific period of time, a specific production lot, or other designated product group. FSIS does not determine the method used to define specific production; this is an establishment's responsibility. Review the HACCP plan for the selected product type.

3-5. Verify that the monitoring, verification, and recordkeeping HACCP regulatory requirements have been met for **all CCPs** in the HACCP plan for that **specific production**.

6. Verify the implementation of any **prerequisite programs** or other programs that apply to the specific production.

7. Verify that the **corrective action** HACCP regulatory requirement has been met.

8. Verify that the **pre-shipment review** requirement for that specific production has been met.

9. Consider any implications of noncompliance and document the HACCP verification task in PHIS.
<table>
<thead>
<tr>
<th>Requirement</th>
<th>Regulatory References</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring</td>
<td>9 CFR 417.2(c)(4) Monitoring Requirement</td>
<td>Rk</td>
</tr>
<tr>
<td></td>
<td>417.4(a)(2)(i)(ii)(iii) Verification Activities</td>
<td>R&amp;O</td>
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<td>Verification</td>
<td>9 CFR 417.2(c)(7) Verification Requirement</td>
<td>Rk</td>
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<td>417.4(a)(2)(i)(ii)(iii) Verification Activities</td>
<td>R&amp;O</td>
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<td>Recordkeeping</td>
<td>9 CFR 417.2(c)(6) Recordkeeping System</td>
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<td>9 CFR 417.5(a)(3) HACCP Records</td>
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<td></td>
<td>9 CFR 417.5(b) Records Authenticity</td>
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<td>9 CFR 417.5(d) Computerized Records</td>
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<td></td>
<td>9 CFR 417.5(e)(1) and (2) Record Retention</td>
<td>Rk</td>
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<td>9 CFR 417.5(f) Official Review</td>
<td>Rk</td>
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<td></td>
<td>9 CFR (Prerequisite Program Implementation)</td>
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<td></td>
<td>9 CFR 417.5(a)(1) Supporting Documentation</td>
<td>Rk</td>
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<td>9 CFR 417.5(c) Pre-Shipment Review</td>
<td>Rk</td>
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<td>Corrective Action</td>
<td>9 CFR 417.3(a) Deviation from a critical limit</td>
<td>Rk</td>
</tr>
<tr>
<td></td>
<td>9 CFR 417.3(b) Deviation not covered by a specified corrective action/unforeseen hazard</td>
<td>R&amp;O</td>
</tr>
</tbody>
</table>
1. Monitoring

NACMCF Monitoring Definition

Note: NACMCF = National Advisory Committee on Microbiological Criteria for Foods

- Monitoring is a planned sequence of observations or measurements taken to assess whether a CCP is under control and produce an accurate record for future verification.

The regulation that applies to monitoring is:

**9 CFR 417.2(c)(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.

Methodology

IPP may decide to use the recordkeeping component to verify the monitoring requirement to determine if the establishment is performing the monitoring procedures at the frequency specified in the HACCP plan.

Taking Measurements at Critical Control Points

IPP should occasionally take measurements at certain critical control points in the process (i.e., perform a hands-on – review component) to verify that product meets the critical limit. When IPP take measurements to verify that product meets the critical limit, they are to use the calibrated instrument that the establishment uses for the monitoring or verification activities.

FSIS Responsibilities

- IPP verify HACCP regulatory requirements.
- IPP should be familiar with the monitoring procedures and frequencies in the current HACCP plan.
- Visualize what is occurring at the CCP, seek clarification.
Observing Establishment Employees

IPP should observe an establishment employee performing HACCP monitoring activities in the process to determine whether the procedures are being carried out as written in the HACCP plan.

Noncompliance Examples with the Monitoring Requirement (but not limited to)

- The HACCP plan does not include a written monitoring procedures to ensure that product meets the critical limit at each CCP.
- The establishment is not conducting the monitoring procedures as written in the HACCP plan.
- The establishment does not implement the monitoring procedures at the frequencies specified in the HACCP plan.
- IPP takes a measurement at a CCP and finds that the critical limit is not met.
- IPP observe a deviation from the critical limit that was not detected by the establishment monitoring procedure.

2. Verification

Verification activities are procedures that the establishment will follow to ensure that they are implementing their HACCP plan as written.

The regulations that apply to verification procedures and frequencies are:

9 CFR 417.2(c)(7)—List the verification procedures, and the frequency with which those procedures will be performed, that the establishment will use in accordance with §417.4 of this part.
9 CFR 417.4(a)(2)(i)(ii)(iii)—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 §417.5(a)(3) of this part.

Methodology

IPP verify the verification requirement by performing the HACCP verification tasks. They can use either the recordkeeping, or review and observation component, or both.
Review Verification Records

- IPP should review the verification records to determine compliance.
- IPP should verify that it contains the actual values and observations.

Thought Process

- Gathering information by asking questions
- Assessing the information
- Determining regulatory compliance

Review the HACCP Plan

- Every HACCP plan must contain verification procedures.
- Establishment sets frequencies.
- Establishments must calibrate instruments.

Assess Information

- Look at the establishment’s HACCP plan.
- Review HACCP plan.
- Review HACCP records.
- Observe establishment employees.

Observe Product Sampling

- Even if the product sampling is not included in the HACCP plan, we would review results because sampling is a verification tool an establishment may use to support the on-going effectiveness of their HACCP Plan.

Observing Establishment Employees

- IPP must observe establishment employees performing the verification activities listed in the plan.
- Is the establishment verifier doing activity as per the regulations?
- Is the establishment performing verification at the frequency set out in the HACCP plan?
- Directly observe any corrective actions that need to be taken.
Noncompliance Examples with the Verification Requirement (but not limited to)

The following are examples of noncompliance with the verification requirement (9 CFR 417.4(a)(2):

- The HACCP plan does not include written verification procedures and frequencies for calibration of any process monitoring instruments used to monitor the CCPs (also noncompliance with 9 CFR 417.2(c)(7)).
- The HACCP plan does not include written verification procedures and frequencies for direct observation of monitoring activities (also noncompliance with 9 CFR 417.2(c)(7)).
- The HACCP plan does not include written verification procedures and frequencies for review of records (also noncompliance with 9 CFR 417.2(c)(7)).
- Establishment employees do not implement the verification procedures at the frequencies specified in the HACCP plan.
- The HACCP plan does not include written description of additional verification procedures (if any) and frequencies the establishment uses to verify the effective implementation of the HACCP plan (e.g., microbiological sampling) (also noncompliance with 9 CFR 417.2(c)(7)).
- Establishment employees do not implement the verification procedures as written in the HACCP plan.
- The establishment verification employee does not actually observe the monitoring employee performing the monitoring procedure during the direct observation verification procedure.
- The verification results indicate that the establishment is not implementing the HACCP plan as written, and the establishment has not corrected the situation.
3. Recordkeeping

Methodology

IPP verify the recordkeeping requirements when performing HACCP verification tasks. IPP verify recordkeeping requirements by reviewing the following:

- The HACCP Plan
- HACCP records

Components

- IPP may use the recordkeeping and review and observation components.

Thought Process

- Gathering information by asking questions
- Assessing the information
- Determining regulatory compliance

Recordkeeping System

The regulatory requirement for a recordkeeping system is:

9 CFR 417.2(c)(6)—Provide for a recordkeeping system that documents the monitoring of the critical control points. The records shall contain the actual values and observations obtained during monitoring.

IPP verify this requirement using the recordkeeping component while performing the HACCP verification task.

- Verify compliance with 9 CFR 417.2(c)(6).
- Verify that HACCP Plan lists all records used to document the monitoring of critical control points.
- Verify that it contains the actual values and observations.
HACCP Records Requirement

The regulatory requirement for HACCP records is:

9 CFR 417.5(a)(3)—The establishment shall maintain: Records documenting the monitoring of CCP 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.

IPP will verify compliance with this regulation by performing the HACCP verification task. IPP will use the recordkeeping component to verify this regulation.

Noncompliance Examples with the HACCP Records Requirement (but not limited to)

- Establishment monitoring records do not document all monitoring activities or do not include actual times, temperatures, or other quantifiable values.
- Establishment verification records do not document all verification activities or do not include the results of verification procedures.
- Establishment corrective action records do not document all corrective actions performed by the establishment.
- Establishment HACCP records (including pre-shipment review) do not include product names, product codes, or other identifying information sufficient to demonstrate which specific production is covered by a particular record.

Records Authenticity

The regulatory requirement for record authenticity is:

9 CFR 417.5(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.

IPP will verify compliance with this regulation by performing the HACCP verification task. They are going to use the recordkeeping and the review and observation components.
Noncompliance Examples with HACCP Record Authenticity (but not limited to)

- Establishment employees do not make entries in HACCP records at the time that specific events occur.
- **Note:** Some establishments may choose to record HACCP results on “scratch paper” or a “note pad” and then transfer the results to a clean record at a later time (significantly after the event occurred), which is allowed as long as the establishment keeps the original document as part of the HACCP record.
- Establishment records do not clearly state the date and time when each entry was made
- Establishment employees do not sign or initial their entries in HACCP records.

**Computerized Records**

The regulatory requirement for computerized records is:

**9 CFR 417.5(d)—**Records maintained on computers. The use of records maintained on computers is acceptable, provided that appropriate controls are implemented to ensure the integrity of the electronic data and signatures.

IPP will verify compliance with this regulation by performing the HACCP verification task using the recordkeeping component.

**Record Retention**

The regulatory requirements for record retention and off-site storage of records are:

**9 CFR 417.5(e)(1) and (2)—**Record retention. (1) Establishments shall retain all records required by paragraph (a)(3) of this section as follows: for slaughter activities for at least one year; for refrigerated products, for at least one year; for frozen, preserved, or shelf-stable products, for at least two years. (2) Off-site storage of records required by paragraph (a)(3) of this section is permitted after six months, if such records can be retrieved and provided, on-site, within 24 hours of an FSIS employee’s request.

IPP will verify compliance with this regulation by performing the HACCP verification task using the recordkeeping component.
Noncompliance examples with Records Retention and Availability (but not limited to)

- HACCP records are not kept on-site for 6 months
- HACCP records are not maintained for the required amount of time
- A HACCP record stored off-site cannot be retrieved within 24 hours of the CSI request.

Official Review Records

The regulatory requirement for making establishment records available to IPP upon request for official review is:

9 CFR 417.5(f) Official Review—All records required by this part and all plans and procedures required by this part shall be available for official review and copying.

IPP will verify compliance with this regulation by performing the HACCP verification task using the recordkeeping component.

Supporting Documentation - Prerequisite Programs and Other Supporting Programs

The regulatory requirement that addresses the use of prerequisite programs to support decisions in the hazards analysis is:

9 CFR 417.5(a)—the establishment shall maintain the following records documenting the establishment’s HACCP plan: (1) the written hazard analysis prescribed in §417.2(a) of this part, including all supporting documentation;

Regulatory Requirements

- Regulatory requirement - 9 CFR 417.2(a)(2) and 9 CFR 417.5(a)(1).
- Results of testing and monitoring activities related to the production of product are subject to FSIS review. Results of testing are also reviewed during the performance of the Review of Establishment Testing Data Task.

Methodology

IPP verify this requirement using both the review and observation and the recordkeeping components while performing the HACCP verification task.
Reasonably Likely To Occur (RLTO)

If a hazard is reasonably likely to occur, the establishment must develop a CCP. If the hazard is considered not reasonably likely to occur, the establishment needs to support that decision.

Prerequisite Programs

- Used by establishments to support the decision in their hazard analyses that a particular potential hazard is not one that is reasonably likely to occur.

Not Reasonably Likely To Occur (NRLTO)

- There is no regulatory requirement that the prerequisite program must be written.
- If not in writing, establishment would probably not be able to support the decision the hazard is not reasonably likely to occur.

Monitoring

- Establishments are not required to “monitor” or “verify” prerequisite programs as required by the HACCP regulations, but if a prerequisite program is used as support for decisions made in the Hazard Analysis, the establishment must have sufficient records that show the program is effective and supports that decision.
- IPP cannot cite a “monitoring” noncompliance in prerequisite program.
- IPP do not verify compliance with specific regulatory requirements for monitoring, verification, and recordkeeping.
- There are no specific regulations for monitoring activities or recordkeeping practices for prerequisite programs.

Less Than Perfect

- Less-than-perfect execution may or may not be a threat to product safety.
- IPP should discuss less-than-perfect implementation of prerequisite programs with establishment management at weekly meeting.

The establishment’s response should be documented in the Memorandum of Interview (MOI).
Noncompliance Examples with the Supporting Documentation Requirement When Using a Prerequisite Program or Other Supporting Documentation (but not limited to)

- The establishment employees are not implementing the procedures in the prerequisite program sufficiently to continue to support that the relevant hazard is not reasonably likely to occur.
- The prerequisite program records indicate consistent or repeated failures to implement the procedures that are used to support the decision in the hazard analysis that the relevant hazard is not reasonably likely to occur.
- The prerequisite program records do not demonstrate that the program continues to support the decision in the hazard analysis that the relevant hazard is not reasonably likely to occur.

4. Corrective Actions

Establishment must implement the corrective actions when

1. Whenever an event occurs that requires corrective action.
2. Unforeseen hazard has occurred.
3. There is a deviation from a critical limit.

IPP are to verify that the establishment implements corrective actions that meet the regulatory requirements.

A deviation from a critical limit is the failure to meet the applicable value determined by the establishment for a CCP. If a deviation from a critical limit occurs, an establishment is required to take corrective actions in accordance with 9 CFR 417.3.

A HACCP noncompliance is the failure to meet any of the regulatory requirements of 9 CFR Part 417. If a HACCP noncompliance occurs, an establishment is expected to take immediate and further planned actions to bring itself back into compliance with regulations.

9 CFR Part 417.3(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.
9 CFR 417.3(b)—If a deviation not covered by a specified corrective action occurs, or if another unforeseen hazard arises, the establishment shall: (1) Segregate and hold the affected product, at least until the requirements of paragraphs (b)(2) and (b)(3) of this section are met; (2) Perform a review to determine the acceptability of the affected product for distribution; (3) Take action, when necessary, with respect to the affected product to ensure that no product that is injurious to health or otherwise adulterated, as a result of the deviation, enters commerce; (4) Perform or obtain reassessment by an individual trained in accordance with §417.7 of this part, to determine whether the newly identified deviation or other unforeseen hazard should be incorporated into the HACCP plan.

Noncompliance Examples with the Corrective Action Requirements (but not limited to)

One or more of the following findings is evidence that the establishment does not comply with 9 CFR 417.3(a):

- The establishment does not implement a corrective action specified in the HACCP plan in response to a deviation from a critical limit.
- The establishment’s corrective action does not identify and eliminate the cause of the deviation.
- The establishment’s corrective action does not result in the CCP coming back under control.
- The establishment’s corrective action does not prevent adulterated product from entering commerce.
- The establishment’s corrective action does not prevent recurrence of the deviation.

Noncompliance Examples with the Corrective Action Requirements (but not limited to)

One or more of the following findings is evidence that the establishment does not comply with 9 CFR 417.3(b):

- An unforeseen hazard occurs or there is a deviation not covered by a specified corrective action and the establishment fails to take the corrective actions required by 9 CFR 417.3(b).
- The establishment’s corrective action does not segregate and hold all affected product.
- The establishment does not perform a review to determine the acceptability of the affected product.
- The establishment’s corrective action does not prevent adulterated product from entering commerce.
- The establishment does not reassess the relevant HACCP plan to determine whether to address the unforeseen hazard
Pre-Shipment (before shipping) Review Requirement

The regulatory requirement for pre-shipment review is:

9 CFR 417.5(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 trained in accordance with §417.7 of this part, or the responsible establishment official.

Produced and Shipped

- Product is “produced and shipped” when the establishment completes the pre-shipment review, even if the product is still at the establishment.

Methodology

- Mostly record keeping will be used.
- There is a lot of flexibility in meeting this requirement.
- *No regulation addresses how the review is to be conducted*

Regulatory Requirement

The pre-shipment review must be signed and not just initialed. Recording the time when the review performed is not a regulatory requirement.

Note: When establishments implement prerequisite programs or other supporting programs to support the decision that the hazard is not likely to occur, the implementation of the program is verified as part of the recordkeeping requirement. The pre-shipment review is also a recordkeeping requirement.

Noncompliance Examples with Pre-Shipment Review Requirement (but not limited to)

- The establishment ships product in commerce without performing a pre-shipment review.
- The establishment transports product to another location prior to pre-shipment review and cannot demonstrate that it maintains control of the product.
- An establishment employee does not sign and date the pre-shipment review.
- An establishment employee does not review the appropriate HACCP records associated with the production covered by the pre-shipment review.
### Goat Slaughter HACCP Plan

<table>
<thead>
<tr>
<th>Process Step</th>
<th>CCP Number</th>
<th>CCP Description</th>
<th>Critical Limits</th>
<th>Monitoring Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carcass Trim zero tolerance</td>
<td>1B</td>
<td>No visible contamination</td>
<td>No visible feces, milk, or ingesta</td>
<td>Every carcass will be visually examined by the carcass trimmer for visible feces, ingesta, or milk</td>
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</table>

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<table>
<thead>
<tr>
<th>Slaughter Number</th>
<th>Feces, ingesta, milk present? (Y or N)*</th>
<th>Performed by</th>
<th>Date:</th>
<th>Time</th>
<th>Corrective Actions and/or Comments</th>
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<tbody>
<tr>
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<td>N</td>
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<td>2-8-12</td>
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</table>

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**HACCP plan: Beef Sticks, Heat Treated, Shelf-stable**

<table>
<thead>
<tr>
<th>CCP #</th>
<th>Critical Limits</th>
<th>Monitoring Procedures &amp; Frequencies</th>
<th>HACCP Records</th>
</tr>
</thead>
</table>
| 2. Lethality | ≥158°F | Select 3 beef sticks at the specified cold spot, measure the internal temperature with a thermocouple thermometer and record the lowest temp. | Lethality log  
Corrective action log  
Calibration log |
HACCP plan: raw boneless skinless chicken breasts

<table>
<thead>
<tr>
<th>CCP #</th>
<th>Critical Limits</th>
<th>Monitoring Procedures &amp; Frequencies</th>
<th>HACCP Records</th>
<th>Verification Procedures &amp; Frequencies</th>
<th>Corrective Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Chilling</td>
<td>Product temperature not to exceed 40 degrees F</td>
<td>QC personnel will record temperature every 4 hours</td>
<td>Product Temperature Log</td>
<td>HACCP Coordinator will review the Product Temperature Log and observe QC personnel performing monitoring once per shift</td>
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<td>Corrective Action Log</td>
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<td>Corrective Action Log</td>
<td>Corrective actions shall meet all requirements of Part 417.3(a)</td>
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<td></td>
<td>Thermometer Calibration Log</td>
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Thermometer Calibration Log

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<thead>
<tr>
<th>Thermometer ID #</th>
<th>Temperature</th>
<th>Adjustment Required?</th>
<th>Date</th>
<th>Time</th>
<th>Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>32</td>
<td>No</td>
<td>1-2-12</td>
<td>5:23 am</td>
<td>NM</td>
</tr>
<tr>
<td>A2</td>
<td>32</td>
<td>No</td>
<td>1-2-12</td>
<td>5:25 am</td>
<td>NM</td>
</tr>
</tbody>
</table>

Product Temperature Log

<table>
<thead>
<tr>
<th>Time</th>
<th>Temperature</th>
<th>Initials</th>
<th>Comments</th>
<th>Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:20 am</td>
<td>36</td>
<td>NM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7:30 am</td>
<td>38</td>
<td>NM</td>
<td></td>
<td>Direct observation, results as per HACCP plan JP 7:30 am, 1-2-12</td>
</tr>
</tbody>
</table>

Workshop – Slide 26

HACCP Plan for fermented semi-dry sausages

<table>
<thead>
<tr>
<th>CCP #1 – Biological</th>
<th>Critical Limit</th>
<th>Monitoring Procedures and Frequency</th>
<th>Verification Procedures and Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fermentation (pH and temperature)</td>
<td>Achieve a pH of 5.2 or less within 12 hours from the start of the fermentation process for <em>S. aureus</em> control, to prevent <em>C. botulinum</em> and <em>C. perfringens</em> growth, and to suppress the growth of <em>Listeria monocytogenes</em> during the shelf life</td>
<td>Production foremen will enter the start and finish time for the fermentation process on the fermentation log. QC will select three samples from different locations of each batch of product, blend or emulsify the sample, and measure the pH using a pH meter. The highest result will be recorded on the pH log. Production foreman will observe the room temperature recording chart once per shift and enter the result on the fermentation log.</td>
<td>QC supervisor will review fermentation and pH logs and observe QC selecting samples, measuring pH and recording the result and the production foremen recording results. Maintenance personnel will check the accuracy of the recording chart thermometer probe and chart and calibrate as needed.</td>
</tr>
</tbody>
</table>
### Workshop – Slide 31

**Pathogen Reduction Log**

<table>
<thead>
<tr>
<th>Date</th>
<th>Lot No.</th>
<th>Time</th>
<th>Solution Conc. (%)</th>
<th>Pressure (psi)</th>
<th>Corrective Actions</th>
<th>Monitored by</th>
<th>Verified by</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1-2012</td>
<td>1</td>
<td>0730</td>
<td>OK</td>
<td>OK</td>
<td>-</td>
<td>TDM</td>
<td>*PP</td>
</tr>
</tbody>
</table>

*direct observation verification-results as per HACCP plan

### Workshop – Slide 33

**Thermometer Calibration Log**

Calibrate to 32° F while in slush ice water

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Dept.</th>
<th>Thermometer ID</th>
<th>Personal Thermometer Reading</th>
<th>Adjustment Required? (Yes or No)</th>
<th>initials</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/15/2012</td>
<td>PM</td>
<td>Carcass Cooler</td>
<td>2B</td>
<td>32°F</td>
<td>No</td>
<td>TDM</td>
<td></td>
</tr>
</tbody>
</table>

**Reprocessing Log**

<table>
<thead>
<tr>
<th>Time</th>
<th>Product ID</th>
<th>Results of Inspection</th>
<th>Monitor Initials</th>
<th>Verification procedure and results</th>
<th>Corrective Actions or Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0645</td>
<td>Lot 1</td>
<td>0</td>
<td>BK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0750</td>
<td>Lot 1</td>
<td>0</td>
<td>BK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0840</td>
<td>Lot 2</td>
<td>1</td>
<td>CH</td>
<td>½ inch smear of green fecal material</td>
<td></td>
</tr>
<tr>
<td>0955</td>
<td>Lot 2</td>
<td>0</td>
<td>BK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1330</td>
<td>Lot 3</td>
<td>0</td>
<td>CH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1430</td>
<td>Lot 4</td>
<td>0</td>
<td>CH</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
16 Slaughter Food Safety Standard

Objectives:

1. List the three contaminants covered by the food safety standard in livestock slaughter.
2. Identify the carcass parts that must be free of the three contaminants covered by the livestock food safety standards.
3. Identify the location where FSIS verifies the food safety standard for livestock carcasses.
4. Identify the contaminants covered by the food safety standard in poultry standard.
5. Identify the location where FSIS verifies the food safety standards for poultry carcasses.
6. Describe how to perform the livestock zero tolerance verification task.
7. Describe how to perform the poultry zero tolerance verification task.
8. List the actions IPP take when they find a zero tolerance failure during the performance of the poultry and livestock zero tolerance verification tasks.
9. Describe the enforcement actions when repetitive zero tolerance noncompliance is documented in PHIS.

The Food Safety and Inspection Service (FSIS) published in FR 97-067N notification that the Agency views its “zero tolerance” for visible fecal material as a food safety standard. In slaughter establishments, fecal contamination of carcasses is the primary avenue for contamination by pathogens, including Shiga toxin-producing E. coli (STECs), Salmonella, and Campylobacter.

Pathogens may reside in fecal material, both in the gastrointestinal tract and on the exterior surfaces of the animal or bird going to slaughter. Without proper handling and sanitary dressing procedures during slaughter, the edible portions of the carcass can become contaminated with bacteria capable of causing illness in humans. The organisms may spread directly from carcass to carcass or indirectly by hands, utensils, or equipment.

Enforcing Food Safety Standard for Livestock Postmortem


The contaminants that are covered by the food safety standard in livestock slaughter are feces, ingesta, milk. Carcasses, and head meat, cheek meat and weasand meat must be free of these contaminants.

On-line IPP verify the removal of contamination while examining heads, viscera, carcasses, and carcass parts during post-mortem inspection. If on-line IPP observe contamination on heads, viscera, carcasses and carcasses parts, IPP do not pass the carcass or part until all of the contamination is promptly removed in a satisfactory manner. When contamination is present the line is stopped unless the establishment provides a rail-out loop and the IIC has no concerns about the rail-out procedures. On-line IPP will notify the IIC when they suspect the establishments slaughter or sanitary dressing procedures are not under control or rail-out procedures are inadequate. IPP verify that livestock slaughter establishments are complying with 9 CFR 310.17(a), and 9 CFR 310.18(a).
Off-line IPP are to perform the Livestock Zero Tolerance Verification task on carcasses and head, cheek, and weasand meat at a **minimum of one time per slaughter shift**.

When performing the Livestock Zero Tolerance Verification Task, inspection program personnel (IPP) are to **determine the number of carcasses** or carcass sides to be examined **based on the expected slaughter volume** for that shift (number of animals). For head, cheek and weasand meat, IPP are to examine no less than the amount of product the establishment has listed in its HACCP plan for the monitoring procedure.

FSIS verify the food safety standards for livestock carcasses **at or after the postmortem rail inspection station and before the final wash**, or any additional trimming, washing, or application of any interventions.

FSIS verify the food safety standard for **head meat, cheek meat, and weasand meat** in livestock slaughter operations **at the completion of the harvesting process, after all of the establishment controls and interventions**. This verification may occur at the time of packaging or when the product is placed in a container for storage.

For livestock (except swine) the HACCP plan must include, as appropriate, **critical control points (CCPs) that are designed to control identified food safety hazards** (9 CFR 417.2(c)(2)). This is because fecal material is a vehicle for pathogens, and because virtually all slaughter establishments recognize that contamination of meat by pathogenic microorganisms from fecal material, ingesta, or milk is a food safety hazard that is reasonably likely to occur in the slaughter production process.

Note: 9 CFR 310.18(c) requires **swine slaughter establishments** to develop, implement, and maintain written procedures to prevent contamination of carcasses and parts by enteric pathogens, and visible fecal material, ingesta, and milk contamination throughout the entire slaughter and dressing operation. Establishments must incorporate these procedures into their HACCP plans, or sanitation SOPs, or other prerequisite programs.

**Enforcing the Food Safety Standard for Poultry Postmortem**

References: FSIS Directive 6420.5, 6500.1, FSIS Regulation 9 CFR 381.65(f), and part 417.

The contaminant that is covered by the food safety standard in **poultry** slaughter is **feces**. At poultry slaughter, the fecal contamination checks are performed at either **pre-chill testing station** or **any location after final trimming** prior to the chiller tank in establishments operating under traditional inspection.

**Off-line** IPP are to conduct the Poultry Zero Tolerance task **at least two** fecal contamination checks for each evisceration **line for every shift**. The verification method involves randomly selecting ten carcasses and examining following the FSIS Directive 6420.5.

**Note**: Poultry major portions and parts are not subject to poultry zero tolerance verification but **are** subject to slaughter HACCP or SSOP verification.
Documenting Compliance with the Zero Tolerance Task

When IPP do not observe any fecal material, ingesta, or milk on livestock carcasses or on head, cheek, or weasand meat, or feces on poultry carcasses during the verification, they select the mandatory regulation on the “Regulations” tab. IPP mark the zero-tolerance task as ‘Inspection Completed’ at the bottom of the Inspection Results page.

Documenting Noncompliance with the Zero Tolerance Task

If IPP find feces, ingesta, or milk on livestock carcasses or head meat, cheek meat, or weasand meat while performing the livestock zero tolerance verification task, or find feces on poultry carcasses while performing the poultry zero tolerance verification task, IPP are to:

• Verify regulatory requirements associated with 9 CFR 310.18(a) (livestock) or 9 CFR 381.65(f) (poultry);

• Notify the establishment that a zero tolerance noncompliance with 9 CFR 310.18(a) or 9 CFR 381.65(f) exists;

• Document the noncompliance on an NR citing 9 CFR 310.18(a) or 9 CFR 381.65(f);

• For poultry zero tolerance failures include a statement that the establishment is not preventing feces from entering the chiller.

Additional Verification after Positive Zero Tolerance Findings (Livestock except Swine)

• When IPP determine zero tolerance noncompliance while performing the zero tolerance verification task they are to perform a Slaughter HACCP Verification task to verify that the establishment performs corrective actions for the affected product in accordance with 9 CFR 417.3(a).
Additional Verification after Positive Zero Tolerance Findings (Poultry or Swine)

After notifying the establishment of the zero-tolerance noncompliance, off-line IPP are to:

• Schedule either a directed Slaughter HACCP or Operational SSOP Review and Observation verification task in PHIS;

• Indicate “zero tolerance noncompliance” as the reason for performing the directed task in PHIS; and

• Verify the establishment has performed all the required corrective actions in accordance with 9 CFR 417.3(a) if the controls are in the HACCP plan, 9 CFR 417.5(a)(1) if the controls are in the prerequisite programs, or 9 CFR 416.15(b) if the controls are in the SSOP’s and is properly implementing its HACCP system.

Note: If IPP find zero tolerance failures on livestock carcasses past the final rail or on poultry carcasses, major portions, or parts at or beyond the pre-chill testing station while performing inspection tasks other than the zero tolerance task (“stumble-on” occurrences), they are to document the noncompliance under the appropriate PHIS task (Slaughter HACCP or Operational SSOP Review and Observation verification task).

The System Approach in Enforcement

If IPP find repeated zero tolerance noncompliances and determine that these findings are from the same cause or indicate a systemic issue, the current NR is to be associated with the most recent zero tolerance or related NR. When associating NRs for the same cause, IPP are to follow the methodology set out in FSIS Directive 5000.1.

If the findings do not show the same cause, IPP are NOT to associate the NRs.
17 Salmonella & Campylobacter Testing

Objectives:

1. Understand why Salmonella and Campylobacter is a huge concern for FSIS and Industry in poultry slaughter and processing establishments.

2. List the types of product that are eligible for testing.

3. Recognize the sampling codes for the eligible products.

4. Know the frequency at which samples should be taken.

5. Explain how FSIS uses the moving window approach when assessing process control.

6. Explain how to obtain completed results using LIMS-Direct and PHIS.

7. Understand the three process control categories.

8. Know what actions to take when an establishment is in Category 2 or 3.

9. Explain when and how to document a MOI regarding categorization.

10. Be able to verify ineligible raw product destined for ready-to-eat at an official establishment.

Performance Standards

The purpose of the microbiological performance standards for the reduction of Salmonella in raw products is to allow FSIS to verify whether establishments have effective process controls to address Salmonella.

FSIS originally selected Salmonella as the target organism because it is a commonly reported cause of foodborne illness and is present in all major species.

Salmonella bacteria are the most frequently reported cause of foodborne illness.

Campylobacter species, specifically C. jejuni and C. coli, are most often isolated from the intestinal tract of poultry as well as in poultry products. Campylobacter bacteria are the second most frequently reported cause of foodborne illness, and C. jejuni is the most common strain causing illness.

Salmonella and Campylobacter contamination of raw poultry products occurs during slaughter operations, as well as during the live animal rearing process. Contamination can be minimized with the use of proper sanitary dressing procedures and by the application of antimicrobial interventions during slaughter and fabrication of the carcasses into parts and comminuted product. In addition, if raw poultry is improperly handled during food preparation, Salmonella and Campylobacter can cross-contaminate other foods or food contact surfaces.
Salmonella and Campylobacter verification sampling is conducted in establishments by FSIS inspection program personnel (IPP). IPP will collect samples using ongoing scheduled sampling (routine sampling), employing a moving window approach to assess process control for all Salmonella and Campylobacter performance standards.

ASEPTIC SAMPLING

FSIS inspectors collect verification samples using aseptic techniques. Aseptic techniques help prevent contamination of the sample and help protect the integrity of subsequent test results.

Follow these steps:
1. Choose a staging area for gathering and preparing your sampling supplies. Use a wheeled, stainless-steel cart and a small tote or caddy to transport your supplies and the sample to and from the sample collection location.
2. Prepare the supplies you need for the specific sampling project. For example, for sampling turkey carcasses, you would mix the sample solution with sponges prior to collecting the sample.
3. Label your sample containers before collecting the sample.
4. Wear a clean lab coat and hair net to avoid contamination. Follow your plant’s garment requirements when you collect the samples.
5. Wash your hands and forearms and dry them with a paper towel. (If there is no sink at the sample collection location, wash your hands and forearms when you first enter the processing floor and head directly to the sampling location. Another option is to use a waterless hand sanitizer.)
6. After cleaning your hands and forearms, clean and sanitize your work surfaces. Use the same sanitizing solution the establishment uses, according to label directions. Allow the surface to air dry completely prior to placing any sampling utensils on it.
7. Ensure that your sample collection equipment is clean, sanitized, or sterile, as applicable to the sampling project. Clean totes frequently that are used to store and transport supplies.
8. Put on the gloves included in your sampling supplies. (See Gloving Technique below.) If the gloves tear or become contaminated at any time, discard them and put on a new pair. Once you put on the gloves, touch nothing other than the sample equipment and sample.
9. Follow the sample collection protocol. Collect all samples in sterile containers that came with the sample supplies. Ensure that no items, surfaces, or clothing touch the sample or sampling site.
10. When you collect liquid samples in a jar with a lid, hold the lid in one hand while collecting the sample. If any product spills on the outside of the jar, cap the jar and wipe it clean with a dry paper towel. Do not use any sanitizer solution to clean the jar.
GLOVING TECHNIQUE

1. Wash and sanitize your hands up to the mid-forearm. Dry your hands using disposable paper towels. If a sink is not available at the sample collection location, use a waterless sanitizer. Wash your hands prior to sanitizing the work surface as well.
2. The gloves will arrive in secondary packaging. After you sanitize your work surface, open the glove package on the sanitized surface.
3. Pinch the cuff end with two fingers to pull the gloves from the outer packaging, protecting the outer surface from contact with any un-sanitized surfaces.
4. Hold the glove open at the inside cuff area. Insert your hand into the glove, palm side up. Put on the first glove: grasp and pull the cuff with your ungloved hand. If your fingers become stuck, gently wiggle them while gently pulling the cuff. To protect from contamination, do not touch your gloved hand to any un-sanitized surface. If the glove tears or becomes contaminated, discard it and put on a new pair. (If you need more gloves, send a request to the laboratory on the sampling form or in the instructions specific to the sampling project.)
5. Put on the second glove: use your gloved hand to slide your fingers under the cuff. Grasping the cuff with your gloved hand, insert the fingers of your non-gloved hand into the glove and pull the glove on.
6. Once you have donned both gloves, you may touch the outside of a glove with the other gloved hand to adjust the fit. To avoid contamination, be careful not to touch any un-sanitized surfaces with your gloved hands.
7. If at any time you think a glove may have become contaminated, discard it and repeat the donning procedure with a new pair.

POULTRY CARCASSES:

(1) Young chicken carcasses including broilers, fryers, roasters, and Cornish game hens, as described in 9 CFR 381.170(a) (HC_CH_CAR01), and

(2) Young turkey carcasses (HC_TU_CAR01)

Collecting the Sample

How To Collect the Sample:

1. IPP are to randomly select a carcass from the post-chill area after all interventions have taken place.
2. IPP are to allow excess fluid to drain (for at least 1 minute) without contaminating any sterile sample items.
3. Place the carcass in the bag (neck first) and place the bag with the carcass on the flat sanitized surface.
4. Gently invert the sampling broth container three (3) times immediately prior to pouring the broth into the cavity of the carcass inside to the bag.
5. Once the broth has been added to the carcass, remove the excess air from the bag, close it and mix the broth through the carcass cavity and outside of the carcass for one minute.
6. Place the bag with the chicken on the sanitized flat surface with the top of the bag facing up.
7. Carefully open the plastic bag containing the bird without touching the inside of the bag or the inside corners.
8. Work the plastic bag down around the carcass and firmly grip one leg, without touching the inside of the plastic bag.
9. While holding the bag with one hand, carefully remove the bird from the bag with the other hand and place the bird back on the conveyor or table.
10. Remove the screw-cap from the sterile sample container and aseptically pour 100 ml of rinsate into the sample container.
11. Close the sample container while trying not to touch the inside of the lid so that it does not contaminate the sampling broth. (Ensure that the lid is correctly threaded and tightened, but do not over-tighten.)
12. Place the sample container in the small resealable bag, expel excess air, and seal the bag.
13. Discard all remaining liquid from the carcass rinse bag into a drain (do not share remaining rinsate with establishment personnel).
14. Refrigerate the sample promptly after collection. IPP are to hold the rinsate in a refrigerator set at 40° F or lower and under FSIS control until the samples are shipped. IPP are not to freeze samples.

RAW CHICKEN PARTS (HC_CPT_LBW01):

Products eligible for sample collection under the chicken parts sampling project include raw chicken legs, breasts, and wings that would typically be available for consumer purchase. These products can be skin-on or skinless and can be bone-in or boneless. Eligible parts can be mechanically tenderized, vacuum tumbled, or injected or otherwise marinated or coated in solutions or dry spice mixtures, but cannot be breaded, stuffed, or wrapped in dough.

Cut-up chicken parts are eligible for sampling provided they are equal to or larger than 3/4 inch in size in at least one dimension and are of a type that would typically be available for consumer purchase.

1. For legs, whole legs (no backbone attached), drumsticks, thighs, thighs with backbone attached, and cut up or portioned leg meat (3/4 inch or larger in at least one dimension) are eligible for sampling;
2. For breasts, whole and half breasts (with or without ribs), boneless and skinless chicken breasts, tenderloins and tenders, and cut up or portioned breast meat (3/4 inch or larger in at least one dimension) are eligible for sampling; and
3. For wings, whole wings (with or without the wing tip), mixed wing sections, drummettes, midsections (flats), wing tips, and boneless wings are eligible for sampling.
How to Collect the Sample:

IPP are to collect a rinsate from 4 lbs ± 10% (3 pounds, 10 ounces to 4 pounds, 6 ounces) of the specified raw chicken parts. Finished chicken parts are to be sampled prior to freezing.

1. Randomly select which available eligible chicken parts (legs, breasts, and wings) to sample.
2. Collect and place into the sampling bag approximately 4 lbs ± 10% (3 pounds, 10 ounces to 4 pounds, 6 ounces) of randomly selected product. (Avoid transferring excess processing liquid when placing the chicken parts in the sampling bag).
3. Place the bag with the parts on the flat sanitized surface.
4. Gently invert the sampling broth container three (3) times immediately prior to adding the sampling broth to the chicken parts.
5. Open the container and pour the sampling broth onto the parts inside the bag.
6. Once the broth has been added to the bag, remove the excess air from the bag, close it and mix the broth throughout the parts for one minute.
7. Place the bag with the chicken parts on the sanitized flat surface with the top of the bag facing up;
8. Carefully open the plastic bag containing the parts without touching the inside of the bag or the inside corners.
9. Pour approximately 120 ml of the sampling broth into the specimen jar. Do not allow the bag to touch the sterile specimen jar.
10. Close the sample container while trying not to touch the inside of the lid so that it does not contaminate the sampling broth. (Ensure that the lid is correctly threaded and tightened, but do not over-tighten.)
11. Discard any remaining rinse fluid into a drain and return the parts to where you initially collected them unless the establishment requests otherwise.
12. Refrigerate the sample promptly after collection. IPP are to hold the rinsate in a refrigerator set at 40° F or lower and under FSIS control until the samples are shipped. IPP are not to freeze samples.

NRTE GROUND AND OTHER COMMINUTED POULTRY SAMPLING PROGRAM (HC_CH_COM01):

NRTE comminuted poultry is any non-breaded, non-battered, raw NRTE chicken or turkey product that has been processed to reduce the particle size, which may or may not contain added ingredients. NRTE comminuted poultry includes:

- Ground (ground product group category) – Ground chicken or turkey for any purpose (e.g., packed for consumer or for any type of further processing); or
- Mechanically Separated (Mechanically Separated product group) – mechanically separated chicken or turkey, as defined in 9 CFR 381.173; or
- Hand or mechanically deboned and further chopped, flaked, minced, or otherwise processed to reduce particle size. Chicken or turkey product, other than ground or mechanically separated falls under the “Other Comminuted” product group (sausage, patties, meatloaf, and other non-breaded and non-battered comminuted products).
NRTE comminuted chicken product may be derived from any age chicken, including young chickens (broilers, fryers, and roasters), fowl, capons, and roosters, as defined in 9 CFR 381.170(a)(1).

NRTE comminuted turkey product may be derived from any age turkey, including young turkeys, yearling turkeys, and old turkeys, as defined in 9 CFR 381.170(a)(2).

The following products are not eligible for sampling under this project:

1. Injected, needle- or blade-tenderized, or vacuum tumbled raw poultry parts or carcasses, because they are not considered to be NRTE comminuted poultry;
2. Mixed-species NRTE comminuted poultry products (for example, raw sausage containing both raw ground turkey and raw ground pork or containing both raw ground chicken and raw ground turkey);
3. Diced, chunked, or sectioned poultry that is not in small pieces or that is otherwise not comminuted. In general, this would refer to pieces 3/4 inch or greater in any dimension;
4. Hand- or mechanically-deboned products that are not further chopped, flaked, minced, or otherwise processed to reduce particle size;
5. Whole muscle parts because they are not comminuted;
6. Poultry trimmings because they are not comminuted;
7. Comminuted poultry that is portioned (product from a larger package broken down into smaller packages but not cut-up or otherwise processed) only or repackaged only;
8. Any NRTE finished product containing comminuted poultry that has been cooked or heat-treated (for example, in the HACCP processing category “Heat-treated but not Fully Cooked – Not Shelf Stable”); and
9. Dumplings, wontons, potstickers, eggrolls, pelmeni, or other comminuted chicken or turkey products wrapped in dough or other similar covering (nor their source material when these are the final products in the establishment).

When an establishment processes all its products into ready-to-eat (RTE) product or diverts all of its raw products (including NRTE comminuted poultry) to another federally inspected establishment for further processing into an RTE product, FSIS will exclude the establishment from the Salmonella verification-testing program schedule.

If an establishment states that the intended use of its ground or comminuted product produced is RTE product, then IPP are to verify the intended use while performing the appropriate HACCP task. IPP are to verify, either by observing or by reviewing records, that the entire product is actually processed into RTE product. IPP should verify:

1. HACCP records matched with Bills of Lading
2. Letters of Guarantee
3. Contractual agreements between the producing establishment and receiving establishment

It is not sufficient for the IPP to accept only labels that state "for further processing."

It is not sufficient if the establishment only maintains a letter from the receiving establishment that says it only produces RTE product, without the receiving establishment gathering
additional information to verify that all product is processed into RTE product in an official establishment.

* Note: If an establishment does not have procedures incorporated into its food safety movement of all product to another federally-inspected establishment, at which the product is further processed into RTE products, the establishment is subject to sampling under the *Salmonella* and *Campylobacter* Verification Testing program.

**How to Collect the Sample:**

1. IPP are to randomly collect eligible raw comminuted poultry samples by product group.
2. IPP are to collect finished product in its final package whenever possible.
   a. IPP are to collect the appropriate number of packages so that the sample equals two pounds or may collect a slack-filled package for larger products. IPP are to place the product collected in its final packaging in the larger, nonsterile bag provided with the sampling supplies.
3. For finished product not available in final packaging or when the package is too large, IPP are to collect the sample aseptically, as close to packaging as possible, after all antimicrobial interventions have been applied.
   a. Collect sufficient product to fill the two provided Whirl-Pak® bags up to the fill-line indicated on each bag. When the bag is closed, product should meet the line indicated on the Whirl-Pak® bag.
   b. Ensure that each Whirl-Pak® bag is properly closed. To do this, IPP are to carefully squeeze out the air remaining in the bag and tightly fold over the top at least four times as trapped air and loose closures may lead to leakage. When folding over the tops of each bag, IPP are to ensure that they do not touch the bag near its opening. Next, IPP are to fold over the side tabs to secure the folds in place and to not tie the ends. This process is to be repeated for the second bag.
   c. IPP are to place both Whirl-Pak® bags in the same secondary containment bag (zipper-lock type bag), expel excess air from the bag, and close the containment bag using the zipper lock closure.

**PERFORMANCE STANDARDS – FSIS DIRECTIVE 10,250.2**

The *Salmonella* and *Campylobacter* performance standards apply to the establishment’s overall process control, not to individual products. Products are not tested to determine their disposition, but rather to measure the effectiveness of the slaughter and grinding process in limiting contamination. Establishments do not have to hold product or recall product based on results of the *Salmonella* and *Campylobacter* samples.

*Salmonella* and *Campylobacter* performance standard verification samples are taken as part of a 52-week moving window and the results are used to determine if an establishment is meeting the performance standard on a continuous basis.

In conclusion, establishments fail to meet the standards when verification samples are found to exceed the maximum allowed percent positive during a 52-week analysis period (moving window).
The purpose of the *Salmonella* and *Campylobacter* verification-sampling program is to verify the establishment’s process control for all applicable products. All eligible products produced at an establishment will be scheduled for sampling during the month under routine sampling.

<table>
<thead>
<tr>
<th>Product</th>
<th>Max Acceptable % Positive</th>
<th>Performance Standard</th>
<th>Minimum # of Samples to Assess Process Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>Salmonella</em></td>
<td><em>Campylobacter</em></td>
<td><em>Salmonella</em></td>
</tr>
<tr>
<td>Broiler Carcass</td>
<td>9.8</td>
<td>15.7</td>
<td>5 of 51</td>
</tr>
<tr>
<td>Turkey Carcass</td>
<td>7.1</td>
<td>5.4</td>
<td>4 of 56</td>
</tr>
<tr>
<td>Comminuted Chicken</td>
<td>25.0</td>
<td>1.9</td>
<td>13 of 52</td>
</tr>
<tr>
<td>Comminuted Turkey</td>
<td>13.5</td>
<td>1.9</td>
<td>7 of 52</td>
</tr>
<tr>
<td>Chicken Parts</td>
<td>15.4</td>
<td>7.7</td>
<td>8 of 52</td>
</tr>
</tbody>
</table>

**Performance Categorization**

**Category 1 – Consistent Process Control**: Establishments that have achieved 50 percent or less of the maximum allowable percent positive during the most recent completed 52-week moving window.

**Category 2 – Variable Process Control**: Establishments that meet the maximum allowable percent positive but have results greater than 50 percent of the maximum allowable percent positive during the most recent completed 52-week moving window.

**Category 3 – Highly Variable Process Control**: Establishments that have exceeded the maximum allowable percent positive during the most recent completed 52-week moving window.

**IPP Responsibilities**

*For Category 2* – IPP and supervisors will receive an alert entitled, “Warning: Product Exceed One Half of Performance Standard”, through the PHIS dashboard. During the next weekly meeting, IPP will discuss with plant management that the results indicate variable control of *Salmonella*, as well as advise the establishment to make changes to avoid failing the performance standard; document the discussion in an MOI.

*For Category 3* – IPP and supervisors will receive an alert entitled, “Failure to Meet a *Salmonella* Performance Standard”, through the PHIS dashboard. During the next weekly meeting, IPP will discuss with plant management the failure to meet the *Salmonella* performance standard and that FSIS will be collecting follow-up samples; document in an MOI.

In addition, IPP are to determine if:

- Corrective actions have been identified and implemented as written, as per 9 CFR 417.3;
- Establishment has reassessed its HACCP system and modified its HACCP plan including supporting documentation (417.3(b) and 381.65(g)).
The follow-up samples will be assigned for raw poultry carcasses, chicken parts, and NRTE comminuted poultry products under the project codes below:

F_CH_CARC01 (for young chicken carcasses)
F_TU_CARC01 (for young turkey carcasses)
F_CPT_LBW01 (for raw chicken parts)
F_CH_COM01 (for NRTE comminuted chicken product)
F_TU_COM01 (for NRTE comminuted turkey product)

FSIS Directive 10,250.1 describes the sampling steps appropriate to the product class sampled. For NRTE comminuted poultry products and raw chicken parts, IPP are to follow instructions as stated in the “IPP Help” menu under FSIS Applications. Following is a brief narrative for the procedures described in FSIS Directive 10,250.1 that the IPP will be carrying out when collecting the samples.

IPP can review the status and results of the sampling through LIMS (Laboratory Information Management System) Direct. You can access the link for LIMS under the FSIS Applications short cut on your FSIS government computer.

Documenting the MOI

IPP are to ensure that the MOI documenting the weekly discussion with the establishment management follows the content and formatting guidance in Chapter IV of FSIS Directive 8010.2 Investigative Methodology.

1. It is written in the first-person point-of-view of the FSIS employee preparing the MOI.
2. Documents the date and location of the meeting.
3. Documents the name and official position of the FSIS employee conducting the meeting and of any other FSIS employee present.
4. Documents the name and official position of all establishment employees attending the meeting.
5. Summarize all information discussed during the meeting.
6. Includes a closing statement certifying that the MOI includes all the information discussed during the meeting.
7. Is promptly signed and dated by the preparer upon completion.
18 Raw Beef Sampling

Objectives:

1. Identify the pathogen of concern for raw beef products.
2. Select from a list those raw beef products eligible for sampling.
3. State where to find FSIS raw beef product sampling instructions.
4. Explain the steps of raw beef product sampling.
5. Describe how to determine which raw beef product to sample.
6. State how sample results are received.
7. State when to mail samples to the FSIS laboratory.
8. List the actions associated with positive pathogen results.
9. List the requirements for transportation of raw beef product which has tested positive or presumptive positive for a pathogen.
10. Explain the IPP responsibilities for review of establishment sampling data.

In raw beef, the pathogen of concern is the Shiga toxin-producing *E. coli* group (STEC). *E. coli* O157:H7 is a foodborne pathogen, but it is not the only one; other serogroups are pathogenic as well. It is a food safety hazard that establishments need to consider in their hazard analysis if slaughtering, receiving, grinding, or otherwise processing raw beef products.

Non-intact raw beef products such as ground beef or mechanically tenderized beef which are contaminated with *E. coli* O157:H7 or one of six STECs or intact raw beef intended for non-intact are considered adulterated.

Sampling programs are designed to verify that HACCP systems are effective in controlling harmful microorganisms in meat and/or poultry products.

Definitions

*Alternative* - Alternative sampling and alternative lotting.

*Recall* - An establishment’s voluntary removal of distributed meat or poultry products from commerce.

*Sample* - Collection of products that represents a larger amount of product.

*Sampled lot* - Amount of product represented by the sample.

The establishment determines their lotting procedures. Establishments must support how they identify adulterated product when they experience a positive sample result.
Samples are selected randomly from the type of product requested. Select day, shift, and time within the collection dates indicated in PHIS establishment Task List. Sample during all shifts that the establishment operates. Samples are collected after all antimicrobial interventions are applied to the production lot to be sampled, except for any microbiological testing intervention. Take samples prior to freezing—an exception is when the freezing step is a CCP in the HACCP plan. Collect in their final packaged form, using aseptic technique. If the product is not in its final package, you must put the grab samples in the sterile Whirl Pak bags.

PHIS task name will identify the sampling project code. Determine eligible products, focusing on the establishment's process(es), and allow adequate time for the establishment to hold the sampled lot, but not enough time for them to alter their normal processes—less than 1 days’ notice (if it does not cause undue hardship to the plant), 1 days’ notice is sufficient, but possibly 2 days’ notice if necessary. If more than 2 days’ notice is requested, contact your supervisor. IPP collect supplier information for each sample taken, at the time the sample is taken. The goal of traceback is two-fold: (1) to ensure all affected product is quickly accounted for and (2) to trace it back to the originating slaughter plant. The DO will use the supplier information to identify the originating slaughter facility, if the sample result is confirmed positive. Information that needs to be collected for source materials from other establishments includes name of the beef components or information that clearly identifies the source material. Document the source material and foreign supplier information in a memorandum of interview (MOI) in PHIS and maintain the MOI in the official file. Provide a copy to establishment management. You also make a note of any information that the establishment is unable to provide in the MOI.

An accurate Establishment Profile is critical – FSIS uses the information in the PHIS establishment profile to generate specific sampling tasks.

The key policy related to raw beef sampling can be found in FSIS Directive 10,010.1 Rev. 4, Sampling Verification Activities for Shiga Toxin-Producing Escherichia coli in Raw Beef Products. This directive has been revised with instructions for collecting and submitting samples of raw beef products. Below is an abbreviated version of sampling directions.
Sampling Project Codes

The routine sampling project codes for *E. coli* O157:H7 testing at domestic federal establishments are:

- **MT60** – Raw Beef Manufacturing Trimmings from cattle slaughtered onsite (Analyzed for *E. coli* O157:H7, non-O157:H7 STEC, and *Salmonella*).

- **MT64** – Components other than Trim (Analyzed for *E. coli* O157:H7 and *Salmonella*).

- **MT65** – Bench Trim, derived from cattle not slaughtered at the establishment (Analyzed for *E. coli* O157:H7 and *Salmonella*).

- **MT43** – Routine Testing of Raw Ground Beef in Federal establishments (Analyzed for *E. coli* O157:H7 and *Salmonella*).

Collection Steps for MT 60/ MT 65 (The N60 method)

1. Sanitize the knife, steel and hook. Wash and dry hands, open the sterile Whirl Pak® bags and then put on the sterile gloves (Don’t forget to wear a mesh glove under the sterile glove).

2. If a specific production lot is composed of greater than 5 containers, randomly select 5 containers for sampling. If the specific production is composed of fewer than 5 containers, use the table below.

<table>
<thead>
<tr>
<th>Number of Sample Pieces to Collect Per Container</th>
</tr>
</thead>
<tbody>
<tr>
<td># of containers in each specific production</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

3. Aseptically collect the appropriate number of pieces of beef **trim from one production lot**. Cut off a slice of the surface that is approximately 3 inches long by 1 inch wide and 1/8 inch thick from each of the **60 pieces of meat**. The priority is to collect samples from pieces of product
taken from the original external surface of the beef carcass (this is the outside surface of the carcass when it is first dehided). It is important to collect thin slices because the surface of the beef carcass can be contaminated through improper sanitary dressing procedures. Also, make sure that each sample slice contains some meat and only collect one slice from each piece of trim.

4. Place each slice in one of the sterile Whirl-Pak® bags. Continue this process until you have collected 30 pieces in one Whirl-Pak® bag. Next, repeat the same steps with the second Whirl-Pak bag.

5. In the third sterile Whirl-Pak® bag, aseptically collect samples of trimmings from the same production lot by using a grab sample technique. Again, collect pieces with as much external surface as possible. Leave at least 2 inches of space at the top of the bag to prevent leakage. The total weight of the 3 bags of samples should be approximately 2 pounds.

6. Once sample collection is complete, carefully expel excess air from the sample bag, tightly fold over the top at least four times and then fold over the side tabs to secure the folds in place.

**Collecting Raw Ground Beef Products**

1. You are to collect a 2 lb. sample of ground beef product from the current day’s production in final packaged form (whenever possible). You are to put the product in its final packaging in the larger, bag provided.

2. Collect the number of packaged products so that the sample equals 2 lbs. This may be more that one package if they do 1 pound chubs for example.

3. If product in final package is not available, use the aseptic grab sampling method, fill 3 Whirl-Pak® bags to the fill-line.

**Collecting a Raw Ground Beef Grab Sample**

NOTE: Use this method to collect raw ground beef product samples if it is not available in its final packaging or the package is too large.

1. Wash and dry your hands.

2. Open the sterile Whirl-Pak® bags and put on sterile gloves.
3. Aseptically (avoiding contamination) collect grab samples of raw ground beef.

4. Collect a sufficient quantity of raw ground beef to fill each of the three Whirl-Pak® bags to the fill-line. Do not under-fill or overfill the bag. This should give you the 2 lbs.

5. Once sample collection is complete, carefully expel excess air from each Whirl-Pak® sample bag, tightly fold over the top at least four times and then fold over the side tabs to secure the folds in place.

Packing and Mailing the Sample

On the day of sample collection, you will enter sample collection data and additional product info in PHIS, click “submit to lab” to submit the Sample Analysis Request Form electronically to the laboratory, and then you will print and sign the form and include it with the sample, in the sample shipment container. If the lab receives a sample with missing or incomplete paperwork, or if the sample is the wrong type of raw beef product, the lab will discard the sample. Also, if the lab receives an insufficient amount of product to perform the specified analyses, the sample is discarded. Be sure the identification on the sample and the paperwork match, otherwise the lab will discard sample. Raw beef product samples are mailed to the laboratory on the first available day the contract carrier picks up after collecting the sample. Samples should be shipped when collected, do not wait for the establishment to complete their pre-shipment review for the product sampled.

Results

Access Laboratory Information Management System (LIMS)-Direct to track your sample receipt and results. LIMS-Direct is a computer application that provides sample data electronically to FSIS program personnel.

Positive *E. coli* O157:H7 results go through 3 stages of analysis: Potential, Presumptive, and Confirmed. Any presumptive or confirmed positive must be maintained under establishment control. Consider the possibility that the establishment may have moved the product off-site but did not transfer ownership of the product, and therefore the establishment did not yet complete the pre-shipment review. If the establishment has a written program to divert all product that FSIS samples to cooking, IPP are to issue an NR, unless the establishment also tested the same lot of product and found a positive. The establishment must take corrective action per 9 CFR 417.3. If the establishment does not take corrective action, then issue an NR. Use a directed HACCP Verification task for the appropriate HACCP category, raw ground, or raw not-ground. Cite 9 CFR 417.4(a) (Verification regulation – because
sampling is considered a verification of the overall effectiveness of the system) and 301.2. When writing NRs, associate where appropriate.

CSIs are look over the Sanitation SOPs for days of production to see if there was a problem. CSIs use the “risk based” approach. Perform a directed Beef Sanitary Dressing task for sampled beef manufacturing trimmings and other components in slaughter establishments.

Raw beef products confirmed positive for E. coli O157:H7 or a non-O157 serogroup may be moved off-site for proper disposition, under appropriate controls. Product may be transferred to another official establishment for further processing to destroy the pathogen. Establishments may opt to dispose of the product through rendering or disposal in a landfill. As part of the follow up HACCP Verification task, verify that the establishment maintained records identifying the official establishment, renderer, or landfill operation that received positive product. When the product is destined for a landfill or rendering operation, it moves under company controls. When the product is shipped to another official establishment, establishments may use their own company seals or move the product under USDA seals or FSIS Form 7350-1. Documentation from the official establishment, landfill operation, or renderer must show that the positive product was further processed to destroy E. coli O157:H7 or the specific product was destroyed. The establishment cannot complete the pre-shipment review until it receives documentation from the official establishment showing proper disposal.

If you are the IPP at the establishment that receives components positive for E. coli O157:H7, you have verification to perform. Verify the HACCP plan includes adequate lethality treatment to destroy the pathogen, and that the establishment has supporting documentation validating the effectiveness of the lethality treatment. When raw beef products are confirmed positive, FSIS will conduct verification activities at supplier establishments, particularly the originating supplying slaughter establishment that produced the source materials, trimmings, components, or primal cuts that were used to produce the positive product. The DO will contact the IIC at each of the supplying establishments, including the originating supplying slaughter establishments. The IIC at the supplying establishment will ensure that a HACCP Verification task is performed to verify that the supplier met all the HACCP regulatory requirements.
Each time that an FSIS, or other Federal or State sample of raw beef product tests positive for *E. coli* O157:H7 or non-O157 STEC serogroups, IPP will receive a directed sample task for **16 follow-up samples to sample product from the establishment that produced the positive raw beef product**. IPP will also receive a directed sample task for 16 follow-up samples when FSIS follow-up samples of beef trimmings or other raw beef patty components or ground beef test positive for *E. coli* O157:H7 *or* when an originating slaughter establishment is the **sole supplier** or a **repeat supplier** of the source materials implicated in positive sample result. For low volume establishments, **8 follow-up samples** need to be collected. **DO NOT** wait for the establishment to complete the corrective actions. Collect follow-up samples from the same type of product that tested positive. If the establishment is not producing the product that tested positive, collect follow-up samples from BMT or other components. Collect a maximum of 2 follow-up samples per shift per day from different lots (up to 4 samples per day for a 2-shift establishment). At a minimum collect 3 samples per week. **Do not** collect a follow-up sample and a routine verification sample from the same product lot.

FSIS continues to collect samples after a positive follow-up sample result until the FSIS laboratory finds no positive sample results. PHIS automatically assigns the requested follow-up sampling tasks. If an originating slaughter establishment was the **only supplier** = **16 follow-up samples**, if multiple originating slaughter establishments supplied source materials for the positive product or they are a **repeat supplier** = **16 follow-up samples**, when a supplier is not the sole supplier or a repeat supplier, a **single follow-up sample** is collected from the supplier for each source material used in the positive raw beef product.

**There is no regulatory requirement** for establishments to have their own *E. coli* O157:H7 sampling and testing program. Many establishments do sample raw beef products for a variety of reasons. You are to review the results of the establishment’s testing programs related to its food safety systems on a weekly basis and document it on **Review of Establishment Data task**. The establishment **does not have to tell you when it gets a positive result, but it must always implement corrective actions, and IPP should verify them**. If the establishment uses cooking to eliminate *E. coli* O157:H7 as a food safety concern, the establishment’s HACCP plan must address the presence of O157:H7. CCP and critical limits must be designed to eliminate *E. coli* O157:H7.
19 Hazard Analysis Verification (HAV) and Raw Beef Sampling Scenario

Objective: To review performance of certain steps of the HAV task.

Scenario: You recently submitted a sample of raw ground beef which was confirmed positive result for *E. coli* O157:H7. You decide to perform a directed HAV task as one follow-up. Excerpt of establishment documents provided.

Consider:

- What documents and records should you review?

- What will you look for when reviewing these documents and records?

- What findings would be evidence of noncompliance?

---

### Product Description

| Common Name: | Ground Beef Patties |
| Formulation: | Fresh beef trimmings from Open Beef |
| Packaging: | Bulk (frozen patties) in 20 lb box |
| Shelf Life: | 3-6 months if frozen |
| Intended Use | Restaurants |

---

For Training Purposes Only
### Raw Non-Intact Product Hazard Analysis (Ground Beef Patties) …EXCERPT…

<table>
<thead>
<tr>
<th>Process Step</th>
<th>Food Safety Hazard</th>
<th>Reasonably Likely to Occur</th>
<th>Basis</th>
<th>Measures Applied to Prevent, Eliminate, or Reduce the Hazard to an Acceptable Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiving-Raw Beef Trimmings</td>
<td>Biological:</td>
<td>No</td>
<td><em>E. coli</em> O157:H7 is a known pathogen in raw beef products</td>
<td>Receiving Inspection Program</td>
</tr>
<tr>
<td></td>
<td>Pathogens:</td>
<td></td>
<td>(Interventions for <em>E. coli</em> should also reduce <em>Salmonella</em>)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>E. coli</em> O157:H7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Salmonella</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BSE / SRMs</td>
<td>No</td>
<td>SRMs may be found in incoming product from beef animals</td>
<td>Supplier will provide documentation that product is derived from animals less than 30 months of age and the SRMs are removed</td>
</tr>
<tr>
<td>Chemical:</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical:</td>
<td>Foreign Materials</td>
<td>No</td>
<td>Damaged containers can result in product exposure to foreign material or cross contamination.</td>
<td>Visual inspection for damaged containers at receiving – (Receiving log)</td>
</tr>
</tbody>
</table>

...   ...   ...   ...   ...

For Training Purposes Only
RECEIVING INSPECTION PROGRAM

Required Documents

Before unloading beef trimmings from truck trailer, the receiving manager will verify there is documentation accompanying the shipment stating that:

1. Intervention(s) were applied to the source materials of the beef trimmings in compliance with the supplier’s HACCP program.
2. The beef trimmings are derived from cattle that are less than 30 months of age and SRMs have been removed.
3. Each lot of beef trimmings has been tested and found to be negative for \textit{E. coli} O157:H7, each lot has an associated letter of guaranty.

Measuring Receiving Temperature

The surface temperature of the beef trimmings must be \( \leq 40^\circ F \). Temperature is monitored in at least 2 containers per trailer by receiving foreman at the receiving dock for each delivery of beef trimmings.

Inspection of Containers

100% visual inspection of shipping container condition by the receiving foreman.

Corrective Actions

If the required documentation does not accompany the shipment of beef trimmings, placed on “hold” until the required documentation is received.

If the temperature of beef trimmings is above 40°F, the supplier may provide evidence which demonstrates the temperature of the beef trimmings from time of shipping to receipt was above 40°F for no more than 2 hours but never above 50°F.

Beef trimmings with damaged containers are segregated and placed in “Product Reinspection” area for further evaluation.

Records

1. Receiving Log
2. Bills of Lading
3. Letters of Guaranty

For Training Purposes Only

Receiving Log

<table>
<thead>
<tr>
<th>Date</th>
<th>Supplier</th>
<th>Product</th>
<th>Lot Codes</th>
<th>Temperature (trimmings)</th>
<th>Condition (Acc or UnAcc)</th>
<th>Receiving Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-25-2019</td>
<td>Open Beef</td>
<td>5 combos beef trim</td>
<td>Lot 012416AC</td>
<td>38, 40</td>
<td>Acc</td>
<td>EP</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

Corrective Actions:
**STRAIGHT BILL OF LADING**

Open Beef Co, Inc.

8305 Hawthorne Way  
Petaluma, CA 94954

<table>
<thead>
<tr>
<th>Date</th>
<th>B/L #</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-24-19</td>
<td>25744</td>
</tr>
</tbody>
</table>

**CONSIGNED TO:**  
Groveton Meats, Inc.  
1200 Presley Drive  
Los Angeles, CA 94852

**SPECIAL INSTRUCTIONS**

Trailer Temp: 34 degrees F

<table>
<thead>
<tr>
<th>Pallets Used</th>
<th>S.O. Number</th>
<th>Seal Numbers</th>
<th>Ship Date</th>
<th>Delivery Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>799</td>
<td>23012/931</td>
<td></td>
<td>1-24-19</td>
<td>1-25-19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Piece Count</th>
<th>Description</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Combos – Beef Trimmings Lot 012416AC</td>
<td>2476 lbs.</td>
</tr>
</tbody>
</table>

Total Pc Cnt: 5  
Driver Initials: JT  
Total Wt: 2476 lbs.

**Note:** This shipment contains beef products derived only from animal determined to be less than 30 months of age and contains no SRM’s such as tonsils or distal ileum.

**SHIPPER:** Open Beef Co.  
**PER:** JT  
**CARRIER:** Open Beef Co.  
**PER:** JT  
**DATE:** 1-25-19
Dear Customer,

As part the Food Safety System at Open Beef, we apply a validated antimicrobial organic acid rinse to all of our carcasses and variety meats. This letter is to convey the results of Open Beef Co, Inc. *E. coli* O157:H7 “Verification” testing. We perform verification testing of trimmings that will be used as raw ground beef components to provide ongoing validation of our Food Safety system. We use the N-60 sampling method to collect our samples and the contract lab utilizes test methods which are equivalent in sensitivity to FSIS methods.

**Current Results:**

Lot Number – 012416AC  
Production Date: 01/23/19  
Sample Date: 01/23/19  
Shipment Number – 25744  
Trailer Number – T43  
N60 Sample Result: NEGATIVE for *E. coli* O157:H7  
Result Received: 01/24/19  
Contract Lab: JDL Laboratories, Inc.

Please contact me if you have any further questions.

Bert Earnest  
Director of Quality Assurance
20 Sampling Requirements to Demonstrate Process Control in Slaughter Operations

Objectives:

1. Explain why generic *E. coli* sampling and analysis is performed in livestock (other than swine) slaughter operations.
2. Explain why microbiological sampling and analysis is performed in swine and poultry slaughter (other than ratite) operations.
3. Identify who is responsible for selecting and analyzing livestock (other than swine) samples for generic *E. coli*.
4. Identify who is responsible for selecting and analyzing swine and poultry samples for microbiological analysis.
5. Explain the purpose of performance criteria and statistical process control.
6. Describe how to verify the regulatory requirements for generic *E. coli* testing when conducting the Generic *E. coli* verification task.
7. Describe how to verify the regulatory requirements for microbiological sampling and analysis of swine and poultry slaughter when conducting the appropriate PHIS inspection verification task.
8. Explain the appropriate enforcement actions to take when noncompliance is found while performing the generic *E. coli* verification task or the appropriate swine and poultry slaughter inspection verification task.

Generic *E. coli* Testing for Livestock, (other than swine)

Each official establishment that slaughters livestock, other than swine, or ratites is required to test for *Escherichia coli* Biotype I, also known as “generic *E. coli*.”

Note: Swine and poultry (other than ratite) will be covered in the next section.

Fecal material is one of the principal sources of pathogenic organisms (*Salmonella*, *Campylobacter*, and *E. coli* O157:H7) that contaminate carcasses. The best indicator of fecal contamination is *Escherichia coli*, Biotype I, also called generic *E. coli*, because it is commonly found in the intestinal tract of food animals. The purpose of generic *E. coli* testing is to verify the effectiveness of sanitation and process control in slaughter establishments.

Note: Generic *E. coli* is not a pathogen.
FSIS has developed performance criteria for some species (not all of them), and specifies approved sampling techniques, such as for beef using excision sampling.

- There are two sampling methods that are used: excision and sponging.
  - **Excision** – This is the method described in the regulation; rarely used because it is a destructive method, only need to excise the surface, so it’s not necessary to do a deep cut.
  - **Sponging** – The most commonly used since it is a non-destructive method.
  - Hide-on carcasses are not excised – The regulations are specific that these are only sponged.

**Performance criteria** – These are numbers published in the regulations that represent the highest expected microbial loads on carcasses when the slaughter process is under control. The performance criteria gives livestock slaughter establishments guidance (not enforceable) about the effectiveness of their slaughter sanitary dressing procedures in preventing fecal contamination. Test results that meet the criteria in the regulations provide evidence that the establishment is maintaining adequate process control for fecal contamination and sanitary dressing.

**Establishment Procedures** - The establishment is to collect samples from the type of livestock that it slaughters in the greatest number. Livestock samples are collected after they have been in the cooler for 12 hours or more. However, carcasses can be selected while on the rail or after the final wash and set aside in a convenient spot in the cooler for testing after 12 hours. For hot boning: Samples are taken after the final wash prior to boning. Samples are taken before the carcasses enter the processing department.

- There are 3 required sample sites or anatomical locations on the carcass, which are the **flank, brisket, and rump**.

- The frequency is based on the number of carcasses. Regulations require that carcasses for sampling be selected at random.

- Generic *E. coli* tests are reported as a quantity or bacterial concentration. The units of measure must match the testing technique used to ensure that results are reported correctly.

- Establishments are required to keep a table or a chart of the results for at least the most recent 13 test results.

If the Agency does not have performance criteria published for the species being tested or for the
sampling technique being used, establishments must use statistical process control (SPC) to develop criteria to compare their samples results. The performance criteria in the regulations are referenced as “m” and “M” values. Thus, cattle establishments collecting excision samples must use the m/M values prescribed in the regulations. However, most establishments use sponging, so this means most establishments must use SPC. There are practically no establishments which can use m/M because it is only applied to excision sampling.

Establishments must use statistical process control (SPC), to develop their own criteria, to evaluate their test results when they slaughter species or use sampling techniques for which the Agency has not developed performance criteria. IPP are not to focus on the particular method the establishment uses to set process control criteria. Instead, they are to review the generic E. coli testing results and verify that the establishment has set generic E. coli criteria to define process control and responds to results outside those criteria.

Under the regulations, establishments are not required to take corrective actions or to document the necessary actions for E. coli test failures. However, when livestock slaughter establishments do not evaluate their test results (9 CFR 310.25(a)(5)), they might not be maintaining slaughter process controls sufficient to prevent fecal contamination.

Note: The livestock (other than swine) slaughter establishment’s generic E. coli testing results cannot, by themselves, support a finding of noncompliance with 9 CFR 310.25(a). However, if the establishment’s testing results indicate a failure of process control, IPP are to verify the establishment’s sanitary dressing procedures.

IPP perform the livestock Generic E. coli task, select the regulatory requirement to verify and determine whether the establishment is in compliance or noncompliance with the regulations.

- IPP are to verify that the establishment maintains daily records documenting the implementation and monitoring of its procedures, makes these records of the tables and charts with generic E. coli test results available for review, and retains these records for one year.
- If IPP find noncompliance, they are to notify the establishment and document the noncompliance in an NR citing the appropriate regulation.
- Establishment test results that show lack of process control should be considered in conjunction with other information, like sanitary dressing procedures, zero tolerance, SSOP, and any other HACCP performance criteria.
Further enforcement action might be necessary if the establishment has repetitive NRs, or if the establishment’s corrective actions are ineffective. IPP are to discuss with their immediate supervisor the need to take an enforcement action outlined in FSIS Directive 5000.1.

Microbiological Sampling for Poultry (other than Ratite) and Swine Slaughter Operations

Establishments that slaughter poultry, other than ratites, and swine are required to perform microbiological sampling and analysis, for example, testing for Salmonella, Campylobacter, or indicator organisms such as aerobic plate count (APC), total coliform, Enterobacteriaceae, and Escherichia coli, Biotype I, also known as generic E. coli.

Because establishments have differences in their operations, each establishment has the flexibility to develop a sampling plan and determine the microbial organism that will accurately monitor the effectiveness of its process control procedures. Establishments MUST incorporate their written process control procedures into their HACCP system, either in the HACCP plan itself, as sanitation SOPs, or as a prerequisite program.

Microbiological test results that represent the level of microbiological contamination at key steps in the slaughter process are necessary for the establishment to provide comprehensive objective evidence to demonstrate process control. Process control consists of the programs and procedures that an establishment implements to ensure its process prevents contamination of poultry and swine carcasses, including contamination with pathogens and fecal material.

Note: The required location where the sample is collected, and frequency of sampling depend on species and size of establishment.
IPP are to verify that the poultry or swine slaughter establishment:

- Developed a written sampling program that identifies the specific microorganisms being tested and location/frequency where samples are collected,
- Incorporated its written sampling program for preventing contamination by enteric pathogens into its HACCP system,
- Implements and maintains its written sampling program,
- Maintains scientific and technical documentation to support the decisions that the establishment made in designing the sampling program,
- Maintains daily records documenting the implementation and monitoring of its procedures including sample results
- Take actions to restore or improve process control when sample results indicate problems with establishment slaughter HACCP system.

Noncompliance occurs when the establishment is not meeting the prescribed regulatory requirements; is not following its written sampling and testing procedures; does not demonstrate that it is maintaining process control; or its corrective actions are not effective.

If the establishment has repetitive NRs, or the establishment’s corrective actions are ineffective, IPP are to discuss with their immediate supervisor the need to take an enforcement action outlined in FSIS Directive 5000.1., Chapter V.
21 Humane Handling Verification for Livestock and Good Commercial Practices for Poultry

Objectives:

1. Name the two approved methods of slaughter in the Humane Methods of Slaughter Act (HMSA).
2. List the steps in performing the Livestock Humane Handling Verification task using the Public Health Information System (PHIS).
3. List the Humane Activities Tracking System (HATS) categories and give one example of each.
4. Given a specific scenario, be able to identify regulatory noncompliance, whether it is egregious, and what action to take, if any.
5. Describe the actions an inspector should take when he/she observes a non-egregious incident of inhumane treatment resulting from: Facility deficiencies, disrepair or equipment breakdown, establishment employee actions in handling livestock, or improper stunning.
6. Define egregious noncompliance, give examples and describe the action taken in response.
7. Name the documents completed for non-egregious and egregious noncompliances.
8. List the steps in performing the Poultry Good Commercial Practices (GCP) task.
9. Identify regulatory noncompliance with Good Commercial Practices or mistreatment of birds and actions to take in each case.

The Humane Methods of Livestock Slaughter Act (HMSA) of 1978 made the humane slaughter and handling of livestock mandatory in connection with slaughter of all food animals slaughtered in USDA inspected establishments.

The two approved methods of slaughter are:

- **Livestock** must be rendered insensible to pain on the first application of the **stunning** device before being shackled, hoisted, cast, or cut. This means that the animal must be unconscious and unable to feel pain before it is “stuck” (veins and arteries severed so it bleeds out) before it is shackled and hoisted into the air, or before it is dropped onto a table/floor.

- **The ritual** requirements of any religious faith that prescribes a method of slaughter where the animal suffers loss of consciousness by anemia of the brain caused by the simultaneous and instantaneous severance of the carotid arteries with a sharp instrument. This method is known as ritual slaughter. In ritual slaughter, the animal’s throat is cut from side to side with a sharp knife, deeply enough for the major arteries and veins to be severed. Examples of ritual slaughter include Jewish (kosher) slaughter and Islamic (halal) slaughter.
Livestock Humane Handling Verification Task

In livestock slaughter establishments, you will verify compliance with the Humane Handling regulations by performing the Livestock Humane Handling Verification task. This task must be performed once per shift, every shift animals are slaughtered or on-site.

Recording Time in HATS (Humane Activities Tracking System)

You are to accurately and completely record the time that you spend on the nine specific HATS categories.

- Record the total time spent verifying each HATS category, in quarter hour increments, rounding up to the next quarter hour.

- There should be an entry of at least one-quarter hour in HATS Category IV – “Antemortem Inspection” for every slaughter shift except in very small establishments (see below).

- In addition, verify one or more of the other HATS categories during each slaughter shift. Ensure that, over time, all HATS categories are verified, and the appropriate time recorded.

- During normal operations, the total maximum time entered across all HATS categories will generally not exceed the total operational hours for that respective shift.

At many very small establishments, the total amount of inspection time spent on HATS procedures, including observations at antemortem inspection, may only total .25 hour. Therefore, they should record .25 hour per day in a different HATS category each slaughter day. Note: Ante-Mortem Inspection must still be performed when animals are presented for slaughter, even if you do not record HATS time.

9 HATS Categories

I. Inclement Weather: Some things to look for include:
   - Animals slipping or falling because of wet floors.
   - Livestock overheated because of a lack of proper shade or because of a lack of water for cooling.
   - Disabled livestock not in a covered pen protected from the elements.

II. Truck Unloading: Some things to look for include:
   - Vehicles or ramps not being properly positioned, leading to the injury of animals.
   - Animals forced to move faster than a normal walking speed.

III. Water and Feed Availability: Some things to look for include:
   - Water not accessible to livestock in holding pens.
   - Feed not provided to livestock held for longer than 24 hours.
   - Feed provided not appropriate for species and age.
**Note:** If animal appears exhausted and/or dehydrated refer to the Twenty-Eight Hour Law. The Animal and Plant Health Inspection Service (APHIS) Twenty-Eight Hour Law requires transporters to stop at least every 28 hours to provide animals with food, water, and rest, and those who do not are in violation of this law.

IV. **Ante-mortem Inspection:** Some things to look for include:
- Livestock being injured because of handling practices.
- Livestock being moved faster than a normal walking speed.

V. **Suspect and Disabled:** Some things to look for include:
- Conscious animals being dragged.
- Disabled animals not separated from normal ambulatory animals.
- US Suspect and disabled livestock are not provided or placed in a covered pen.

VI. **Electric Prod/Alternative Object Use:** Some things to look for include:
- Livestock being excessively prodded resulting in overexcitement or injury.
- Livestock being driven with sharp objects or other means which cause pain or injury.

VII. **Slips and Falls:** Some things to look for include:
- Livestock slip and fall due to inadequate footing or improper handling practices (typically observed during movement of animals after ante-mortem inspection).
- Livestock slip and fall because of lack of slip-resistant flooring.

VIII. **Stunning Effectiveness:** Some things to look for include:
- Livestock not rendered unconscious with a single application of the stunning methodology.
- Use of secondary entrances with potential for injury (or actual injury) of livestock.

There are some general principles that apply to all stunning methods:

1. Stunning equipment must be maintained in good repair. Equipment in poor repair can interfere with the rapid and effective application of the stunning blow. This can result in an incomplete or unsuccessful stun.

2. Effective stunning requires effective restraint. If an animal is not effectively restrained, it will be much more difficult to locate the stunning blow with a high degree of accuracy. The stunning area should be designed and constructed to limit the free movement of animals.

3. A well-trained and experienced establishment employee must operate stunning devices. The employee must be able to accurately and consistently position the stunning devices so that the animal is rendered immediately unconscious.

4. Animals need to be delivered to the stunning area with a minimum of excitement or discomfort. It is more difficult to place the stunning device accurately, and the method of stunning may not work as effectively, on an excited or injured animal.

With any stunning method, it is important to observe the amount of time it takes for the animal to begin bleeding out (“sticking”) after being stunned. Although there is no regulatory requirement for this time
period, if the “stun-to-stick” interval is prolonged, it could result in animals regaining or beginning to regain sensibility on the bleed rail.

The regulations describe four acceptable methods for producing a state of surgical anesthesia (surgical anesthesia is defined as a state where the animal feels no painful sensations). The four acceptable methods are:

1. Chemical (carbon dioxide - CO2)
2. Mechanical (captive bolt)
3. Mechanical (gunshot)
4. Electrical (electrical current)

Some signs of a properly stunned animal (but not limited to):

- The head and neck of the animal are floppy.
- The tongue is limp and hanging straight down out of the mouth.
- There is no vocalization-bellowing or squealing.
- The eyes are wide open with a blank stare.

IX. **Conscious Animals on the Rail:** Some things to look for include:

- Processing (e.g., shackling, hoisting, cutting) livestock not rendered unconscious by the method of stunning.
- Animals regaining consciousness after being stunned. If you observe an animal regain consciousness after stunning, you must contact your supervisor immediately.

**Ritual Slaughter (HMSA - Humane Methods of Slaughter Act)**

The ritual slaughter cut and the handling and restraint that immediately precedes that cut is often called the “ritual bubble”. The activities that occur within that “ritual bubble” fall under Section 1906 of the HMSA and are protected as part of the Constitutional right of religious freedom. This does not mean that Agency personnel are to ignore completely what happens within the “ritual bubble”—what it means is that Agency personnel don’t enforce humane handling regulations within that “ritual bubble”.

It is important to understand that ritual slaughter establishments are required to meet all the humane handling regulatory requirements except stunning prior to shackling, hoisting, throwing, cutting, or casting. A few ritual slaughter establishments elect to apply one of the approved stunning methods either before or after the ritual cut. In such establishments, IPP will also verify the stunning effectiveness HATS category. All animals must be unconscious or insensible to pain prior to any dressing procedures such as head skinning, leg removal, ear removal, horn removal, or opening hide patterns.

**Odd-Hour Verification Visits**

The IIC, in conjunction with the FLS and DVMS, determines how frequently IPP need to perform odd-hour inspection to observe the livestock facilities and handling practices. These visits are unannounced and outside of operating hours.
Robust Systematic Approach

There is no regulatory requirement for an establishment to use a systematic approach to humane handling and no requirement that such approach, if used, be in writing. However, an establishment may choose to develop and implement in a robust way a written animal handling program that effectively addresses the four aspects of a systematic approach that FSIS outlined in the 2004 Federal Register Notice. For a systematic approach to be considered “robust” it would have to be written. These four steps are:

- **Conduct an initial assessment** of where, and under what circumstances, livestock may experience excitement, discomfort, or accidental injury while being handled in connection with slaughter, and of where, and under what circumstances, stunning problems may occur;
- **Design** facilities and implement practices that will minimize excitement, discomfort, and accidental injury to livestock;
- **Evaluate** periodically the handling methods the establishment employs to ensure that those methods minimize excitement, discomfort, or accidental injury and evaluate those stunning methods periodically to ensure that all livestock are rendered insensible to pain by a single blow; and
- **Respond** to the evaluations, as appropriate, by addressing problems immediately and by improving those practices and modifying facilities when necessary to minimize excitement, discomfort, and accidental injury to livestock.

If the establishment has a robust systematic approach, FSIS will take that into consideration should it be necessary to determine how to proceed when an incident occurs that involves egregious inhumane treatment.

Enforcement

The thought process that you should follow when performing the Livestock Humane Handling Verification task includes:

- Is there noncompliance?
- If so, is it egregious?
- What action should be taken?

**If you observe a humane handling noncompliance, you must take immediate action if animals are being harmed.** For example, if you observe an employee driving livestock with an instrument (e.g., the edge of a shovel, a pointed metal prod) that can cause injury, your first priority is to stop that action from continuing.

Once that is done, your next step is to decide if the noncompliance is egregious or non-egregious, because the actions you take will be dictated by that determination. An egregious humane handling violation is so serious that it warrants an immediate suspension of the assignment of inspectors under the authority of the Rules of Practice (9 CFR 500.3(b)).
Non-egregious Noncompliances

When a noncompliance is observed, 9 CFR Part 313.50 specifies a progression of enforcement actions allowing for an escalating response by IPP when the establishment does not comply with the humane slaughter of livestock regulations.

- **First, notify establishment** managers of the humane handling noncompliance, if not already done when addressing the needs of the animal.
- **Second, request that establishment managers** immediately **correct** the situation and take the necessary steps to prevent recurrence.
- **Third, document the noncompliance on a noncompliance record (NR).**

**If necessary, take a regulatory control action (RCA) to prevent further injury** to the animal(s) or to prevent injuries from occurring to other animals. You will also take the appropriate regulatory control action if you do not receive an adequate response or corrective actions to the NR or if the noncompliance observed continues to occur. The appropriate regulatory control action depends on the nature of the noncompliance. Remember that the goals of applying a tag are to control the situation and prevent further injury or distress to animals.

- If the noncompliance is the result of facility deficiencies, disrepair, or equipment breakdown, but is not immediately causing injury or distress to livestock, attach a U.S. Retained / Rejected tag to the noncompliant equipment/pen/etc. Noncompliance examples include holes in pen floors or fences that can trap/injure an animal’s legs or feet.

- If the noncompliance is the result of establishment employee actions in the handling or movement of livestock and animals are being injured or treated inhumanely, attach the tag either at a point specific to the location and nature of the violation or to the alleyways leading to the stunning area. Noncompliance examples include animals driven faster than a normal walking speed or animals slipping and falling because of slick floors.

**The tag will remain in place until the establishment operator implements appropriate immediate actions and measures to prevent recurrence.** The tag shall not be removed by anyone other than an inspector. All livestock slaughtered prior to the tagging may be dressed, processed, or prepared under inspection.

Whenever a non-egregious noncompliance of the humane slaughter requirements is observed, inspection personnel must document the incident on a NR and **send a copy to the DVMS** at the District Office. It is important that it clearly and specifically describe exactly what was observed, including any response by the animal (if the noncompliance involved animal discomfort or injury). Specify all the relevant regulations that pertain to the incident. At the top of Block 10 (where the noncompliance is described) on the NR, list the HATS category you were performing when you saw the noncompliance. If the noncompliance is covered by a second HATS category, note both categories on the NR. **Note:** The HATS categories do not have to be listed at the top of Block 10, but they **must** be clearly stated somewhere in the description narrative.

If the establishment continues to have noncompliances or does not adequately correct previously documented noncompliances, the IIC is to communicate this to the FLS and DVMS. The IIC will work with the FLS and DVMS to determine if a Notice of Intended Enforcement (NOIE) should be issued for multiple noncompliances.
More examples of non-egregious noncompliances (include, but not limited to):

- There are sharp corners, holes or fence gaps in which animals may be injured.
- There are protruding rails or sharp objects which may injure animals.
- There are issues with access to water or feed.
- There is driving of animals off a high step, causing some to slip or fall.
- There is excessive use of prods, causing undue excitement but not pain or injury.

**Egregious Noncompliances**

So, what is an egregious noncompliance? Webster’s Dictionary defines “egregious” as “conspicuously bad or flagrant.” The Agency defines it as “any act or condition that results in severe harm to animals.”

If you observe a noncompliance that you believe is egregious, your next set of actions will depend on whether or not you are the IIC. If you **are** the IIC, **place a U.S. Retained/Rejected tag at the appropriate place and inform establishment managers that you are communicating** with the FLS, District Office and DVMS to discuss the incident and recommend that a suspension without notification is imposed in accordance with 9 CFR 500.3(b).

If you **are not** the IIC, **attach a U.S. Retained/Rejected tag at the appropriate place, and inform establishment managers that you are taking a regulatory control action and that no more animals can be slaughtered** until you contact the IIC. Whichever action is taken, all livestock slaughtered before the action may be dressed, processed, or prepared under inspection.

**NOTE:** Regardless of whether or not you are the IIC, your very first step—even before applying a tag—is to stop the activity that is causing harm to animals.

The IIC will immediately notify the FLS, District Office and the DVMS of the incident to discuss and recommend a suspension action.

The IIC will also document the facts that serve as the basis of the suspension action on a **noncompliance record (NR)** and promptly provide that information electronically to the DO and the DVMS for their use. The NR will form the basis of the Notice of Suspension documented by the DVMS and DO staff and of the Administrative Enforcement Report.

Examples of egregious noncompliances (include, but not limited to):

- Making cuts on or skinning conscious animals;
- Excessive beating or prodding of ambulatory or non-ambulatory disabled animals or dragging of conscious animals;
- Stunning of animals and then allowing them to regain consciousness;
- Failing to immediately (or promptly) render an animal unconscious after a failed initial stunning attempt (e.g., no planned corrective actions);
- Leaving disabled livestock exposed to adverse climate conditions while awaiting disposition.
Poultry Good Commercial Practices (GCP) Verification Activities

Poultry (chickens, turkeys, ducks, fowl, etc.) are not subject to the humane handling regulations as discussed above for livestock. Rather, compliance or noncompliance is determined based on a single regulation that prescribes that birds must be slaughtered under a well-controlled process that ensures they are bled out and no longer breathing by the time they enter a scald tank. 9 CFR 381.65(b) reads as follows:

“Poultry must be slaughtered in accordance with good commercial practices in a manner that will result in thorough bleeding of the carcasses and ensure that breathing has stopped prior to scalding. Blood from the killing operation must be confined to a relatively small area.”

IPP assigned to poultry slaughter facilities are expected on a daily, per shift basis when the establishment slaughters, to perform a Poultry Good Commercial Practices task.

If the poultry are stunned prior to bleeding, check the stunning equipment to ensure it is functioning properly. Poultry that have been effectively stunned will have an arched neck and tucked-in wings posture.

Check in the bleeding area to determine if the bleeding equipment is functioning properly. One way that you might be alerted to problems with the bleeding equipment is if the line inspectors report an increased number or clusters of cadavers at inspection stations or increased numbers of bruised wings or legs.

**Once a week**, IPP are to randomly select a day to review establishment records documenting adherence to good commercial practices. This review takes the place of observation in the receiving through pre-scald areas. Recognize that establishments are not required to maintain written records of good commercial practices. If records are not kept, IPP are to visit the receiving through pre-scald areas as above.

**Enforcement**

During poultry handling and slaughter, IPP are to document through NRs or MOIs establishment failure to follow GCP. From a regulatory perspective, adherence to GCP is a process control issue and not a bird-by-bird performance standard issue.

If the establishment is not following good commercial practices, and birds are dying other than by slaughter, you are to document a noncompliance record citing 9 CFR 381.65(b), using the Poultry Good Commercial Practices task in PHIS. IPP are to write NRs for GCP noncompliance only when they can demonstrate that an establishment has lost process control and that there is an ongoing trend of bird dying otherwise than by slaughter.
Poultry Mistreatment MOIs

Poultry mistreatment MOIs are issued when the establishment is mistreating birds up until the kill step, but the mistreatment event does not demonstrate that the establishment’s process is out of control. The MOI documents the discussion between IPP and the establishment management about the poultry mistreatment event. In addition, you are to document the discussion and any planned actions on the part of the establishment in a MOI. Give a copy of the MOI to establishment managers, keep a copy in the inspection file, and send a copy to the DVMS.

DVMS - District Veterinary Medical Specialist

The District Veterinary Medical Specialist (DVMS) will review the MOIs and GCP NRs and determine if additional action is warranted. If you have questions or concerns about what you observe during poultry slaughter, contact the DVMS for guidance.
22 Sanitary Dressing

Objectives:

1. Define:
   a) Process control procedures
   b) Sanitary dressing procedures
   c) Contamination of carcasses and parts
2. Describe the role of sanitary dressing and process control procedures as part of an establishment's food safety system.
3. Identify points in the slaughter process where contamination is most likely to occur.
4. Explain how to verify that slaughter operations are implementing appropriate sanitary dressing procedures to prevent contamination.
5. Explain how to verify that establishments are properly applying intervention treatments.
6. Describe how to use a system-based approach to determining compliance.

Inspection program personnel (IPP) who perform off-line slaughter verification duties are to use the PHIS Beef Sanitary Dressing task to verify compliance with the sanitation performance standards. They need to gather as much information as possible for a sound regulatory decision about the system. As IPP enter the kill floor, they observe the process, review plant records and results, FSIS records and results, NRs, pathogen testing results, generic *E. coli* testing results, online IPP feedback, weather conditions, etc. The thought process should use the systems-based approach to make compliance determinations.

**Sanitary Dressing**: Practice of handling carcasses by establishment employees and machinery, throughout the slaughter process, in a manner that produces a clean, safe, wholesome meat food product in a sanitary environment.

**Process Control Procedure**: A defined procedure or set of procedures designed by an establishment to provide control of operating conditions that are necessary to produce safe, wholesome food. The procedures establishments follow typically include observing or measuring system performance, analyzing the results to set control criteria, and acting when needed to ensure that the system continues to perform within the control criteria. The procedures would include planned measures taken by the establishment in response to any loss of process control. In addition, the procedures can be used as support for decisions made in the hazard analysis.
**Contamination of Carcasses and Parts**: Carcasses and parts are deemed contaminated, based on organoleptic inspection if they have been prepared, packed, or held under insanitary conditions. **Contamination can originate from two sources:** Extraneous Substances: Substances not related to the species being slaughtered like oils, rail dust, condensate, and unidentified foreign material. Intrinsic Sources: substances related to the species being slaughtered, like digestive content, milk, ingesta, or bile. Establishments need to prevent the creation of insanitary conditions and prevent the contamination of carcasses and parts to meet regulatory requirements.

**Effective sanitary dressing and process control procedures lay the foundation for the critical control points (CCPs) that prevent, eliminate, or reduce to an acceptable level food safety hazards that are deemed reasonably likely to occur in the slaughter process.** It is the responsibility of the establishment to reduce *E. coli* O157:H7 to below detectable levels and reducing the amount of contamination that is present on a carcass helps the establishment accomplish that.

**Note:** Positive results can be attributed to ineffective sanitary dressing and process control procedures that lead to insanitary conditions during slaughter.

Establishments must operate and be maintained in a manner sufficient to prevent the creation of insanitary conditions and to ensure the product is not adulterated, as required by 9 CFR 416.1-416.5. Establishments that slaughter cattle must do so in a manner designed to prevent contamination from occurring at any step in the process. SPS plays a role, especially with regard to equipment / utensils, sanitary operations, employee hygiene. SPS is the most appropriate category for addressing incidental contamination.

Each establishment must design their own procedures. Effective sanitary dressing and process control procedures, coupled with effective decontamination and antimicrobial intervention treatments, are needed to prevent the creation of insanitary conditions. Establishments that fail to control these procedures and treatments create the potential for carcass contamination in their food safety systems. Establishments may elect to maintain written sanitary dressing and process control procedures as part of their HACCP Plan, Sanitation SOP, Good Manufacturing Practices (GMP), or other prerequisite programs. If the sanitary dressing procedures are used to support decisions made in the hazard analysis in accordance with 9 CFR 417.5(a)(1), establishments must maintain records addressing the sanitary dressing and process control program. The records must demonstrate that the
program is effective and thus decisions made in the hazard analysis can be supported on an on-going basis. Establishments have flexibility on how they demonstrate effective sanitary dressing and maintain records.

Verification of a food safety system requires that IPP evaluate production operations by looking at all aspects of those operations and assessing the interactions between them using a systems-based approach. IPP accomplish this through observation of the implementation of a variety of plans and procedures and through the review of documents associated with those plans and procedures. When the information gathered suggests that the establishment has lost process control, IPP are to determine if the establishment has taken measures to restore process control.

FSIS has identified the points in the slaughter process where carcasses are most vulnerable to contamination. This was determined through scientific literature review as well as best practice guidance created by industry. The steps are: live receiving/holding, sticking, hide removal, wash cabinets, bunging, head removal, rodding the weasand, evisceration, carcass splitting, and head and cheek meat processing. When cattle arrive, there is an increased potential for contamination with enteric pathogens such as *E. coli* O157:H7 and *Salmonella* due to their presence on the hide and in feces. Stressors cause increase shedding of pathogens like *E. coli* O157:H7.

An intervention is a step in the process added for the purpose of eliminating/reducing a hazard to an acceptable level. How well the establishment performs its sanitary dressing procedures impacts whether the antimicrobial intervention treatments will be effective and accomplish their intended results. Intervention may be a sprayed solution of water and/or chemicals, a shower, some sort of drip application, steam vacuum device, a combination of all of these—the multiple hurdle approach. Each one of these interventions has a certain capability. Sanitary dressing directly impacts whether antimicrobial treatments will accomplish intended results. When incoming contamination overwhelms the antimicrobial properties of the intervention treatments, reduction of *E. coli* O157:H7 may no longer meet the standard of reduction to an undetectable level.

FSIS has questions about the establishment’s ability to support the food safety system as the hazard analysis anticipates, unless the establishment has: documentation that supports that the food safety system at slaughter, including sanitary dressing procedures coupled with all intervention treatments, is effective under the actual conditions that apply in its operation; the
establishment has reassessed its system in response to new or revised procedures or interventions that have been implemented and has determined that no changes were needed. If the establishment determines it can prevent contamination through its SOP, GMP or other prerequisite program, it needs to include support in the hazard analysis. Before you make a compliance (meets regulatory requirements) determination, base it on in-plant observations, your own test results, establishment results, FSIS results, and communication with other inspectors; on-line IPP and PHV/SPHV findings, historical information; NRs, MOIs, ongoing noncompliance related to zero tolerance, increased contamination based on environmental conditions, positive pathogen results, and feedback from on-line IPP indicating increased contamination.

Regulations to cite include 9 CFR 310.18(a) for carcass contamination, and 9 CFR 416.1 (remember: only cite this regulation in response to egregious and repetitive insanitary conditions, and only in consultation with your IIC and FLS). Include in the description of the noncompliance the appropriate SPS regulations to address the source(s) of the insanitary condition. Noncompliance is not likely to be documented in response to one contamination incident or one single point in the process. Review NRs to determine if a trend is developing. NRs can be associated as necessary in accordance with the instructions in FSIS Directive 5000.1.
23 Review of Establishment Testing Data Task

Objectives:
1. Explain the purpose of the Review of Establishment Data task
2. Identify the kinds of records that are subject to review during this task
3. Describe how to assess the significance of information gathered during this task
4. Explain how to follow-up on questions or concerns identified
5. Explain how to document the task in PHIS
6. Describe what is done if the establishment management refuses access to records

What Data do IPP Review and Why?

Establishments may conduct certain testing or monitoring activities that are not a part of their HACCP plans or Sanitation SOPs. For example, establishments may perform testing or monitoring activities as a part of a prerequisite program or conduct product testing to comply with certain specifications of its customers. Data generated by such activities may not even be referenced in a hazard analysis. Nonetheless, these activities may provide information relevant to the effectiveness of establishments’ food safety systems. In other words, the data may raise questions or concerns about the adequacy of an establishment’s hazard analysis.

Whenever the results of testing and monitoring activities provide information relevant to the adequacy of decisions made in a hazard analysis, FSIS considers records of these results to be supporting documentation for that hazard analysis. Such records must be maintained by the establishment and made available for FSIS review. A prudent establishment will consider the significance of this information with respect to the overall effectiveness of its food safety system and respond to the results as necessary.

IPP should be aware of all monitoring and testing related to food safety conducted by an establishment, including monitoring and testing not referenced in the hazard analysis and not included as components of the establishment’s Sanitation SOPs or HACCP plan. FSIS Directive 5000.2, Rev. 2, specifies that at least once per week IPP, are to review the results of any such monitoring and testing. In this training module, we discuss the methodology for reviewing such data. The Review Establishment Data task helps IPP gain a full understanding of the establishment’s food safety system. Considering the significance of this information in the context of the establishment’s food safety system may identify potential vulnerabilities that otherwise may not be recognized when performing other HACCP and sanitation inspection tasks.
Records Subject to the Review Establishment Data Task

The Federal Meat Inspection Act (Section 642) and the Poultry Products Inspection Act (Section 460(b)) both establish the legal authority for requiring establishments to maintain a broad range of records. In addition, the Acts provide FSIS the authority to access any required records as necessary. FSIS has made clear to the regulated industries that IPP have the authority to access all establishment records that could disclose the existence of an insanitary condition which needs to be addressed in an establishment’s HACCP plan, Sanitation SOPs, or prerequisite programs.

The regulatory authority to have access to records, which may have some bearing on the hazard analysis, derives directly from 9 CFR 417.5(a)(1), which states that an establishment must maintain the written hazard analysis prescribed in 9 CFR 417.2(a) and all supporting documentation. Furthermore, establishments are required by 9 CFR 417.5(f) to make all records required by 9 CFR 417 available for official review.

The purpose of a hazard analysis is to identify all relevant hazards and to determine which are reasonably likely to occur (RLTO) in the production process (9 CFR 417.2(a)(1)). A hazard analysis (and any documentation supporting the decisions in that hazard analysis) is not intended to be a static document. At any time, additional information or data may call into question the adequacy of an establishment’s hazard analysis. This information or data may not be specifically referenced in the hazard analysis or generated through implementation of the establishment’s HACCP plan or Sanitation SOPs.

FSIS Directive 5000.2 specifies that IPP have access to any type of record maintained by the establishment if the record relates to the establishment maintaining its food safety system. Establishments must decide what type and frequency of testing is necessary to support the decisions made in its hazard analysis. Thus, the establishment decides which testing programs are necessary to ensure food safety and which testing programs are unrelated to food safety. However, the establishment would have to explain to IPP why certain test records are not related to food safety and do not impact the hazard analysis. If IPP learn of a testing program and have questions about whether records of that testing program should be included in the Review Establishment Data task, they should seek guidance from their supervisors and ask FSIS.
NOTE: The Review Establishment Data task targets records of monitoring and testing results that bear on food safety, not product quality concerns. Certain regulatory product quality concerns would be verified through non-food safety, other consumer protection (OCP) tasks instead of the Review Establishment Data task.

Obviously, IPP should question why the results of any testing for pathogens conducted to meet purchase specifications or for other purposes would not affect the hazard analysis. It is not unusual, though, for many establishments to conduct testing of non-product contact surfaces or finished product for generic microbes such as aerobic plate counts (APCs), generic coliform bacteria, or other non-pathogenic microbes. Establishments may use such testing to provide information about product quality (e.g., shelf life) or to meet certain customer purchase specifications. Generally, such test results can also have implications for food safety. For example, if non-pathogen test results are used to ensure that the production process controls the overall level of microbes in the product, such test results may affect the hazard analysis, because the production process may be modified in response to microbial levels. In these situations, the test results should be made available to IPP for review. If purchase specifications call for testing of non-pathogens and the results are for information purposes only, those results would not affect the hazard analysis and generally would not have to be made available to IPP for review.

The types of records subject to the Review Establishment Data task are not limited to records of microbial testing. For example, some establishments may include metal detection in their process to meet some customer purchase specification. The establishment’s hazard analysis may reference preventive maintenance programs and visual checks for metal contamination as support for metal being not reasonably likely to occur, but not include the customer-required metal detection program as additional support. Nonetheless, the metal detection program has implications for food safety in such an establishment, and records associated with the metal detection program should be made available to IPP for review.

In addition to the results of any monitoring or test results, IPP also have access to any written procedures associated with those results. This would include information such as the methods of sample collection and analysis or the procedure for conducting some monitoring activity.
Performing the PHIS Review Establishment Data Task

At least once a week IPP should schedule and perform the Review Establishment Data task in PHIS. IPP review the results of any testing that the establishment has performed that may have an impact on the establishment’s hazard analysis.

Gathering Information

When reviewing such monitoring and test results, inspection program personnel are to consider questions such as:

1. Is there documentation (paperwork) that supports the frequency of the testing that the establishment employs?
2. If the establishment uses the testing to reflect the effects of a prerequisite program do the results support the decision-making for the design of the program?
3. At what point in the process does the testing occur?
4. Does the establishment use the test results in a manner that checks the proper execution of some activity at the point in the process where the testing occurs?
5. Do the results indicate that a food safety concern may be developing?
6. Is the establishment reacting to the situation? If so, what is it doing?
7. Do results indicate that a potential food safety concern is decreasing?
8. If pathogen or indicator organism positive results have decreased, does the establishment plan to reduce testing frequencies? If so, how will ensure that such modifications to its testing program will not affect the likelihood of finding pathogens?
9. Are there operational results that correlate with the testing results? For example, does a reduction in microbial counts coincide with a new cleaning regimen, or conversely, has there been an increase in microbial counts during a time when the establishment failed to adequately implement some Sanitation SOP activities?
Assessing Information

A negative response to any of the questions above does not automatically mean there is a noncompliance or inadequate hazard analysis. IPP are to consider all available information in order to make any determination as to whether there is a basis for concern about how the establishment is implementing its system, or about how it is reacting to the results of its testing. However, IPP are not to write a noncompliance record on the basis of their review of these records. IPP should keep in mind that the Agency’s policy is to encourage establishments to do testing and to address any problems that exist.

At weekly meetings with establishment management (see FSIS Directive 5000.1 & FSIS Directive 5010.1, Rev. 1), IPP are to raise any questions they have regarding any tests results that may have an impact on the establishment’s hazard analysis. When necessary, inspection IPP are to raise concerns through supervisory channels to the District Office.

Documenting the Review Establishment Testing Data Task

As part of documenting the weekly Memorandum of Interview (MOI), IPP are to indicate that they conducted the Review Establishment Data task, and that they discussed any concerns with the establishment at the weekly meeting. In the MOI, IPP are to:

1. Briefly list what tests results they reviewed and for what time period;
2. Describe the specific concerns, if any, that they discussed with the establishment; and
3. State how the establishment responded.

Anytime IPP have concerns about how an establishment responds to what was discussed at the weekly meeting or have questions about whether a particular type of data is available to the Agency, they are to raise those concerns or questions through supervisory channels. Frontline Supervisors will periodically review the documentation above and raise any concerns with the In-plant team and, as necessary, the District Office. Based on the concerns raised by IPP through supervisory channels, District Offices may determine that an Enforcement Investigation Analysis Officer (EIAO) needs to conduct a food safety assessment (FSA). The FSA assesses factors such as what the tests results reveal about food safety, and whether the design of testing, procedures or prerequisite programs are adequately supported by the decisions made in the hazard analysis.
Once IPP have conducted the Review Establishment Data task, discussed any concerns with plant management, and included the items above in the MOI, they are to indicate within PHIS that the inspection task has been completed.

**Refusal of Access to Records**

IPP have reported that establishments have refused to give them access to the results of equipment swab tests, microbiological testing of marinade solutions that are to be reused, and *Salmonella* testing. Establishments have refused to give access to these testing results on the grounds that the results are trade secrets—the testing is done for customers who do not want the results shared with the Agency, and the Agency is only entitled access to records upon which the establishment affirmatively relies.

The argument that the testing is a trade secret does not provide a basis not to share the information with FSIS. FSIS has authority and responsibility to protect trade secret information under the *Freedom of Information Act*. Such authority is meaningless unless the Agency has access to such information. The fact that a customer does not want the information shared with the Agency is irrelevant. The Agency’s HACCP regulations have the force and effect of law and must be followed by the establishment.

If the IPP have questions about whether a particular type of data is available to the Agency, they are to advise their supervisor of the situation. As indicated above, an establishment is obligated to provide access to HACCP plans and other establishment data in accordance with 9 CFR 417.5(f). If an establishment refuses to provide access to its HACCP plan or other supporting documentation for review and recording of information into PHIS, IPP are to record a noncompliance, citing 9 CFR 417.5(f). IPP are then to discuss this noncompliance with establishment management at the next weekly meeting, and document that fact and any establishment response in the MOI. If the establishment continues in its refusal, IPP are to immediately contact their Frontline Supervisor, who will in turn inform the District Manager (DM) of the establishment’s refusal. The DM, or designee, will contact establishment management and discuss the issue. If the establishment continues to refuse, the DM will instruct IPP to take an official control action by withholding inspection as defined under 9 CFR 500.1(b). The DM will then document the incident in a letter to the establishment, officially informing it that FSIS has withheld inspection under 9 CFR 500.3(a)(6) because the establishment has interfered with an FSIS inspector performing his/her inspection duties. The DM will lift the withholding action when the establishment has provided its HACCP plan and supporting documentation to IPP for review.
24 Ready-to-Eat and Shelf-Stable Products Process Familiarization

Objectives

1. Define Ready-to-Eat
2. Define Shelf-Stable
3. Identify process steps that relate to the safety of fully-cooked/not shelf-stable, heat-treated/shelf-stable, and not heat-treated/shelf-stable products
4. Identify factors requiring control at key process steps to meet standards for safety and product identity

Fully-Cooked, Not Shelf-Stable. This category applies to establishments that further process products by using primarily a full lethality heat process step (e.g., cooking) to achieve food safety. The finished products are not shelf-stable and must be frozen or refrigerated for food safety purposes. The products must be labeled “Keep Refrigerated or Frozen” These products also meet the definition of Ready-to-Eat (RTE) as defined in 9 CFR 430.1.

RTE (Ready-to-Eat) product is a meat or poultry product that is in a form that is edible without additional preparation to achieve food safety and may receive additional preparation for palatability or aesthetic, epicurean, gastronomic, or culinary purposes. RTE product is not required to bear safe handling instructions or other labeling that directs that the product must be cooked or otherwise treated for safety and can include frozen meat and poultry products.

Shelf-Stable (SS) product is free of microorganisms (pathogens and spoilage) capable of growing in the product at non-refrigerated conditions at which the product is intended to be held during distribution and storage. Shelf-stability is primarily achieved through drying or low water activity (aw).

Heat-Treated, Shelf-Stable. This category applies to establishments that further process by using a heat treatment processing step as the primary means to achieve food safety, in combination with curing, drying, or fermenting processing steps. The finished products are shelf-stable and are not required to be frozen or refrigerated for food safety purposes.

Not Heat-Treated, Shelf-Stable. This category applies to establishments that further process by curing, drying, or fermenting to achieve food safety. The finished products are shelf-stable and not required to be frozen or refrigerated for food safety purposes.
Cooking is a very important step, because it is here that any pathogens (e.g., *Salmonella*) that may be in the product will be eliminated and the numbers of spoilage bacteria will be lowered to an acceptable level. This is called a **lethality** treatment. The cooling process is also known as stabilization.

Shelf-stable **dried meat** snacks have a **low moisture** content (22-24%) and **low water activity**. A water activity limit of \( \leq 0.85 \) should control growth of all bacterial pathogens of concern as well as mold for products stored in the presence of oxygen; however, if the product is vacuum packaged in an oxygen-impervious packaging (anaerobic environment), the water activity limit could be \( \leq 0.91 \).

**Dried Whole Muscle Meat Products**
- Mostly dry cured
- Treated with salt or salt brines to achieve shelf stability
- **Primary factor affecting shelf stability is \( a_w \)**
- Examples include:
  - Dry hams (Prosciutto, Parma, Country Ham)
  - Dry pork shoulders (Coppa)
  - Dry pork bellies (Pancetta)
  - Dry beef rounds (Bresaola, Beef Prosciutto, Basturma)

**Dry and Semi-Dry Sausages**
- Probably the largest group of dried products
- Further broken down into:
  - **Fermented products** (acidified by adding a starter culture of acid producing bacteria to the product) such as pepperoni, hard salami, and summer sausage
  - **Acidified with chemical acidulants** (faster process than fermentation) such as meat sticks made without starter culture
  - **Non-acidified cooked products** such as formed and extruded jerky products, or cooked and dried salami for export to Japan

Establishments can apply the **multiple hurdles concept**, which uses a combination of critical operational parameters to achieve lethality (i.e., multiple steps to kill pathogens) to control a food safety hazard. Examples of multiple hurdles include the combination of high salt content and drying in the dry-cured ham process, and the combination of fermentation (increased acidity to control *Staphylococcus aureus*), cooking or smoking (optional), and drying in the fermented, dry sausage process (controls multiple pathogens including *Clostridium botulinum* and *Clostridium perfringens*). **Drying** in the fermented, dry sausage process is also important because it helps the products meet their standard of identity and controls the outgrowth of *Clostridium botulinum* and *Clostridium perfringens* so that drying achieves stabilization and the cooling step is unnecessary.