

Chapter 1: Introduction to Course and HACCP

Notes:

Overhead 1

Objective:

In this module, you will learn the:

- Objective of the course,
- Format of the course,
- Expectations of the participant and
- Meaning and importance of HACCP.

Course Objective

Food and Drug Administration Seafood regulations based on the principles of **H**azard **A**nalysis and **C**ritical **C**ontrol **P**oint (HACCP) became effective in the United States in December, 1997. The Food and Drug Administration (FDA) issued these regulations to ensure safe processing and importing of fish and fishery products. These regulations specify that certain critical jobs in seafood processing be performed by someone trained in HACCP. This person is responsible for developing and modifying the HACCP plan and reviewing records. This course contains the information necessary for you or a team to meet the HACCP-training requirements. It is also designed to provide inspectors with the knowledge they need to evaluate HACCP plans and practices.

Course Format

This seafood HACCP course is divided into three distinct segments:

- HACCP fundamentals,
- Relationship of HACCP and FDA's regulation to the seafood industry, and
- Work session to develop a seafood HACCP plan.

The first segment defines the seven principles of HACCP. Learning these principles will give a clear understanding of the fundamentals on which HACCP is based. As each principle is discussed, the class will develop a HACCP plan for cooked shrimp using the fictional ABC Shrimp Co. as a model. This will help you understand HACCP principles and how they interrelate.

The second segment explains the seafood HACCP regulations and guidance materials that are available to help you develop a HACCP plan. The manual also presents information about seafood-specific hazards.

The third segment demonstrates how to develop a seafood HACCP plan. During this part of the course, the class will be divided into teams to write a HACCP plan based on a narrative and flow chart.

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What is Expected of the Participant

HACCP is a common sense technique used to control food-safety hazards. It is an important safety-management system and can be integrated into any operation. However, HACCP can seem complicated and demanding until its concepts are understood. Therefore, you are encouraged to ask questions and to contribute first-hand experiences to discussions. This manual includes exercises that require class participation throughout the training. Keep in mind that the more you contribute to these exercises, the less complicated the HACCP system will seem and the easier it will be to implement a HACCP plan later.

How to Use This Manual

This manual is yours. Become familiar with it. Learn where the definitions are, where the forms are that will help you develop a HACCP plan, and where to find other basic information. Make as many notes and marks in the text as needed to assist in creating and understanding a HACCP plan. Use the manual as a reference. This manual does not have a copyright. Make as many copies of its forms as necessary or copy the whole manual to share with others in your company.

Meaning and Importance of HACCP

Many people may not have heard the term “HACCP” until recently. However, it is neither a new term nor a new concept.

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HACCP stands for:
Hazard Analysis and Critical Control Point

HACCP is merely an acronym that stands for **Hazard Analysis and Critical Control Point**. But the concept behind this term is important.

Overhead 3

HACCP is:

- Preventive, not reactive.
- A management tool used to protect the food supply against biological, chemical and physical hazards.

HACCP is a preventive system of hazard control rather than a reactive one. Food processors can use it to ensure safer food products for consumers. To ensure safer food, the HACCP system is designed to identify hazards, establish controls and monitor these controls. Hazards can be harmful microorganisms or chemical and/or physical contaminants.

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Origins of HACCP:

- Pioneered in the 1960s.
- First used when foods were developed for the space program.
- Adopted by many food processors and the U.S. government.

The Pillsbury Co. pioneered the application of the HACCP concept to food production during its efforts to supply food for the U.S. space program in the early 1960s. Pillsbury decided that their existing quality-control techniques did not provide adequate assurance against contamination during food production. The company found that end-product testing necessary to provide such assurance would be so extensive that little food would be available for space flights.

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HACCP is not a zero-risk system.
It is designed to minimize the risk of food-safety hazards.

The only way to ensure safety, Pillsbury concluded, would be to develop a preventive system that kept hazards from occurring during production. Since then, Pillsbury's system has been recognized worldwide as the state-of-the-art measure for food-safety control. It is not a zero-risk system, but it is designed to minimize the risk of food-safety hazards. The FDA first required HACCP controls for food processing in 1973 for canned foods to protect against *Clostridium botulinum*, which causes botulism.

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Recommendation:

"The HACCP approach be adopted by all regulatory agencies and that it be mandatory for food processors."
1985 National Academy of Sciences

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In an assessment of the effectiveness of food regulation in the United States, the National Academy of Sciences (NAS) recommended in 1985 that the HACCP approach be adopted by all regulatory agencies and that it be mandatory for food processors.

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National Academy of Sciences recommendation led to formation of the National Advisory Committee on Microbiological Criteria for Foods (NACMCF).

This recommendation led to the formation of the National Advisory Committee on Microbiological Criteria for Foods (NACMCF). This committee standardized the HACCP principles used by industry and regulatory authorities. The committee's work is the basis of this core curriculum.

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Seven principles of HACCP:

1. Conduct hazard analysis.
2. Determine the critical control points (CCPs) in the process.
3. Establish critical limits.
4. Monitor each CCP.
5. Establish corrective actions.
6. Establish verification procedures.
7. Establish record-keeping and documentation procedures.

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These principles will be explained in more detail in the following sessions. The seafood HACCP regulation and other domestic and international HACCP control systems are based on these principles.

Instructor's Note:

NACMCF is continuing to refine the HACCP principles in an effort to make them more user friendly and effective. In August 1997, NACMCF adopted revised HACCP guidelines. To the extent possible, many of the changes have been incorporated into this manual. Most obviously, Principles 6 and 7 were switched, thereby making recordkeeping Principle 7. Additionally, "preventative measures" was changed to "control measures."

Instructors and students should be aware of the dynamic nature of HACCP and not be surprised or confused as the principles are refined.

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International use:

- Codex
- European Union
- Canada
- Australia
- New Zealand
- Japan

HACCP has been endorsed worldwide by organizations such as Codex Alimentarius (a commission of the United Nations) and the European Union and by several countries including Canada, Australia, New Zealand and Japan.

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HACCP is not a stand-alone system.

HACCP
Good Manufacturing Practices

HACCP is a preventive system for ensuring food safety, but it is not a stand-alone system. HACCP must be built upon current food-safety programs such as Good Manufacturing Practices (GMPs) (e.g., sanitation and personal hygiene programs) to make it work.

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Traditional Inspection Methods for Food-Safety Control
versus
The HACCP Approach

The HACCP concept is used by regulators during inspections of food processors to focus their attention on the parts of the process that are most likely to affect the safety of the product.

The inspection of plants operating under HACCP plans differs from traditional inspection methods of food-safety control. Traditional methods evaluate processing practices on the day or days of inspection. The HACCP approach allows regulators to look at what happens in the plant through time by examining the firm's monitoring and corrective action records.

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HACCP inspections complement traditional inspection methods.
HACCP:

- Emphasizes process control.
- Concentrates on the points in the process that are critical to the safety of the product.
- Stresses communication between the regulator and industry.

With HACCP, the emphasis is to understand the process system. This requires the regulator and industry to communicate and to work with one another. The inspector will be verifying the HACCP plan by determining that significant food-safety hazards have been properly identified and that industry is consistently controlling these hazards. The inspector will accomplish this by first surveying the plant and then reviewing the HACCP plan and records. Regulatory inspections will continue to look for compliance in areas such as sanitation, economic fraud, food standards, etc.

In defining the roles of industry and the regulatory agencies in HACCP, the NACMCF document indicates: "It is the responsibility of the food industry to develop and implement HACCP plans and for regulatory agencies to facilitate this process." Or, in other words, the role of the government is to ensure that industry adheres to their role.

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"It is the responsibility of the food industry to develop and implement HACCP plans and for regulatory agencies to facilitate this process."
NACMCF, June 1993

As you learn more about HACCP, there will be many new definitions that you will need to understand. To assist you, the most common HACCP definitions are found in the following two pages. Refer back to these pages as needed and add other terms as appropriate that will help you in developing and implementing your own HACCP plan.

The next sessions will explain the basics of HACCP. We will start by first defining the types of hazards.

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Definitions*

- **Continuous Monitoring:** Uninterrupted collection and recording of data such as temperature on a strip chart.
- **Control:** (a) (verb) To manage the conditions of an operation to maintain compliance with established criteria.
(b) (noun) The state in which correct procedures are being followed and criteria are being met.
- **Control Measure:** Any action or activity that can be used to prevent, eliminate or reduce a significant hazard (previously known as a preventive measure and is still called a preventive measure in FDA's Hazards and Controls Guide).
- **Control Point:** Any point, step or procedure at which biological, physical or chemical factors can be controlled.
- **Corrective Action:** Procedures followed when a deviation occurs.
- **Critical Control Point (CCP):** A step at which control can be applied and is essential to prevent or eliminate a food-safety hazard or reduce it to an acceptable level.
- **CCP Decision Tree:** A sequence of questions asked to determine whether a control point is a CCP.
- **Critical Limit:** A maximum and/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.
- **Deviation:** Failure to meet a critical limit.
- **HACCP:** A systematic approach to the identification, evaluation and control of food-safety hazards.
- **HACCP Plan:** The written document that is based upon principles of HACCP and that delineates the procedures to be followed.
- **HACCP System:** The result of the implementation of the HACCP plan.
- **HACCP Team:** The group of people who are responsible for developing, implementing and maintaining the HACCP system.
- **Hazard:** A biological, chemical or physical agent that is reasonably likely to cause illness or injury in the absence of its control.

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- **Monitor:** To conduct 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.
- **Operating Limits:** Criteria that are more stringent than critical limits and that are used by an operator to reduce the risk of a deviation.
- **Prerequisite Programs:** Procedures, including Good Manufacturing Practices (GMPs), that address operational conditions providing the foundation for the HACCP system.
- **Severity:** The seriousness of a hazard (if not properly controlled).
- **Validation:** The element of verification focused on collecting and evaluating scientific and technical information to determine if the HACCP plan, when properly implemented, will effectively control the hazards.
- **Verification:** Those activities that determine the validity of the HACCP plan and that the system is operating according to the plan.

Notes:

* *National Advisory Committee on Microbiological Criteria for Foods, 1997. Hazard Analysis and Critical Control Point Principles and Application Guidelines.*

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Acronyms

- **CCP:** Critical control point
- **CL:** Critical limit
- **FDA:** Food and Drug Administration
- **GMP:** Good Manufacturing Practice
- **HACCP:** Hazard analysis and critical control point
- **MIG:** Mercury-in-glass thermometer
- **NAS:** National Academy of Science
- **NACMCF:** National Advisory Committee on Microbiological Criteria for Foods
- **PPM:** Parts per million
- **SCP:** Sanitation control procedures
- **SOP:** Standard operating procedure
- **SSOP:** Sanitation standard operating procedure