HACCP: Hazard Analysis Critical Control Points

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Extension and Outreach
HACCP

• Pioneer in 1960’s as part of the Apollo Program
• Endorsed by The National Advisory Committee on Microbiological Criteria for Foods (Committee) reconvened a Hazard Analysis and Critical Control Point (HACCP) Working Group
HACCP

• HACCP is a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling, to manufacturing, distribution and consumption of the finished product.
HACCP Mandate

- 9 CFR 417: Food Safety and Inspection Service
- Dairy Grade A Voluntary HACCP
- Juice HACCP
- Retail and Food Service HACCP
- Seafood HACCP
- Food Manufacturers HACCP
Foundation of HACCP

• HACCP is built upon well defined Prerequisite programs
• Specific to federal, state, and local regulations and guidance
• Good Manufacturing Practices and Food Code are examples
Prerequisite Programs

• Good Manufacturing Practices (GMP)
• Standard Operating Procedures (SOP)
• Sanitation Standard Operating Procedures (SSOP)
• Specifications
• Training
• Facilities
Prerequisite Programs

- Supplier Control
- Chemical Control
- Receiving, Storage, and Shipping
- Personnel Hygiene
- Traceability and Recall
- Pest Control
HACCP

• Requires Management Support and Resource Allocation for Success
• After the establishment of Prerequisite Programs
• The Building Blocks are Seven Principles
7 Principles

1. Conduct hazard analysis
2. Identify Critical Control Points
3. Establish Critical Limits
4. Monitor Critical Control Points
5. Establish Corrective Actions
6. Establish Verification Procedures
7. Establish Record-Keeping and Documentation Procedures
Preliminary Steps

1. Assemble HACCP Team
2. Describe the product and its Distribution
3. Describe the intended use and Consumers of the Food
4. Develop Flow Diagram
5. Verify Flow Diagram
6. Conduct a hazard analysis
7. Develop SOP, SSOP, Record Keeping
Preliminary Steps

8. Develop a Traceability and Recall Plan
9. Identify supporting documentation
10. Identify validation items within process
Assemble HACCP Team

- Individuals who have specific knowledge and expertise for the product and process
- Multi-disciplinary team (i.e. management, production, sanitation, quality assurance, microbiology, engineering, general employees)
- My require outside experts in biological, chemical and/or physical hazards association
Description

• Food and Its Distribution
  – General description of food, ingredients, and production methods
  – Distribution methods: frozen, refrigerated, ambient temperatures

• Intended Use and Consumers of the Food
  – Normal expected use of food
  – Consumers: General public or specific population
Flow Diagram

• Develop a flow diagram that provides clear and simple outline of the processing steps
  – Block type flow diagram with simple schematics of the facility
  – This may include steps in the food chain before and after processing

• Verification
  – On-site review of the flow diagram (i.e. walk through the processes to match content)
7 Principles

1. Conduct hazard analysis
2. Identify Critical Control Points
3. Establish Critical Limits
4. Monitor Critical Control Points
5. Establish Corrective Actions
6. Establish Verification Procedures
7. Establish Record-Keeping and Documentation Procedures
Conduct a Hazard Analysis

• Biological, Chemical or Physical reasonably likely to cause illness or injury
• Biological: Yeast, mold, bacteria, virus, protozoa
• Chemical: Naturally Occurring, Intentionally added, Residue
• Physical: Wood, Glass, Stones, Metal, Plastic
Critical Control Points

• 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

• The potential hazards that are reasonably likely to cause illness or injury in the absence of their control must be addressed in determining CCPs
Critical Limits

• A measurable 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

• Distinguishes between safe and unsafe operating conditions at a CCP
Monitoring

• 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
Corrective Actions

• When deviation from established critical limits occurs
• Should include the following elements
  – Determine and correct the cause of non-compliance;
  – Determine the disposition of non-compliant product; and
  – Record the corrective actions that have been taken
## Example Tables

### Example HACCP Plan Summary Table

<table>
<thead>
<tr>
<th>CCP</th>
<th>Hazards</th>
<th>Critical Limit</th>
<th>Monitoring</th>
<th>Corrective Actions</th>
<th>Verification</th>
<th>Records</th>
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### Verification Schedule

<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequency</th>
<th>Responsibility</th>
<th>Review</th>
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Verification

• Determination of the validity of the HACCP plan and that the system is operating according to the plan

• Should include periodic comprehensive verification of the HACCP system by an unbiased, independent authority
Record-Keeping and Documentation Procedures

• Records maintained for the HACCP System
• If it is not recorded than it never occurred
• Updated with all changes in production process (i.e. new equipment, new process, new ingredients)
HACCP Review

- History of HACCP
- Prerequisite Programs
- Seven Principles
- Preliminary Steps
Suggestion

• HACCP is process and product specific
• Recommend attending HACCP International Alliance Approved Course
  – http://www.haccpalliance.org/sub/index.html
Questions

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