Principle #4 - Monitoring
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• Monitoring

• Conduct a planned sequence of observations or measurements
  ➢ to assess whether a CCP is under control &
  ➢ to produce an accurate record
  ➢ for future use in verification

• Establish Monitoring procedures for each CCP
Purpose of Monitoring

☑ Track the operation or the process
☑ Identify trends toward a critical limit
☑ Signal a need for process adjustments
Purpose of Monitoring

✓ Identify a loss of control a deviation occurs at a CCP – aka a deviation
  – Deviation at a CCP = potential food safety hazard
  – Should trigger automatic review of HACCP Plan

✓ Written documentation of the process control system
Monitoring Questions

How?

• physical or chemical measurement
  – for quantitative critical limits
• observations
  – for qualitative critical limits
Monitoring procedures: Visual

• **Objective**
  - Temperature
    • Calibrated
  - Time
    • Digital read out – personnel records
    • Chart recorder – reviewed
  - pH
    • calibrated
Monitoring procedures: Visual

• Subjective
  – Carcass zero tolerance
  – Fruit damage
Monitoring Questions

• **Frequency?**
  – continuous or intermittent
  – Need wiggle room

• **Who?**
  – Someone trained
Microbiological testing in Monitoring

• **Ill-suited for this purpose**
  – Results not fast enough
  – Can’t be done on-line
    • Food safety & personnel risks
  – Sampling issues
  – Specificity issues
Monitoring

• For CCPs need to provide immediate results so “CAs” can be taken ASAP
• Goal: prevent potentially unsafe product entering commerce
• Avoid a recall!
Monitoring Frequency

• Prefer continuous monitoring
  – More reliable
  – Detect subtle variations
  – With automated monitoring
    • review the record,
    • look for trends,
    • date & sign record/chart
Monitoring Frequency

- **Intermittent monitoring:**
  - Frequency:
    - based on level of process control as indicated by records

- **Consistent process:**
  - set frequency based on variation,
  - monitor variability
Intermittent Monitoring

• **Variable process:**
  – frequent monitoring intervals

• **No records:**
  – Begin with frequent monitoring
    • Review & tweak frequency
Save all records used to establish frequency!!
Monitor Training

Monitors are trained in

• Overview of HACCP
• Specific monitoring procedures at a CCP
  – verify competency
• Frequency of monitoring
• Process Control
  – When & how to make adjustments
Monitor Training

Monitors are trained in

• Critical Limits
• Taking Corrective Actions
• Understanding
  – responsibility &
  – next-level notifications
• Proper data entry & record keeping
Monitor Training

• Document Training
Monitor Training

• Example CCP:
  – cooking ham in cookhouse

• Critical Limit:
  – minimum internal temperature of 158°F for minimum of 1 minute
Example

• **Monitor needs to understand:**
  ✓ Need for calibrated temperature probe
  ✓ Cleaning/sanitizing probe
  ✓ Correct placement of probe
  ✓ How to read the temperature/time recording chart
  ✓ Appropriate Corrective Actions
Suggestion

– Post summary sheets describing
  • Monitoring procedures,
  • Critical Limits,
  • Corrective Actions, etc.
IF MONITORING DETECTS A DEVIATION, THEN WHAT?

• POSSIBLE FOOD SAFETY HAZARD MAY HAVE OCCURRED
• A deviation requires immediate CA!
• Records
  – develop Preventive Actions
  – improve process control
## Identifying Critical Limits, Monitoring & Corrective Actions

<table>
<thead>
<tr>
<th>Process Step CCP</th>
<th>Critical Limit</th>
<th>Monitoring Procedures</th>
<th>Corrective Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>What will be measured?</td>
<td>How will process be corrected?</td>
<td></td>
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<tr>
<td>Where will monitoring be done?</td>
<td>Product disposition?</td>
<td></td>
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<tr>
<td>How will monitoring be done?</td>
<td>Who is responsible for implementing corrective action?</td>
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<tr>
<td>Who will do monitoring?</td>
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**Reviewed By**

**Signature:**

**Date:**
# CCP Control Log Sheet

<table>
<thead>
<tr>
<th>CCP No.</th>
<th>Date</th>
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<tbody>
<tr>
<td>Monitoring Procedure</td>
<td>Shift</td>
</tr>
<tr>
<td>Monitoring Frequency</td>
<td>Line</td>
</tr>
<tr>
<td>Critical Limits</td>
<td>Responsible Person</td>
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<tr>
<td>Corrective Action</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Results</th>
<th>Did deviation occur? (Y or N)</th>
<th>Action Taken</th>
<th>Signature</th>
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Review By

Signature | Date
Establishment _____
HACCP Monitoring and Corrective Actions
for _____HACCP Plan

<table>
<thead>
<tr>
<th>CCP #</th>
<th>Process Step</th>
<th>Hazard being controlled</th>
<th>Critical Limit</th>
<th>Monitoring procedure/frequency/person responsible</th>
<th>Corrective Actions/person responsible</th>
<th>HACCP record</th>
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Reviewed by signature and date:

Trade Secret, confidential, commercial information.
How Specific?

Monitoring Procedure/
Frequency/
Person(s) Responsible

✓ Sanitized & calibrated temperature probes inserted lengthwise into each of 3 franks at different locations in cooking chamber.
✓ Temperature, time, & humidity continuously recorded on circular chart.
✓ Cook (or trained designee) will visually check the chart;
✓ If Critical Limit is met, Cook will initials, date, & time next to record for that cook cycle