Effective Monitoring of Control Measures

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Agenda

- Objectives of Monitoring
- Define Monitoring
- What are the Control Measures?
- Types of Monitoring
- Cost of Monitoring
- Benefits of Monitoring
- How it can be Effective

Objectives of Monitoring

- The monitoring of control points and critical control points can provide more information than just an indication that a deviation has occurred, leading to a risk of a hazard at a CCP.

Objectives of Monitoring

1. Monitoring should help spot trends and identify warning signs that a loss of control could happen
2. All CCP monitoring must identify when a loss of control exists
3. The monitoring activity must provide useful records to be used to prove that the monitoring activity is being conducted consistently

What is Monitoring?

”If you can’t describe what you are doing as a process, you don’t know what you are doing”

-W. Edward Deming

Monitoring is:

- The act of conducting a planned sequence of observations or measurements of control parameters to assess whether a CCP is under control
- The scheduled measurement or observation of a CCP relative to its critical limit
- An activity focused on measuring and collecting data relating to processing parameters

Monitoring is:

- Required by HACCP
  - HACCP Principle #4
    - Establish Critical Control Point Monitoring Requirements
    - Monitoring activities are necessary to ensure that the process is under control at each critical control point.
    - Monitoring is important because of potential food risks during the receiving, storing, producing, and shipping hazards. It is important to catch it immediately before the product is beyond repair

Monitoring is:

- Required by HARPC
  - HARPC requires the food facility to implement a monitoring program, which ensures the firm is conducting regular evaluations of the facility's control measures to determine whether the preventive controls are working.
  - HARPC requires the facility to establish and implement this monitoring program.

Monitoring is:

- Required by GFSI
  - Requires that the organisation identify the measurement of parameters critical to ensure food safety, the measuring and monitoring devices required and methods to assure that the calibration of these measuring and monitoring devices is traceable to a recognised standard.

Monitoring

- Once we can describe what we are doing we can then measure and monitor our performance
- Proper design of CCP monitoring programs is an essential ingredient in any food safety management system

Monitoring

- In simple terms, Monitoring is the measurement or observation at specific step in the process to confirm the process is operating within the appropriate limits

What are the Control Measures?

- International Standards Organization (ISO)
  - A control measure is an action or activity that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level.
  - CCP, PRP, oPRP, CP, QCP

What are the Control Measures?

- What / How / When should be monitored?
- Where / Who?
- The CCP ’as a control method’ has its origins in HACCP
  - CCP’s are differentiated from other controls measures (PRP’s, oPRP’s, CP’s)
    - CCP’s = Critical Hazards
    - Other = General (less significant) Hazards

What are the Control Measures?

- The CCP is perhaps the most commonly known of all control measures
  - ISO defines it as 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
  - Similar to the definition of a general control measure

What are the Control Measures?

- ISO defines a PRP as the basic condition and activities that are necessary to maintain a hygienic environment throughout the food chain and are suitable for the production, handling and provision of safe end products and safe food for human consumption

What are the Control Measures? (BRC)

- Pre-requisite programs should be established to assist in:
  - Controlling or preventing the introduction of food safety hazards through the work environment
  - Elminating, preventing, or reducing to an acceptable level the biological, chemical, and physical contamination of the product(s)
  - Controlling, minimizing and/or preventing food safety hazard levels in the finished product, ingredients, and environment

What are the Control Measures?

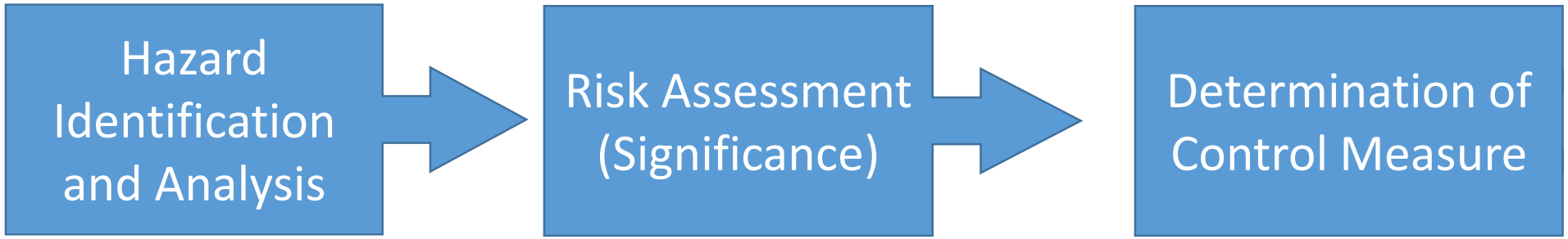
- Example of PRP's
  - GAP, cGMP's
  - Building Construction
  - Lay-Out of Premises
  - Utilities (Air, Water, Energy Supply)
  - Waste Disposal
  - Equipment Suitabilitiy
  - Sanitation / Cleaning
  - Maintenance
  - Supplier Management
  - Pest Control

What are the Control Measures?

- In order to determine which control measure is appropriate for the identified hazard, you need to employ a specific methodolgy encompassing risk assessment followed by a decision tree

What are the Control Measures?

- Not all hazards are significant to food safety
- Simple model for determination of control measures:

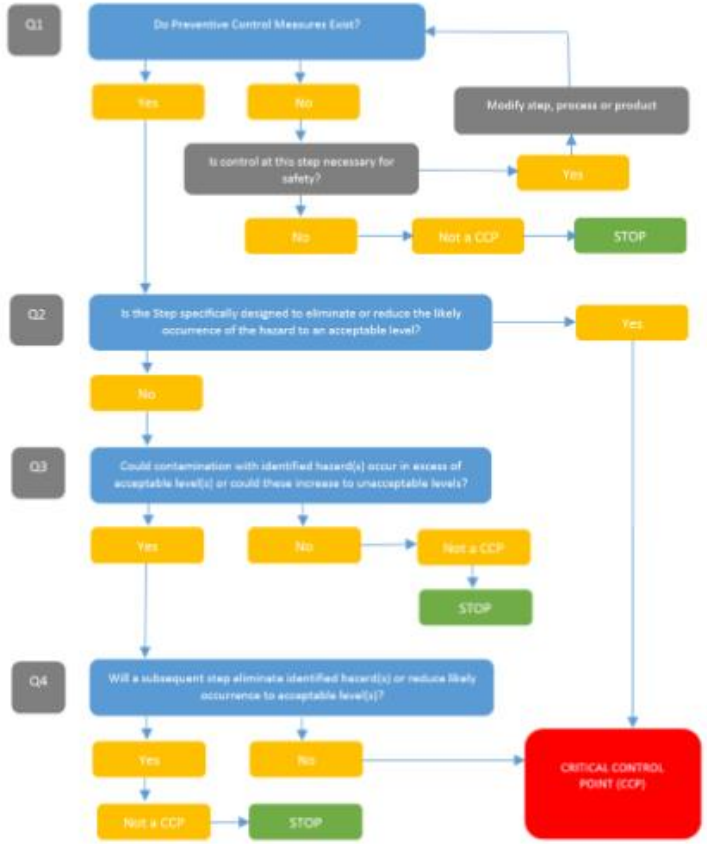


What are the Control Measures?

Evaluating risk

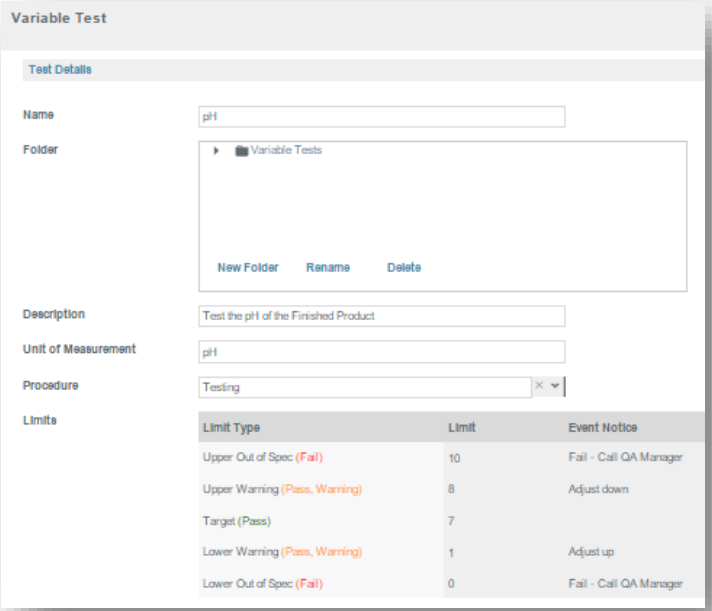
Likelihood

Severity	1 Remote	2 Unlikely	3 Possible	4 Likely	5 Certain
1 Trivial	1	2	3	4	5
2 Minor	2	4	6	8	10
3 Lost time	3	6	9	12	15
4 Major	4	8	12	16	20
5 Fatal	5	10	15	20	25



Types of Monitoring

- Once control measures have been determined, you can now determine the limits and establish effective monitoring programs



Types of Monitoring

- Continuous: Where a parameter is continuously recorded
- Discontinuous: Where readings are taken automatically at specified intervals during the process

Types of Monitoring

Manual

- This method involves using manual paper records to indicate the test to be conducted, frequentcy, and critical limits
- Quick, inexpensive to setup; requires little training
- Error prone and difficult to manage
- Open to abuse, can lead to invalid data being recorded without knowledge of Sr. Management
- Data analysis very time consuming

Types of Monitoring

Manual

Semi-Manual

- Involves the use of standard software applications (Excel, Word)
- Typically inexpensive and quick to set up
- Supports rapid data analysis
- Limited in design
- May allow for changing results and poor validation

Types of Monitoring

Manual

Semi-Manual

Automatic Electronic Data Record

- These systems such as on-line monitoring, continuous metal detectors, check-weighers, scanners, in-line probes
- Excellent at automatic data collection and data analysis
- Can be set up to provide automatic alerts
- Can facilitate correction of the process before out of limit conditions are met

Types of Monitoring

Manual

Semi-Manual

Automatic Electronic Data Record

Electronic Record

- This involves using bespoke software applications to capture data from manual data entry or automatically from in-line systems
- Can be set up to ensure that ONLY valid data is recorded
- Can be set up to automatically alert the user to out of limit conditions
- Automatic logs of all data as well as subsequent changes
- Can allow for automatic report generation reducing the time required to analyze data and drive improvement

Types of Monitoring

Implementation Costs

- Record Keeping
- Product Testing
- Staff Training
- Management Time

Operational Costs

- Consuting Fees
- New Equipment Capital Expenditure
- Training
- Structural Changes
- Human Resources (Staff Time)

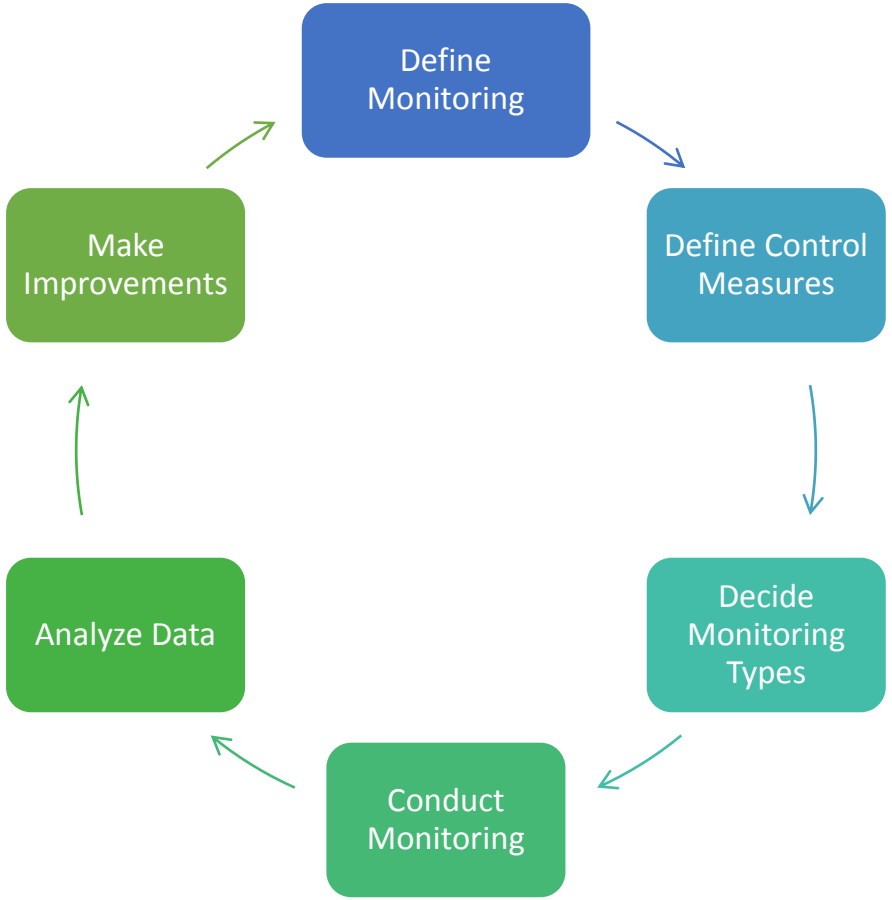
Benefits of Monitoring

- Increase customer and consumer confidence
- Maintain or increase market access
- Improve control of production process
- Reduce costs through reduction of product losses and rework

Benefits of Monitoring (cont'd)

- Increase focus and ownership of food safety
- Business liability protection
- Improve product quality and consistency
- Simplify inspections primarily because of the recordkeeping and documentation
- Alignment with other management systems

How Monitoring can be made effective?



- Analyze data and use the results to drive improvements
- Repeat process!