**Principle 4: Establish Monitoring Procedures**

**Monitoring** is a planned sequence of observations or measurements used to assess whether a CCP is under control. These observations will be necessary to produce an accurate record and for future use in verification. Four elements are required to create an effective monitoring system:

1. **What will be monitored?**
   a. Usually a measurement or observation to show that the CCP is operating within the critical limits.
   b. Examples:
      - Temperature
      - Flow rate
      - pH/acid level
      - Water activity
      - Metal detection
      - Screen integrity
      - Formulation sheet
      - Glass breakage
      - Machine wear
      - Visible rot

2. **How will monitoring be performed?**
   a. Measurements
      i. Preferred method because quantitative results can be obtained rapidly
   b. Observations
      i. Visually checking the source, a condition, or another attribute of the product
      ii. These result are qualitative and difficult to measure
   c. Tools
      i. Employees must be trained to accurately measure, read, and record information utilizing the appropriate tools
   d. Examples
      - Time and temperature of a process
      - Internal temperature
      - Water activity
      - Salinity
      - Metal inclusion screening
      - pH

3. **What is the frequency of monitoring?**
   a. Monitoring frequency will depend on the critical limit and the observations and measurements that are needed.
   b. The length of monitoring period will determine the amount of product affected by the critical limit deviation.
   c. **Continuous Monitoring** is generally performed by an instrument that produces a continuous record. Tools include recording charts and continually-recording thermometers.
d. **Non-continuous (intermittent/periodic) Monitoring** is required when a continuous monitoring is not possible. The frequency of non-continuous monitoring may be influenced by past history and knowledge of the product and processes. Examples include visual checks and sensory evaluations.

4. Who will conduct the monitoring?
   a. The person who conducts the monitoring should be trained to perform that specific monitoring activity.
   b. Multiple individuals should be trained to conduct monitoring activities.
   c. The trained individual should follow clearly delineated procedures, have initial responsibility for corrective actions, and be responsible for documentation.