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Hazard Analysis Critical Control Points (HACCP)—Principle 6: Establish Verification Procedures[1]

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HACCP verification is defined as those activities, other than monitoring, that establish the validity of the HACCP plan and ensure that the HACCP system is operating according to the plan. Verification is done to determine:

- that the HACCP plan is being implemented properly;
- that practices used are consistent with the HACCP plan;
- that the HACCP system is working to control significant hazards; and
- whether modifications of the HACCP plan are required to reduce the risk of recurrence of deviations.

I. Elements of HACCP Verification

The primary components of verification are:

- Critical Control Point (CCP) verification;
- HACCP system verification; and
- Validation.

A. Critical Control Point Verification

By definition, Critical Control Points (CCPs) are the backbone of the HACCP plan with regard to controlling food safety hazards. Therefore, it is important that all activities and procedures are verified and accurate. CCP verification involves the following activities:

1. Verification of CCPs

Verification involves confirming that CCPs were properly selected and/or whether other processing steps would be more appropriately defined as CCPs.

2. Verification of Critical Limits (CLs), CCP Monitoring, and Corrective Actions

All CCP-related activities necessary to ensure compliance with the HACCP plan must be verified. This includes establishing that all the responsible individuals defined in the HACCP plan are performing in accordance with the plan, that all monitoring procedures are appropriate and being conducted at the appropriate frequency, and that the corrective action plan is appropriate and being implemented as described in the plan.

It may be desirable or necessary to check the adequacy of monitoring by performing additional sampling and testing. Such testing provides information on the adequacy of monitoring procedures by having another person perform the monitoring. In addition, independent testing may be used to provide validation that the CCP is, in fact, controlling the identified hazard(s).

3. Calibration

Adequate monitoring of CCPs is dependent upon accurate and precise measurements of the parameters (e.g., temperature, pressure, pH, other parameters) to ensure that Critical Limits (CLs) are met. Thus, it is important that properly calibrated equipment is used to make these measurements. The HACCP plan must describe instrument calibration procedures, note the frequency of calibration, list the individual(s) responsible, and describe the documentation records to be used.

4. CCP Records Review

A significant verification activity is the review of all CCP records, including monitoring records, corrective action records, calibration records, and any other records related to the CCPs. Records are verified to ensure that all records are prepared and implemented according to procedures described in the HACCP plan. This includes evaluation to ensure that monitoring is being performed using appropriate procedures and frequency, that responsible individuals are appropriately identified, and that the documents are properly signed. In addition, verification provides assurance that all deviations of CLs are appropriately identified and recorded, that corrective actions are taken for every deviation and are conducted according to the HACCP Plan, and all decisions are justified.

B. HACCP System Verification

While the HACCP plan is the written document that delineates procedures, the HACCP system is the implementation of this plan. In CCP verification, we are examining the HACCP plan: specifically, those activities that involve the CCPs or backbone of the plan. HACCP system verification involves those activities that go beyond the written plan and, thus, apply to its implementation.

Typical HACCP system verification includes thorough review of the following:

1. Preliminary Steps

Verification of the HACCP preliminary steps includes a thorough evaluation as to whether:

- the HACCP team is adequate and functioning in accordance with the plan;
- all products covered by the plan are properly defined as to composition, processing, and intended use; and
- the flow diagram is still accurate and adequately describes the steps in the processing system.

2. Prerequisite Programs

Verification of all prerequisite programs (PPs) included in the HACCP plan must include, at a minimum, an annual review of the written standard operating procedures (SOPs) and other programs, as well as auditing of records and documentation proving that these procedures and programs are implemented and operating in accordance with the plan. All instruments for detection or measurement shall be calibrated (as described for CCP verification) according to an appropriate procedure and frequency.

3. Hazard Analysis

Verification determines whether the procedures used in the hazard analysis are appropriate and implemented as described in the HACCP plan, and whether the sources of information were appropriate and used appropriately. In addition, the hazard analysis must also be validated (see discussion below).

4. HACCP System Records Review

While those records involved with CCPs are discussed above, HACCP system verification involves examining all other documentation and records as to accuracy, completion, and implementation. This includes examining the HACCP plan itself, prerequisite program records, written summaries and narratives for activities within the plan, backup justification and related literature, verification and calibration records, consumer complaint records, and any other appropriate documentation showing that the HACCP system is being implemented appropriately.

C. Validation

HACCP validation is defined as that element of verification focused on collecting and evaluating scientific and technical information to determine whether the HACCP plan, when properly implemented, will effectively control the identified food hazards. The verification activities described above are done to determine whether the HACCP plan is being implemented as required (i.e, whether you are doing what you said you were going to do). Validation, however, is done to determine whether the HACCP plan is working to control the significant hazards (i.e., whether you are doing the right things). Validation involves scientific and technical review of the rationale behind each part of the HACCP plan, from hazard analysis through each CCP verification strategy. More specifically, validation is done to determine that the:

- Hazard analysis is appropriate and realistic;
- HACCP plan is controlling hazards; and
- HACCP plan is based upon current science.

Validation involves re-examining the hazard analysis, CCPs, CLs, monitoring activities, and other aspects of the HACCP plan to assure that the appropriate hazards are identified and that they are being controlled. This may involve either:

- Evaluation of scientific literature;
- External or third-party consultation and validation of the processing system; or
- Internal or in-plant observations or experiments.

II. Procedural Aspects of HACCP Verification

HACCP verification must follow a well-conceived, written plan, with all activities clearly defined. This plan must clearly identify the individuals responsible, the procedures to be used, and the frequency of verification. Those food processing systems that fall under HACCP regulations should be aware of and follow regulatory requirements for verification procedures, frequency, and completion of records review.

A. Responsible Individuals

The HACCP team should perform all verification activities. In addition, it may be desirable to bring in a third-party HACCP auditor to do the verification. In some instances, third-party verification is required by customers. If under a regulatory HACCP program, verification is also done under regulatory audits. While it is not recommended that a regulatory audit be the only verification activity, these audits provide useful information.

B. Verification Procedures

HACCP verification must be done using scientifically sound procedures. Care should be taken when identifying, developing, and implementing these procedures.

C. Frequency of Verification

It is generally recommended (or required under HACCP regulations) that HACCP verification be done at least annually, and whenever there is a significant change in the food processing and handling system. However, many HACCP verification activities (e.g., equipment calibration) may require more frequent verification. The frequency should be determined by the HACCP team after careful consideration and must be sufficient to ensure and

document that the HACCP plan is being implemented properly.

HACCP validation is usually done initially and then annually thereafter, and whenever significant changes occur or factors warrant validation (e.g., new scientific data on hazards and control measures, foodborne illness outbreaks, recurring deviations). In addition, corrective actions may require revalidation. Based upon validation, the HACCP team shall determine if any changes in the hazard analysis or HACCP plan are required.

III. Verification Forms

While CCP verification may be generally summarized in the HACCP Plan Form as shown in Table 1, the HACCP team should develop forms to document all verification activities. A written discussion of verification activities should also be included. Examples of a verification form and validation form are shown in Table 2 and Table 3, respectively.

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Table 1. HACCP Plan Form

HACCP Plan Form									
Critical Control Point (CCP)	**Hazard (s)**	**Critical Limits for Each Control Measure**	**Monitoring**				**Corrective Actions**	**Verifica-tion Activities**	**Record-Keeping Procedures**
			What	**How**	**Frequency**	**Who**			
CCP#1 – HTST Pasteurizer	Vegetative Pathogens[1]	161° F for 15 sec.	Temperature (F)	Check and sign off on continuous chart recorder	Every 2 hours	Pasteurizer Operator	Manually divert flow; Isolate affected product; Request evaluation by QA; Calibrate and adjust as necessary; Follow Corrective Action Plan for disposition and documentation	Thermometer Calibration - per Past. Milk Ord. (PMO) procedures. Pressure diff. checks; Equipment calibration; Seal checks; Pressure checks; Supervisory review and sign off on recorder charts	

Table 2. Example of an HACCP Verification Form

HACCP VERIFICATION					
Date of Verification	**Specific Activity Being Verified (hazard analysis, CCPs, corrective actions, equipment, etc.)**	**Summary of Verification Activities**	**Name of Verifier**	**Expected Frequency of Verification Activity (as defined in HACCPplan)**	**Outcome and Actions Taken**

Table 3. Example of a HACCP Validation Form

HACCP VALIDATION				
Date of Validation	**Summary of Validation Activities**	**Name of Validator**	**Expected Frequency of Validation Activity (as defined in HACCPplan)**	**Outcome and Actions Taken**

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