

## APPENDIX B

### DEFINITIONS OF FOOD SAFETY PROBLEMS

**Biofilms.** A slime layer formed by bacteria on a surface, which provides an environment for pathogens to proliferate. Food contamination can result when biofilms detach from their substrate and enter food products/ingredients.

**Condensate on pipes and other equipment.** When cold pipes come in contact with humid air in a food processing plant, condensate will form, which can drip and contaminate food.

**Contamination by reworked product.** When food contamination results from using reworked product originating from one product line in another product line.

**Contamination during processing.** The adulteration of a product during processing (with pathogens, chemicals, allergens, or foreign objects) so that it is no longer wholesome and safe, therefore potentially rendering the finished product unsafe to eat. While contamination during processing can be caused by other problems listed in the questionnaire (e.g., inadequate glass cleanup policy), contamination during processing, as defined here, is meant to capture those problems not listed in the questionnaire that result in contamination during processing.

**Contamination of raw materials.** The adulteration of a product ingredient (with pathogens, chemicals, allergens, or foreign objects) so that it is no longer wholesome and safe, therefore potentially rendering the finished product unsafe to eat. The problem encompasses those instances where the incoming raw materials arrive contaminated as well as those where raw material contamination occurs at the plant. While the contamination of raw materials can be caused by other problems listed in the questionnaire (e.g., use of unpotable water to wash food ingredients), contamination of raw materials, as defined here, is meant to capture those problems not listed in the questionnaire that result in the contamination of raw materials.

**Deficient employee training.** Training that does not meet the following minimum requirements is considered deficient. Training, at a minimum, must include a written policy covering GMPs, personal hygiene, plant sanitation policies and procedures, food safety and quality control policies, and product tampering awareness and consequences. Training must be presented in a language that can be understood by all employees. Training programs should be updated annually and records should be kept of training sessions. All new employees must be provided with initial training that covers the minimum requirements and refresher courses should be provided quarterly. Operational deficiencies should result in additional training.

**Difficult-to-clean equipment.** When food production and packaging equipment is not designed and installed in such a way as to produce a wholesome product (e.g., the equipment is difficult to access for cleaning or the equipment is not operating properly).

**Inadequate cooling.** Not using the proper temperature during storage or processing of food ingredients or food products, especially refrigerated or frozen foods.

**Inadequate glass cleanup policy.** If a glass cleanup policy, which should include properly cleaning glass containers, providing shielding in the event of glass breakage during productions, and the proper cleanup

of glass in nonproduction areas (glass should not be used in or near processing or storage areas), does not exist or is not comprehensive.

**Incorrect labeling or packaging.** Products can be packaged from old or other products or placed in the wrong packaging. In other cases, allergens might not be declared on the label when they should be.

**Lack of allergen control programs.** Not available. Added by one expert.

**Lack of chemical control programs.** Not available. Added by one expert.

**Lack of crisis management protocol.** No written procedures or training on how to manage crises at the facility.

**Lack of equipment knowledge.** Poor understanding by employees who operate equipment on how to keep equipment clean and prevent equipment maintenance tasks, such as lubrication of machinery, from contaminating food.

**Lack of equipment parts reconciliation after repairs.** No written procedures or training to ensure that all equipment parts are accounted for after a repair.

**Lack of knowledge of welding standards.** No written standards or training on how to properly conduct welding in a food-processing environment.

**Lack of product recovery protocol.** No coding, traceability, or recall systems.

**No preventive maintenance.** When no documented plan of regularly scheduled inspections exists that identifies and corrects facility and equipment problems before they become a food safety hazard.

**Poor employee hygiene.** Employee hygiene is considered poor if it could result in unsafe food or increases the likelihood of unsafe food manufactured at the plant. This could be attributable to inadequate employee hygiene policies and procedures, lack of monitoring and compliance verification, and other causes.

**Poor pest control.** Absence of a detailed pest management policy and program that is documented and conducted under the supervision of a licensed pest control contractor.

**Poor plant and equipment sanitation.** Plant and equipment sanitation is considered poor if it could result in unsafe food or increase the likelihood of unsafe food manufactured at the plant. This could be attributable to lack of adequate sanitation procedures, ineffective application of sanitation policies, inadequate or lack of monitoring and verification of cleanliness, and/or other causes.

**Poor plant design and construction.** When the construction and design of the facility increase the likelihood of food contamination (e.g., cross-over of flow paths of raw and finished products, contacts between walls or floors and food ingredient or finished food product, and poorly drained floors).

**Post-process contamination at manufacturing plant.** The adulteration of a finished food product after processing (with pathogens, chemicals, allergens, or foreign objects) at the manufacturing facility so that it is no longer wholesome and safe, therefore rendering the finished product unsafe to eat. The post-processing contamination might occur between the lethality treatment and packaging or post packaging at the manufacturing plant. While post-processing contamination can be caused by other problems listed in

the questionnaire (e.g., inadequate pest control), post-processing contamination, as defined here, is meant to capture those problems not listed in the questionnaire that result in post-processing contamination.

**Stagnant water due to dead-ends in plumbing.** When plumbing connections do not have a drain into other areas and thus result in sitting water that can contaminate food.

**Use of unpotable water.** Use of water that does not meet local health requirements, at a minimum.