Salmonella Contamination of a Category 3 Fat Rendering Plant - A Case Study

Thomas G. Kennedy, VPHIS, Department of Agriculture, Food and the Marine, Limerick, Ireland.

Safe petfood production is a key objective of manufacturers. Petfoods and treats are often found in the home food preparation areas. Petfoods are often handled by children and the elderly. Food safety issues involving direct human contact with processed petfoods is becoming a major regulatory focus. This case study describes an intractable case of *Salmonella* contamination in a Category 3 animal by-products rendering facility that produces tallow for the oleo-chemical industry and greaves for petfood manufacture. The facility is located adjacent to a beef slaughterhouse operates a Hazard Analysis and Critical Control Point (HACCP) based manufacturing system. The HACCP plan identifies three Critical Control Points (CCPs) - pre-rendering particle size, metal detection and rendering temperature and duration. The facility is approved under Regulation (EC) 1774/2002 and is subject to official controls by the Competent Authority. Over a period of 5 years 33 of 305 official greaves samples intermittently revealed the presence of *Salmonella anatum*, *S. kentucky* and *S. newington*. No deficiencies were detected in CCP implementation. Due to the high rendering temperatures the source of contamination was believed to be post rendering contamination. *Salmonella* was not isolated from any of the environmental samples (n = 62) nor from the products taken within process (n= 88). Analysis of pre-requisite identified deficiencies in pest control, sanitation, zoning, operator hygienic practices and structure fabrication. Deep cleaning and corrections to operational pre-requisite resulted in temporary improvements. The establishment was decommissioned for 10 months. Prior to re-opening fabrication was improved by laying a smooth floor, removing roughened welded seams in equipment, smooth plastering the walls and properly ducting cables and hoses. Post structural improvement, none of the 120 official greaves samples revealed the presence of *Salmonella*. The likely contamination source is from intermittent shedding from nidi located in the deep recesses of blemishes within the fabric. *Salmonella* is capable of surviving for extended periods in a variety of environments. Complete elimination of pathogens is dependent on the strict adherence to HACCP and GMPs. However, some practices are easy to apply, however in this case restoration of control required significant investment and plant redesign.