CERTIFIABLY SPEAKING

by Michael P. Miller

Bottled Water Audits: What's Involved ?

Since 1984, representatives of NSF *International* have conducted more than 2,800 facility audits, or bottled water plant inspections, of bottlers around the world. This has been done under contractual agreements with various groups such as the International Bottled Water Association (IBWA), the Canadian Bottled Water Association, the Bottled Water Cooler Association for the United Kingdom, as well as through separate contracts with bottlers such as Evian and with Publix supermarkets in the United States.

Audits for the bottled water industry are very comprehensive. The "inspector" assesses compliance with all applicable federal and state regulations and with IBWA's Model Code. The inspector evaluates the overall condition of the physical facility and surrounding grounds for conditions that could contribute to poor sanitation and potential product contamination e.g., inadequate grounds maintenance, lack of dust control, holes or other penetrations in the structure's exterior that allow access for birds, insects, and other pests, and potential contamination problems with adjoining property.

Inside the bottling facility, the general sanitation level is rated. This involves evaluating the cleanliness of equipment used in processing and bottling the product, checking to assure that the floors and walls in water processing and bottling areas are cleaned and sanitized regularly, and that non-product contact surfaces are in good repair and free of dust and other debris.

Lighting is evaluated to determine that it is adequate and that it does not constitute a source of contamination because it is not shielded or otherwise protected in case of breakage. The adequacy of air handling and ventilation systems is determined, and fixtures, ducts, and pipes are inspected to assess the potential for contamination as a result of heir placement.

Plumbing is inspected for both operations and product water systems to be sure there are no cross-connections and that backflow prevention is suitable. The inspector determines that all equipment is designed—and appropriate—for its intended use, and that it will not contaminate the product with dust, lubricants or metal fragments. This includes collection and storage tanks; piping; fittings; bottle washers; fillers; cappers; tank trucks; distillation and reverse osmosis equipment; mineral injection pumps; etc. These considerations are only one part of the general sanitation audit for bottling facilities. Of even greater concern is evaluation of the production process.

Regulations require that source waters come from an approved, properly located, protected and operated source that meets all applicable regulations of the government agency. Often the product supply is a private artesian, pumped well or spring source. Consequently, the inspector must determine that a source complies with all applicable regulations. This is done by reviewing the regulatory agency's approval of the source by inspection, and by ensuring that the bottler has the required analyses on file. For non-municipal supply sources, weekly microbiological analyses are also required.

Processing of source water at the plant receives very close attention during the sanitation audit. Regulations require that the performance and effectiveness of the treatment equipment be monitored and records maintained. Depending on the process, this means turbidity monitoring for particulate reduction filters, conductivity monitoring for reverse osmosis or distillation equipment, recording mineral injection rates along with analysis of mineral content, testing and recording ozone residuals, keeping detailed flow records for carbon filters, etc.

Corresponding records are required for treatment equipment maintenance, such as filter changes, membrane replacement, ion exchange resin regeneration, and similar operations. The inspectors also evaluate product contact surfaces of equipment to determine whether routine maintenance is performed to keep them free of scale, oxidation, or other residue that could contaminate the product. This includes reviewing plant records to assess compliance with the requirement that product water contact surfaces be cleaned and sanitized daily, as well as records of sanitizing solution used, its concentration, and contact time with the surface being sanitized.

An important part of assessing the acceptability of product contact surfaces is evaluation of the respective material. Materials must be nontoxic, nonabsorbent, and easily cleaned and sanitized. This is established by inspection. A thorough review of the files bottlers are required to maintain for all plastics that come into contact with product water, including letters from suppliers that verify that materials are formulated from ingredients which comply with appropriate regulations. This applies to piping; tubing; O-rings; gaskets; filler nozzles; and, most importantly, containers and closures.

Inspectors evaluate the acceptability of materials in single-service containers and closures, and assure that proper storage and handling practices are followed. Returned multi-service containers are inspected and their washing, rinsing and sanitizing are carefully evaluated. Open bottles must be protected from airborne contamination during conveyance from th washer or descrambling table o the filler and on to the capper. This is verified by the inspector. A bottler must also comply with requirements for visual or electrical monitoring that filled containers are properly sealed and labeled, and for production codes on each container. Compliance with the quarterly bacteriological testing of container and closures must be demonstrated and on file. Similarly, weekly bacteriological and annual chemical, physical and radiological tests for each product type must be documented, complete, and available during the sanitation audits. Further, the adequacy of production and distribution records are a required product recall plan are assessed and noted.

Results of the audits are discussed with the bottler at the completion of the audit, then documented in a formal report that is sent to the bottler. A sanitary compliance rating is calculated and provided to the bottler. Each of the 60 items on the report form is assigned points or designated a control point. Because of their importance, control points are pass/fail decisions. IBWA requires its members to achieve at least a 70 percent sanitary compliance rating and to have no control point deficiencies. •

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