

Water Reuse Questions and Answers (Q&As)

INTRODUCTION

Water use in many federally inspected meat and poultry establishments is extensive. In an attempt to conserve this valuable natural resource, it can be appropriate in certain circumstances to reuse water. In all instances where reused water is employed, it is important to emphasize the primacy of ensuring that the water that is being reused is safe for its intended purpose. FSIS encourages the development of water reuse technologies in federally inspected establishments. However, food safety cannot be compromised by the use of such technologies. The source of the water, the measures taken to recondition the water, and the intended reuse application must be taken into consideration by an establishment when determining whether food safety hazards exist.

Establishments are responsible to ensure that water is reused in a way that will not result in the adulteration of product or the creation of insanitary conditions. If an establishment reuses water, FSIS expects that the establishment will consider the effects of water reuse in its hazard analysis, and support and document all decisions that it makes associated with the reuse. Establishments are expected to consider whether reusing water will create physical, chemical, or biological hazards, and whether additional measures are necessary to ensure that product is neither contaminated nor adulterated. Inspection personnel verify that the regulatory requirements are met, including that sanitary conditions are maintained.

The regulatory requirements for water reuse are listed in 9 CFR 416.2(g). FSIS has issued the Sanitation Performance Standards Compliance Guide (found at <http://www.fsis.usda.gov/oppde/rdad/frpubs/sanitationcover.htm>) which provides in-depth guidance on how an establishment may meet the sanitation regulatory requirements with respect to specific water reuse applications. Compliance Guidelines are not regulatory requirements but are intended to suggest means by which compliance with the above regulatory requirements can be achieved.

This Q&A document addresses the reuse of water, ice, and solutions that come into contact with product, equipment, or other surfaces and that are used again for the same or other purpose within the limits of 9 CFR 416.2(g). FSIS developed this Q&A document in response to numerous inquiries sent to the Technical Service Center regarding water reuse and the interpretation of the underlying regulations. The questions presented are representative of those that FSIS has received. A list of applicable regulations is included as [Attachment 1](#) at the end of the Q&A's.

1. Question: Does an establishment that intends to reuse water in accordance with 9 CFR 416.2(g) need to have its program reviewed by the Agency prior to implementation?

Answer: No. FSIS does not prior-approve the food safety control system used by an establishment. However, FSIS expects the establishment to fully consider the physical, chemical, and microbiological consequences of the reuse of water in its hazard analysis and to support all decisions it makes with respect to water reuse. As appropriate, the establishment will need to address the effects of water reuse in its HACCP plan or Sanitation SOP or other prerequisite program.

2. Question: All city water has to comply with the Environmental Protection Agency (EPA) National Primary Drinking Water regulations. If an establishment uses a municipal water supply, is a city water bill acceptable documentation that the water meets the EPA requirements?

Answer: No. A water report attesting to or certifying the potability of the municipal water supply, issued by the responsible State or local agency, is required because such documentation directly addresses the regulatory requirement. Water supply requirements are covered in the sanitation regulations in 9 CFR 416.2 (g)(1). These requirements are also addressed in FSIS Directive 5000.1, Revision 1, Amendment 1. It is the responsibility of the establishment to ensure that plumbing systems provide an adequate supply of potable water for processing and other purposes without adulterating product or creating insanitary conditions.

3. Question: If an establishment purchases ice from a local store, can this ice be used to cool product?

Answer: Yes, provided that the ice meets the same standards as potable water in that documentation is made available to attest to or certify that the ice is made from potable water. If the plant uses ice purchased from a local store, a water report indicating potability must be on file from the manufacturer of the ice to show that the water used to make the ice is potable. If the ice was made from a private well, documentation indicating the potability of the water supply used to make it must also be on file and renewed at least semi-annually. If water potability documentation from the manufacturer of the ice is not on file, then there is noncompliance with 9 CFR 416.2(g)(6) which states: "Water that does not meet the use conditions of paragraph (g)(1) through (g)(5) of this section may not be used in areas where edible product is handled or prepared or in any manner that would allow it to adulterate edible product or create insanitary conditions."

4. Question: Is a facility operating under 9 CFR Part 350 (Identification Service, Food Inspection Service or Certification Service) required to maintain water potability documentation on file?

Answer: Yes. Facilities operating under 9 CFR Part 350 are required to meet all parts of 9 CFR 416.1 through 416.6. A supply of running water that complies with the EPA National Primary Drinking Water regulations (40 CFR part 141), at a suitable temperature and under pressure as needed, must be provided in all areas where required (for processing product, for cleaning rooms and equipment, utensils, and packaging materials, for employee sanitary facilities, etc.). If a facility uses a municipal water supply, it must make available to FSIS, a water report certifying or attesting to the potability of the water supply. If an establishment uses a private well for its water supply, it must make available to FSIS documentation certifying the potability of the water supply that has been renewed at least semi-annually.

5. Question: Can a brine solution used to cool fully cooked comminuted sausage products be reused for the same purpose (i.e., to cool subsequent production of fully cooked comminuted sausage)?

Answer: Yes, in accordance with 9 CFR section 416.2(g)(2), it may be reused provided that it is maintained free of pathogenic organisms and fecal coliform organisms, and that other physical, chemical, and microbiological contamination has been reduced to prevent adulteration of product.

6. Question: In 9 CFR 416.2(g) (2) and (3), the regulations state that water may be reused for the same purpose. What does “for the same purpose” mean?

Answer: “For the same purpose” as used in 9 CFR 416.2(g)(2) and(3) means that water used to cook or chill ready-to-eat products could be reused to cook or chill subsequent production of ready-to-eat products, and that water used to chill or wash raw product could be reused to chill or wash raw subsequent production of raw products. It would not be acceptable to reuse water that has contacted raw product for RTE product because of the increased likelihood that such water would contain pathogens and other contaminants that would be transfer from raw to cooked product. Under 9 CFR 417.2(a) an establishment should consider the effects of the reuse in its hazard analysis and support all decisions made in the hazard analysis associated with the reuse. The establishment must ensure that the reuse water is safe for its intended purpose by taking measures, as appropriate, to reduce contamination when deemed necessary by its hazard analysis.

7. Question: The Sanitation Performance Standards Compliance Guide lists requirements for turbidity. Does the reuse water need to meet the turbidity requirements of less than 5 NTU for cook and chill water reuse as indicated in the Compliance Guide?

Answer: No, turbidity is not a required criterion for water reuse. However, turbidity is a measure of the water’s relative clarity with regard to contaminants that may have been incorporated into the water as a consequence of reuse or inadequate water treatment. The Sanitation Performance Standards Compliance Guide contains guidelines that could be used by an establishment to meet water reuse regulations, but these are not in

themselves regulatory requirements. An establishment needs to consider the impact that increased turbidity would have on water quality and address it in its hazard analysis.

8. Question: Must poultry chiller water that is intended for reuse whereby it is chilled via heat exchangers and returned to the poultry chiller comply with the water reuse requirements in 9 CFR 416.2(g)(3)?

Answer: Yes. When poultry chiller water is chilled via heat exchangers and returned to the chiller, it is being reused for the same purpose and must comply with the requirements of 9 CFR 416.2(g)(3). This section of the regulation requires that establishments take measures to reduce contamination in the water, as necessary, to prevent contamination or adulteration of product. To comply, an establishment must consider the effects of reusing the water in the hazard analysis and support all decisions made regarding this reuse. Depending on the results of the hazard analysis, establishments are expected to take the measures necessary to ensure that their products are not contaminated or adulterated. Failure to consider the effects of reusing water within the chill system would raise concerns about the adequacy of an establishment's hazard analysis.

9. Question: Are there specific test requirements or quantitative reductions that must be met to demonstrate compliance with 9 CFR 416.2(g)(3)?

Answer: No. Section 416.2(g)(3) does not dictate what measures need to be taken, only that measures be taken to reduce physical, chemical, and microbiological contamination so as to prevent contamination or adulteration of product. The extent of reconditioning is dependent on the source of the water and the specific reuse application. Each situation should be considered in the hazard analysis for the particular process, and the necessary measures to prevent contamination or adulteration of product should be identified.

10. Question: What are examples of “measures to reduce physical, chemical, and microbiological contamination?”

Answer: These measures could include methods used by the establishment to lower the level of contaminants in the reuse water that is to be reused when the establishment's hazard analysis determines that a reduction in physical, chemical, and microbiological contamination is necessary. Listed below are some examples of specific methods that an establishment may consider when needing to lower contamination levels:

Filtration -- There are many different types of filters available to industry to address physical contamination, from simple “sock” and sand filters to elaborate, patented technologies designed to remove extremely small sized contaminants. Specially designed filtration systems may also effectively reduce the build-up of chemical contamination.

Antimicrobials -- Examples of measures to reduce microbiological contamination are the addition of antimicrobials, the use of ultraviolet light, or ozonation.

11. Question: Can reuse water be used to rinse equipment on a poultry evisceration line?

Answer: Yes, provided that the provisions of 9 CFR 416.2(g)(3) and (4), where applicable, are properly addressed. Regulation 9 CFR 416.2(g)(3) requires that the establishment take steps to reduce physical, chemical, and microbiological contamination so as to prevent contamination or adulteration of product. Regulation 9 CFR 416.2(g)(4) addresses water derived from an advanced wastewater treatment facility and also requires that after use of such water, a final rinse with non-reconditioned potable water must be performed.

12. Question: Can water that has been reconditioned by an onsite advanced wastewater treatment facility be used on or in ready-to-eat (RTE) product?

Answer: No. Water reconditioned by an onsite advanced wastewater treatment facility may not be used in product formulation or in/on RTE product. Reconditioned water that has never contained human waste may be used on raw product provided it is followed by a separate final rinse with non-reconditioned potable water.

13. Question: Does reuse water that is to be used to wash antemortem pens or poultry cages need to be pathogen free as stated in 9 CFR 416.2(g)(5)?

Answer: Yes, the Agency is concerned that there is the potential for the transfer of pathogenic organisms, such as *Salmonella* from contaminated poultry cages or antemortem pens to poultry or livestock that were previously free of them. The Agency is also concerned about the potential to create insanitary conditions and to expose plant employees and inspection personnel to pathogens when reuse water that has not been shown to be pathogen free is used for the initial cleaning of antemortem pens, poultry cages, and livestock vehicles.

14. Question: If a poultry establishment wishes to reuse water to float feathers in the picking area under the pickers, must that reuse water be free of pathogenic organisms?

Answer: No. The Agency has determined that the reuse of water that may contain pathogens is acceptable for certain uses and under certain conditions. For example, the reuse of poultry chill water overflow to move feathers out of the picking area or to move solid wastes down the evisceration troughs for disposal are situations where it is acceptable under 416.2(g)(6) to reuse water that may contain pathogens. Evisceration troughs and floor drains are inedible areas separated from edible areas by space. The establishment is responsible to ensure that this is done in a sanitary manner and that it will not contaminate product or product contact surfaces or result in the adulteration of product. Establishments are required to consider the effects of the water reuse in the hazard analysis and support all decisions made regarding this reuse.

Attachment 1: 9 CFR 416.2(g)

416.2(g)(1) A supply of running water that complies with the National Primary Drinking Water regulations (40 CFR part 141), at a suitable temperature and under pressure as needed, must be provided in all areas where required (for processing product, for cleaning rooms and equipment, utensils, and packaging materials, for employee sanitary facilities, etc.). If an establishment uses a municipal water supply, it must make available to FSIS, upon request, a water report, issued under the authority of the State or local health agency, certifying or attesting to the potability of the water supply. If an establishment uses a private well for its water supply, it must make available to FSIS, upon request, documentation certifying the potability of the water supply that has been renewed at least semi-annually.

416.2(g)(2) Water, ice, and solutions (such as brine, liquid smoke, or propylene glycol) used to chill or cook ready-to-eat product may be reused for the same purpose, provided that they are maintained free of pathogenic organisms and fecal coliform organisms and that other physical, chemical, and microbiological contamination have been reduced to prevent adulteration of product.

416.2(g)(3) Water, ice, and solutions used to chill or wash raw product may be reused for the same purpose provided that measures are taken to reduce physical, chemical, and microbiological contamination so as to prevent contamination or adulteration of product. Reuse that which has come into contact with raw product may not be used on ready-to-eat product.

416.2(g)(4) Reconditioned water that has never contained human waste and that has been treated by an onsite advanced wastewater treatment facility may be used on raw product, except in product formulation, and throughout the facility in edible and inedible production areas, provided that measures are taken to ensure that this water meets the criteria prescribed in paragraph (g)(1) of this section. Product, facilities, equipment, and utensils coming in contact with this water must undergo a

separate final rinse with non-reconditioned water that meets the criteria prescribed in paragraph (g)(1) of this section.

416.2(g)(5) Any water that has never contained human waste and that is free of pathogenic organisms may be used in edible and inedible product areas, provided it does not contact edible product. For example, such reuse water may be used to move heavy solids, to flush the bottom of open evisceration troughs, or to wash antemortem areas, livestock pens, trucks, poultry cages, picker aprons, picking room floors, and similar areas within the establishment.

416.2(g)(6) Water that does not meet the use conditions of paragraphs (g)(1) through (g)(5) of this section may not be used in areas where edible product is handled or prepared or in any manner that would allow it to adulterate edible product or create insanitary conditions.