

Aircraft Drinking Water Rule: A Quick Reference Guide

Overview of the Rule

Title	Aircraft Drinking Water Rule (ADWR) 74 FR 53590. October 19, 2009
Purpose	To ensure that safe and reliable drinking water is provided to aircraft passengers and crew by amending and consolidating National Primary Drinking Water Regulations for aircraft public water systems (PWSs).
General Description	To protect against disease-causing microbiological contaminants through the required development and implementation of aircraft water system operations and maintenance plans. The plans include routine disinfection and flushing of the water system, air carrier training requirements for key personnel, and periodic sampling of the onboard drinking water, as well as self-inspections of each aircraft water system and immediate notification of passengers and crew when violations or specific situations occur.
Aircraft Covered by the ADWR	The ADWR applies only to aircraft with onboard water systems that provide water for human consumption through pipes and regularly serve an average of at least twenty-five individuals daily, at least 60 days out of the year, and that board only finished water for human consumption. Human consumption includes water for drinking, hand washing, food preparation, and oral hygiene.
Components of an Aircraft Water System	Aircraft water systems include the water service panel, the filler neck of the aircraft finished water storage tank, and all finished water storage tanks, piping, treatment equipment, and plumbing fixtures within the aircraft that supply water to passengers or crew.

Major Provisions

Operations and Maintenance (O&M Plan)

Air carriers develop and implement an O&M plan for each aircraft water system in active service. More than one aircraft can be covered by the same O&M plan. The water system O&M plan must be included in a Federal Aviation Administration-accepted aircraft operations and maintenance program. If a new aircraft or PWS is added to an air carrier fleet, the aircraft is added to an existing O&M plan or a new O&M plan is developed. The O&M plan for the new aircraft is implemented by the end of the first calendar quarter during which the aircraft is placed into service.

Each aircraft water system O&M plan includes:	<ul style="list-style-type: none"> ▶ Watering point selection requirement – all water sources must be from a watering point selected in accordance with Food and Drug Administration regulations [21 CFR part 1240 subpart E]. ▶ Procedures for routinely disinfecting and flushing the aircraft water system in accordance with the manufacturer's recommendations. ▶ Procedures for follow-up coliform sampling after a corrective disinfection and flushing event. ▶ Training requirements for all staff involved with the O&M provisions of the rule and those managing or conducting the coliform sampling requirements of the rule. ▶ Self-inspection procedures, procedures for boarding water, and the coliform sampling plan. ▶ A statement of whether the aircraft water system can be physically disconnected or shut off so that the flow of water through the tap(s) is prevented.
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Coliform Sampling Plan

Air carriers develop a coliform sampling plan covering each aircraft owned or operated by the carrier. Sampling plans are developed for each new aircraft by the end of the calendar quarter in which the aircraft is placed in service.

At a minimum, all plans include the following:	<ul style="list-style-type: none"> ▶ Coliform sample collection procedures. ▶ Sample tap location(s) representative of the aircraft water system, including both galley and lavatory taps. ▶ Frequency and number of routine coliform samples to be collected. ▶ Frequency of routine disinfection and flushing as specified in the operations and maintenance plan. ▶ Procedures for communicating sample results to ensure any required actions including repeat and follow-up sampling, corrective action, and notification of passengers and crew are conducted in a timely manner.
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Routine Disinfection and Flushing

Air carriers routinely disinfect and flush aircraft PWSs at the frequency recommended by the water system manufacturer or, if not specified by the manufacturer, may choose from one of four options.



Coliform Sampling Requirements

All aircraft PWSs sample for total coliform bacteria according to the frequency and procedures described in the coliform sampling plan. The routine sampling frequency is based on the routine disinfection and flushing frequency—the more often an aircraft PWS disinfects, the less often it is required to monitor for coliform.

Routine coliform samples may be collected immediately prior to but not within 72 hours after a routine disinfection and flushing event.

Each routine, repeat, or follow-up sample that is positive for total coliform is tested for the presence of *E. coli*. If any sample is positive for *E. coli*, public notification and corrective disinfection and flushing are triggered. Air carriers select from specified options for follow-up and corrective measures when routine coliform samples indicate total coliform but *E. coli* contamination is not present. The options include collecting 3 repeat samples within 24 hours or disinfecting and flushing the system with follow-up sampling.

- ▶ The disinfection and flushing procedure must be completed within 72 hours unless public access is restricted.
- ▶ If any repeat sample is positive for coliform, public notification and corrective disinfection and flushing with follow-up sampling are triggered.

Corrective Disinfection and Flushing

If corrective disinfection and flushing is opted or required, air carriers follow the procedures in their O&M plans. Unscheduled flight disruptions to perform corrective disinfection and flushing can be minimized by shutting off the water or preventing the flow of water to the taps. Before allowing unrestricted access to the aircraft water system, a complete set of two follow-up samples must be collected and submitted for analysis after the disinfection and flushing event if triggered by a total coliform-positive sample, and must be reported as total coliform-negative if triggered by an *E. coli*-positive sample.

Self-Inspection

Each aircraft PWS must be inspected by the air carrier at least every 5 years according to the procedures in their O&M plans. At a minimum, the self-inspection procedures for an aircraft water system must include inspection of the storage tank, distribution system, supplemental treatment, fixtures, valves, and backflow prevention devices. Any deficiencies detected must be addressed, and any deficiency that is unresolved within 90 days of identification of the deficiency must be reported to EPA.

Public Notification

Notification of passengers and crew onboard the aircraft is required when:

- ▶ Any sample results are total coliform-positive or *E. coli*-positive.
- ▶ An air carrier fails to perform required routine disinfection and flushing.
- ▶ An air carrier fails to collect required samples.
- ▶ An air carrier boards water from a watering point that does not meet FDA regulations, EPA standards, or is otherwise determined to be unsafe.
- ▶ EPA, the air carrier, or crew determines public notification is necessary to protect public health.

For *E. coli*-positive events or when EPA, the air carrier, or crew determines public notification is necessary, notice must be issued within 24 hours. For all other situations, notice must be issued within 72 hours.

- ▶ Notice to passengers need not be provided if the water is shut off, if flow of water to taps is prevented, or if water is supplied only to the lavatory toilets and not the lavatory or galley taps.

Reporting and Recordkeeping Requirements

Air carriers submit compliance information to EPA including sampling results; all events requiring public notification and corrective disinfection and flushing; notification of failure to comply with monitoring or disinfection and flushing requirements; and evidence of self-inspection, along with a report of unresolved deficiencies. Most reporting will be done electronically to the ADWR Reporting and Compliance System, a database developed and supported by EPA.

Records of coliform sampling, disinfection and flushing, self-inspections, and public notices are kept by the air carrier. Sampling plans and O&M plans are maintained and made available for EPA review.

Key Dates

<p>Within 18 months of the final rule <i>April 19, 2011</i></p>	<ul style="list-style-type: none"> ▶ Develop a coliform sampling plan and report to EPA that it has been completed. ▶ Develop O&M plans that cover every aircraft PWS and report to EPA that they have been completed. ▶ Report the coliform sampling and disinfection and flushing frequencies to EPA for each aircraft. ▶ Report the complete air carrier inventory of aircraft that are PWSs to EPA.
<p>24 months after the final rule <i>October 19, 2011</i></p>	<ul style="list-style-type: none"> ▶ The compliance date for all other rule requirements applies, unless otherwise noted.

For additional information on the ADWR

Call the Safe Drinking Water Hotline at 1-800-426-4791; visit the EPA web site at <http://www.epa.gov/drink>; or contact your EPA Regional Office.