



FACT SHEET: FINAL AIRCRAFT DRINKING WATER RULE

The Environmental Protection Agency (EPA) published the final National Primary Drinking Water Regulations (NPDWRs) for Aircraft Public Water Systems under the Safe Drinking Water Act (SDWA) on October 19, 2009. Aircraft public water systems are subject to the requirements of SDWA and the NPDWRs.

Why did EPA issue the Aircraft Drinking Water Rule (ADWR)?

The primary purpose of the Aircraft Drinking Water Rule (ADWR) is to ensure that safe and reliable drinking water is provided to aircraft passengers and crew. This entails providing air carriers with a feasible way to comply with SDWA and the NPDWRs. The existing NPDWRs were designed for traditional, stationary public water systems (PWSs), not mobile aircraft water systems that are operationally very different. Aircraft must maintain rigorous operating schedules. They fly to multiple destinations throughout the course of any given day and may board drinking water from sources at any of these destinations. Aircraft board water from airport watering points via temporary connections. Aircraft drinking water safety depends on a number of factors including the quality of the water that is boarded from these multiple sources, the care used to board the water, and the operation and maintenance of the onboard water system and the water transfer equipment (such as water cabinets, trucks, carts, and hoses). These unique operational characteristics present different challenges that necessitate tailoring the NPDWRs for aircraft PWSs in the final ADWR.

What concerns does the ADWR address?

In 2004, EPA found all aircraft PWSs to be out of compliance with the NPDWRs. According to the air carriers, it is not feasible for them to comply with all of the monitoring that is required in the existing regulations. Subsequently, EPA tested 327 aircraft of which 15 percent tested positive for total coliform. EPA considers this to be a high percentage of positive samples. In response to these findings, EPA embarked on an accelerated process to tailor the existing regulations for aircraft public water systems. In the interim, EPA placed 45 air carriers under Administrative Orders on Consent (AOCs). Until the final ADWR compliance dates, air carriers remain subject to the existing national primary drinking water regulations or their respective AOCs.

Who is affected by this rule?

Aircraft which convey passengers in interstate commerce and are public water systems that board only finished water will be affected by this final ADWR. Aircraft that do not provide water for human consumption or those with water systems that do not regularly serve an average of at least twenty-five individuals daily do not meet the definition of a PWS. The final ADWR only addresses aircraft within U.S. jurisdiction; however, EPA supported an international effort led by the World Health Organization to develop international guidelines for aircraft drinking water.

The ADWR applies to the aircraft's onboard water system only. The components include: water service panel, storage tanks, pipes, valves, treatment devices, and plumbing fixtures within the aircraft that supply water to passengers or crew. The Food and Drug Administration (FDA) is responsible for regulating the watering points that include the water cabinets, carts, trucks, and hoses

from which aircraft board water. EPA and the states are responsible for regulating the public water systems that supply drinking water to the airport watering points.

How much will the ADWR cost air carriers and consumers?

EPA assumes that air carriers will pass on some or all of the costs of a new regulation to their passengers in the form of ticket price increases. EPA estimates that 708.4 million passengers travel each year on aircraft that are affected by the ADWR. EPA estimates air carriers’ total annualized cost to implement the ADWR to be about \$6.95 million using a 7 percent discount rate. The cost passed on to passengers can be roughly estimated by dividing the air carriers’ annualized costs incurred by the number of passengers traveling each year. Based on this approximation, EPA estimates that passengers could face a relatively negligible increase of about one cent per ticket.

What does the final rule require?

The rule combines coliform sampling, best management practices, corrective action, public notification, operator training, and reporting and recordkeeping to improve public health protection. EPA believes that this rule provides the flexibility to meet the ever changing needs of the air carrier industry while still providing adequate barriers of protection.

What is the frequency required for coliform sampling?

The frequency of coliform monitoring is tied to the frequency of disinfection and flushing of the aircraft water system, as follows:

Routine Disinfection and Flushing and Routine Sample Frequencies	
Minimum Routine Disinfection & Flushing Per Aircraft	Minimum Frequency of Routine Samples Per Aircraft
At least 4 times per year = At least once within every three-month period (quarterly)	At least 1 time per year = At least once within every twelve-month period (annually)
At least 3 times per year = At least once within every four-month period	At least 2 times per year = At least once within every six-month period (semi-annually)
At least 2 times per year = At least once within every six-month period (semi-annually)	At least 4 times per year = At least once within every three-month period (quarterly)
At least 1 time per year or less = At least once within every twelve-month period (annually) or less	At least 12 times per year = At least once every month (monthly)

Two coliform samples are taken per monitoring period: One sample must be taken from a lavatory and one sample from a galley. Any total coliform-positive sample must be further analyzed for the presence of *E. coli*. The air carrier must conduct disinfection and flushing of the aircraft water system in accordance with, or consistent with, the water system manufacturer’s recommendations. This allows for equipment-specific designs and for flexible implementation with the evolution of technology. In cases where a recommended routine disinfection and flushing frequency is not specified by the aircraft water system manufacturer, the air carrier is given the flexibility to choose a disinfection and flushing frequency, and corresponding monitoring frequency, specified in the above table.

What triggers corrective action and public notification?

<u>Initial Corrective Action and Public Notification Requirements for Aircraft Water Systems</u>		
<small>*Additional corrective actions based on repeat sample results or follow-up sample results are not reflected in this table.</small>		
<u>Monitoring Result or Failure</u>	<u>Corrective Action</u>	<u>Public Notification</u>
<p>If any routine sample is total coliform-positive and <i>E. coli</i>-negative</p>	<p>-- Perform disinfection and flushing no later than 72 hours after being notified by lab of total coliform-positive result, and collect follow-up samples; or -- Restrict public access to the water system no later than 72 hours after being notified by lab of total coliform-positive result; all public access restrictions must remain in-place until the aircraft water system has been disinfected and flushed and a complete set of follow-up samples has been collected; or -- Collect 3 repeat monitoring samples no later than 24 hours after being notified by lab of total coliform-positive result.</p>	<p>If the air carrier chooses to restrict public access to the water system, the air carrier must initiate public notification at that time (i.e., no later than 72 hours after being notified by lab of total coliform-positive result) and continue until the aircraft water system is returned to unrestricted public access.</p>

Initial Corrective Action and Public Notification Requirements for Aircraft Water Systems

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<u>Monitoring Result or Failure</u>	<u>Corrective Action</u>	<u>Public Notification</u>
If any routine sample is <i>E. coli</i> -positive	<p>-- Restrict public access to the water system no later than 24 hours after being notified by lab of <i>E. coli</i>-positive result; all public access restrictions must remain in-place until the aircraft water system has been disinfected and flushed and a complete set of follow-up samples is total coliform-negative;</p> <p>and</p> <p>-- If the aircraft water system cannot be physically disconnected or shut-off, or the flow of water otherwise prevented through the tap(s), the air carrier must disinfect and flush the system no later than 72 hours after the lab notifies the air carrier of the <i>E. coli</i>-positive result;</p> <p>and</p> <p>-- Collect follow-up samples.</p>	Initiate public notification when restriction of public access is initiated (i.e., no later than 24 hours after being notified by lab of <i>E. coli</i> -positive result) and continue until a complete set of follow-up samples is total coliform-negative. At that time, the aircraft water system may be returned to unrestricted public access.
Failure to perform routine disinfection and flushing or failure to collect and analyze the required routine coliform samples	Restrict public access to the water system no later than 72 hours after discovery of the failure; all public access restrictions must remain in-place until the aircraft water system has been disinfected and flushed and a complete set of follow-up samples has been collected.	Initiate public notification when restriction of public access is initiated (i.e., no later than 72 hours after discovery of the failure) and continue until the aircraft water system is returned to unrestricted public access.

Initial Corrective Action and Public Notification Requirements for Aircraft Water Systems

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<u>Monitoring Result or Failure</u>	<u>Corrective Action</u>	<u>Public Notification</u>
<p>Failure to collect and analyze the required follow-up samples as a result of an <i>E. coli</i>-positive result</p>	<p>-- Restrict public access to the water system no later than 24 hours after discovery of the failure; all public access restrictions must remain in-place until the aircraft water system has been disinfected and flushed and a complete set of follow-up samples is total coliform-negative; and</p> <p>-- If the aircraft water system cannot be physically disconnected or shut-off, or the flow of water otherwise prevented through the tap(s), the air carrier must disinfect and flush the system no later than 72 hours after the lab notifies the air carrier of the <i>E. coli</i>-positive result; and</p> <p>-- Collect follow-up samples.</p>	<p>Initiate public notification when restriction of public access is initiated (i.e., no later than 24 hours after discovery of the failure) and continue until a complete set of follow-up samples is total coliform-negative. At that time, the aircraft water system may be returned to unrestricted public access.</p>
<p>Failure to collect and analyze the required repeat or follow-up samples as a result of a total coliform-positive and <i>E. coli</i>-negative result</p>	<p>Restrict public access to the water system no later than 72 hours after discovery of the failure; all public access restrictions must remain in-place until the aircraft water system has been disinfected and flushed and a complete set of follow-up samples has been collected.</p>	<p>Initiate public notification when restriction of public access is initiated (i.e., no later than 72 hours after discovery of the failure) and continue until the aircraft water system is returned to unrestricted public access.</p>

Initial Corrective Action and Public Notification Requirements for Aircraft Water Systems

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<u>Monitoring Result or Failure</u>	<u>Corrective Action</u>	<u>Public Notification</u>
<p>When the air carrier becomes aware of an <i>E. coli</i>-positive event resulting from:</p> <p>(1) boarding water from a watering point not in accordance with FDA regulations (21 CFR part 1240 subpart E), or</p> <p>(2) boarding water that does not meet NPDWRs applicable to transient non-community water systems (§§141.62 and 141.63, as applied to TNCWS), or</p> <p>(3) boarding water that is otherwise determined to be unsafe due to non-compliance with the procedures specified in §141.804(b)(6).</p>	<p>-- Restrict public access to the water system no later than 24 hours after discovery of the failure; all public access restrictions must remain in-place until the aircraft water system has been disinfected and flushed and a complete set of follow-up samples is total coliform-negative; and</p> <p>-- If the aircraft water system cannot be physically disconnected or shut-off, or the flow of water otherwise prevented through the tap(s), the air carrier must disinfect and flush the system no later than 72 hours after the lab notifies the air carrier of the <i>E. coli</i>-positive result; and</p> <p>-- Collect follow-up samples.</p>	<p>Initiate public notification when restriction of public access is initiated (i.e., no later than 24 hours after discovery of the failure) and continue until a complete set of follow-up samples is total coliform-negative. At that time, the aircraft water system may be returned to unrestricted public access.</p>

Initial Corrective Action and Public Notification Requirements for Aircraft Water Systems

*Additional corrective actions based on repeat sample results or follow-up sample results are not reflected in this table.

<u>Monitoring Result or Failure</u>	<u>Corrective Action</u>	<u>Public Notification</u>
<p>When the air carrier becomes aware of a non-<i>E. coli</i>-positive event resulting from:</p> <p>(1) boarding water from a watering point not in accordance with FDA regulations (21 CFR part 1240 subpart E), or</p> <p>(2) boarding water that does not meet NPDWRs applicable to transient non-community water systems (§§141.62 and 141.63, as applied to TNCWS), or</p> <p>(3) boarding water that is otherwise determined to be unsafe due to non-compliance with the procedures specified in §141.804(b)(6).</p>	<p>Restrict public access to the water system no later than 72 hours after discovery of the failure; all public access restrictions must remain in-place until the aircraft water system has been disinfected and flushed and a complete set of follow-up samples has been collected.</p>	<p>Initiate public notification when restriction of public access is initiated (i.e., no later than 72 hours after discovery of the failure) and continue until the aircraft water system is returned to unrestricted public access.</p>

What coliform sampling plans and operations and maintenance plans need to be developed?

Each air carrier, for each aircraft that it owns or operates, must have a coliform sampling plan and an aircraft water system operation and maintenance plan within 18 months after the final rule is published for each existing aircraft public water system, and within the first calendar quarter of initial operation for new aircraft PWS. These plans must be included in a Federal Aviation Administration-accepted aircraft operations and maintenance program. The frequency for routine coliform sampling and routine disinfection and flushing must also be reported to EPA.

What types of inspections or audits are required by the ADWR?

Each air carrier must conduct a self-inspection of each aircraft water system no less frequently than once every 5 calendar years. In addition, EPA may conduct compliance audits as deemed necessary. The air carrier must address significant deficiencies found as a result of routine compliance audits or self-inspections within 90 days of identification of the deficiency, or where such deficiency is identified during extended or heavy maintenance, before the aircraft is put back into service.

How will information (inventory data, sampling data, etc) be transmitted to EPA?

As the primacy agency, EPA has oversight responsibility for aircraft PWS reporting information. To facilitate collection and analysis of aircraft PWS data, EPA is developing an internet-based electronic data collection and management system. This approach is similar to that used under the EPA SDWIS/STATE (Safe Drinking Water Information System/State version) reporting program. This is intended to reduce the reporting errors and limit the time involved in investigating, checking, and correcting errors at all levels. If an air carrier determines that it or its laboratory does not have the capability to report data electronically, the air carrier can submit a request to EPA to use an alternate reporting format. Regardless of the reporting process used, air carriers are to report the required information based on the schedule as stipulated in the ADWR.

What are the compliance dates for the ADWR?

Each air carrier must report a complete inventory of existing aircraft by 18 months following publication of the ADWR. In addition, the air carrier must report that it has developed a coliform sampling plan and an operations and maintenance plan that cover each existing aircraft. Air carriers must comply with all remaining requirements (e.g., routine disinfection and flushing, routine sampling) beginning 24 months following publication of the ADWR.

How can I get more information?

EPA's ADWR and other supporting information are available on EPA's Web site at <http://www.epa.gov/safewater/airlinewater/index.html>. For additional information about the final rule, contact the Safe Drinking Water Hotline toll free Monday through Friday, 10:00 am to 4:00 pm eastern time (except Federal holidays) at 1-800-426-4791.