

Arsenic Information For Arizona Public Water Systems

INTRODUCTION

In October 2001, the U.S. Environmental Protection Agency (EPA) announced its decision to lower the arsenic standard for public water systems from 0.05 mg/L to 0.010 mg/L (50 parts per billion (ppb) to 10 ppb, respectively). The effective date of the revised rule and new standard is January 23, 2006.

WHAT IS THE PURPOSE OF THIS NEW ARSENIC STANDARD?

The purpose of the new standard is to protect public health by reducing the occurrence of carcinogenic (e.g., lung and bladder cancers) and non-carcinogenic (e.g. skin damage, circulatory disorders, etc.) diseases that can result from unhealthful levels of arsenic exposure.

WHY MUST ARIZONA ENFORCE THE NEW ARSENIC STANDARD?

Arizona is a primacy state for purposes of implementing the federal Safe Drinking Water Act, which means the U.S. Environmental Protection Agency defers to Arizona to implement the Act. Arizona must enforce the new arsenic standard to maintain this primacy authority because the new arsenic standard is federal law.

WHERE DOES ARSENIC COME FROM AND HOW DOES IT GET INTO DRINKING WATER SOURCES?

In Arizona, the primary source of arsenic in drinking water occurs from the leaching and erosion into groundwater of natural arsenic deposits found in geologic features.

HOW WILL COMPLIANCE WITH THE NEW ARSENIC STANDARD BE DETERMINED?

Public water systems will not be considered in violation of the new arsenic standard until they have completed one year of quarterly sampling and the running annual average of those results exceeds 10 ppb. However, after January 23, 2006, the system will be immediately out of compliance if any quarterly sample result would cause the running annual average to exceed 10 ppb at any sampling point, that is, if any result is above 40 ppb. If a system does not collect all required samples, compliance will be based on the running annual average of the sample(s) collected.

HOW MANY PUBLIC WATER SYSTEMS IN ARIZONA ARE IMPACTED BY THE NEW ARSENIC STANDARD OF 0.010 MG/L (10PPB)?

The revised arsenic rule not only lowered the standard to 10 ppb, but it also applied the standard to non-transient, non-community water systems as well (e.g., stand alone schools, business, etc.). As such, roughly one third of the 1000 community and non-transient, non-community water systems in Arizona have at least one source of water not meeting the new arsenic standard.

WHEN DO WATER SYSTEMS NEED TO SAMPLE FOR ARSENIC UNDER THE REVISED RULES?

Public water systems should remain on their established inorganic contaminant (IOC) monitoring cycle. A public water system may contact ADEQ at (602) 771-4644 or toll free in state at (800) 234-5677, Ext. 771-4644 to verify its established monitoring cycle and initial monitoring year. Ground water entry points into the distribution system must be monitored for arsenic as follows:*

If the system's Initial Monitoring Year is 1993, 1996, 1999, 2002 or 2005, sample for arsenic in 2005. If the analytical results are equal to or less than 10 ppb, the system is not required to monitor again until 2008 because ADEQ will "grandfather" data gathered prior to January 23, 2006 that meets the new standard. If the analytical results are greater than 10 ppb, the system must sample again on, or after, January 23, 2006, but no later than March 31, 2007 because compliance must be determined by December 31, 2007, which is the end of the second compliance period.

If the system's Initial Monitoring Year is 1994, 1997, 2000, 2003 or 2006, sample for arsenic in 2006. The system must initiate compliance monitoring no later than December 31, 2006. If the system collects samples for the time frame of January 1, 2006 through January 22, 2006 and the analytical results are less than or equal to 10 ppb, the system is not required to monitor again until 2009 because ADEQ will "grandfather" data gathered prior to January 23, 2006 that meets the new standard. If the analytical results are greater than 10 ppb, the system must sample again on, or after, January 23, 2006, but no later than March 31, 2007

because compliance must be determined by December 31, 2007, which is the end of the monitoring cycle. If the system collects samples during the time frame of January 23, 2006 through December 31, 2006 and the analytical results are less than or equal to 10 ppb, the system is not required to monitor again until 2009. If the system collects samples during the time frame of January 23, 2006 through December 31, 2006 and the results are greater than 10 ppb, the water system must begin quarterly monitoring in the first quarter immediately following the routine sample.

If the system's Initial Monitoring Year is 1995, 1998, 2001, 2004 or 2007, sample for arsenic in 2007. The system must initiate compliance monitoring no later than March 31, 2007. If the analytical results are less than or equal to 10 ppb, the system is not required to monitor again until 2010. If the analytical results are greater than 10 ppb, the water system must begin quarterly monitoring in the second quarter of 2007 (April 1, 2007 through June 30, 2007).

Surface water entry points into the distribution system must monitor for arsenic as follows:*

In all cases, sample for arsenic in 2006. The system must initiate compliance monitoring no later than March 31, 2006, as compliance must be determined by December 31, 2006 and four quarters of monitoring may be required. If the analytical results are less than or equal to 10 ppb, the system is not required to monitor again for the remainder of 2006. If the analytical results are greater than 10 ppb, the water system must begin quarterly monitoring in the second quarter of 2006 (April 1, 2006 through June 30, 2006).

* Water systems participating in ADEQ's Monitoring Assistance Program (MAP) will not be required to conduct baseline (routine) monitoring on their own, as all baseline monitoring requirements for IOCs, including arsenic, are covered under MAP. However, increased compliance monitoring (e.g., quarterly sampling) is not covered by MAP.

WHAT ARE THE TREATMENT OPTIONS FOR IMPACTED WATER SYSTEMS AND WHO DO I CONSULT?

There are many treatment options available and allowed by rule for impacted water systems.

- **Disconnection:** Some systems have the option to simply disconnect unsuitable wells as they may not be needed to meet current system production demands.

- **Source Rehabilitation:** Systems also may have the option to rehabilitate existing wells and/or develop new sources in areas with less arsenic.
- **Blending:** Systems also may blend water from two or more sources to lower arsenic levels from a nonconforming source(s).
- **Centralized Treatment:** Various centralized treatment options are available including, but not limited to, ion exchange, adsorptive processes, filtration and reverse osmosis.
- **Point-of-use (POU):** POU treatment may be a viable option for smaller water systems and commonly include "under the sink" reverse osmosis technologies (please see Arizona Point of Use Compliance Program Guidance Manual available at www.azdeq.gov/environ/water/download/pointofuse.pdf).

Regardless of the treatment option selected, certain plan, engineering and/or permit review and approval requirements will apply.

CAN I GET AN EXTENSION FOR THE NEW ARSENIC STANDARD?

Yes, time extensions to meet the new arsenic standard are available, however it is important to note, water systems must be able to demonstrate that several conditions exist preventing them from meeting the applicable compliance dates in order to qualify. The specific time extension requirements can be found in Arizona Administrative Code (A.A.C. R18-4-111) or ADEQ's "Determining Compliance With the Revised Arsenic Standard" policy. In general, a water system that:

- demonstrates "compelling factors" that make it unable to comply with the new standard,
- is unable to make changes to comply with the new standard, and
- is taking "all practicable steps" to meet the new standard

may be eligible for an extension to January 23, 2009. Systems making the demonstration and serving less than 3,300 people may be granted an additional extension to January 23, 2015.

FOR MORE INFORMATION CONTACT:

ADEQ's Drinking Water Program
1110 W. Washington St.
Phoenix, AZ 85007
(602) 771-4644
toll free in-state at (800) 234-5677, Ext. 771-4644

Groundwater Arsenic Sampling Scenario - Chart 1

Initial Monitoring Years of 1993, 1996, 1999, 2002 or 2005

First Compliance Cycle (1993 - 2001) Rule Finalized on January 23, 2001

Second 9-Year Compliance Cycle

1st Compliance Period
2002 2003 2004

2nd Compliance Period
2005 2006 2007

3rd Compliance Period
2008 2009 2010

Sample for Arsenic in 2005.
If the analytical results are less than or equal to 0.010 mg/L, the system is not required to monitor again for the 3 year compliance period of 2005-2007.

If the analytical results are greater than 0.010mg/L for the samples collected in 2005, the water system must sample again after January 23, 2006, but no later than March 31, 2007.

Effective Date of Revised MCL
January 23, 2006

Groundwater Arsenic Sampling Scenario - Chart 2

Initial Monitoring Years of 1994, 1997, 2000, 2003 or 2006

First Compliance Cycle (1993 - 2001) Rule Finalized on January 23, 2001

Second 9-Year Compliance Cycle

1st Compliance Period
2002 2003 2004

2nd Compliance Period
2005 2006 2007

3rd Compliance Period
2008 2009 2010

Sample for Arsenic in 2006.
If the system collects samples in the time frame of January 1, 2006 through January 22, 2006 and the analytical results are less than or equal to 0.010 mg/L, the system is not required to monitor again in the three year compliance period of 2005-2007.
If the analytical results are greater than 0.010 mg/L, the system must sample again on or after January 23, 2006, but no later than March 31, 2007.

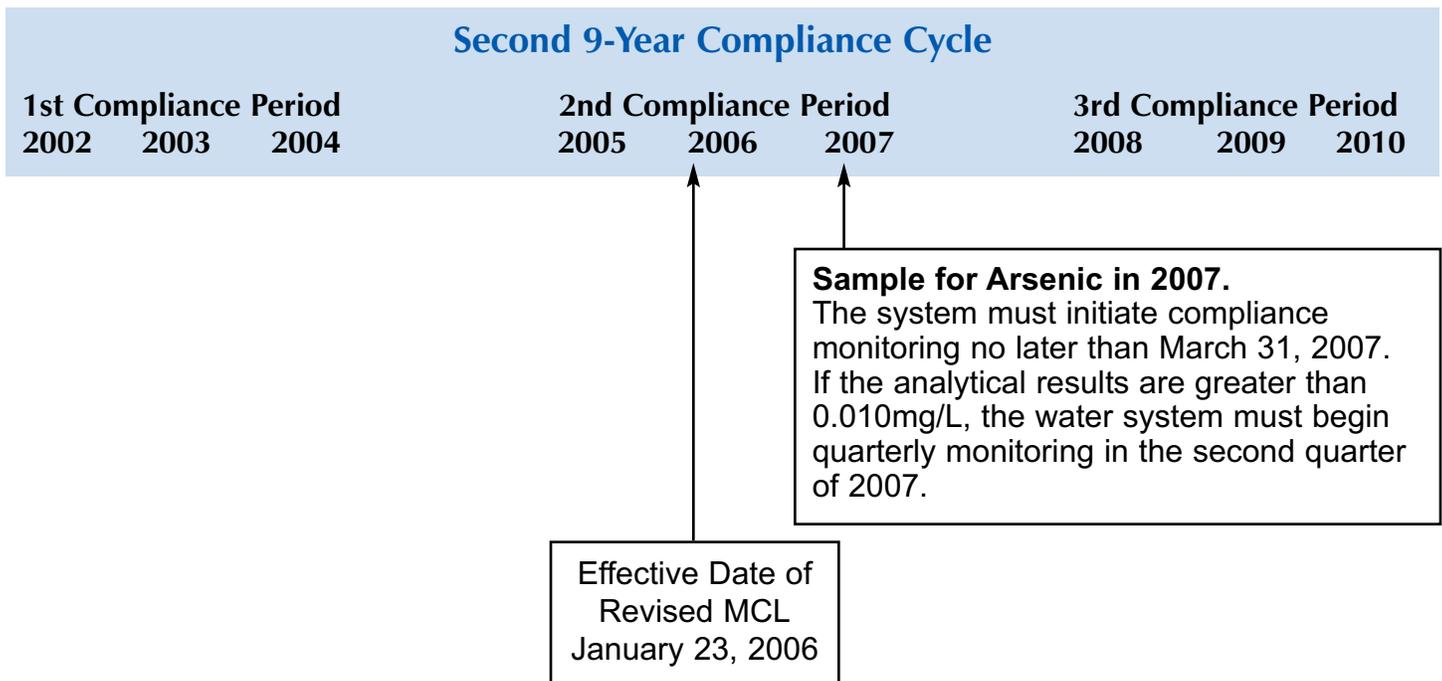
If the system collects samples in the time frame of January 23, 2006 through December 31, 2006 and the analytical results are less than or equal to 0.010 mg/L, the system is not required to monitor again for the three year compliance period of 2005-2007.
If the system collects samples in the time frame of January 23, 2006 through December 31, 2006 and the results are greater than 0.010 mg/L, the system must begin quarterly monitoring in the first quarter immediately following the routine sample.

Effective Date of Revised MCL
January 23, 2006

Groundwater Arsenic Sampling Scenario - Chart 3

Initial Monitoring Years of 1995, 1998, 2001, 2004 or 2007

First Compliance Cycle (1993 - 2001) Rule Finalized on January 23, 2001



Surface Water Arsenic Sampling Scenario - Chart 4

Initial Monitoring Years of 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005 or 2006

First Compliance Cycle (1993 - 2001) Rule Finalized on January 23, 2001

