ARSENIC COMPLIANCE POLICY

ADEQ
Arizona Department of Environmental Quality

Janet Napolitano, Governor
Stephen A. Owens, ADEQ Director

October 2005

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"Determining Compliance with the Revised Arsenic Standard"	Document No.	3012.000
	Revision No.	000
	Effective Date	

1.0 Revision History

1.1 Revision Table

Date	Rev. No.	Change	Ref. Section
[date approved]	0.0	New policy drafted	Not Applicable

1.2 Approval Signatures

Title	Name	Signature	Date
Director	Stephen A. Owens		10/14/05
Deputy Director	Patrick J. Cunningham		10/14/05
Affected Division Director(s)	Joan Card	Joan Card	10/14/05
PRC Co-Chair	Paul Rasmussen	Paul Rasmussen	10/18/05
PRC Co-Chair	Edward M. Ranger	Edward Ranger	10/14/05

2.0 Purpose

On January 23, 2006, the new federal maximum contaminant level (MCL) for arsenic goes into effect. The purpose of this policy is to protect public health through the implementation and enforcement of the revised standard for arsenic in drinking water.

Based upon historic analytical results, approximately 30-35% of the 1,000 community and nontransient, noncommunity water systems in Arizona are estimated to have at least one ground water source that does not meet the new standard of 0.010 mg/L. To date, all surface water systems in Arizona meet the new 0.010 mg/L standard for arsenic.

3.0 Persons Affected

3.1 Public water systems (All community (CO) and nontransient, noncommunity (NN) water systems)

3.2 ADEQ Drinking Water Section

3.3 ADEQ Water Quality Compliance Section

3.4 Delegated County Staff

4.0 Policy

The policy of ADEQ is to ensure that the revised arsenic standard for community and nontransient, noncommunity water systems is implemented and achieved. The occurrence of carcinogenic (e.g., lung and bladder cancers) and non-carcinogenic (e.g., skin damage, circulatory disorders, etc.) diseases can result from unhealthful levels of arsenic exposure. Background and details are as follows:

New Arsenic Maximum Contaminant Level Standard Effective January 23, 2006: All CO and NN water systems must comply with the new federal maximum contaminant level (MCL) for arsenic in drinking water, which goes into effect on January 23, 2006. The new standard is 0.010 mg/L (10 parts per billion). Surface water sources must complete compliance monitoring for arsenic by December 31, 2006; ground water sources must complete compliance monitoring by December 31, 2007.

Arsenic MCL Prior to January 23, 2006: The arsenic MCL of 0.05 mg/L will remain in effect prior to January 23, 2006. Systems will be required to continue monitoring for arsenic under their current monitoring frequency.

5.0 Definitions

5.1 "Community (CO) water system" means a public water system that serves 15 or more service connections used by year-round residents or that serves 25 or more year-round residents. (A.A.C. R18-4-101)

5.2 "Grandfathered data" means, for groundwater systems, compliance samples collected on or after January 1, 2005, and prior to January 23, 2006.

5.3 "Initial Monitoring Year" means the calendar year assigned by ADEQ in which a public water system conducts initial monitoring.

5.4 "Nontransient, noncommunity (NN) water system" means a public water system that:

Serves 15 or more service connections that are used by the same persons for at least six months per year, or

Serves the same 25 or more persons for at least six months per year.(A.A.C. R18-4-101)

6.0 Responsibilities

The Drinking Water and Water Quality Compliance Sections are responsible for knowledge and implementation of this policy.

7.0 Procedures

7.1 **Monitoring Frequencies:** The 2005-2007 compliance period is the first compliance period under the revised arsenic MCL. Because the arsenic rule allows grandfathered data and waivers, CO and NN water systems will not have to deviate from their established monitoring framework. This means CO and NN water systems are required to continue monitoring for arsenic as they have been since as early as 1993. Based upon their initial monitoring year, CO and NN water systems will monitor for arsenic in 2005, 2006 or 2007.

7.2 **Existing Ground Water Points of Entry Into the Distribution System:** CO and NN water systems must collect one sample from each groundwater entry point once every three years during the system's ADEQ-assigned monitoring year. This monitoring is conducted in three-year increments starting from the system's ADEQ-assigned initial monitoring year. Specific ground water sampling scenarios are as follows:

Initial Monitoring Year of 1993, 1996, 1999, 2002 or 2005 – sample for arsenic in 2005. If the analytical results are equal to or less than 0.010 mg/L, the water system is not required to monitor again in the three year compliance period of 2005–2007, as data meeting the new standard are allowed to be grandfathered. If the analytical results are greater than 0.010 mg/L, the water system must sample again on or after January 23, 2006, but no later than March 31, 2007, as compliance must be determined by December 31, 2007 and up to four quarters of monitoring may be required to determine compliance with the revised arsenic standard.

Initial Monitoring Year of 1994, 1997, 2000, 2003 or 2006 – sample for arsenic in 2006. The water system must initiate compliance monitoring no later than December 31, 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, as data meeting the new standard are allowed to be grandfathered. If the analytical results are greater than 0.010 mg/L, the water system must sample again on or after January 23, 2006, but no later than March 31, 2007, as compliance must be determined by December 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 water system must begin quarterly monitoring in the first quarter immediately following the routine sample.

Initial Monitoring Year of 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 0.010 mg/L, the system is not required to monitor again for the three year compliance period of 2005–2007. If the analytical results are greater than 0.010 mg/L, the water system must begin quarterly monitoring in the second quarter of 2007 (April 1, 2007 through June 30, 2007).

7.3 **Existing Surface Water Entry Points Into the Distribution System**: CO and NN water systems must collect one sample from each surface water entry point annually. Specific surface water sampling scenarios are as follows:

Initial Monitoring Year of 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005 or 2006 – 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 up to four quarters of monitoring may be required (the sample taken in the first quarter [January through March 2006] count as the first of four quarterly samples). If the analytical results are less than or equal to 0.010 mg/L, the system is not required to monitor again for the remainder of 2006. If the analytical results are greater than 0.010 mg/L, the water system must begin quarterly monitoring in the second quarter of 2006 (April 1, 2006 through June 30, 2006).

7.4 **Grandfathered Data**: ADEQ will allow arsenic data collected on January 1, 2005 through January 22, 2006 to satisfy initial sampling requirements if the analytical results are equal to or less than 0.010 mg/L. If a system's analytical results are greater than 0.010 mg/L and equal to or less than 0.05 mg/L for the same time frame, the water system will be required to conduct quarterly compliance monitoring on or after January 23, 2006 (the compliance date for the revised MCL), but no later than March 31, 2007. CO and NN water systems may conduct confirmation sampling after January 23, 2006 if the CO or NN water system has an arsenic exceedance based on samples collected prior to that date, but any confirmation sampling must be reported to ADEQ prior to March 1, 2006.

7.5 **ADEQ's Monitoring Assistance Program (MAP)**: MAP will continue to cover routine (i.e., baseline) compliance arsenic monitoring for CO and NN water systems required to participate in the program. MAP does not conduct increased (i.e., quarterly) sampling for events triggering a greater monitoring frequency.

7.6 **New Sources Added to Existing Water Systems:** Existing CO and NN water systems that have added new ground water sources at any time prior to December 31, 2007, must meet the new arsenic standard no later than December 31, 2007. Existing CO and NN water systems adding new surface water sources must meet the new arsenic MCL prior to using that new source in the drinking water system.

7.7 **New Water Systems:** New CO and NN water systems that begin operation on January 1, 2005 through January 22, 2006 must meet the revised arsenic standard on and after January 23, 2006. New CO and NN water systems that begin operation on or after January 23, 2006 must meet the new arsenic MCL prior to commencing operation unless a time extension is granted by ADEQ pursuant to pursuant to 7.13.

7.8 **Routine Monitoring Frequencies:** After the compliance monitoring requirements have been met through routine monitoring or grandfathered monitoring data, systems are required to conduct ongoing routine monitoring (MAP will continue to cover ongoing routine compliance arsenic monitoring for systems required to participate in the program pursuant to 7.5). The routine monitoring frequency for arsenic varies depending on whether the drinking water source is surface water or groundwater. As stated, CO and NN water systems must collect one sample from each groundwater entry point once every three years during the system's ADEQ-assigned monitoring year. CO and NN water systems must collect one sample from each surface water entry point annually.

7.9 **Increased Monitoring Trigger:** If a CO or NN water system detects arsenic above 0.010 mg/L in any compliance sample, that system must increase the sampling frequency to quarterly sampling at that entry point into the distribution system. On and after January 23, 2006, quarterly sampling must begin in the quarter that immediately follows the exceedance and the system must continue quarterly monitoring for at least four quarters at the sampling point with the arsenic sample result above 0.010 mg/L. Those CO or NN water systems seeking additional confirmation samples should consult with ADEQ. MAP systems will be required to collect quarterly samples themselves because increased monitoring is not covered under MAP.

7.10 **Compliance Calculations:** Compliance with the revised MCL will be calculated on a running annual average. Two examples of calculating running annual averages are as follows:

Non-Compliance (MCL violation) Scenario

1st Quarter 2007 Entry Point #001 – result 0.012 mg/L (12 ppb)
2nd Quarter 2007 Entry Point #001 – result 0.012 mg/L (12 ppb)
3rd Quarter 2007 Entry Point #001 – result 0.009 mg/L (9 ppb)
4th Quarter 2007 Entry Point #001 – result 0.011 mg/L (11 ppb)

Average = 0.011 mg/L (11ppb), therefore an MCL violation

Compliance Scenario

1st Quarter 2007 Entry Point #002 – result 0.011 mg/L (11 ppb)
2nd Quarter 2007 Entry Point #002 – result 0.010 mg/L (10 ppb)
3rd Quarter 2007 Entry Point #002 – result 0.007 mg/L (7 ppb)
4th Quarter 2007 Entry Point #002 – result 0.008 mg/L (8 ppb)

Average = 0.009 mg/L (9 ppb), therefore in compliance

7.11 **Reduced Monitoring:** ADEQ may reduce the arsenic monitoring frequency for water systems to once every nine years. Reduced monitoring is called a "waiver" under Arizona's drinking water rules. The decision to allow a reduced monitoring frequency is based on, in part, previous analytical results. Water systems are generally required to have analytical results from three separate compliance monitoring events that are all below 0.010 mg/L to qualify for reduced monitoring. CO and NN water systems must request and receive approval from ADEQ for reduced monitoring. However, ADEQ initiates waivers and reduced monitoring events for water systems participating in MAP. Reduced monitoring may be granted at ADEQ's discretion and may be subject to a compliance schedule.

When assessing a system's request for reduced monitoring, the criteria that the department will consider are water quality trends and sampling frequencies of the data received and any other applicable factor(s). Using these criteria, ADEQ will assess ground water and surface water sources as follows:

Ground Water Entry Point Monitoring Frequency Reductions: ADEQ may approve systems with groundwater entry points into the distribution system to reduce their monitoring frequency from once every three years to once every nine years for those ground water entry points.

Surface Water Entry Point Monitoring Frequency Reductions: ADEQ may approve systems with surface water entry points into the distribution system to reduce their monitoring frequency from once every year to once every three years for those surface water entry points.

7.12 **Maximum Contaminant Level (MCL) Violation**

Determining an MCL Violation for Arsenic: A CO and NN water system will not be considered in violation of the revised arsenic MCL until they have completed one year of quarterly sampling. However, on and 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 0.010 mg/L at any sampling point. If a system does not collect all required samples, compliance will be based on the running annual average of the sample(s) collected.

Date Public Water Systems Must Meet the New Arsenic MCL (0.010 mg/L): Based on the compliance monitoring framework and in accordance with 7.2 and 7.3, all ground water systems must ensure their drinking water does not have arsenic levels above 0.010 mg/L no later than December 31, 2007. Surface water entry points into the distribution system must ensure their drinking water does not have arsenic levels above 0.010 mg/L no later than December 31, 2006.

7.13 **Time Extension Requirements**

A. Systems can apply to ADEQ for a time extension to come into compliance with the arsenic MCL of 0.010 mg/L if they are unable to meet the December 31, 2007 compliance date for ground water sources or the December 31, 2006 compliance date for surface water sources. Water systems must demonstrate that several conditions exist which prevent them from meeting the applicable compliance date(s) in order to qualify for a time extension. These conditions are as follows (A.A.C. R18-4-111(A)):

1) The water system is unable to comply with the arsenic MCL because of compelling factors which may include economic factors; and
2) The exemption from the MCL will not result in an unreasonable risk to public health; and
3) The water system is either:
    a) An existing public water system that is in operation on the effective date of the MCL; or
    b) A new public water system that begins operations after the effective date of the MCL and does not have a reasonably available alternative source that can be used to achieve compliance with the MCL; and
4) The water system is unable to make management or restructuring changes that will result in compliance with the MCL, or improve the quality of the drinking water; and
5) The water system has taken all practicable steps to meet the MCL and:
    a) The water cannot meet the MCL without capital improvements that cannot be completed before the effective date of the MCL;
    b) If the water system needs financial assistance for necessary capital improvements, the water system has entered into an agreement to obtain the financial assistance; or

c) The water system has entered into an enforceable agreement to become part of a regional public water system.

An ADEQ approved extension must contain a compliance schedule that includes interim control measures that ADEQ deems are necessary to protect public health. The compliance schedule will require compliance as soon as possible but no later than three years from January 23, 2006. ADEQ can grant up to two, three-year extensions for water systems serving 3,300 or fewer persons if the water system demonstrates that several conditions exist that are preventing them from meeting the original schedule of compliance. Thus, a system serving more than 3,300 persons may be able to obtain an extension to January 23, 2009, and a system serving 3,300 persons or less can obtain an extension to January 23, 2015 upon ADEQ approval, if the requisite conditions are met.

Additionally, ADEQ may require the water system to provide bottled water, point of use (POU) or point of entry (POE) treatment devices as a condition of the extension to avoid an unreasonable risk to human health until a permanent solution is completed. For additional information on point of use, see Arizona Point of Use Compliance Program Guidance (Publication # TM 05-02).

B. The request for an extension to comply with the revised arsenic MCL must contain, at a minimum, the following information:

1) Listing arsenic and the arsenic MCL as the contaminant for which the extension is requested.
2) Sample results of the source water taken before and after any treatment.
3) An explanation of the compelling factors that prevent the water system from meeting the arsenic MCL (A.A.C. R18-4-111(E)).

C. The request must include a demonstration that the conditions at AAC R18-4-111(A) exist for the public water system. A.A.C. R18-4-111(F) lists several factors ADEQ must consider when evaluating an extension request:

1) The necessity for construction, installation, or modification of treatment equipment; and
2) The time required to install new treatment or to modify an existing treatment facility; and
3) The economic feasibility of compliance; and
4) The availability of alternative sources of water; and
5) The opportunity for consolidation with another water system.

ADEQ shall provide an opportunity for a public hearing on a proposed extension to any interested party and the customers of the water system according to A.A.C. R18-1-402.

8.0 Additional Documentation

8.1 Revised Arsenic Standard Fact Sheet (date)

8.2 Arizona Point of Use Compliance Program Guidance