



# Entry Point to the Distribution System: *Monitoring & Reporting*

Katherine Valentine

Compliance Assistance Coordinator

Mohave and La Paz Counties



- EPDS: Entry Point to the Distribution System
- POU: Point of Use Device
- IOC: Inorganic Contaminant
- SOC: Synthetic Organic Contaminant
- VOC: Volatile Organic Contaminant
- RAD: Radionuclides
- PWS: Public Water System
- CWS: Community Water System
- NTNC: Non-Transient Non-Community Water System
- TNC: Transient Non-Community Water System
- GW: Groundwater
- SW: Surface water (or Combined GW/SW)
- RCB: Reliably and Consistently Below
- MCL: Maximum Contaminant Level



Chemical  
Contaminants

Inorganic Contaminants  
(IOCs)

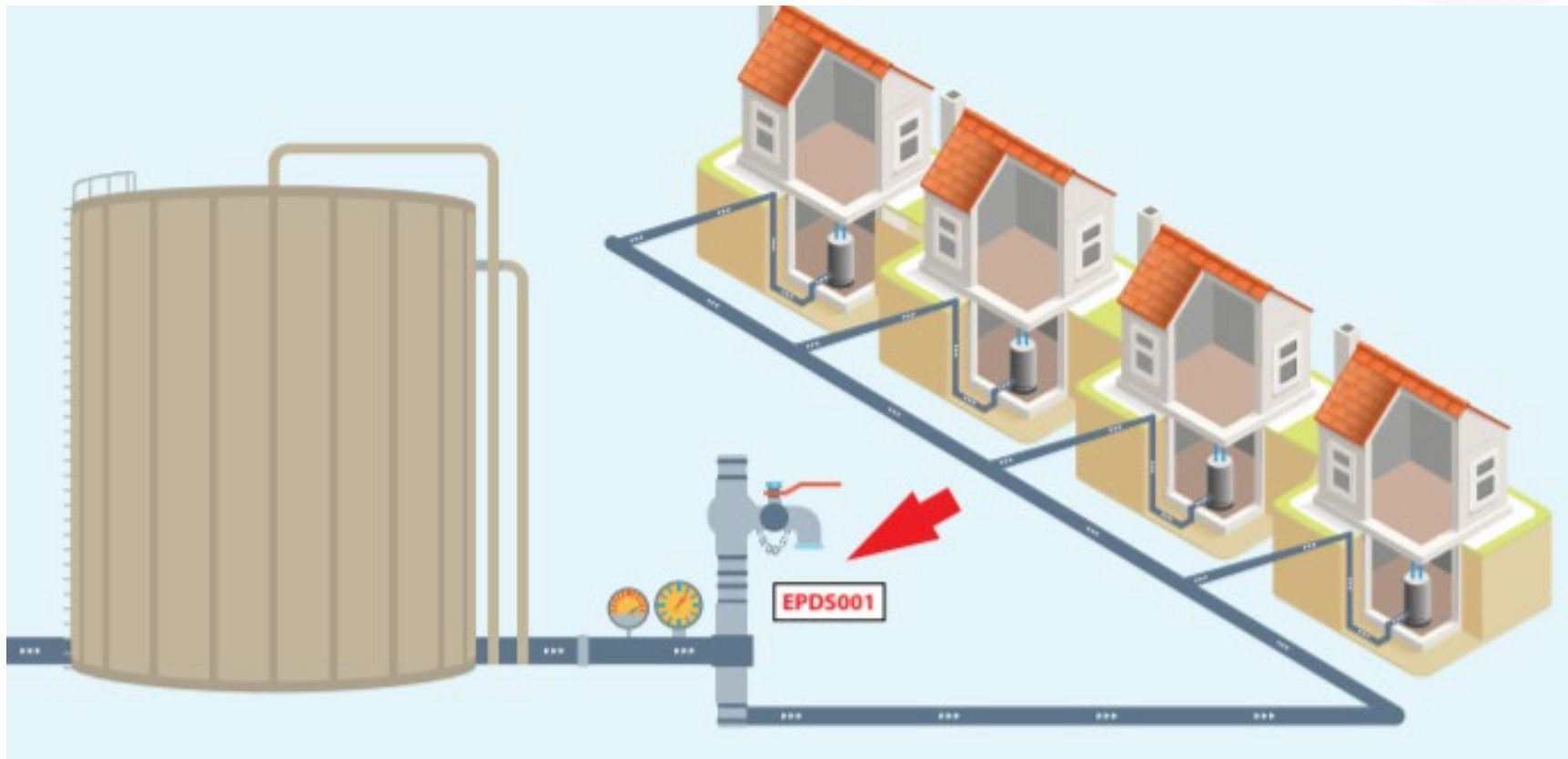
Volatile Organic  
Contaminants (VOCs)

Synthetic Organic  
Contaminants (SOCs)

Radionuclides (RADs)

## Compliance Sampling Point located:

- On a finished water line
- **After** the well, disinfection, treatment, blending, & storage facilities – whichever is last in the process flow
- **Before** the first service connection



- Must contain a sampling tap, preferably without threads
- ADEQ's number should be clearly marked on each EPDS near the sample tap (e.g. EPDS001)
- Samples taken at an EPDS must have the EPDS number identified when reporting results
- The Monitoring Assistance Program (MAP) takes routine and reduced EPDS samples for PWSs participating in MAP (CWS & NTNC PWS serving <10,000 not state/federally owned)
  - Participating PWSs are responsible for increased sampling and reviewing sampling results from MAP



# CHEMICAL CONTAMINANTS

The chemical contaminants were promulgated in phases collectively called the Phase II/V Rules or the Chemical Contaminant Rules. These rules regulate over 65 contaminants in three contaminant groups:

Inorganic Contaminants (IOCs) (including arsenic and nitrate),

Volatile Organic Contaminants (VOCs), and

Synthetic Organic Contaminants (SOCs).

**Chronic drinking water contaminants** can cause health effects after continuous long-term exposure at levels greater than the MCL. EPA health effects language generally describe the long term health impacts for an average adult consuming 2 liters of water per day with MCL exceedances.

The Chemical Contaminants Rules provide public health protection through the reduction of chronic, or long-term, risks from:

- Cancer,
- Organ damage,
- Circulatory system disorders,
- Nervous system disorders, and
- Reproductive system disorders.

There is an acute health risk from nitrate and nitrite.

- Methemoglobinemia or "blue baby syndrome" is caused from ingestion of high levels of nitrate or nitrite.

**Acute drinking water contaminants** can cause short term health effects within hours or days of exposure.





# **INORGANIC CONTAMINANTS (IOC)**

# LIST OF IOCS

Analyte Name	MCL (mg/L)	Major Sources in Drinking Water	Health Effects Language
Antimony (ppb)	0.006	Discharge from petroleum refineries; fire retardants; ceramics, electronics and solder	Some people who drink water containing antimony in excess of the MCL over many years may experience increases in blood cholesterol and decreases in blood sugar.
Arsenic (ppb)	0.010	Erosion of natural deposits, runoff from orchards, runoff from glass and electronics production wastes	Some people who drink water containing arsenic in excess of the MCL over many years may experience skin damage or circulatory system problems, and may have an increased risk of getting cancer
Asbestos (MFL)	7	Decay of asbestos cement water mains; Erosion of natural deposits	Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.
Barium (ppm)	1	Discharge of drilling wastes; discharge from metal refineries; Erosion of natural deposits	Some people who drink water containing barium in excess of the MCL over many years may experience an increase in blood pressure.
Beryllium (ppb)	0.004	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries	Some people who drink water containing beryllium in excess of the MCL over many years may develop intestinal lesions.
Cadmium (ppb)	0.005	Corrosion of galvanized pipes; natural deposits; metal refineries; runoff from waste batteries and paints	Some people who drink water containing cadmium in excess of the MCL over many years may experience kidney damage.
Chromium (ppb)	0.1	Discharge from steel and pulp mills; Erosion of natural deposits	Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.
Cyanide (ppb)	0.2	Discharge from steel/metal factories; Discharge from plastic and fertilizer factories	Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.

# LIST OF IOCS (Cont.)

Analyte Name	MCL (mg/L)	Major Sources in Drinking Water	Health Effects Language
Fluoride (ppm)	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining and/or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.
Mercury (ppb)	0.002	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills and cropland.	Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.
Nitrate (ppm)	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Nitrite (ppm)	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Selenium (ppb)	0.05	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines	Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.
Sodium (ppm)	N/A	Erosion of natural deposits	Erosion of natural deposits
Thallium (ppb)	0.002	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories	Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.

## Community (CWS)

- All IOCS, including Sodium

## Non-Transient Non-Community (NTNC)

- All IOCS, except Sodium and Fluoride

## Transient Non-Community

- Only Nitrates & Nitrites

Sampling is done at the Entry Point to the Distribution System (EPDS), unless specified by the regulatory agency (e.g. POU's)

Initial/Routine  
Monitoring

- GW Systems: 1 sample / every 3 years
- SW Systems: 1 sample / every year

Increased  
Monitoring

- (All IOCs) If one sample exceeds the MCL, then starts quarterly monitoring in the subsequent monitoring period
- (Nitrates only) If one sample exceeds the >50% of the MCL, then starts quarterly monitoring

141.23(b):  
Asbestos  
(CWS and NTNC only)

141.23(c):  
Antimony, arsenic, barium,  
beryllium, cadmium, chromium,  
cyanide, fluoride, mercury,  
nickel, selenium and thallium  
(CWS and NTNC only)

141.23(d):  
Nitrates  
(All PWS)

141.23(e):  
Nitrites  
(All PWS)

## Who:

- CWS & NTNC

## What:

- Asbestos can be in the source water or corrosion of asbestos-cement pipes

## Where:

- EPDS or Distribution System taps (if vulnerable)

## When:

- Routine: Within the first 3 years of each 9 year monitoring period
- Increased: Quarterly, when exceeding the MCL
- Increased to Routine: Must be RCB MCL
  - GW System: After a minimum of 2 quarterly samples
  - SW Systems: After a minimum of 4 quarterly samples
  - *Must be permitted in writing by the regulating agency*

## Who:

- CWS & NTNC

## What:

- Antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium and thallium

## Where:

- Entry Point to the Distribution System

## When:

- Routine: GW Systems: Every 3 Years | SW Systems: Every Year
- Increased: Quarterly, when exceeding the MCL
- Increased to Routine: Must be RCB MCL
  - GW System: After a minimum of 2 quarterly samples
  - SW Systems: After a minimum of 4 quarterly samples
  - *Must be permitted in writing by the regulating agency*

## Who:

- CWS, NTNC, & TNC

## What:

- Nitrates are found anywhere and can cause blue baby syndrome resulting in infant death

## Where:

- Entry Point to the Distribution System (EPDS) or POU's

## When:

- Routine: Annually
- Increased: Quarterly, when exceeding 5 mg/L (CWS and NTNC only)
  - SW Systems: Must go back on quarterly if at or exceeding 5 mg/L
  - TNC do not do increased monitoring
- Increased to Routine: After at least 4 consecutive quarters RCB MCL
  - GW Systems: Sample annually in the quarter with the highest result
  - SW Systems: Must be less than 5 mg/L for 4 consecutive quarters to return to routine annual sampling, in the quarter with the highest result
  - *Must be permitted in writing by the regulating agency*



## Who:

- CWS, NTNC, & TNC

## What:

- Nitrites are found anywhere and cause blue baby syndrome resulting in infant death

## Where:

- Entry Point to the Distribution System (EPDS)

## When:

- Routine: One sample every 9 years
- Increased: Quarterly, if routine sample exceeds 0.5 mg/L
  - TNC do not do increased monitoring
- Increased to Annual: After at least 4 consecutive quarters RCB MCL, can sample annually in the quarter with the highest result
  - *Must be permitted in writing by the regulating agency*

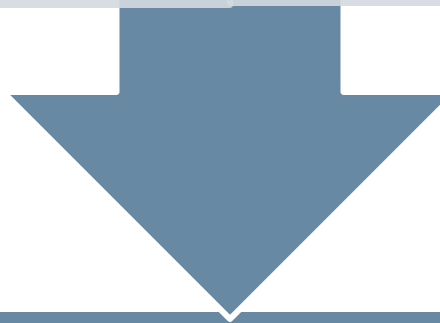
Where the results exceed the MCL, a confirmation sample must be collected as soon as possible after the initial sample was taken, but no more than two weeks at the same sampling point.

If a confirmation sample is taken for any contaminant, then the results of the initial and confirmation sample shall be averaged. The resulting average shall be used to determine the system's compliance

Where nitrate or nitrite sampling results exceed the MCL, a confirmation sample must be taken within 24 hours of lab notification.

Systems unable to comply with the 24-hour sampling requirement must immediately notify persons served by the public water system in accordance with Tier 1 public notification requirements under subpart Q of this part.

Systems exercising this option must take and analyze a confirmation sample within two weeks of notification of the analytical results of the first sample.



If a confirmation sample is taken for any contaminant, then the results of the initial and confirmation sample shall be averaged. The resulting average shall be used to determine the system's compliance

[< RETURN TO DRINKING WATER | COMPLIANCE ASSISTANCE](#)

## Inorganic Chemicals | Drinking Water Compliance Assistance

### What to Do If There's an Exceedance

#### Nitrate or Nitrite Trigger Level

If a system exceeds the trigger level (5.0 mg/L for nitrate or 0.5 mg/L for nitrite), they must begin increased monitoring in the following quarter, until the system is able to obtain four consecutive quarters with results less than the maximum contaminant level (MCL) for groundwater systems and results less than the trigger level for surface water systems.

- Groundwater systems, with ADEQ approval, are granted annual monitoring in which samples are taken in the quarter with the highest results. Future trigger level exceedances that are less than the MCL DO NOT trigger increase monitoring.
- Surface water systems, with ADEQ approval, are granted annual monitoring, in which samples are taken in the quarter with the highest results. Future trigger level exceedances DO trigger increase quarterly monitoring.

#### Nitrate or Nitrite Maximum Contaminant Level

If a system exceeds the MCL for nitrate or nitrite, a confirmation sample must be taken within 24 hours of being notified. If a confirmation sample is not taken within 24 hours of the notification date, the original sample will be used for compliance to indicate the system has exceeded the MCL. If a confirmation sample is taken, the average of the original sample and the confirmation sample will be used for compliance.

- If the average from the two results is less than the MCL and the trigger level, no further action is required.
- If the average from the two results is less than the MCL, but greater than the trigger level, increased quarterly monitoring is required.
- If the average of the two results more than the MCL, the MCL has been exceeded.

An MCL exceedance triggers an MCL violation, increased quarterly monitoring starting the following quarter, and a Tier 1 Public Notice.



#### CONTACT

[Compliance Assistance Coordinators  
Find by County >](#)

[DW Compliance Data Submittals  
Email >](#)



#### SEE MORE

[Monitoring Waiver Information >](#)



#### FORMS/TEMPLATES/PLANS

[DWAR 02 POU - IOCs POU >](#)

[DWAR 02B - Asbestos >](#)

[DWAR 02C - Asbestos Composite >](#)

[DWAR 02IN - IOCs >](#)

[DWAR 10 - IOCs Composite >](#)



#### PUBLIC NOTICE TEMPLATES

[Public Notice Requirements Flow Chart >](#)

[Certificate of Distribution >](#)

[Tier 1 Nitrate MCL >](#)

[Tier 1 No Nitrate Confirmation Sample >](#)

[Tier 1 Systems Authorized to Exceed Nitrate  
MCL >](#)

[Tier 2 Arsenic MCL >](#)

[Tier 2 Fluoride MCL >](#)

[Tier 2 MCL Exceedance at POU >](#)

[Tier 2 MCL >](#)

[Tier 2 Secondary Fluoride MCL >](#)

[Tier 3 Missed Monitoring >](#)



Monitoring quarterly, compliance with the MCL is determined by a running annual average at any sampling point.

- If the average at any sampling point is greater than the MCL, then the system is out of compliance.
- If any one sample would cause the annual average to be exceeded, then the system is out of compliance immediately.
- If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

Monitoring yearly, triennially, or every 9 years, the system is out of compliance with the maximum contaminant levels if the level of a contaminant is greater than the MCL.

- If the average of the original and confirmation samples exceed the MCL, then the system is out of compliance.
- If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

Compliance with the MCL for nitrate and nitrite is determined based on one sample if the levels of these contaminants are below the MCLs.

- If the average of the original and confirmation samples exceed the MCL, then the system is out of compliance.

# COMMON MCLs TO REMEMBER

## ARSENIC:

- 0.01 MG/L or  
10 PPB

## NITRATE:

- 10 MG/L

## FLUORIDE:

- 4 MG/L
- Secondary  
MCL (2 MG/L)



Tier 1 (24 hours)	<ul style="list-style-type: none"><li>• Nitrate MCL</li><li>• Nitrite MCL</li></ul>
Tier 2 (30 days)	<ul style="list-style-type: none"><li>• MCL Violation – all other IOCs</li></ul>
Tier 3 (365 days)	<ul style="list-style-type: none"><li>• Missed Monitoring Violations</li><li>• Fluoride Secondary MCL</li></ul>
No Public Notice	<ul style="list-style-type: none"><li>• Late Reporting Violations</li></ul>

Certificate of Public Notice Distribution and a copy of the public notice is due to ADEQ **within 10 days** of distributing the public notice

# IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

## Elevated Fluoride Levels Detected

This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/l) of fluoride may develop cosmetic discoloration of their permanent teeth (dental fluorosis). The drinking water provided by your community water system [name] has a fluoride concentration of [insert value] mg/l.

Dental fluorosis in its moderate or severe forms, may result in a brown staining and/or pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride-containing products. Older children and adults may safely drink the water.

Drinking water containing more than 4 mg/l of fluoride (the U.S. Environmental Protection Agency's drinking water standard) can increase your risk of developing bone disease. Your drinking water does not contain more than 4 mg/l of fluoride, but we're required to notify you when we discover that the fluoride levels in your drinking water exceed 2 mg/l because of this cosmetic dental problem.

For more information, please call [name of water system contact] of [name of community water system] at [phone number]. Some home water treatment units are also available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call NSF International at 1-877-8-NSF-HELP.

*Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.*

This notice is being sent to you by: [system].  
State Water System ID#: [redacted].  
Date distributed: [redacted].

Cualquier traducción o comunicación sujeta al Estado de Arizona

After Issuing the Notice Make sure to send your pri

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## Monitoring and Reporting Violation “RTC”

when Systems send in their late data or the subsequent monitoring periods’ data

## MCL Violation “RTC” when the RAA is below the MCL

- Need 4 consecutive quarters RCB MCL and written notification from ADEQ to reduce to annual or routine monitoring

Sample Point	Viol Type	Violation Name	Comp Achieved	Analyte Code	Analyte Name
EPDS001	02	MCL, AVERAGE	N	1040	NITRATE
EPDS001	03	MONITORING, ROUTINE MAJOR	Y	1040	NITRATE

**IOCs can be removed from drinking water using various available technologies such as:**

**Coagulation  
/Filtration**

**Lime  
softening**

**Reverse  
osmosis**

**Ion  
exchange**

**Chlorine  
oxidation**

**Activated  
alumina**

**POUs**

Questions about treatment options can be directed to: [wqd\\_dwser@azdeq.gov](mailto:wqd_dwser@azdeq.gov)

- Application located on the ADEQ website:  
<http://azdeq.gov/engineering-review-point-use-drinking-water-review-application-information>
  - Submit application and Monitoring Plan to ADEQ

< RETURN TO DRINKING WATER ENGINEERING REVIEW

## Engineering Review | Point-of-Use Drinking Water Review Application Information

### Approval to Install and Approval of Installation

The Completeness Review Guide for Engineering Review (Form 222) provides a quick overview of the requirements for application submittals for Point-of-Use systems. The design review of Point-of-Use systems is conducted by the ADEQ Phoenix Office, except in Maricopa County where design review is conducted by the Maricopa County Environmental Services Department .

The primary components necessary for application per Form 222 are as follows:



Engineering Review  
Email >



DW Engineering Review Overview >  
DW Facilities Review Application  
Information >  
Engineering Bulletin 8 >  
Engineering Bulletin 10 >  
Application Time Frames >



# SYNTHETIC ORGANIC CONTAMINANTS (SOC)

Man-made organic (carbon based) chemicals that do not occur naturally in the environment

- Pesticides, herbicides, defoliants, fuel additives, ingredients for other organic compounds

Contaminate drinking water through:

- Agricultural runoff
- As part of a legally discharged waste stream
- Improper or illegal waste disposal
- Accidental spills
- As a byproduct of incineration

Many SOC's are known carcinogens (cancer causing) and are generally toxic and can have substantial health impacts from both acute (short-term) and chronic (long-term) exposure

# LIST OF SOCs

Analyte Name	MCL (mg/L)	Detection Limit (mg/L)	Major Sources in Drinking Water	Health Effects Language
2,4-D	0.07	0.0001	Runoff from herbicide used on row crops	Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.
2,4,5-TP (a.k.a. Silvex)	0.05	0.0002	Residue of banned herbicide	Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.
Alachlor	0.002	0.0002	Runoff from herbicide used on row crops	Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.
Atrazine	0.003	0.0001	Runoff from herbicide used on row crops	Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties
Benzo(a)pyrene (PAH)	0.0002	0.00002	Leaching from linings of water storage tanks and distribution lines	Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer
Carbofuran	0.04	0.0009	Leaching of soil fumigant used on rice and alfalfa	Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.
Chlordane	0.002	0.0002	Residue of banned termiticide	Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer
Dalapon	0.2	0.001	Runoff from herbicide used on rights of way	Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.



# LIST OF SOCs

Analyte Name	MCL (mg/L)	Detection Limit (mg/L)	Major Sources in Drinking Water	Health Effects Language
Di (2-ethylhexyl) adipate	0.4	0.0006	Discharge from chemical factories	Some people who drink water containing di (2-ethylhexyl) adipate well in excess of the MCL over many years could experience toxic effects such as weight loss, liver enlargement or possible reproductive difficulties.
Di (2-ethylhexyl) phthalate	0.006	0.0006	Discharge from rubber and chemical factories	Some people who drink water containing di (2-ethylhexyl) phthalate well in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer.
Dibromochloropropane	0.0002	0.00002	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards	Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive problems and may have an increased risk of getting cancer.
Dinoseb	0.007	0.0002	Runoff from herbicide used on soybeans and vegetables	Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.
Diquat	0.02	0.0004	Runoff from herbicide use	Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.
Dioxin [a.k.a 2,3,7,8-TCDD]	0.00000003	0.000000005	Emissions from waste incineration and other combustion; discharge from chemical factories	Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
Endothall	0.1	0.009	Runoff from herbicide use	Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.
Endrin	0.002	0.00001	Residue of banned insecticide	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.

# LIST OF SOCs

Analyte Name	MCL (mg/L)	Detection Limit (mg/L)	Major Sources in Drinking Water	Health Effects Language
Ethylene dibromide	0.00005	0.00001	Discharge from petroleum refineries	Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer.
Glyphosate	0.7	0.006	Runoff from herbicide use	Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.
Heptachlor	0.0004	0.00004	Residue of banned termiticide	Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.
Heptachlor epoxide	0.0002	0.00002	Breakdown of heptachlor	Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.
Hexachlorobenzene	0.001	0.0001	Discharge from metal refineries and agricultural chemical factories	Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.
Hexachlorocyclopentadiene	0.05	0.0001	Discharge from chemical factories	Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.
Lindane	0.0002	0.00002	Runoff/leaching from insecticide used on cattle, lumber, gardens	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.
Methoxychlor	0.040	0.0001	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa	Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties

# LIST OF SOCs

DITAT DEUS

Analyte Name	MCL (mg/L)	Detection Limit (mg/L)	Major Sources in Drinking Water	Health Effects Language
Oxamyl (a.k.a. Vydate)	0.2	0.002	Runoff/leaching from insecticide used on apples, potatoes and tomatoes	Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.
PCBs [Polychlorinated biphenyls]	0.0005	0.0001	Runoff from landfills; discharge of waste chemicals	Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.
Pentachlorophenol	0.001	0.00004	Discharge from wood preserving factories	Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.
Picloram	0.5	0.0001	Herbicide runoff	Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.
Simazine	0.004	0.00007	Herbicide runoff	Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.
Toxaphene	0.003	0.001	Runoff/leaching from insecticide used on cotton and cattle	Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.

**PWSs may sample for PCBs or the seven aroclors:**

<b>PCBs</b>	<b>Detection Limit (mg/L)</b>
Polychlorinated biphenyls (PCBs) (as decachlorobiphenyl)	0.0001

**OR**

<b>Aroclors</b>	<b>Detection Limit (mg/L)</b>
1016	0.00008
1221	0.02
1232	0.0005
1242	0.0003
1248	0.0001
1254	0.0001
1260	0.0002

## Community (CWS)

- All SOCs

## Non-Transient Non-Community (NTNC)

- All SOCs

## Transient Non-Community

- Does not sample SOCs

Sampling is done at the Entry Point to the Distribution System (EPDS)

Initial  
Monitoring

- 4 consecutive quarters in one calendar year during a 3-year compliance period

Routine  
Monitoring

- Population  $\leq 3,300$ : 1 sample every 3 years
- Population  $> 3,300$ : 2 samples every 3 years, taken in 2 different quarters in the same calendar year

# SOC Monitoring – Reduced (Waiver)

SOC Waivers are issued for the entire SOC group

PWS is eligible to apply for a waiver if:

- Initial monitoring has been completed AND
- No detects in the past 3 consecutive annual samples

Systems must submit 1 or 2 complete SOC samples every 9 years depending on population:

Pop.  $\leq$  3,300: 1 sample every 9 years

Pop.  $>$  3,300: 2 samples every 9 years, taken in 2 different quarters in the same calendar year

Waivers must be reapplied for every 3 years

- If fail to reapply within 3 years: return to routine triennial sampling

Waiver application available at [azdeq.gov](http://azdeq.gov)

MAP systems not eligible for SOC waiver

Detection Limit  $\geq$  SOC Contaminant Result  $\leq$  MCL

## Increased (Quarterly)

- Quarterly monitoring begins the following quarter
  - Only the detected contaminant, not all SOC's
  - If heptachlor or heptachlor epoxide detected, monitor quarterly for both contaminants
  - If any aroclor is detected, must be reanalyzed using method 508A to quantitate PCBs (as decachlorobiphenyl)

## Increased to Annual

- Annual sample taken in the quarter with the highest result
- GW: Must be RCB MCL for 2 consecutive quarters
- SW: Must be RCB MCL for 4 consecutive quarters
- *Must be permitted in writing by the regulating agency*

## SOC Contaminant Result > MCL

### Increased (Quarterly)

- Quarterly monitoring begins the following quarter
  - Only the detected contaminant, not all SOC

### Increased to Annual

- Annual sample taken in the quarter with the highest result
- Must have 4 consecutive quarters RCB MCL
- *Must be permitted in writing by the regulating agency*



# REPORTING



\*\*\* PUBL  
>>>> TO BE

PWS ID Number [ ]  
 Sample Date [ ] Sample Time [ ]  
 Owner/Contact Email Address [ ]

**SAMPLE TYPE**  
 Compliance Monitoring  
**SAMPLE COLLECTION POINT**  
 Entry Point to the Distribution System [E ]  
**SAMPLE SITE ID** [ ]

Analysis Method	MCL	Reporting Limit	Contaminant Name
	0.07	0.0001	2,4-D (2,4-Dichloropher
	0.05	0.0002	2,4,5-TP (Sih
	0.003	0.001	Toxaphene
	0.002	0.0002	Alachlor
	0.003	0.0001	Atrazine
	0.04	0.0009	Carbofuran
	0.001	0.00004	Pentachlorop
	0.002	0.0002	Chlordane
	0.0002	0.00002	Dibromochlo
	0.00005	0.00001	Ethylene dibr
	0.0004	0.00004	Heptachlor
	0.0002	0.00002	Heptachlor e
	0.0002	0.00002	Lindane (BH
	0.0002	0.00002	Benzo[a]pyre
	0.2	0.001	Dalapon
	0.006	0.0006	Di(2-ethylhe
	0.4	0.0006	Di(2-ethylhe
	0.007	0.0002	Dinoseb

Specimen Number [ ]



DRINK  
SYN  
\*\*\* E

PWS ID Number [ ]  
**SAMPLE COLLECTION POINT**  
 Entry Point to the Distribution System [EPDS: [ ] ]  
**SAMPLE SITE ID** [ ]

\*\*\* SYNTHETIC ORGANIC  
>>> TO BE COMPLETED BY LA

Analysis Method	MCL	Reporting Limit	Contaminant Name
	3x10 <sup>-2</sup>	5x10 <sup>-9</sup>	2,3,7,8-TCDD (Dioxin)
	0.02	0.0004	Diquat
	0.1	0.009	Endothall
	0.002	0.00001	Endrin
	0.7	0.006	Glyphosate
	0.001	0.0001	Hexachlorobenzene
	0.05	0.0001	Hexachlorocyclopentadiene
	0.2	0.002	Oxamyl
	0.5	0.0001	Picloram
	0.004	0.00007	Simazine
	0.04	0.0001	Methoxychlor
	0.0005	0.0001	Polychlorinated biphenyls (PCB)

\*\*\* LABORATORY  
>>> TO BE COMPLETED BY L

Specimen Number [ ]  
 Lab ID Number [AZ ] Lab Name [ ]  
 Lab Contact, Printed Name [ ]  
 PWS Notification Date #1 [ ] #2 [ ]

All units must be reported in milligrams per liter (mg/L)  
 DWAR 3: Revised 07/2019

Submit completed form to: E MAIL: [WQD](mailto:WQD)  
 MAIL: ADEQ Water Quality Compliance Data Unit (MC 5415B-1)  
 For questions visit: [azdeq.gov/DWCompliance](http://azdeq.gov/DWCompliance)



## DRINKING WATER ANALYSIS REPORT AROCLOR

\*\*\* Entry Point to the Distribution System (EPDS) Only \*\*\*

\*\*\* PUBLIC WATER SYSTEM INFORMATION \*\*\*  
>>>> TO BE FILLED OUT BY SYSTEM PERSONNEL <<<<

PWS ID Number [ ]  
 Sample Date [ ] Sample Time [ ] (24HR CLOCK)  
 Owner/Contact Email Address [ ]

**SAMPLE TYPE**  
 Compliance Monitoring

PWS Name [ ]  
 Owner/Contact Person [ ]  
 Owner/Contact Phone Number [ ]  
**SAMPLE COLLECTION POINT**  
 Entry Point to the Distribution System [EPDS: [ ] ]  
**SAMPLE SITE ID** [ ]

\*\*\* AROCLOR (PCB SCREENING TEST) ANALYSIS \*\*\*  
>>> TO BE COMPLETED BY LABORATORY PERSONNEL <<<

Analysis Method	Reporting Limit	Contaminant Name	Cont. Code	Analysis Run Date	Result	Exceeds Reporting Limit *
	0.00008	Aroclor 1016	2388			<input type="checkbox"/>
	0.02	Aroclor 1221	2390			<input type="checkbox"/>
	0.0005	Aroclor 1232	2392			<input type="checkbox"/>
	0.0003	Aroclor 1242	2394			<input type="checkbox"/>
	0.0001	Aroclor 1248	2396			<input type="checkbox"/>
	0.0001	Aroclor 1254	2398			<input type="checkbox"/>
	0.0002	Aroclor 1260	2400			<input type="checkbox"/>

\*\*\* LABORATORY INFORMATION \*\*\*

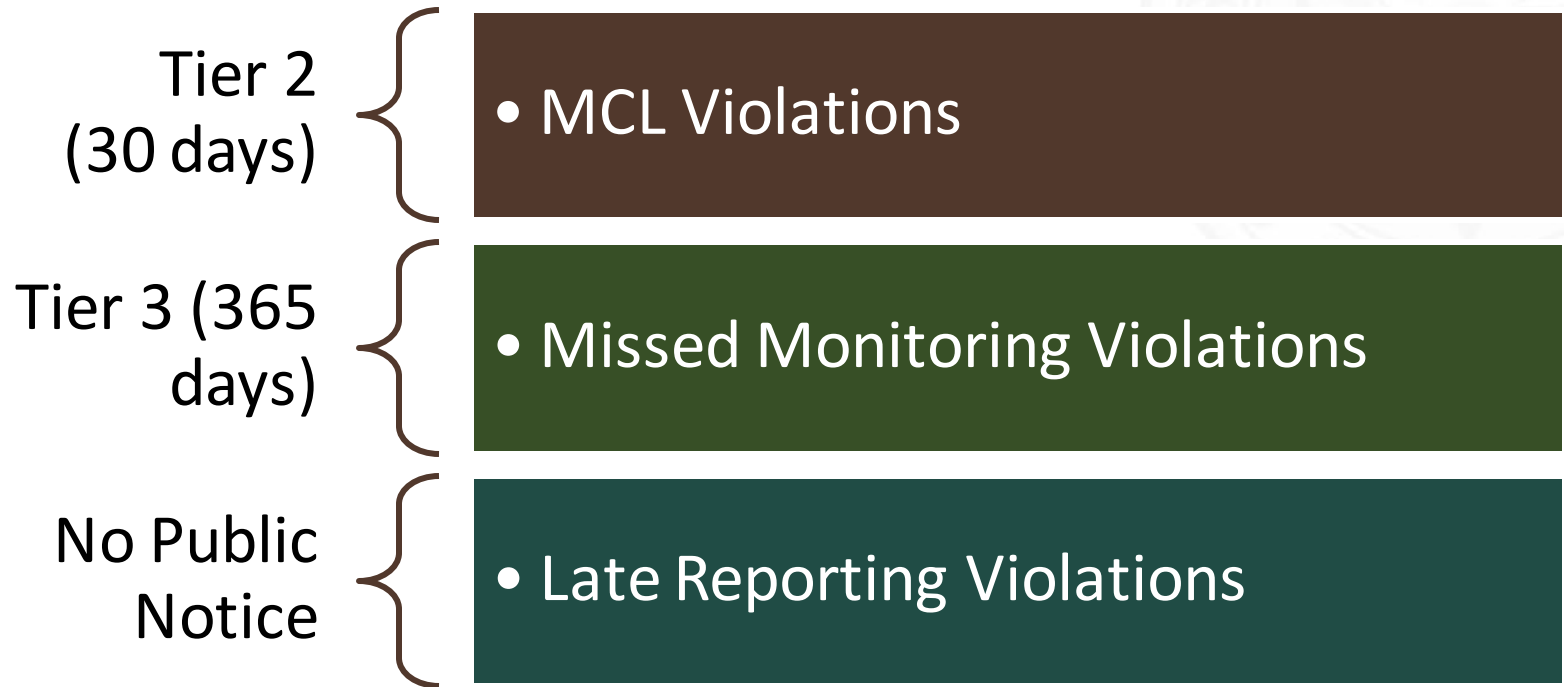
>>> TO BE COMPLETED BY LABORATORY PERSONNEL <<<

Specimen Number [ ] Comment [ ]  
 Lab ID Number [AZ ] Lab Name [ ] Phone Number [ ]  
 Lab Contact, Printed Name [ ] Authorized Signature [ ]  
 PWS Notification Date [ ] PWS Person Notified [ ]

Submit completed form to:  
 EMAIL: [WQD](mailto:WQD) Compliance Data@azdeq.gov -or- MAIL: ADEQ Water Quality Compliance Data Unit (MC 5415B-1),  
 For questions visit: [azdeq.gov/DWComplianceAssistance](http://azdeq.gov/DWComplianceAssistance) 1110 W. Washington St., Phoenix, AZ 85007

## Compliance with the MCL is determined by a running annual average at any sampling point

- Systems monitoring annually or less frequently will not be considered in violation of the MCL until they complete 1 year of quarterly sampling
- If the average at any sampling point is greater than the MCL, then the system is out of compliance.
- If any one sample would cause the annual average to be exceeded, then the system is out of compliance immediately.
- If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.



Certificate of Public Notice and a copy of the public notice is due to ADEQ **within 10 days** of distributing the public notice

## Monitoring and Reporting Violation “RTC”

when systems send in  
their late data or the  
subsequent monitoring  
period's data

## MCL Violation “RTC” when the RAA is below the MCL

- Need *4 consecutive quarters* RCB MCL and written notification from ADEQ to reduce to annual monitoring



# **VOLATILE ORGANIC CONTAMINANTS (VOC)**

Carbon-containing compounds found in a variety of commercial, industrial, and residential products:

- Fuel oils, gasoline, solvents, cleaners and degreasers, paints, inks, dyes, refrigerants, pesticides, and more

## VOCs

- Are mostly found in the environment as a result of human activity
- Evaporate easily from water into air at normal air temperatures

Contaminate drinking water through:

- Accidental spills
- Improper or illegal disposal

Many VOCs are known carcinogens (cancer causing) and are generally toxic and can have substantial health impacts from both acute (short-term) and chronic (long-term) exposure

## VOC contamination in drinking water wells is a factor of

- Distance between the well and a source of contamination
- The amount dumped/spilled
- Depth of the well
- Local geology
- Time of travel
- Percentage of urban land use near wells



# LIST OF VOCs

Analyte Name	MCL (mg/L)	Detection Limit (mg/L)	Major Sources in Drinking Water	Health Effects Language
Benzene	0.005	0.0005	Discharge from factories; leaching from gas storage tanks and landfills	Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.
Carbon tetrachloride	0.005	0.0005	Discharge from chemical plants and other industrial activities	Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
Chlorobenzene	0.1	0.0005	Discharge from chemical and agricultural chemical factories	Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.
o-Dichlorobenzene	0.6	0.0005	Discharge from industrial chemical factories	Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems.
p-Dichlorobenzene	0.075	0.0005	Discharge from industrial chemical factories	Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.
1,2-Dichloroethane	0.005	0.0005	Discharge from industrial chemical factories	Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.
1,1-Dichloroethylene	0.007	0.0005	Discharge from industrial chemical factories	Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
cis-1,2-Dichloroethylene	0.070	0.0005	Discharge from industrial chemical factories	Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.



# LIST OF VOCs

Analyte Name	MCL (mg/L)	Detection Limit (mg/L)	Major Sources in Drinking Water	Health Effects Language
trans-1,2-Dichloroethylene	0.1	0.0005	Discharge from industrial chemical factories	Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.
Dichloromethane	0.005	0.0005	Discharge from pharmaceutical and chemical factories	Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.
1,2-Dichloropropane	0.005	0.0005	Discharge from industrial chemical factories	Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.
Ethylbenzene	0.7	0.0005	Discharge from petroleum refineries	Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys
Styrene	0.1	0.0005	Discharge from rubber and plastic factories; leaching from landfills	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
Tetrachloroethylene	0.005	0.0005	Discharge from factories and dry cleaners	Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.
1,2,4-Trichlorobenzene	0.07	0.0005	Discharge from textile-finishing factories	Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.
1,1,1-Trichloroethane	0.2	0.0005	Discharge from metal degreasing sites and other factories	Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.

# LIST OF VOCs

Analyte Name	MCL (mg/L)	Detection Limit (mg/L)	Major Sources in Drinking Water	Health Effects Language
1,1,2-Trichloroethane	0.005	0.0005	Discharge from industrial chemical factories	Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune system.
Trichloroethylene	0.005	0.0005	Discharge from metal degreasing sites and other factories	Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
Toluene	0.001	0.0005	Discharge from petroleum factories	Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.
Vinyl Chloride	0.002	0.0005	Leaching from PVC piping; discharge from chemical factories	Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.
Xylenes	10	0.0005	Discharge from petroleum or chemical factories	Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.

## Community (CWS)

- All VOCs

## Non-Transient Non-Community (NTNC)

- All VOCs

## Transient Non-Community

- Does not sample VOCs

Sampling is done at the Entry Point to the Distribution System (EPDS)

Initial Monitoring

- 4 consecutive quarters

Routine Monitoring

- 1 sample every year

Reduced Monitoring (no waiver)

- GW Systems: 1 sample every 3 years
  - Must have no detects after 3 annual samples

# VOC Monitoring – Reduced (Waiver)

VOC Waivers are issued for the entire VOC group

PWS is eligible to apply for a waiver if:

- No detects after initial monitoring
- No detects in the past 3 consecutive annual samples

Systems must submit 1 complete VOC sample every 3 or 6 years depending on source type:

GW Systems: 1 sample every 6 years

SW Systems: 1 sample every 3 years

Waivers must be reapplied for every 3 years

- If fail to reapply within 3 years: return to annual sampling

Waiver application available at [azdeq.gov](http://azdeq.gov)

MAP systems not eligible for VOC waiver

Detection Limit  $\geq$  VOC Contaminant Result  $\leq$  MCL

## Increased (Quarterly)

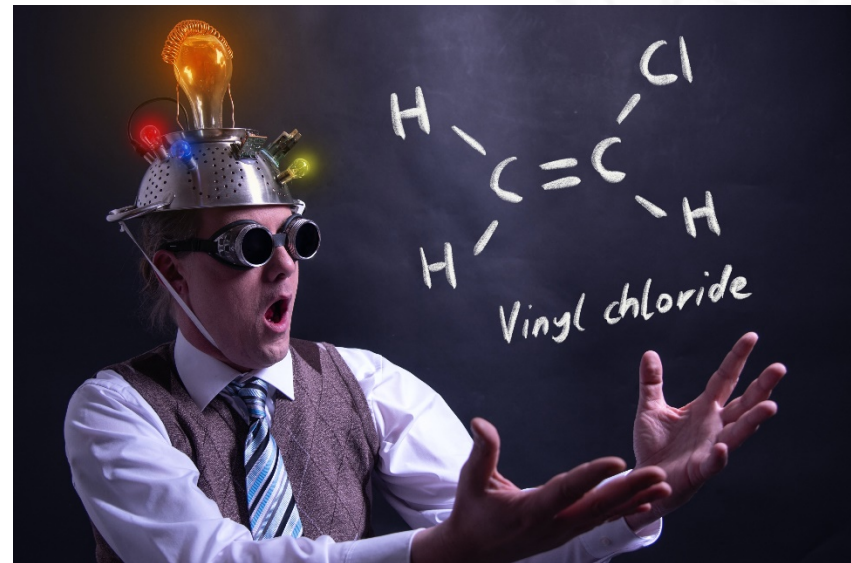
- Quarterly monitoring begins the following quarter
  - All VOCs at that sampling point

## Increased to Annual

- Annual sample taken in the quarter with the highest result
- GW: Must be RCB MCL for 2 quarters
- SW: Must be RCB MCL for 4 quarters
- *Must be permitted in writing by the regulating agency*

If one or more of the following contaminants are detected, PWS must monitor quarterly for vinyl chloride

- trichloroethylene
- tetrachloroethylene
- 1,2 - dichloroethane
- 1, 1, 1 - trichloroethane
- cis - 1, 2 - dichloroethylene
- trans - 1,2 dichloroethylene
- 1,1 – dichloroethylene



If first analysis does not detect vinyl chloride, then vinyl chloride monitoring can reduce to once per three year monitoring period

## VOC Contaminant Result > MCL

### Increased (Quarterly)

- Quarterly monitoring begins the following quarter
  - All VOCs at that sampling point

### Increased to Annual

- Annual sample taken in the quarter with the highest result
- Must have 4 consecutive quarters RCB MCL
- *Must be permitted in writing by the regulating agency*

# REPORTING



## DRINKING WATER ANALYSIS REPORT VOLATILE ORGANIC CHEMICALS \*\*\* Entry Point to the Distribution System (EF)

### \*\*\* PUBLIC WATER SYSTEM INFORMATION \*\*\* >>> TO BE FILLED OUT BY SYSTEM PERSONNEL <<<<

PWS ID Number       PWS Name  
 Sample Date       Sample Time (24HR CLOCK)  
 Owner/Contact Email Address       Owner/Contact Person  
 Owner/Contact Phone Number

#### SAMPLE TYPE

Compliance Monitoring

#### SAMPLE COLLECTION POINT

Entry Point to the Distribution System [EPDS

SAMPLE SITE ID

#### For MCL or Composite Level Sam

Original Violation Specimen Number

#### SAMPLE TYPE

Confirmation-MCL - or -

### \*\*\* VOLATILE ORGANIC CHEMICAL ANALYSIS \*\*\* >>> TO BE COMPLETED BY LABORATORY PERSONNEL <<<<

Analysis Method	MCL	Reporting Limit	Contaminant Name	Cont. Code	Analysis Run Date	Result	Ex MC
<input type="text"/>	0.1	0.0005	Trans-1,2 Dichloroethylene	2977	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	0.005	0.0005	Trichloroethylene	2981	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	0.002	0.0005	Vinyl Chloride	2985	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	10	0.0015	Xylenes, total	2980	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	0.07	0.0005	1,2,4-Trichlorobenzene	2983	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	0.005	0.0005	Dichloromethane	2990	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	0.005	0.0005	1,1-Dichloroethylene	2982	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	0.2	0.0005	1,1,1-Trichloroethane	2380	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	0.005	0.0005	1,1,2-Trichloroethane	2992	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	0.005	0.0005	1,2-Dichloroethane	2989	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	0.005	0.0005	1,2-Dichloropropane	2968	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	0.005	0.0005	Benzene	2969	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	0.005	0.0005	Carbon Tetrachloride	2996	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	0.07	0.0005	cis-1,2 Dichloroethylene	2987	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	0.7	0.0005	Ethylbenzene	2991	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	0.1	0.0005	(mono)chlorobenzene	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	0.6	0.0005	o-Dichlorobenzene	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	0.075	0.0005	Para-Dichlorobenzene	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	0.1	0.0005	Styrene	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	0.005	0.0005	Tetrachloroethylene	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="text"/>	1	0.0005	Toluene	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>

Specimen Number

DWAR 04: Revised 07/2019

Comment



## DRINKING WATER ANALYSIS REPORTING FORM VOLATILE ORGANIC CHEMICALS (VOC) \*\*\* Entry Point to the Distribution System (EPDS) Only \*\*\*

PWS ID Number       PWS Name  
**SAMPLE COLLECTION POINT**  
 Entry Point to the Distribution System [EPDS

SAMPLE SITE ID

### \*\*\* VOLATILE ORGANIC CHEMICAL ANALYSIS \*\*\* >>> TO BE COMPLETED BY LABORATORY PERSONNEL <<<<

Analysis Method	MCL	Reporting Limit	Contaminant Name	Cont. Code	Analysis Run Date	Result	Exceeds MCL	Exceeds Reporting Limit
<input type="text"/>	0.1	0.0005	Trans-1,2 Dichloroethylene	2979	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	0.005	0.0005	Trichloroethylene	2984	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	0.002	0.0005	Vinyl Chloride	2976	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	10	0.0015	Xylenes, total	2955	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	0.07	0.0005	1,2,4-Trichlorobenzene	2378	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	0.005	0.0005	Dichloromethane	2964	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>

### \*\*\* LABORATORY INFORMATION \*\*\*

>>> TO BE COMPLETED BY LABORATORY PERSONNEL <<<<

Specimen Number       Comment  
 Lab ID Number [AZ ]       Lab Name       Phone Number  
 Lab Contact, Printed Name       Authorized Signature  
 PWS Notification Date       PWS Person Notified

All units must be reported in milligrams per liter (mg/L)

DWAR 04: Revised 07/2019

Submit completed form to:

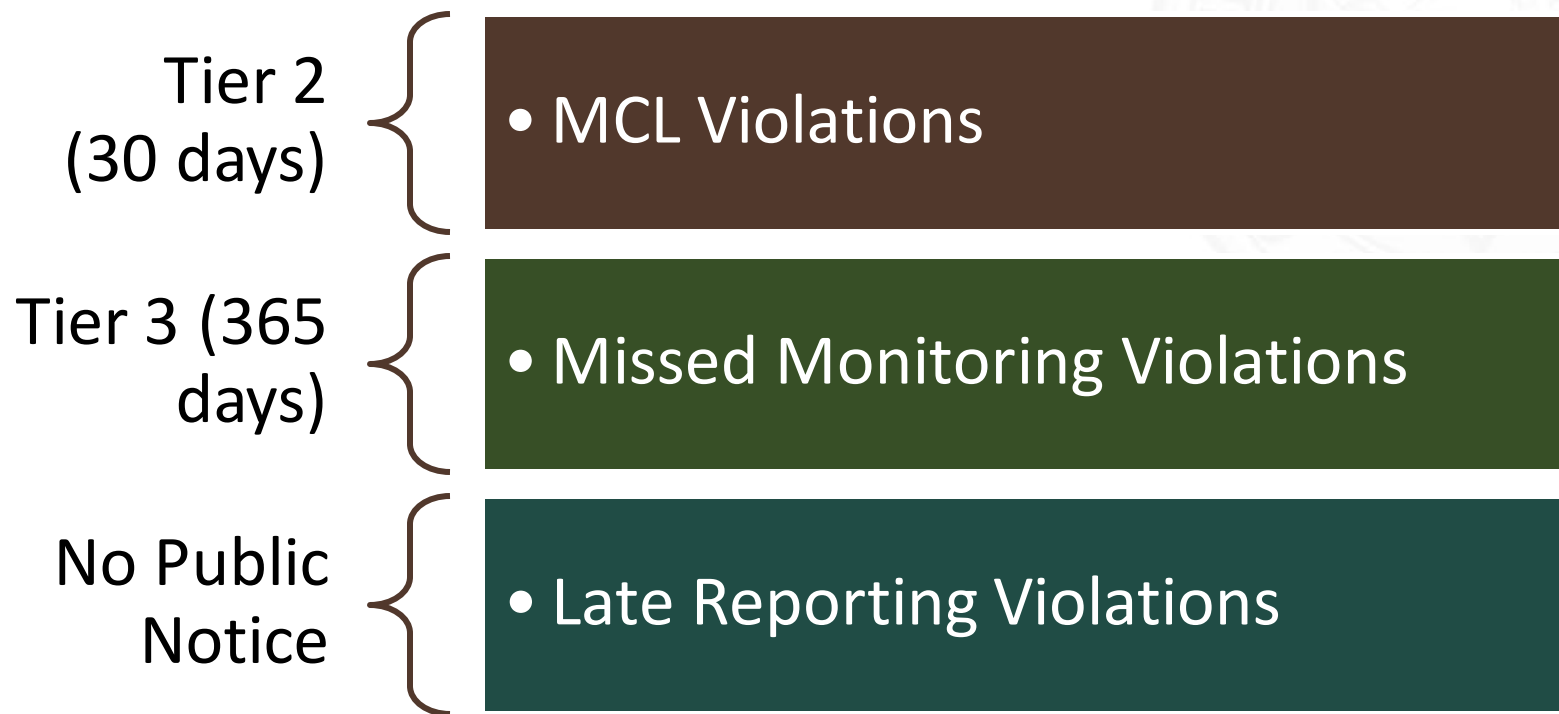
EMAIL: [WQD\\_Compliance\\_Data@azdeq.gov](mailto:WQD_Compliance_Data@azdeq.gov) -or- MAIL: ADEQ Water Quality Compliance Data Unit (MC 5415B-1),

For questions visit: [azdeq.gov/DWCComplianceAssistance](http://azdeq.gov/DWCComplianceAssistance) 1110 W. Washington St., Phoenix, AZ 85007.



## Compliance with the MCL is determined by a running annual average at any sampling point

- Systems monitoring annually or less frequently will not be considered in violation of the MCL until they complete 1 year of quarterly sampling
- If the average at any sampling point is greater than the MCL, then the system is out of compliance.
- If any one sample would cause the annual average to be exceeded, then the system is out of compliance immediately.
- If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.



Certificate of Public Notice and a copy of the public notice is due to ADEQ **within 10 days** of distributing the public notice

## Monitoring and Reporting Violation “RTC”

when systems send in  
their late data or the  
subsequent monitoring  
period's data

## MCL Violation “RTC” when the RAA is below the MCL

- Need 4 consecutive quarters  
RCB MCL and written  
notification from ADEQ to  
reduce to annual monitoring



# RADIONUCLIDES (RAD)

1997

EPA set standards for beta and photon emitters, radium and gross alpha

DEC 2000

EPA finalized Radionuclides Rule with Uranium standards

JUNE 2000 - DEC 2003

ADEQ accepts Grandfather Data for Initial Monitoring requirements

DEC 2003

All CWS start Initial Monitoring

- More stringent MCL standards
- Revised monitoring requirements

- Radioactive contaminants that emit “ionizing radiation” when it decays
  - Radiation destabilizes nearby atoms as they travel through cells or other material
  - Which means *in the long-term*, it may cause cancer



## SOURCES

### Naturally Occurring

- Regional
  - Great Lakes
  - Mountains
- Geological
  - Sandstone aquifers
  - Shales
  - Phosphate deposits
  - Granic formations

### Man-Made

- Nuclear Weapons
- Hospitals
- Medical Facilities
- Industry / Labs
- Pharmaceuticals

# LIST OF RADs

Analyte Name	MCL (pCi/L)	Detection Limit (pCi/L)	Major Sources in Drinking Water	Health Effects Language
Gross Alpha (excl. Radon & Uranium)	15	3	Erosion of natural deposits	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Combined Radium	5		Erosion of natural deposits	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
Radium 226		1		
Radium 228		1		

Analyte Name	MCL (µg/L)	Detection Limit (µg/L)	Major Sources in Drinking Water	Health Effects Language
Uranium	30	1	Erosion of natural deposits	Some people who drink water containing uranium in excess of the MCL over many years may have kidney problems or an increased risk of getting cancer.

## Community (CWS)

- All RADs

## Non-Transient Non-Community (NTNC)

- Do not sample RADs

## Transient Non-Community

- Do not sample RADs

Sampling is done at the Entry Point to the Distribution System (EPDS)

### Initial Monitoring

- 4 consecutive quarters
- Final 2 quarters can be waived if Gross Alpha and Radium-228 are below Detection Limits – *must be requested in writing*

### Reduced Monitoring

- Determined from previous results:
- 1 sample every 3 years, 6 years, OR 9 years

### Increased Monitoring

- 4 consecutive quarters



# MONITORING FREQUENCY

<u>Analysis</u>	<u>Result</u>	<u>Future Monitoring Schedule</u>
<b>Gross Alpha</b>	0 – 2.9 pCi/L	Once Every 9 years
	3.0 – 7.4 pCi/L	Once Every 6 years
	7.5 – 14.9 pCi/L	Once Every 3 years
	≥ 15.0 pCi/L <i>(must also test for Uranium)</i>	Quarterly
<b>Combined Radium Radium 226 Radium 228</b>	0 – 0.9 pCi/L	Once Every 9 years
	1.0 – 2.4 pCi/L	Once Every 6 years
	2.5 – 4.9 pCi/L	Once Every 3 years
	≥ 5.0 pCi/L	Quarterly
<b>Uranium Activity (Total or Combined)</b>  μg/L x 0.67 pCi/μg = _____ pCi/L pCi/L x 1.49 μg/pCi = _____ μg/L	0 -0.9 μg/L	Once Every 9 years
	1.0 -14.9 μg/L	Once Every 6 years
	15.0 – 29.9 μg/L	Once Every 3 years
	≥ 30.0 μg/L	Quarterly

*Monitoring frequency determination is made in writing by the regulating agency*

- **From Initial Monitoring**
  - Determined from the running annual average of 4 consecutive quarters
- **From Increased Monitoring**
  - Determined from the running annual average of 4 consecutive quarters
- **From Reduced Monitoring**
  - Determined from the previous analytical results
  - An increase in the contaminant results may increase the monitoring frequency

# MONITORING FREQUENCY

<u>Analysis</u>	<u>Result</u>	<u>Future Monitoring Schedule</u>
<b>Gross Alpha</b>	0 – 2.9 pCi/L	Once Every 9 years
	3.0 – 7.4 pCi/L	Once Every 6 years
	7.5 – 14.9 pCi/L	Once Every 3 years
	≥ 15.0 pCi/L <i>(must also test for Uranium)</i>	Quarterly
<b>Combined Radium Radium 226 Radium 228</b>	0 – 0.9 pCi/L	Once Every 9 years
	1.0 – 2.4 pCi/L	Once Every 6 years
	2.5 – 4.9 pCi/L	Once Every 3 years
	≥ 5.0 pCi/L	Quarterly
<b>Uranium Activity (Total or Combined)</b>  μg/L x 0.67 pCi/μg = _____ pCi/L pCi/L x 1.49 μg/pCi = _____ μg/L	0 -0.9 μg/L	Once Every 9 years
	1.0 -14.9 μg/L	Once Every 6 years
	15.0 – 29.9 μg/L	Once Every 3 years
	≥ 30.0 μg/L	Quarterly

*Monitoring frequency determination is made in writing by the regulating agency*

## RADs Contaminant Result > MCL

### Increased (Quarterly)

- Quarterly monitoring begins the following quarter
  - Only that contaminant at that sampling point, not all RADs

### Increased to Reduced

- Must have 4 consecutive quarters < MCL
- *Monitoring frequency change must be determined in writing by the regulating agency*

## When Gross Alpha (GA) is $> 15$ pCi/L

- Systems must test for uranium
- If not, GA can be used as a substitution

## When Gross Alpha is $> 5$ pCi/L

- Systems must test for Radium -226
- If not, GA can be used as a substitution
  - Only that contaminant at that sampling point, not all RADs

## When Gross Alpha (incl. Rn & U) $> 15$ pCi/L

- The Uranium result is subtracted and becomes Adjusted Gross Alpha

# REPORTING



**DRINKING WATER ANALYSIS REPORTING FORM  
RADIONUCLIDES (RADS)  
Adjusted Gross Alpha, Radium-226&-228, Uranium**  
\*\*\* Entry Point to the Distribution System (EPDS) Only \*\*\* Only \*\*\*



**DRINKING WATER ANALYSIS REPORTING FORM  
RADIONUCLIDES (RADS)  
Adjusted Gross Alpha, Radium-226&-228, Uranium**  
\*\*\* Point of Use (POU) Only \*\*\*

**\*\*\* PUBLIC WATER SYSTEM INFORMATION \*\*\***  
>>> TO BE FILLED OUT BY SYSTEM PERSONNEL <<<<

PWS ID Number [ ]  
Sample Date [ ] Sample Time (24HR CLOCK) [ ]  
Owner/Contact Email Address [ ]

PWS Name [ ]  
Owner/Contact Person [ ]  
Owner/Contact Phone Number [ ]

**SAMPLE TYPE**

- Reduced Monitoring
- Quarterly Monitoring

**SAMPLE COLLECTION POINT**

- Entry Point to the Distribution System (EPDS) [ ]

SAMPLE SITE ID [ ]

If Composite of Four Quarterly Samples  
Date Q1 Collected [ ]  
Date Q2 Collected [ ]  
Date Q3 Collected [ ]  
Date Q4 Collected [ ]

**\*\*\* PUBLIC WATER SYSTEM INFORMATION \*\*\***  
>>> TO BE FILLED OUT BY SYSTEM PERSONNEL <<<<

PWS Name [ ]  
Sample Time (24HR CLOCK) [ ]  
mail Address [ ]

PWS Name [ ]  
Owner/Contact Person [ ]  
Owner/Contact Phone Number [ ]

- Compliance Monitoring
- Non-Compliance Monitoring

COLLECTION POINT  
Number [POU] [ ]

**For MCL Exceedance**  
Original Violation Specimen Number [ ]  
**SAMPLE TYPE**  
 POU Confirmation

**\*\*\* RADIONUCLIDE ANALYSIS \*\*\***  
>>> TO BE COMPLETED BY LABORATORY PERSONNEL <<<

Analysis Method	MCL	Reporting Limit	Contaminant Name	Cont. Code	Analysis Run Date	Result	Exceeds MCL
	15 pCi/L	3 pCi/L	Adjusted Gross Alpha	4000			<input type="checkbox"/>
		3 pCi/L	Gross Alpha	4002			
			Radon	4004			
	30 µg/L	1 µg/L	Combined Uranium *	4006			<input type="checkbox"/>
			Uranium-234 *	4007			
			Uranium-235 *	4008			
			Uranium-238 *	4009			
	5 pCi/L	1 pCi/L	Combined Radium (-226,-228)	4010			<input type="checkbox"/>
		1 pCi/L	Radium-226	4020			
		1 pCi/L	Radium-228	4030			

**\*\*\* RADIONUCLIDE POU ANALYSIS \*\*\***  
>>> TO BE COMPLETED BY LABORATORY PERSONNEL <<<

Reporting Limit	Contaminant Name	Cont. Code	Analysis Run Date	Result	Exceeds MCL
3 pCi/L	Adjusted Gross Alpha	4000			<input type="checkbox"/>
3 pCi/L	Gross Alpha	4002			
	Radon	4004			
1 µg/L	Combined Uranium	4006			<input type="checkbox"/>
	Uranium-234	4007			
	Uranium-235	4008			
	Uranium-238	4009			
1 pCi/L	Combined Radium (-226,-228)	4010			<input type="checkbox"/>
1 pCi/L	Radium-226	4020			
1 pCi/L	Radium-228	4030			

**\*\*\* LABORATORY INFORMATION \*\*\***  
>>> TO BE COMPLETED BY LABORATORY PERSONNEL <<<

Specimen Number [ ] Comment [ ]  
Lab ID Number (AZ) [ ] Lab Name [ ] Phone Number [ ]  
Lab Contact, Printed Name [ ] Authorized Signature [ ]  
PWS Notification Date [ ] PWS Person Notified [ ]

Comment [ ]  
Lab Name [ ] Phone Number [ ]  
Name [ ] Authorized Signature [ ]  
PWS Person Notified [ ]

\* Combined Uranium must be reported in micrograms per liter

Submit completed form to:  
EMAIL: [WQD\\_Comppliance\\_Data@azdeq.gov](mailto:WQD_Comppliance_Data@azdeq.gov) -or- MAIL: ADEQ Water Quality Compliance Data Unit (MC 5415B-1),  
For questions, go to: [azdeq.gov/DWComplianceAssistance](mailto:azdeq.gov/DWComplianceAssistance) 1110 W. Washington St., Phoenix, AZ 85007.

Submit completed form to:  
EMAIL: [WQD\\_Comppliance\\_Data@azdeq.gov](mailto:WQD_Comppliance_Data@azdeq.gov) -or- MAIL: ADEQ Water Quality Compliance Data Unit (MC 5415B-1),  
For questions, go to: [azdeq.gov/DWComplianceAssistance](mailto:azdeq.gov/DWComplianceAssistance) 1110 W. Washington St., Phoenix, AZ 85007.

## Compliance with the MCL is determined by a running annual average at any sampling point

- If the running annual average at any sampling point is greater than the MCL, then the system is out of compliance.
- If any one sample would cause the annual average to be exceeded, then the system is out of compliance immediately.
- If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

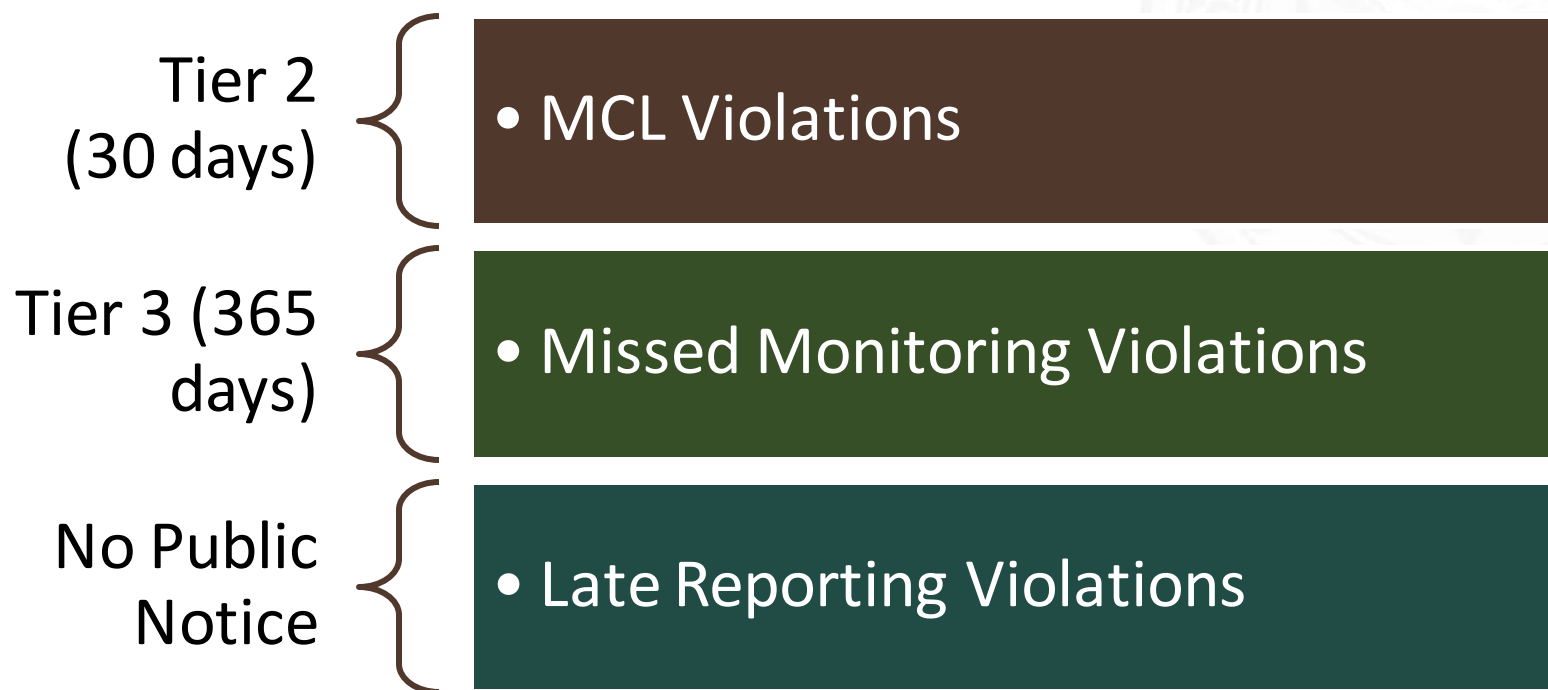
## Monitoring and Reporting Violation “RTC”

when systems send in  
their late data or the  
subsequent monitoring  
period’s data

## MCL Violation “RTC” when the RAA is below the MCL

- Need 4 consecutive quarters  
< MCL and written  
notification from ADEQ to  
reduce to annual monitoring





Certificate of Public Notice and a copy of the public notice is due to ADEQ **within 10 days** of distributing the public notice

Instructions for Ch

radiological maximum to persons served... You must issue a r... may have more stringe... (e source). Check with y

- Community systems must use Hand or direct delivery
- Mail, as a separate r

- Community systems mu
- Posting in conspicu
- Hand delivery
- Mail

In addition, both communi others if they would not b e-mail, or delivery to corr letterhead, if available.

The notice on the rever include all required PN

**Mandatory Language**  
Mandatory language i in). This notice includ You must also includ where applicable [4r either end.

**Corrective Action**  
In your notice, des treatment method violations. Depen appropriate, or dr  
• We are v the prob water si  
• We hav invest

### IMPORTANT INFORMATION / of-Use (PO'

[System or Address] Has Le

Our water system recently tested the result to be above the drinkin as our customers, you have a ri what we did (are doing) to corre

We routinely monitor for the p [date], we received notice that point-of-use device exceeds [contaminant]. The standard

#### What should I do?

- There is nothing yo other corrective ar your doctor.
- If you have a sev pregnant, or are from your health'

#### What does this me?

This is not an emer However, some pe over many years c

#### What is being d

The media/filter to be changed your filter/prov

For more info [address].

This notice

### IMPORTANT INF

[System] Has Lev

Our water system recently vio as our customers, you have a (are doing) to correct this situ We routinely monitor for the notice that the sample collec maximum contaminant level/ The average level of [conta was found at [provide level

#### What should I do?

- There is nothing yo corrective actions.
- If you have a sev elderly, you may providers about c

#### What does this mean

This is not an emerge [System **MUST** insert this template.]

#### What is being done

[Describe corrective

For more informati

\*Please share who may not homes, schoo distributing c

This notice is be Date distributer

### TIER 3 PUBLIC NOTICE

#### Monitoring Requirements Not Met for [System I

Our water system violated drinking water standards over the past year. Even t emergencies, as our customers, you have a right to know what happened and these situations.

We are required to monitor your drinking water for specific contaminants on a reg regular monitoring are an indicator of whether or not our drinking water meets hea During [compliance period] we [did not monitor or test" or "did not complete all mo for [contaminant(s)] and therefore cannot be sure of the quality of our drinking water

#### What should I do?

There is nothing you need to do at this time. The table below lists the contaminant(s) we did not properly test for during the last year are supposed to sample and how many samples we are supposed to take; how many when samples should have been taken; and the date on which follow-up samples were

Contaminant	Required sampling frequency	Number of samples taken	When samples should have been taken	When
Example: RADS	1 sample every three years	0	2000-2002	Febru

#### What is being done?

[Describe corrective action]

For more information, please contact [name of contact] at [phone number] or [mailing address]. Please share this information with other people who drink this water, especially those who may no received this notice directly (for example, people in apartments, nursing homes, schools, and busin You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is being sent to you by [System Name] State Water System ID#: [ID#]  
Date distributed: [Date]

## Community Water Systems only

Tier 3 Public Notice (PN) requirement can be met via CCR as long as:

- CCR has all required language
- Violations Table is complete and accurate
- CCR approved/distributed by PN distribution due date

JULY 1<sup>st</sup>

- Deadline for CWS to distribute CCRs to consumers and primary agency
- Needs to be a CWS for the entire calendar year prior to the deadline

OCTOBER 1<sup>st</sup>

- Deadline for CWS to submit proof of distribution to primary agency
- Mailing Waiver or Certification
- Or 90 Days after distribution/submittal to your primary agency, **WHICHEVER COMES FIRST**

**Submit to  
ADEQ by Email:**

- [CCRRULE@AZDEQ.GOV](mailto:CCRRULE@AZDEQ.GOV)
- County Compliance Assistance Coordinator

## Community (C)

- IOCs – *all*
- SOCs
- VOCs
- RADs

## Non-Transient Non-Community (NTNC)

- IOCs – *except fluoride & sodium*
- SOCs
- VOCs

## Transient Non-Community (TNC)

- IOCs – *only nitrate & nitrite*

## Triggers Quarterly

- IOCs:
  - *>5mg/L nitrate*
  - *>0.5mg/L nitrite*
  - *MCL Exceedances*
- SOCs: *Detects, MCL Exceedances*
- VOCs: *Detects, MCL Exceedances*
- RADs: *MCL Exceedances*

## MCL Violation

- Nitrate, Nitrite, & IOCs on routine/reduced: *Avg of RT & CO > MCL*
- IOCs on quarterly: *RAA > MCL*
- SOCs: *RAA > MCL*
- VOCs: *RAA > MCL*
- RADs: *RAA > MCL*

## Public Notices

- Tier 1 (24hrs): *Nitrate/Nitrite MCL Violation*
- Tier 2 (30 days): *IOC/SOC/VOC/RAD MCL Violation*
- Tier 3 (365 days): *Missed Monitoring Violations, Fluoride SMCL*

# ADEQ Safe Drinking Water Contacts:



## Compliance Assistance Coordinator by County

County	County Code	CAC Name	Email	Phone Number
Apache	1	Matithia Eiland	<a href="mailto:Eiland.Matithia@azdeq.gov">Eiland.Matithia@azdeq.gov</a>	602-771-4572
Cochise	2	Matithia Eiland	<a href="mailto:Eiland.Matithia@azdeq.gov">Eiland.Matithia@azdeq.gov</a>	602-771-4572
Coconino	3	Jane Kim	<a href="mailto:Kim.Jane@azdeq.gov">Kim.Jane@azdeq.gov</a>	602-771-4609
Gila	4	Matithia Eiland	<a href="mailto:Eiland.Matithia@azdeq.gov">Eiland.Matithia@azdeq.gov</a>	602-771-4572
Graham	5	Emily Baldrige	<a href="mailto:Baldrige.Emily@azdeq.gov">Baldrige.Emily@azdeq.gov</a>	602-771-4596
Greenlee	6	Emily Baldrige	<a href="mailto:Baldrige.Emily@azdeq.gov">Baldrige.Emily@azdeq.gov</a>	602-771-4596
Maricopa	7	Tiffany Hua	<a href="mailto:Hua.Tiffany@azdeq.gov">Hua.Tiffany@azdeq.gov</a>	602-771-4621
Mohave	8	Katherine Valentine	<a href="mailto:Valentine.Katherine@azdeq.gov">Valentine.Katherine@azdeq.gov</a>	602-771-4699
Navajo	9	Jane Kim	<a href="mailto:Kim.Jane@azdeq.gov">Kim.Jane@azdeq.gov</a>	602-771-4609
Pima	10, 20	Holli LaBrie	<a href="mailto:LaBrie.Holli@azdeq.gov">LaBrie.Holli@azdeq.gov</a>	520-628-6742
Pinal	11	Jane Kim	<a href="mailto:Kim.Jane@azdeq.gov">Kim.Jane@azdeq.gov</a>	602-771-4609
Santa Cruz	12	Holli LaBrie	<a href="mailto:LaBrie.Holli@azdeq.gov">LaBrie.Holli@azdeq.gov</a>	520-628-6742
Yavapai	13	Arron Hieatt	<a href="mailto:Hieatt.Arron@azdeq.gov">Hieatt.Arron@azdeq.gov</a>	602-771-2302
Yuma	14	Emily Baldrige	<a href="mailto:Baldrige.Emily@azdeq.gov">Baldrige.Emily@azdeq.gov</a>	602-771-4596
La Paz	15	Katherine Valentine	<a href="mailto:Valentine.Katherine@azdeq.gov">Valentine.Katherine@azdeq.gov</a>	602-771-4699

**MAP Coordinator:** Carling Olson  
(602) 771-4518 | [Olson.Carling@azdeq.gov](mailto:Olson.Carling@azdeq.gov)