



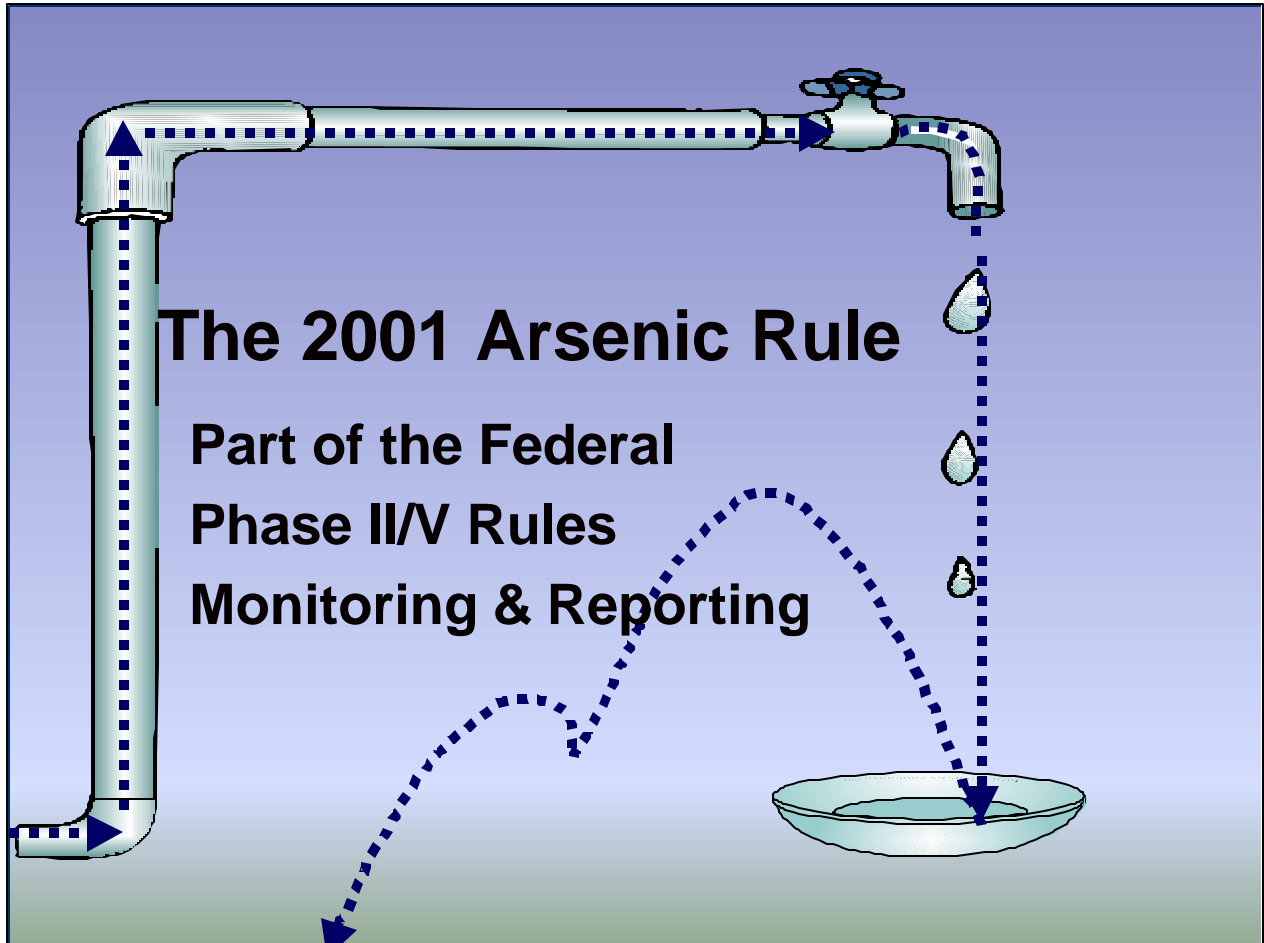
- EPA promulgated the Final Arsenic Rule on January 22, 2001. Following Federal Register publication of the Arsenic Rule, the Administration learned of concerns raised by States, Public Water Systems (PWSs), and other stakeholders regarding the adequacy of science and the basis for national cost estimates underlying the Rule. Because of the importance of the Arsenic Rule and because the national debate surrounding it related to science and costs, EPA's Administrator publicly announced on March 20, 2001, that the Agency would take additional steps to reassess the scientific and cost issues associated with this Rule.
- EPA requested the National Academy of Sciences (NAS) to convene a panel of scientific experts to review the Agency's interpretation and application of arsenic research discussed and evaluated as part of the NAS's 1999 arsenic report, and to review and evaluate any new arsenic research that had become available since the 1999 NAS report. At the same time, EPA worked with its National Drinking Water Advisory Council (NDWAC) to review the assumptions and methodologies underlying the Agency's estimate of arsenic compliance costs. Finally, EPA asked its Science Advisory Board (SAB) to look at the benefits associated with the Rule.
- On October 31, 2001, Administrator Whitman announced that the 0.01 mg/L (10 ppb or 10  $\mu\text{g/L}$ ) standard for arsenic would remain. In her press statement, the Administrator reiterated that the additional study and consultation did not delay the compliance date for implementing a new standard for arsenic in 2006.
- This presentation will review the compliance and reporting requirements of the Final Arsenic Rule and will examine certain enforcement issues.



- This photo shows piping inside the well house for a small system on the shores of Hebgan Lake, west of Yellowstone National Park. The system serves an RV park, marina, and residential subdivision in Montana.
- This system may need to install additional treatment in order to comply with the revised arsenic maximum contaminant level (MCL). The surface waters flowing from Yellowstone Park exhibit high natural arsenic concentrations. The system wisely planned ahead when building their new pump house by increasing its size to allow for the installation of additional infrastructure.
- A small system such as this may be able to use an adsorptive media treatment technology for compliance with the revised arsenic MCL. These technologies can fit into a relatively small area.



- This photo shows the full-scale pilot plant at a water system in Paramount, California. The system is testing four different adsorptive media.
- The system plans on converting the pilot plant vessels into permanent treatment process vessels once the pilot testing is complete.
  - Four additional vessels, containing the chosen media, will be added to handle the system's daily flow.
  - Both the concrete pad where the vessels are located and the overhead piping can accommodate the additional vessels.
- The vessels are equipped with easy-to-access sampling ports (three sample port locations are visible on the side of each vessel, and the fourth sample point is the final discharge from each vessel), which allow the system to sample at various stages leading to media exhaustion. Each sample port is piped to the stainless steel sample sink left center of the photo.



- The Final Arsenic Rule makes the arsenic monitoring requirements consistent with monitoring for other inorganic contaminants (IOCs) regulated under the Phase II/V standardized monitoring framework (40 CFR 141.23).



- The Arsenic Rule introduces a few changes and a few new wrinkles, but few brand new requirements.

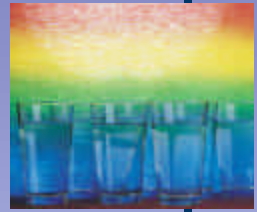
# Session Objectives

- ◆ Transfer Info
- ◆ Reinforce Info
- ◆ Discuss Requirements
- ◆ Describe Issues
- ◆ Answer Questions
- ◆ Collect Feedback
- ◆ Improve



- This presentation builds on the information presented in “Arsenic Rule: Background and Rule Provisions,” which was delivered as part of EPA’s training on the Arsenic Rule conducted around the country in 2002.
- The objectives of this presentation include:
  - Transferring information about monitoring and reporting requirements and enforcement concerns;
  - Reinforcing information discussed in other presentations or learned through implementation of drinking water rules;
  - Discussing the specific requirements of the Final Arsenic Rule;
  - Further describing the issues surrounding both the requirements of the Rule and the implementation of those requirements;
  - Answering questions;
  - Collecting feedback in order to better understand the issues facing systems and regulators; and,
  - Improving future training sessions, training materials, and other guidance documents.

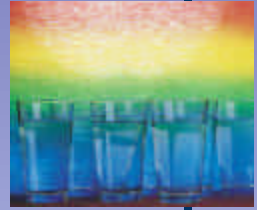
# Course Outline



- ◆ Introduction
- ◆ The MCL
- ◆ Arsenic Monitoring
- ◆ Reporting of Arsenic Monitoring Data
- ◆ Violations
- ◆ SNC (Significant Non-Complier)
- ◆ Enforcement
- ◆ RTC (Return to Compliance)

- This presentation assumes that participants have some knowledge of either the Phase II/V Rules or the Arsenic Rule and that they are generally familiar with requirements as they apply to IOCs, including arsenic.
- This presentation will describe:
  - The revised arsenic MCL;
  - Federal requirements for arsenic monitoring;
  - Federal requirements for reporting arsenic monitoring data;
  - MCL and monitoring and reporting (M/R) violations;
  - The current federal definition of significant non-complier (SNC); and,
  - Enforcement and return to compliance (RTC) issues related to the Safe Drinking Water Information System (SDWIS).

## Please Keep in Mind!

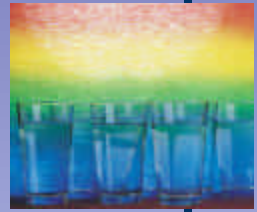


- ◆ “Primacy Agency” as used in these training discussions may mean the EPA, or the State government, or the Tribal government, as appropriate.

- Throughout this presentation, the term “Primacy Agency” is used to designate the State, EPA Region, or Tribal government that has primary enforcement authority for the Public Water System Supervision (PWSS) program as authorized by the Safe Drinking Water Act.



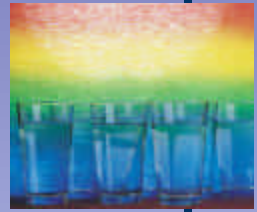
# CFR-Arsenic Compliance



- ◆ Amendment -- effective dates and demonstration of compliance
  - 40 CFR 141.6 (j) & (k)
- ◆ Amendment -- effective date
  - 40 CFR 141.60 (b)(4)
- ◆ Amendment -- set standard
  - 40 CFR 141.62 (b)(16)

- The effective date for the new arsenic standard was established in the Final Arsenic Rule by amending 40 CFR 141.6 and 40 CFR 141.60. The new paragraphs established January 23, 2006, as the date on which water systems must meet the 10 ppb (10 µg/L) concentration for arsenic.
- Additionally, these amendments provided calculations related to arsenic compliance, to be effective on January 22, 2004.
- These amendments also ensure that Primacy Agencies specify the appropriate time and method for systems (or sources) that begin operation (or use) after January 22, 2004, to demonstrate compliance with the new arsenic MCL.
- A companion modification was made to the description of MCLs for IOCs at 40 CFR 141.62. The new entry 40 CFR 141.62 (b)(16) designated 0.01 mg/L (10 µg/L) as the arsenic MCL.

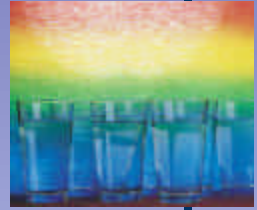
## CFR (continued)



- ◆ Amendment -- the “Standardized Monitoring Framework”
  - 40 CFR 141.23
- ◆ Special Reporting Requirements— report to 0.001 mg/L
  - 40 CFR 141.23(i)(4)
- ◆ Consumer Confidence Reporting in reports due July 1, 2002
  - 40 CFR 141.154(b) & (f)

- Monitoring for arsenic is made consistent with the standardized monitoring framework used for other IOCs through an amendment to 40 CFR 141.23.
- The Final Arsenic Rule establishes a unique reporting requirement for arsenic data at 40 CFR 141.23(i)(4). The rule specifies that arsenic sampling results will be reported to the nearest 0.001 mg/L.
  - EPA believes that data will be reported to 1 µg/L and appropriate enforcement activities will begin when arsenic levels are 11 µg/L or higher.
- The Final Arsenic Rule updates the specific health effects language for arsenic (40 CFR 141.154(f)). Systems must begin complying with the revised Consumer Confidence Report (CCR) requirements for those CCRs distributed after February 22, 2002 (40 CFR 141.6(j)).
  - SDWA §1414(c)(4)(B)(vi) allows the Administrator to require systems to include health effects language for up to three regulated contaminants even if the system has not violated the MCL.
  - For CCRs due starting July 1, 2002, a system with an arsenic result > 0.005 mg/L (5 Fg/L) but ≤ 0.01 mg/L (10 Fg/L), must include the informational statement.
  - For CCRs due July 1, 2002, through July 1, 2006 a system with an arsenic result > 0.01 mg/L (10 µg/L) but ≤ 0.05 mg/L (50 µg/L) must include the health effects statement.
  - For CCRs due July 1, 2007, and beyond, a system with a sampling result > 0.01 mg/L (10 µg/L) is out of compliance and must include the health effects statement.

## Want More Information on the New Arsenic Standard?



- ◆ Call the Safe Drinking Water Hotline at:  
1-800-426-4791
  
- ◆ On the web at:
  - <http://www.epa.gov/safewater> ,or
  - <http://www.epa.gov/safewater/arsenic.html>

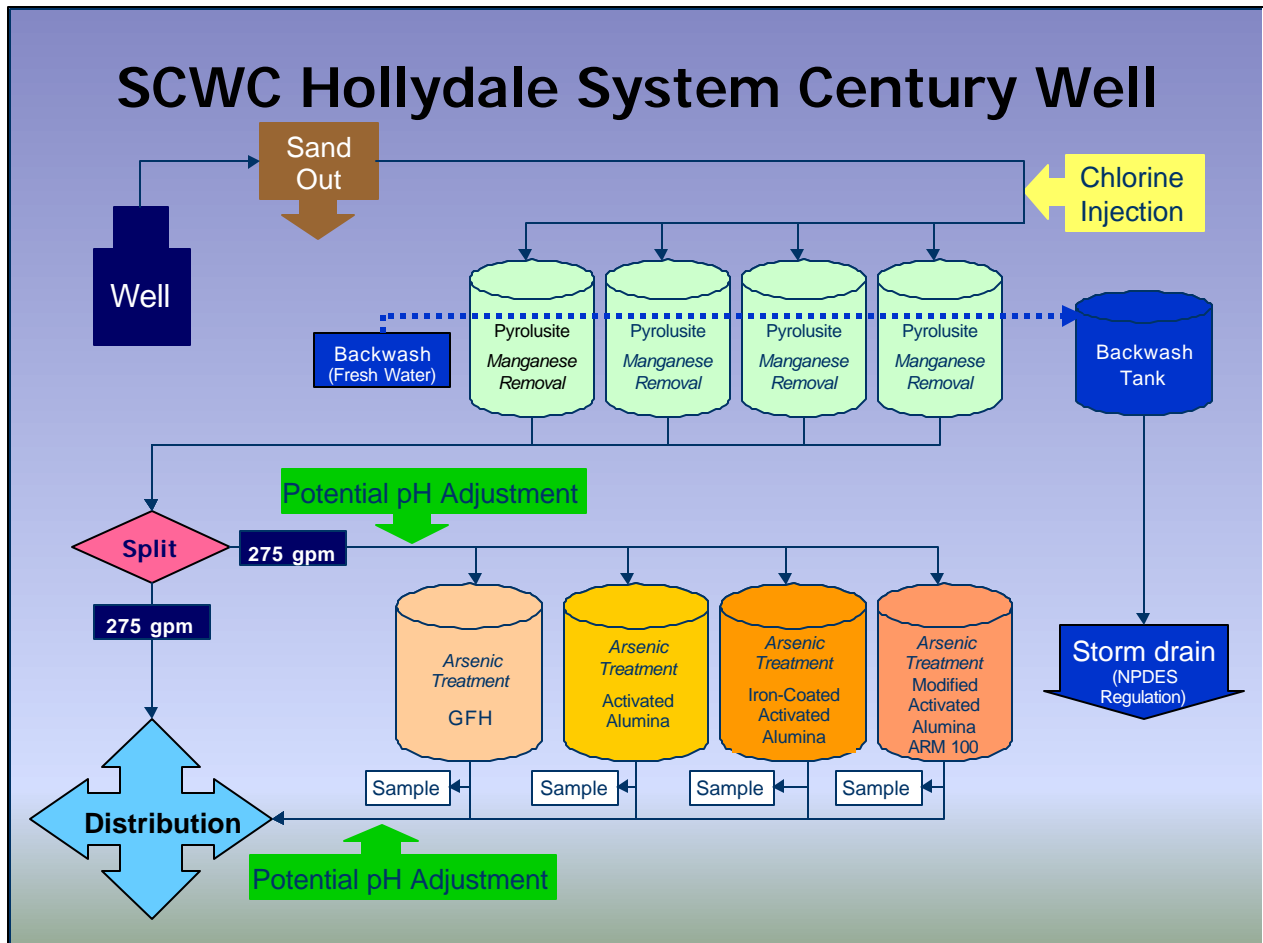
- EPA has posted many informative documents on the web at <http://www.epa.gov/safewater/arsenic.html>, including:
  - The Agency's Report to Congress, Small System Arsenic Implementation Issues;
  - The revised DRAFT Implementation Guidance for the Arsenic Rule and Clarifications to Compliance and New Source Contaminants Monitoring;
  - Fact Sheets about the Final Arsenic Rule;
  - A Quick Reference Guide to the Arsenic Rule;
  - The reports and recommendations on the science, cost of compliance, and benefits analyses in support of the Rule prepared by the NAS, the NDWAC, and the EPA SAB;
  - Detailed rule-making support documents for the January 2001 Rule:
    - Economic Analysis,
    - Technologies and Costs for Removal of Arsenic From Drinking Water,
    - Analytical Methods Support Document for Arsenic in Drinking Water ,
    - Arsenic Occurrence in Public Drinking Water Supplies; and,
  - The Final Rule, the Proposed Rule, and other regulatory development documents.
  - These documents are also available through the Safe Drinking Water Hotline, 1-800-426-4791.

## The Arsenic MCL



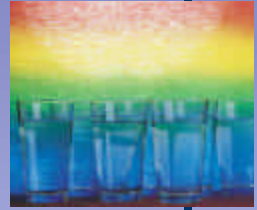
- ◆ Applies to CWSs and NTNCWSs
- ◆ Will remain 0.05 mg/L (50 micrograms per liter) until January 22, 2006
- ◆ Will become 0.01 mg/L (10 micrograms per liter) on January 23, 2006

- The new Arsenic Rule applies to all community water systems (CWSs) and non-transient non-community water systems (NTNCWSs) (40 CFR 141.62(b)).
- The MCL will remain at 50 ppb until January 22, 2006.
- On January 23, 2006, the revised MCL of 10 ppb ( $\mu\text{g/L}$ ) becomes enforceable (40 CFR 141.6(j)).
  - The Rule also finalized a maximum contaminant level goal (MCLG) for arsenic of 0 mg/L (40 CFR 141.51(b)).



- This schematic represents the operation of the full-scale arsenic removal pilot plant at the Paramount, CA system described earlier.
- The arsenic levels in the raw water range from 15  $\mu\text{g/L}$  to 20  $\mu\text{g/L}$ .
- The treatment train consists of:
  - Treating to remove particulates (sand) that could foul arsenic removal vessels;
  - Injecting chlorine for disinfection and to oxidize arsenite to arsenate;
  - Treating for manganese through four pyrolusite vessels;
    - The system was required to secure a National Pollutant Discharge Elimination System (NPDES) permit for the liquid waste stream generated during the backwash process.
  - Splitting the flow;
    - Half enters directly into the distribution system since the level of arsenic complies with the current 50  $\mu\text{g/L}$  MCL,
    - Half passes through the four pilot vessels, operated in parallel, each containing a different adsorptive media, before entering the distribution system.
  - Potential pH adjustment both before and after the arsenic removal media. Adsorptive media tend to perform better at a low pH.

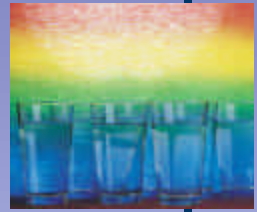
# Sampling for the New Arsenic Rule



- ◆ Standardized Monitoring Framework (SMF) for inorganic contaminants (40CFR141.23)
- ◆ At each entry point
- ◆ Ground water systems – one sample every three years
- ◆ Surface water systems – one sample every year

- The Final Arsenic Rule makes the arsenic monitoring requirements consistent with the Standardized Monitoring Framework (SMF) used for other IOCs.
  - The compliance date for requirements related to the revised arsenic standard is January 23, 2006. The 2005-2007 compliance period is the first monitoring period under the new MCL. Because the Final Arsenic Rule allows grandfathered data and waivers, systems should not have to deviate from their current monitoring scheme.
- The Rule requires systems to monitor at each entry point to the distribution system (EPTDS) except when:
  - The Primacy Agency has determined that conditions make another sampling point more representative of each source (40 CFR 142.11(a)(1) and 141.23(a)(1)).
  - The Primacy Agency has modified the monitoring requirements of a PWS that supplies water to one or more other PWSs where interconnection of the systems justifies treating them as a single system for monitoring purposes (i.e., consecutive PWSs) (40 CFR 141.29).
- Systems that use two or more sources that are combined before distribution (e.g. an intermittent source of supply or a supply affected by seasonal demand) must sample at each EPTDS during periods of normal operating conditions (i.e., when the water is representative of the water that usually enters the system) (40 CFR 141.23(a)(3)).
- In accordance with the standardized monitoring framework:
  - Ground water systems required to sample once every three years must complete sampling by December 31, 2007.
  - Surface water systems required to sample annually must complete sampling by December 31, 2006 (40 CFR 141.23(c)(1)).

# Rounding of Data



Same rules we're all used to..



5 goes up



4 goes down

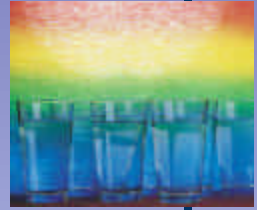


The arsenic "wrinkle"

Report data to the nearest 0.001 mg/L

- For the purposes of compliance determination, analytical results for arsenic will be reported to the nearest 0.001 mg/L (40 CFR 141.23(i)(4)).
- For purposes of rounding, the last digit should be increased by one unit if the digit dropped is 5 or greater. If the digit dropped is 4 or less, do not alter the preceding number.
  - For example, analytical results for arsenic of 0.0105 mg/L would round off to 0.011 mg/L, while a result of 0.0104 mg/L would round off to 0.010 mg/L.

# MCL Violations

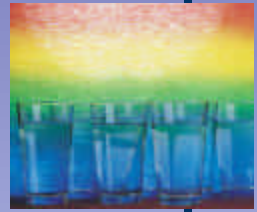


- ◆ Quarterly running annual average (RAA) at any sampling point exceeds the MCL= System violates MCL
- ◆ RAA at one sampling point exceeds MCL = System violates MCL

- If a system is collecting samples more than once a year (i.e., quarterly or more), then compliance with the MCL is determined by calculating a Running Annual Average (RAA).
- Although it is not clearly stated in the rule, it is EPA's position that systems triggered into increased monitoring will not be considered in violation of the MCL until they have completed one year of quarterly sampling. However, if any sample result causes the RAA to exceed the MCL at any sampling point (e.g., the sampling result is four times the MCL), the system is out of compliance with the MCL immediately.
  - The preamble to the Final Arsenic Rule (66 FR 7032) stated that "systems monitoring annually or less frequently whose sample result exceeds the MCL for any IOC in Sec. 141.23(c), or whose sample result exceeds the trigger level for any IOC listed in Sec. 141.24(f) or Sec. 141.24(h), must revert to quarterly sampling for that contaminant the next quarter." However, an editorial oversight retained the proposed regulatory language in 141.23(i)(2) while correctly stating the quarterly monitoring for compliance for organics in 141.24(f)(15)(i) and 141.23(h)(11)(i) in the Final Arsenic Rule. EPA intends to consistently implement compliance determination. Compliance determination for IOCs is the same as for organic contaminants.
  - For the purpose of calculating the RAA, the initial exceedance is considered to be the first quarterly sample.



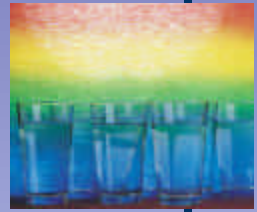
## MCL Violations (cont.)



- ◆ When sampling annually or less, an analytical result  $>$  MCL  $\Rightarrow$  quarterly
- ◆ Compliance with MCL determined after one year of quarterly monitoring, through RAA calculation

- When a system is sampling for arsenic annually or less frequently at any sampling point and has a monitoring result that exceeds the MCL, the system must increase the frequency of monitoring at that sampling point to quarterly sampling (40 CFR 141.23(c)(7)). Quarterly sampling must begin the quarter after the exceedance occurred and continue until the Primacy Agency determines that the system is reliably and consistently below the MCL (40 CFR 141.23(c)(7)&(8)).
- A system with multiple arsenic sampling points is required to conduct quarterly sampling only at the sampling point with a result that exceeded the MCL.
- Systems triggered into increased monitoring may not be in violation of the MCL until they have completed one year of quarterly sampling and the RAA is above the MCL. However, if any sample result will cause the RAA to exceed the MCL at any sampling point (e.g., the sampling result is four times the MCL), the system is out of compliance with the MCL immediately.

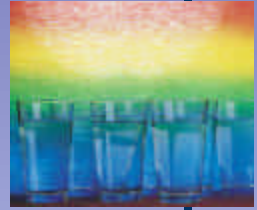
## MCL Violations (cont.)



- ◆ Any individual measurement that will cause RAA to exceed MCL = immediate noncompliance with the MCL
- ◆ If a system fails to collect required number of samples => calculate compliance with those collected
- ◆ < detection limit = zero for RAA

- An exceedance is not necessarily a violation. **Systems triggered into increased monitoring may not be in violation of the MCL until they have completed one year of quarterly sampling and the RAA is greater than the MCL.**
- Systems can be considered in violation when any sample collected during quarterly monitoring would result in the annual average exceeding the MCL (40 CFR 141.23(i)).
  - For example, a system that is monitoring quarterly would be in violation of the MCL if:
    - 1 sampling result is  $> 40 \mu\text{g/L}$ ;
    - 2 sampling results are  $> 20 \mu\text{g/L}$ ; or,
    - 3 sampling results are  $> 14 \mu\text{g/L}$ .
- If a system does not collect all required samples when compliance is based on a RAA of quarterly samples, compliance will be based on the RAA of the samples collected.
  - This closes a loophole that may have allowed system to use “0” (a value of zero) for any samples that they failed to collect, possibly avoiding an MCL violation.
  - Additional information on how to calculate a RAA appears later in this presentation.
- If a sample result is less than the method detection limit, zero will be used to calculate the annual average (40 CFR 141.23(i)(1&2)).
- Primacy Agencies have the discretion to delete results of obvious sampling errors (40 CFR 141.23(f)(3)) and require more frequent monitoring and confirmation samples (40 CFR 141.23(g)).

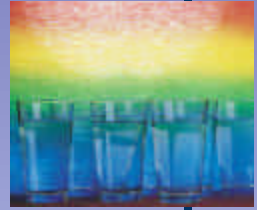
# Arsenic Monitoring



- ◆ Specified Sample Collection, Preservation and Holding Times at 40 CFR 141.23(k)(2)
- ◆ Analytical Methods at 40 CFR 141.23(k)(1)
  - -Withdrawal of two ICP-AES methods on 1-23-06 (detection limit near MCL)
- ◆ Laboratory Certification at 40 CFR 141.23(k)(3)

- Effective January 23, 2006, EPA has withdrawn approval of Method 200.7 and SM 3120B as analytical methods that can be used to determine the presence of arsenic in drinking water (40 CFR 141.23(k)(1)).
  - These methods are inadequate to reliably determine the presence of arsenic at the MCL of 0.01 mg/L (10 Fg/L).
- Additional information on analytical methods can be found on EPA's Web site at <http://www.epa.gov/safewater/methods/methods.html>
- The specified sample collection, preservation, and holding times for arsenic that appear at 40 CFR 141.23(k)(2) are:
  - Preservative: Concentration HNO<sub>3</sub> to pH <2;
  - Container: Plastic or glass (hard or soft); and,
  - Time: 6 months.
- In accordance with 40 CFR 141.23(k)(3), analysis shall only be conducted by laboratories that have been certified by EPA or the Primacy Agency. For more information on laboratory certification see EPA's Web site at <http://www.epa.gov/safewater/certlab/labcint.html>.

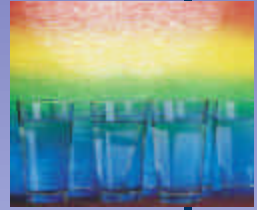
# Frequency of Sampling for the New Arsenic MCL



- ◆ At each entry point
- ◆ Ground Water (GW) sources –
  - Must collect one sample between 2005-2007
  - Then one every three years (SMF)

- The Rule requires that monitoring be conducted at all EPTDSs (40 CFR 141.23(a)(1)&(2)). However, the Primacy Agency can require monitoring and determine compliance based on a case-by-case analysis of individual drinking water systems.
- In accordance with the standardized monitoring framework (SMF), if compliance monitoring samples show arsenic levels below the MCL at each sampling point, ground water systems must continue to take routine samples once every three years at each sampling point.
  - Primacy Agencies have the discretion to delete results of obvious sampling errors (40 CFR 141.23(f)(3)) and require more frequent monitoring and confirmation samples (40 CFR 141.23(g)).
- Ground water systems are required to complete sampling by December 31, 2007.
  - The compliance date for requirements related to the revised arsenic standard is January 23, 2006. The 2005-2007 compliance period is the first monitoring period under the new MCL. Because the Final Arsenic Rule allows grandfathered data and waivers, systems should not have to deviate from their current monitoring schedule.

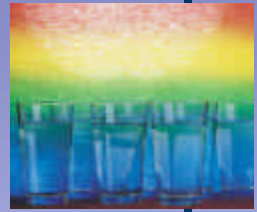
# Frequency of Sampling (cont.)



- ◆ Surface Water (SW) –
  - One sample between January 1, 2006 and December 31, 2006
  - One every year (SMF)
- ◆ State (Primacy Agency) may specify additional monitoring for GW or SW
- ◆ Grandfathered Data – State (Primacy Agency) decision

- In accordance with the standardized monitoring framework, if compliance monitoring samples show arsenic levels below the MCL at each sampling point, surface water systems must take annual samples at each sampling point unless more frequent samples are required (40 CFR 141.23(c)(1)).
- Surface water systems must complete sampling by December 31, 2006 (40 CFR 141.23(c)(1)).
- The Primacy Agency may require more frequent monitoring or confirmation samples for positive or negative results (40 CFR 141.23(g)).
  - Systems may not monitor more frequently than specified by the Primacy Agency to determine compliance unless they have applied to and obtained approval from the Primacy Agency.(40 CFR 141.23(h)).
- Primacy Agencies may allow systems to grandfather data under the following circumstances (40 CFR 141.23(c)(4)):
  - A ground water system collects its sample for the 2005-2007 compliance period between January 1, 2005, and January 23, 2006; OR,
  - A surface water system collects its sample for 2006 between January 1, 2006, and January 23, 2006; AND,
  - The data are consistent with the sampling/analytical methodology approved for use by this Rule; AND,
  - The analytical method detection limit is less than 0.008 mg/L (8 µg/L).
- If grandfathered data are used to comply with the compliance period and the analytical result is greater than 0.01 mg/L (10 µg/L), that system will be in violation of the revised MCL on the effective date of the Rule.

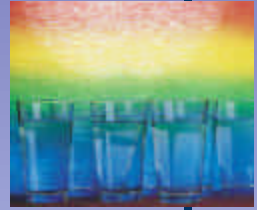
## Frequency of Sampling for Arsenic (cont.)



- ◆ According to 40 CFR 141.23(c)(7), if a system exceeds the MCL, it must immediately convert to quarterly monitoring
- ◆ Decrease to SMF with a Reliably and Consistently (R&C) determination and a minimum of:
  - GW 2-Q's compliance with MCL
  - SW 4-Q's compliance with MCL

- Any system that has a sampling point monitoring result that exceeds the MCL must increase the frequency of monitoring at that sampling point to quarterly sampling (40 CFR 141.23(c)(7)).
  - States have the flexibility to require confirmation samples.
  - If confirmation samples are required, the average of the initial sample and any confirmation samples will be used to determine whether an MCL exceedance occurred.
- Quarterly sampling must begin the quarter after the exceedance occurred and continue until the Primacy Agency determines that the system is reliably and consistently below the MCL (40 CFR 141.23(c)(7)&(8)).
- A Primacy Agency can make a reliably and consistently determination when:
  - A system is below the MCL; and,
  - A groundwater system has collected a minimum of two quarters of samples at the sampling point with the exceedance; or,
  - A surface water system has collected four quarters of samples at the sampling point with the exceedance (40 CFR 141.23(c)(8)).

## R & C Determination

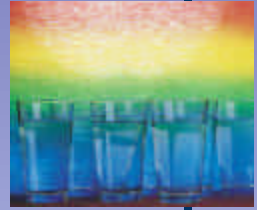


- ◆ Reliably & Consistently in Compliance with the MCL
  - Conditions established by Primacy Agency
  - Potential considerations

May be defined by minimum federal definition, but can be more

- To make a reliably and consistently determination, Primacy Agencies:
  - Must have sufficient knowledge to predict that the MCL will not be exceeded; and,
  - Should examine, among other things:
    - The quality of data;
    - The amount of data;
    - The length of time covered by the data;
    - Whether there are wide variations in the data; and,
    - Whether there are wide variations in results.
- Groundwater systems must collect a minimum of two quarters of samples at the sampling point with the exceedance, and surface water systems must collect four quarters of samples at the sampling point with the exceedance (40 CFR 141.23(c)(8)).
  - **NOTE:** This differs from the requirement for a compliance determination because compliance is based on the total number of samples collected.
- States can use additional criteria to make a reliably and consistently determination.

# Waiver-Monitoring Frequency

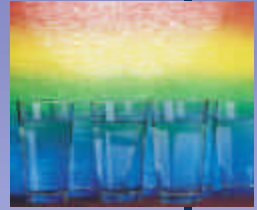


- ◆ Phase II/V
- ◆ 40 CFR 141.23(c)(2)
  - Not to exceed 9 years
  - State (Primacy Agency) option
  - Provided in writing

- Because the Final Rule incorporates arsenic into the SMF for IOCs, States may grant monitoring waivers of up to 9 years to systems.
- In deciding whether to grant a waiver, States should use all available information:
  - All previous monitoring data; the variation in reported concentrations; and other factors that may affect concentrations such as changes in pumping rates, system configuration, operating procedures, or stream characteristics (40 CFR 141.23(c)(5));
  - The quality and amount of data available, the length of time covered, the volatility/stability of the sampling results, and the proximity of results to the MCL; and,
  - Source water assessments currently being conducted by the States.
- Systems may be eligible for waivers if (40 CFR 141.23(c)(3)&(4)):
  - Ground water systems have data below the MCL from three three-year sampling periods. This includes data collected from three compliance periods between 1990 and 2007 that are consistent with the analytical methodology of the Arsenic Rule. Once a waiver is issued, the system must take at least one sample during each nine-year period.
  - Surface water systems have data below the MCL from three one-year sampling periods. This includes data collected between 1990 and 2007 that are consistent with the analytical methodology in the Arsenic Rule. Once a waiver is issued, the system must take at least one sample during each nine-year waiver period.

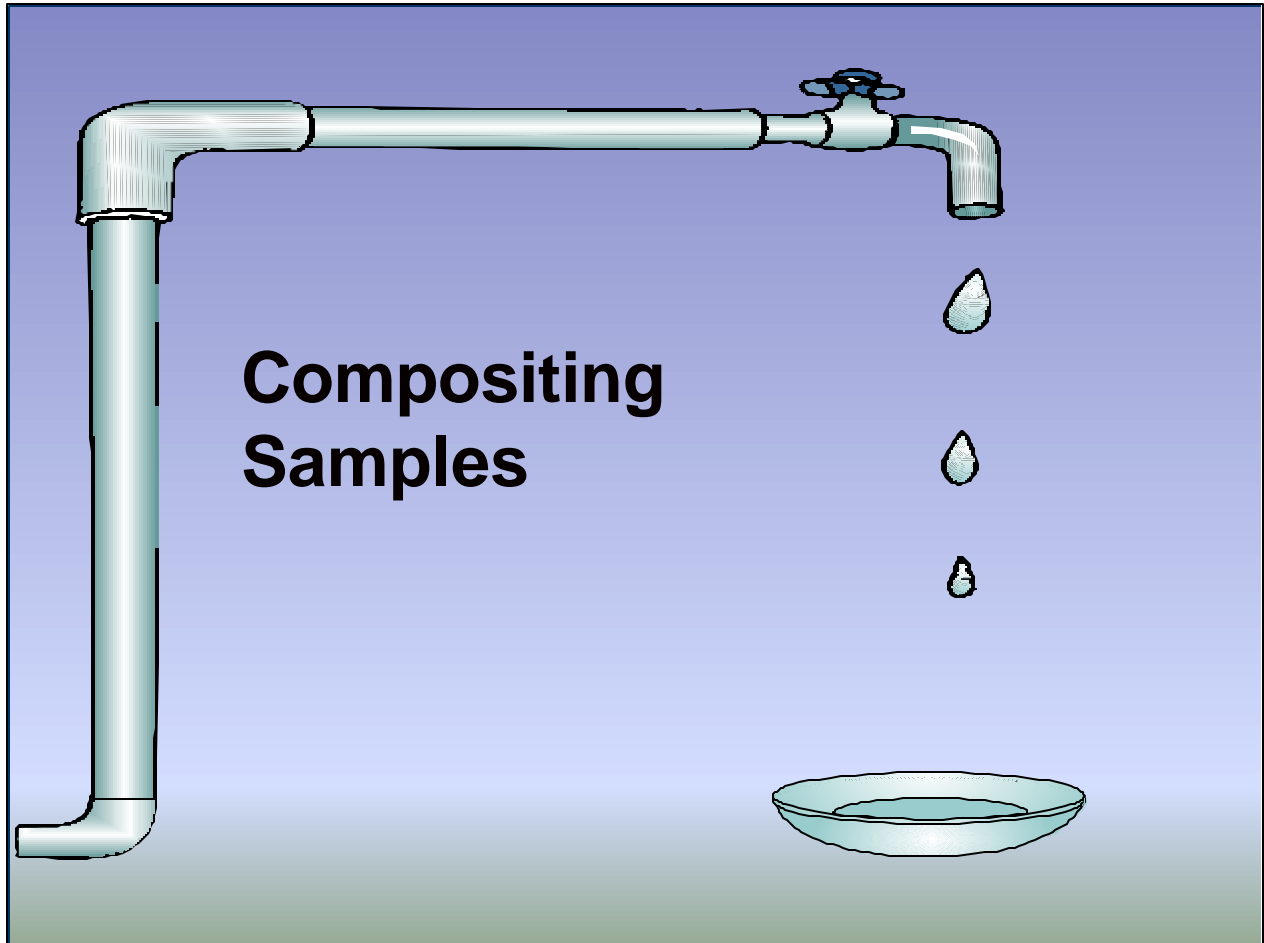


# Location of Monitoring Sites



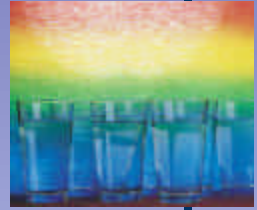
- ◆ One sample at every entry point
  - Primacy Agency may designate a sampling point that is more representative of each well or source, after treatment
- ◆ Alternate sampling point (combined source flows)
- ◆ Primacy Agency may allow compositing (40 CFR 141.23(a)(4))

- The Final Arsenic Rule requires systems to sample at each EPTDS (40 CFR 141.23(a)).
- Systems do not have to sample at each EPTDS to satisfy the monitoring requirements if:
  - The Primacy Agency has determined that conditions make another sampling point more representative of each source (40 CFR 142.11(a)(1) and 141.23(a)(1)).
  - The Primacy Agency has modified the monitoring requirements of a PWS that supplies water to one or more other PWSs and the interconnection of the systems justifies treating them as a single system for monitoring purposes (i.e., consecutive PWSs) (40 CFR 141.29).
- An alternative monitoring point is allowed under 141.23(a)(1) & (2). This could potentially be an option for systems that have seasonal sources. The Primacy Agency would have to approve any alternative monitoring scheme.
- Because compliance with the Rule is determined on an annual average, a water system may have a sampling point that exceeds 10 ppb (0.010 mg/L) at some time during the year and still be in compliance with the arsenic MCL. However, the monitoring program must show that the running annual average arsenic concentration at every point in the distribution system is less than the MCL. It is the water system's responsibility to demonstrate to the satisfaction of the State that all consumers receive water with annual concentrations below the MCL.
- States may also allow systems to composite samples to determine compliance with the revised MCL (40 CFR 141.23(a)(4)). Additional information on compositing appears in the next few slides.



- The Primacy Agency may reduce the total number of samples that must be analyzed by allowing the use of compositing. States may allow systems to collect up to five samples, which may be composited by the laboratory.
- States that allow compositing must use the methodology specified in 40 CFR 141.23(a)(4).

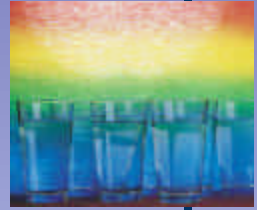
# Compositing



- ◆ At Primacy Agency discretion:
  - Temporal vs. spatial compositing
  - Up to 5 samples - Lab must composite samples
    - ◆ > 3,300 persons - composite within a system
    - ◆ ≤ 3,300 persons - composite among systems
  - ≥ 1/5 MCL?
    - ◆ Follow-up samples within 14 days
    - ◆ Discontinue compositing in future

- Both temporal and spatial compositing are allowed under the Arsenic Rule.
  - Temporal Compositing: Samples from a single entry point, taken during consecutive monitoring periods are combined by the lab.
  - Spatial Compositing: Samples from different entry points taken during the same monitoring period are combined by the lab.
- States may allow systems to collect up to five samples, which may be composited by the laboratory.
- If the arsenic level in the composited sample is greater than or equal to 1/5th the MCL (0.002 mg/L for the new Arsenic Rule), the system must take follow-up samples at each sampling point within 14 days (40 CFR 141.23(a)(4)).
  - If duplicates of the original sample taken from each sampling point used in the composite sample are available, the system may use these instead of resampling.
  - The duplicates must be analyzed and the results reported to the Primacy Agency within 14 days after completing analysis of the composite sample, provided the holding time of the sample is not exceeded.
  - Compliance determinations will be based on the follow-up sample result.
- EPA encourages States to discontinue allowing systems to composite samples if arsenic is detected at levels greater than 1/5th the MCL.

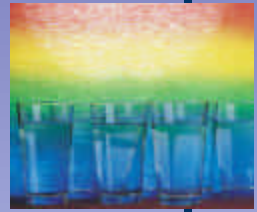
## Composite Samples for Arsenic (40 CFR 141.23(a)(4))



- ◆ Same requirements as other Phase II/V
  - State (Primacy Agency) Option
  - Up to 5 samples
  - Lab must physically composite
  - Analytical detection limit must be 0.002 mg/L (2 ppb) or better
  - Any detection in composite
    - ◆ = or > 2 ppb = analyze all within 14 days

- Composite samples from a maximum of five samples are allowed, provided that the detection limit of the method used for analysis is less than 1/5th the MCL.
- Compositing of samples must be done in the laboratory (40 CFR 141.23(a)(4)).
- The laboratory that analyzes the samples must use a method with a detection limit of 0.002 mg/L (2 µg/L; i.e., 1/5th the MCL) or lower (40 CFR 141.23(a)(4)).
  - After January 23, 2006, analytical methods using the ICP-AES technology may not be used because the detection limits for these methods are 0.008 mg/L (8 µ/L) or higher (40 CFR 141.23(k)(1)). This restriction means that the two ICP-AES methods (EPA Method 200.7 and SM 3120 B) may not be used for compliance determinations.
- If the five composited samples are greater than or equal to 1/5th the MCL (2 µ g/L), the system must take follow-up samples at each sampling point within 14 days (40 CFR 141.23(a)(4)).

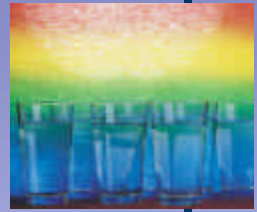
## Composite Samples (cont.)



- ◆ Population >3,300 persons, composite only within single system
- ◆ Population 3,300 or less persons
  - State (Primacy Agency) option
  - Among different systems
  - 5 sample limit
  - All the same rules

- In accordance with 40 CFR 141.23 (a)(4)(ii), if the system serves more than 3,300 persons, then the Primacy Agency can allow a system to composite samples from a single system.
- In systems serving fewer than 3,300 persons, the Primacy Agency may permit compositing among different systems provided the 5-sample limit, and the other requirements, are maintained.

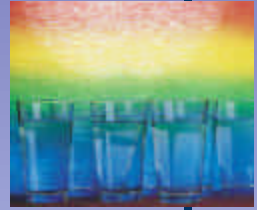
# Monitoring & Reporting Violations



- ◆ Failure to collect, analyze or report
  - Routine monitoring requirements of the Rule
- ◆ Failure to collect, analyze and report
  - Confirmation sample option/requirement

- A M/R violation occurs when a system:
  - Fails to collect the required number of samples (**including confirmation samples**) (40 CFR 141.23(i));
  - Fails to collect the required number of samples during the specified time frame (40 CFR 141.23(j));
  - Fails to ensure the samples are analyzed properly in accordance with 40 CFR 141.23(k)(1); or,
  - Fails to submit all required monitoring information (40 CFR 141.31).

# Reporting of Arsenic Monitoring Data

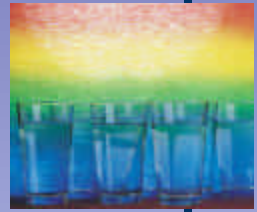


## ◆ Reporting Schedules

- System must report an MCL violation to the State (Primacy Agency) w/in 48 hours
- Systems must report monitoring results to State (Primacy Agency) within first 10 days of following month

- In accordance with 40 CFR 141.31:
  - “(a) Except where a shorter period is specified in this part, the supplier of water shall report to the Primacy Agency the results of any test measurement or analysis . . . within (1) the first ten days following the month in which the result is received, or (2) the first ten days following the end of the required monitoring period as stipulated by the Primacy Agency, whichever of these is shortest.”
  - “(b) The supplier of water shall report to the Primacy Agency within 48 hours the failure to comply with any primary drinking water regulation (including failure to comply with monitoring requirements) . . . .”

# Safe Drinking Water Information System (SDWIS) Reporting



- ◆ Arsenic requirements are no different from the existing IOC – Phase II/V
- ◆ Quarterly reports from State (Primacy Agency) to Region

- SDWIS reporting requirements for arsenic are the same as the requirements for the other IOCs.
- In accordance with 40 CFR 142.15, Primacy Agencies are required to submit quarterly reports to their EPA Region. The reports must consist of the following information:
  - New violations (including public notification violations) by systems;
  - New enforcement actions taken by the Primacy Agency during the previous quarter; and,
  - Notification of any new variance or exemption granted during the previous quarter.
    - The notice shall include a statement of reasons for the granting of the variance or exemption, including documentation of the need for the variance or exemption and the finding that the granting of the variance or exemption will not result in an unreasonable risk to health. The Primacy Agency may use a single notification statement to report two or more similar variances or exemptions.



# Uses of SDWIS-Fed Data

## Protect Public Health

- ◆ Prioritization for enforcement actions
- ◆ Public information
- ◆ Contaminant occurrence information
- ◆ Other?.....



- The Safe Drinking Water Information System/Federal (SDWIS/FED) is designed to support EPA's Office of Ground Water and Drinking Water (OGWDW) in monitoring compliance with the Safe Drinking Water Act.
- Compliance information is collected and stored in SDWIS/FED to aid public health efforts and to:
  - Help EPA monitor the safety of the nation's drinking water supply and assist in understanding the status of drinking water rule implementation;
  - Collect information on additional contaminants that may some day be regulated;
  - Report information to the public and to Congress on the status of public drinking water; and,
  - Help EPA and States determine when additional actions are necessary to protect drinking water.
- SDWIS can also provide information so that regulators can:
  - Target their enforcement efforts towards those violations that present the greatest risk to public health;
  - Provide well-balanced, complete data to the public; and,
  - Begin, or continue to, understand occurrence patterns in order to ensure public health protection through monitoring.

# When Do Primacy Agencies Report?

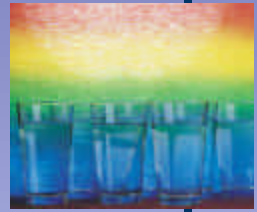
**45 Days**

**90 Days**

Federal Fiscal Quarter	Date to Region	Date to EPA HQ
1 (10/01-12/31)	2/15	4/01
2 (1/01-3/31)	5/15	7/01
3 (4/01-6/30)	8/15	10/01
4 (7/01-9/30)	10/15	1/01

- Primacy Agencies must report MCL and M/R violations to the EPA Region within 45 days after the end of the federal fiscal quarter in which the violation occurred.
- EPA Regions then have 45 days to report the violation to SDWIS/FED.
- Primacy Agencies that report directly to SDWIS/FED have a full 90 days to report.

# What Do Primacy Agencies Report?

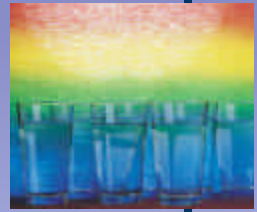


- ◆ Violations involving.....
  - Maximum Contaminant Levels (MCL)
  - Monitoring and Reporting (M/R)
  - Public Notice (P/N)
- ◆ Formal Enforcement Action Info
- ◆ Return To Compliance (RTC) Info

- There are three main types of violations that must be reported to SDWIS/FED:
  - MCL violations: the system has monitoring results that indicate the level of a contaminant in treated water is above the legal concentration;
  - M/R violations: the system failed to test for certain contaminants on the schedule required by EPA or the Primacy Agency, or failed to report results in a timely fashion; and,
  - Public notice violations: the system failed to send adequate public notice, or failed to send it within the required time frame.
- A Primacy Agency must also report information to SDWIS/FED when it commences a formal enforcement action. The Agency must report:
  - An enforcement ID number that uniquely identifies the enforcement action;
  - Information to link the enforcement action to a specific violation(s);
  - The type of enforcement action taken (e.g., administrative order, boil water order, etc.); and,
  - The date the enforcement action was taken.
- In addition, the Primacy Agency must inform EPA when that violation has been appropriately resolved. A Primacy Agency can make a RTC determination for:
  - An MCL violation, if the Agency has sufficient information to determine that the arsenic levels are reliably and consistently below the MCL and the minimum number of samples have been taken.
  - An M/R violation, when the system is reporting in accordance with requirements.

## Violation Reporting

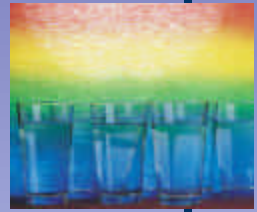
### What information is involved?



- ◆ A unique water system ID
- ◆ A unique violation ID number (includes a fiscal year identifier)
- ◆ A code identifying the contaminant involved in the violation (four digit)
- ◆ A code describing the type of violation (two digit)

- SDWIS/FED contains basic information on every public water system.
- In reporting a violation, the Primacy Agency must enter:
  - The nine character PWS ID number that uniquely identifies each public water system as well as the State or EPA Regional office that oversees its compliance with drinking water regulations;
  - A violation ID number that uniquely identifies the violation;
  - Which contaminant the violation is for; and,
  - The type of violation that has occurred (MCL, treatment technique, M/R, or public notification).

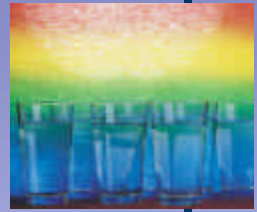
## Violation Reporting-What Info? (cont.)



- ◆ Calendar dates of the beginning and end of the monitoring period
- ◆ Analytical result (single or average sample in mg/l)
- ◆ The MCL value violated if Primacy Agency MCL is more stringent than federal

- The Primacy Agency must also enter:
  - The time period during which the violation occurred (i.e., the violation begin and end dates);
  - The date the Primacy Agency became aware of the violation (for certain contaminants); and,
  - The analytical result, which for arsenic can be a single result (e.g., an exceedance that is more than 4 times the MCL) or an average of analytical results.
  - In addition, if the Primacy Agency has promulgated an MCL (standard) that is more stringent than the federal standard, the Agency must report that MCL value to SDWIS/FED.

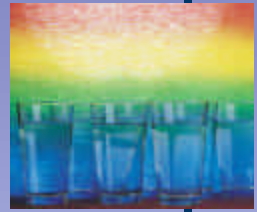
## Violation Reporting – more...



- ◆ For M/R violations: Major/minor flag or # samples required and # samples taken (Revision)
- ◆ If violations are reported by entry point (EP), then must also report source entity ID number (facility EP ID)

- Currently, M/R violations must be entered into SDWIS/FED as “major” or “minor” violations. Whether a violation is “major” or “minor” depends on the contaminant and the number of samples taken.
  - A “major” M/R arsenic violation is defined as a monitoring or reporting violation in which no samples were collected and/or reported.
  - A “minor” arsenic violation is defined as a monitoring or reporting violation in which some, but not all, of the required samples were collected and/or reported
- When Primacy Agencies report violations by entry point, they must also report the source entity ID number, which is the ID number of the system.

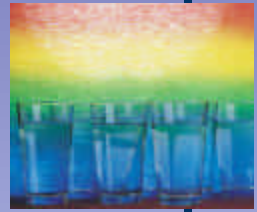
# SDWIS Identifiers for Arsenic



- ◆ Contaminant Code for Arsenic
- ◆ 1005

- The SDWIS/FED arsenic contaminant code for violation reporting is 1005.
- Note that the SDWIS/FED reporting requirements for the Final Arsenic Rule are no different from the existing reporting requirements for IOCs under the Phase II/V Rules.

## Violation Codes

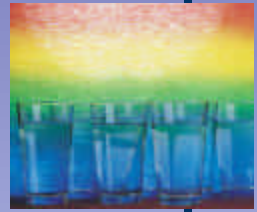


- ◆ 02 MCL, Average or RAA
- ◆ 03 Failure to Monitor/Report
- ◆ 04 Failure to M/R – confirm.
- ◆ 06 Failure to provide PN
- ◆ 08 Variance/Exemption/Other

- There are 5 types of violations associated with the Arsenic Rule. Systems can:
  - Violate the MCL;
  - Fail to monitor at the required location or frequency;
  - Fail to report monitoring results;
  - Fail to take or report confirmation samples;
  - Fail to provide adequate public notice; and,
  - Fail to comply with variance, exemption, or other compliance schedules.
- The Primacy Agency must report each of the violations listed above to SDWIS/FED using the listed violation code.



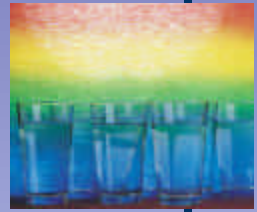
## The New MCL for Arsenic



- ◆ Rule effective on February 22, 2002
- ◆ 0.01 mg/L (10 micrograms per liter) (10 ppb)
- ◆ Reported to nearest 0.001 mg/L (1 ppb)
- ◆ Effective for enforcement on January 23, 2006

- EPA promulgated the Final Arsenic Rule on January 22, 2001. The effective date of the Rule (after two extensions) was February 22, 2002.
- The Final Arsenic Rule revised the current 0.05 mg/L (50 µg/L or 50 ppb) to 0.01 mg/L.
- In accordance with 40 CFR 141.23(i)(4), sampling results must be reported to the nearest 0.001 mg/L.
- The revised MCL becomes effective for enforcement on January 23, 2006.
  - New systems and systems using a new source of supply that begins operation after January 22, 2004, must demonstrate compliance with the revised MCL within a period of time specified by the Primacy Agency.

# Violation Begin / End Dates



- ◆ The violation begin and end dates reported to SDWIS/FED.....
  - DO NOT define the period of time a PWS is in violation
  - DO reflect the period of time during which monitoring was performed, OR, if monitoring was not completed, the period during which monitoring was to have been performed

- SDWIS/FED requires the Primacy Agency to enter violation begin and end dates.
- The violation beginning and end dates represent a monitoring period. They do not necessarily reflect the period of time of the violation. They reflect the period of time in which monitoring was, or should have been, performed.
  - For example, a PWS numerically exceeds the revised arsenic MCL in January of 2006. The system takes its required quarterly samples in April, July, and October of 2006. The RAA exceeds the revised MCL in October so the Primacy Agency reports 10/1/2006 – 12/31/2006 as the violation begin and end dates.
- The next slide includes additional information on how to determine SDWIS/FED violation begin and end dates

# Violation Begin/End Dates Examples

<b>Quarterly</b>	<b>1/1/YYYY--3/31/YYYY 卍</b> <b>4/1/YYYY--6/30/YYYY 卍</b> <b>7/1/YYYY--9/30/YYYY 卍</b> <b>10/1/YYYY--12/31/YYYY</b>
<b>Annually</b>	<b>1/1/YYYY--12/31/YYYY</b>
<b>Every 3 Years</b>	<b>1/1/YYYY--12/31/YYYY</b>
<b>Every 6 Years</b>	<b>1/1/YYYY--12/31/YYYY</b>
<b>Every 9 Years</b>	<b>1/1/YYYY--12/31/YYYY</b>

- For systems monitoring quarterly the violation begin and end dates span a three month time period:
  - January 1, YYYY - March 31, YYYY
  - April, 1, YYYY - June 30, YYYY
  - July 1, YYYY - September 30, YYYY
  - October, 1YYYY – December 31, YYYY
- For systems monitoring annually the violation begin and end dates are:
  - January 1, YYYY - December 31, YYYY
- For systems monitoring once every three years the violation begin and end dates span a 36 month time period:
  - January 1, Year - December 31, three years later
- For systems that have received a waiver and are therefore monitoring once every nine years, the violation begin and end dates are the beginning and end of the 9 year compliance cycle of the SMF:
  - January 1, Year - December 31, nine years later
- For example, assume a PWS is required to monitor for arsenic annually. If this PWS fails to conduct the required monitoring during the calendar year of 2008, this M/R violation must be reported to SDWIS/FED. The beginning date of the yearly monitoring period in this example would be 01/01/2008; the ending date of the monitoring period would be 12/31/2008.

# PWS vs Entry Point Reporting

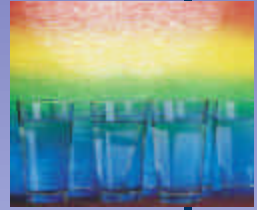
## Current SDWIS Options



- ◆ PWS Reporting
  - One violation
  - Per contaminant
  - Per violation type
  - Per monitoring period
  - Report the most severe
- ◆ Entry Point Reporting
  - One violation
  - Per contaminant
  - Per violation type
  - Per monitoring period
  - Report each entry point with EP ID #

- Primacy Agencies have the flexibility to report to SDWIS/FED on either a water system or entry point basis.
- NOTE: Some sources report that SDWIS/FED will convert EP information to System based information.
- For EPA purposes, each system can be in violation only one time for each type of violation, for each contaminant, and for each monitoring period -- even though the PWS may have had multiple violations of the same type and for the same contaminant during the same monitoring period at multiple sampling points.
  - In choosing which sampling point to report for the same type of violation, always report the more severe violation.
- When reporting by entry point, one violation can be reported per contaminant, per violation type, per monitoring period.
  - Each entry point should be reported with a separate ID number.

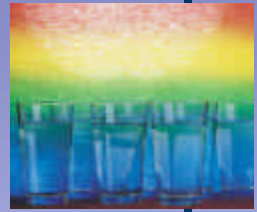
## EPA Preference



- ◆ EPA's preferred option is to collect data into SDWIS on a system level (rather than EP/SP Level)
- ◆ State (primacy agency) may elect to report by EP or SP

- EPA views violations on a system-specific basis; therefore, the current recommendation is that violations should be reported to SDWIS/FED by system only.
- However, the Primacy Agency has the discretion to choose reporting to SDWIS/FED on a system or entry point basis.
- If the Primacy Agency chooses to report on a system basis, it does not need to provide a source/entity ID at which the violation occurred.

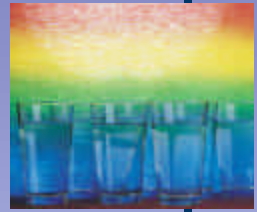
# A Hierarchy in SDWIS Reporting



- ◆ Condition: MCL & M/R coexist
- ◆ Condition:
  - Same parameter
  - Same monitoring period
- ◆ Decision:
  - Report MCL violation
  - Do not report M/R

- EPA views violations on a system-specific basis; therefore, violations should be reported to SDWIS/FED by system only (i.e., not by entry point or sampling point).
- For EPA purposes, each system can be in violation only one time for each type of violation, for each contaminant, and for each monitoring period -- even though the PWS may have had multiple violations of the same type for the same contaminant during the same monitoring period at multiple sampling points.
  - If more than one violation is reported to SDWIS/FED for the same water system, same contaminant, and same monitoring period, only the most severe will be retained.
- EPA considers MCL violations to be more severe than M/R violations.

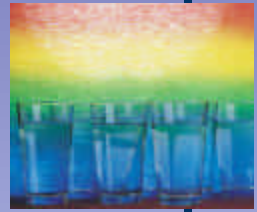
# M/R Violations-Current Major & Minor



- ◆ Major M/R
  - Failure to collect and/or report ANY samples during a specified time frame
- ◆ Minor M/R
  - Failure to collect and/or report some, but not all required samples during a specified time frame

- Currently, SDWIS/FED M/R violations are expressed with severity indicators of **major** or **minor**.
  - A major M/R arsenic violation is defined as a monitoring or reporting violation in which no samples were collected and/or reported.
  - A minor arsenic violation is defined as a monitoring or reporting violation in which some, but not all, of the required samples were collected and/or reported.
- When reporting at the system level, as recommended by EPA, systems with multiple sample points that conduct the required monitoring at some points but not all required sampling points will need to report such a violation coded as a “minor” violation. Systems that do not conduct any monitoring at any of the points will have violations coded as “major.”

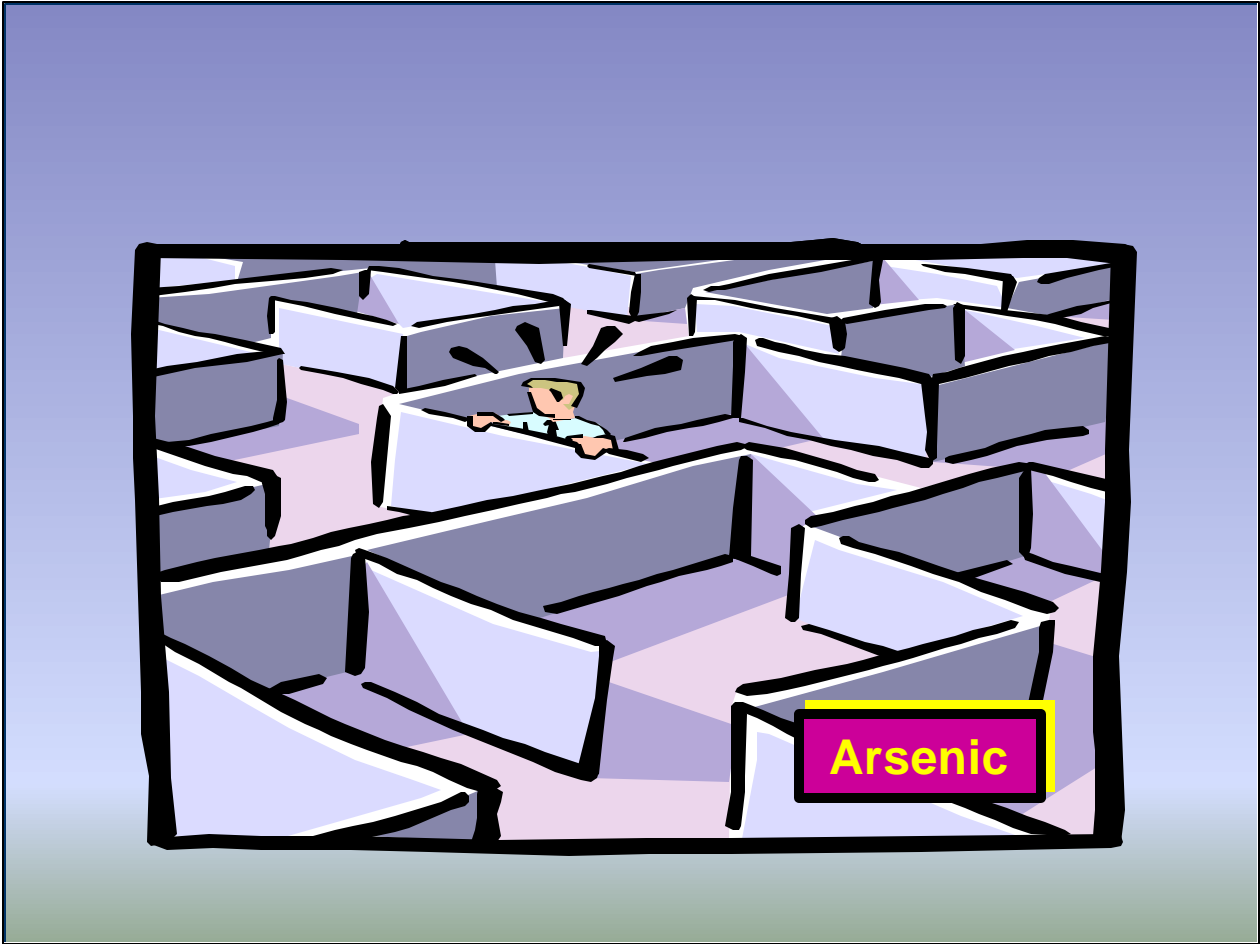
# Monitoring & Reporting Revision

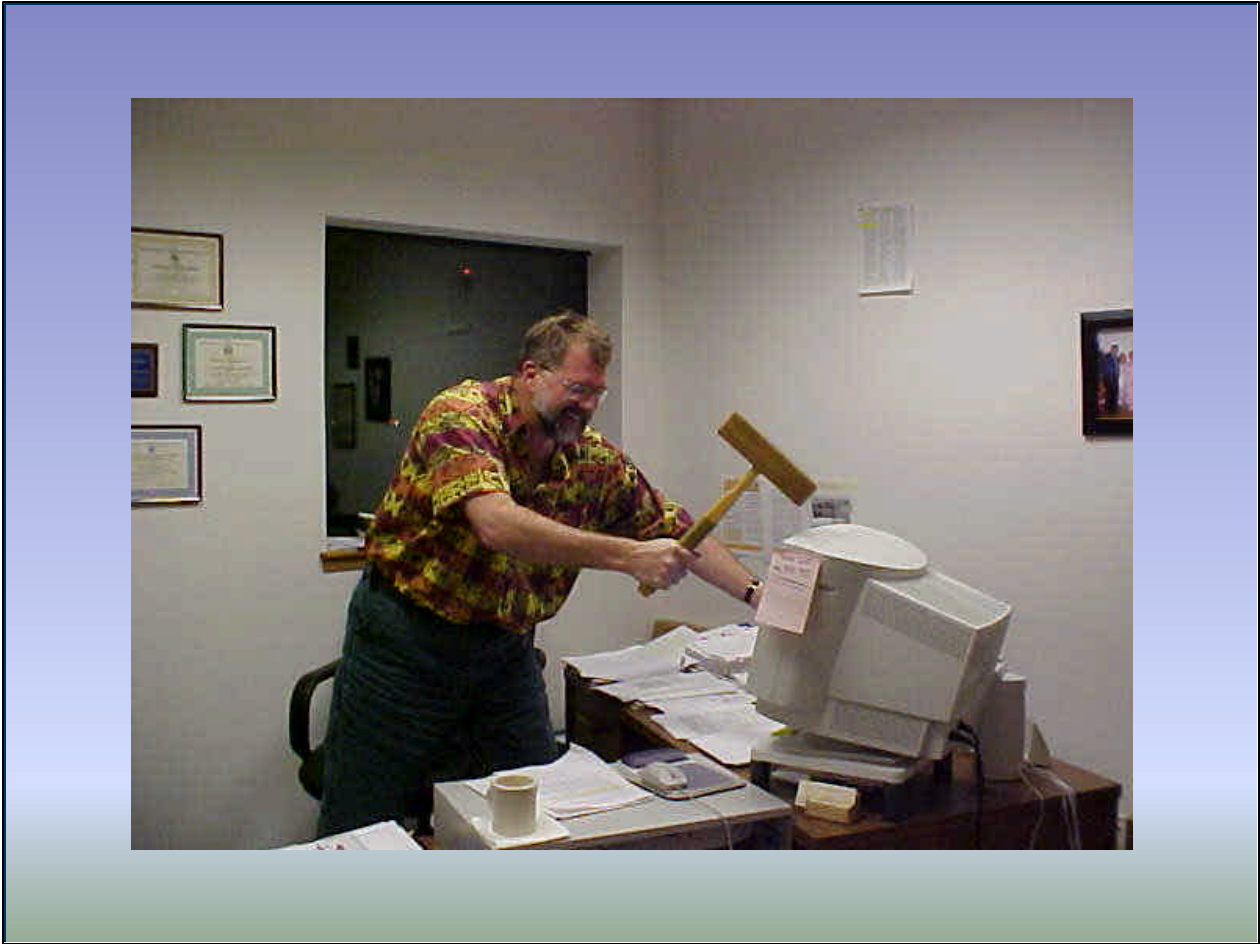


- ◆ Eliminate major & minor designations for M/R violations
- ◆ Report single M/R – that is, report a failure to take all of the required samples in a monitoring period as an M/R violation

- EPA is considering revisions to the “major” and “minor” designations for M/R violations. One option under consideration is to eliminate those designations and consider all M/R violations to be equal.
- Either a system completed all required monitoring and reporting tasks and is in compliance, or it did not complete all required M/R tasks and has incurred an M/R violation.
- If the major and minor designations are eliminated, all M/R violations would be reported to SDWIS/FED in the same manner.

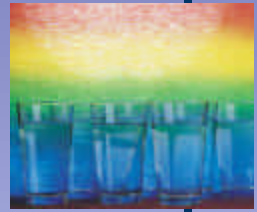






- While data analysis and reporting may be frustrating, the SDWIS/FED database provides EPA and Primacy Agencies with crucial information that can be used to increase public health protection.

# Exceedance vs. MCL vs. Significant Non-complier (SNC)



- ◆ A single quarterly sample exceeding the MCL may not violate the MCL
- ◆ A (single) MCL violation may not result in an SNC designation
- ◆ SNC is a framework for consistent compliance & enforcement response

- A single MCL exceedance may not result in an MCL violation.
  - Systems triggered into increased monitoring may not be in violation of the MCL until they have completed one year of quarterly sampling and the RAA is greater than the MCL.
    - However, systems can be considered in violation of the MCL when any sample collected during quarterly monitoring would result in the RAA exceeding the MCL (40 CFR 141.23(i)).
- Likewise, a single MCL violation may not result in a system being designated an SNC.
- The SNC designation provides a framework for consistent compliance and enforcement activities among Primacy Agencies, when similar patterns of similar violations are observed.

# SNC

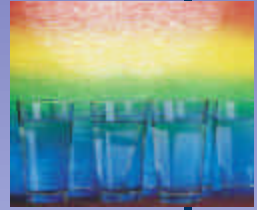
## Significant Non-Complier

- ◆ Determined for each parameter
- ◆ Determined at the end of every quarter
- ◆ For previous 12 months
- ◆ Resolved with RTC



- Primacy Agencies are required to report SNCs to SDWIS/FED.
- SNC status is determined for MCL and M/R violations at the end of each quarter.
- To determine which systems are SNCs, Primacy Agencies will review the previous 12 months of arsenic data to determine whether:
  - A system had a monitoring result twice the arsenic MCL;
  - A system monitoring once a year or more failed to monitor or report analytical results for arsenic in two consecutive monitoring periods; or,
  - A system monitoring less than once a year failed to monitor or report the analytical results for arsenic.
- Any of the above situations would lead to a system being designated as an SNC.
- The SNC designation provides a framework for consistent compliance and enforcement activities among Primacy Agencies, when similar patterns of similar violations are observed.
- SNC status remains until the Primacy Agency makes a RTC determination. Additional information on RTC is included later in this presentation.

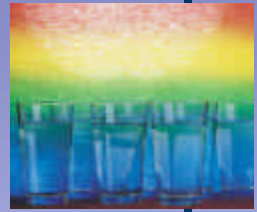
## SNC for Arsenic - MCL



- ◆ Exceeds unreasonable risk to public health value (if defined) or 2 x MCL
  - From 2002 to 1/22/04, one analytical result that is twice the MCL (2 X 0.05 mg/L or 0.100 mg/L)
  - From 1/22/04 to 1/23/06, a running annual average that exceeds 2X the MCL (0.100 mg/L)
  - After 1/23/06, a running annual average that exceeds 2X the revised MCL (0.020 mg/L)

- EPA's Office of Enforcement and Compliance Assurance (OECA) is in the process of developing new guidance to update its SNC definitions. At this time, EPA is using the following definitions to remain consistent with the Radionuclides Rule and OECA's draft guidance.
- A system is characterized as a SNC if it has a monitoring result twice the MCL, which for arsenic would be 0.02 mg/L (20 Fg/L)
- The January 23, 2006, compliance date for the revised arsenic MCL and the January 22, 2004 effective date for complying with clarifications to monitoring requirements, impact the SNC definition.
  - From 2002 to January 22, 2004, one analytical result that is twice the MCL (2 X 0.05 mg/L or 0.100 mg/L) constitutes a SNC.
  - On January 22, 2004, the clarifications to compliance requirements move arsenic into the standardized monitoring framework. By doing so, compliance is based on a running annual average.
    - Therefore, from January 22, 2004 to January 23, 2006, a running annual average that exceeds 2X the MCL (2 X 0.05 mg/L or 0.100 mg/L) constitutes a SNC.
  - After January 23, 2006, a running annual average that exceeds 2X the revised MCL (2 X 0.010 mg/L or 0.020 mg/L) constitutes a SNC.

## SNC for Arsenic – M & R



- ◆ A system monitoring once a year or more frequently is an SNC if:
  - It fails to monitor or report analytical results for arsenic for TWO CONSECUTIVE monitoring periods
- ◆ A system monitoring less than once a year is an SNC if:
  - It fails to monitor or report the analytical results for arsenic in one monitoring period

- OECA is in the process of developing new guidance to update its SNC definitions. At this time, EPA is using the following definitions to remain consistent with the Radionuclides Rule and OECA's draft guidance.
- A system monitoring once a year or more frequently is characterized as a SNC if it fails to monitor or report analytical results for arsenic for two consecutive monitoring periods.
- A system monitoring less than once a year is characterized as a SNC if it fails to monitor or report the analytical results for arsenic in one monitoring period.



- Compliance determination for all IOCs, synthetic organic chemicals (SOCs), and volatile organic chemicals (VOCs) is now consistent with the compliance determination for arsenic described here (40 CFR 141.24 (f)(15)&(h)(11)).
  - The preamble to the Final Arsenic Rule (66 FR 7032) stated that “systems monitoring annually or less frequently whose sample result exceeds the MCL for any IOC in Sec. 141.23(c), or whose sample result exceeds the trigger level for any IOC listed in Sec. 141.24(f) or Sec. 141.24(h), must revert to quarterly sampling for that contaminant the next quarter.” However, an editorial oversight retained the proposed regulatory language in 141.23(i)(2) while correctly stating the quarterly monitoring for compliance for organics in 141.24(f)(15)(i) and 141.23(h)(11)(i) in the Final Arsenic Rule. EPA intends to consistently implement compliance determination. Compliance determination for IOCs is the same as for organic contaminants.

# Compliance Determinations

- ◆ Each Sampling Point
- ◆ Round to nearest 0.001 mg/L
- ◆ MCL exceedance vs. violation
- ◆ Violations- Any Sampling Point
  - Annual average
  - Divide by number of quarterly samples
  - With a result > four times the MCL or combination of results that would cause exceedance of annual average



- States must determine compliance based on the analytical result(s) obtained at each sampling point (40 CFR 141.23(i)).
- For the purposes of compliance determination and monitoring requirements, the Primacy Agency must report results to the nearest 0.001mg/L (40CFR 141.23(i)(4)).
- A system is in violation of the revised Arsenic MCL if:
  - Any one sampling point exceeds the MCL and then, after four consecutive quarterly samples, the RAA exceeds the MCL.
  - Any result causes the RAA to exceed the MCL at any sampling point (for example, the analytical result is greater than four times the MCL or two analytical results are each greater than twice the MCL).
- An exceedance is not necessarily a violation. According to EPA, **systems triggered into increased monitoring will not be considered in violation of the MCL until they have completed one year of quarterly sampling** unless any sample collected during quarterly monitoring would result in the annual average exceeding the MCL (40 CFR 141.23(i)). For the purpose of calculating the RAA, the initial exceedance is considered to be the first quarterly sample.



## Running Annual Average Calculation Example: Arsenic (Contam. Code 1005)



- ◆ MCL is 0.01 mg/L
- ◆ Any result  $> 4 \times \text{MCL}$
- ◆ Any SUM of results  $> 4 \times \text{MCL}$
- ◆ Any avg  $> 0.01 \text{ mg/L}$

- A system can be in violation of the revised arsenic standard in a number of ways. The system would be in violation if, at any entry point to the distribution system, it has:
  - A sampling point that exceeds the MCL and then, after four consecutive quarterly samples, the RAA exceeds the MCL;
  - Any combination of results causing the RAA to exceed the MCL at any sampling point (for example, two analytical results are each greater than twice the MCL); or,
  - Any one sampling result greater than  $42 \mu\text{g/L}$ .  
( $42 \div 4 = 10.5$  rounded to  $11 \mu\text{g/L}$ )

## Example: Running Annual Average

Date	Result	
Oct. 08	Initial Result	20 Fg/L
	Confirmation	22 Fg/L
Jan 09	18 Fg/L	
Apr 09	Failure to sample	
Jul 09	19 Fg/L	

<b>Average = 21</b>
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<b>M &amp; R violation</b>
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<b>MCL Violation</b>	<b>19 Fg/L</b>
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$\frac{21 + 18 + 19}{3} = 19.33$
----------------------------------

- This slide presents an example of how to determine a RAA.
  - This ground water system took its sample during the 2008-2010 compliance period.
  - After reporting an initial result of 0.020 mg/L, the Primacy Agency required the system to take a confirmation sample.
  - Upon receiving the confirmation sample result of 0.022 mg/L, the Primacy Agency averaged the two results to calculate a value for that quarter (0.021 mg/L).
  - Because the average was 0.021 mg/L, the system was required to begin quarterly monitoring. The system took a sample in the January-March quarter but failed to sample the following quarter. At this point, the system has committed a M/R violation.
  - The system sampled again in the July-September quarter.
- To calculate the RAA, the Primacy Agency:
  - Added 21 (the average of the initial exceedance and the confirmation sample), 18 (result from quarter 2), and 19 (result from quarter 4).
  - Because the system failed to sample in quarter 3, the Primacy Agency divided the sum of the results by 3, which was the number of samples taken.
- This system has an MCL violation since the RAA is 0.019 mg/L.
- Please note that after the system failed to sample in the 3<sup>rd</sup> quarter, the determination could have been made that the MCL violation was present, since the largest denominator for the four quarter RAA, absent data for the 3<sup>rd</sup> quarter would be 3. (21+ 18 + any value = 39+)
- ( any number greater than  $39 \div 3 = 13 = \text{MCL violation}$ )

## Example: 4x MCL

Date	Result	
Oct. 08	Initial Result	22 Fg/L
	Confirmation	20 Fg/L
Jan 09	23 Fg/L	
Apr 09	Future sample assume ND	
Jul 09	Future sample assume ND	

**Average = 21  
Fg/L**

**MCL Violation**

**11**

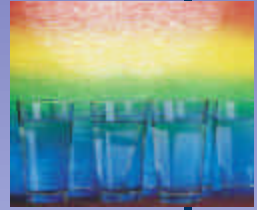
$$\frac{21 + 23 + 0 + 0}{4} = 11$$

- This next example shows how a system can be in violation of the revised arsenic MCL before it has taken 4 quarterly samples.
  - This ground water system took its sample during the 2008-2010 compliance period.
  - After reporting an initial result of 0.022 mg/L, the Primacy Agency required the system to take a confirmation sample.
  - Upon receiving the confirmation sample results of 0.020 mg/L, the Primacy Agency averaged the two results to determine if the system would need to begin quarterly monitoring for arsenic at that sampling point in the next quarter.
  - Because the average was 0.021 mg/L, the system began quarterly monitoring.
  - The result of the sample taken during the January-March quarter was 0.023 mg/L.
  - At this point, the Primacy Agency calculates the RAA to determine compliance. It creates the “best-case scenario” for the system by assuming the results from the next two quarters are non-detects.
  - The system has an MCL violation after the second quarter since the average of the quarterly results (using 0 for the non-detects and dividing by 4) is 0.011 mg/L.
- The “best-case scenario” asks: If all of the system’s future samples are non-detects, will this system still, mathematically be in violation of the MCL (i.e., will the average of the sampling results and the assumed non-detects be greater than the MCL)?
- The Primacy Agency can use this “best-case scenario” when the system has not taken 4 quarterly samples. After a system has taken 4 quarterly samples, the Primacy Agency must use the results from the most recent 4 quarters to determine the RAA. If a system fails to sample, the Primacy Agency must divide by the number of samples taken. Non-detect (i.e., “0”) can only be used for future sampling events, not for missed samples.



- These sample bottles contain the four media used at the Paramount, California full scale pilot plant. In order from left to right they are:
  - Granular ferric hydroxide;
  - Iron-coated activated alumina;
  - Modified activated alumina; and,
  - Conventional activated alumina.

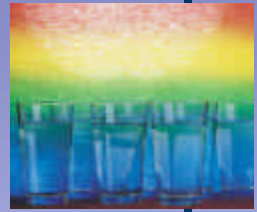
# Enforcement Issues



- ◆ In response to identification of violations, State Compliance and Enforcement plans should be implemented, based upon factors determined by those entities, without regard for SNCs
- ◆ SNC is a framework to ensure consistent responses to defined patterns of violations and not intended to define State Compliance & Enforcement programs

- Significant noncompliance presents a potentially serious public health concern (as opposed, for example, to a single monitoring violation). The SNC designation provides a framework to ensure consistent responses to a defined pattern of violation.
- The SNC designation does not always provide a method of prioritization for enforcement actions. While a SNC is always a repeat offender, single violations, or groups of violations may present higher enforcement action than SNC-designated systems. Primacy Agencies, while required to commence enforcement against SNCs, should prioritize violations based upon factors determined by those entities to be of the utmost importance.

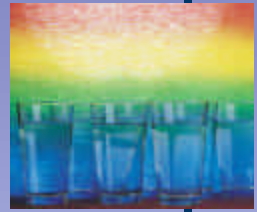
## Enforcement Issues (continued)



- ◆ States may, and are encouraged to, track compliance and enforcement actions in SDWIS
- ◆ Regions must track violations that define SNCs in SDWIS, along with appropriate enforcement actions, linked to the violations

- SDWIS/FED can provide Primacy Agencies with a detailed list of violations for data management and enforcement purposes.
- Regions are required to track SNCs and enforcement actions in SDWIS/FED.
- Formal enforcements must be linked to the specific violation(s) they address.

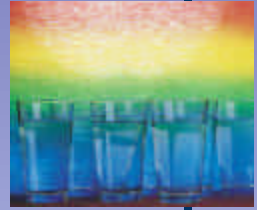
## Enforcement Issues (continued)



- ◆ The Primacy Agency must take such actions that are necessary to resolve patterns that define SNCs
- ◆ EPA will, subject to specified conditions, take actions to resolve SNCs, when States do not do so
- ◆ SDWIS & SNC function as intended, but do not substitute for Primacy Agency Compliance & Enforcement Programs

- In taking enforcement actions, the first response to a violation may be an informal action (e.g., technical assistance or reminder letter). When a PWS does not return to compliance or incurs additional violations, formal enforcement action should be initiated. When violations pose an immediate risk to public health, the Primacy Agency should proceed directly to a formal action.
- EPA will take action to resolve SNCs when the Primacy Agency fails to either take action or resolve the SNC.

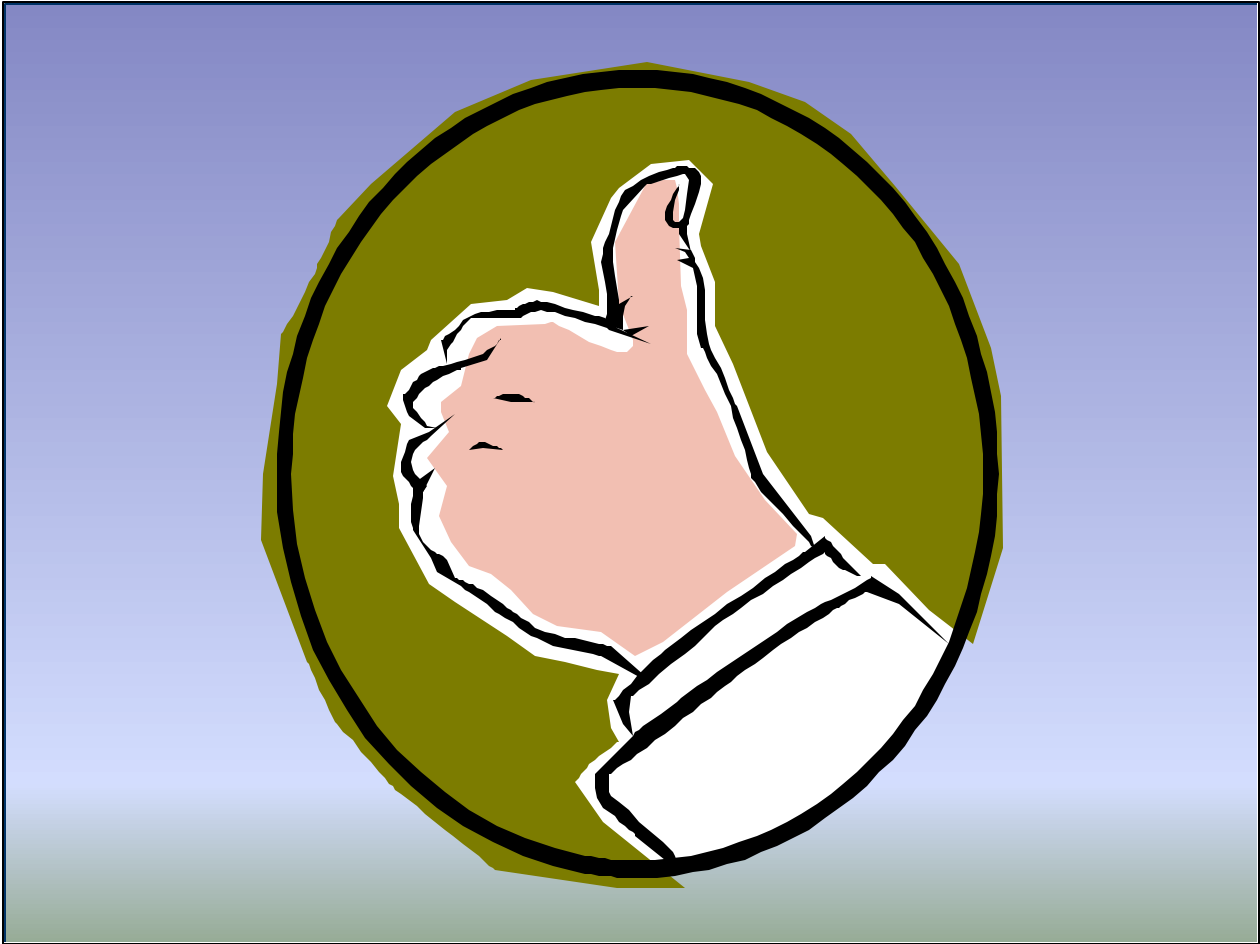
# Return to Compliance (RTC) Determinations



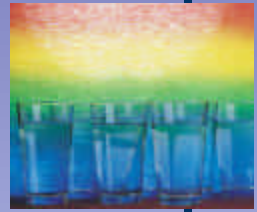
- ◆ MCLs (maximum contaminant levels)
- ◆ M/R (monitoring & reporting)
- ◆ PN (public notices)

- When a MCL or M/R violation has been incurred, it must be reported to SDWIS/FED. In addition, the Primacy Agency must inform EPA when that violation has been appropriately resolved.
- In addition, all formal enforcement actions taken against violations must be reported to SDWIS/FED.
- In SDWIS/FED both “returned to compliance” and formal enforcement actions must be linked to the specific violation(s) they address. The following describes the appropriate ways in which enforcement and follow-up actions, formal and informal (including returned to compliance), may be linked to Arsenic Rule violations:
  - Associated Violation IDs (Y5000) - FY & VIOLATION ID NUMBER.
    - Entering the specific violation ID(s) to which the enforcement action is related will establish a link between the enforcement record and each violation record matching the specific violation ID.
  - Associated Violation Contaminant Groups (Z5000) - TYPE, CONTAMINANT, Monitoring PERIOD BEGIN DATE (MO, DAY & YR)
    - Entering the arsenic violation type code, the contaminant code, and the begin date of the monitoring period will establish a link between the enforcement action and all arsenic violations which exactly match the enforcement link data.





## A PWS has Returned to Compliance When:

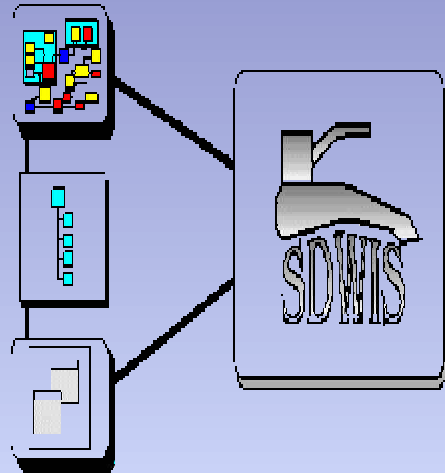


- ◆ M/R: System is monitoring and reporting in accordance with the criteria for compliance
- ◆ PN: System has provided the necessary public notices
- ◆ MCL: Appropriate Enforcement
  - Measurement in compliance

- When a MCL or M/R violation has been incurred, it must be reported to SDWIS/FED. In addition, the Primacy Agency must inform EPA when that violation has been appropriately resolved.
- RTC is defined for an MCL violation as subsequent monitoring results are below the MCL.
  - The Primacy Agency can return a system to compliance when it has sufficient knowledge to predict that MCL will not be exceeded (i.e., the system has taken the required number of samples and the results are reliably and consistently below the MCL).
  - Ground water systems must take a minimum of 2 quarterly samples and surface water systems must take a minimum of 4 quarterly samples.
  - **NOTE:** This differs from the requirement for a compliance determination because compliance is based on the total number of samples collected.
- RTC is defined for an M/R violation as the system reporting in accordance with requirements.
- RTC for public notification violations occurs when the system has provided the necessary public notices.

## SDWIS/FED Website

- ◆ To obtain additional information, training schedules, documentation, or related software, log on to the SDWIS/FED website at:  
[www.epa.gov/safewater/sdwisfed/sdwis.htm](http://www.epa.gov/safewater/sdwisfed/sdwis.htm)
- ◆ Or contact SDWIS FED User support at
  - 703-292-6121



- This portion of EPA's SDWIS web site provides a significant amount of historical as well as current and planned information concerning SDWIS/FED. For example, users may browse through or download the most current copies of various SDWIS/FED user documents, a variety of rule reporting guidance documents, and general documents describing the operations of SDWIS/FED software. Users may also download copies of SDWIS/FED PC-based software, view current and proposed event schedules, become familiar with current SDWIS/FED news and events, submit information, and determine the status of problems encountered with SDWIS/FED software and reports.
- In addition, EPA's Safe Drinking Water Hotline at 1-800-426-4791 may be able to answer questions concerning SDWIS/FED.



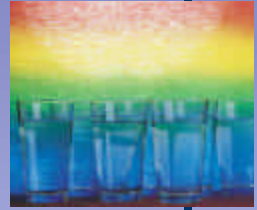
## In Conclusion.....



- ◆ Questions (tag team answers)
- ◆ Comments (we'll take notes)
- ◆ Criticism (heaven forbid)
- ◆ Offers to reconstruct the self-esteem of the presenter (brand new idea)

- This presentation is part of EPA's Arsenic Rule Implementation Training. Discussion, questions, and comments were encouraged throughout the presentation.

## For more info regarding the new arsenic MCL



- ◆ Call the Safe Drinking Water Hotline at:
  - 1-800-426-4791
- ◆ On the web at:
  - <http://www.epa.gov/safewater>, or
  - <http://www.epa.gov/safewater/arsenic.html>

- For more information on the Final Arsenic Rule, call the Safe Drinking Water Hotline at 1-800-426-4791.
- In addition, EPA has posted on its Web site several documents that provide a history of EPA's rulemaking efforts related to arsenic, various technical and factual information associated with those efforts, and Arsenic Rule implementation materials.

**Thanks for Your Attention!**

