

V. Public Water Supply

This Part presents information regarding the status of drinking water in Colorado. The first section presents information on drinking water supplies and the second presents the Colorado Drinking Water Annual Reports on Violations for calendar years 1999 and 2000.

A. Public Water Supplies

Under the Colorado Primary Drinking Water Regulations, public water supplies are required to monitor for the presence of a number of contaminants, comply with established Maximum Contaminant Levels (MCL), and provide the necessary treatment to assure that the water supply is continually safe to drink. Public water systems (PWSs), by definition, serve 25 or more persons at least 60 days per year. PWSs are divided into three groups, based on the number of people served and the length of time these people are served by the system each year. The three types of PWSs are defined as follows:

- **Community Water System:** serves 25 year-round residents or has at least 15 service connections used by year-round residents
- **Non-Transient Non-Community Water System:** regularly serves at least 25 of the same people over six months per year.
- **Transient Non-Community Water System:** serves at least 25 people per day for more than 60 days per years and does not meet any of the other definitions.

There are 1781 drinking water supply systems in Colorado. Roughly 46% of these systems serve communities, with the remainder serving "non-community" facilities, such as campgrounds, motels, restaurants, schools, workplaces, etc. The drinking water systems are regulated via the administrative programs, as described previously. The following table shows the number of community and non-community systems in each of the 4 administrative basins:

	Transient Non-Community System	Non-Transient, Non-Community System	Community Systems	Total
Arkansas / Rio Grande	36	207	217	460
Lower Colorado	11	117	150	278
South Platte	96	339	318	753
Upper Colorado	21	128	141	290
Total	164	791	826	1781

The WQCD implements the regulations that affect PWSs. Systems that serve fewer people (or private systems) are not subject to the regulations. The PWSs' primary responsibility under these regulations is to continuously provide their customers with safe drinking water. As part of this responsibility, systems must monitor their drinking water for specified contaminants and report that information to the Division. Public water systems whose source water contains contaminants at concentrations greater than that allowed by the *Colorado Primary Drinking Water Regulations* must treat their water to comply with the regulations. Since 1999, PWSs have also had to report the results of their monitoring efforts to the public through EPA-required Consumer Confidence Reports (CCRs). The CCRs must be sent to each PWS customer annually (included in the water bill, published in the newspaper, or distributed door to door, etc.) and must summarize all water quality violations and all contaminants detected by the PWS over the last year.

The frequency of monitoring required of a PWS is dependent upon the type of water system, the water source, and the presence of contaminants in the area surrounding the source water. All PWSs must test for and comply with standards for microbiological contaminants. Transient non-community PWSs, (found at some restaurants, campgrounds, etc.), in addition to monitoring for microbiological contaminants, monitor for nitrate, as this is the only chemical contaminant with acute health affects significant to a user population having a short-term exposure to this water. Conversely, non-transient non-community PWSs, such as schools, businesses, etc., and community systems (25 or more residents) must monitor for all chemical contaminants because of the potential long-term exposure of the water users. PWSs using surface water have different monitoring requirements than those using ground waters, due to the different types of contaminants that the water sources may contain.

Tables 2 and 3 list the communities in Colorado that use either surface or ground water as their main supply (as determined from the state's drinking water files). In addition to the communities listed, many small PWSs using ground water provide water to mobile home parks and outlying subdivisions. The use of surface water or ground water for public supply is usually dictated by the size of the community and its geographical location. Metropolitan areas normally use surface water sources when available. PWSs in smaller communities, where treatment budgets are low, sometimes use deep wells, infiltration galleries or wells placed in alluvium adjacent to a stream to collect ground water. These systems, which use the natural geologic media to filter out solids and bacteria and restrict movement of contaminants through absorption, are especially popular in the mountains and the western plains.

Where surface water quality is poor or supplies limited, as in the eastern plains and the San Luis Valley, PWSs generally use only ground water sources. Twenty-nine of the state's 63 counties rely solely on ground water for their public water supplies.

Numerous private water systems also exist in the state. These serve entities such as private residences, churches, and small businesses, where the number of users is small or the supply is not continuous. Such systems do not qualify as a PWS and are therefore not required to monitor or report under the *Colorado Primary Drinking Water Regulations*.

The number of private systems relying upon ground water is large, but unknown. While the number of active private wells in Colorado is far greater than the roughly 2100 active public water

systems, the vast majority of the residential population in Colorado receives its drinking water from regulated public water systems. Colorado's inventory of public water systems indicates that approximately four million of the state's 4.5 million residents are provided drinking water from regulated public water systems.

In addition to delivering a continuous supply of safe drinking water, public water systems are encouraged to protect the quality of their drinking water sources for the future. Towards this end, the WQCD supports the Source Water Assessment and Protection (SWAP) program. The program consists of two phases: assessment and protection. The assessment phase requires states to evaluate how vulnerable their public water systems are to various potential sources of contamination. Once completed and the results made available to the public, public water systems are encouraged implement protection plans for their source water area. The state has included the following programmatic elements in its SWAP program:

B. Source Water Assessment and Protection (SWAP)

1. Introduction

Source Water Assessment and Protection (SWAP) was designed as a preventive program to protect states' drinking water supplies from potential contamination. The program consists of two phases: the assessment phase and the protection phase. The assessment phase requires states to evaluate how vulnerable their public water systems are to various potential sources of contamination. Once the assessment phase has been completed and the results have been made available to the public, public water systems and their communities are encouraged to develop and implement protection plans for their source water area.

2. Authority, Funding and Program Requirements

The SWAP program emerged with the 1996 amendments to the federal Safe Drinking Water Act requiring each state to develop and implement a Source Water Assessment and Protection program. According to guidance developed by the EPA, each state was required to include the following elements in its program plan:

- Measures used in involving the public in the design of SWAP
- Assessment approaches and goals for the program
- Means of making assessment results available to the public
- Means of implementing its approaches to SWAP.

The framework of the guidance allowed flexibility among each state to develop and implement a SWAP program specific to its needs.

Each state received an allotment from the 1997 Drinking Water State Revolving Fund (DWSRF) Capitalization Grant to implement the 1996 Safe Drinking Water Act amendments. Colorado received approval to set aside 10% of the 1997 DWSRF to conduct source water assessments for approximately 2,100 active public water systems in the state. In addition to the one time set aside, Colorado will utilize the annual set aside funds from the Wellhead Protection (WHP) program to aid in the assessments for ground water-based public water supplies. The WHP set aside also comes from the DWSRF.

Following EPA guidance, Colorado proceeded in developing a SWAP program plan that received approval in February 2000. Initially, Colorado had two years from its approval to complete all assessments, but has been granted an 18-month extension to complete source water assessments by August 2003.

3. Source Water Assessment Implementation

In completing source water assessments for the nearly 2,100 active public water systems in Colorado, the state has included the following programmatic elements in its SWAP program as required by the Safe Drinking Water Act amendments:

Public Participation: Public participation is critical to the advancement of SWAP. While the state is required to perform assessments for the active public water systems in Colorado, the accuracy and completeness of the final assessment results will rely, to some degree, on the level of public involvement throughout each step of the assessment phase. While the state has access to useful data needed to complete the assessments, public water systems and interested citizen groups with local knowledge of their drinking water sources and are encouraged to become involved and provide the state (and ultimately, their consumers) with this valuable input to thoroughly complete the delineation, contaminant inventory and susceptibility analysis.

Delineation of Source Water Assessment Areas:

Delineation of source water assessment areas includes defining the area that likely contributes water to a public drinking water system. For public water systems supplied by surface water sources, this will include the upstream portion of the watershed that contributes water to the intake. Colorado is one of the few states in which public water supplies transfer water from one basin to another. The delineated source water area for these transbasin supplies will also include the upstream portion of the basin contributing water to the diversion structure located within that basin. For public water systems supplied by ground water sources, this will include the portion of the aquifer that contributes water to the well over a continuous pumping period. In both instances, the source water assessment area defined during the delineation process will also define the area for the drinking water supply that could potentially be impacted in the event of a sufficient release of contaminants to the drinking water supply. Completion of the source water assessment area delineations is expected by the end of 2001 for all public water systems.

Contaminant Source Inventory:

The purpose of the contaminant source inventory is to identify *potential* sources of contamination that could impact a public drinking water system. Only those potential sources of contamination that pose the greatest potential threat to public health will be identified within the source water area previously defined in through the delineation. A two-step process has been developed for the contaminant source inventory. In the first step, the state will identify selected potential sources of contamination that are currently being regulated by state or federal agencies and map their locations within each source water area. The second step of the contaminant source inventory allows for additional information to be gathered through local public involvement and included in the inventory. Completion of the contaminant source inventories is expected by the end of August 2002 for all public water systems.

Susceptibility Analysis and Reporting:

The susceptibility analysis is a qualitative assessment that will rate the potential vulnerability of each public water supply to the potential sources of contamination identified in the contaminant source inventory. In evaluating the potential vulnerability, the following factors will be assessed at a broad level:

- Contaminant Hazard**: evaluates the potential health impact posed by contaminants that are likely to be present at a potential source of contamination.
- Likelihood of Release**: evaluates the possibility of a potential source of contamination to release sufficient amounts of contaminants that could potentially impact the drinking water supply, through an evaluation of compliance records, and/or the use of protective or preventive measures, where this information is available.
- Integrity of the Water System**: evaluates the contaminant exposure potential of the water supply related to the structural soundness and maintenance of the intake and/or well structure up to the first point of treatment and the capability of the public water system to respond to a potentially significant contaminant release.
- Setting Sensitivity**: evaluates the contaminant exposure potential of the water supply posed by contaminant transport differences within a source water assessment area, including the proximity of the potential source of contamination to the intake or well and factors that could enhance or impede the transport of contaminants in the subsurface.

Each factor will be evaluated in relation to one another to determine the vulnerability of a public water system to various potential sources of contamination. The final assessment results for each public water system will be summarized in individual source water assessment reports that will be submitted to each public water system and must be made available to the public in general. Completion of the susceptibility analyses and assessment reporting is expected by the end of June 2003 for all public water systems.

Table 2: Communities Using Principally Surface Water for the Public Water Supply

Alma	Cortez	Genesee	Loveland	Pueblo
Allenspark	Craig	Georgetown	Lyons	Rangely
Arvada	Crested Butte	Gilcrest	Mancos	Red Cliff
Aspen	Cripple Creek	Glendale	Manitou	Redstone
Ault	Dacona	Glenwood	Springs	Rico
Aurora	De Beque	Springs	Mead	Ridgway
Bailey	Delta	Golden	Mesa	Rifle
Basalt	Denver	Granby	Milliken	Rocky Ford
Battlement	Dillon	Grand Junction	Minturn	Roxborough
Mesa	Dolores	Grand Lake	Montrose	Park
Bayfield	Dove Creek	Greeley	Morrison	Rye
Berthoud	Durango	Gypsum	Mt. Crested	Salida
Beulah	Eagle	Hayden	Butte	Silt
Black Hawk	Eaton	Hot Sulphur	Mt. Werner	Silver Plume
Boulder	El Dorado	Springs	Naturita	Silverton
Breckenridge	Springs	Hotchkiss	Nederland	Steamboat
Brookside	Empire	Hudson	Newcastle	Springs Springs
Broomfield	Englewood	Idaho Springs	Northglenn	Snowmass
Buena Vista	Erie	Ignacio	Norwood	Telluride
Carbondale	Estes Park	Jamestown	Nucla	Thornton
Canon City	Evans	Johnstown	Oak Creek	Trinidad
Cedaredge	Evergreen	Kersey	Olathe	Victor
Central City	Firestone	Kremmling	Orchard City	Walden
Clifton	Florence	La Salle	Pagosa Springs	Walsenburg
Collbran	Fort Collins	La Veta	Palisade	Wellington
Colorado City	Fort Lupton	Lafayette	Palmer Lake	Westminster
Colorado	Fort Morgan	Longmont	Paonia	Williamsburg
Springs	Frederick	Lookout	Parachute	Windsor
Coal Creek	Frisco	Mountain	Parkview	Winter Park
		Louisville	Penrose	Woodland Park
			Platteville	

Table 3: Communities Using Ground Water for the Public Water Supply

Agate	Crested Butte	Haswell	Milner	San Acacio
Akron	Crook	Hillrose	Model	Sanford
Alamosa	Crowley	Haxtun	Monte Vista	Sawpit
Antonito	Deer Trail	Holly	Monument	Security
Arapahoe	Del Norte	Holyoke	Morrison	Sedalia
Arriba	Dinosaur	Hugo	Creek	Sedgwick
Avondale	Eads	Idledale	New Raymer	Seibert
Baca Grande	Eastlake	Iiff	Newdale	Sheridan Lake
Bennett	Eckley	Indian Hills	Nunn	Silver Creek
Bethune	El Jebel	Julesburg	Oak Meadows	Silverthorne
Blanca	Elbert	Karval	Olney Springs	Simla
Bond	Elizabeth	Keenesburg	Ophir	Somerset
Boone	Fairplay	Kim	Ordway	Springfield
Brandon	Federal	Kiowa	Otis	Steamboat
Branson	Heights	Kit Carson	Ouray	Springs
Briggsdale	Flagler	La Jara	Ovid	Sterling
Brighton	Fleming	La Junta	Owl Creek	Strasburg
Bristol	Florissant	Lake City	Paoli	Stratton
Brush	Fort Garland	Lamar	Paradox	Sugar City
Buffalo Creek	Fountain	Larkspur	Parker	Swink
Burlington	Fowler	Las Animas	Peetz	Two Buttes
Byers	Fraser	Lazear	Perry Park	Vilas
Calhan	Garcia	Limon	Peyton	Vona
Campo	Garden Valley	Lochbuie	Phippsburg	Walden
Capulin	Gardner	Log Lane	Pierce	Walsh
Castle Pines	Garfield	Village	Poncha	Ward
Castle Rock	Genoa	Louviers	Springs	Widefield
Center	Granada	Manassa	Ponderosa	Wiggins
Cheraw	Grandview	Manzanola	Pritchett	Wiley
Cheyenne	Grover	Marble	Ramah	Winter Park
Wells	Guadalupe	McClave	Romeo	West
Conejos	Gunnison	Meeker	Adams Co.	Wray
Crawford	Hartman	Merino	Saguache	Yampa
Creede	Hasty	Mesa	San Luis	Yuma

C. Colorado Drinking Water Annual Reports on Violations

The EPA established the Public Water System Supervision (PWSS) Program under the authority of the 1974 Safe Drinking Water Act (SDWA). Under the SDWA and the 1986 Amendments, EPA sets national limits on contaminant levels in drinking water to ensure that the water is safe for human consumption. These limits are known as maximum contaminant levels (MCLs). For some regulations, EPA establishes a treatment technique in lieu of an MCL to control unacceptable levels of contaminants in water. For example, treatment techniques have been established for microbiological contaminants and disinfection by products.

The Agency also regulates how often PWSs monitor their water for contaminants and report the monitoring results to the states or EPA. Generally, the larger the population served by a water system, the more frequent the monitoring and reporting (M/R) requirements. EPA also requires PWSs to monitor for unregulated contaminants to provide data for future regulatory development. Finally, EPA requires PWSs to notify the public when they have violated these regulations. The 1996 Amendments to the SDWA require public notification to include a clear and understandable explanation of the nature of the violation, its potential adverse health effects, steps that the PWS is undertaking to correct the violation, and the possibility of alternative water supplies during the violation.

The SDWA applies to the 50 states, the District of Columbia, Indian Lands, Puerto Rico, the Virgin Islands, American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, and the Republic of Palau. It allows states and territories to seek EPA approval to administer their own PWSS Programs. The authority to run a PWSS Program is called primacy. For a state to receive primacy, EPA must determine that the state meets requirements laid out in the SDWA and the regulations, including the adoption of drinking water regulations that are at least as stringent as the federal regulations and a demonstration that it can enforce the program requirements. Of the 57 states and territories, all but Wyoming and the District of Columbia have primacy. The EPA Regional Offices administer the PWSS Programs within these two jurisdictions.

The 1986 SDWA Amendments gave Indian Tribes the right to apply for and receive primacy. To receive primacy, a Tribe must meet the same requirements as a state. To date, no Tribes have been granted primacy. Currently, EPA administers PWSS Programs on all Indian lands.

1. Annual State PWS Report

Primacy states submit data to the Safe Drinking Water Information System (SDWIS/FED) on a quarterly basis. Data include PWS inventory statistics, the incidence of Maximum Contaminant Level, Major Monitoring and Treatment Technique violations, and the enforcement actions taken against violators. The annual compliance report that states are required to submit to EPA will provide a total annual representation of the numbers of violations for each of the four categories listed in section 1414(c)(3) of the Safe Drinking Water Act reauthorization. These four categories are: MCLs, treatment techniques, variances and exemptions, and significant monitoring violations. The EPA Regional Offices report the information for Wyoming, the District of Columbia, and all Indian Lands. Regional offices also report Federal enforcement actions taken.

EPA stores this data in an automated database called the Safe Drinking Water Information System (SDWIS). This report is based largely on data retrieved from the federal version of the Safe Drinking Water Information System (SDWIS/FED).

The first annual report was generated January 1, 1998, for the compliance period of calendar year 1996. The second report was generated for the calendar year 1997 on July 1, 1998. The third report was generated on July 1, 1999 for the 1998 calendar year. The fourth report was generated on July 1, 2000 for the 1999 calendar year. This report is the fifth annual report, and covers calendar year 2000. Subsequent reports will be generated each July 1 for each previous calendar year.

2. Variances and Exemptions

A primacy state can grant a PWS a variance from a primary drinking water regulation if the characteristics of the raw water sources reasonably available to the PWS do not allow the system to meet the MCL. To obtain a variance, the system must agree to install the best available technology, treatment techniques, or other means of limiting drinking water contamination that the Administrator finds are available (taking costs into account), and the state must find that the variance will not result in an unreasonable risk to public health. At the time the variance is granted, the state must prescribe a schedule (including increments of progress) the PWS will follow to come into eventual compliance with the MCL. Small systems (those serving 3,300 or fewer persons; or 10,000 or fewer persons with the Administrator's approval) may also be granted variances if they cannot afford (as determined by application of the Administrator's affordability criteria) to comply with certain MCLs (non-microbial, promulgated after January 1, 1986) by means of treatment, alternative source of water, or restructuring or consolidation. Small systems will be allowed 3 years to install and operate EPA approved small system variance technology. The variance shall be reviewed not less than every 5 years to determine if the system remains eligible for the variance.

A primacy state can grant an exemption temporarily relieving a PWS of its obligation to comply with an MCL, treatment technique, or both if the system's noncompliance results from compelling factors (which may include economic factors) and the system was in operation on the effective date of the MCL or treatment technique requirement. A new PWS that was not in operation on the effective date of the MCL or treatment technique requirement by that date may be granted an exemption only if no reasonable alternative source of drinking water is available to the new system. Neither an old or a new PWS is eligible for an exemption if management or restructuring changes can reasonably be made that will result in compliance with the SDWA or improvement of water quality, or if the exemption will result in an unreasonable risk to public health. The state will require the PWS to comply with the MCL or treatment technique as expeditiously as practicable, but not later than 3 years after the otherwise applicable compliance date.

3. Monitoring

A PWS is required to monitor and verify that the levels of contaminants present in the water do not exceed the MCL. If a PWS fails to have its water tested as required or fails to report test results correctly to the primacy agent, a monitoring violation occurs.

Significant Monitoring Violations

For this report, significant monitoring violations are generally defined as any major monitoring violation that occurred during the calendar year of the report. A major monitoring violation, with rare exceptions, occurs when no samples were taken or no results were reported during a compliance period. Detailed descriptions of what constitutes a major monitoring violation for most drinking water regulations can be found in EPA's *Consolidated Summary of State Reporting Requirements for the Safe Drinking Water Information System (SDWIS)*; EPA 812-B-95-001)(Consolidated Summary). There are a few drinking water regulations for which the *Consolidated Summary* does not provide a definition of major monitoring violation. For those regulations, EPA has determined what constitutes a significant violation of the monitoring provisions and designed its annual SDWIS ACR computer query to include both these violations and the defined major reporting violations in the tally of significant monitoring violations in a state. Addenda to the ACR describe the additional monitoring violations EPA has determined are significant.

D. 1999 Violations

Table 4, at the end of the subsection, contains the Drinking Water Violations for calendar year 1999. The table was provided by EPA to be used in the annual report and is organized by 1) chemical monitoring results (organic, inorganic, and radionuclide), 2) pathogens (coliform total), 3) surface water treatment, and 4) lead and copper. The SDWIS (Safe Drinking Water Information System) codes provided on the table are specific numeric codes assigned by EPA to each violation type.

1. Variances and Exemptions

No variances to any MCL have been granted in Colorado.

2. Chemical Contaminants

The periodic monitoring described in Section C. above remained unchanged in 1999. Of the 2,100 active PWSs in Colorado during 1999, 29 systems, representing 47 separate violations, failed to conduct the required sampling for chemical contaminants. Colorado noted a significant decrease in the number of chemical monitoring and reporting violations in 1999 as compared to previous years; however, two systems failed to monitor for inorganic parameters and accounted for 20 violations, or 43% of the total. There were no new discoveries of contaminants that exceeded the MCL.

Organic Chemicals: There were no violations of organic MCLs or the monitoring and reporting requirements in 1999.

Inorganic Constituents: In 1999, two systems failed to conduct inorganic monitoring. The two failures to monitor and report translate to 20 violations, or 43% of the total chemical monitoring and reporting violations indicated in this report. There were 27 nitrate reporting violations in 1999. The state contacted these water systems and requested that the delinquent sample be collected. Many systems have since come into compliance

Radionuclides: In 1999, no monitoring and reporting violations were reported for radiological parameters.

3. Coliform Bacteria Violations

The 1999 monitoring data showed that 63 of the 2,100 PWSs detected and confirmed the presence of coliform bacteria in their water, representing 85 violations. Of these 85 violations, ten were acute, with possible immediate health threats, and 75 were nonacute. In all cases, the problems were identified and corrected and the public was notified. In the case of the acute violations, the public was notified within 24 hours of the problem being identified and may have included a boil-water advisory.

Also during 1999, 370 systems failed to collect coliform samples, representing 519 separate violations. These violations caused the state to notify the PWS, require increased monitoring, and/or take enforcement action to ensure that samples were submitted and the safety of the water could be verified. Noncompliance in both the MCL and M/R areas was less than 5% each month.

4. Surface Water Treatment Rule

Of the 257 surface water treatment systems active in the state in 1999, 27 systems had violations of treatment technique requirements, representing a total of 47 violations. These violations were due to either inadequate filtration, resulting in high turbidity (cloudiness) of the water, or inadequate disinfection with chlorine. PWSs that were unable to maintain compliance with the requirements for filtration of drinking water are being evaluated and provided with technical assistance to ascertain the cause of noncompliance. The problems vary from poor system operation to the need for entire new treatment plants. Where necessary, enforcement action is taken to assure that proper treatment techniques are used to provide safe water to the consumers.

In 1999, 19 systems failed to take the required number of samples for either turbidity or chlorine residual, resulting in 47 separate violations. This represents a significant increase in violations over previous years, due to the state's effort to have non-community PWSs using ground water determine whether their well(s) are under the influence of surface water. If they are, the systems are given 18 months to begin filtering their water and conducting turbidity and chlorine monitoring. Monitoring violations were followed up with a reminder letter on a routine basis. Most systems quickly return to compliance once reminded of their obligation.

5. Lead and Copper Rule

This rule applies to the 826 community PWSs and requires these systems to sample for lead and copper. If elevated lead or copper levels are found, treatment is implemented to bring the drinking water below the MCLs for lead and copper. In 1999, four systems failed to educate their customers of the potential health problems resulting from elevated lead. These systems have been contacted and reminded of their obligation to inform the public and submit the notifications to the state. In one case, a PWS will receive an enforcement order. In addition, four systems have failed to meet deadlines for the installation of corrosion control treatment. One of these systems will be a party to an Administrative Order on Consent. This system was in violation of the public education requirement and also failed to meet its installation deadlines.

During the 1999 sampling period, 19 systems failed to take adequate samples and two systems failed to perform initial lead and copper monitoring. All systems have been contacted and required to come into compliance with monitoring in 2000.

E. 2000 Violations

Table 5, at the end of the subsection, summarizes violations of the monitoring and reporting requirements, and violations of maximum contaminant levels for the State of Colorado in 2000. These violations are further described below.

1. Variances and Exemptions

There are no variances to any Maximum Contaminant Level.

2. Chemical Contaminants

The chemical contaminants monitored in drinking water include organic chemicals, inorganic chemicals, and radiological parameters. Systems are generally required to monitor for all chemical contaminants every three years. If drinking water systems exceed the MCL, then quarterly monitoring is required, and if a system experiences levels between the MCL and one half of the MCL, then annual monitoring is required. Nitrate monitoring is required for every system at least once a year.

Of the 2,100 active public water systems in Colorado during 2000, 22 systems representing 31 separate violations failed to do the required sampling for chemical contaminants.

Of the 2,100 active public water systems in Colorado, there were 21 new discoveries of chemical contaminants that exceeded the maximum contaminant level (MCL) representing five different systems. Under the direction of EPA regional and headquarters offices, existing chemical MCL violations from previous compliance periods that have not returned to compliance are not included in the counts for the 2000 Annual Compliance Report. The 1996 Annual Compliance Report counts included all outstanding MCL violations.

Below is a summary of both the MCL and the monitoring and reporting violations that occurred:

Organic Chemicals: There were no violations of organic MCLs or the monitoring and reporting requirements in 2000.

Inorganics: Ground water systems are required to monitor for inorganic chemicals once between 1996 and 1998. However, surface water systems must monitor for inorganic chemicals annually. In 2000, one system failed to conduct inorganic monitoring. The one failure to monitor and report translate to 10 violations, or 48% of the total chemical monitoring and reporting violations indicated in this report.

There were 21 *combined nitrate/nitrite* reporting violations in 2000. Contact has been made with these water systems requesting that the delinquent sample be taken.

Radionuclides: In 2000, no monitoring and reporting violations were reported for radiological parameters. There were 21 new radiological MCL violations, representing 5 different systems.

3. Coliform Bacteria Violations

A total of 2,100 water systems monitor for the presence of coliform bacteria during a total of approximately 14,000 compliance periods each year. The 2000 monitoring revealed 45 systems that detected and confirmed the presence of coliform bacteria in the water a total of 61 times. Of these 61 violations, 10 were acute with possible immediate health threats, and 51 were not acute violations. In all cases, problems were identified, corrected, and public notification was required. In the case of the acute violations, notification to the public was made within 24 hours of the problem being identified, and may have included a boil water advisory.

Also during the 2000 calendar year, 295 systems failed to take samples representing 381 separate violations. These violations resulted in system notification, increased monitoring, and/or enforcement action so samples were submitted to verify that the water continued to be safe.

4. Surface Water Treatment Rule

Of the 308 surface water systems active in the state in 2000, 18 systems had a total of 42 violations of Treatment Technique (TT) requirements. These violations were due to either inadequate filtration resulting in high turbidity (cloudiness) of the water, or inadequate disinfection with chlorine. Drinking water plants that are unable to maintain compliance with the requirements for filtration of water supplies are being evaluated and provided with technical assistance to ascertain the cause of noncompliance. The problems vary from poor operation to the need for entire new treatment plants. Where necessary, enforcement action is taken to assure that proper treatment techniques are used to provide safe water to the consumers.

During this same period, 33 systems had significant monitoring violations for either turbidity or chlorine residual resulting in 105 separate violations. This represents a significant increase in violations as opposed to previous years due to an effort in which noncommunity water systems are required to determine whether their well(s) are under the influence of surface water. If so,

then the systems are given 18 months to filter their water, and begin turbidity and chlorine monitoring. Monitoring violations were followed up with a reminder letter on a routine basis. Most systems quickly return to compliance once reminded of their obligation.

5. Lead and Copper Rule

This rule applied to almost 1,000 public water systems and it requires systems to sample for elevated lead and copper levels. If elevated lead or copper levels are found, treatment is implemented as needed to bring the drinking water to within the required action levels. In 2000, one system failed to educate their customers of the potential health problems resulting from elevated lead. This system has been contacted and reminded of their obligation to inform the public and submit the notifications to the state. In addition, two systems have failed to meet deadlines for the installation of corrosion control treatment.

In the 2000 sampling period, 14 systems failed to take adequate follow-up or routine samples and seven systems failed to perform initial lead and copper monitoring. All systems have been contacted and required to come into compliance with monitoring in 2001.

F. Conclusion

Since the 1996 Annual Compliance Report, the public water systems in Colorado have improved markedly in satisfying their chemical monitoring and reporting requirements. However, there has been an increase in violations of the monitoring and reporting requirements under the Surface Water Treatment Rule due to many small ground water systems being required to add filtration and conduct additional monitoring for turbidity and chlorine. Bacteriological maximum contaminant levels and monitoring and reporting violations have remained fairly consistent. It is anticipated that there will be a significant decrease in bacteriological monitoring/reporting violations as the Capacity Development efforts continue in 2001. Through Capacity Development, water systems will be contacted by telephone or in person directly after each violation. Contractors will be available to provide water systems with technical assistance or training as necessary.

Table 4: Drinking Water Violations - 1999

Table 5: Drinking Water Violations - 2000

