

ANNUAL
COMPLIANCE
REPORT

2011

California Department of Public Health
Division of Drinking Water and Environmental
Management

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**CALIFORNIA DEPARTMENT OF PUBLIC HEALTH
DRINKING WATER PROGRAM
ANNUAL COMPLIANCE REPORT
OF
PUBLIC WATER SYSTEMS
CALENDAR YEAR 2011**

EXECUTIVE SUMMARY

Each quarter, the California Department of Public Health (CDPH) submits data to the Safe Drinking Water Information System (SDWIS/FED), an automated database maintained by the U.S. Environmental Protection Agency (USEPA). The data submitted includes: public water system inventory information; incidents of violations for maximum contaminant levels (MCLs), maximum residual disinfectant levels (MRDLs), monitoring and reporting (M/R), and treatment techniques (TT); violations concerning public and consumer notification; and information on enforcement activity related to these violations. In addition, CDPH provides USEPA with this Annual Compliance Report, which includes a portion of the violation data listed above, that USEPA has identified for inclusion in this report.

Violation information included in this Annual Compliance Report is derived from the data available from CDPH's independent drinking water program database systems for the period of January 1, 2011 through December 31, 2011.

A copy of this 2011 Annual Compliance Report will be available to the public by contacting the CDPH's Division of Drinking Water and Environmental Management Drinking Water Program at (916) 449-5600, or through CDPH's website at: <http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Publications.aspx>.

The 2011 Annual Compliance Report discusses violations by categories such as: contaminant category, by individual contaminant, and by the violations in each county. The table below lists the number of violations and estimated populations impacted by the categories of MCL or treatment technique violations plus specific monitoring and reporting violations for 2011.

Total violations increased by 154 for 2011, in comparison with 2010, but the population affected by violations decreased by 731,248. Overall, public water systems in California delivered drinking water that generally met all of the established state and federal drinking water standards.

Comparison of Data between 2010 and 2011

MCL and TT Violation Category	Year 2010		Year 2011		Change between 2010 and 2011	
	MCL & TT Violations	Impacted Population	MCL & TT Violations	Impacted Population	MCL & TT Violations	Impacted Population
Inorganic Contaminants	825	560,839	936	538,691	+111	-22,148
Synthetic Organic contaminants	10	1,009	14	1,309	+4	+300
Volatile Organic Contaminants	0	0	0	0	0	0
Radionuclide Contaminants	41	77,075	55	18,335	+14	-58,740
Total Coliform Rule (acute and nonacute))	633	656,538	569	338,029	-64	-318,509
Disinfectants/Disinfection Byproducts Rule	188	77,639	162	94,161	-26	+16,522
Surface Water Treatment Rules	150	370,938	128	21,416	-22	-349,522
Lead and Copper Rule	6	7,294	5	7,243	-1	-51
M/R Violation Category	M/R Violations	Number of PWS	M/R Violations	Number of PWS	M/R Violations	Number of PWS
Public Notification Rule	20	12	22	11	+2	+1
Consumer Confidence Notification	56	56	129	72	+73	+16
Exemptions and Variances	0	0	0	0	0	0

SECTION 1: INTRODUCTION

This report provides information from the State of California's Department of Public Health (CDPH) records on public drinking water system violation data for calendar year 2011. This report is provided to the U.S. Environmental Protection Agency (EPA) and to the public as required by the Federal Safe Drinking Water Act, sections 1414(c)(3)(A)(i – ii).

The Federal Safe Drinking Water Act (SDWA) requires states to report events or lack of activity that constituted a violation of a primary drinking water standard at some point during the year covered by the report. This includes, but is not limited to those categories of violations in USEPA guidance.

Public water systems are regulated and monitored through the Drinking Water Program. This report does not contain information on domestic water supplies such as private wells, not meeting the definition of a public water system.

THE DRINKING WATER PROGRAM OVERVIEW

Currently, CDPH regulates a total of 7,545 public water systems (PWS) in California. A PWS is defined as a water system serving 15 or more service connections, or 25 or more users, for 60 or more days per year. PWS are divided into three principle classification: community water systems (CWS), non-transient non-community water systems (NTNC), and transient non-community water systems (TNC). As the name indicates, CWS serve cities, towns and other residential facilities used by year-round users – examples include everything from apartment complexes served by their own well, to systems serving our largest cities. NTNC systems are PWS systems that are not CWS and that provide water to the same non-residential users daily for at least 180-days out of the year – examples include schools, places of employment, institutions, etc. TNC are places that provide water for a population is transient – examples include: campgrounds, parks, ski resorts, rest-stops, gas stations, motels, etc. The table below provides a breakdown of PWS in California:

Classification and Size <small>(as of 6/13/2012)</small>	Count
<u>CWS serving 3,300+ service connections</u> (in general 10,000 or more people) or those wholesaling water to other PWS.	406
<u>CWS serving 1,000 to 3,300 service connections</u> (in general, populations between about 3,000 and 10,000)	271
<u>CWS serving 500 to 999 service connections</u> (in general, populations of 1,500 to under 3,000)	149
<u>CWS serving 100 to 499 service connections</u> (in general, populations between 300 and under 1,500)	598
<u>CWS serving 25 to 99 connections</u> (in general, populations of between 75 and 300)	971

Classification and Size (as of 6/13/2012)	Count
<u>CWS serving less than 25 service connections</u> (population of at least 25 or more persons, but generally less than 75)	570
<u>Total CWS</u>	2,965
<u>NTNC</u>	1474
<u>TNC</u>	3,106
<u>Total PWS Count</u>	7,545

Under the 1974 SDWA and subsequent reauthorizations in 1986 and 1996, USEPA sets national limits on contaminant levels in drinking water for human consumption to protect the health of users. These limits are known as maximum contaminant levels (MCLs) and maximum residual disinfectant levels (MRDLs). For some regulations, treatment techniques (TT) have been established in lieu of an MCL as a means to control levels of specific contaminants in drinking water. Water systems are also regulated as to the frequency of monitoring and the reporting (M/R) of water quality or rule compliance. Systems can incur a violation for failure to monitor (collect required samples during a monitoring period) or failure to report sample results or rule compliance in the required manner.

Water systems must notify their consumers when they have violated drinking water standards. This notification is required to include:

- A clear and understandable explanation of the nature of the violation
- The potential adverse health effects from the violation
- Steps that the water system is undertaking to correct the violation
- The possible use of alternative water supplies available during the violation.

USEPA has designated the CDPH as the primacy agency responsible for the administration and enforcement of the SDWA requirements in California. CDPH must, and has, adopt statutes and regulations to implement the requirements of the SDWA.

CDPH has regulatory responsibility over water systems including tasks such as issuance of operating permits, conducting inspections, monitoring for compliance with regulations, and taking enforcement action to compel compliance when violations are identified.

CDPH has delegated the drinking water program regulatory authority for small public water systems serving less than 200 service connections to 31 counties in California. The delegated counties (local primacy agencies or LPAs) are responsible for regulating approximately 4,000 small public water systems statewide. CDPH retains the

regulatory authority over water systems serving 200 or more service connections and any small public water systems not delegated to an LPA.

Each quarter, CDPH submits data to the Safe Drinking Water Information System (SDWIS/FED), a database maintained by USEPA. The data submitted includes:

- Water system inventory information
- Incidents of violations for MCLs, MRDLs, M/Rs, and TTs;
- Violations concerning public and consumer notification;
- Information on enforcement activity related to these violations.

There are three basic types of violations that a water system can incur:

- **Violation of a Maximum Contaminant Level:** Primary drinking water standards have been adopted by CDPH for contaminants that may be found in drinking water supplies in California and are necessary to protect the public from acute and chronic health risks associated with consuming water. These limits are known as MCLs.
- **Violation of a treatment technique:** Treatment techniques and performance standards have been adopted as a means to provide safe water in instances where adoption of a specific MCL may be impractical or impossible. Treatment technique violations are a proven means to reduce the risk from various contaminants by closely controlling the treatment processes that prevent them from getting into drinking water. In all other respects they are the equivalent of an MCL.
- **Violation of a Monitoring and Reporting Requirement:** A water system is required to monitor and verify that the levels of contaminants present in the water do not exceed an MCL. A monitoring violation occurs when a water system fails to have its water tested as required within a compliance period **or** fails to report test results in a timely fashion to the regulatory agency. A water system that fails to perform required monitoring for a group of chemicals (such as synthetic organic chemicals or volatile organic chemicals) would incur a violation of Monitoring and Reporting Requirements for each of the individual chemicals within this group.

SECTION 2: VIOLATION CATEGORY SUMMARY

The 2011 Annual Compliance Report lists violations by the following categories:

1. Inorganic contaminants,
2. Synthetic organic contaminants,
3. Volatile organic contaminants,
4. Radionuclide contaminants,
5. Total coliform rule,
6. Disinfectant and disinfection byproduct rule,
7. Surface water treatment rules,
8. Lead and copper rule,
9. Public notification requirements,
10. Consumer confidence report notification requirements,
11. Variances and exemptions.

SECTION 3: REVIEW OF 2011 VIOLATION DATA

Summary Data Tables for Calendar Years 2009, 2010 and 2011

There are four tables in the report that summarize the violation data for the 2011 calendar year as well as for calendar years 2009 and 2010. These four tables include:

Table 1 - Number of violations by category for maximum contaminant levels/ treatment techniques and monitoring/reporting requirements

Table 2 - Number and population of water systems with violations of maximum contaminant level and treatment technique

Table 3 - Number and population of water systems with violations of monitoring and reporting requirements

Table 4 - Numbers of violations of total coliform rule by type

Violation Information in the Appendix

Appendix A provides definitions of terminology used in this report

Appendix B summarizes violations by grouping by contaminant category

Appendix C summarizes violations by individual contaminant. It provides water system name, population and number of violations by contaminant. It sums up the population affected by each violation type.

Appendix D lists individual violations by county sorted by water system number. The table also sums up the population affected by these violations in each county.

Table 1
Number of Violations by Category
For Maximum Contaminant Levels / Treatment Techniques (MCL/TT)
and Monitoring / Reporting Requirements M & R

	Category	Number of Violations					
		2009		2010		2011	
		MCL/ TT	M/R	MCL/ TT	M/R	MCL/ TT	M/R
1	Inorganic contaminants	737	232	825	175	936	178
2	Synthetic organic contaminants	13	67	10	35	14	38
3	Volatile organic contaminants	4	112	0	8	0	2
4	Radionuclide contaminants	45	25	41	14	55	8
5	Total coliform rule (TCR)	656	818	635	575	569	644
6	Disinfectant and disinfection byproducts rule (DBPR)	219	75	188	26	162	35
7	Surface water treatment rules (SWTR, IESWTR, LT1SWTR, LT2SWTR and FBR)	72	21	150	13	128	4
8	Lead and copper rule (LCR)	1	26	6	0	5	0
9	Public notification requirements	NA	9	NA	20	NA	22
10	Consumer confidence report notification requirements	NA	77	NA	56	NA	129
11	Variances and exemptions	NA	0	NA	0	NA	0

Table 2
Number and Population of
Water Systems with Violations of
Maximum Contaminant Level (MCL), Maximum Residual Disinfection Level
(MRDL) and Treatment Technique (TT)

		2009		2010		2011	
		No. of Water Systems	Population	No. of Water Systems	Population	No. of Water Systems	Population
1	Inorganic contaminants	253	685,410	286	560,839	315	538,691
2	Synthetic organic contaminants	8	466,509	4	1,009	4	1,309
3	Volatile organic contaminants	1	3,004	0	0	0	0
4	Radionuclide contaminants	23	78,918	23	77,075	24	18,335
5	Total coliform rule (TCR)	466	629,434	468	656,538	423	338,029
6	Disinfectant and disinfection byproducts rule (DBPR), MRDL	66	102,529	64	77,639	63	94,161
7	Surface water treatment rules (SWTR, IESWTR, LT1SWTR, LT2SWTR and FBR)	39	64,890	52	370,938	42	21,416
8	Lead and copper rule (LCR)	1	5,223	5	7,294	4	7,243
9	Public notification requirements	Not applicable – Not an MCL or TT					
10	Consumer confidence report notification requirements	Not applicable – Not an MCL or TT					
11	Variations and exemptions	Not applicable – Not an MCL or TT					

Table 3
Number and Population of
Water Systems with Violations of
Monitoring and Reporting Requirements

		2009		2010		2011	
		No. of Water Systems	Population	No. of Water Systems	Population	No. of Water Systems	Population
1	Inorganic contaminants	176	356,735	150	624,018	162	178,888
2	Synthetic organic contaminants	3	149	2	113	4	189
3	Volatile organic contaminants	8	1400	6	31,704	2	113
4	Radionuclide contaminants	9	908	10	262,905	7	452
5	Total coliform rule (TCR)	594	513,785	430	225,283	445	271,805
6	Disinfectant and disinfection byproducts rule (DBPR)	40	157,390	25	112	34	202,827
7	Surface water treatment rules (SWTR, IESWTR, LT1ESWTR, LT2ESWTR and FBR)	12	8915	18	639,503	4	976
8	Lead and copper rule (LCR)	25	61,217	0	0	0	0
9	Public notification requirement	8	911	12	22,569	11	5,427
10	Consumer confidence report notification requirements	76	53231	26	19,021	72	16,991
11	Variances and exemptions	0	0	0	0	0	0

SECTION 4: DISCUSSION OF VIOLATION TYPES AND CONTAMINANTS

This report contains summary information on violations entered into CDPH's data system. More specific information on the water provided by your drinking water supplier can be obtained by requesting a copy of the Consumer Confidence Report (CCR) that all CWS and NTNC water systems must prepare and issue to their customers annually. Contact the public water system providing water to your area, or check their web-site, to obtain a copy of their CCR. In addition, when a system has violated a standard the system is required to issue a public notice to their consumers, copies of which should also be available upon request from the public water system.

□ Inorganic Contaminants

Water systems were required to meet primary drinking water standards and monitoring and reporting requirements for 18 inorganic contaminants. MCL violations were reported for arsenic, nitrate, nitrite, nitrate + nitrite (combined), fluoride, cadmium and perchlorate.

Arsenic accounted for 638 of the 936 violations of MCLs for inorganic chemicals. The major sources of arsenic in drinking water are from erosion of natural deposits. Other sources of arsenic may include runoff from orchards, and wastes from glass and electronics production. Some people who drink water containing arsenic in excess of the MCL for many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer. In California, the drinking water standard for arsenic was lowered to 0.010 mg/l as of November 28, 2008.

Nitrate (including Nitrites, and Nitrate + Nitrite combined) accounted for 280 of the 936 violations of MCLs for inorganic chemicals. Nitrate and nitrite are commonly found in fertilizers used in farming and gardening, are found in sewage and wastes from human and/or animals, and from some industrial processes. Contamination from nitrates and nitrites is usually the result of these human activities. There are few mineral deposits containing naturally occurring nitrate or nitrite in California. Excessive levels of nitrate and nitrite in drinking water can cause serious illness, and in rare instances death, in infants less than six-months of age. The serious illness in infants is a result of interference with the oxygen carrying capacity of the infant's blood. This is an acute disease in that symptoms can develop rapidly in infants. As infants mature, changes in the digestive system naturally occur that prevent the conversion of nitrates to nitrites. In general, children over 6-months of age are not affected in the same way by nitrates or nitrites as are infants.

The health of infants exposed to high levels of nitrates, through drinking water or water used to mix infant formula, can deteriorate over a period of days. Symptoms of nitrate exposure in infants include shortness of breath and a marked blueness of the skin. High nitrate levels may also affect the oxygen-carrying ability of the blood of pregnant women. Expert medical advice and an alternate source of drinking water are

recommended if you suspect nitrate levels may be a cause for concern. Local and state health authorities are the best sources for information concerning alternate sources of drinking water for infants. CDPH has set the drinking water standard at 45 milligrams per liter (mg/l) nitrate (measured as NO_3) and 1 mg/l for nitrite (measure as N) to protect against the risk of these adverse effects. Drinking water that meets the CDPH standards is associated with little to no risk and is considered safe with respect to nitrate and nitrite.

Fluoride accounted for 12 of the 936 violations of MCLs for inorganic chemicals. Major sources of naturally occurring fluoride in drinking water are from erosion of natural deposits. Sources of fluoride associated with human activities include discharges from fertilizer and aluminum processing facilities. Some people who drink water containing fluoride in excess of the Federal MCL of 4 mg/l over many years may get bone disease, including pain and tenderness of the bones. To protect people from the adverse effects of dental fluorosis (a brownish staining of the teeth), the state has set the MCL at 2 mg/l. Because fluoride also has a beneficial effect in preventing dental caries (tooth decay), some communities may add fluoride to their drinking water (fluoridation). Where fluoridation is practiced, therapeutic levels are maintained well below the current state MCL.

Cadmium accounted for four of the 936 violations of MCLs for inorganic chemicals. Sources of cadmium include internal corrosion of galvanized pipes; erosion of natural deposits; discharge from electroplating and industrial chemical factories, and metal refineries; runoff from waste batteries and paints. Some people who drink water containing cadmium in excess of the MCL over many years may experience kidney damage.

California has adopted an MCL for perchlorate. Perchlorate accounted for two of the 936 violations of MCLs for inorganic chemicals. Perchlorate has been shown to interfere with uptake of iodide by the thyroid gland, and to thereby reduce the production of thyroid hormones. Thyroid hormones are needed for normal prenatal growth and development of the fetus, as well as for normal growth and development in the infant and child. In adults, thyroid hormones are needed for normal metabolism and mental function.

□ Synthetic Organic Contaminants

Water systems are required to meet primary drinking water standards and monitoring and reporting requirements for 33 synthetic organic contaminants (SOCs).

Dibromochloropropane (DBCP) accounted for all 14 of the violations of MCLs for SOC. DBCP was banned from use in 1978, and got into groundwater sources of drinking water prior to that time through the runoff or leaching associated with DBCP use as a soil fumigant in soybeans, cotton, and orchard crops. Some people who drink water containing DBCP in excess of the MCL for many years could experience reproductive difficulties and may have an increased risk of getting cancer. CDPH has set the

drinking water standard for DBCP at 0.0002 milligrams per liter (mg/l) to reduce these risks.

□ **Volatile Organic Contaminants**

Water systems are required to meet primary drinking water standards and monitoring and reporting requirements for 28 volatile organic contaminants (VOCs).

□ **Radionuclide Contaminants**

Water systems are required to meet primary drinking water standards and monitoring and reporting requirements for six radionuclide contaminants. MCL violations were incurred for gross alpha and uranium.

Gross alpha accounted for three of the 55 violations of MCLs for radionuclides. The major source of gross alpha activity or alpha emitting radiation in drinking water is from erosion of natural deposits. Certain minerals are radioactive and may emit a form of radiation known as gross alpha activity. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer. CDPH has set the drinking water standard for gross alpha activity at 15 pCi/L to reduce these risks.

Uranium accounted for 52 of the 55 violations of MCLs for radionuclides. The major source of uranium in drinking water is from erosion of natural deposits. Some people who drink water containing uranium in excess of the MCL over many years may have kidney problems or an increased risk of getting cancer. CDPH has set the drinking water standard for uranium at 20 picoCuries per liter (pCi/L) to protect against the risk of these adverse health effects. USEPA has set a Federal water standard for uranium at 30 pCi/L.

□ **Total Coliform Rule (TCR)**

The total coliform rule violations identify the presence of coliform bacteria contamination at a level above the MCL in the drinking water distribution systems or a failure of a water system to conduct the required water quality monitoring for coliform bacteria in the water distribution systems

Table 4 summarizes the TCR MCL violations for calendar years 2009, 2010 and 2011.

Table 4
Numbers of Violations –Total Coliform Rule
Acute MCL Violations / Non-Acute MCL Violations

	Number of Violations		
	2009	2010	2011
Acute ¹ MCL violations	3	55	38
Non-acute MCL violations	619	578	531

Under the current Total Coliform Rule (TCR), results are reported on a presence absence basis. CWS are required to routinely sample between one sample per month and 120 samples per week, depending on the size of the system. NTNC and TNC systems are generally on a monthly or quarterly sampling frequency. A public water system is in violation of the total coliform MCL when any of the following occurs: (1) For a public water system which collects at least 40 samples per month, more than 5.0 percent of the samples collected during any month are total coliform-positive; or (2) for a public water system which collects fewer than 40 samples per month, more than one sample collected during any month is total coliform-positive; or (3) Any repeat sample is fecal coliform-positive or *E. coli*-positive; or (4) Any repeat sample following a fecal coliform-positive or *E. coli*-positive routine sample is total coliform-positive.

The presence of fecal coliforms and *E. coli* are considered serious because they usually are associated with direct contamination by sewage or animal wastes. The presence of these bacteria in drinking water indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and associated headaches and fatigue. Because many of these symptoms can be mild or are flu-like, you should consult with your physician to determine if they are the result of a water-borne disease or other more common diseases (e.g. cold, flu or other bacterial or viral illnesses that are not water-borne).

☐ Disinfectants and Disinfection Byproducts Rule (DDBR)

There were 44 violations of the MCL for haloacetic acids (HAAs), 117 violations of the MCL for total trihalomethanes (THMS), and one violation of the MCL for chlorite.

CDPH has set primary drinking water standards and monitoring requirements for three disinfectants, and four disinfection byproduct contaminants which can form when chemical disinfectants are added to drinking water. To protect users from the acute

¹ Under the Total Coliform Rule an MCL is considered to be acute, when sample results indicate the presence of fecal coliform organism; e.g. Since fecal coliforms originate in the gut of most warm-blooded animals, the presence of fecal coliforms is considered to be an indicator of possible sewage contamination; which requires an escalated response to protect public health.

health risk from microbial pathogens, CDPH often requires public water systems to install disinfection facilities. However, disinfectants can also react with naturally-occurring organic matter present in water, or other chemicals, to form disinfection byproducts (DBPs). CDPH has determined that a number of DBPs are a health concern with long-term exposure and has adopted MCLs for trihalomethanes (THMs), haloacetic acids (HAAs), chlorite and bromate. THMs and HAAs have been shown to cause cancer in laboratory animals and have been shown to affect the liver and the nervous system, and cause reproductive or developmental effects in laboratory animals. Exposure to certain DBPs may produce similar effects in people. Chlorite, in excess of the MCL, can affect the nervous system in some infants and young children. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. In addition, some people exposed to chlorite may experience anemia.

Under the DBBR, enforceable standards, called Maximum Residual Disinfectant Levels (MRDL), have also been set for three common disinfectants. These include standards for chlorine, chloramine and chlorine dioxide disinfectant residuals in the distributions system. There were no MRDL violations in 2011.

□ **Surface Water Treatment Rules**

The surface water treatment rules: including Surface Water Treatment Rule, Interim Enhanced Surface Water Treatment Rule, Long-term 1 Surface Water Treatment Rule, Long-term 2 Surface Water Treatment Rule, and Filter Backwash Rule. These rules establish monitoring and reporting requirements, treatment techniques, performance standards, and turbidity standards to be met by water systems using surface water as a drinking water source.

There were 128 violations of treatment technique requirement of the SWTR in 2011. Treatment techniques and performance standards are used to establish water quality objectives instead of MCLs for microbiological contaminants that may be found in surface waters, including *Giardia lamblia*, *Cryptosporidium parvum*, *Legionella*, heterotrophic plate count bacteria, and viruses. Water systems that use surface water are required to provide multi-barrier treatment to protect against adverse health effects from microbiological contaminants. All multi-barrier treatment systems must include the use of a CDPH approved filtration technology as a first barrier, and a reliable disinfection system, as a second barrier. Some systems can avoid filtration by meeting special requirements including rigorous standards on their source waters. However, these systems must still disinfect their water.

There were 11 violations of the turbidity performance standards of the SWTR. Treatment technique and performance standard violations under the SWTR typically occur due to elevated turbidity levels in the water or a failure to maintain the required level of disinfection. Turbidity itself has no health effects. However, high levels of turbidity can interfere with the disinfection process, thus lowering the effectiveness of this part of the multi-barrier treatment system. High turbidity may also increase the

likelihood that disease-causing organisms may be present in untreated waters. Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

There were no violations of the filter backwash recycling rule (FBR). The recycling of filter backwash water for reprocessing at the headwork's of the plant, is a practice that is normally only found in larger utilities where due to raw-water cost, such water conservation measures are worthwhile. The FBR established requirements governing the way certain backwash streams are handled at water systems' filtration plants and established reporting and recordkeeping requirements for filter back-wash recycling practices to allow better evaluations and impacts of recycling practices on overall treatment plant performance.

□ **Lead and Copper Rule**

Under the lead and copper rule, public water systems collect samples at representative customer taps and test them for lead and copper. Public water systems are required to meet specific action levels for these contaminants, based on sample results, and take specified steps to lower exposure if an action level is exceeded. There were five treatment technique violation of the lead and copper rule and no violations of the lead and copper monitoring requirements. Monitoring violations for Initial Tap Water Monitoring are considered to be continuing and violations from prior years are included in this report until the water system is deemed to have returned to compliance.

The major source of copper in drinking water are from internal corrosion of household plumbing systems, erosion of natural deposits, and leaching from wood preservatives. The major source of lead in drinking water is from internal corrosion of certain household plumbing systems or components. Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time may experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years may suffer liver or kidney damage. People with Wilson's disease should consult their personal doctor.

Lead can cause a variety of adverse health effects when people are exposed to it at levels above the action level for relatively short periods of time. These effects may include interference with red blood cell chemistry, delays in normal physical and mental development in babies and young children, slight deficits in the attention span, hearing, and learning abilities of children, and slight increases in the blood pressure of some adults. Lead has the potential to cause stroke, kidney disease and cancer based on a lifetime exposure at levels above the action level:

□ **Public Notification**

Water suppliers are required to notify CDPH and the persons served by the water system whenever any of the following occurs: the water supplied to the consumers

exceeds the MCLs for coliform bacteria, inorganic chemicals, turbidity, trihalomethanes, radioactivity, organic chemicals; or the water supplier fails to comply with a prescribed treatment technique established in lieu of an MCL; or the water supplier violates any schedule prescribed pursuant to a variance or exemption. A violation occurs when there is a failure to provide the required report to the public by the required date. There were 22 violations for failure to provide the required notice to the public in 2011.

□ **Consumer Confidence Report Violations**

All CWS and NTNC water systems are required to provide to their customers a report each year of the quality of the water being served by their water system. Each year's consumer confidence report (CCR), also includes information on the source of drinking water, the levels of any detected contaminants, and compliance with drinking water regulations by including a clear and understandable explanation of the nature of the violation, its potential adverse health effects, steps that the water system is undertaking to correct the violation and the possibility of alternative water supplies available during the violation. Systems are considered to be in continuing violation until a CCR is issued or the data for a missed year is included in a subsequent year's CCR. There were 129 violations for failure to issue a CCR.

□ **Variations and Exemptions Violations**

CDPH is authorized under the Federal SDWA to issue variances and exemptions from meeting drinking water standards to public water systems under special circumstances.

SECTION 5: ENFORCEMENT ACTIVITIES

Enforcement action is an essential element of the CDPH regulatory program to bring all public water systems into full compliance with drinking water standards and regulations to ensure that the public receive safe drinking water.

CDPH's enforcement actions against a public water system that violates a primary drinking water standard vary according to the type of contaminant and the health risk. Typically, CDPH will require a public water system to develop a plan of compliance which may include some of the following actions:

- Provide an alternate source of safe drinking water.
- Shutdown or abandon the contaminated drinking water source, if this is possible.
- Conduct additional water quality monitoring to identify the cause and extent of the contamination and take appropriate corrective action.
- Install new water treatment facilities or modify the water treatment processes to eliminate the contamination.
- Issue a "Boil Water Notice" or "Do Not Drink Notice", depending on the type of contaminant.

Additional enforcement actions available to CDPH include revoking or suspending a water system's operating permit, assessing civil penalties up to \$25,000 per day for each day a drinking water standard violation occurs, or placing a water system into receivership.

Aggressive enforcement action is a key element of the CDPH overall regulatory strategy to bring all public water systems into full compliance with all of the drinking water standards and regulations to ensure all Californians receive safe drinking water.

SECTION 6: CONCLUSION

Water systems in California have a high rate of compliance with drinking water standards. Any violation of drinking water standards represents an increased public health risk. As the primacy agency responsible for the administration and enforcement of the SDWA requirements in California, CDPH will continue to implement the requirements of the SDWA. This will include the following activities: issuing operating permits, conducting inspections, monitoring for compliance with regulations, and taking enforcement action to compel compliance when violations are identified.

A copy of this report will be available to the public by contacting the CDPH Division of Drinking Water and Environmental Management at (916) 449-5600 or via the CDPH website at: www.cdph.ca.gov/certlic/drinkingwater/Pages/Publications.aspx

APPENDIX A: DEFINITIONS

☐ Public Water System (PWS)

A public water system (water system) is defined as a system that provides water via piping or other constructed conveyances for human consumption to at least 15 service connections or serves at least 25 people for at least 60 days each year. There are three types of water systems:

- Community water systems (CWS) is a water system serving facilities such as cities, towns, mobile home parks),
- Nontransient noncommunity (NTNC) is a water system serving facilities such as schools, factories or other facilities that serve the same group of non-resident users at least 180 days out of the year,
- Transient noncommunity (TNC) is a water system serving facilities such as restaurants, parks, rest stops, campgrounds and other facilities that serve a transient population for at least 60 days out of the year.

For purposes in this report, the term 'water system' refers to a public water system of any of the three types unless otherwise specified.

☐ Maximum Contaminant Level

Primary drinking water standards, and monitoring and reporting requirements, have been adopted by CDPH for contaminants that may be found in drinking water supplies in California and are necessary to protect the public from acute and chronic health risks associated with consuming water. These limits are known as MCLs.

☐ Maximum Residual Disinfectant Level (MRDL)

Limits have also been set for residual disinfectant levels in drinking water to reduce the risk of exposure to disinfectants formed, when a water system adds chemical disinfectant for either primary or residual treatment. These limits are known as MRDLs.

☐ Treatment Techniques (TT)

For some regulations, treatment techniques have been established in lieu of an MCL to control unacceptable levels of certain contaminants. For example, treatment techniques have been established for viruses, bacteria, and some coagulants.

☐ Variances and Exemptions

CDPH is authorized under the Federal SDWA to issue variances and exemptions from meeting drinking water standards to water systems under special circumstances. A variance is allowed in situations where the characteristics of a raw water source make it not feasible or too costly for a water system to meet the MCL with the installation of the

best available technology, treatment techniques, or other approved method. The approval of any variance must ensure adequate protection of human health. Additionally, the variance is reviewed by CDPH not less than every five years to determine whether continuation of the variance is appropriate and necessary.

An exemption from an MCL and/or treatment technique is allowed in situations where a water system is in noncompliance as the result of compelling factors and the exemption will not result in an unreasonable risk to public health. Any water system that receives an exemption must achieve compliance with the MCL or treatment technique as expeditiously as practicable, but not later than three years after the applicable compliance date.

Monitoring and Reporting (M/R)

A water system is required to monitor and verify that the levels of contaminants present in the water do not exceed the MCL. A monitoring violation occurs when a water system fails to have its water tested as required or fails to report test results correctly to the regulatory agency.

Significant Monitoring or Reporting Violations

For this report, significant monitoring or reporting violations are defined as when no samples were taken or no results, were reported.

Significant Public Notification Violations

Unless otherwise directed by CDPH, water suppliers are required to notify CDPH and the persons served by the water system whenever any of the following occurs: the water supplied to the consumers exceeds the MCLs for coliform bacteria, inorganic chemicals, turbidity, trihalomethanes, radioactivity, organic chemicals; or the water supplier fails to comply with a prescribed treatment technique established in lieu of an MCL; or the water supplier violates any schedule prescribed pursuant to a variance or exemption. A significant public notification violation occurs when there is a failure to provide the required notification.

Consumer Confidence Report (CCR) Notification

All community water systems and nontransient noncommunity water systems are required to deliver to their customers an annual CCR, summarizing water quality data collected during the year. The report is to include educational material, provide information on the source water(s), levels of any detected contaminants, and any compliance issues with the drinking water regulations.

Significant Consumer Notification Violations

For this report, a significant consumer notification violation is incurred if a community or nontransient noncommunity water system completely fails to provide its customers the required annual consumer confidence report.