

## 2001 REPORT ON OREGON'S PUBLIC DRINKING WATER

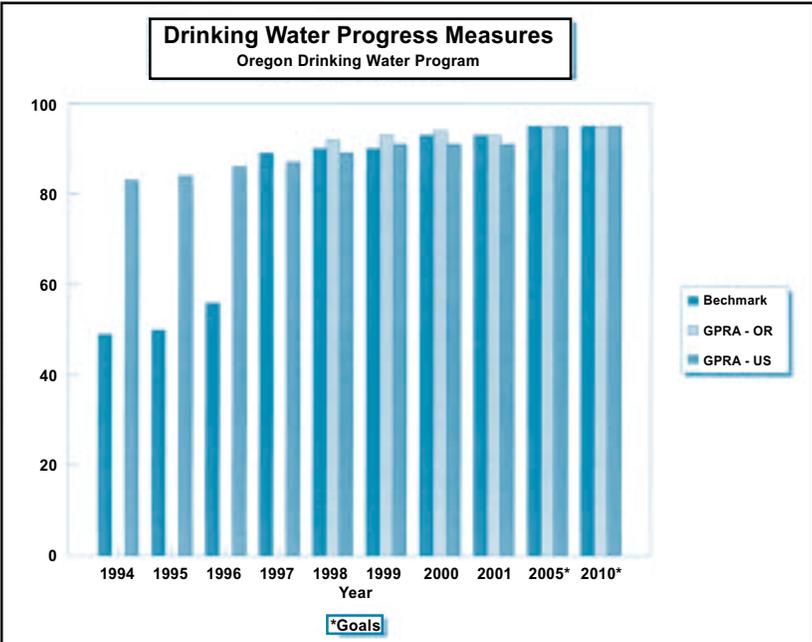
*2001 was a year of continued progress by Oregon public water suppliers and the Oregon Drinking Water Program. This special edition of the PIPELINE is in two parts. The first part (below) is a recap of 2001 accomplishments and an analysis of trends from 1994 to 2001. The second part is the full text of the 2001 Oregon Annual Compliance Report, beginning on page 5. Previous Oregon ACRs can be found on the Drinking Water Home Page.*

*By Dave Leland, Manager, Drinking Water Program*

Oregon water suppliers continued their work to meet EPA drinking water standards. The Department continued oversight of this work, and continued to implement program initiatives under the 1996 federal Safe Drinking Water Act (SDWA). Considerable progress was made during 2001.

Sixteen communities, serving a total of over 12,000 people, completed improvements to their drinking water systems during 2001 in order to meet the drinking water standards (see table, page 11). These included projects to improve treatment for surface water supplies, to meet action levels for lead and copper at customer taps, and to consolidate multiple water systems. While the scope and complexity of these projects varied from water system to water system, each represented the culmination of long-term commitment and effort by the local community to ensure safe drinking water for their users. The percentage of Oregonians served drinking water by public water systems that continuously met all health-based standards during the year increased to over 93% in 2001 (Oregon Drinking Water Benchmark). The goal is to reach 95% by 2005, and to maintain that level through 2010, as new EPA standards are adopted and implemented.

The Department continued efforts in 2001 to implement responsibilities and opportunities to assist communities under the 1996 federal Safe Drinking Water Act. The effort involved the Department's drinking water program, contract county health departments, the Drinking Water Advisory Committee, partner agencies, and contractors. With the assistance of the Drinking Water Advisory Committee, the Oregon Economic and Community Development Department, and the Department of Environmental Quality, the Department applied for the sixth annual State Drinking Water Revolving Loan Fund capitalization grant from EPA. This brings the total federal funding available for safe

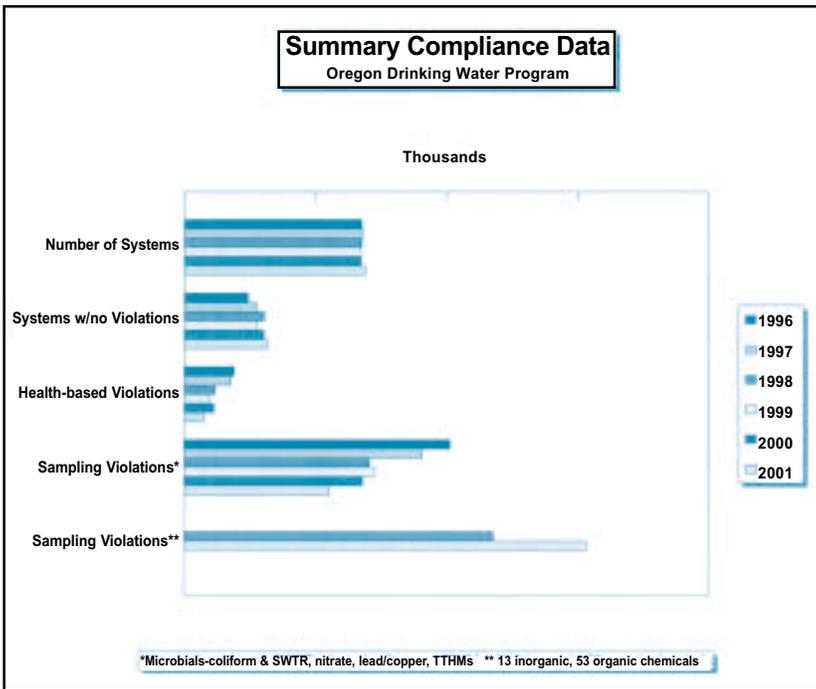


drinking water projects and program initiatives in Oregon to \$64M. From 1998 through the end of 2001, \$41.6M in loans were awarded to 34 communities.

During 2001, efforts by the Department and its partners to assist communities in providing safe drinking water got into full swing using set-aside resources of the revolving loan fund. Work continued to assess contamination threats to sources of public drinking water. In partnership with DEQ, over half of the source water assessment work was completed by the end of 2001, and eight communities had put certified local drinking water protection programs in place. Department staff also began to certify operators of very small public water systems. Legislative action in 2001 ended statutory

*(Continued on page 2)*

<b>INSIDE THIS ISSUE:</b>	
2001 Report on Oregon's Public Drinking Water .....	1
2001 Annual Compliance Report .....	5



**2001 REPORT ON OREGON'S DRINKING WATER**  
(continued from page 1)

exemptions from certification for operators of 900 community and nontransient noncommunity water systems using groundwater sources and serving fewer than 150 connections. The Department proposed rules to implement this change, held statewide public hearings, and adopted final rules. The Department submitted the rules to EPA to secure operator certification program approval. By the end of 2001, about half of the formerly exempted operators of small systems applied for initial certification. Staff were hired to carry out the "Oregon Capacity Strategy" to improve the technical, managerial, and financial capacity needed by public water suppliers to provide safe drinking water now and in the future, and initial work began. Technical assistance contracts for circuit rider services expired in late 2000. During 2001, the contracting process was completed and new contracts were signed with two engineering firms for the next three years of services.

Finally, Department staff continued to keep up with the highest priority ongoing responsibilities. Department and county staff continued to investigate and respond to water quality problems and recurring water sampling failures at public systems, while conducting as many on-site inspections of water systems as possible. 117 formal enforcement actions with public systems were resolved, and the Department issued 42 new actions. Work began to implement a new EPA-designed database to manage public water system water quality data, and determine and track compliance. The Internet site for access to water system water quality and compliance

data, established in 1999, was updated and improved. The site is widely used by water suppliers, laboratories, and the public. Department staff tracked, reviewed, and commented on new EPA drinking water rules under development at the national level. 707 communities completed and submitted their second annual Consumer Confidence Report, as per EPA requirements.

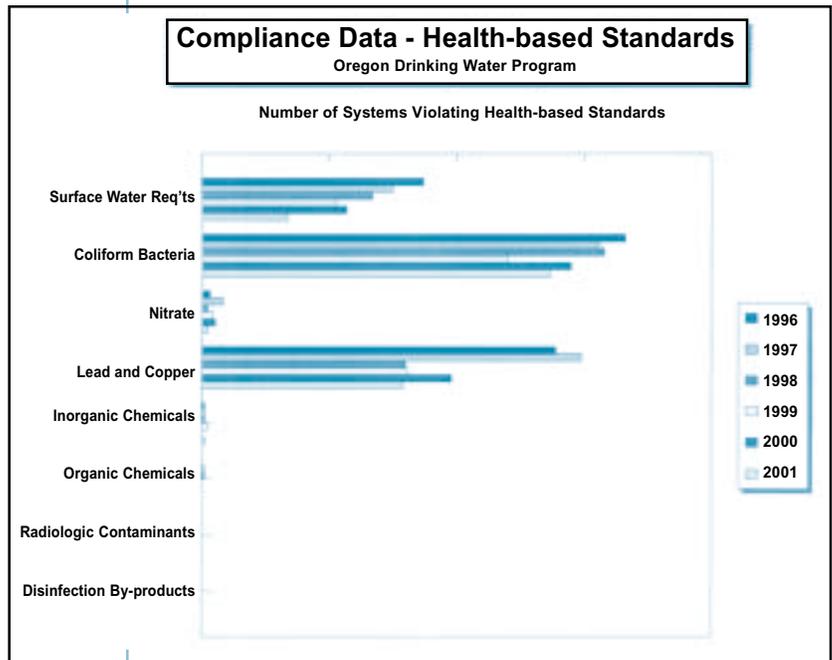
**Measuring Progress, 1994-2001**

**Oregon Safe Drinking Water Benchmark.** This Benchmark measures progress of public water suppliers toward meeting safe drinking water standards in Oregon:

*"The percentage of Oregonians served by public drinking water systems that meet all health-based standards continuously during the year"*

Meeting all health-based standards at all times during the year is an important indicator of drinking water safety. The benchmark presumes that required monitoring of water supplies is carried out, and Oregon water suppliers do need to improve in this area. The benchmark includes the following health-based standards, listed from highest to lowest health risk:

- *E. Coli* (or fecal coliform) bacteria maximum level
- Surface water treatment performance levels (filtration and disinfection)
- Nitrate/Nitrite maximum levels
- Chemical/Radiological maximum levels
- Lead action level
- Total coliform bacteria maximum level



### ● Copper action level

Included in the benchmark are about 1,300 public water systems that serve the majority of the state's population, including all community systems, all nontransient noncommunity systems, and the larger transient noncommunity systems (serving over 500 people per day).

In 2001, the benchmark increased to over 93%. The benchmark goal is to reach 95% by 2005, and to maintain this level while implementing new EPA drinking water standards from 2005 through 2010. Results for previous years are summarized in the first chart (page 1), showing significant improvement from 1994-2001.

**EPA GPRA Goal.** USEPA established a similar performance-based measure for drinking water under the Government Performance and Results Act (GPRA) of 1993. This goal is:

**By 2005, protect human health so that 95% of the population served by community water systems receive water that meets health-based drinking water standards...**

In 1994, the GPRA baseline for the U.S. was 83%. In 2001, the measure for the U.S. improved to 91%. Oregon achieved 93% in 2001 (see first chart page 1).

**Regulatory Compliance Trends in Oregon, 1996-2001.** The federal Safe Drinking Water Act requires the drinking water program to prepare and publish an Annual Compliance Report (ACR) on Oregon public water systems. See the full text of the 2001 ACR in this issue (page 5). This is the sixth Oregon ACR. Below, we offer our observations and conclusions about trends in drinking water safety and regulatory compliance over the past six years.

Two kinds of violations are summarized here:

- 1) Health-based violations - instances where a water supply system distributes water with a concentration of a contaminant above allowable levels, or where the water is inadequately treated.
- 2) Sampling/reporting violations - instances where the water supplier fails to collect or report results of required water samples for one or more contaminants prior to the reporting deadline.

Summary statistics for 1996-2001 are shown in the charts that accompany this article. The second chart (page 2) shows a summary by year of the number of regulated public water systems (under EPA requirements), the total number of water systems with NO identified violations, the total number of health-based violations, and the total number of sampling/reporting violations. The total number of regulated systems, just over 2,700, remained nearly unchanged over the past five years. There is a small increase in the total number of water systems that had no violations during the year. 1,260 systems generated no significant violations at all in 2001.

The number of health based violations declined from 1996-2001. These violations represent potential or actual exposure of people to contaminants, so a decline is good news. About 90% of violations overall are for sampling/reporting. A steady decline in sampling/reporting violations for frequently-tested contaminants occurred from 1996 to 2001 (microbials-coliform and surface water treatment, nitrate). This decline is good news also, because complete monitoring is more likely to detect water quality problems. Sampling/reporting requirements for most inorganic and organic chemical contaminants is on a three-year cycle. The latest cycle ended in 2001. There was an increase in the number of sampling/reporting violations, which is mostly accounted for by small water suppliers who reported their results late, after the reporting deadline. Note that failure to report these results on time can result in as many as 64 violations per water system, one for each of the regulated contaminants in these groups.

The third chart (page 2) summarizes statistics on the number of water systems that violated health-based standards. Most systems in violation are for microbial contaminants (coliform bacteria and surface water treatment), and for lead and copper. A decline in the number of systems violating surface water treatment requirements is evident. This is because of recent efforts by the Department to make field contacts to help communities improve operation of existing filtration treatment systems. A decline is also evident in numbers of systems violating coliform bacteria standards, reflecting increased field attention by county and Department staff. The number of systems violating lead and/or copper action levels was fairly constant in 1998-2001 while water systems installed corrosion control treatment. Corrosion control treatment was successful in reducing lead and copper at customer taps for many communities. Very few water systems violate health-based standards for nitrate, inorganic chemicals, and organic chemicals.

The fourth chart (page 4) summarizes the number of water systems that violate sampling/reporting requirements. Declines in the number of systems in violation are evident for microbials, nitrate, and lead/copper, again reflecting the result of attention by state and county staff. Overall, 92% of all the required coliform bacteria tests, were in fact submitted as required by Oregon water suppliers in 2001. Although most test results were reported overall, the remaining number of individual sampling violations and the number of water systems that account for them still appear large, and potentially serve to undermine public confidence in drinking water.

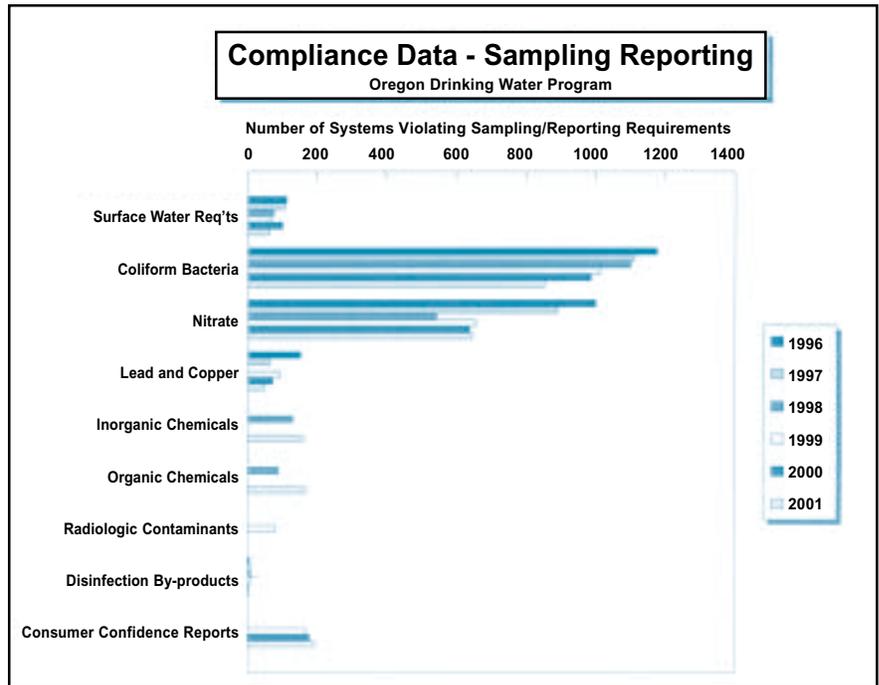
**Water Systems with a History of Significant Noncompliance.** In 1997, as required by the Safe Drinking Water Act, EPA identified water systems in each state with a "history of significant noncompliance". These are community and nontransient noncommunity water systems that committed sufficient multiple violations to be characterized as "signifi-

cant noncompliers” (SNCs) in at least three calendar quarters in the three-year period of 1994-96. In other words, these are the water systems with the worst compliance histories. The second listing was generated by EPA in 2000, for the time period of 1997-99. The fifth chart (page 5) compares the results for the two time periods. A dramatic decline in the numbers of systems with very poor compliance records is evident. The third listing will be for 2000-02, and will be generated by EPA in 2003.

**Conclusion**

As of the end of 2001, progress on safe drinking water in Oregon continued and compares very favorably with the rest of the country. This is due to the efforts of Oregon public water suppliers, the Department’s drinking water program, county health departments, partner agencies, and organizations. Success to date is not probably attributable to any particular element of the effort, but is rather due to the integrated application of the many program elements, each targeted to meet specific water system needs, including:

- Regulatory information, advice and assistance
- Investigations of contaminant occurrence
- Sanitary surveys of water systems
- Training and certification of operators
- Review and approval of plans and specifications for construction projects
- Operational technical assistance
- Safe Drinking Water loan fund



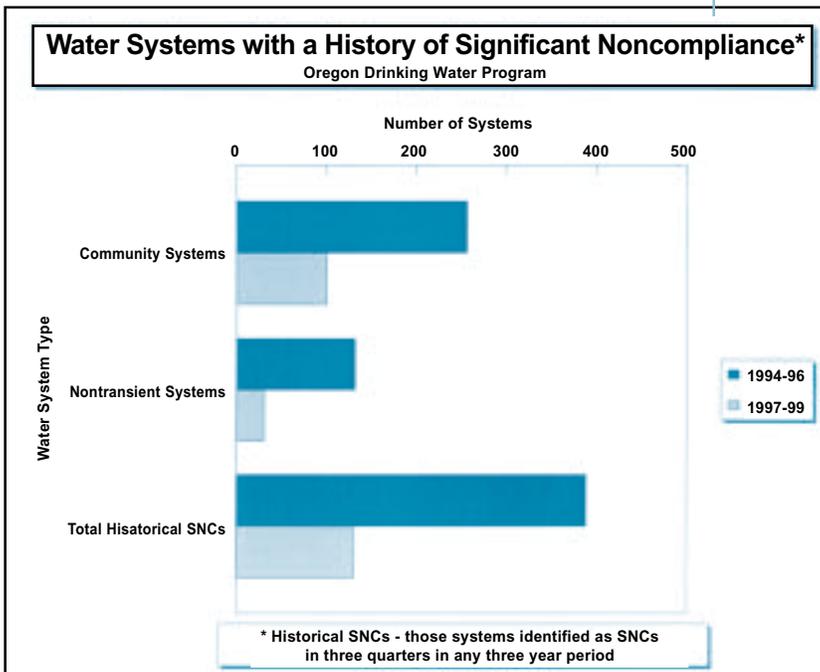
- Source water assessment and protection
- Public information
- Enforcement

Work remaining for public water suppliers for 2002 and beyond includes completing filtration treatment installation and improvements for surface water sources, completing corrosion treatment installation to control lead and copper levels at the tap, and improving overall sampling and reporting. Work remaining for the Department and its partners include continuing oversight of water suppliers and their compliance to standards, completing sanitary surveys and promoting correction of deficiencies, fully implementing the EPA drinking water

information system, completing source water assessments, implementing the capacity development strategy, and training and certifying operators of very small water systems. The Department will work to complete as much of this work as possible before new EPA standards directly impact Oregon water systems in 2004-10.

**Charts:**

- ✓ Drinking Water Progress Measures
- ✓ Summary Compliance Data
- ✓ Compliance Data - Health Based Standards
- ✓ Compliance Data - Sampling/Reporting
- ✓ Water Systems with a History of Significant Noncompliance



## 2001 ANNUAL COMPLIANCE REPORT ON OREGON PUBLIC DRINKING WATER SYSTEMS

Under the 1996 Safe Drinking Water Act, each state is required to prepare annual reports on violations of national primary drinking water regulations by public water systems in the state. States are required to provide the annual reports to the USEPA, publish and distribute summary reports, and make the full reports available to the public. In addition to satisfying the legal requirement under the Safe Drinking Water Act, the annual compliance report provides an opportunity to review the status of public drinking water safety in Oregon. This is the sixth annual report and presents compliance data on Oregon public water systems for the calendar year 2001.

### Drinking Water Standards

A brief overview of the public drinking water regulatory program is useful. In Oregon, public drinking water systems are subject to the Oregon Drinking Water Quality Act (ORS 448 - Water Systems) and the federal Safe Drinking Water Act. The primary purpose of the Oregon Act is to "assure all Oregonians safe drinking water". According to the Oregon Act, safe drinking water means water that is sufficiently free from biological, chemical, radiological, or physical impurities such that individuals will not be exposed to disease or harmful physiological effects. Under the Oregon Act, the Department of Human Services has broad authority to set water quality standards necessary to protect public health through insuring safe drinking water within a public water system. To accomplish this, the Department is directed under the Act to require regular water sampling by water suppliers. These samples must be analyzed in laboratories approved by the Department, and water suppliers must report the results of those laboratory tests to the Department. The Department must investigate water systems that fail to submit samples, or whose sample results indicate levels of contaminants that are above maximum allowable levels. Water suppliers who fail to sample the water or report the results, or whose water contains contaminants in excess of allowable levels must take corrective action and notify water users.

Since 1986, the Department has exercised primary responsibility for administering the federal Safe Drinking Water Act in Oregon, an arrangement called Primacy. The Department adopts and enforces standards that are no less stringent than the federal standards, and in return, the US Environmental Protection Agency gives the Department the regulatory responsibility for public drinking water systems and partial financial support for the Oregon program operation.

In practice, the Oregon drinking water standards match the national standards established under the Safe Drinking Water Act by the USEPA. This is because setting maximum levels for drinking water contaminants to protect human health involves considerable development of health effects information and other scientific research that is best carried out at the national level. The Department concentrates its available efforts and resources on implementing the national standards at Oregon public water systems.

Drinking water quality standards consist of two parts; a maximum allowable level for each contaminant (called a Maximum Contaminant Level, or MCL) and a sampling and reporting frequency. For contaminants that can not be readily detected or measured in water, the standard may be a treatment technique requirement. This means that in place of regular water sampling and reporting, all water systems at risk of the contaminant are required to provide specified water treatment processes to remove the contaminant at all times. A full description of the current drinking water standards was published previously (PIPELINE, Fall 2001).

Sampling frequencies vary by the type of drinking water contaminant. Contaminants that are associated with immediate health impacts, like bacteria and nitrates, must be sampled often, such as every month, quarter, or year. Contaminants associated with health effects that could develop from very long-term exposures, like arsenic, are tested less frequently, such as every 3 or 4 years.

### Oregon Public Water Systems

In 2001, there were 2,756 public water systems in Oregon subject to regulation under the federal Safe Drinking Water Act. Of these, 898 are community water systems, which means the systems serve at least 15 connections used by year-round residents. These systems perform the most frequent water sampling for the greatest number of contaminants, because the people served have the most ongoing exposure to the drinking water. Community water systems in Oregon serve a total of just over 3 million people and range in size from 15-home subdivisions and mobile home parks up to and including the City of Portland. Nontransient noncommunity water systems serve nonresidential populations consisting of the same people every day, such as a school or workplace with its own independent water supply system. There are 345 of these in Oregon. Transient noncommunity water systems serve transient populations. Examples are campgrounds, parks, or restaurants with their own independent water

supply systems, and there are 1,513 of these in Oregon.

Oregon public water systems get their water either from wells or springs (called groundwater) or from rivers, lakes, or streams (called surface water). Of the 2,756 total public water systems in Oregon, 2,459 get their water exclusively from groundwater. 297 water systems get their water in whole or in part from surface water supplies. Generally speaking, surface water requires much more treatment and processing to ensure safety for drinking than does groundwater.

There are many small water systems in Oregon. About 87% of the public water systems in Oregon serve 500 or fewer people each.

*An additional 939 very small systems are subject only to the Oregon Act, and are too small to fall under federal drinking water regulations. These water systems supply 4-14 connections or 10-24 people each. These water systems serve nearly 17,300 people in Oregon. By comparison, about 400,000 Oregonians get their drinking water from individual home wells, which are not subject to public water system standards or rules.*

**Compliance Results for 2001**

There are now drinking water quality standards for 94 different contaminants. Most have established maximum levels and sampling requirements. Others have treatment technique requirements. A complete description of the drinking water standards is given in the Fall, 2001 Special Edition of the PIPELINE newsletter, available from the Department or our web site. Drinking water contaminants can be grouped into the following general categories:

- **Microbial Contaminants** - such as viruses, bacteria, and parasites which can come from sewage treatment plants, septic systems, agricultural and livestock operations, and wildlife.
- **Disinfectants and Disinfection By-Products** - chemical disinfectants used in water treatment to kill harmful microbes, and the chemical by-products formed from the reaction of disinfection treatment chemicals with natural substances in the water.
- **Inorganic Chemicals** - such as salts or metals, which can be naturally-occurring or can result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming. Includes lead and copper leached into the water from household plumbing and fixtures.
- **Organic Chemicals** - Pesticides and herbicides which may come from a variety of sources, such as agriculture, urban stormwater runoff, and residen-

tial uses. Also includes synthetic and volatile chemicals which are used in industrial processes and petroleum production and can come from gas stations, urban stormwater runoff, and septic systems.

- **Radiologic Contaminants** - Naturally occurring or resulting from oil and gas production or mining operations.

*Compliance statistics cited here DO NOT include the very small public water systems not subject to EPA standards, or individual home wells.*

1,260 public water systems achieved full compliance with all standards and sampling requirements during 2001, as shown in the table below:

Population Size Range	Total Number of Water Systems	Number of Water Systems With No Violations in 2001
500 or Less	2,395	1,053
501 – 3,300	257	132
3,301 – 10,000	48	30
10,001 – 100,000	52	41
More than 100,000	4	4
<b>Total</b>	<b>2,756</b>	<b>1,260</b>

The attached tables present summaries of the violations of both maximum levels, treatment requirements, and sampling and reporting requirements for categories of contaminants. Table 1 shows the number of public water systems that experienced significant violations of requirements during 2001, and the total numbers of violations that occurred. Tables 2 and 3 show this information, organized by size ranges of populations served. Note that totals presented on Table 2 have been adjusted to avoid double-counting water systems that violate multiple requirements.

1,496 of the public water systems generated 8,880 violations of maximum levels and sampling requirements. This means that some water systems violated requirements on multiple occasions or violated requirements for multiple contaminants. Four percent of the violations are for maximum levels, action levels, or treatment requirements, and 96 % of violations overall are for failure to sample and report results. Violation of maximum levels, action levels, or treatment requirements mean that there were actual or possible exposures of people to drinking water contaminants. Violation of sampling requirements means that a water system did not sample for contaminants or did not report the test results for certain contaminants on time. A significant sampling violation means that no water sample results were reported for a particular reporting period. Since most Oregon water

systems are small, most violations occurred at small water systems. Lists of water suppliers that violated maximum levels, action levels, or treatment requirements during 2001 are available from the Department, and can be viewed on our drinking water web page.

The groups of contaminants are discussed individually below.

**Microbials (Coliform Bacteria).** All 2,756 public water systems must sample routinely for coliform bacteria. Coliform bacteria in drinking water are not usually harmful in themselves, but they signal the possible presence of harmful microorganisms. Small systems sample at least once per month or quarter, while very large water systems must collect up to a hundred or more samples per month. The Department received 58,000 individual coliform bacteria test results in 2001.

137 water systems found and confirmed coliform bacteria in their water and took corrective action. Fourteen of these water systems found fecal coliform in the drinking water and people were advised to boil their drinking water until the cause of the contamination could be found and corrected. The Department expends considerable effort working with systems to prevent and correct these types of water problems because they represent a significant and immediate potential risk to health.

Most of the microbial violations were for failure to monitor and report results. 853 water systems failed to submit coliform samples for at least one month or quarter during the year. These systems had 1,408 routine monitoring violations, so some systems failed to submit sample results more than once during the year. While this is a substantial amount of nonreporting, Oregon public water systems have a total of almost 19,000 opportunities to sample and report during each year. This means that in 2001, over 92% of the total number of required test results were submitted on-time by Oregon water systems overall.

Sixty-three water systems failed to report the results of repeat samples required following positive routine samples. Fifty-nine of these systems are very small, serving 500 or fewer people.

**Microbials (Surface Water Treatment).** Standards require that most water systems that draw water from lakes, rivers, and streams continually treat the water by filtration and disinfection to remove or kill microorganisms (bacteria, viruses, and protozoa) that can cause waterborne disease outbreaks. The last recognized waterborne disease outbreak in a community water system in Oregon occurred in the City of Talent in 1992 (cryptosporidiosis). Surface water treatment standards are established to assure that the proper level of treatment is practiced at all times. In Oregon, eleven water systems do not have filtration treatment and must install it. This is down from 165

systems in 1992. These remaining unfiltered systems are on administrative orders from the Department to install treatment, and work is continuing on those systems. In 2001 an additional six systems were determined to a groundwater sources under the influence of surface water. These water systems are also on administrative orders to install treatment. Of the systems with filtration treatment, seventeen failed to meet treatment level requirements on at least one occasion during 2001. The Department worked with those systems to help them improve their operation, their facilities, or both. Sixty-one water systems failed to report treatment performance data on at least one occasion.

**Disinfectants and Disinfection By-products.** In 2001, two water systems serving more than 10,000 people each failed to report total trihalomethanes as required on at least one occasion.

**Inorganic Chemicals.** Nitrate maximum levels were violated by two water systems in Oregon during 2001. Due to the high degree of hazard to children, these systems were modified or are under order to correct the problem. One water system violated the maximum level for arsenic and installed treatment in order to correct the problem. 646 water systems failed to report nitrate results in 2001. At the end of 2001, 79 systems that exceeded the action levels for lead and/or copper at plumbing taps had not yet installed corrosion control treatment. Thirty-two systems had not yet completed initial lead/copper monitoring.

Water systems in Oregon rarely violate maximum levels for inorganic contaminants from source waters, but these contaminants are routinely detected in drinking water systems at levels more than one-half the maximum level. The most-detected inorganics (and number of water systems with detections over one-half the maximum level from January 1, 1989 to December 31, 2001) are nitrate (328), arsenic (67), nitrate/nitrite (31), cadmium (28), and mercury (33). Fact sheets for many of these contaminants are available either from the Department, the drinking water web page, or through web page links with other agencies or organizations.

**Organic Chemicals.** The third round of testing for 53 organic chemicals was completed during 1999-2001. Organic chemicals include Synthetic Organics (SOCs) and Volatile Organics (VOCs). 1,243 water systems must conduct testing every three years. 167 systems either have reported late or have not reported the required test results at all for that period, which is up from 50 during the previous three-year compliance period. Of those 167 systems, 141 reported both SOC's and VOC's late, 7 systems reported SOC's late, and 5 systems reported VOC's late. No water systems exceeded MCLs for organics. The last monitoring period extended from January 1999 and

continued through December 2001. The current three-year monitoring period ends December 2004.

Again, Oregon water systems rarely violate maximum levels for organic chemicals. The contaminants detected in past monitoring data (and number of water systems with detections below the maximum level from January 1, 1989 to December 31, 2001), include tetrachloroethylene (60), toluene (60), 1,1,1 trichloroethane (34), total xylenes (37), methylene chloride (Dichloromethane) (32), and trichloroethylene (26). Pesticides have been detected much less often - 2,4-D (7), atrazine (5), and ethylene dibromide (4). Again, the vast majority of detections are at levels well below maximum allowable levels. In practice, many water suppliers that confirm the presence of even low levels of organic chemicals either abandon, reconstruct, or replace contaminated wells or install

treatment to eliminate these contaminants from the water supply.

**Radiological Contaminants.** No violations of standards occurred during the report period. Naturally occurring radiological contaminants are detected in Oregon water systems, but at very low natural background levels. Routine monitoring is on a four-year cycle.

**Consumer Notification.** All community water systems are required to provide customers with an annual water quality report. The report includes information on the source water, the levels of any detected contaminants, and compliance with drinking water regulations. Of 898 community water systems, 191 failed to provide documentation that this report had been made to their customers for the calendar year 2000.

**Table 1 - Oregon Violation Summary - 2001**

	Number of Violations	Number of Water Systems in Violation
<b>Microbials – Coliform:</b>		
Fecal Coliform/E. coli present	15	14
Total Coliform maximum level	159	137
Significant sampling violations	1,408	853
<b>Microbials – Surface water treatment:</b>		
Filtration treatment violations	40	17
Significant sampling violations	108	61
Unfiltered – Required to filter	17	17
<b>Lead and Copper:</b>		
Failed to conduct initial sampling	32	32
Failed to conduct follow-up & Routine sampling	13	13
Failed to install treatment	79	79
Failed to conduct public education	32	32
<b>Chemicals:</b>		
Arsenic maximum level	1	1
Nitrate maximum level	2	2
Nitrate sampling	646	646
Inorganic chemical sampling (99-01)*	749	159
Organic chemical sampling (99-01)*	5,386	167
Radiological sampling (00-03)**	N.A.	N.A.
Trihalomethane sampling	2	2
<b>Consumer Confidence Reports:</b>		
Failed to submit report in calendar year 2000	191	191
<b>Total</b>	<b>8,880</b>	<b>1,496***</b>

\* Sampling is required once during each 3-year period, tests were due by the end of 2001. For Inorganics, number of violations and systems in violation exclude those sampling violations for Nitrate. For Organics, number of violations exclude those for Trihalomethane sampling.

\*\* Sampling is required during each 4-year period, tests are due by the end of 2003

\*\*\* Number adjusted to avoid double-counting water systems with violations of multiple contaminant and monitoring standards.

## Water System Improvements

Sixteen public water systems completed substantial improvements to meet drinking water standards during 2001 (See Table 4).

## Enforcement Activities

During 2001, the Department issued 42 formal enforcement actions for high-priority violations of standards, primarily for coliform and nitrate maximum level violations, surface water treatment violations, and repeated failures to sample and report sample results. 117 previ-

ously initiated actions were resolved and 15 compliance schedules were extended.

## Measuring Progress

The Oregon Safe Drinking Water Benchmark, stated below, is intended to measure progress of public water suppliers toward meeting safe drinking water standards in Oregon:

***“The percentage of Oregonians served by public drinking water systems that meet all health-based standards continuously during the year.”***

**Table 2**  
**Number of Public Water Systems in Violation by Population Category - 2001**

	Population Groups					Totals
	Under 501	501 – 3300	3301 – 10,000	10,001 – 100k	Over 100,000	
<b>Chemicals</b>						
Nitrate MCL	2	-	-	-	-	2
Arsenic MCL	1	-	-	-	-	1
Nitrate Monitoring	592	45	7	2	-	646
Inorganics Monitoring	141	12	4	2	-	159
Organics Monitoring	155	10	2	-	-	167
TTHM Monitoring	-	-	-	2	-	2
<b>Coliform*</b>						
Acute MCL	12	2	-	-	-	14
Total MCL	122	12	2	1	-	137
No Routines	769	35	-	2	-	806
No Repeats	59	1	2	1	-	63
<b>Surface Water Treatment</b>						
Required to Filter	8	5	2	2	-	17
Monitoring/Reporting	46	13	2	-	-	61
Treatment Failure	10	5	2	-	-	17
<b>Lead/Copper</b>						
Corrosion Control	59	18	2	-	-	79
Initial Tap Sampling	32	-	-	-	-	32
Follow-up Sampling	9	2	1	1	-	13
Public Education	31	1	-	-	-	32
<b>Consumer Confidence Reports</b>						
No Reports for 2000	168	16	5	2	-	191
Systems with Violations**	1,342	125	18	11	-	1,496
Population Served	154,795	170,784	97,610	272,089	-	695,278
Systems without Violations	1,053	132	30	41	4	1,260
Population Served	129,146	168,896	158,598	1,024,314	930,000	2,410,954
All Public Water Systems	2,395	257	48	52	4	2,756
Population Served	283,941	339,680	256,208	1,296,403	930,000	3,106,232

\* Minor monitoring and reporting violations were excluded

\*\* Number adjusted to avoid double-counting water systems with violations of multiple contaminant and monitoring standards

Included in the benchmark are about 1300 public water systems, including all community systems, all nontransient noncommunity systems, and the larger transient noncommunity systems (serving over 500 people per day). Meeting all health-based standards at all times during the year is an important indicator of drinking water safety. The benchmark presumes that required monitoring of water supplies is carried out, and as shown above, Oregon water suppliers do need to improve in this area. The Oregon benchmark goal is to reach 95% by 2005, and to maintain this bench-

mark level during the process of implementing new drinking water standards from 2005 through 2010. At the end of 2001, the Benchmark was over 93%.

USEPA established a similar performance-based measure for drinking water under the Government Performance and Results Act (GPRA) of 1993. This goal is:

**By 2005, protect human health so that 95% of the population served by community water systems receive water that meets health-based drinking water standards...**

**Table 3  
Number of Violations by Population Category - 2001**

	Population Groups					Totals
	Under 501	501 – 3300	3301 – 10,000	10,001 – 100k	Over 100,000	
<b>Chemicals</b>						
Nitrate MCL	2	-	-	-	-	2
Arsenic MCL	1	-	-	-	-	1
Nitrate Monitoring	592	45	7	2	-	646
Inorganics Monitoring	669	56	18	6	-	749
Organics Monitoring	5110	225	51	-	-	5386
TTHM Monitoring	-	-	-	2	-	2
<b>Coliform*</b>						
Acute MCL	13	2	-	-	-	15
Total MCL	143	13	2	1	-	159
No Routines	1281	50	-	6	-	1337
No Repeats	67	1	2	1	-	71
<b>Surface Water Treatment</b>						
Required to Filter	8	5	2	2	-	17
Monitoring/Reporting	87	19	2	-	-	108
Treatment Failure	16	16	8	-	-	40
<b>Lead/Copper</b>						
Corrosion Control	59	18	2	-	-	79
Initial Tap Sampling	32	-	-	-	-	32
Follow-up Sampling	9	2	1	1	-	13
Public Education	31	1	-	-	-	32
<b>Consumer Confidence Reports</b>						
No Reports for 2000	168	16	5	2	-	191
<b>Total Number of Violations</b>	<b>8,288</b>	<b>469</b>	<b>100</b>	<b>23</b>	<b>-</b>	<b>8,880</b>
<b>Systems with Violations**</b>						
Population Served	1,342	125	18	11	-	1,496
Population Served	154,795	170,784	97,610	272,089	-	695,278
<b>Systems without Violations</b>						
Population Served	1,053	132	30	41	4	1,260
Population Served	129,146	168,896	158,598	1,024,314	930,000	2,410,954
<b>All Public Water Systems</b>						
Population Served	2,395	257	48	52	4	2,756
Population Served	283,941	339,680	256,208	1,296,403	930,000	3,106,232

\* Minor monitoring and reporting violations were excluded

\*\* Number adjusted to avoid double-counting water systems with violations of multiple contaminant and monitoring standards

Included in the benchmark are about 898 public water systems (includes only community systems). In 1994, the GPRAs baseline for the U.S. was 83%. In 2001, the measure for the U.S. improved to 91%. Oregon achieved 93% in 2001.

### Conclusions

Oregon water suppliers and the Department of Human Services drinking water program must continue to focus efforts on responding to coliform bacteria contamination, getting filtration treatment installed at unfiltered supplies that must filter, improving filtration treatment facilities and their operation, installing treatment to control lead and copper at the tap, and improving monitoring for coliform bacteria and nitrates. Additional work is needed to better inform smaller water systems of regulatory requirements, particularly in the area of sampling.

### More Information

Listings of water systems that violated maximum levels or treatment requirements in 2001 (and fact sheets on specific contaminants) are available on request or from the Oregon Drinking Water web page (<http://www.ohd.hr.state.or.us/dwp/welcome.htm>):

### Attachments:

Table 1 - Oregon Violation Summary - 2001

Table 2 - Number of Public Water Systems in Violation by Population Category - 2001

Table 3 - Number of Violations by Population Category - 2001

Table 4 - Water Systems Completing Construction/Installation Projects in 2001

**Table 4**  
**Water Systems Completing Construction/Installation Projects in 2001**

Water System Name	PWS#	Population Served	County	Improvement
Big Spruce Mobile Home Park	4100295	84	Lane	Corrosion Control Treatment - Soda Ash
Carlton, City of	4100171	1,570	Yamhill	Corrosion Control Treatment - Soda Ash
Kilchis Regional Water District	4100079	1,095	Tillamook	Corrosion Control Treatment - Caustic Soda
Latimer Road Water Association	4100881	86	Tillamook	Consolidated with Kilches Regional Water District
Laurel Wood Water Users	4100315	200	Washington	Corrosion Control Treatment - Caustic Soda
Lawrence Subdivision Water Association	4100474	70	Linn	Corrosion Control Treatment
Lyons Mehama Water District	4100493	1,670	Linn	Corrosion Control Treatment - Caustic Soda
Mesman Estates Water Company	4101422	150	Josephine	Connect to City of Grants Pass
Olympic Forest Products	4194882	60	Columbia	Drilled New Well
Rhododendron Summer Homes Association	4100702	940	Clackamas	Cartridge Filtration
Rock Creek Water District	4100337	200	Polk	Filtration - Diatomaceous Earth
Tri-City Water District	4100549	3,500	Douglas	Filtration Improvements
Trus Joist, A Weyerhaeuser Business	4195009	220	Lane	Plumbing Replacement
West Linn School District 3J Building	4194063	50	Clackamas	Corrosion Control Treatment
Westwood Industries – Saginaw Planer	4194560	30	Lane	Plumbing Replacement
Youngs River – Lewis & Clark Water District	4100062	2,500	Clatsop	Membrane Filtration



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