

State of Iowa Public Drinking Water Program 2006 Annual Compliance Report



Environmental Services Division
Water Quality Bureau
Water Supply Engineering
& Operations Sections

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Iowa Department of Natural Resources
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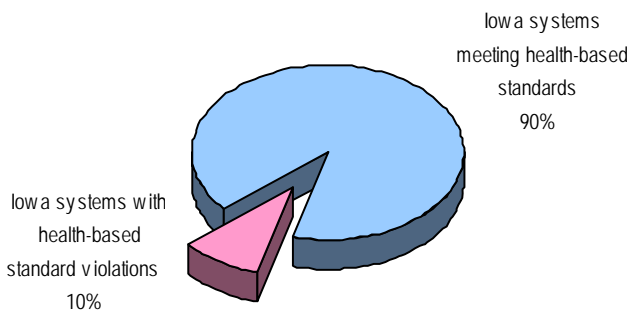
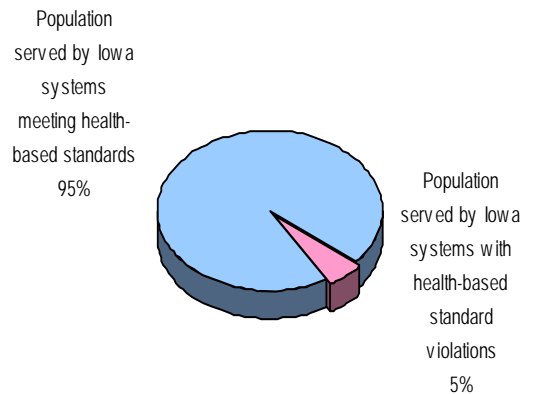
Introduction

The Iowa Department of Natural Resources (IDNR) administers the Public Drinking Water Program in Iowa under delegation of authority from the United States Environmental Protection Agency (EPA). The 1996 re-authorized Safe Drinking Water Act (SDWA) requires that each state that has been granted primary implementation authority prepare an annual report on violations of national primary drinking water regulations within the state, make the report readily available to the public, and submit it to the EPA. This report fulfills this responsibility in Iowa for the 2006 calendar year, and includes violations of maximum contaminant levels, maximum residual disinfectant levels, treatment technique requirements, major monitoring or reporting requirements, action level exceedances, and operation certification requirements.

The 2006 Report Highlights

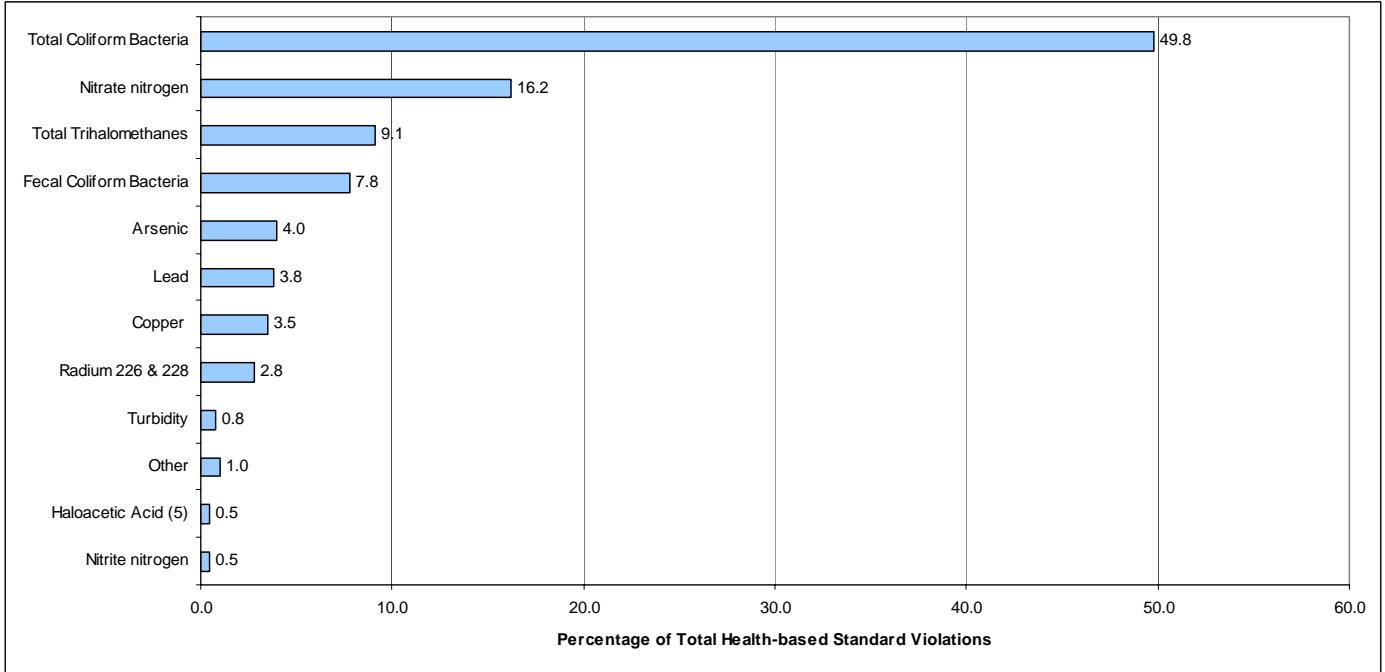
Compliance with Health-Based Standards

- No waterborne diseases or deaths were reported from Iowa public water supply systems (PWS) in 2006.
- Over 2.63 million people (of the 2.78M people served by PWS) regularly received water from systems meeting all health-based drinking water standards.



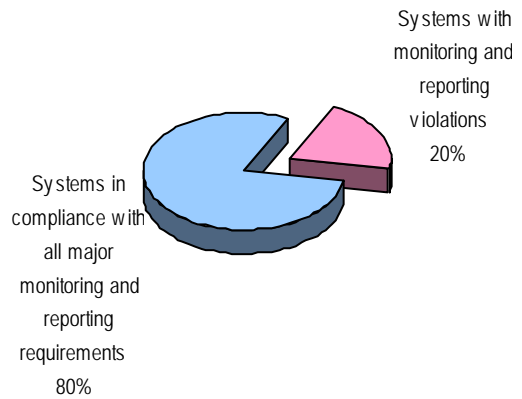
- Health-based drinking water standards were met by 90.4% of the 2,015 regulated public water supplies. There were 193 public water supplies that had 396 violations of a health-based drinking water standard: maximum contaminant level (MCL), maximum residual disinfectant level (MRDL), treatment technique (TT), or action level (AL).

- Sixteen of the more than 80 regulated contaminants were found at levels that exceeded the health-based standards during 2006. The top 11 contaminants are shown in the chart on the following page, along with the percentage each contributed to the total number of health-based standard violations. Five other health-based standards were each exceeded one time during the year: the maximum contaminant levels for benzene, di(2-ethylhexyl) phthalate, gross alpha radionuclides; and the treatment techniques for copper and lead.



Compliance with Monitoring & Reporting Requirements

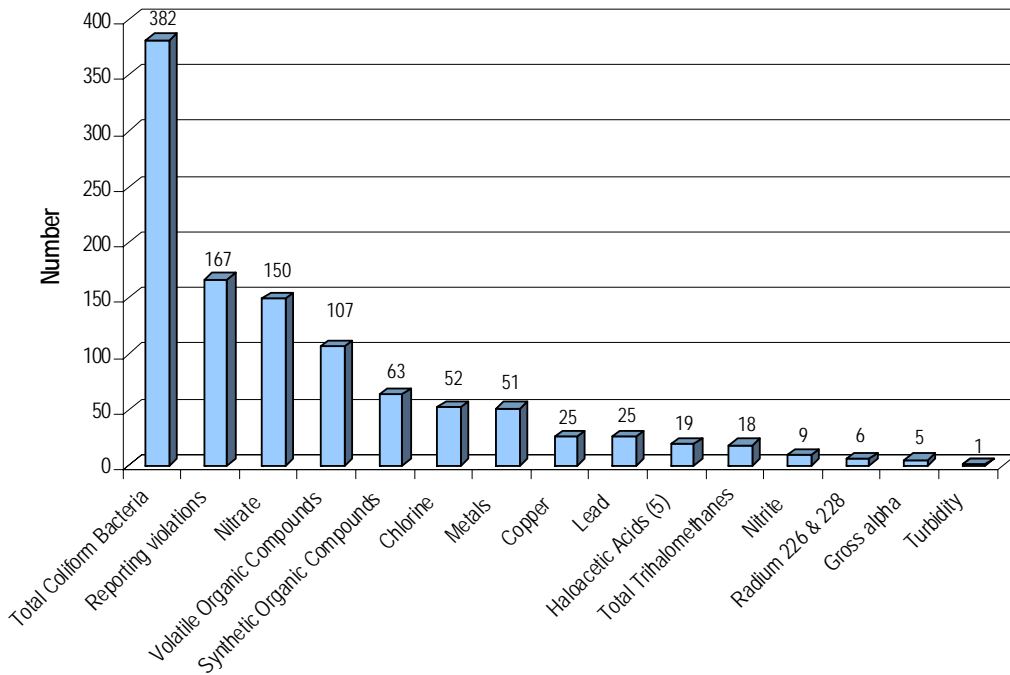
- Over 2.56 million people regularly received water from Iowa systems that complied with all major monitoring and reporting requirements.
- Major monitoring and reporting requirements were met by 79.5% of the 2,015 regulated public water supply systems.
- There were 921 major monitoring violations in 2006. A major monitoring violation is incurred when a sample is not collected for a specific contaminant. There were 332 systems that had at least one major monitoring violation in 2006. The contaminants for which at least one major monitoring violation was issued are listed below, along with the percentage each contributed to the total number of monitoring violations.



- | | |
|-------------------------------------|-------------------------------|
| ▪ Coliform bacteria: 41.5% | ▪ Metals: 5.5% |
| ▪ Nitrate: 16.3% | ▪ Copper: 2.7% |
| ▪ Volatile Organic Compounds: 11.6% | ▪ Lead: 2.7% |
| ▪ Synthetic Organic Compounds: 6.8% | ▪ Haloacetic Acids: 2.1% |
| ▪ Chlorine: 5.6% | ▪ Total Trihalomethanes: 2.0% |

- Nitrite: 1.0%
- Other (5 other analytes): 2.2%
- At least one reporting violation was incurred by 142 systems, for a total of 167 reporting violations. These violations were comprised of the following (both the actual number of violations and the percentage of total reporting violations are listed):
 - Failure to submit the required monthly operation report: 63 (37.7%)
 - Failure to provide a consumer confidence report: 52 (31.1%)
 - Failure to obtain a certified operator: 31 (18.6%)
 - Failure to obtain a construction and/or operation permit: 15 (9.0%)
 - Other: 6 (3.9%)
- The top 15 categories of monitoring and reporting violations are shown in the chart below, along with the number each contributed to the total number of monitoring and reporting violations.

Monitoring & Reporting Violations in 2006



The National Public Drinking Water Program: An Overview

The United States Environmental Protection Agency (EPA) established the Public Water System Supervision Program under authority of the 1974 Safe Drinking Water Act (SDWA), which was most recently amended in 1996.

- To ensure the water is safe for human consumption, EPA sets national limits on allowable contaminant levels in public water supply systems. These limits are known as maximum contaminant levels and maximum residual disinfectant levels.
- Because certain contaminants are difficult to measure, EPA establishes treatment techniques or action levels in lieu of a maximum contaminant level to control unacceptable levels of those specific contaminants in public drinking water.
- EPA specifies how often systems must monitor for contaminants and requires those monitoring results be reported to the state. Generally, the larger the population, the more frequent the monitoring and reporting requirements.
- EPA requires systems to notify the public they serve when violations of the drinking water regulations occur. Public notification must include a clear and understandable explanation of the nature of the violation, potential adverse health effects resulting from the violation, steps the system is taking to correct the violation, and the availability and necessity of using alternative water supplies until the violation is corrected.
- EPA also has requirements for certification of water distribution and water treatment operators, environmental laboratory certification, and development of systems' technical, financial, and managerial capacity, to ensure that systems are properly operated.

The SDWA applies to all 50 States, the District of Columbia, Native American Indian Lands, Puerto Rico, the Virgin Islands, American Samoa, Guam, the Commonwealth of the Northern Mariana Islands and the Republic of Palau.

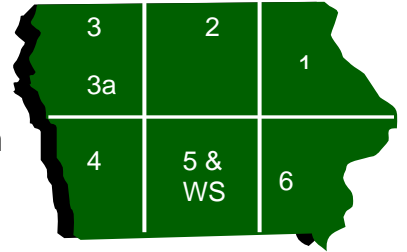
The SDWA allows States and Territories to seek EPA approval to administer the Public Water Supply Supervision Program within their state or territory, which is called primacy. To receive primacy, States must meet certain requirements set forth in the SDWA regulations, including adoption of drinking water regulations which are at least as stringent as federal regulations, and must demonstrate that the state or territory can enforce the program requirements. Of the states and territories, all but Wyoming and the District of Columbia have primacy. The EPA Regional Offices administer the PWSS programs within those two jurisdictions.

Native American tribes must meet the same requirements as a state in order to receive primacy. The three public water supplies operated by Native American tribes in Iowa have not received primacy and are overseen directly by EPA: Winn-A-Vegas Casino in Sloan; CasinOmaha in Onawa; and, the Sac & Fox Community in Tama.

EPA regional offices report to the states any enforcement actions taken by EPA within their jurisdiction. All SDWA data for a state is stored in an automated database called the Safe Drinking Water Information System (SDWIS). This database currently contains an inventory of public water supply systems and violation records.

The IDNR Drinking Water Program Components

The Iowa public drinking water program has the following responsibilities, conducted by staff located centrally in Des Moines (Water Supply and Region 5), as well as in six other cities around the state: Manchester (Region 1), Mason City (Region 2), Spencer (Region 3), Storm Lake (Satellite Office 3A), Atlantic (Region 4), and Washington (Region 6). The offices are shown on the map at the right.



On-Site Inspection

- conducts site surveys for well and treatment facility placement,
- inspects every public water supply system in the state at least every five years (three years for surface water community water supply systems), which includes examination of the operation and maintenance of the entire system,
- provides technical assistance to water supply operators,
- responds to complaints from the public,
- provides emergency response to spills that may threaten water resources

Operation Permitting

- issues the operation permits for each system at least every three years, which lists the system-specific monitoring and operation requirements,
- monitors the compliance by each system with the drinking water program requirements,
- prepares violation notices, compliance schedules and enforcement actions

Construction Permitting

- issues construction permits for projects,
- reviews preliminary engineering reports, viability assessments and source water protection plans,
- assists systems and consulting engineers in selecting various treatment technologies for specific water quality problems.

Water Allocation and Use Permitting

- allocates and tracks the withdrawal of water from Iowa's aquifers and surface waters,
- issues and renews water use permits that are effective for ten years, and
- reviews water conservation plans.

Drinking Water Operator Certification

- evaluates applicants qualifications to determine eligibility for examination,
- certifies operators that successfully complete a written exam,
- renews certification of operators that earn continuing education units,

Environmental Laboratory Certification

- certifies laboratories that analyze samples,
- contracts with the University (of Iowa) Hygienic Laboratory to inspect environmental laboratories every two years and check the accuracy of annual proficiency testing samples.

Drinking Water State Revolving Loan Program

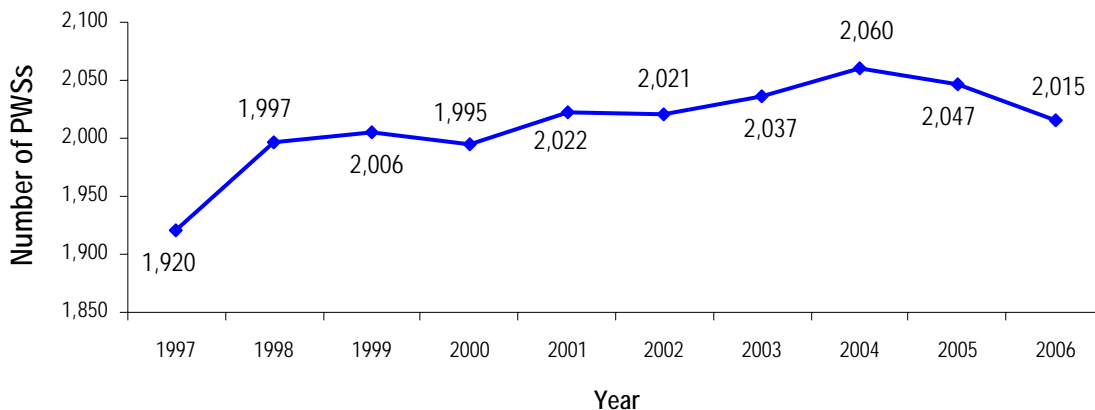
- makes loans to drinking water systems for construction of drinking water sources, treatment, storage and distribution systems to ensure public health and provide safe drinking water,
- makes loans for implementation of source water protection projects,
- scores and ranks applications based on whether the projects addresses health risks, rule compliance, infrastructure needs, and source water protection including criteria for loan eligibility.

Iowa also provides a variety of assistance to public water systems through the following four programs:

- **Capacity Development** The department continues to employ a capacity development strategy (also called viability assessment) to improve the financial, technical, and managerial capabilities of all water systems. New systems must be viable when they first serve water to the public. Existing systems are required to conduct self-assessments based upon various performance factors.
- **Source Water Protection** The first step in a multiple-barrier approach to drinking water protection is preventing contamination of drinking water sources. Iowa continues to perform source water assessments for new public water sources, but the primary emphasis of the Source Water Protection program focuses on the implementation of local and regional source water protection activities and projects. Iowa also coordinates with regional and local governmental and non-governmental entities to provide source water protection assistance and education to interested communities. All existing public water supplies had a source water delineation and contaminant source inventory completed by the IDNR's Geological Survey Section (groundwater systems) or other providers (for surface water systems) by July 2004. The systems then use this base document to develop their system-specific source water protection plans. As of April 2007, 135 community public water supply systems have approved final source water protection plans: 118 have partial or limited implementation of plans; and 17 have fully implemented plans.
- **Public Water System Security** The department provides information, consultation, and training to public water systems and operators regarding drinking water security.
- **Technical Assistance Contracts** The department administers contracts for projects that provide technical assistance to water operators and to systems serving fewer than 10,000 persons.

The number of public water supply systems in Iowa declined in 2006 from the previous year. Any system that was active for a single day during the year is included in that year's total.

Number of Regulated Iowa PWSs from 1997 - 2006



Iowa's Public Water Supply Systems

Definition of a PWS

A public water supply system is a system that provides water to the public for human consumption. The system must have at least 15 service connections or regularly serve an average of at least 25 individuals daily at least 60 days out of the year. An example of a system that is not a public water supply (a private water supply) would be a well serving a farmstead or rural home with 6 residents.

A public water supply system (PWS) is either a community water system, a non-transient non-community system, or a transient non-community system.

- A **community water system** (CWS) is a PWS that meets the above definition for year-round residents. Examples of CWSs include municipalities, subdivisions, and mobile home parks.
- A **non-transient non-community water system** (NTNC) is a PWS that regularly serves at least 25 of the same people four hours or more per day, for four or more days per week, for 26 or more weeks per year. Examples of these systems are schools, day-care centers, factories, and offices. Other service-oriented businesses, such as hotels, resorts, hospitals, and restaurants, are classified as NTNCs if they employ 25 or more people and are open for 26 or more weeks of the year.
- A **transient non-community water system** (TNC) is a PWS other than a CWS or NTNC that regularly serves at least 25 individuals daily at least 60 days out of the year. Examples of TNCs are convenience stores, bars, restaurants with fewer than 25 employees, golf courses, camps, parks, and recreation areas.

Public Water Supply Systems in Iowa

Number of Systems

In 2006, over 2.64 million Iowans were served by community public water supplies, or 90.3% of the total state population (2000 census), with the remaining 9.7% of the population served by private water supplies. Iowa's 2,015 public water supply systems in 2006 included 1,146 CWS, 138 NTNC, and 731 TNC systems.

System Size

Iowa is a small-system state, as indicated in the following table, with 94% of our systems each serving fewer than 3,300 people.

Population Served	EPA Classification	Number of PWS	Percentage of Total PWS
25 – 500	Very Small	1,439	71.4
501 – 3,300	Small	452	22.4
3,301 – 10,000	Medium	81	4.0
10,001 – 100,000	Large	40	2.0
Over 100,000	Very Large	3	0.2
Total		2,015	100.0

System Source Water

Iowa's drinking water is obtained from three sources:

- Groundwater from deep or shallow wells,
- Surface water from rivers, lakes, and reservoirs, and

- Groundwater that is under the direct influence of surface water as determined through testing by the presence of insects, bacteria, algae, pathogens, and/or significant and relatively rapid shifts in physical and chemical water characteristics.

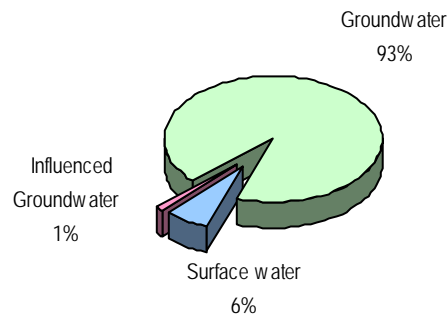
Since a PWS can use any combination of water sources in its system, the PWS is classified by the source that is most vulnerable to contamination. Surface water systems are most vulnerable to contamination, followed by influenced groundwater systems. As indicated in the following tables, 92% Iowa's systems are served by groundwater sources, which serve 57% of the population. Surface water and influenced groundwater sources are used in the remaining 8% of systems, yet they serve 43% of the population.

Source of Water	Number of PWS	Percentage of Total PWS	Percentage of Total Population Served
Surface water	130	6.5	33.3
Influenced Groundwater	25	1.2	9.5
Groundwater	1,860	92.3	57.1

Systems using surface water or influenced groundwater sources have more complex operational and monitoring requirements than do groundwater systems, because of the greater treatment requirements of their source water.

System Source Water in Iowa:

The vast majority of Iowa's systems are supplied by groundwater.



Population Served by the various Source Waters:

Even though 92% of Iowa's systems use groundwater, only 57% of the state's population is served by groundwater systems. The more populated areas of the state are generally served by surface water or influenced groundwater sources.

