

Table of Contents

Glossary of Terms	Page 2
State Information	Page 4
Drinking Water Program Information	Page 5
Analysis of Compliance by Public Water Systems	Page 6
Compliance and Enforcement Activities	Page 7
Attachment 1:	State of Alaska Public Water System Annual Compliance Report Violations for CY 2007
Attachment 2:	Alaska Public Water Systems with Maximum Contaminant Level or Treatment Technique Violations in CY 2007
Attachment 3:	The Annual Compliance Summary Standard Report pulled from the federal database (SDWIS/Fed) for the state of Alaska.
Attachment 4:	Detailed summary of Compliance and Enforcement Actions for CY 2007.

Glossary of Terms

Public Water System

A Public Water System (PWS) is defined as a system that provides water using piping or other constructed conveyances for human consumption to at least 15 service connections or serves an average of at least 25 people for at least 60 days each year. There are three types of PWSs. PWSs can be community (such as towns), non-transient non-community (such as schools, lodges or factories), or transient non-community systems (such as rest stops or parks). The State of Alaska has a different nomenclature for water system types as follows; Community and non-transient non-community systems are designated Class A, while transient non-community systems are designated Class B. There are different monitoring requirements for each class of water system. For this report the federal nomenclature will be used, additionally, when the acronym PWS is used, it means systems of all types unless specified in greater detail.

Maximum Contaminant Level

Under the Safe Drinking Water Act (SDWA), the Environmental Protection Agency (EPA) sets national limits on contaminant levels in drinking water to ensure that the water is safe for human consumption. These limits are known as Maximum Contaminant Levels (MCLs).

Maximum Residual Disinfectant Level

The EPA sets national limits on residual disinfectant levels in drinking water to reduce the risk of exposure to disinfectant byproducts formed, when PWSs add chemical disinfectants for either primary or residual treatment. These limits are known as Maximum Residual Disinfectant Levels (MRDLs).

Treatment Techniques

For some regulations, the EPA establishes treatment techniques (TTs) in lieu of an MCL to control unacceptable levels of certain contaminants. For example, treatment techniques have been established for viruses, some bacteria, and turbidity.

Variations and Exemptions

A primacy state can grant a PWS a variance from a primary drinking water regulation, excluding microbial regulations, if the characteristics of the raw water sources reasonably available to the PWS do not allow the system to meet the MCL. To obtain a variance, the system must agree to install the best available technology, treatment techniques, or other means of limiting drinking water contamination that the Administrator (the State of Alaska) finds are available (taking costs into account), and the state must find that the variance will not result in an unreasonable risk to public health. The variance is a long-term compliance option that shall be reviewed not less than every 5 years to determine if the system remains eligible for the variance. A primacy state can grant an exemption temporarily relieving a PWS of its obligation to comply with an MCL or treatment technique, or both, if the system's noncompliance results from compelling factors and the system was in operation on the effective date of the MCL or treatment

technique requirement. The state will require the PWS to comply with the MCL or treatment technique as expeditiously as practicable, but not later than 3 years after the otherwise applicable compliance date. At present, the State of Alaska only grants exemptions for one chemical contaminant (arsenic) and no microbial contaminants; no variances are offered.

Monitoring

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

Significant Monitoring Violations

For this report, significant monitoring violations are generally defined as any significant monitoring violation that occurred during the calendar year of the report. A significant monitoring violation, with rare exceptions, occurs when no samples were taken or no results were reported during a compliance period.

Consumer Notification

Every Community Water System is required to deliver to its customers a brief annual water quality report. This report is to include some educational material, and will provide information on the source water, the levels of any detected contaminants, and compliance with drinking water regulations.

Significant Consumer Notification Violations

For this report, a significant public notification violation occurred if a community water system completely failed to provide its customers the required annual water quality report.

Annual Compliance Report

Each quarter, primacy states submit data to the Safe Drinking Water Information System (SDWIS/FED), an automated database maintained by EPA. The data submitted include, but are not limited to, PWS inventory information, the incidence of Maximum Contaminant Level, Maximum Residual Disinfectant Level, monitoring, and treatment technique violations; and information on enforcement activity related to these violations. Section 1414(c)(3) of the Safe Drinking Water Act Amendments of 1996 requires states to provide EPA with an annual report of violations of the primary drinking water standards. This report provides the numbers of violations in each of six categories: MCLs, MRDLs treatment techniques, variances and exemptions, significant monitoring violations, and significant consumer notification violations. The EPA Regional Offices report the information for Wyoming, the District of Columbia, and all Indian Lands except the Navaho Nation. Alaska is a part of EPA Region 10, along with Idaho, Washington, and Oregon. EPA Regional offices also report Federal enforcement actions taken on PWSs for the appropriate states within the particular region. Data primarily retrieved from SDWIS/FED forms the basis of this report.

State Information

The State of Alaska is fortunate to have access to a vast array of natural resources and beauty. Alaska occupies 20% of the nation's land base, 40% of the nation's surface water, and contains half the nation's wetlands. The state has 33,904 miles of shoreline - twice the length of all the other states combined. These resources, for the most part, are healthy, productive, and relatively pollution-free. EPA's 2004 report on the condition of the nation's coast concludes that, "Alaska's coastal resources are generally in pristine condition. Concentrations of contaminants have been measured at levels significantly lower than those in the rest of the coastal United States." While such numbers conjure up images of wild, untamed land, Alaska has proven to be an important source of the nation's natural resource production. Our oceans and coastal watersheds produce 25% of the nation's oil, over 50% of the nation's seafood, and minerals from several world-class mines including the world's largest operating zinc mine. However, with these unique opportunities come unique challenges.

The State of Alaska encompasses 571,951 square miles of land, and has 16 organized boroughs, which are the equivalent of county governments in the rest of the United States; however, 59% of the state's land still remains unorganized territory. Approximately 77% of Alaska's population resides in the 5 largest boroughs (see Figure 1): Municipality of Anchorage, Fairbanks North Star Borough, Kenai Peninsula Borough, Matanuska-Susitna Borough, and Juneau Borough. The vast size of the state combined with limited road access provides one of the many unique challenges for the state. Over 28% of the state's population

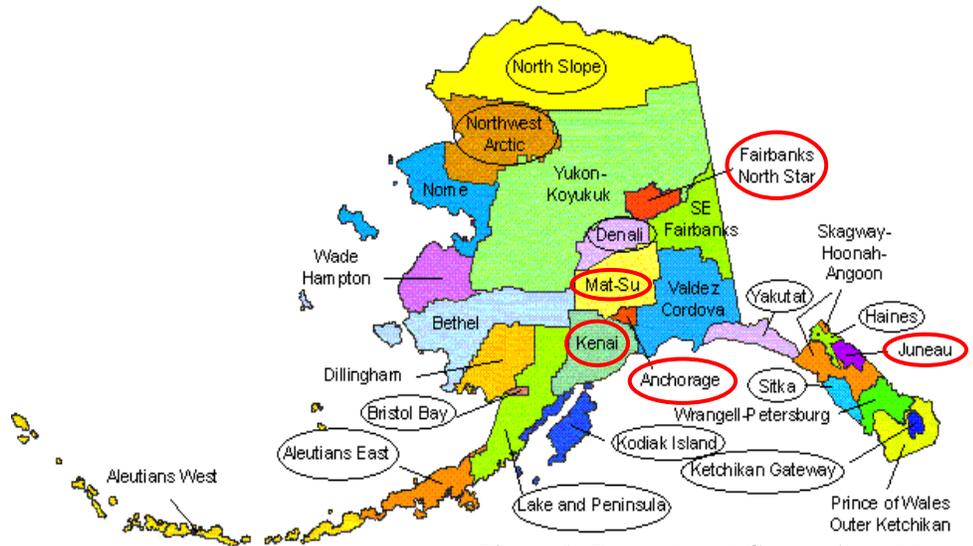


Figure 1: Borough and Census Area Map

Organized boroughs are circled and the 5 largest boroughs are circled in red. Borough/Census Map, Alaska Department of Labor and Workforce Development, <http://146.63.75.50/research/cgin/cenmaps/statemap.htm>

lives in "roadless" areas, where transportation to major urban centers of the state is only by airplane, boat, or snowmachine, making travel difficult, unreliable, expensive, and often hazardous¹.

The residents of Alaska face a variety of arctic-environmental issues more common to Russia, Finland, Sweden, Norway, Greenland, and Canada than to other EPA Region 10 states. For water systems operating in the state, these challenges can come in many forms. For example, many systems do not have access to their respective water sources year-round due to freezing conditions. This long-term storage of water raises the immediate possibility of water shortages, as well as the cumulative possibility of elevated levels of disinfection by products due to the extended storage time.

These issues require the Alaska Department of Environmental Conservation (DEC) Drinking Water (DW) Program to be multifaceted, flexible, and adaptable in order to address the

¹ Healthy Alaskans 2010, Alaska Department of Health & Social Services, Division of Public Health, December 2001

geographic, social, and economic challenges unique to Alaska.

Program Overview

The mission of the DEC DW Program is to protect the health of the people of Alaska by establishing, maintaining, and enforcing standards for safe and reliable drinking water. The DW Program is an essential part of the public health protection goals for DEC. Meeting the objective of safe and reliable drinking water involves a cooperative effort among the DW Program, PWS owners and operators, state and federal agencies, local governments, technical service providers, and communities.

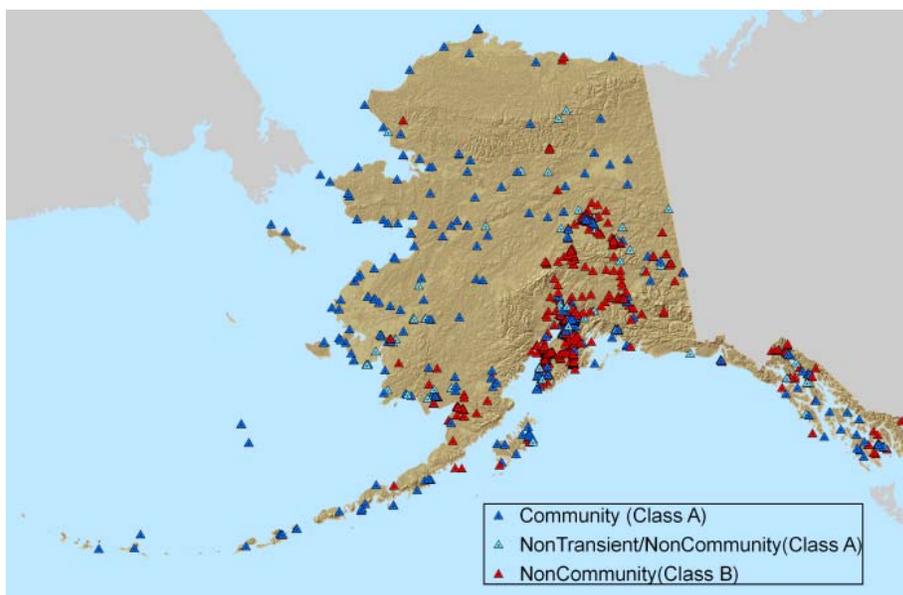
The State establishes minimum standards for drinking water quality (typically by adopting federal standards) and establishes minimum standards for water system facility infrastructure (construction) and system operation. The DW Program regulates PWSs by enforcing state and federal regulations. The State of Alaska is a “direct implementation” state meaning the state’s DW Program staff work directly with the PWS owners and/or operators. There are no borough governments that support implementation of the regulations on the local level, as is commonly practiced in the contiguous United States.

Alaska’s DW Program is comprised of 53 staff positions, which operate out of 5 offices located around the state: Soldotna, Anchorage, Wasilla, Juneau, and Fairbanks. Collectively, the offices are responsible for regulating the approximately 1,600 PWSs serving the visitors and residents of the state of Alaska. Funding for the DW Program is a mix of federal and state grant-match funds, and program receipts. The 1996

Safe Drinking Water Act (SDWA) Amendments authorized use of the Federal Drinking Water State Revolving Fund (DWSRF) through set-asides for state drinking water program activities, which include annual Drinking Water Protection Programs (Wellhead Protection and Source Water Assessments), Capacity Development, and PWSS Program Management. Other federal funds include the Counter Terrorism grant for PWS emergency response planning and security.

Figure 2: State of Alaska Regulated PWSs

Locations of PWSs in Alaska, categorized by type. Note: Most TNC water systems are on the road system, while community water systems are distributed more evenly throughout the state.

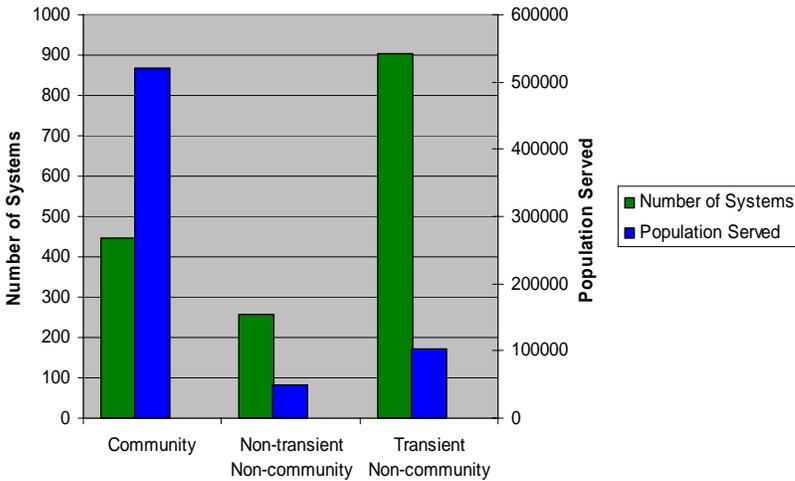


The Alaska Public Water System Universe in 2007

In 2007 there were 1,603 active PWSs and approximately 1,367 non-public (not federally regulated) systems in Alaska. Of the total PWSs, 445 are community water systems (CWS), 256 are non-transient non-community (NTNC) water systems, and 902 are transient non-community (TNC) water systems (see Figure 3).²

² PWS information from December 2007 DW Program Monthly Activity Report.

Figure 3: Number of Systems by Type and Population Served



Most of the PWS in Alaska are utilizing groundwater as their primary source; however, a greater percentage of the population is served by systems using a surface water source. This is primarily due to the Municipality of Anchorage which is the largest PWS in the state and serves 221,351 of Alaska's 627,953 residents served by a PWS (see Figures 4 and 5).

Figure 4: Population Served by Water Source

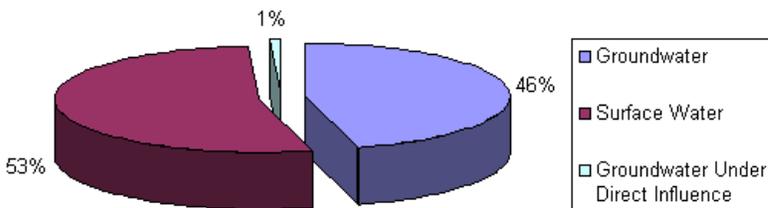
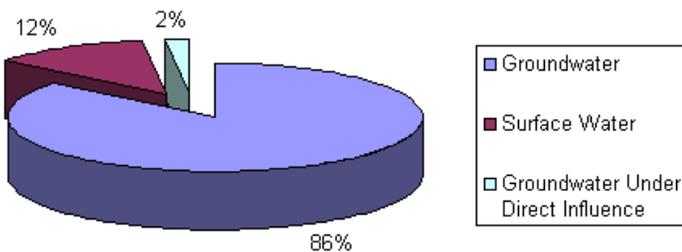


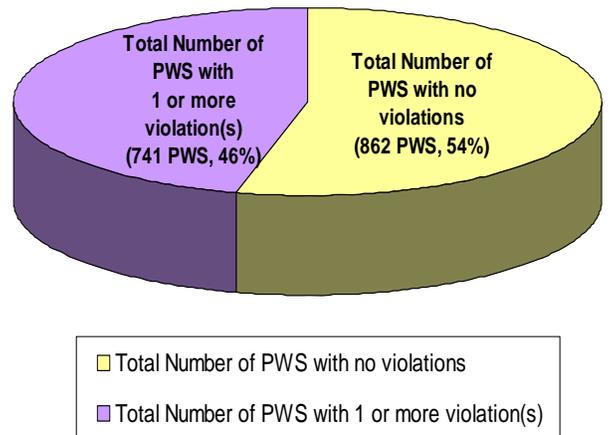
Figure 5: Number of Systems by Water Source



Analysis of Compliance by Public Water Systems in 2007

In order to protect public health through safe drinking water, PWSs are required to test for a variety of microbiological and chemical contaminants throughout the year. Currently there are 91 different chemical and microbiological contaminants regulated under the Safe Drinking Water Act. PWSs are also subject to a myriad of State and Federal regulations that cover all aspects of a water system from design and construction standards to daily operation and maintenance requirements. When a PWS fails to complete monitoring/reporting requirements, exceeds an established maximum contaminant level (MCL), or operates outside of treatment standards, a violation is issued. During the CY 2007, 5,586 violations were issued to 741 PWS in Alaska, while the remaining 862 PWS were violation-free (see Figure 6).

Figure 6: Percentage of PWSs that received violations in 2007



Further details on the violations issued to Alaska PWSs during this time are available in Attachments 1 through 3 of this report and attachments described in detail below.

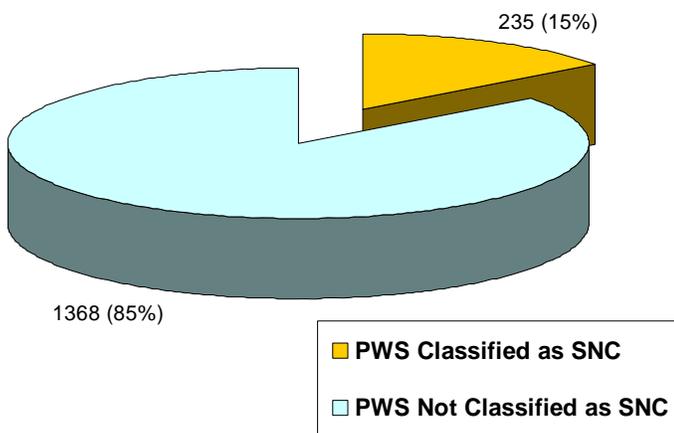
Attachment #1 is a one page summary showing what rules are covered by this report and the types of violations that were issued in 2007.

Attachment #2 is the list of PWSs that received MCL and/or Treatment Technique (TT) violations during 2007.

Attachment #3 is The PWS Annual Compliance Summary Report pulled from the federal database (SDWIS/Fed) for the state of Alaska.

Alaska’s DW Program also utilizes the EPA’s Significant Non-Compliers (SNC) List to focus attention on those PWSs that are defined as significantly out of compliance with the Safe Drinking Water Act requirements based on the severity and frequency of their violations. During 2007, 235 PWSs appeared on this quarterly list at one time or another, leaving 1,368 or 85% of Alaska’s PWSs not classified as being significantly out of compliance. The PWSs that were listed on the SNC List serve 13% of the state’s population while 87% of the population was served by systems not on the SNC List (see Figure 7).

Figure 7: Percentage of PWS Listed on EPA’s SNC List during 2007



Compliance Assistance and Enforcement Activities

Compliance Assistance

In 2007, DW Program staff took a more proactive approach to requiring compliance with drinking water regulations. These activities included phone contacts, on-site inspections, meetings with PWS owners or operators and technical assistance as needed. Staff assisted operators with reminder notices of upcoming sampling deadlines in an attempt to prevent violations before they happened. At the end of each calendar year, PWSs are required to draft a report detailing a summary of information for their system and provide this report to the consumers they serve. DW Program staff have increased outreach efforts to help operators create these documents and maintain compliance with public notice regulations. This renewed focus on technical and compliance assistance led to 4,876 total compliance assistance actions, representing a 23% increase over last year’s totals.

DW Program staff continued outreach efforts in 2007, including publishing 4 quarterly issues of the program’s newsletter, *Northern Flows*. The newsletters included topics such as: contaminant monitoring reminders, waivers, operator and water treatment technique tips, available resources (technical, managerial, and financial) for capacity development, health effects of drinking water contaminants, the new on-line water systems and staff training available, and information on many of the new federal drinking water rules being promulgated or proposed.

The State of Alaska’s drinking water regulations also require that systems are subject to sanitary surveys every 3-5 years, depending on water source. These sanitary surveys are formal inspections that document operational and maintenance aspects of water system

infrastructure. In the State of Alaska, these inspections are performed by both DW Program staff as well as certified 3rd party Sanitary Survey Inspectors. DW Program staff performed 45 sanitary surveys statewide in 2007.

DW Program staff routinely provide PWS owners and operators with the necessary forms and information to effectively notify the public of drinking water regulation violations. The method of notification varies by the violation and system type, and the water system owners must report back to the department how the public notice was performed. Some violations, such as the confirmed detection of fecal coliform bacteria or *E. coli*, warrant immediate action due to the pressing threat to public health. For such acute violations, the department requires systems to notify customers within 24 hours to boil water before use. Boil Water Notices (BWN) remain in effect until the problem has been corrected and the water is safe to consume. In 2007, the DW Program required 68 systems to post these Boil Water Notices.

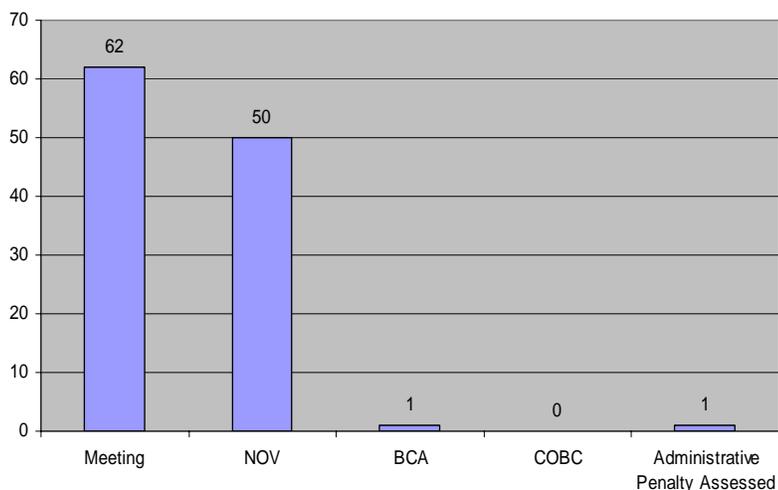
Enforcement Activities

Once violations have been generated for a particular water system, DW Program staff work hard to provide the system with straightforward guidelines as to how to return to compliance (RTC). While this responsibility ultimately rests with water system owners and operators, staff use their knowledge and expertise to provide technical and regulatory assistance to those systems with violations. Once a system takes the necessary steps to address a particular violation or series of violations, DW Program staff generates a record of the RTC action. In 2007, there were 420 Alaska PWS RTC achievements (each RTC is associated with one or more violations).

The DW Program also uses formal enforcement actions against systems that have a history of

non-compliance with drinking water regulations. Actions range from formal meetings with owners and operators to assessment of administrative penalties for failure to address outstanding violations. A series of enforcement letters are used as the first steps towards graduated enforcement. If compliance is not achieved in a timely manner, more formal enforcement tools are utilized. The most commonly used DW Program formal enforcement action is the Notice of Violation (NOV). For systems that require a longer-term solution to address violations, the system can enter into a written agreement detailing a timeline of specific actions the system intends to take. These agreements take the form of bilateral compliance agreements (BCA) and

Figure 8: Formal Enforcement Actions



compliance orders by consent (COBC). If the requirements of the NOV or COBC are not met, administrative penalties are assessed. In 2007, the DW Program took 114 formal enforcement actions against PWSs in the State of Alaska (see Figure 8).

Further details can be found in **Attachment #4**, which gives a summary of compliance and enforcement actions taken by DW Program staff in CY 2007.

OBTAINING A COPY OF THE 2007 PUBLIC WATER SYSTEMS REPORT

As required by the Safe Drinking Water Act Amendments of 1996, the State of Alaska Drinking Water Program has made the Alaska PWS Annual Compliance Report for 2007 available to the public. Interested individuals can obtain a copy of the Alaska PWS Annual Compliance Report for 2007 by accessing the Drinking Water Program Website or contacting Jeanine Oakland.

State Website: <http://www.dec.state.ak.us/eh/dw/index.htm>

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