Atka, Alaska—State of Alaska Village Safe Water Program

Alaska Native Villages Program

Collaborating with federal, state and local partners to address the basic water and sanitation needs of remote Alaskan villages since 1996.

Public Health Benefits:
Reduction in waterborne and respiratory illnesses through increased access to safe drinking water and sanitary sewer services.

Environmental Benefits:
Reduction in the amount of raw sewage discharged to the environment, benefiting Alaska Natives and the fish and wildlife that they depend on.

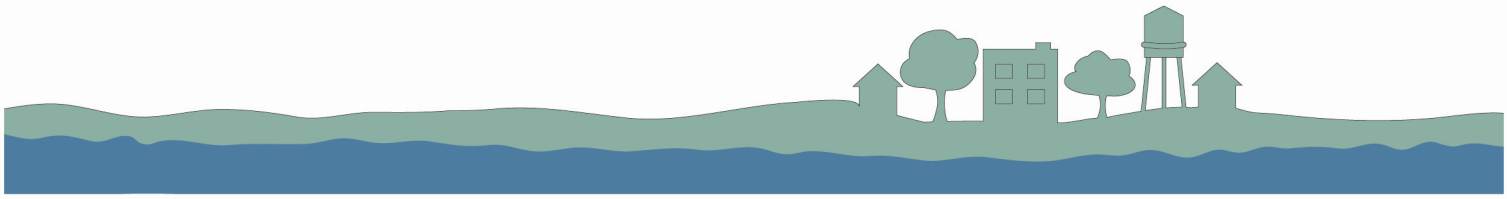
Economic Benefits:
Water infrastructure investments generate large economic gains due to reduced health care costs and gains in productivity from public health benefits. Infrastructure construction projects also stimulate local economies and create local jobs.

Many Alaska Native Villages (ANVs) do not have access to safe drinking water or adequate wastewater treatment, nor do they have the resources to address their infrastructure needs on their own. ANVs face many unique challenges, including high unemployment, low incomes, remoteness and permafrost. EPA's ANV program directs critical funding to the most underserved communities in rural Alaska, making these basic services possible.

Since 1996, EPA's ANV program has provided over $460 million in grant funding to help these communities address their basic water and sanitation needs through facility construction, training and technical assistance. In collaboration with federal and state funding partners, EPA has efficiently targeted the most underserved communities, yielding dramatic results. Between 1996 and 2010, EPA funds supported more than 600 projects. During this period, the percent of rural Alaskan homes with drinking water and wastewater service grew from 50% to 92%*.

In fiscal year 2010 alone, the ANV program provided 333 households with new or improved access to safe drinking water and/or wastewater treatment. The state and federal government continue to work with ANVs and local governments to fulfill their responsibility to protect human health and the environment through the provision of safe water and wastewater disposal to villages in rural Alaska.

* National Average is 99.33%



Collaboration between Federal, State, and Alaskan Native Village Governments

The ANV program serves approximately 240 Alaskan Native Villages and 60 non -native communities. To ensure that all eligible homes are served and to minimize the administrative burden on these communities, EPA closely coordinates the provision of water and wastewater infrastructure with program partners, including the Indian Health Service (IHS) Sanitation Facilities Construction Program, the State of Alaska Department of Environmental Conservation and the U.S. Department of Agriculture—Rural Development.

To streamline administrative requirements while expediting the delivery of services, the funding partners designate a lead agency for each community. The lead agency typically takes responsibility for all projects in that community including project development, design and construction, regardless of the source of funding. The designation of a single lead agency also allows the recipient community to adhere to a single set of reporting requirements, such as requirements for engineering reports and environmental reviews.

Public Health and Environmental Benefits

Health and sanitation conditions in Alaskan Native Villages historically have lagged well behind the United States overall. In 1954, when the federal government established the IHS agency under the U.S. Public Health Service, infectious diseases caused 46% of all Alaska Native deaths. In 2000, one in every three families in Alaskan villages still used pit privies or a five-gallon plastic “honeybucket” for a toilet and hauled water and wastewater manually to and from their homes.

In 2008, the Centers for Disease Control and Prevention published the results of a study of the relationship between the presence of in-home piped water and wastewater services and hospitalization rates for skin, respiratory tract and gastrointestinal tract infections in rural Alaska for children under the age of five. The study concluded that higher respiratory and skin infection rates were associated with a lack of in-home water service and that the disparity should be addressed through sanitation infrastructure improvements. Since 1995, the percent of serviceable rural Alaska homes with access to safe drinking water and wastewater treatment has increased dramatically, from about 50% in 1995 to 92% in 2010. Although the state, the communities, EPA and other federal partners have made significant progress, Alaskan rural villages still lag behind the national average of 99.33% of homes in the United States with access to water and wastewater infrastructure, as measured by the U.S. Census Bureau and, thus, face a higher risk of illness.

Investments in wastewater and drinking water **reduce health impacts** from exposure to contaminants and, therefore, **reduce health care costs** to the federal government.

The percentage of serviceable rural Alaskan homes with access to **safe drinking water and wastewater** treatment **increased** from about 50% in 1995 to **92%** in 2010.

Providing wastewater and drinking water infrastructure to communities reduces health impacts from prolonged exposure to raw sewage and from drinking water contaminants. The federal government is ultimately responsible for the health care costs of American Indians and Alaska Natives through the Indian Health Care Improvement Act.

Not only do water infrastructure investments improve the health of local populations, they also protect and restore the environment, which benefits the entire ecosystem. Healthy ecosystems support wildlife and fish upon which Alaska Natives commonly rely as subsistence food sources. When exposed to bacteria and other contaminants, fish and wildlife can also be negatively impacted.

Economic Activity & Jobs Benefit Rural Alaskans

The Alaska Native Villages program implements projects that stimulate local economies through public health-related economic gains and local job creation. EPA has invested $460 million in infrastructure projects and generated substantial economic benefits through public health improvements. Safe drinking water and sanitary sewer services increase economic productivity by reducing exposure to raw sewage and drinking water contaminants that cause respiratory illnesses, skin infections and diarrheal and other gastrointestinal diseases. Additional economic benefits are provided by gains in productivity from improved health, reduced health care costs and convenience time savings to individuals, which is the time saved that a patient would otherwise incur in seeking medical attention and treatment.

Local construction crew prepares to erect a building to house a new water treatment plant. Photograph from Alaska Native Tribal Health Consortium

Alaskan Native Village grants fund education, training and management programs, **providing economic opportunities for communities** facing often greater than 50% unemployment.

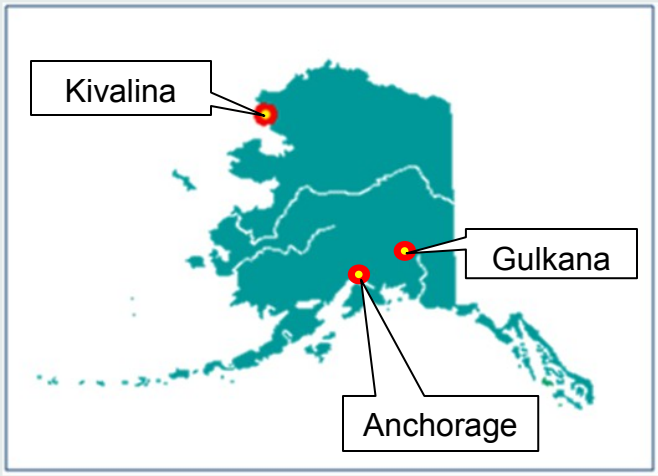
In addition to construction activities, ANV grants fund education, training and management programs, such as the Rural Utility Business Advisor (RUBA) Program and the Remote Maintenance Worker (RMW) Program. RUBA provides management assistance and financial training for water and wastewater utilities in cities and villages. RMW includes a circuit rider program that provides direct, one-on-one training and technical assistance to local water and sewer operators. Administered by the State of Alaska, these programs improve the long-term sustainability of the rural utilities. Community members develop transferable job skills while participating in construction, operation and maintenance activities.

The majority of the projects hire local village residents to assist with building water and wastewater infrastructure. In FY 2011, 16 remote maintenance workers provided hands-on training and technical assistance to 188 rural communities in Alaska. Since 1994, nearly 200 communities have received direct administrative and utility management training under the RUBA program. Moreover, in FY 2011, the ANV program, in coordination with other federal agency programs, created up to 314 jobs for Alaska Natives.

Moving Forward

Two of the biggest challenges facing rural Alaskan sanitation utilities are declining funding levels and the need to sustain existing infrastructure systems. At the same time that funding has decreased significantly, the costs to address critical rural Alaskan sanitation needs have increased dramatically. These needs include homes without running water and flush toilets, safe drinking water and the necessity for secondary treatment of wastewater. Water infrastructure in Alaska can be highly energy intensive, therefore, as energy costs increase, so do the construction and operational costs of the sanitation systems. Given the limited cash economy of ANVs, these increased costs are extremely difficult to absorb. A project to increase energy efficiencies in 10 existing ANV water treatment plants was recently funded through the 2009 American Recovery and Reinvestment Act (ARRA).

CASE STUDIES



The case studies on the following page highlight projects in two Alaskan Native Villages that demonstrate EPA's efforts to improve water and sanitation for these communities. One construction project was funded by the American Recovery and Reinvestment Act (ARRA). The second project highlights the ongoing work of the Remote Maintenance Worker program.

Alaska Native Village of Gulkana

Primary treatment tank installation for the Gulkana wastewater treatment system. Photograph from Alaska Native Tribal Health Consortium

The Alaskan Native Village of Gulkana, located approximately 190 miles northeast of Anchorage, needed critical improvements to its wastewater treatment and disposal facility. The community's existing facility had failed, and untreated wastewater was being discharged directly into the Gulkana River. The river is a critical resource—known for an abundance of king and red salmon—and is critical for the village, whose subsistence lifestyle depends on plentiful harvests. The river also draws sports fishermen from all around the country.

Recognizing the critical need for improvements, EPA, IHS, the Alaska Native Tribal Health Consortium (ANTHC), and the Native Village of Gulkana worked cooperatively to develop a wastewater treatment project as a part of the 2009 American Recovery and Reinvestment Act. As the harsh climate limits the construction season to the summer months, construction activities commenced in July of 2009 and were complete by November 2009. Local vendors provided the majority of project labor, equipment rental, fuel services, sanitation services, parts and supplies. Over $600,000 in ARRA funding created jobs and business opportunities in Gulkana and the surrounding area.

The village is thriving as a result of these critical investments in their wastewater infrastructure. Untreated wastewater no longer discharges into the river, allowing wildlife to thrive and ensuring the safety of the community's water supply. With a bountiful salmon harvest, sports fishermen continue to visit the village.

Kivalina, Alaska

Aerial photo of Kivalina, Alaska. Photograph from Alaska DCRA

Kivalina is located approximately 630 miles northwest of Anchorage at the tip of a long barrier island in the Arctic Ocean. Severe arctic winters, coupled with remoteness, limit the community's access to its only source of fresh water, the Wulik River. Located 3 miles away, the community is only able to draw fresh water from the river during the short summer, from June to September. As the winter sets in, the community's central raw water storage tank is completely filled one last time and must meet all water needs for Kivalina residents until the following June. Community water needs such as drinking water, bathing and laundering are completely dependent on the reserves in the raw water storage tank.

In 2011, despite practicing water conservation measures, the community faced a potentially catastrophic emergency when they ran out of water. This lack of safe drinking water posed a serious public health threat to the nearly 400 Alaskan Natives of Kivalina who did not have the money, capacity, or equipment to remedy the crisis on their own. Remote maintenance worker John Monville, through the RMW program funded in part by EPA, and environmental health manager Paul Eaton worked with various entities to bring attention to the problem and secure funding to address the issue. The men obtained funding from the Northwest Arctic Borough and the Maniilaq Regional Health Corporation to purchase necessary equipment and chartered a plane to bring the equipment to Kivalina and restore the water service. They trained the operator in water storage tank cleaning, repaired the raw water transmission line and secured a new raw water pump. Ultimately, the community regained use of their water system, allowing them to lift water restrictions and reopen the *washeteria*, the only location in the community for potable water, bathing and laundering facilities.

For more information, please visit:

http://www.epa.gov/alaskanativevillages

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