Bureau of Reclamation
Science and Technology Program

Brackish Water Treatment for Native American and Small Communities in the Pacific Northwest Region

Final Report

Summary

Year Funded: 2004
Funding Amount: $80,000
Funding Requested: $239,852

Due to the nature of the project (pilot plant), this project could not be scaled down from the requested amount to the funded amount. Therefore, the project was cancelled.

Background

The purpose of this project was to determine and demonstrate the most appropriate water treatment technology for Native American and small communities along the Pacific shore of Washington State. This will be accomplished using the treatment of the Quinault Tribes water supply.

The problem that the proposed research was to solve is the supply of drinking water to Native Americans in need. Ground waters along the coast of Washington are impaired with salt water infiltration, arsenic, iron, manganese that exceed U.S. Environmental Protection Agency (EPA) regulatory limits. Small communities with impaired drinking water include Kalaloach, Queets, Tuby and Rialto Beech, La Push, and Ocean Shores. Native American communities such as the Quinault, the Hoh, the Shoalwater Bay, the Quileute, the Makah, and the Ozette have similar problems. Test results from a well on the Quinault Indian reservation in October 2000 showed chlorides at 496 milligrams per liter (mg/L) (Maximum Contaminant Level Goal [MCLG]: 250), total trihalomethanes at 165 mg/L (Maximum Contaminant Level [MCL]: 80), iron at 3 mg/L (MCLG: 0.3), manganese at 0.2 mg/L (MCLG: 0.05), and color at 42 units (MCLG: 15). In addition, the water is very hard at 300 mg/L as calcium carbonate (CaCO) (v3). A sampling event this year showed the total trihalomethanes to be more than four times the legal limit and haloacetic acids to be more than eight times the legal limit. The various exceedences indicate a need to significantly improve their drinking water treatment process and/or water source.

The Quinault Tribe has addressed the possibility of obtaining water from nearby small towns such as Ocean Shores, but it was determined to be too expensive in pipeline and pump station costs. In addition, the water supply at Ocean Shores is not large enough to accommodate the Quinault Tribe. The Quinault Tribe and other small communities along the coast do not have the technical resources available to solve these problems. The Quinault Tribe has paid various local engineering consultants substantial portions of their budget to solve their problem but have not been successful to date. Financial resources from these small communities for hiring consultants is often very limited. The Quinault Tribe turned to Reclamation for help, including meeting with the Commissioner earlier this year.