



***Sustainable Northern Communities Sewage Treatment Plant  
Award No. 01162  
Quarterly Report: January 1, 2011 – March 31, 2011***

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The project team (CCHRC, Lifewater Engineering, and GW Scientific) continued to move this project forward in the 1<sup>st</sup> quarter of 2011. Activities included ongoing data monitoring in Anaktuvuk Pass and the CCHRC Research and Test Facility (RTF). A new prototype design has also been undergoing testing at the Lifewater facilities in Fairbanks, which involves resident water use. The SST600 series system in Fairbanks is hooked up to residential apartments at Lifewater's facilities. This provides a more realistic testing approach, while allowing Lifewater staff total access to the new prototype design so testing, validation, and improvements can be made at a faster pace.

Data from the Anaktuvuk Pass House sewage treatment plant (STP) has been streamed on the web and logged since October 20, 2009. We are using the lessons learned with this prototype design to modify the design and integration into future shelter designs to achieve continued performance improvements. Current homes being built in Atqasuk by our project partner, Tagiugmiullu Nunamiullu Housing Authority (TNHA), are using some of the new system designs (Figure 1). The Sustainable Sewage Treatment Plant (SST600 series) systems are being installed inside the envelope of these homes, which will not only eliminate the need for heat trace, but also makes winter maintenance easier. The test system in Anaktuvuk Pass has helped identify important winter maintenance issues for homeowners, and design considerations for incorporating the sewage treatment plants into new housing designs.

The real-time reporting system in Anaktuvuk Pass allows the project team to test data collection methods and standards. This will help improve and lower the cost of remote monitoring systems for commercial applications. Figure 1 shows the new prototype SST600 series plant in a testing environment at the Lifewater Engineering manufacturing facility. Work in this quarter at Lifewater Engineering Company has included testing and improvements in the SST600 series prototype systems at their shop in Fairbanks to fine tune the design of a system so that it will consume less energy than their previous STP model. Current data has demonstrated that the project innovations have cut the energy consumption from around 400W to less than 200W, an energy reduction of approximately 50%.

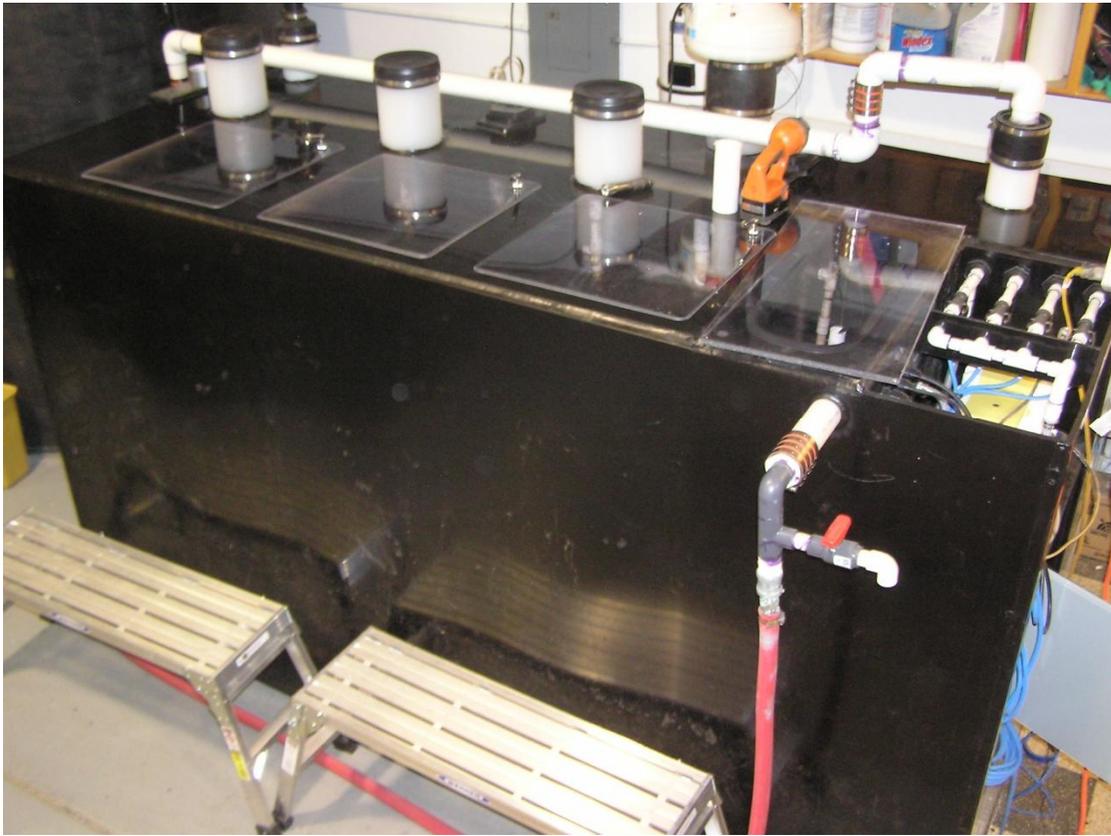


Figure 1. One of the Lifewater Engineering's new sewage treatment plants under prototype testing conditions in their Fairbanks, Alaska, manufacturing facility. This unit, the SST600B, saves energy while providing increased treatment performance. These series of units are currently being installed in the community of Atqasuk, putting innovation into practice.