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Press Release

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Alaska Water and Sewer Challenge now enters second phase to create non-traditional systems for remote villages

(JUNEAU, AK) – The Alaska Department of Environmental Conservation's Village Safe Water Program is proud to announce the second phase of the Alaska Water and Sewer Challenge. The project is an innovative research and development effort to find better and more affordable methods to deliver safe drinking water and sewage disposal services to rural Alaska.

Federal and tribal organizations are working with DEC and other state agencies on the steering committee for the project. They include the US EPA and Department of Agriculture-Rural Development, the Indian Health Service, the Arctic Research Commission and the Tanana Chiefs Conference.

Through an international solicitation begun in August 2013, the Village Safe Water Program called for teams to compete to create cost-effective designs for water and sewer technologies that can be constructed and operated in an arctic climate. A phased selection process has narrowed the number of teams to six. Those teams are: Cowater Alaska, Dowl HKM Alaska, Summit Consulting Services, Tetra Tech, University of Alaska - Anchorage, and Lifewater. Complete descriptions of each team are available below.

In the next phase of the effort, each team will work with at least two communities, each from a different region, for the purpose of gathering input. The teams will create an innovative household water and sewer system designed to meet specific performance targets, including water quantity, capital cost, operation and maintenance cost, parts availability, constructability and durability, and freeze/thaw recovery capability. Teams will also be scored on how they incorporate innovation and community input. Next year, each team will present their proposed system to a scoring committee, and three teams will be funded for prototype development and pilot testing.

"We are very excited to enter this new phase of the project," said Bill Griffith, DEC facility programs manager. "Through the efforts of the State, our six teams and the communities involved, we hope to reduce the health risks associated with honeybuckets and unsafe water supply."

Residents in homes without running water and flush toilets have a higher incidence of acute respiratory infections and severe skin infections requiring hospitalization than persons with in-home running water. A 2010 study found higher rates of invasive pneumococcal disease (IPD) among Alaskan children who did not have access to piped water. IPD is a very serious bacterial infection that can affect the brain, blood, and lungs. Running water provides the ability to wash hands frequently, which reduces the spread of disease.

Approximately 75 percent of homes in small rural villages are now served with running water and sewage systems. However, over 4,500 homes still lack services, and there is a $300 million shortfall to bring traditional piped water and sewer services to those homes.

Using decentralized water and sewer technology, homeowners would not have to hook into a community-wide utility. Each home would have its own stand-alone system, at lower cost than that associated with piped and truck haul systems. Although some of the parts for household-based systems are in use today, all the different pieces that would be needed for a rural Alaska home have not been put together. The challenge will be to accomplish this in a way that is affordable and durable over the long run.

For more information about the Alaska Water and Sewer Challenge, visit the project website at: http://watersewerchallenge.alaska.gov/.

For more information on DEC's Village Safe Water Program, visit: http://dec.alaska.gov/water/vsw/index.htm.

Information about each of the phase 2 teams:

Tetra Tech – Tetra Tech is a national engineering firm with an office in Alaska. The team also includes the University of Alberta's Water Initiative for First Nations, the Institute for Sustainable Futures of the University of Technology in Sydney, and the CRW Engineering Group, an Anchorage engineering firm with a deep understanding of rural Alaska communities.

Lifewater – Based in Fairbanks, Alaska, Lifewater is an engineering company which has developed and patented a packaged residential wastewater treatment system suitable for extreme weather, having over 100 systems operating in about 20 rural communities since 1999. Lifewater's partners include CampWater Industries, another Alaska firm, the Cold Climate Housing Research Center of the University of Alaska Fairbanks, and AppTech Solutions, a patent-holder innovative company that has worked in conjunction with the Bill & Melinda Gates Foundation's "Build a Better Toilet."

University of Alaska Anchorage – UAA has assembled a large team that features a variety of expertise ranging from leaders in academia, non-profit institutions and the private sector. Partners include a University of Colorado-Boulder Principal Investigator working on a "Reinvent the Toilet" grant for innovative sanitation technologies, experts

from RES'EAU WaterNET and Dalhousie University who have engaged rural Canadian communities in utilizing the concept of "design thinking," and a patent holder who developed wastewater reclamation and reuse technologies for the U.S. Army and NASA and who is currently associated with the University of Southern California. The team also includes the Alaska Native Tribal Health Consortium, with expertise in evaluating point-of-use (POU) water treatment and safe water storage in rural settings, and a research pioneer from the University of North Carolina, who led the design and construction of an improved POU ceramic pot water filter and portable hand-washing stations.

Dowl HKM Alaska – Dowl HKM is a large national engineering firm with several offices in Alaska. Dowl's project manager has led dozens of international teams in implementing water and sanitation technologies, targeting realistic end user operations and maintenance objectives in underserved communities. Among their team members are the primary author of the Cold Regions Utility Monograph with expertise in development and use of in-home sanitation units for Arctic environments, an international expert in social science techniques for community public health projects, a leader in 'Design Thinking' who has implemented such methods on water and sanitation projects in developing countries, and a cold regions engineer with over 30 years of design and construction experience in remote Alaskan communities.

Cowater Alaska – Cowater Alaska provides and installs small, decentralized water and wastewater solutions to remote Arctic communities in Alaska. Cowater has teamed up with two other Alaska based firms, Zender Environmental Health Research Group and Garness Engineering. Together, these firms combine decades of experience working with solid waste, environmental, and civil engineering projects for villages. The team has leading expertise with decentralized onsite water and wastewater treatment systems, development of solutions using sustainable non-traditional approaches to address water and sewer needs at the household level, evaluation of public acceptance of health-related technologies at home, and incorporation of input from end users into the development of new technologies.

Summit Consulting – Summit Consulting is an Alaska engineering firm that assists in the evaluation, planning, design and construction of water and waste water systems. Among team members are the developer of an automatic air vent for Flush Tank and Haul systems used in some villages, a finalist of the Gates Foundation 'Dry Toilet' competition who developed a prototype reactor to convert human solid waste to biochar without grid power or water, and the principal coordinator at the European Union for funding the implementation of 'resources-oriented' sanitation concepts in Eastern African countries during 2006-2010. Summit has also teamed up with a facilitation firm Agnew::Beck Consulting that has worked for 17 years with rural villages to perform community engagement, assist with 'design thinking' and evaluate community acceptance of water and sewer technologies at the household level.

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