

W56HZV-05-R-BAA1 Topic #26

Added by Amendment 0060, issued 01 November 2011

Revised by Amendment 0062, 21 November 2011

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TOPIC #26: Expeditionary Wastewater Treatment Technologies

1. OBJECTIVE:

- 1.1.** The current and future demands of a highly mobile, resource limited, Forward Operating Base (FOB) Camp call for new/advancements in technologies for wastewater treatment. The Government must continue to improve and optimize its water management to meet mission requirements. The need for reductions in the water supply burden of FOB operations and the safe discharge of wastewater require innovative technologies with the capability to treat gray (i.e., shower water re-use system concentrate) and black water (i.e., kitchen and toilet) so that it can be discharged into the environment, thus eliminating the need for waste hauling.
- 1.2.** Under this topic, the Government invites proposals for a low-waste generation, energy efficient, gray and black wastewater treatment system that can, at a minimum, be used to support a Platoon-sized (50 personnel) FOB during expeditionary operations. The technologies used in the system shall be scalable such that a system that can support a Company-sized (150 personnel) FOB can be developed using the same technologies.

2. DESCRIPTION:

- 2.1.** Shower Water Re-use Systems (SWRS) are currently being employed in base camp operations to reduce the water supply through water treatment and reuse (providing 70-75% recovery); however, there is still a need for reducing the amount of wastewater that must be hauled from base camps for disposal.
- 2.2.** The Army has identified the following areas as key technology challenges to developing and fielding a wastewater treatment system for FOB applications:
 - 2.2.1.** Rapid system start up of biological systems,
 - 2.2.2.** Ability to adapt to widely varying load conditions,
 - 2.2.3.** Reduced system footprint and pack out volume, and
 - 2.2.4.** Reduced system energy demand.
- 2.3.** The contractor shall develop and demonstrate a low-waste generating, energy efficient gray and black wastewater treatment system that can, at a minimum, be used to support a Platoon-sized (50 personnel) FOB during expeditionary operations. The technologies used in the system shall be scalable such that a system that can support a Company-sized (150 personnel) FOB can be developed using the same technologies. The developed system shall incorporate the following metrics:

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Table 1. Summary of Threshold/Objective Requirements

Requirement	Threshold	Objective
Energy Usage	Less than 20 Watt-Hr/Gal	Net zero Watt-Hr/Gal
Maintenance Period	2 hours/24 hour period	30 minutes/24 hour period
Operator Attendance	3 visits, totaling no more than 2 hours/24 hours	Unattended for 24 - 72 hours
Waste Generation	10% of total mass inflow	Less than 10% of total mass inflow
Set up Time	Fully operational in 2 days	Fully operational in 1 day or less
Minimization of discharge/by-products and consumables needed	50% reduction compared to a packaged activated sludge wastewater treatment system	Complete elimination of discharge, by-products and consumables
Capacity	1,500-3,000 gallons per day	1,500-3,000 gallons per day
Power Source	Compatible with a military standard generator	Added ability to use variable power sources, including alternative energy sources
Operational Temperature **	-25 F to 140 F **	-25 F to 140 F **

2.3.1. Energy Usage: An acceptable technology solution shall be energy efficient, using less than twenty (20) watt hours per gallon (threshold). The objective is system energy usage of net zero after treatment of a minimum initial volume of 10,000 gallons of wastewater containing no less than 350 mg/l Biological Oxygen Demand (BOD). Once the 10,000 gallon initial volume is reached, energy augmentation from any source outside the treatment system shall be balanced by internal system energy generation. Once the net zero operation has been reached, net zero operations shall be maintained indefinitely during system operation.

2.3.2. Maintenance Period: The system shall be low-maintenance with a maximum maintenance period of two (2) hours per twenty-four (24) hour period (threshold), with an objective maintenance period of thirty (30) minutes or less per twenty-four (24) hour period.

2.3.3. Operator Attendance: The system shall not require more than three (3) operator attended periods per day (in parallel with the maintenance timeframes above) with an objective of providing unattended automatic operation for twenty-four (24) to seventy-two (72) hours.

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- 2.3.4. Low Waste Generation:** The waste stream produced by the system shall, by means of separating and consuming solids, be less than ten percent (10%) of the total mass inflow.
- 2.3.5. Set Up:** The system shall be deployable and mobile, with the ability to be set up and fully operational within one (1) to two (2) days.
- 2.3.6. Minimization of Discharge/By-Products and Consumables Needed:** The system shall be adaptable to different and variable influent wastewater quality. Minimization of the production of any harmful discharge/by-products and any consumables needed is required; a 50% reduction compared to a packaged activated sludge wastewater treatment system is optimal with an objective of complete elimination of discharge, by-products and consumables.
- 2.3.7. Capacity:** The system shall be able to treat a capacity of 1,500-3,000 gallons per day.
- 2.3.8. Power Source:** The ability to use variable power sources, including alternative energy sources is desirable, although not a requirement for the system. The system must be compatible with a military standard generator.
- 2.3.9. Operational Temperature:** The system shall be operational over a wide range of ambient temperatures (-25 F to 140 F).**
- 2.4.** The system shall produce an effluent that meets or exceeds the EPA National Pollutant Discharge Elimination System 30-day average limits for secondary treatment: Biological Oxygen Demand (BOD): 30 mg/L, Total Suspended Solids (TSS): 30 mg/L, pH: 6-9, and removal: 85% for BOD and TSS.
- 2.5.** The contractor shall build and demonstrate one (1) quarter-scale to full-scale pallet/skid-mounted prototype demonstrator that can, and will, be tested in a relevant environment (for further testing information, refer to section 2.8 below) to address performance margin requirements of the system. The full-scale system shall not exceed a pack out volume of 416 cubic feet and shall weigh less than 7,110 pounds. If less than a full-scale prototype is provided, scalability of the system to full-scale must be demonstrated.
- 2.6.** The contractor shall develop a commercial type operators manual and any required training materials. The contractor shall provide training materials and manuals for 15 soldiers.
- 2.7.** The system shall be easy to operate by a non-Military Occupational Specialty (MOS) specific person after one (1) week of training and use of the operations manual. The

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system shall have the ability to provide unattended automatic operation, provide real time system monitoring, and be self-monitoring.

- 2.8. The contractor shall conduct a prototype demonstration and deliver the prototype to the Government eighteen (18) months after contract award for Government conducted testing. The contractor shall deliver the prototype to the test site locations. The contractor shall support the subsequent Government conducted testing during the last six (6) months of the contract's period of performance, for a total contract period of performance of twenty-four (24) months. Testing will be performed at up to two (2) testing sites. The Technical Point of Contact (TPOC) will determine the location of each testing site within six (6) months of the contract award date. Testing will last up to thirteen (13) weeks at each location. The contractor shall remain on-site for the first week at each testing site to train the operators and ensure proper operation of the prototype system. After the first week at each testing site, the contractor shall provide on-call support and be prepared to travel to the testing site(s) to fix any problems that may occur with the prototype system. If requested by the contractor, and determined by the TPOC to be necessary, the TPOC will assist the contractor with gaining access to the test sites within nine (9) months of the contract award date.

- 2.9. **PROPOSALS THAT REFLECT A "PARTIAL TECHNICAL SOLUTION" TO THE TECHNICAL OBJECTIVES AND DESCRIPTION ARE NOT ACCEPTABLE. THE GOVERNMENT WILL CONSIDER ONLY THOSE PROPOSED PROJECTS THAT ADDRESS ALL ELEMENTS OF THE OBJECTIVE AND DESCRIPTION.**

3. PROJECT DURATION AND ESTIMATED MAXIMUM FUNDING AVAILABLE:

- 3.1. **Period of Performance:** The scope of this effort is such that we anticipate a potential duration of twenty-four (24) months (fiscal year 2012 to 2013).
- 3.2. **Funding:** The maximum government funding available in Fiscal Years 2012 through 2013 is \$1.75M. Subparts 3.2.1. and 3.2.2. below describe the estimated maximum funding available for each fiscal year of the project. Funds which are not expended in a given fiscal year are available in the subsequent years of the project, subject to fund type restrictions. The estimated maximum Government funding available for each fiscal year of the project is as follows:
- 3.2.1. Fiscal Year 2012: \$1,280,000***
- 3.2.2. Fiscal Year 2013: \$470,000***
- 3.3. **Cost Ceiling/Cost Share:** Proposed projects with costs to the Government exceeding the amount identified in item 3.2., immediately above, and its subparts 3.2.1. and 3.2.2.,

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will be unaffordable. The contractor may propose costs in excess of the Government funded cost ceilings only if the excess costs are to be funded by a cost sharing arrangement. Please note that a cost sharing arrangement is not a consideration for award; therefore, no evaluation preference will be given if a cost share is proposed.

3.4. Multiple Awards: The Government anticipates awarding up to two (2) contracts as a result of this topic.

4. MILESTONE SCHEDULE:

4.1. Informal Talks Timeframe: 01 November 2011 through 01 December 2011.

4.2. Electronic Copies of Proposals Due: Proposals will be accepted 01 December 2011 through **23 January 2012******. Proposals must be received no later than 3:00 P.M. Eastern Standard Time, **23 January 2012******.

Note: In accordance with FAR 15.208(a), offerors are responsible for submitting proposals so as to reach the Government office designated in this Broad Agency Announcement (BAA) Topic by the time specified. Offerors are strongly cautioned to submit their proposals allowing adequate time for submission. Any proposal received at the designated Government office after the exact time specified is "late" and will not be considered unless one of the exceptions at FAR 15.208(b) is met.

4.3. Estimated Award Date: **23 April 2012******

5. SPECIAL PROPOSAL INSTRUCTIONS:

5.1. Effective 13 FEB 2009, all proposals must be submitted using the ASFI Bid Response System (BRS), accessible at <https://acquisition.army.mil/asfi/default.cfm>.

5.2. Topic #26 for proposal submission can be found by searching Contracting Opportunities for "TARBAATOPIC26." As reflected by the results of this search, proposals for Topic #26 may be uploaded via the ASFI BRS at the following URL: https://acquisition.army.mil/asfi/solicitation_view.cfm?psolicitationnbr=TARBAATOPIC26

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6. POINTS OF CONTACT:

6.1. TECHNICAL POINT OF CONTACT (TPOC):

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6.2. CONTRACTING OFFICER:

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