Black Waste Remediation Validation (Task N.0836)

Government POC
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Status
Ongoing

Statement of Need

United States (U.S.) Army Product Manager Force Sustainment Systems (PdM-FSS) provides equipment, systems, and technical support to sustain and improve the environments in which soldiers live, train, and operate, enhancing combat effectiveness and quality of life. The PdM-FSS Base Camp Integration Laboratory (BCIL), located at Fort Devens, MA, enables the Army and the Joint Services to evaluate future technologies in a live Soldier environment, providing solutions to reduce the energy demand and logistical burden on base camps. PdM-FSS is investigating the feasibility of use of currently available technologies that enable incinerating latrine waste in order to avoid the storage and retention ponding of black water, reduce logistical footprint, and improve environmental responsibility. The intent is to demonstrate a system to destroy the latrine by-product at small base camps before black water treatment is required. Typically, at small and extra small base camps, the infrastructure may not be available, due to logistics or cost, to treat low volume latrine waste water streams. In an effort to reduce hauling of waste to other camps for treatment, latrine waste disposal is typically contracted out, which has minimal cost savings, if any. Additionally, allowing contracted support into base camps is a security risk to the camp as well as the contractor. PdM-FSS has identified an incinerating toilet system for potential implementation at base camps. The system consists of a self-contained toilet and incinerating system. Before this system can be implemented, the environmental, safety and occupational health (ESOH) performance of the system must be validated.

Technical Approach

The NDCEE was tasked by PdM-FSS to demonstrate/validate (Dem/Val) the performance of the incinerating toilet system to facilitate implementation. An Environmental Sampling and Analysis Plan will be developed to outline the methodology for determining the environmental compliance of the system against applicable standards and occupational safety / worker exposure with respect to emissions and ash disposal. The sampling and analysis plan will also include the approach to assess the system performance and associated physical health hazards. Dem/Val activities will be performed at the BCIL to collect and analyze system emissions and ash and other necessary information per the sampling and analysis plan. A report will be developed to include:

- all sampling, including analytical and technical data and results
- all findings related to the environmental compliance of the system;
- recommendations to improve system performance.

In addition a Health Hazard Assessment Report will be developed that addresses ESOH risks posed to workers with respect to both the ash disposal and the emissions and recommended appropriate measures, such as personal protective equipment and material handling procedures, to minimize identified risks.

Anticipated Results and Benefits

NDCEE Task N.0836 will validate the ESOH performance of the incinerating toilet system, facilitating the implementation of the system at base camps by PdM-FSS. The implementation of this system will enable base camps to incinerate latrine waste, reducing the logistical and security risks associated with current methods of handling base camp latrine waste.

Technology Transfer and Outreach

The successful demonstration of the incinerating toilet system will assist PdM-FSS in transitioning the incinerating toilet system to base camps. In addition to base camps, other DoD and Federal facilities, such as remote training areas and park/forestry facilities with limited waste handling capabilities, may benefit from the implementation of this system. The NDCEE will develop a technology transition plan to identify other potential applications for this system.