July 17, 2014

Dear Interested Party:

EXPRESSION OF INTEREST (EOI) FOR RADIATION HARDENED CAMERA SYSTEMS

Washington River Protection Solutions (WRPS) is the Tank Operating Contractor (TOC) for the U.S. Department of Energy Hanford site. The Hanford Site stores mixed radioactive and chemically hazardous waste in large underground tanks. Hanford has 149 older Single Shell Tanks (SST) and 28 newer double-shell tanks (DST) grouped together in tanks farms. The SSTs have capacities from 500,000 up to 1,000,000 gallons; and measure up to 75' in diameter and 45' in depth. Multiple pipes to openings in the dome of the tanks, called risers, provide access into the tank for operational activities.

Background

All of the SSTs have exceeded their design life, and a few have leaked or are assumed to have leaked waste to the environment. Retrieval of the radioactive waste from the SST and transfer to the DSTs has been on-going for a number of years. The TOC has used modified sluicing, enhanced sluicing using the Extended Reach Sluicing System (ERSS), saltcake dissolution and the Mobile Arm Retrieval System (MARS) as the baseline waste retrieval technologies to retrieve the waste and pump it into the DSTs. The tank waste generally consists of a surface liquid layer (supernate), an intermediate layer of sludge material, and a bottom layer of solidified (hardcake or saltcake) materials. To support the retrieval operations "In Tank" cameras are lowered down small diameter (4"-12" ID, Sch. 40 pipe) 6 ft. to 10 ft. risers into the tank dome space, and real-time video is provided to the operators.

Current Approach

To date the TOC has utilized closed circuit television type systems installed inside the SSTs to monitor and support retrieval operations. The camera systems currently used are commercially available (e.g. GE Inspection Technologies, PTZ-140 system), and some are radiation tolerant (e.g. RJ Electronics, RCS-560 system). , many of cameras use for these activities often degrade significantly and camera replacements become necessary during retrieval operations. In-tank camera removals are high risk activities that present radioactive contamination issues and are typically too costly and time consuming to be performed at the end of each shift. As such, the in tank electronics are subjected to the radiation levels in the tank for prolonged periods of time causing them to deteriorate.

Technology Need

As we move into the next series of tanks to be retrieved, several of the tanks have considerably higher radioactive dose rates; (up to 43,000 R/hr. total Beta at the surface of the waste, and 136 R/hr. Gamma at 10' above the surface of the waste) than the SST retrieved to date. The tanks' internal environment is generally dark brown and visual clarity up to ~90' with adequate illumination is required. Additionally in-tank equipment/materials that remain in the tanks present obstacles that can block views, cause shadows, and require the cameras to be moved within the tank more often. Frequently, multiple cameras with built-in spot lighting are required to observe retrieval operations. The need is for small diameter, high radiation tolerant camera systems (pan/tilt/zoom and integrated lighting) that provide clear color resolution and can provide high resolution imaging effectively in low light surroundings. The camera systems will be required to pass National Electric Code inspection and/or qualification through a NRTL prior to utilization in the tank farms. The system must be capable of transmitting data to a control room that may be located up to 1000' away from the tank location. It must provide for video recording and real-

time viewing at the operator console. (NOTE: From previous operations, black & white camera systems have not been favored as color systems provide additional information, useful for waste characterization). Although not currently favored, this EOI does not preclude B&W systems should one be superior to color imaging systems.

Vendor Responses

WRPS is currently requesting that interested firms send marketing information on what technology(ies) they have available along with brief explanations on how the technology(ies) could be applied to meet the needs expressed in this EOI.

Please send all correspondence regarding this EOI to Ricky Franzen @ Ricky_L_Franzen@rl.gov . Please use EOI 2DB00-RLF-14-013 in the e-mail subject line. Ricky may be reached by telephone at (509) 373-7141. Responses are due by July 31, 2014. Response to this EOI is required to be considered in forthcoming procurements related to this EOI.

WRPS will then evaluate the available technologies and make presentations to the Department of Energy (DOE). (The) selected technology(ies) will then be pursued with (a) related solicitation(s).

Closing Remarks

Please be aware WRPS does not intend to award a contract on the basis of this notification, nor pay for information solicited. WRPS intends to conduct a Waste Retrieval Technology Development Workshop to investigate potential new technologies to aide in retrieval from SSTs in the next planned farms that have different constraints than those retrieved to date. The workshop will include a lead-in presentation by WRPS personnel and a group question and answer session. Following the presentation and group questions and answers session there will be opportunities for individual vendors to meet separately with WRPS personnel to discuss their technologies.

Vendors are encouraged to share industry knowledge and experience; however the sharing of proprietary knowledge is prohibited.

We look forward to hearing from you regarding our request and seeing you in the near future.

Sincerely,

Ricky Franzen, Contract Specialist

Procurement

cc: file