

THIS IS A CALL FOR EXPRESSION OF INTEREST, NOT A REQUEST FOR PROPOSAL. A FULL SOLICITATION MAY BE ISSUED AT A LATER DATE.

IDAHO NATIONAL LABORATORY

COMPACT HIGH-TEMPERATURE/PRESSURE WATER LOOP PUMP

Battelle Energy Alliance, LLC (BEA), Management & Operating Contractor of the Idaho National Laboratory for the U.S. Dept. of Energy (DOE), is seeking Expressions of Interest from suitably qualified companies to support the development and manufacture of a Compact High-Temperature/Pressure Water Loop Pump. The selected subcontractor will be responsible to develop and deliver the following:

- The pump, including inlet/outlet piping, fitting, terminal box, etc., shall fit and operate inside of a cylindrical enclosure no greater than 9.25" diameter with inlet and outlet fittings co-axial on the same side of the pump housing. This is illustrated in Figure 1.
- The pump shall withstand steady state pressure and temperature of 2300 psi and 650°F, with the potential for brief excursions (~1 minute), so that a design pressure and temperature of at least 5000 psi and 850°F is met. A product that can exceed these design pressures and temperatures is highly desirable.
- The pump shall provide at least 25 gpm against a head loss of ~50 ft water.
- The pump shall resist corrosion due to high temperature water, but the total pump service life will not likely exceed 250 hrs. The pump will not likely receive any maintenance during this period (i.e. bearing replacement, etc.).
- The pump shall tolerate up to 250 on/off cycles during its service life. It will not likely run continuously for any more than a few hours.
- The wires and electrical components in the pump shall be reasonably resistant to gamma radiation.
- The pump shall be extremely resistant to leakage of the water being pumped. The entire system, including the pump, shall pass a helium leak check not greater than $1 \times 10E-6$ standard cm^3/s .
- The pump unit shall operate inside of an enclosure which is filled with inert gas (Ar or He), with very little air flow to remove heat from the pump unit. Cooling water at ~5 gpm may be provided to the unit, but the cooling water shall not penetrate the primary pressure boundary such that it mixes with the water being pumped.
- The pump shall be able to run from 30% to its 100% of its capacity via Variable Frequency Drive (VFD).
- The initial requirement Will be for one (1) pump and one (1) VFD to be used in a prototype system. If the prototype is successful, then up to ten (10) total units may eventually be needed.
- ASME B&PV certification shall be required, with an "N-stamp" being highly desirable.

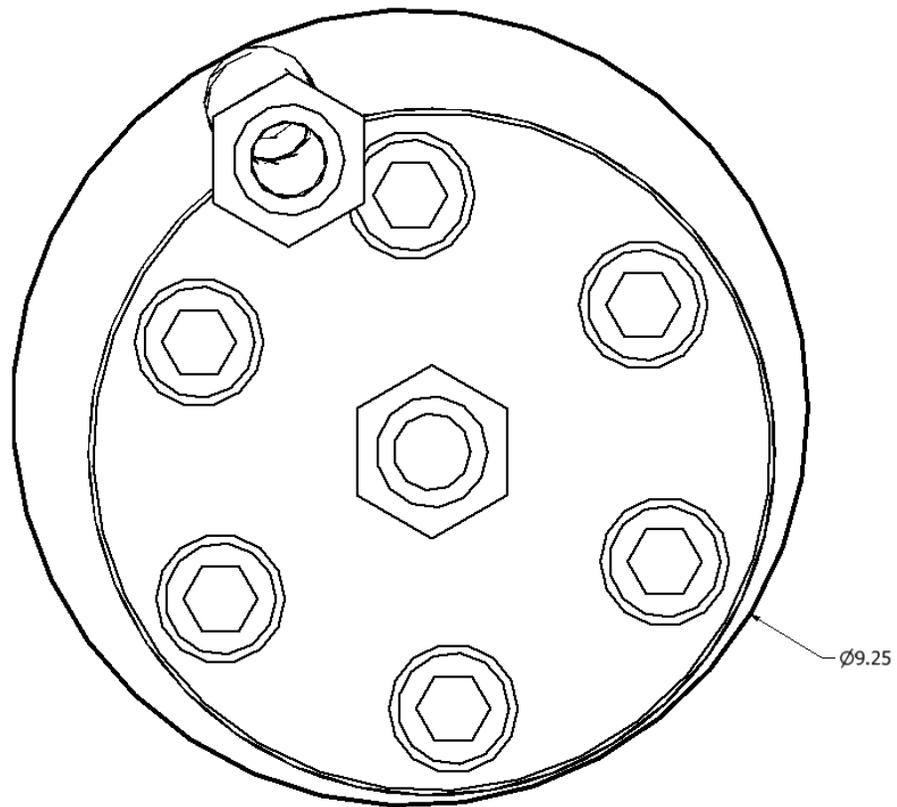
Only companies that meet all submittal requirements described below should respond to this Expression of Interest.

Submittal Requirements:

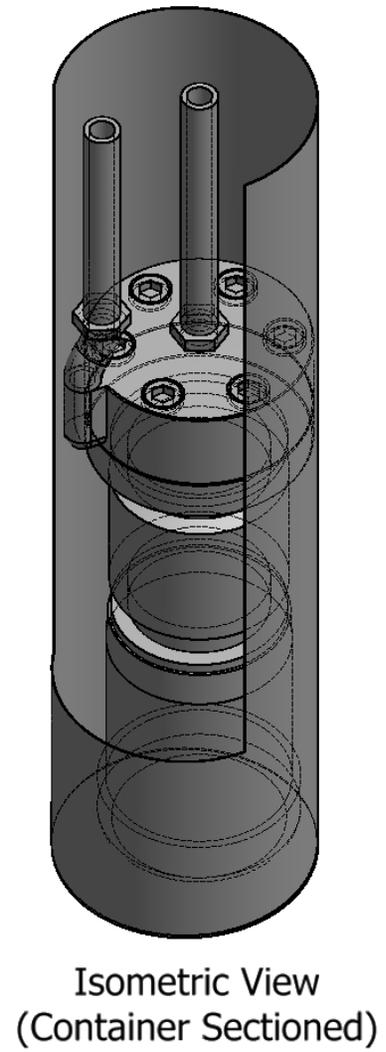
1. Submittals from both small and large businesses will be evaluated.
2. Submittals must be brief (10 pages or less).
3. Submittal content must include, but is not limited to:
 - Overview of the company including name, phone number, and e-mail address of a representative who can be contacted regarding this Request for Expression of Interest.
 - Description of experience and qualifications for successfully performing all the scope of work described above.
 - Description of development and fabrication efforts of similar scope and complexity regulated by an ASME B&PV program.
 - Description of company quality assurance program and its implementing procedures.
 - Identification of the company's primary North American Industry Classification System (NAICS) Code, the associated business size (small or large), and any additional small business socio-economic classification(s).

Submittals are due by 5:00 MST on Thursday, March 5, 2015.

To express your interest, please contact steven.gihring@inl.gov. All questions submitted prior to the EOI due date and time will be compiled, with answers provided to all interested parties.



Top View



Isometric View
(Container Sectioned)

Pump shown as example only

Figure 1