

## JUSTIFICATION FOR OTHER THAN FULL AND OPEN COMPETITION

Upon the basis of the following justification, I as Contracting Officer hereby approve use of the other than Full and Open competition for the proposed contractual action pursuant to the authority of 10 USC 2304(c)(1), only one responsible source and no other supplier or servicing activity will satisfy agency requirements, as implemented by FAR 6.302-1.

### **1. Contracting Activity**

Naval Postgraduate School  
Department of Contracting and Logistics  
1 University Circle  
Monterey, CA 93943

### **2. Description of the Action Being Approved**

NPS researchers have been developing the Agile Close Quarters Underwater Autonomous System (ACQUAS), using the SeaBotix vLBV300 as a development platform. The fully autonomous ACQUAS is used to investigate a variety of close-quarters operations, including diver support and operations very close to the seafloor. Accurate localization and navigation is required to facilitate these operations. ACQUAS has been outfitted with a navigation system consisting of an Inertial Navigation System (INS), Doppler Velocity Log (DVL), and sonar. A computer API has been developed for the system. A new INS is required to augment the existing system and to develop additional platforms in order to investigate multi-vehicle operations and underwater collaboration. A key requirement is that the new sensor must be compatible with the existing system and be amendable to close-quarters operations. This justification for other than full and open competition will be posted at the Government wide Point of Entry.

### **3. Description of Supplies/Services**

A new INS is required for ACQUAS to augment the existing system and to develop additional platforms in order to investigate multi-vehicle operations and underwater collaboration. The key requirement for the INS is compatibility with the existing ACQUAS system (hardware and software). The unit must be fully integrated and provide turn-key solutions for basic autonomy operations such as waypoint following and station-keeping. The unit should also be compatible with CAVR aiding sensors (stipulated below) and the CAVR computer API that has been developed for ACQUAS.

- Must be integrated and compatible with ACQUAS and the SeaBotix vLBV300 platform.
- Must provide an integrated control solution that has been interfaced with the vehicle and provides basic autonomy (including waypoint following and station-keeping).
- Must have a small form-factor (80mmx80mmx200mm) to fit within the frame of the SeaBotix vLBV.
- Must have an accurate depth sensor with at least 0.1% FS accuracy.
- The unit must be compatible with CAVR aiding sensors, including the Teledyne Explorer RDI DVL and Greensea Systems Inc. GPS antenna (existing).
- Must provide at least 0.3deg RMS static heading accuracy and 0.2deg RMS attitude accuracy.
- Must provide at least 0.6% distance traveled position accuracy with DVL aiding sensor.
- Must have low power consumption (<5W).
- Must be lightweight (<=0.25kg in water) since the SeaBotix platform is small.
- Must provide Ethernet and RS232 data interfaces.
- Must have a depth rating >=300m.
- System must include a GPS antenna with a >0.8m cable.

Options: Two options are requested:

1. An upgraded depth sensor providing 0.01% FS accuracy.
2. High-accuracy GPS antenna.

#### **4. Statutory Authority Permitting Sole Source**

FAR 6.302 -- Circumstances Permitting Other Than Full and Open Competition.

- 6.302-1 -- Only One Responsible Source and No Other Supplies or Services Will Satisfy Agency Requirements.

#### **5. Rational Justifying Use of Cited Statutory Authority**

The payloads must be compatible with the existing system, ACQUAS. Furthermore, the size, weight, and performance of the unit must be conducive to close-proximity operations. A custom computer interface has been developed for the integration of the existing INS with ACQUAS. This existing interface (with the currently deployed Greensea Systems INS) must be leveraged. Furthermore, this INS must have a proven track record of integration with the SeaBotix vLBV300 (base platform for ACQUAS) as well as CAVR aiding sensors, including the Teledyne RD Instruments. Only Greensea Systems provide an INS solution that satisfies all requirements.

#### **6. Description of Efforts Made to Solicit Offers from as Many Offerors as Practicable**

See Market Research (#8) below.

#### **7. Determination of Fair and Reasonable Cost**

Costs will be determined fair and reasonable at time of award by the Contracting Officer and based on previous contracts and similar contracting efforts.

#### **8. Market Research**

A market survey was conducted to identify possible solutions for the INS. Only two companies provide integrated INS solutions with a command module for this class of platform (Greensea Systems, Inc. and SeeByte, Inc.), but only the Greensea Systems INS has been integrated with the SeaBotix platform and is compatible with the existing hardware and software system. This unit additionally satisfies all other requirements.

#### **9. Other Facts Supporting Use of Other Than Full and Open Competition**

Only the Greensea Systems INS has been integrated with the SeaBotix vLBV300 (development platform) and satisfies the size/weight requirements. Only the Teledyne RD Instruments Explorer DVL is compatible with the Greensea Systems INS and satisfies all the requirements. SeaBotix only supports the listed grabbers.

#### **10. Actions to Remove Barriers to Future Competition**

The NPS Center for Autonomous Vehicle Research (CAVR) is open to competition from any vendor that can simultaneously satisfy all requirements for the INS, most notably providing a fully integrated system for ACQUAS. CAVR routinely attend industry conferences and tradeshows in an effort to stay current on technology development.

**CERTIFICATIONS AND APPROVAL**

**TECHNICAL/REQUIREMENTS CERTIFICATION**

I certify that the facts and representations under my cognizance which are included in this Justification and its supporting acquisition planning documents, except as noted herein, are complete and accurate to the best of my knowledge and belief.

To the extent that the LSJ value is between \$2,500 and \$150K for services and between \$3K and \$150K for products, the Contracting Officer's signature below also represents approval of the I&A/LSJ