

## MEMORANDUM

Subj: SOLE SOURCE MEMORANDUM TO ACQUIRE PAVE TECHNOLOGY CO. FOR HYPERBARIC ELECTRICAL PENETRATOR CONNECTORS

**1. Identification of the agency and the contracting activity, and specific identification of the document as a “Limited Source Justification.”**

This is a sole source justification. Contracting activity is the Naval Sea Systems Command, Naval Surface Warfare Center, Panama City Division (NSWC PCD), 110 Vernon Avenue, Panama City, FL 32407-7001.

**2. Nature and/or description of the action being approved.**

This action will award a firm fixed price purchase order on a sole source basis to PAVE Technology Co. (CAGE: 67744) to acquire PAVE-Mate II, hyperbaric tested, electrical penetrator connectors and accessories for use at the Navy Experimental Diving Unit (NEDU). The award will consist of an initial first article unit / prototype to be fit-checked with the Ocean Simulation Facility interface. Upon, validation and acceptance by NEDU, an option will be executed for the remaining purchase order. This equipment is required for upgrading hyperbaric test equipment, facilities atmospheric control, life support and physiological systems.

**3. A description of the supplies or services required to meet the agency’s needs. (including the estimated value). The contract effort is to acquire the following:**

Item	Part Number	Qty	Unit Price	Extended Price
<i>Initial FAU Order</i>				
First Article Unit - Right angle backshell	5664	1		
First Article Unit - 48 #16 contacts PAVE-Mate II with 24" wire leads, 1500 psi N2 leak test. Comes with mating plug and straight backshell. 1000 psi 5 minutes, 3 cycles. 1500 psi hold 1 hour, 1 cycle. High pressure is on the wires side.	5663	1		
Non-recurring engineering (NRE) cost	NRE	1		
Shipping (UPS)		1		

<b>OPTION 1</b>				
48 #16 contacts PAVE-Mate II with 24" wire leads, 1500 psi N2 leak test. Comes with mating plug and straight backshell. 1000 psi 5 minutes, 3 cycles. 1500 psi hold 1 hour, 1 cycle. High pressure is on the wires side.	5663	40		
Right angle backshell	5664	40		
Shipping (UPS)		40		

This acquisition will be conducted using simplified acquisition procedures with a total estimated value greater than \$25,000. The Government's minimum needs have been verified by the certifying technical and requirements personnel. This memo does not authorize acquisition for other requirements. This acquisition will be conducted using simplified acquisition procedures with a total dollar value above micro-purchase levels, but not exceeding the simplified acquisition threshold of \$250,000.00. .

**4. Identification of the justification rationale and, if applicable, a demonstration of the proposed contractor's unique qualifications to provide the required supply or service. 10 U.S.C. 2304(c). - Only one responsible source and no other supplies or services will satisfy agency requirements, FAR 6.302-1.**

The equipment listed above is provided by PAVE Technology Co. They are the sole source capable of meeting the requirement for the following reasons: In an effort to standardize and modernize the instrumentation collection and methods across NEDU, the Instrumentation Division has proposed the consolidation of all signals and power to be routed through the same connectors and instrumentation boxes in the OSF and eventually T&E. The large connector/s that will be threaded into the penetrator plates are 48 pin 16 gauge Pave™ VS32 connector assemblies. NEDU requirements specify the connectors shall be rated to no less than 1.5X full OSF depth (1,500 psi). PAVE penetrator connectors are pressure tested with water or nitrogen to meet IAW *NAVSEA General Specification for Design Construction and Repair of Diving and Hyperbaric Equipment* 3-6.4.2.1 **Hydrostatic Strength Testing:**

- a. Perform the test in a pressure tank filled with fresh water.
- b. Conduct hydrostatic strength test of electrical components as follows:
  1. Prior to the first cycle and after the last cycle, measure the IR of the component being tested IAW section 3-6.4.1.3 and record all test data.
  2. When specified, prior to the first cycle and after the last cycle, perform continuity checks of the component being tested and record all test data.
- c. Visually inspect for damage or deformation prior to and after completion of testing.
  1. 100 (+5%/-0%) psig – hold for five minutes, repeat this cycle a total of 3 times. If the MOP of the system or component is less than 100 psig then use the system MOP for this part of the hydrostatic test.

2. 1.5 times maximum system operating pressure (+5%/-0%) – hold for a minimum of one hour, perform one cycle. **(This would be 1,500 psi for all NEDU electrical component testing)**
3. No leakage is allowed

PAVE penetrator connectors' insulation values are tested in accordance with IAW *NAVSEA General Specification for Design Construction and Repair of Diving and Hyperbaric Equipment* IAW 3-6.4.1.3 **Electrical Insulation Resistance (IR)** Testing - IR measurements should not be considered the equivalent of dielectric withstanding voltage or electric breakdown tests. A clean, dry insulation may have a high IR, and yet possess a mechanical fault that would cause failure in the dielectric withstanding voltage test. Conversely, a dirty, deteriorated insulation with a low IR might not break down under a high potential.

- a. All IR testing shall be with DC voltage. Measured IR values shall be corrected to 77°F (25°C) using Table 17. The DC voltage shall not be less than 500 volts and held for 1 minute for electrical cables, electrical equipment, or electric devices unless it can be shown that such a test would be detrimental to the equipment (e.g., pyrotechnic jettisoning devices). Lower voltage may be used when specified and approved by PM.
- b. The IR of current carrying conductors, corrected to 77°F (25°C) shall not be less than 10 MΩ for each circuit when newly installed, and one MΩ for in-service circuits. Measured IR values shall be corrected to 77°F (25°C) IAW Table 17.
- c. For those cases where a specification or equipment application does not define a test procedure, the test shall be performed IAW MIL-DTL-917 or NSTM Chapter 300.

These flanges and electrical penetrators will be within the Ocean Simulation Facility (OSF) scope of certification and are the only approved products under NAVSEA Engineering Change Proposal (ECP), *OSF Instrumentation Penetrator Flange Calculations*. These are propriety items; other sources do not have the rights, parts and molds to manufacturer, or provide these parts.

As such, the Government does not expect significant savings through competition and it is more advantageous to the Government to award on a sole source basis to PAVE Technology Co.

**5. A determination by the ordering activity contracting officer that the order represents the best value consistent with FAR 13.106-1(b).**

The Contracting Officer has determined that the order represents the best value and results in the lowest overall cost alternative (considering price, special features, administrative costs, etc.) to meet the Government's needs.

**6. A description of the market research conducted among schedule holders and the results or a statement of the reason market research was not conducted.**

For the reasons specified in paragraph 4 above, PAVE Technology Co. is the only source that can meet the Government's needs. This requirement will be synopsised in the government point of entry SAM.gov because it is estimated greater than \$25,000.00.

**7. Any other facts supporting the justification.**

None

**8. A statement of the actions, if any, the agency may take to remove or overcome any barriers that led to the restricted consideration before any subsequent acquisition for the supplies or services is made.**

As stated in paragraph 4 above, PAVE Technology Co. is the only source that can meet the Government's needs.