



**DEPARTMENT OF THE NAVY**

CRANE DIVISION  
NAVAL SURFACE WARFARE CENTER  
300 HIGHWAY 361  
CRANE INDIANA 47522-5001

IN REPLY REFER TO:

J&A Number: CR-10323  
Code: CXMR  
PR No.: N00164-10-R-GR75

**JUSTIFICATION AND APPROVAL  
FOR USE OF OTHER THAN FULL AND OPEN COMPETITION**

1. Contracting Activity.

Naval Surface Warfare Center, Crane Division

2. Description of the Action Being Approved.

Award of an Indefinite Delivery, Indefinite Quantity (IDIQ) contract on a sole source basis for procurement and repair/rebuild of the Continuous Wave Illuminator Traveling Wave Tubes (CWI TWTS) in support of the MK99 Fire Control System (FCS) to Communications and Power Industries (CPI), Palo Alto, CA.

3. Description of Supplies/Services.

The requirement is for procurement of new and repaired/rebuilt CWI TWTS which are microwave tubes installed in the MK-99 FCS on board the [REDACTED]. This procurement is planned to be a Firm Fixed Price Indefinite Delivery-Indefinite Quantity contract in support of Foreign Military Sales cases, U.S. new ship construction and U.S. Navy Sustainment. Minimum and maximum quantities are:

<u>Quantity</u>	<u>Minimum</u>	<u>Maximum</u>
Production	6 each	220 each
Repair / Rebuild	0 each	411 each

The total estimated dollar value for this procurement is \$35,860,730. Deliveries will be delineated in each individual order. Ordering period will be 5 years. The Government's minimum needs have been verified by the certifying technical and requirements personnel.

**Estimated Dollar Value**

	FY 11	FY 12	FY 13	FY 14	FY 15	Total
SCN	\$402,055	\$804,110	\$1,206,165	\$1,206,165	\$1,206,165	\$4,824,660
FMS	\$1,065,205	\$1,306,438	\$1,628,082	\$1,628,082	\$1,708,493	\$7,336,300
WCF	\$0	\$3,713,640	\$3,713,640	\$3,713,640	\$3,713,640	\$14,854,560
OPN	\$1,849,453	\$1,849,453	\$2,492,741	\$1,286,576	\$1,366,987	\$8,845,210
Total	\$3,316,713	\$7,673,641	\$9,040,628	\$7,834,463	\$7,995,285	\$35,860,730

4. Statutory Authority Permitting Other Than Full and Open Competition.

10 U.S.C. 2304(c)(1), one source or limited sources.

5. Rationale Justifying Use of Cited Statutory Authority.

A technical data package sufficient to solicit this action competitively exists. The Government has a performance specification and interface drawings. However, a competitive procurement was not initiated because no other sources have expressed an interest in providing CWI TWTs for qualification and paying to get the items qualified. While the Government does have a technical data package sufficient to solicit this action competitively, CPI is the only source that has successfully completed qualification and the specific design and manufacturing processes used by CPI are proprietary.

CPI Palo Alto is the only known source, which has the capability to produce and repair/rebuild the CWI TWTs for use in the MK-99 FCS in the required timeframe.

This is a follow-on procurement action where award to any other source would result in both  
 (a) substantial duplication of cost to the Government that is not expected to be recovered through competition, and  
 (b) unacceptable delays in fulfilling the agency's requirements.

The original effort to select sources for qualification of this product was performed by Raytheon Company as part of the transmitter development. Varian Associates (now CPI) and Hughes Aircraft (now L-3) were awarded contracts for development. Both vendors provided TWTs for qualification. The TWT designed by Varian was successful and proceeded into Full Rate Production. Responsibility for the CWI TWT program transferred to NSWC Crane in 1981. NSWC Crane awarded a contract to Varian Associates for 54 production TWTS on a sole source basis in 1981. All contracts issued by NSWC Crane since then have also been awarded to CPI on a sole source basis. CPI has been in continuous production and has delivered a total of 1,298 Full Production CWI TWTS.

The TWT design was developed by CPI to meet the Navy's requirements of Weapons Specification (WS)-33400, which specifies performance, and NAVSEA Drawing 6155775, which specifies interface requirements. The design was based on an existing CPI design for a similar TWT. Therefore, the design rights utilized by CPI are proprietary to CPI for the CWI TWT. In addition to the design rights, CPI's manufacturing processes, which are critical in producing and repairing the TWT, are also proprietary to CPI. Lastly, any new design would have to be qualified.

Qualification is a lengthy process which is estimated to take 4 years 7 months minimum as follows:

<u>Time</u>	<u>Events</u>
2 years	Engineering development of a CWI TWT design
2 years	Demonstrated shelf life
3 months	Demonstration of operating life of 2,500 hours
<u>4 months</u>	<u>Delivery of 10 qualification units</u>
4 yrs 7 months	Total

Duplication of costs are estimated to be \$8,443,768 if a source other than CPI was considered for this award. For purposes of this estimate, it has been anticipated that items (a), (b) and (c) below would be passed on to the Government in the form of direct costs charged for development.

<u>Item</u>	<u>Estimate</u>
a. Engineering Development	\$1,250,000
b. Qualification Samples (10 ea)	\$1,450,620
c. Pilot Production (12 units)	\$1,523,148
d. NSWC Crane Testing	\$ 320,000
e. GFE duplication	<u>\$3,900,000</u>
TOTAL	\$8,443,768

Items (a) through (d) above are based on historical data from contract N00164-92-C-0023 as those same costs were incurred under that contract for a similar TWT. Each cost since 1992 was escalated at 3% per year.

- (a) Engineering development costs were estimated based on the experience of the combined engineering experience at NSWC Crane with microwave technology and development of numerous tube designs such as Simplified Drivers, Cross Field Amplifiers and other Traveling Wave Tubes.
- (b) Qualification samples are estimated to be 100% greater than a production unit price. The last documented unit price for production was \$72,531, which is the basis for the qualification sample price of \$145,062 each.
- (c) Pilot production unit cost of \$126,929 is based on these units costing 75% more than a production unit.
- (d) NSWC Crane testing cost of \$320,000 was based on 30 years of experience qualifying products.
- (e) GFE duplication is based on historical data of prices paid for the comparable equipment on contract N00164-09-C-GR51. In addition, final inspection and acceptance test equipment currently located at CPI is provided as Government Furnished Equipment (GFE). Two test sets are necessary to support the required delivery rate and schedule. Cost to duplicate the required equipment is approximately \$3,900,000 as follows:

\$1,300,000	Power Supply
\$ 400,000	Rack mounted Commercial RF measurement device per test set. These are COTS items from vendors like HP, Agilent and Tektronix
<u>\$ 250,000</u>	Labor to assemble the test set and perform correlation testing. Experience over 30 years of assembling 40+ test sets. NSWC Crane continues to upgrade, maintains and field these systems.
\$1,950,000	Subtotal
<u>\$1,950,000</u>	For 2 <sup>nd</sup> test set
\$3,900,000	Total

This equipment is correlated to nearly identical equipment located at NAVSEA Crane providing repeatable results regardless of test location. This provides several advantages:  
 (1) provides maximum usage from warranty coverage, and  
 (2) provides reliability data for tracking trends and drifts in performance.

The GFE will remain at CPI as it will administer warranty provisions for existing TWTs manufactured by CPI over the next two years. Even if no further contracts/orders were awarded to CPI, the GFE will remain there for the two year warranty period.

Based on the aforementioned information, it is hereby determined that the estimated cost is so high that it will not be recouped through competition and the delay is unacceptable in support of the program requirements.

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

Market research was conducted in accordance with FAR Part 10. FAR 10.001(a)(2) requires market research appropriate to the circumstances. In this case, the WWW was used as a research tool to locate sources for microwave tubes meeting key requirements. Three sources (including CPI) were identified as TWT manufacturers. However, only CPI has a product that operates at the required frequency and has the required power output. The market research conducted is appropriate for the circumstances because it is not the Government's position that other microwave tube vendors do not exist nor is it the Government's position that it would be impossible for another vendor to perform. It is the Government's position that substantial duplication of costs and unacceptable schedule delays will be incurred if award is made to a source other than CPI.

A synopsis of the proposed procurement was published on 28 July 2010 in the FEDBIZOPS in accordance with FAR 5.2. To date no other sources have expressed an interest in this solicitation. All interested parties will have access to the solicitation and will be allowed to propose, which includes those vendors seeking subcontracting opportunities.

7. Determination of Fair and Reasonable Cost.

The Contracting Officer has determined that the anticipated cost to the Government for the supplies and services covered by the J&A will be fair and reasonable.

8. Actions to Remove Barriers to Future Competition.

For the reasons set forth in Paragraph 5, NSWC Crane Division has no plans at this time to compete future contracts for these items. If another potential source emerges, NSWC Crane will assess whether competition for future requirements is feasible. However, no funding nor plans are currently in place to undertake efforts to qualify a new source.

TECHNICAL/REQUIREMENTS CERTIFICATION (FAR 6.303-2(b))

I certify that the facts and representations under my cognizance, which are included in this justification and its supporting data, including Acquisition Plan No. CR-10-003, except as noted herein, are complete and accurate to the best of my knowledge and belief.

TECHNICAL COGNIZANCE:

[Redacted Signature Block]

Signature Name and Title Phone No. Date

REQUIREMENTS COGNIZANCE:

[Redacted Signature Block]

Signature Name and Title Phone No. Date

LEGAL SUFFICIENCY REVIEW (NMCAG 5206.303(90))

I have determined this justification is legally sufficient.

[Redacted Signature Block]

Signature Name and Title Phone No. Date

CONTRACTING OFFICER CERTIFICATION (FAR 6.303-2(a)(12))

I certify that this justification is accurate and complete to the best of my knowledge and belief.

[Redacted Signature Block]

Signature Name (Print) and Title (Code) Phone No. Date

APPROVAL BLOCK (FAR 6.304 for Approving Official)

Upon the basis of the above justification, I hereby approve, as Designee of the Head of the Procuring Activity, the solicitation of the proposed procurement(s) using other than full and open competition, pursuant to the authority of 10 U.S.C. 2304(c)(1).

DESIGNEE OF THE HEAD OF THE PROCURING ACTIVITY

[Redacted Signature Block]

Michael Esterman

11/02/2010

Signature Name Date