Technical Support to Negotiations Report

Prepared for DCMA Price/Cost Analyst
Submitted by: Ethan Cooper (Engineering)

31 March 2018

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BACKGROUND/SCOPE

The focus of this Technical Support to Negotiations (TSN) report is to provide a technical evaluation of INDEPENDENT PROJECTILES, INC. AA16, 9MM FRANGIBLE AMMUNITION IAW NSWC Hybrid Specification HS/4063/C02/1266 Rev C (live and dummy round types) firm fixed priced (FFP) contract proposal, 563292 Rev.2, dated March 26, 2018 in support of the USAF gun system. INDEPENDENT PROJECTILES, INC. FFP proposal was developed in accordance with the requirements set forth in the Statement of Work (SOW), dated 14 January 2017. Total costs are being proposed at $761,040.00 for CLIN 0001(1200 case), $996,328.00 (1571 case) for CLIN 0002, $317,100.00 (500 case) for CLIN 0003 and $805,434.00 (1270 case) for a total of $2,879,902.00. This amount includes 4541 tungsten slug cases described below.

INDEPENDENT PROJECTILES, INC. specializes in the development and manufacture of medium caliber ammunition for land, air and naval applications, including anti-aircraft rounds. Its product range extends from conventional full-caliber and practice ammunition right through to intelligent munitions with programmable fuses. The INDEPENDENT PROJECTILES, INC. array of products thus covers the full range of current and future threat scenarios. The company, which has a plant in Luxembourg, also maintains a test center in North Carolina, equipped with firing ranges and proving grounds as well as the technical infrastructure necessary for testing ammunition, weapons and complete systems.

This procurement is to perform comparative testing to evaluate and qualify a AA16, 9MM FRANGIBLE AMMUNITION for the USAF gun system. Labor hours and material costs proposed are based on actual initial production of this ammunition (test items) plus experience and hours utilized on other ammunition with similar processes. INDEPENDENT PROJECTILES, INC. has not produced this caliber of ammunition in the past; however, they have a vast knowledge on other types and calibers of ammunition.

When this ammunition was developed it was originally funded by an US coalition partner. Significant Scientific Research was the main contractor and INDEPENDENT PROJECTILES, INC. was the subcontractor. The program was divided in three phases: Phase 1- Pre-Feasibility Study (TNO), Phase 2- Functional Models (TNO), Phase 3- Product Development (INDEPENDENT PROJECTILES, INC.). The requirement was for one general purpose 9mm round without explosives for both Air-to-Air and Air-to-Ground deployment. Hard targets have to be defeated on long range for specific aircraft conditions and Penetrator has to be effective against soft targets. This 9mm ammunition design was the winner of the Ammunition Research Inc. 9mm trade study.

At the time of the generation of this report, INDEPENDENT PROJECTILES, INC. had not been able to perform all applicable testing on this ammunition. Issues involving the delay in receipt of the barrels and the propellant not reacting as expected have caused delays in meeting the specifications for this round. During a the site visit, INDEPENDENT PROJECTILES, INC. had the barrels on site; however, they were still awaiting the new propellant in order to perform the testing.

The proposal reflected a delivery date of October 2018, provided the contract is awarded by June 15, 2018. In order for INDEPENDENT PROJECTILES, INC. to produce these items by

the expected delivery date, the USG needed to have placed an order for 4541 tungsten slug cases in September 2017. The USG placed the order under contract number FA1234-10-M-5678 for 1 lot (4541 slug cases) on 17 September 2017. During the site visit, the DCMA QAR verified the quantities and certifications of the material and provided acceptance of the product. (As outlined in INDEPENDENT PROJECTILES, INC.'s proposal, an amount of $992,480.96 should be reduced from the total contract value of this quotation per the issuance of contract number FA1234-10-M-5678, as described above.)

INDEPENDENT PROJECTILES, INC. was in the process of reissuing a new quotation when the DCMA team left the facility. The DCMA Industrial Specialist pointed out items of concern to INDEPENDENT PROJECTILES, INC; they advised they would take them into consideration when issuing the new quotation. These findings will be addressed further in this report.

Defense Contract Audit Agency European Branch requested Defense Contract Management Agency for technical support.

This TSN is focused on, but not limited to, providing information, analysis and a recommendation to the reasonableness, necessity and allocability of resources in INDEPENDENT PROJECTILES, INC.'s proposal. Proposal includes recurring/non-recurring labor hours with associated material kinds and quantities:

ORGANIZATION REVIEWED

Independent Projectiles, Inc.
221 Chapman Street
Greensboro, NC 27401

REVIEW ATTENDEES – FICTITIOUS ATTENDEES

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Fact finding, interviews, data traces and data gathering activities were conducted at INDEPENDENT PROJECTILES, INC.'s facility during 31 March 2018.

EXECUTIVE SUMMARY

It was made aware to DCMA the assessment is considered time sensitive and the report is to be delivered to the customer as soon as it becomes available. The approach of this review was modified to satisfy a timely report release while maintaining a level of confidence in the results of the assessment. The DCMA evaluator reviewed the proposed recurring and non-recurring hours. Material requirements were reviewed for reasonableness.

INDEPENDENT PROJECTILES, INC.'s PROPOSED LABOR HOURS:

Prospective contractor's methodology utilized for proposal is based on various factors:

1) Pre-production of this round. The contractor produced this round in order to make the necessary tests and was able to capture some of their processing times. From these times the contractor produced a router which was provided and verified against (pages 34&35 of the proposal that address the individual processes being utilized for the production of this item.)
2) Similar processes. The contractor produces other rounds that have similar processes. Routers were provided for these processes and were verified against pages 34 &35 of the proposal that address the individual processes being utilized for the production of this item.
3) Experience: the contractor based on past experience projected labor hours for some of the tasks to be performed.

Findings:

Total Direct Labor Hours proposed are broken down as follows:

Assembly Line Preparation Labor – 885 hours. Hours found reasonable and verifiable.

Machine Automatic Operation – 391 hours. Hours found reasonable and verifiable.

CDRL Labor – 36 hours. Hours found not reasonable details provided below (2).

Project Manager Labor – 196 hours. Hours found reasonable based on projections and experience. Hours found to be fair and reasonable.

Manufacturing Labor – 548 hours. Hours found accurate and verifiable.

Engineering/Development Labor – 160 hours (Non-recurring effort). Hours found reasonable for the level of effort, further details below (3).

1) Hours verified against routers provided were found to be accurateand reasonable.
2) Hours requested for CDRL work were questioned by the DCMA IS. Contractor had a misconception as to the level of effort required for some of these tasks. Contractor agreed to reduce the hours for CDRL A003 Status Report as follows:

R-ZT / Quality Department (16hrs/147chf) to 2hrs
Z-V1 / Research Dpt. (4hrs/147chf) remains the same. This is for 2 reports to be issued/ 2 hours each.
CDRL A006 Integrated Master Plan, will be reviewed and new hours to be provided on new proposal. Contractor was creating a very detailed IMS down to the machine number to be utilized for processing. This is not the requirement of CDRL A006, so contractor agreed to reduce the hours.

3) Engineering hours requested (160hrs). These hours should be a Non-Recurring effort. This is a combination of the following:
   a) 96 hours for program support and travel. Two engineers traveling and assisting in the testing in USA for these rounds. (3trips x 4 days @ 8hrs/day x 2engineers) = 96 hours.
   b) 18 hours for configuration management.
   c) 46 hours for one engineer to set up, support and troubleshoot any issues with the new lines. This item is a 1st time production. Contractor mentioned new proposal should not reflect these hours since this is a onetime effort.
   d) The total of 160 hours requested for engineering efforts should be considered a Non-Recurring effort.

INDEPENDENT PROJECTILES, INC.'s PROPOSED MATERIALS:

Direct Material	Material Cost per Unit (CHF) case	Quantity (cases)	Total Material Cost (CHF)
LL-VN6CG-CU1	7.1	4541	**32241.1**
RET CF 41	3.3	4541	**14985.3**
Cartridge Case Primed	12.04	4541	**54673.64**
Projectile Body Comp	2.2	4541	**9990.2**
Driving Band	1.61	4541	**7311.01**
ER Primer Green	0.1	4541	**454.1**
Projectile Rear	6.2	4541	**28154.2**
Heavy Metal Slug (1)	218.56	4541	**992480.96**
Ballistic Cap	6.5	4541	**29516.5**
Loctite 0648 Green	1.1	4541	**4995.1**
Enamel, Jet Black	0.1	4541	**454.1**
Propellant GB250AA	42.5	4541	**192992.5**
Metal Links (2)	14.7	4541	**66752.7**
Packaging (3)	2.44	4541	**11080.04**
TOTAL	**318.45**	4541	**1,446,081.45**

Materials were verified against requirement and found to be applicable. Purchase orders were provided to verify costs associated with materials. There were 3 items that were questioned by the DCMA IS and are still unresolved as follows:

(1) Heavy Metal Slug: Quotation reflects the need for 4541 tungsten slug cases; however, there is a comment on page 2 of the proposal that addresses the ordering of 4541 slug

cases on 17 September 2017 by the US Government to be received by March 2018 in order to meet the requested delivery date. The order for 4541 tungsten slug cases under contract number FA1234-10-M-5678 and placed by the US Government on 17 September 2017. At time of visit the DCMA QAR was able to verify the material and provided acceptance. Contractor mentioned that the amount of $992,480.96 USD will be reduced from this proposal. This would reflect a total value of $2,879,902.00.

(2) Metal Links: INDEPENDENT PROJECTILES, INC. mentioned links would not be utilized due to the new packaging requirements; however, they are not sure at this time what the costs will be.

(3) Packaging: Due to new packaging requirements INDEPENDENT PROJECTILES, INC. is trying to acquire information and quotes to meet this new request. Suppliers pricing has not yet been determined. Currently only one supplier for the internal configuration of the box is available and quotes have not yet been received.

These materials were traced from purchase orders or quotes to technical drawingsin order to validate kinds and quantities, as well as, a mock-up of the round itself broken down into its individual components. It is in the reviewer's opinion the level and coverage of materials establishes and maintains an acceptable level of confidence in the assessment of material kinds and quantity. Hours proposed and material kinds and quantities appear reasonable.

RECOMMENDATION/SUMMARY

DCMA modified the assessment approach to accommodate an expedited report timeline. Recurring hours were reviewed in detail against information presented at time of visit. Non-recurring hours for engineering efforts were identified. Materials were traced from purchase orders or quotes and to technical drawings to validate kinds and quantities.

DCMA performed a review on labor hours to compare labor mix costs vs. INDEPENDENT PROJECTILES, INC.'s proposed labor mix and found the proposal to reflect the correct labor skills for the processes required.

For additional questions, please contact the undersigned. Feedback is appreciated, welcomed and will be considered toward improving the value of future reports.

X

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Independence Statement

SUBJECT: Technical Support to Negotiations (TSN) on INDEPENDENT PROJECTILES, INC.'s AA16, 9MM FRANGIBLE AMMUNITION IAW NSWC Hybrid Specification HS/4063/C02/1266 Rev C (live and dummy round types), dated March 31, 2018 in Support of USAF gun system

The analyst was free from any personal and external impairment that would preclude independent evaluation of the subject.

Specialist Name: Ethan Cooper
Specialist Position Title: Engineer
Organization: DCMA
Date: 05 Apr 2018