

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. Contract ID Code
Firm Fixed Price

Page 1 Of 8

2. Amendment/Modification No.

P00001

3. Effective Date

2013NOV06

4. Requisition/Purchase Req No.

SEE SCHEDULE

5. Project No. (If applicable)

6. Issued By

U.S. ARMY CONTRACTING COMMAND
MONTY MCCLELLAND
WARREN, MICHIGAN 48397-5000
HTTP://CONTRACTING.TACOM.ARMY.MIL

EMAIL: MONTY.MCCLELLAND@US.ARMY.MIL

Code

W56HZV

7. Administered By (If other than Item 6)

OFFICE OF NAVAL RESEARCH
CHICAGO REGIONAL OFFICE
230 SOUTH DEARBORN STREET, ROOM 380
CHICAGO, IL 60605-1595

Code

N62880

8. Name And Address Of Contractor (No., Street, City, County, State and Zip Code)

MILWAUKEE SCHOOL OF ENGINEERING
1025 N BROADWAY
MILWAUKEE, XX 53202-3109

9A. Amendment Of Solicitation No.

9B. Dated (See Item 11)

10A. Modification Of Contract/Order No.

W56HZV-13-C-0390

10B. Dated (See Item 13)

2013SEP23

Code 3L782

Facility Code

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers

is extended, is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods:
(a) By completing items 8 and 15, and returning _____ copies of the amendments; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. **FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER.** If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. Accounting And Appropriation Data (If required)

ACRN: AA NET DECREASE: -\$2,936.00

**13. THIS ITEM ONLY APPLIES TO MODIFICATIONS OF CONTRACTS/ORDERS
It Modifies The Contract/Order No. As Described In Item 14.**

- A. This Change Order is Issued Pursuant To: _____ The Changes Set Forth In Item 14 Are Made In _____
The Contract/Order No. In Item 10A.
- B. The Above Numbered Contract/Order Is Modified To Reflect The Administrative Changes (such as changes in paying office, appropriation data, etc.) Set Forth In Item 14, Pursuant To The Authority of FAR 43.103(b).
- C. This Supplemental Agreement Is Entered Into Pursuant To Authority Of: _____
Mutual Agreement Between Parties
- D. Other (Specify type of modification and authority)

E. IMPORTANT: Contractor is not, is required to sign this document and return _____ copies to the Issuing Office.

14. Description Of Amendment/Modification (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

SEE SECOND PAGE FOR DESCRIPTION

Except as provided herein, all terms and conditions of the document referenced in item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. Name And Title Of Signer (Type or print)		16A. Name And Title Of Contracting Officer (Type or print)	
		JOHN M. HOPFNER JOHN.HOPFNER@US.ARMY.MIL (586)282-7359	
15B. Contractor/Offeror	15C. Date Signed	16B. United States Of America	16C. Date Signed
_____ (Signature of person authorized to sign)		By _____ /SIGNED/ (Signature of Contracting Officer)	2013NOV06

CONTINUATION SHEET	Reference No. of Document Being Continued	Page 2 of 8
	PIIN/SIIN W56HZV-13-C-0390 MOD/AMD P00001	
Name of Offeror or Contractor: MILWAUKEE SCHOOL OF ENGINEERING		

SECTION A - SUPPLEMENTAL INFORMATION

Buyer Name: MONTY MCCLELLAND
 Buyer Office Symbol/Telephone Number: CCTA-ASG-B/(586)282-9750
 Type of Contract: Firm Fixed Price
 Kind of Contract: Research and Development Contracts
 Type of Business: Other Educational
 Surveillance Criticality Designator: C
 Weapon System: No Identified Army Weapons Systems

*** End of Narrative A0000 ***

PURPOSE OF MODIFICATION: REVISE STATEMENT OF WORK

PRIOR CONTRACT AMOUNT: \$259,836.00
 CHANGE IN CONTRACT AMOUNT: (~~\$ 2,936.00~~)
 REVISED CONTRACT AMOUNT: \$256,900.00

1. The purposes of this bilateral contract modification P00001 are as follows:
 - A. Remove requirement for Contractor Acquired Property for the base effort.
 - B. Add Adam Puzzuoli as alternate COR.
2. To accomplish these purposes the contract is changed as follows:
 - A. Section B subCLIN 0001AA is decreased by \$2,936 from \$13,000 to \$10,064.
 - B. Section C.6 Contractor Acquired Property subsections C.6.1, C.6.2, and C.6.3 removed from the Statement of Work (SOW). Contractor shall purchase upgraded pumps at their own expense and retain ownership of the pumps used for the base effort after contract completion. The header paragraph C.6 is retained in the SOW but has been revised to show 'none' for Contractor Acquired Property.
 - C. Section G updated as follows:
 - i. Contract administration data reflects the decrease of \$2,936 to subCLIN 0001AA.
 - ii. Clause 52.242-4016 updated to add Alternate Technical Representative Adam Puzzuoli.
3. As a result of this modification P00001, the total contract amount has DECREASED by \$2,936 from \$259,836 to \$256,900.
4. All other terms and conditions as previously modified remain UNCHANGED and in full force and effect.

*** END OF NARRATIVE A0001 ***

CONTINUATION SHEET

Reference No. of Document Being Continued
 PIIN/SIIN W56HZV-13-C-0390 MOD/AMD P00001

Name of Offeror or Contractor: MILWAUKEE SCHOOL OF ENGINEERING

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT									
	SECTION B - SUPPLIES OR SERVICES AND PRICES/COSTS													
0001	TEST PLAN													
0001AA	<p>EEHF TEST PLAN</p> <p>GENERIC NAME DESCRIPTION: TEST PLAN CLIN CONTRACT TYPE: Firm Fixed Price PRON: R33KJ042R3 PRON AMD: 01 ACRN: AA AMS CD: 633005441</p> <p><u>Inspection and Acceptance</u> INSPECTION: Destination ACCEPTANCE: Destination</p> <p><u>Deliveries or Performance</u></p> <table border="0"> <tr> <td>DLVR SCH</td> <td></td> <td>PERF COMPL</td> </tr> <tr> <td><u>REL CD</u></td> <td><u>QUANTITY</u></td> <td><u>DATE</u></td> </tr> <tr> <td>001</td> <td>1</td> <td>20-NOV-2013</td> </tr> </table> <p style="text-align: right;">\$ 10,064.00</p>	DLVR SCH		PERF COMPL	<u>REL CD</u>	<u>QUANTITY</u>	<u>DATE</u>	001	1	20-NOV-2013	1	LT		\$ 10,064.00
DLVR SCH		PERF COMPL												
<u>REL CD</u>	<u>QUANTITY</u>	<u>DATE</u>												
001	1	20-NOV-2013												

Name of Offeror or Contractor: MILWAUKEE SCHOOL OF ENGINEERING

SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

C.1 SCOPE

This statement of work defines the tasks required of the contractor to support the U.S. Army RDECOM/TARDEC Fuels and Lubricants Program. Specific task requirements and deliverables are described below.

C.2 TASKS/REQUIREMENTS

The contractor shall provide the following hydraulic technical support for the US Army RDECOM/TARDEC Fuels and Lubricants Program, including participation in technical discussions / meetings and specific technical tasks necessary to support the Fuels and Lubricants Program.

C.2.1 The contractor shall develop and source the additives for a prototype military-quality energy efficient hydraulic fluid.

C.2.1.1 The prototype fluid shall be a modified version of MIL-PRF-46170 that incorporates shear stable viscosity index improvers to increase pump volumetric efficiency at high temperatures (100\ 'b0C and above).

C.2.1.2 The prototype fluid shall have enhanced boundary friction properties relative to conventional hydraulic fluids to increase hydraulic motor mechanical efficiency.

C.2.1.3 The contractor shall provide viscometric and shear stability data for the prototype fluid as appropriate for products that will be used as hydraulic fluids. Test methods shall include but not limited to ASTM D445 and ASTM D5621. The contractor shall prepare a research test plan which lists the properties and test methods that will be used to evaluate the prototype fluid. A proposed timeline should also be included in the test plan. The contractor shall provide this research test plan to the government COR for approval. (CDRL A001)

C.2.1.4 The contractor shall provide 4 liters of the prototype fluid to the COR for analysis not later than 16 months after award (reference C.4.3 below).

C.2.1.5 The contractor shall not develop a specification for the prototype fluid nor assess the appropriateness of the prototype fluid to meet military requirements.

C.2.2 The contractor shall evaluate the efficiency per Section C.2.2.3 of the following thirteen (13) fluids in a BoschRexroth A10VS0 axial piston pump. Test results shall be compared to a MIL-PRF-2104 SAE 10 reference fluid. The test sequence of the 13 fluids is shown below.

1. MIL-PRF-2104 SAE 10
2. MIL-PRF-46170
3. Energy efficient prototype developed per C.2.1
4. MIL-PRF-2104 SAE 10
5. MIL-PRF-2104 SAE 15W/40
6. MIL-PRF-46167D
7. MIL-PRF-2104 SAE 10
8. Single Common Powertrain Lubricant
9. MIL-PRF-32073, Grade 4
10. MIL-PRF-2104 SAE 10
11. Mobil DTE 10 EXCEL 46
12. Chevron Synthetc AW 46
13. MIL-PRF-2104 SAE 10

C.2.2.1 For each fluid the overall pump performance will be determined under the following conditions.
Two temperatures: 50 & 80C

Three speeds: 1000, 1600, and 2200 RPM

Four displacements: 25% 50% 75% 100% approximate

Six pressures: 1000 1500 2000 2500 3000 3500 psi

C.2.2.2 The following parameters will be measured.

- Pump output flow rate (Qp)
- Pump case drain and remote pressure compensator flow rate (QL)
- Pump speed (N)
- Pump torque (TQ)
- Pump inlet pressure (PI)
- Pump outlet pressure (PO)
- Efficiency ?

CONTINUATION SHEET	Reference No. of Document Being Continued	Page 5 of 8
	PIIN/SIIN W56HZV-13-C-0390	MOD/AMD P00001
Name of Offeror or Contractor: MILWAUKEE SCHOOL OF ENGINEERING		

C.2.2.3 Efficiency will be determined using the following ratios:

$nO = \frac{(Po - PI) * (QP) * 36.77}{(N * TQ)}$	$nV = \frac{QP}{QP + QL}$	$nM = \frac{nO}{nV}$
Overall Efficiency	Volumetric Efficiency	Mechanical Efficiency

C.2.2.4 Axial piston pump overall efficiency shall be reported graphically as a function of flow rate and pressure (CDRL A002 and A003).

C.3 MEETINGS

C.3.1 The contractor shall conduct a start of work meeting within 15 days after contract award, and shall coordinate with the COR to arrange a mutually acceptable date and time. The meeting shall take place at RDECOM/TARDEC, Warren, MI.

C.3.2 The contractor shall schedule and conduct a teleconference with the COR every 60 calendar days at a mutually acceptable date and time. At each teleconference, the contractor shall discuss the current status of testing and summarize the findings and results since the previous teleconference.

C.3.3 The contractor shall conduct a final meeting to discuss final results. The final meeting shall take place at contractors location at a mutually acceptable date and time.

C.4 DELIVERABLES

C.4.1 Test Plan: The contractor shall provide a test plan to include a proposed timeline for tasks outlined in C.2.1 and C.2.2. The contractor shall provide the proposed test plan to the COR within 30 days of contract award. The COR shall have 15 days after receipt to review and comment on the proposed test plan. The contractor shall incorporate any COR comments and recommendations, and deliver a final version of the test plan within 15 days after receiving COR comments or concurrence (CDRL A001)

C.4.2 Test Fluid: The contractor shall provide 4 Liters of the prototype fluid to TARDEC for government analysis. The contractor shall ensure the fluid is delivered to the government within 16 months of contract award.

C.4.3 Monthly Progress Reports: The contractor shall provide an electronic monthly progress report to Government personnel in the RDECOM/TARDEC Fuels and Lubricants Technology Team at the Warren facility 30 days after contract award and monthly thereafter. Interim findings and test results shall be reported. (CDRL A002)

C.4.4 Final Report: The contractor shall provide a final report at the end of the contract to Government personnel in the RDECOM/TARDEC Fuels and Lubricants Technology Team at the Warren facility. Findings, test results and conclusions of C.2.1 and C.2.2 shall be reported. (CDRL A003)

C.5 GOVERNMENT FURNISHED MATERIAL

C.5.1 The Government shall furnish two (2) 55 gallon barrels of MIL-PRF-46170 for Task C.2.1 no later than 60 days from contract award.

C.5.2 The Government shall furnish one (1) 55 gallon barrel each of the twelve (12) test fluids required for Task C.2.2 no later than 60 days from contract award.

C.6 CONTRACTOR ACQUIRED PROPERTY - none

C.7 PERIOD OF PERFORMANCE

C.7.1 The period of performance of the base contract shall be 18 months from the date of contract award.

OPTION YEAR 1 Statement of Work

C.8 SCOPE

In the event the Contracting Officer exercises the option in H.1, then the contractor will be responsible to perform this option statement of work, which defines additional tasks required of the contractor to support the U.S. Army RDECOM/TARDEC Fuels and Lubricants Program. Specific task requirements and deliverables are described below.

CONTINUATION SHEET	Reference No. of Document Being Continued	Page 6 of 8
	PIIN/SIIN W56HZV-13-C-0390	MOD/AMD P00001
Name of Offeror or Contractor: MILWAUKEE SCHOOL OF ENGINEERING		

C.9 TASKS/REQUIREMENTS

The contractor shall provide the following hydraulic technical support for the US Army RDECOM/TARDEC Fuels and Lubricants Program, including participation in technical discussions / meetings and specific technical tasks necessary to support the Fuels and Lubricants Program.

C.9.1 The contractor shall evaluate the efficiency of the following seven (7) fluids in a Parker PGP 330 gear pump. Test results shall be compared to a MIL-PRF-2104 SAE 10 reference fluid. The test sequence of the seven fluids is shown below.

1. MIL-PRF-2104 SAE 10
2. MIL-PRF-46170
3. Energy efficient prototype developed per C.2.1
4. MIL-PRF-2104 SAE 10
5. Single Common Powertrain Lubricant
6. Mobil DTE 10 EXCEL 46
7. MIL-PRF-2104 SAE 10

C.9.1.1 For each fluid the overall pump performance will be determined under the following conditions.

Two temperatures: 50 & 80C
Four speeds: 600 1200 1800 2400 RPM
Six pressures: 1000 1500 2000 2500 3000 3500 psi

C.9.1.2 The following parameters will be measured.

- Pump output flow rate (Qp)
- Pump speed (N)
- Pump displacement (Vi)
- Pump torque (TQ)
- Pump inlet pressure (Pi)
- Pump outlet pressure (Po)

C.9.1.3 Efficiency will be determined using the following ratios:

$$nO = \frac{(Po - PI) * (QP) * 36.77}{(N * T)} \qquad nV = \frac{QP}{N * Vi} \qquad nM = \frac{nO}{nV}$$

C.9.1.4 Gear pump overall efficiency shall be reported graphically as a function of flow rate and pressure. (CDRL A002 and A003)

C.9.2 The contractor shall furnish monthly status reports during the Option 1 performance period, and a final report for Option 1. (CDRL A002 and A004).

C.10 MEETINGS

C.10.1 The contractor shall conduct a start of work meeting within 15 days after commencement of the Option 1 performance period, and shall coordinate with the COR to arrange a mutually acceptable date and time. The meeting shall take place at RDECOM/TARDEC, Warren, MI.

C.10.2 The contractor shall schedule and conduct a teleconference every 60 calendar days at a mutually acceptable date and time. At each teleconference, the contractor shall discuss the current status of testing and summarize the findings and results since the previous teleconference

C.11 DELIVERABLES

C.11.1 Monthly Progress Reports: The contractor shall provide an electronic monthly progress report to Government personnel in the RDECOM/TARDEC Fuels and Lubricants Technology Team at the Warren facility 30 days after commencement of the Option 1 performance period and monthly thereafter. Interim findings and test results shall be reported. (CDRL A002)

C.11.2 Final Report: The contractor shall provide a final report to the COR. Findings, test results and conclusions of C.8.1 shall be reported 30 days before the end of the contract. The COR will review and provide comments back to the contractor within 14 days after receipt. Upon receipt of the COR review, the contractor shall have 14 days to incorporate the changes and submit the final report. (CDRL A004)

C.12 GOVERNMENT FURNISHED MATERIAL

C.12.1 The Government shall furnish one (1) 55 gallon barrel each of the six (6) test fluids required for Task C.8.1

CONTINUATION SHEET	Reference No. of Document Being Continued	Page 7 of 8
	PIIN/SIIN W56HZV-13-C-0390	MOD/AMD P00001

Name of Offeror or Contractor: MILWAUKEE SCHOOL OF ENGINEERING

no later than 60 days from the date the option was awarded.

C.13 CONTRACTOR ACQUIRED PROPERTY

C.13.1 The contractor shall procure two (2) Parker PGP 330 gear pumps for task C.8.1.

C.13.2 Contractor procured items shall be billed to the government at the direct cost price.

C.13.3 Contractor acquired property shall be delivered to the COR at the end of the option 1 performance period.

C.14 PERIOD OF PERFORMANCE

C.14.1 The period of performance of option 1 shall be 12 months that begins at the end of the base contract 18 month period of performance.

C.15 MANPOWER REPORTING

C.15.1 The contractor shall report all contractor labor hours (including subcontractor labor hours) required for performance of services provided under this contract for the U.S. Army via a secure data collection site. The contractor is required to completely fill in all required data fields using the Army CMR site, which you can access by clicking on the "Department of Army CMRA" link from the following gateway web address:
<http://www.ecmra.mil/>

C.15.2 Reporting inputs will be for the labor executed during the period of performance during each Government fiscal year (FY), which runs October 1 through September 30. While inputs may be reported any time during the FY, all data shall be reported no later than October 31 of each calendar year, beginning with 2013. Contractors may direct questions to the Army CMR help desk, which can be contacted using the "Send an email" link on the right side of the sign-in screen at the Army CMR site.

C.15.3 Additional information can be found in the clause in this contract entitled CONTRACTOR MANPOWER REPORTING (52.237-4000).

*** END OF NARRATIVE C0001 ***

Name of Offeror or Contractor: MILWAUKEE SCHOOL OF ENGINEERING

SECTION G - CONTRACT ADMINISTRATION DATA

LINE	MIPR/ <u>ITEM</u>	OBLG <u>STAT</u>	JO NO/ <u>ACCT ASSIGN</u>	<u>ACRN</u>	<u>PRIOR AMOUNT</u>	<u>INCREASE/ DECREASE</u>	<u>CUMULATIVE AMOUNT</u>
0001AA	R33KJ042R3 633005441	1	R.0005718.1.20	AA \$	13,000.00 \$	-2,936.00 \$	10,064.00
						NET CHANGE \$	-2,936.00

<u>ACRN</u>	<u>ACCOUNTING CLASSIFICATION</u>	<u>INCREASE/ DECREASE</u>
AA	021 201320142040 A60FL 633005441RK20 2550 L034638647 R.0005718.1.20	021001 \$ -2,936.00
		NET CHANGE \$ -2,936.00

NET CHANGE FOR AWARD:	<u>PRIOR AMOUNT OF AWARD</u>	<u>INCREASE/DECREASE AMOUNT</u>	<u>CUMULATIVE OBLIG AMT</u>
\$	259,836.00	\$ -2,936.00	\$ 256,900.00

LINE	<u>ACRN</u>	<u>EDI/SFIS ACCOUNTING CLASSIFICATION</u>	<u>ED/NO</u>	<u>ED/NO</u>	<u>ED/NO</u>	<u>ED/NO</u>	<u>ED/NO</u>
0001AA	AA	021 201320142040	A60FL 633005441RK20	2550 L034638647	R.0005718.1.20		021001

<u>Status</u>	<u>Regulatory Cite</u>	<u>Title</u>	<u>Date</u>
G-1 CHANGED	52.242-4016	COMMUNICATIONS	MAY/2000

Communications on technical matters pertaining to the contract shall be direct between the contractor and the Technical Representative. Communications for the Technical Representative shall be addressed to:

Name: Jill Bramer
E-mail: jill.m.bramer.civ@mail.mil

Alternate Technical Representative

Name: Adam Puzzuoli
E-mail: adam.a.puzzuoli.civ@mail.mil

The Administrative Contracting Officer's (ACO) name and email address are also provided if known at this time:

ACO: Michael Mueller
E-mail: michael.mueller@dcma.mil

Please see the appointment letters prepared at time of contract award for functions the Technical Representative and ACO will perform on this contract.

[End of Clause]