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MOD/AMD

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SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

| | <u>Regulatory Cite</u> | <u>Title</u> | <u>Date</u> |
|-----|------------------------|-------------------------------------|-------------|
| C-1 | 52.237-4000 (TACOM) | CONTRACTOR MANPOWER REPORTING (CMR) | FEB/2007 |

The Office of the Assistant Secretary of the Army (Manpower & Reserve Affairs) operates and maintains a secure Army data collection site where the contractor will report ALL contractor manpower (including subcontractor manpower) required for performance of this contract. The contractor is required to completely fill in all the information in the format using the following web address: <https://cmra.army.mil> . The required information includes the following:

- (1) Contracting Office, Contracting Officer, Contracting Officer's Technical Representative;
- (2) Contract number, including task and delivery order number;
- (3) Beginning and ending dates covered by reporting period;
- (4) Contractor name, address, phone number, e-mail address, identity of contractor employee entering data;
- (5) Estimated direct labor hours (including sub-contractors);
- (6) Estimated direct labor dollars paid this reporting period (including sub-contractors);
- (7) Total payments (including sub-contractors);
- (8) Predominant Federal Service Code (FSC) reflecting services provided by contractor (and separate predominant FSC for each sub-contractor if different);
- (9) Estimated data collection cost;
- (10) Organizational title associated with the Unit Identification Code (UIC) for the Army Requiring Activity (the Army Requiring Activity is responsible for providing the contractor with its UIC for the purposes of reporting this information);
- (11) Locations where contractor and sub-contractors perform the work (specified by zip code in the United States and nearest city, country, when in an overseas location, using standardized nomenclature provided on website);
- (12) Presence of deployment or contingency contract language; and
- (13) Number of contractor and sub-contractor employees deployed in theater this reporting period (by country).

As part of its submission, the contractor will also provide the estimated total cost (if any) incurred to comply with this reporting requirement. Reporting period will be the period of performance not to exceed 12 months ending September 30 of each government fiscal year and must be reported by 31 October of each calendar year.

[End of Clause]

SCOPE OF WORK

C.1 SCOPE. This Statement of Work (SOW) defines the effort required to provide the technical data needed by the Army and its cooperating Federal and other US Armed Force agencies to support and enhance military combat and tactical mobility through improved fuels and lubricants.

C.2 APPLICABLE DOCUMENTS.

C.3 REQUIREMENTS.

C.3.1 General. The contractor, as an independent contractor and not as an agent of the Government, shall provide up to 250,000 man-hours inclusive of all options on a level of effort basis.

C.3.2 Detailed. The Government will issue work directives. The work directives will specify work effort to be performed by the contractor within the following areas:

C.3.2.1 Basic Research, Exploratory Development, Advanced Development and Engineering in the Field of Combat Fuels and Combustion. This shall include the following work efforts to be performed by the contractor:

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C.3.2.1.1 Conduct laboratory physical and chemical property characterizations; develop laboratory or field procedures to assess critical fuel properties; measure the fuel consumption, power, exhaust emissions, and other performance characteristics in engines relevant to Military mobility.

C.3.2.1.2 Evaluate alternative fuels for enhancing and extending Military combat and tactical mobility and for specialized Military applications, including fuels derived from alternate sources, i.e., shale, coal liquids and tar sands.

C.3.2.1.3 Evaluate the application of fuel additives for enhancing fuel or equipment performance, including additive approaches for improved fuel stability, lubricity, exhaust emissions, power enhancement, engine cleanliness, reduced emissions, or other operational improvements.

C.3.2.1.4 Conduct mobility fuel quality surveys, field evaluations, and evaluate issues resulting from the interchange of available commercial fuels and fuels common within other service branches and NATO for use in Military mobility equipment.

C.3.2.1.5 Provide planning and coordination in developing future Military mobility fuels policy, and mobility fuels program plans.

C.3.2.1.6 Develop approaches and systems for enhancing fuel availability. This could include fuels for use in field emergencies; use of fuels intended for other services and applications such as marine fuels; rapid refining or upgrading of hydrocarbons to fuels; and the ability to capture, characterization, and use fuels from opponent supplies.

C.3.2.1.7 Conduct research to reduce mobility fuel demand through engine or vehicle changes to reduce fuel consumption, the detection and correction of deteriorated fuels, enhanced fuel energy content, or other strategies.

C.3.2.1.8 The contractor shall maintain cognizance of the state of the art and development in industry, academic and Government activities and shall conduct liaison with user activities and investigate field fuel problems.

C.3.2.2 Basic Research, Exploratory Development, Advanced Development and Engineering on Advanced Energy Transformation Systems and Advanced Propulsion Systems, as influenced by or related to fuels and lubricants, including: advanced reciprocating internal combustion engines, fuel reformers for proton fuel cells, thermophotovoltaic generators, and chemical energy storage for hybrid drive systems. This shall include the following work effort to be performed by the contractor:

C.3.2.2.1 Develop or modify energy transformation systems to improve combustion efficiencies for demonstration of technology.

C.3.2.2.2 Investigate advanced energy transformation systems concerning how they will be affected by different quality fuels and how the systems would affect the emissions from these fuels as compared with standard systems.

C.3.2.2.3 Demonstrate the systems in order to identify technical challenges for commercialization and availability of technology to the Military.

C.3.2.3 Basic Research, Exploratory Development, Advanced Development and Engineering on Fuel Handling, Fuel Distribution, Fuel Storage, and the Performance of Associated Equipment with Conventional and Alternate Military Fuels. Examples of possible thrust areas include: 1) dispersants and flow improvers for pipeline fuel transport, 2) compatibility of elastomeric fuel storage tank materials with varying fuel compositions, 3) evaluation of gasket and sealing material deterioration, 4) fuel filter and water separator performance improvement, 5) effect of fuel properties on fuel handling equipment performance and its components, 6) safety concerns on fuel handling equipment, and 7) fuel injection pump wear with low lubricity fuels.

C.3.2.4 Basic Research, Exploratory Development, Advanced Development and Engineering on Lubricants for Engines, Transmissions, and Other Vehicular Systems. Examples of the thrusts are: improved multi-seasonal engine/power transmission lubricants, lubricant requirements for advanced engines and other vehicular systems, lubricants for use with alternate and emergency fuels, and development of techniques and devices to assess lubricant quality and feasibility for use. The contractor shall perform work effort in these areas which shall encompass projects such as the following:

C.3.2.4.1 Develop long-life, year-around engine and power train lubricants suitable for all environments especially for use in new advanced integrated propulsion systems and new low-emission engines.

C.3.2.4.2 Evaluate the performance and correct deficiencies of tactical/combat engine oils, preservative oils, gear oils, solid film lubricants in Military relevant equipment.

C.3.2.4.3 Develop engine and transmission lubricant requirements for future revisions to military performance specifications for tactical/combat engine oil including new test criteria.

C.3.2.4.4 Develop technologies and devices for determining lubricant quality, characterization of lubricant performance, fitness for use, lab-to-field correlation, and reducing the life-cycle cost of qualified products.

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- C.3.2.4.5 The contractor shall conduct investigations to determine use limitations of lubricants based on environmental and engine operational criteria.
- C.3.2.4.6 Investigate methods for extending the service life of lubricants, reduce lubricant contribution to exhaust emissions, reduce frictional losses to improve fuel economy, and develop/identify environmentally acceptable lubricants disposal.
- C.3.2.4.7 Conduct mobility lubricant quality surveys, and evaluate issues resulting from the interchange of available commercial lubricants and lubricants common within other service branches and NATO for use in Military mobility equipment.
- C.3.2.4.8 The contractor shall maintain cognizance of the state of the art and development in industry, academic and Government activities; shall conduct liaison with user activities and investigate field problems related to engine/transmission lubricants.
- C.3.2.5 Basic Research, Exploratory Development, Advanced Development and Engineering on Functional Fluids. Examples of thrust areas include improved power transmission fluids, anti-freezes, and engine coolants, and nonflammable hydraulic fluid systems and components. Examples of work efforts to be performed by the contractor are as follows:
- C.3.2.5.1 Broaden the applications base of existing power transmission fluids and develop new fluids.
- C.3.2.5.2 Develop nonflammable or reduced fire vulnerable hydraulic fluids for combat vehicles.
- C.3.2.5.3 Develop lubrication requirements for multipurpose turbine engine, power transmission oil for ground vehicle systems.
- C.3.2.5.4 Conduct research on fog oils and other battlefield obscurants, including models of obscurant performance, substitute materials, toxicity, handling, and in-use safety.
- C.3.2.5.5 Develop technologies and devices for determining and assessing product quality, lab-to-field correlation, and reducing the life-cycle cost of qualified products. Evaluate and determine fog oil substitutes that are more environmentally acceptable.
- C.3.2.5.6 Maintain cognizance of the state of the art and development in industry, academic and Government activities, and investigate field problems related to power transmission and other functional fluids as delineated in Work Directives.
- C.3.2.6 Investigate and/or develop fuels, lubricants and related materials to reduce total operating costs and improve RAM-D factors for military materiel. This shall include the following work effort to be performed by the contractor:
- C.3.2.6.1 Develop data on the impacts of fuel, lubricant, and functional fluid properties on the durability, wear, maintenance requirements, and life cycle costs of Military tactical and combat equipment.
- C.3.2.6.2 Conduct evaluations of fuel, lubricant, and functional fluid formulations, or associated hardware such as filters, fuel handling equipment, or fuel injection systems, which may reduce the total system costs of Military equipment, including logistics operations.
- C.3.2.7 Basic Research, Exploratory Development and Advanced Development in Fluid Fire Resistance, Fire Protection, Fire Suppression, and Fire Vulnerability. Examples of thrust areas include: fire resistance and non-flammable hydraulic fluids, fundamental mechanisms of ignition, flame propagation, and fire suppression of fuel vapors, fire resistant diesel fuel formulations, and replacements for Halon fire suppressants.
- C.3.2.8 Conduct field tests and technology demonstrations on prototype fuels, lubricants, functional fluids, corrosion preventative compounds, and associated equipment; and conduct field evaluations of the performance and quality of existing products.
- C.3.2.9 Basic Research, Exploratory Development, Advanced Development and Engineering on the control, mitigation, and remediation of environment pollution from the use and disposal of fuels, lubricants and functional fluids.
- C.3.2.10 The contractor shall comply with 29 Code of Federal Regulations 1910 and other applicable Safety and Health Regulations to protect the worker performing under the contract. The contractor shall ensure that all hazardous wastes are handled IAW EPA and applicable state regulations.
- C.3.3 DELIVERABLES.
- C.3.3.1 The contractor shall submit Progress, Status and Management Reports in accordance with CDRL Data Item A001.
- C.3.3.2 The contractor shall submit Scientific and Technical Reports (Interim Reports) in accordance with CDRL Data Item A002.
- C.3.3.3 The contractor shall submit Scientific and Technical Reports (Final Technical Report) in accordance with CDRL Data Item A003.
- C.3.4 MEETINGS.

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C.3.4.1 Start-of-Work Meeting. The contractor shall plan and conduct a Start-of-Work meeting at TARDEC within one (1) month after award of the contract. The Contractor shall coordinate this meeting with the COR.

C.3.4.2 Quarterly Management Meetings. The contractor shall plan and conduct Quarterly Management meetings with the COR for status updates.

*** END OF NARRATIVE C0001 ***