



**COORDINATING RESEARCH COUNCIL, INC.**

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June 1, 2016

In reply, refer to:

CRC Project No. AV-23-15

Subject: CRC Request for Proposal AV-23-15, “Adequacy of Existing Test Methods for Aviation Jet Fuel & Additive Property Evaluation”

Dear Prospective Bidder:

The Coordinating Research Council, Inc. (CRC) invites you to submit a written proposal on **“Adequacy of Existing Test Methods for Aviation Jet Fuel & Additive Property Evaluation,”** as described in the attached Statement of Work, Exhibit A.

Please indicate via letter, fax, or email by **June 30, 2016** whether or not you or your organization intends to submit a written proposal for the project. CRC will answer technical questions regarding the Request for Proposal if they are submitted in writing. CRC will then return written answers to all of the bidders, along with a copy of the original questions.

The CRC technical group composed of equipment, petroleum, and government representatives will evaluate your proposal. CRC reserves the right to accept or reject any or all proposals.

The reporting requirement will be text, data and charts to CRC in accordance with Exhibit A Statement of Work. A Final Report documenting the results of the study will be published by CRC. The reporting requirement is described in more detail in the attachment entitled, “Reports” (Exhibit B).

The “Intellectual Property Rights Clause” (Exhibit C) and “Liability Clause” (Exhibit D) will be a part of the agreement, which will be executed as a result of this Request for Proposal solicitation.

The proposal must be submitted as two separate documents. The technical approach to the problem will be described in part one and a cost breakdown that is priced by task will be described in part two. The cost proposal document should include all costs associated with conducting the proposed program.

CRC expects to negotiate either a cost reimbursable or a fixed price contract. Important selection factors to be taken into account are listed in Exhibit E. CRC evaluation procedures require the technical group to complete a thorough technical evaluation before considering costs. After developing a recommendation based on technical considerations, the costs are revealed and the recommendation is modified as needed.

Electronic copies of the technical and cost proposals should be submitted to:

Mrs. Jan Tucker  
Coordinating Research Council, Inc.  
5755 North Point Parkway, Suite 265  
Alpharetta, GA 30022

Phone: 678-795-0506, Ext. 100

Fax: 678-795-0509

E-mail: [jantucker@crcao.org](mailto:jantucker@crcao.org)

The deadline for receipt of your proposal is **July 29, 2016**.

Sincerely,

Jan Tucker  
Committee Coordinator

## EXHIBIT A

### **Adequacy of Existing Test Methods for Aviation Jet Fuel & Additive Property Evaluation**

**Research Category:** Scientific Research and Evaluation of Current Test Methods Used to Define Aviation Turbine Fuel and Aviation Additive Properties.

**Relevant Strategic Objectives:** The introduction of aviation turbine fuels that include synthetically derived hydrocarbons is stretching the technical “Box” in which fuel properties and performance is measured. It is necessary now to determine the strengths and weaknesses of current in-use test methods for measuring capabilities of aviation turbine fuels and additives, with the focus on appropriateness of scope and test fluids used to develop the method, significance and relevance, and that adequacy of the level of precision. One result from this program should be to identify the “gaps” that exist, to provide the incentive to develop necessary test methods for the emerging fuels and additives of the next decades.

**Background:** Jet fuels, conventional and renewable, are specified by industry consensus standards. These standards ensure intended fuel performance by limiting the fuel properties (e.g., density, viscosity, etc.) to certain or range of values. Additionally, when a new fuel is approved, a process is followed that involves evaluation of properties that are not included in fuel specifications (e.g., water solubility, bulk modulus, etc.). These are typically referred to as fit-for-purpose properties. The fuel properties are determined by test methods developed and approved by organizations such as the American Society of Testing and Materials (ASTM International). However, it is understood to be the case that some of these methods are inadequate (e.g., large variation, valid for diesel but not for kerosene, etc.), non-existent, existent and accurate but with no clearly defined pass/fail criteria or limits, obsolete, or adequate but not readily available. These issues present themselves during the approval process of aviation fuel additives as well, since their approval process is very similar to that of jet fuels.

**Project Objectives:** In order to prevent confusion and misinformation regarding fuel quality and performance, and to improve the efficiency of fuel/additive approval process, the issues identified in background section above need to be resolved or at least mitigated. First step towards this advancement is to properly identify the current status of the existing methods: which ones are inadequate, not well defined, missing, and obsolete. This assessment will include, but not be limited to: 1) evaluation of test methods with respect to the current state of the art; 2) inputs from engine OEM’s regarding fuel characteristics or properties critical to proper engine performance; 3) handling and storage; 4) material compatibility; and 5) safety. The proposed effort could be seen as a Phase 1 effort focused on identifying these issues only. Further follow-

on Phase(s) could be pursued in the future to determine solutions to identified issues and estimate the cost of those solutions, building on the revealed picture from this survey. Also, it should be noted that the effort proposed is an evaluation of the adequacy of test methods and not fuels. A side objective is to determine which properties could be determined without a specific test method, but rather by the estimation from the bulk chemistry. The survey should include a review of previous similar surveys and any available studies conducted in the development of ASTM D4054.

**Project Approach:** An expert, an independent consultant firm, or a specialist from a reputable fuels lab, will survey engine OEM's, and all relevant surveys and studies to critically evaluate the adequacy and/or necessity of the test methods used in fuel specifications ASTM D1655 and ASTM D7566 and the fit-for-purpose properties considered in ASTM D4054.

**Project Deliverable:** A formal CRC report providing findings and presentation(s) to the relevant community (e.g., CRC, ASTM, etc.).

**Proposed Schedule:** 6 months.

## **EXHIBIT B**

### **REPORTS**

#### **DRAFT AND FINAL REPORT**

The contractor shall distribute for the CRC an electronic pdf-compatible copy of a draft final report after completion of the technical effort specified in the contract. The draft final report shall document, in detail, the test program and all of the work performed under the contract. The report shall include tables, graphs, diagrams, curves, sketches, photographs and drawings in sufficient detail to comprehensively explain the test program and results achieved under the contract. The report shall be complete in itself and contain no reference, directly or indirectly, to the progress report(s).

The draft report must have appropriate editorial review corrections made by the contractor prior to submission to CRC to avoid obvious formatting, grammar, and spelling errors. The report should be written in a formal technical style employing a format that best communicates the work conducted, results observed, and conclusions derived. Standard practice typically calls for a CRC Title Page, Disclaimer Statement, Foreword/Preface, Table of Contents, List of Figures, List of Tables, List of Acronyms and Abbreviations, Executive Summary, Background, Approach (including a full description of all experimental materials and methods), Results, Conclusions, List of References, and Appendices as appropriate for the scope of the study. Reports submitted to CRC shall be written with a degree of skill and care customarily required by professionals engaged in the same trade and /or profession.

The CRC Steering Committee shall furnish comments regarding the draft report to the contractor within one (1) month after the draft copy.

Within thirty (30) days after receipt of the approved draft copy of the annual report, the contractor shall make the requested changes and deliver to CRC thirty (30) hardcopies including a reproducible master copy of the final report. The final report shall also be submitted as an electronic copy in a Microsoft WORD and a pdf or pdf-convertible file format. The electronic copy will be made available for distribution by CRC.

## **EXHIBIT C**

### **INTELLECTUAL PROPERTY RIGHTS**

Title to all inventions, improvements, and data, hereinafter, collectively referred to as (“Inventions”), whether or not patentable, resulting from the performance of work under this Agreement shall be assigned to CRC. Contractor X shall promptly disclose to CRC any Invention which is made or conceived by Contractor X, its employees, agents, or representatives, either alone or jointly with others, during the term of this agreement, which result from the performance of work under this agreement, or are a result of confidential information provided to Contractor X by CRC or its Participants. Contractor X agrees to assign to CRC the entire right, title, and interest in and to any and all such Inventions, and to execute and cause its employees or representatives to execute such documents as may be required to file applications and to obtain patents covering such Inventions in CRC’s name or in the name of CRC’s Participants or nominees. At CRC’s expense, Contractor X shall provide reasonable assistance to CRC or its designee in obtaining patents on such Inventions.

## **EXHIBIT D**

### **LIABILITY**

It is agreed and understood that \_\_\_\_\_ is acting as an independent contractor in the performance of any and all work hereunder and, as such, has control over the performance of such work. \_\_\_\_\_ agrees to indemnify and defend CRC from and against any and all liabilities, claims, and expenses incident thereto (including, for example, reasonable attorneys’ fees) which CRC may hereafter incur, become responsible for or pay out as a result of death or bodily injury to any person or destruction or damage to any property, caused, in whole or in part, by \_\_\_\_\_’s performance of, or failure to perform, the work hereunder or any other act of omission of Contractor in connection therewith.

## **EXHIBIT E**

### **PROPOSAL EVALUATION CRITERIA**

- 1) Merits of proposed technical approach.
- 2) Previous performance on related research studies.
- 3) Personnel available for proposed study – related experience.
- 4) Timeliness of study completion.
- 5) Cost.