



COORDINATING RESEARCH COUNCIL, INC.

3650 MANSELL ROAD, SUITE 140
ALPHARETTA, GA 30022
TEL: 678/795-0506 FAX: 678/795-0509
WWW.CRCAO.ORG

October 15, 2009

In reply, refer to:

CRC Project Number AV-10-09

Prospective Bidders

CRC Request for Proposal No. AV-10-09

Dear Prospective Bidder:

The Coordinating Research Council, Inc. (CRC) invites you to submit a written proposal to conduct a study on “Jet Fuel Aromatics Effects and Distillation Slope Research Survey” as described in the attached Statement of Work, Exhibit A, for CRC Project No. AV-10-09.

Please indicate via letter, fax, or email by **October 22, 2009** whether or not 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 monthly reports to CRC in accordance with Exhibit A Statement of Work. A Final Report documenting the results of the study will be published. 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.
3650 Mansell Road, Suite 140
Alpharetta, GA 30022

Phone: 678-795-0506, Ext. 100

Fax: 678-795-0509

E-mail: jantucker@crcao.org

The deadline for receipt of your proposal is **November 15, 2009**.

Sincerely,

Brent K. Bailey
Executive Director

EXHIBIT A

STATEMENT OF WORK

Jet Fuel “Aromatics Effects” and “Distillation Slope” Research Survey

Relevant Strategic Objectives: Determine the importance of the “aromatic effect” and “distillation slope” characteristic in the performance of the fuel, specifically: 1) the need for aromatics relative to seal and gasket performance, limiting circumstances if any and identify the roles of different types of aromatic materials in these investigations. 2) with respect to transient performance such as starting and combustion lean extinction does a fuel with little change in increasing temperature as fractions are distilled operate more poorly than fuels with robust change in distillation fractional temperature.

Background: As the aviation industry continues to develop aviation fuels from other than petroleum feed stocks undesirable components and properties effecting the fuel performance can be more pronounced than with historic petroleum jet fuel. Aromatics are currently limited to no more than 25% due to their poor heat content and soot generation, but are generally thought to be necessary for fuel density. The newly developed fuels could be manufactured with very low levels of aromatics, or perhaps with no aromatics, using increased cyclo-paraffins to achieve density. There would remain an open question of the effects of these low or no aromatic fuels on fuel systems whose seals and elastomers are already aromatic soaked and where O-rings have pre-conditioned sets based on typical petroleum jet fuels and “see” at least some aromatics on a regular basis. Would these materials adversely shrink in the presence of the new fuels, causing fuel leaks in the fleet? There is also some question about the specific roles of aromatic species and of cyclo-paraffins in seal swell and these should also be investigated as part of these programs.

By the same token, the slope of the distillation curve (D86, for example) also denotes the range of hydrocarbon molecules in a fuel. A lesser slope indicates fewer species. A very flat slope could even indicate that the fuel is only a two or three component composition. There is concern about the fact that fuels from non-petroleum feed stocks could exhibit very flat slopes and thus effect fuel performance. So, for example, the flat slope could make for different abilities/performance in such areas as cold fuel starting and engine acceleration and engine deceleration.

The USAF AFRL/UDRI group is doing (and have done) aromatics studies and both Rolls-Royce and Sasol (Univ. Of Cape Town) are considering or are engaged in both aromatics effects on seals and elastomers, and distillation slope studies. It is expected that this research will continue into 2011 before final results are available.

Project Objectives: Identify the research programs that are studying aromatics and flat distillation slopes in fuels, including any recently completed programs and review them to insure the program goals address industry concerns. Where this is not so, provide guidance and counsel to that program.

Project Approach: Perform the following tasks:

1. Survey the current research programs that are investigating the effects of aromatics in fuels on fuel system components, and flat distillation slopes on combustor performance.
2. Report on the status and results of this research.
3. Identify any gaps in the research relative to the above stated strategic objectives.

Project Deliverables: The contractor will provide the following deliverables:

1. An interim report that summarizes the current research and reports gaps that need to be addressed. This report should be delivered on or about 31 March 2010.
2. A presentation of the interim report results to the CRC Emerging Fuels group in May 2010.
3. A final report that summarizes the current research and reports gaps that need to be addressed. This report should be delivered on or about 31 March 2011.
4. A presentation of the final report results to the CRC Emerging Fuels Group in May 2011.

Utilization of Deliverables: Establish the boundary or limits for aromatic content of new and emerging fuels and define acceptable distillation limits for new and emerging fuels.

Relevant CRC Committee: Emerging Fuels Group

EXHIBIT B

REPORTS

MONTHLY TECHNICAL PROGRESS REPORTS

The contractor shall submit a monthly technical progress report covering work accomplished during each calendar month of the contract performance. An electronic Microsoft Word compatible file of the monthly technical progress report shall be submitted to CRC by the contractor within ten (10) calendar days after the end of each reporting period. The report shall contain a description of overall progress, plus a separate description for each task or other logical segment of work on which effort was expended during the reporting period in accordance with Exhibit A Statement of Work..

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 periodical report(s).

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 WORD, pdf or pdf-convertible file format. The electronic copy will be made available for posting on the CRC website.

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.