



COORDINATING RESEARCH COUNCIL, INC.
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August 23, 2023
In reply, refer to:
CRC Project No. RW-121a

Dear Prospective Bidder:

The Coordinating Research Council (CRC) invites you to submit a written proposal to provide services for “Nationwide PMI Fuel Survey (summer & winter) – Data Analysis and Reporting” (CRC Project No. RW-121a). A description of the project is presented in Exhibit A, “Statement of Work.”

Please indicate by **September 6th, 2023** if you or your organization intends to submit a written proposal for this research program by submitting the completed form at [THIS LINK](#). CRC will answer technical questions regarding the Request for Proposal if they are submitted in writing at [THIS LINK](#). CRC will then return written answers to all of the bidders, along with a copy of the original questions.

A CRC technical group composed of industry representatives will evaluate your proposal. CRC reserves the right to accept or reject any or all proposals. Key contract language examples are presented in Exhibits B, C, D, and E. CRC must adhere to standard contract language with minor adjustments only in extraordinary circumstances. **Failure to agree to these contract clauses as written may result in the project being awarded to another contractor.**

Important selection factors are listed in Exhibit F. 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.

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. The technical proposal should not be longer than 10 pages in length (not including resumes). **The schedule / timeline information must be included in the technical proposal; failure to do so may result in your proposal being set aside as non-responsive.**

CRC expects to negotiate a cost-plus fixed fee or cost reimbursement contract for the research program.

The technical and cost proposals should be submitted to:
Amber B. Leland Email: aleland@crcao.org

The deadline for receipt of your proposal is **September 22, 2024**.

EXHIBIT A

CRC Project Statement of Work Nationwide PMI Fuel Survey (summer & winter) – Data Analysis and Reporting

CRC Project Number RW-121a

Background

A 2010 SAE paper by Honda authors (2010-01-2115) introduced the concept of PMI, or particulate matter index. Utilizing a detailed hydrocarbon analysis (DHA), as well as knowledge of double bond equivalent (DBE) and vapor pressure for components present in a gasoline fuel, PMI sought to quantify a fuel's propensity for forming particulates. In the time since, use of the PMI metric in research related to fuel properties and resultant impact on vehicle emissions has become increasingly common. In addition, PMI distributions for market gasoline fuels (based on existing survey data) are often cited in these studies, with implications that these distributions are still relevant today.

While the original SAE paper has served to motivate recent gasoline particulate research, the PMI distributions listed within warrant a re-evaluation. CRC project, RW-121/ CM-138-22 (PMI Summer Fuel Survey) and RW-121-2 / CM-138-22-2 (PMI Winter Fuel Survey) will provide the market fuel data to be used for the project described herein and provide insight into how much (or little) US market fuels have changed over the last 15 years.

Objective

The main objectives of this project are to 1) perform an analysis of data from RW-121 and RW-121-2 projects including PMI based on detailed hydrocarbon analysis (DHA) (per ASTM D6730), simulated distillation (SimDis, per ASTM D7096), boiling range by atmospheric distillation (per ASTM D86) and PMI based on vacuum ultraviolet (VUV) spectroscopy (per ASTM D8369); 2) identify data gaps, correlations to methods and/or fuel properties (e.g., PMI to SimDis boiling fractions¹) and/or trends in regional fuel survey data (i.e., PADD differences, RFG versus conventional, etc.) ; and 3) formalize the two previous objectives as well as general trends and survey results into a written report.

Work Plan

As stated in the previous section, the CRC Real World Group envisions three primary components to this work. CRC also envisions this as a two-part project with two separate reports. The first report will be on the RW-121/ CM-138-22 summer fuel survey (168 fuel samples) and will be finalized ahead of a second report, which will be based on the RW-121-2/CM-138-22 winter fuel survey (85 fuel samples). The second report will also include analysis and discussion comparing the two fuel surveys. Following receipt of RW-121 summer survey results, and again after receipt of RW-121-2 winter survey results, the selected contractor shall perform a statistical data analysis including (but not limited to);

¹ See: SAE Technical Paper 2022-01-0489, 2022 and SAE Technical Paper 2023-01-0298, 2023

- Fuel PMI and SimDis results, including context around fuel composition, and where appropriate, regional and/or differences.
- Compare and contrast DHA based PMI to VUV based PMI including compositional differences.
- Compositional differences and percentage unknown between the methods.
- Correlations between DHA based PMI, SImDis and atmospheric distillation boiling points and/or boiling fractions
- Significance of results (95% CI), and comments around representativeness to broader nationwide trends, including;
 - Comparison of regional fuels (are differences significant?)
 - Comparison to fuels used in original 2010 Honda work
 - How have DHA methods evolved today from the work performed in 2010?

Secondly, CRC requests the contractor to identify, if any, gaps in current survey results or trends. Are there regions that necessitate more, or less, fuel collection samples? With these analyses complete, the selected contractor shall provide two formalized final reports, including general observations, correlations, trends, as well as a complete description of the statistical analysis performed for the summer fuels survey and later on the winter fuels survey.

Resources

A project team made up of CRC RWG members will be available for recurring update meetings as needed.

Project Cost

The initial estimate from Real World Group committee members is that the cost for this project will be approximately \$60,000.

Project Timing

Six months

EXHIBIT B

REPORTS

A. CONTRACTOR shall submit a technical progress report covering work accomplished during each month of the contract performance. 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. Periodic conference calls may also be requested by CRC to update the technical committee overseeing the project.

B. CONTRACTOR shall submit to CRC a draft final report on or before DRAFT FINAL REPORT DUE DATE. The *Draft Final Report* shall be reviewed and returned to CONTRACTOR with comments no later than forty-five (45) days thereafter. The report shall document, in detail, all of the work performed under the contract including data, analyses, and interpretations, as well as recommendations and conclusions based upon results obtained. The report shall include tables, graphs, diagrams, curves, sketches, photographs, and drawings in sufficient detail to comprehensively explain the results achieved under the contract. The report shall be complete in itself and contain no reference, directly or indirectly, to the monthly progress reports and should be suitable for publication in the peer-review literature. Additional rounds of review may be required prior to acceptance of the Final Report. If applicable, data from the research shall be provided in a format suitable for releasing to the public along with the final report.

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 report structure that includes:

- CRC Title Page and Disclaimer Statement (both provided by CRC)
- 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 (may also include Recommendations if CRC requests them)
- List of References
- Appendices as appropriate for the scope of the study.

Incomplete draft reports or reports of poor quality requiring additional outside editorial review may have outside editorial services charged back to the project budget.

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 shall promptly disclose to CRC any Invention which is made or conceived by CONTRACTOR, 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 by CRC or its Participants. CONTRACTOR 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 shall provide reasonable assistance to CRC or its designee in obtaining patents on such Inventions.

To the extent that a CRC member makes available any of its intellectual property (including but not limited to patents, patent applications, copyrighted material, trade secrets, or trademarks) to CONTRACTOR, CONTRACTOR shall have only a limited license to such intellectual property for the sole purpose of performing work pursuant to this Agreement and shall have no other right or license, express or implied, or by estoppel. To the extent a CRC member contributes materials, tangible items, or information for use in the project, CONTRACTOR acknowledges that it obtains only the right to use the materials, items, or information supplied for the purposes of performing the work provided for in this Agreement, and obtains no rights to copy, distribute, disclose, make, use, sell or offer to sell such materials or items outside of the performance of this Agreement.

EXHIBIT D

RELATIONSHIP OF PARTIES

It is agreed and understood that CONTRACTOR is acting as an independent contractor in the performance of any and all work hereunder, and to the extent caused by CONTRACTOR, CONTRACTOR shall be solely liable and responsible for the payment of all legal claims for damages made by its employees or agents, or by another person or persons, on account of any property damage or on account of personal injury sustained or suffered by, or on account of the death, of any person or persons, or on account of any other legal claims arising or growing out of CONTRACTOR's negligence in the performance of the agreement; and CONTRACTOR undertakes to indemnify CRC against any such liability.

EXHIBIT E

KEY PERSONNEL REQUIREMENTS

Certain skilled experienced professional and/or technical personnel are essential for successful performance by CONTRACTOR of its obligations and work under this Agreement. These personnel are persons whose resumes were submitted for evaluation of the Proposal and are identified by CRC as “Key Personnel”. CRC awards contracts based on several requirements and the reputation and experience of Key Personnel are a significant requirement. CONTRACTOR agrees that CONTRACTOR will not remove or replace any Key Personnel from the contract work without compliance with paragraphs (a) and (b) hereof.

(a) If any Key Personnel for whatever reason becomes, or is expected to become, unavailable for work under this Agreement (or any specific Project) for a continuous period exceeding thirty (30) work days, or is not expected to perform the work hours and volume of work indicated in the proposal or initially anticipated, the CONTRACTOR shall immediately notify CRC and shall, subject to the concurrence of CRC, promptly replace such Key Personnel with personnel of at least substantially equal ability and qualifications acceptable to CRC.

(b) All requests for approval of substitutions of Key Personnel hereunder must be in writing to CRC and provide a detailed explanation of the circumstances necessitating the proposed substitutions. Requests for substitution must contain a complete resume for the proposed substitute Key Personnel, and any other information requested by CRC needed to approve or disapprove the proposed substitution. CRC will evaluate such requests and notify CONTRACTOR of approval or disapproval thereof in writing. CRC is not responsible for, and shall not be charged, any fees or other costs related to such replacement Key Personnel’s performance of the services until the replacement Key Consultant has obtained the same proficiency and knowledge regarding the services as the former Key Personnel.

(c) If CRC determines that suitable and timely replacement of Key Personnel who have been reassigned, terminated or have otherwise become unavailable for the contract work is not reasonably forthcoming or that the proposed replacement Key Personnel would impair the successful completion of the contract or the services ordered, at the option of CRC, (i) the Agreement (in whole or in part related to the applicable contract work) may be terminated by CRC or (ii) the contract price or fixed fee may be equitably adjusted downward to compensate CRC for any resultant delay, loss, or damage, in an amount acceptable to CRC

EXHIBIT F

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.