



**COORDINATING RESEARCH COUNCIL, INC.**

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

**October 5, 2007**

In reply, refer to:

CRC Project Number E-75-2

To: Prospective Bidders

Subject: CRC Request for Proposal No. E-75-2, "Diesel Unregulated Emissions Characterization"

The Coordinating Research Council (CRC) invites you to submit a written proposal on the subject topic. A description of the project (CRC Project No. E-75-2) is given in Exhibit A.

Please indicate by letter, fax, or email by **October 15, 2007**, whether or not you intend 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.

A CRC technical group composed of industry and government representatives will evaluate your proposal. CRC reserves the right to accept or reject any or all proposals.

The reporting requirements will be monthly progress reports and a summary technical report at the end of the contractual period. The reporting requirements are described in more detail in the attachment entitled, "Reports" (Exhibit B).

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 a cost-plus fixed fee or cost reimbursement contract for the research program.

Contract language for intellectual property and liability clauses is presented in Exhibit C and in Exhibit D, respectively.

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.

Thirty (30) copies of the technical proposal (or one electronic copy) and three (3) copies of the cost proposal (or one electronic copy) should be submitted to:

Dr. Christopher J. Tennant  
Coordinating Research Council  
3650 Mansell Road, Suite 140  
Alpharetta, GA 30022

Phone: 678-795-0506  
Fax: 678-795-0509  
E-mail: [ctennant@crcao.org](mailto:ctennant@crcao.org)

The deadline for receipt of your proposal is **October 30, 2007**.

Sincerely,

Christopher J. Tennant  
Deputy Director

## EXHIBIT A

### Diesel Unregulated Emissions Characterization

#### Statement of Work: CRC E-75-2

9/5/2007

The Coordinating Research Council (CRC) is seeking to understand the state of the knowledge regarding unregulated emissions from on-road diesel vehicles. Primary interest is in air toxics, although it is recognized that information regarding global warming gases and compounds that can be used as diesel exhaust emission tracers are important as well. As a first step, the CRC E-75 project gathered available data on unregulated emissions into a single Access database. An Excel version was created as well. Emission studies that measured only regulated emissions or used unconventional fuels were not included in the database. Data from over 140 literature reports were included.

At this time, CRC would like to mine this database to develop average emission rates of air toxics and other compounds of interest for various diesel vehicle classes. It is recognized that there has been little coordination between studies regarding driving cycles, fuels, lubricants, measurement methods, and diesel vehicle classes. In addition, the database contains emission rates for both engine dynamometer and chassis dynamometer studies. Since these are reported in different units, the contractor should convert to a uniform set of units using established conversion factors. The challenge will be to examine the various studies and to determine what data can logically be grouped together considering both the variables mentioned above and the additional complication of vehicles built to different emission standards and those that are not functioning properly.

It is suggested that the contractor first separate vehicles into the four broad vehicle classes consisting of heavy duty, medium duty, light duty, and buses. Sub classes of heavy duty may be needed. Second, if data are sufficient, subcategories defined by vehicle age and associated emissions certification standards should be developed. Third, the test cycle should be taken into consideration. Finally, fuel and lubrication composition should also be considered or at least documented. It is anticipated that broad definitions of emission categories will have to be accepted with results presented as averages, means, and ranges. Once the contractor has picked the categories, they should be reviewed with CRC for final acceptance.

Large numbers of compounds have been measured in some studies. The first priority is to choose those compounds that are commonly present in diesel exhaust and have been characterized as possible air toxics. CARB's list of 41 Air Toxic Contaminants<sup>1</sup> and EPA's mobile source air toxics<sup>2</sup> documents can be used as guides. However, it should be recognized that some of the compounds of interest in these documents have not been measured or are only rarely measured in diesel exhaust. Examples of this would be mercury compounds and arsenic compounds. PAH's and nitro PAH's are generally of interest. A few individual PAHs should be included along with summations of the standard air toxics PAHs. The contractor will interact with CRC to obtain

---

<sup>1</sup> <http://www.arb.ca.gov/toxics/id/summary/summary.htm>

<sup>2</sup> <http://www.epa.gov/OMS/toxics.htm>

agreement on the final list of compounds to include. Frequent teleconferences with a CRC panel will be held to discuss details and progress.

One anticipated use of the results of this program is to compare current on-road, heavy-heavy duty diesel truck unregulated emissions from properly functioning engines or vehicles to the emissions from engines that are compliant with the 2007 HD emissions certification standards. The ACES program is testing four 2007 compliant engines. The ACES program assembled a list of compounds<sup>3</sup> that might be emitted from diesel engines. These compounds were rated 1-3 in terms of the level of interest, with one being the highest. Compounds receiving a one classification were so designated primarily due to interest by EPA and CARB. Hence, that list can be a source of compounds or sets of compounds to consider for this study. The contractor should narrow this list considerably to include only those species for which there is data and which are of the most interest. Values listed as below detection limits should be included in the analysis as long as the detection limit is stated.

Semivolatile compounds can exist in both the gas and particle phases. Some studies may have measured only that fraction of a compound in one or the other phase, while other studies have combined the both phases. Given that partitioning of these species is a function of the sample collection procedure, reporting totals is desirable.

In creating the data subsets, the contractor performing this work should add the data subsets to the existing database wherever possible. The original database should not be changed unless errors are discovered. If errors are found they should be documented so all copies of the database can be corrected. If the contractor is aware of significant data that are not included in the database, that data should be added.

The E-75 report and database can be examined by potential contractors. However, both the report and the database must be kept confidential at this time since their final release has not been approved by CRC.

---

<sup>3</sup> See link for the Advanced Collaborative Emissions Study (ACES) on the main page of the CRC website: <http://www.crcao.org/>

## **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. Thirty-five (35) hardcopies or one electronic Microsoft® Word compatible file (<2 MB) of the monthly technical progress report shall be distributed 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.

#### **FINAL REPORT**

The contractor shall submit to or distribute for CRC thirty-five (35) hardcopies (or one hardcopy and one electronic pdf-compatible copy transmittable via email) of a draft final report within thirty (30) days after completion of the technical effort specified in the contract. The report shall document, in detail, the test program and all 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 monthly report(s).

Within thirty (30) days after receipt of the approved draft copy of the final report, the contractor shall make the requested changes and deliver to CRC fifty (50) 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 compatible file. The final report may be prepared using the contractor's standard format, acknowledging author and sponsors. An outside CRC cover page will be provided by CRC. 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.

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 X, Contractor X 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 X 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**

### **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.