SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS
OFFER TO COMPLETE BLOCKS 12, 17, 22, 24, and 30

1. REQUISITION NUMBER
REQ-45200-17-0005

2. CONTRACT NO.
CFSC-D-17-0001

3. AWARD/ EFFECTIVE DATE
06/02/2017

4. ORDER NUMBER
0001

5. SOLICITATION NUMBER

6. SOLICITATION ISSUE DATE

7. FOR SOLICITATION INFORMATION CALL
A. NAME
Greg Grayson

B. TELEPHONE NUMBER
301-504-7725

C. (No collect calls)

D. OFFER DUE DATE/LOCAL TIME
ET

8. ISSUED BY
CONSUMER PRODUCT SAFETY COMMISSION
DIV OF PROCUREMENT SERVICES
4330 EAST WEST HWY
ROOM 523
BETHESDA MD 20814

9. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED

10. DISCOUNT TERMS
Net 30

11. DELIVER TO
CONSUMER PRODUCT SAFETY COMMISSION
DIRECTORATE FOR HEALTH SCIENCES
5 Research Place
Rockville MD 20850

12. CONTRACT/ OFFEROR
UNIVERSITY OF CINCINNATI
2600 CLIFTON AVE
CINCINNATI OH 45220-2872

13. PAYMENT WILL BE MADE BY

14. METHOD OF SOLICITATION

15. ADMINISTERED BY

16. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER

17. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 16 UNLESS BLOCK BELOW IS CHECKED

18. DUNS Number

19. CONTRACTING OFFICER REPRESENTATIVE (COR):
Joanna Matheson
Jmatheson@cpsc.gov
301-987-2564

20. SCHEDULE OF SUPPLIES/SERVICES

21. QUANTITY

22. UNIT

23. UNIT PRICE

24. AMOUNT

25. ACCOUNTING AND APPROPRIATION DATA
0100A17DE-2017-2307040000-EXHRH04000-255A0

26. TOTAL AWARD AMOUNT (For Govt. Use Only)
$149,014.30

27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4, 52.212-3, AND 52.212-5 ARE ATTACHED

27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4, 52.212-5 IS ATTACHED

28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED

29. SIGNATURE OF OFFERER/CONTRACTOR

30a. NAME AND TITLE OF SIGNER (Type or print)
Eddie Ahmad

30b. DATE SIGNED
6/2/17

31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)

31b. NAME OF CONTRACTING OFFICER (Type or print)
Eddie Ahmad

31c. DATE SIGNED
6/2/17

AUTHORIZED FOR LOCAL REPRODUCTION
PREVIOUS EDITION IS NOT USABLE

STANDARD FORM 1448 (REV. 2/2012)
Prescribed by GSA - FAR (48 CFR) 52.212
4, 2018. All work shall be in accordance with the attached statement of work and contractor’s final quote dated May 17, 2017.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>SCHEDULE OF SUPPLIES/SERVICES</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>Risk Assessment Services - Nano Prioritization Tool Database</td>
<td>149,014.30</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The total amount of award: $149,014.30. The obligation for this award is shown in box 26.
Statement of Work
Nano-Prioritization Tool Database
(Contract# CPSC-D-17-0001/ Task Order 0001)

1. Description of Services

The contractor shall furnish all necessary personnel, materials not provided by CPSC, services, and facilities to perform the work set forth below.

Under an interagency agreement with the U.S. Army Corps of Engineers a prototype tool was developed to screen and prioritize nano-enabled consumer products according to the potential human health risk associated with the use of such products. To enable this prioritization, the tool employs a framework that establishes a prioritization score for a nano-enabled product by evaluating the product's potential hazard and exposure, as well as additional criteria designated as important to the user. These three criteria form the three modules of the tool's framework. Using multi-criteria decision analysis methods, these three criteria can be evaluated “bottom-up” using qualitative information provided by the user, and then translated into a quantitative prioritization score. To derive a quantitative prioritization score, the tool requires the user to provide nanomaterial or product-specific information that may take the form of qualitative descriptors (yes/no, high/low, etc.) reflected in drop-down menus or quantitative values.

Within the Hazard Module, the user must enter information pertaining to the nanomaterial within the consumer product, information such as physical dimensions of the nanomaterial, solubility, agglomeration potential, and toxicity to specific organs; information that inform on the potential for an adverse health outcome. Characteristics of the bulk form of the nanomaterial must also be recorded along with the user's degree of uncertainty, or confidence, for each input. A database has been established that reflects the structure of the tool’s Hazard Module. The database consists of specific nanomaterials as well as nano-enabled consumer products. Numerous data gaps exist in the database. When the specific information isn’t known, a default value is applied. Filling in the data gaps should provide greater discrimination in the final prioritization scores for the specific consumer products and nanomaterials.

2. Description of Work

The contractor shall conduct data and literature searches to complete the data-gaps (per availability of the data) in the Hazard Module database for the listed nanomaterials and nano-enabled products in the CPSC-supplied Excel spreadsheet, which currently consists of 60+ substances. The contractor shall expand the substances listed in the database with functionalized forms of the nanomaterials, as well as other classes of nanomaterials obtained from literature searches, if physical-chemical characterization and toxicity data are available for these nanomaterials forms.

The specific Hazard Module requested information is listed below:
- Product or nanomaterial name (e.g., cerium oxide, ArtCoolTM)
- Estimate shortest dimension (nm)
- Estimate middle dimension (nm)
- Estimate the longest dimension (nm)
- Shape of the nanoparticle (anisotropic, compact or spherical, unknown)
- Are the nanoparticles >500nm (yes/no, unknown)
- Are there any impurities (yes, no, unknown)
- What is the solubility of the nanoparticle (mg/l)
- Does the nanoparticle take 1 hour to dissolve (yes, no, unknown)
- What is the zeta potential (high, medium, low, unknown)
- Is there redox and/or catalytic activity (high, medium, low, unknown)
- What is the stability of the nanomaterial in the body (hours, days-week, months, unknown)
- Is the nanomaterial biopersistent (yes/no, unknown)
- What is the classification of the surface area of the nanomaterial (high, medium, low, unknown)
- Is there a bulk form (yes, no, unknown)
- Is there an OEL of the bulk form (ug/m3)
- Is there evidence of higher reactivity than the bulk form (yes, no, unknown)
- Is the bulk form carcinogenic (yes, no, unknown)
- Is the bulk form a reproductive hazard (yes, no, unknown)
- Is the bulk form a mutagen (yes, no, unknown)
- Is the bulk form a dermal hazard (yes, no, unknown)
- Is the bulk form an asthmagen (yes, no, unknown)
- Is the nanomaterial already classified by a relevant authority (GHS/HCS)
- Is the nanomaterial a carcinogen (yes, no, unknown)
- Is the nanomaterial a reproductive hazard (yes, no, unknown)
- Is the nanomaterial neurotoxic (yes, no, unknown)
- Is the nanomaterial dermal hazard (yes, no, unknown)
- Is the nanomaterial an asthmagen (yes, no, unknown)
- Is the nanomaterial acute toxic (yes, no, unknown)
- Is the nanomaterial hepatotoxic (yes, no, unknown)
- Is the nanomaterial a blood/hematopoietic hazard (yes, no, unknown)
- Is the nanomaterial a pulmonary hazard (yes, no, unknown)
- Is the nanomaterial an ocular hazard (yes, no, unknown)
- Is the nanomaterial a mutagen (yes, no, unknown)
- Is the nanomaterial genotoxic (yes, no, unknown)
- Is the nanomaterial a hazard to another target organ (yes, no, unknown)
- Is the nanomaterial a cardiovascular hazard (yes, no, unknown)
- Is the nanomaterial a reproductive hazard (yes, no, unknown)

All references for the data shall be hyperlinked in the spreadsheet, if possible; if not, sources for the data shall be cited in a reference list.

In complement to the nano-prioritization tool database, the contractor shall complete a separate database for each nanomaterial listed in the nano-prioritization tool database (e.g., carbon nanotubes, nano silver, graphene, nanoclay, nanofibers), indicating for each substance (if such information is available):
- Analytical methods to detect the presence of the nanomaterial
- Analytical methods to measure the release of the nanomaterial from products/matrices
- Analytical methods measuring the release of nanomaterials from specific matrices
  - Aqueous
  - Air
  - Biological (e.g., skin)
  - Dust
  - Textiles
  - Polymers
  - Aging
- Is the method validated and/or confidence in the method reliability (high/low)
- Is there a voluntary standard or guidance document, and if so, list the standard and/or document (e.g., ASTM, IEC, ISO, UL)

The contractor shall prepare a project plan detailing the contractor's planned activities, including but not limited to search strategies to efficiently identify the desired data. The contractor shall meet with the U.S. Consumer Product Safety Commission ("CPSC" or "Commission") staff by teleconference to discuss the plan prior to the commencement of the research. Any changes to the task list or project schedule shall be immediately communicated to the CPSC project officer by email, with an updated task list and/or project schedule delivered within seven calendar days.

The contractor shall conduct a progress report meeting at least once per month after the task is awarded with the Contracting Officer's Representative (COR) and/or designated staff. The project tasks and schedule will be reviewed. Technical issues, questions and other matters may be discussed.

The contractor shall provide electronic copies of the report and a list of all references examined during the research. Copies of references cited shall be made available to the COR in paper or electronic form at the completion of the task.

All documents delivered shall contain the following information:

1. Date;
2. Contract Number;
3. Contractor name; and

3. Contract Type

This is a firm fixed price task order.

4. Background

Nanomaterials represent a wide range of compounds that are being used in consumer products with the stated purpose of improving the performance and durability of these products. Nanomaterials are defined as materials/particles that range from 1 to 100 nanometers (nm) in length. Although these materials may have the same chemical composition as non-nanomaterials,
these new materials may vary significantly in their structure, physical and chemical properties, and potentially in their behavior in the environment and in the human body.

The unique physicochemical properties of engineered nanomaterials are exploited for use in a growing variety of commercial nano-enabled products including electronics, personal care products, sporting goods, clothing, building and structural materials, as well as a wide variety of products for medical applications. Under an interagency agreement with the U.S. Army Corps of Engineers a prototype tool was developed to screen and prioritize nano-enabled consumer products according to the potential human health risk associated with the use of such products. To enable this prioritization, the tool employs a framework that establishes a prioritization score for a nano-enabled product by evaluating the product’s potential hazard and exposure, as well as additional criteria designated as important to the user ("User Defined Criteria"). The tool’s designed to have a transparent and efficient methodology structured with the principles of multi-criteria decision analysis to make an educated and justifiable evaluation of the hazard of nano-enabled consumer products.

The tool is designed to allow a user to assess the three high-level criteria that contribute to a product’s prioritization score: Hazard Potential, Exposure Potential, and User Defined Criteria. These three high-level criteria are the three modules of the tool’s framework. Using multi-criteria decision analysis methods, these three criteria can be evaluated “bottom-up” using qualitative information provided by the user, and then translated into a quantitative prioritization score. To derive a quantitative prioritization score, the tool requires the user to provide lower-level nanomaterial or product-specific information that may take the form of qualitative descriptors (yes/no, high/low, etc.) or quantitative values. The user must also indicate the level of uncertainty in their inputs and, in many cases, the weight of importance of the input. The product characteristics, uncertainties, and weights all factor into the score for the higher-level criteria (Hazard, Exposure, and User Defined Criteria) and, ultimately, the final prioritization score.

Within the Hazard Module, the user must enter information pertaining to the nanomaterial within the consumer product, information such as physical dimensions of the nanomaterial, solubility, agglomeration potential, and toxicity to specific organs; information that inform on the potential for an adverse health outcome. Characteristics of the bulk form of the nanomaterial must also be recorded along with the user’s degree of uncertainty, or confidence, for each input. A database has been established that reflects the structure of the tool’s Hazard Module. The database consists of specific nanomaterials as well as supposedly nano-enabled consumer products.

This SOW proposes to provide completion (per availability of data) of the data-gaps in the Hazard Module database for the CPSC nano-prioritization tool ("Hazard tool database").

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1 The User Defined Criteria is information that can influence a product’s prioritization score but does not contribute to the risk (hazard and exposure) posed by the product. The criteria within this module came from the criteria listed in 16 C.F.R. § 1009.8(c), Policy on establishing priorities for commission action, which describes eight factors that the CPSC considers when prioritizing action (16 C.F.R. § 1009.8(c)). The four top level criteria in the User Defined Criteria Module are: perception, origin (where the product is from and who made it), consumer and regulator familiarity, and vulnerable populations.
Furthermore, the Hazard tool database will be expanded to include nano-enabled products listed in the Woodrow Wilson Nanotechnology Consumer Products Inventory (CPI) along with any known information for the nanomaterials in the products such as their physico-chemical and hazard characteristics. Furthermore, a database will be established that provides state-of-the-science knowledge on analytical methods employed to measure the presence and release of nanomaterials in products.

5. Objective

Under this task order, CPSC staff plans to search for data on physico-chemical properties and toxicological data on nanomaterials and nano-enabled products found in the CPSC and CPI inventories. If the data is sufficient, the data shall aid in the determination, prioritization and selection of nano-enabled consumer products with higher potential human health risk. This data enables the CPSC staff to use the nano-prioritization tool to more efficiently screen and prioritize nano-enabled consumer products on the basis of risk and the necessity of further research.

The objective of this task order is to acquire data to support agency determinations regarding the potential health hazard to consumers from nano-enabled consumer products.

6. Period of Performance


7. Government Furnished Materials

There are no government furnished materials for this task order.

8. Deliverables or Performance

The contractor shall provide the requested information in the form of a written report. The report shall be in the format of a scientific report with full citations and tables, as appropriate. The reviewer shall e-mail the report to the COR as Microsoft Word and Excel files.

9. Delivery Schedule

The contractor shall provide the service or deliverable listed in Table 1 per the delivery or performance listed.
<table>
<thead>
<tr>
<th>Item(s)</th>
<th>Quantity</th>
<th>Delivery or Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Contractor and CPSC Contracting Officer’s Representative (COR) shall meet by teleconference to discuss and initiate the contractor’s project plan.</td>
<td>1</td>
<td>Within 7 calendar days of the period of performance start date.</td>
</tr>
<tr>
<td>The Contractor shall finalize the search strategy and conduct a search on the nanomaterials and nano-enabled products.</td>
<td>1</td>
<td>Within 60 calendar days of project initiation</td>
</tr>
<tr>
<td>The CPSC COR and Contractor shall meet by teleconference to discuss any adjustments to scope (e.g., the number of sources or studies available are greater than expected) based on the outcome of the search and provide the CPSC COR with an outline for the final report.</td>
<td>1</td>
<td>Within 7 calendar days of completion of the literature search</td>
</tr>
<tr>
<td>The Contractor and CPSC COR shall meet by teleconference for status</td>
<td>As appropriate.</td>
<td>At least once per month after project initiation.</td>
</tr>
<tr>
<td>The Contractor shall submit a draft final report to the CPSC COR.</td>
<td>1</td>
<td>Within 230 calendar days after the initial teleconference.</td>
</tr>
<tr>
<td>The CPSC COR will provide written comments on the draft final report to the Contractor.</td>
<td>1</td>
<td>Within 14 calendar days after receipt of the draft final report.</td>
</tr>
<tr>
<td>The Contractor shall submit a final report to the CPSC COR.</td>
<td>The Contractor shall revise the draft final report as appropriate</td>
<td>Within 30 calendar days after receipt of comments.</td>
</tr>
<tr>
<td>Inspection and Acceptance.</td>
<td>The Final report will be reviewed by the CPSC COR.</td>
<td>Within 14 calendar days after receipt of the report.</td>
</tr>
</tbody>
</table>

10. Place of Delivery

The contractor shall submit written materials by email to the COR, Dr. Joanna Matheson (jmatheson@cpsc.gov). If needed, the contractor may mail or send written materials by the deadlines to:
Joanna Matheson, Ph.D.
U.S. Consumer Product Safety Commission
5 Research Place
Rockville, MD 20850

Technical questions or clarifications about the documents shall be directed to Dr. Joanna Matheson at 301-987-2564 or jmatheson@cpsc.gov.

11. Inspection and Acceptance

The Draft Final report submitted to the CPSC will be reviewed within 14 calendar days of receipt of the draft final report for any additional questions and/or comments. If returned to the contractor as a result of the review, the contractor shall address and/or revise their report accordingly and return the final version to the COR within 30 calendar days of receipt of COR’s comments. The CPSC COR will then have an additional 14 calendar days to review and accept the Final report.

12. Requirement for CPSC Clearance

The final report is the property of the U.S. Consumer Product Safety Commission. The Contractor shall not publish the final report, present the information at scientific meetings, or in any other way make the findings public in any form without the written permission of the COR. Any publication must be cleared in accordance with master contract clause LC21A Disclosure of Information – Limits on Publication.
CPSC Contracting Officer's Representative (COR) Designation Letter

COR Name: Joanna Matheson

CPSC Contract No. CPSC-D-17-0001/Task Order 0001

A. DESIGNATION OF COR

As a Contracting Officer (CO), I am responsible for ensuring and safeguarding the interests of the United States in its contractual relationships pursuant to the Federal Acquisition Regulation (FAR, 48 CFR Chapter 1) and agency policies. To assist in fulfilling these responsibilities, I hereby designate you as the Contracting Officer's Representative (COR) for this contract. You are in a unique position to monitor how well the contractor is progressing towards achieving the contract's purpose and will be responsible for being the technical liaison between the contractor and the Contracting Officer, which is critical to ensuring good contract performance.

As COR, your first responsibility is to read the entire contract and thoroughly acquaint yourself with the requirements it places on the contractor, the CO, and the COR. You should also periodically review the contract to maintain your familiarity with its terms and conditions.

This letter confirms that you are a government employee and are certified as a COR in accordance with the current Office of Management Budget memorandum on the Federal Acquisition Certification for Contracting Officer's Representatives (FAC-COR) guidance. As the COR you shall maintain the appropriate certification level as described in CPSC Directive No. 1521.1. This designation is not redelegable. As the designated COR, you may be personally liable for unauthorized acts. This designation is valid throughout the contract period cited in the contract.

B. COR LIMITATIONS

As the COR, you have no authority to make any commitments or changes that affect price, quality, quantity, delivery or other terms and conditions of the contract nor in any way direct the contractor or its subcontractors to operate in conflict with the contract terms and conditions. Only a CO has the authority to take such actions. You may be held personally liable, and may be subject to disciplinary action, for unauthorized actions, particularly if the action is determined to be a violation of the
Anti-Deficiency Act. You may only take actions that are within the authority provided in this letter of designation.

C. COR DUTIES AND RESPONSIBILITIES

You are designated and authorized to perform specific technical and administrative functions under this contract. As CO, I hereby delegate to you the following duties and responsibilities that are otherwise my responsibility:

1. Develop the contract specifications and/or performance work statement in such a manner as to promote competitive procurement actions.
2. Coordinate with the program office to ensure that technical requirements are incorporated into the resulting contract specifications and/or performance work statement.
3. Identify measurable performance objectives.
4. Identify potential contractors.
5. Perform technical evaluations as required.
6. Arrange for any required government-furnished equipment or facilities.
7. Ensure that the contractor has any necessary clearances to access the facility and data required by the contract.
8. Monitor and document contractor technical performance to assure that the contract terms and conditions are fully met and within the scope of the contract.
9. Inform the Contracting Officer when a contractor has not met contract requirements and coordinate with the Contracting Officer on any required corrective action.
10. Assist the Contracting Officer in the resolution of technical problems encountered during performance.
11. Submit performance reports in accordance with the Contractor Performance Assessment Reporting System (CPARS) requirements and agency policy.
12. Ensure that any requested changes to the resulting contract are formally effected by a written modification issued by the Contracting Officer before the contractor proceeds with the changes.
13. Perform inspection, acceptance or rejection of all deliverables in accordance with the terms of the contract.
14. Review and approve or disapprove the contractor requests for payment (invoice) to ensure that the invoice accurately reflects the service completed or product received in accordance with the requirements of the contract.
15. Maintain a contract working file that includes this designation letter, a copy of the contract award, modifications, correspondence, records of inspection, performance meetings, invoices and other documents describing the COR’s duties,
responsibilities and actions taken in accordance with this delegation of authority. This file is subject to review by the Contracting Officer.

D. STANDARDS OF CONDUCT AND CONFLICTS OF INTEREST

As the COR you are responsible for protecting the U.S. Government's interests, while supporting its reputation for fair and equal dealings with all partners, including contractors. Therefore, if you have any direct or indirect financial interests that may place you in a position where there is a conflict between your private interests and the public interest of the United States, you must immediately inform your supervisor, the Contracting Officer and the Office of General Counsel.

E. CONTRACTING OFFICER SIGNATURE:

[Signature]

Contracting Officer

6/2/17

Date

F. CONTRACTING OFFICER'S REPRESENTATIVE ACKNOWLEDGMENT:

I hereby accept this appointment and acknowledge my Duties and Responsibilities as COR.

jmatheson@cpsc.gov

[Signature]

Contracting Officer's Representative

[Signature]

Date