Proposed Sole Source Purchase Form

Pursuant to New Mexico Procurement law, the UNM Purchasing Department will post your completed form on the UNM Sunshine Portal for 30 days prior to purchase of the goods/services.

I. **GENERAL INFORMATION. PLEASE PROVIDE THE FOLLOWING:**

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<tr>
<th><strong>Date of Request</strong></th>
<th><strong>Requisition Number (If Applicable)</strong></th>
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<tbody>
<tr>
<td>06-05-2018</td>
<td>P0151598</td>
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Request Submitted by: Maria R Daw  
Title: Program Manager  
Department: COSMIAC  
Email: maria.daw@cosmiac.org  
Phone: 505-414-7825

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<thead>
<tr>
<th><strong>Proposed Vendor</strong></th>
<th><strong>Amount</strong></th>
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<tbody>
<tr>
<td>David Alexander</td>
<td>$250,000</td>
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Buyer Team - See Commodity list at [http://www.unm.edu/~purch/commcodes.pdf](http://www.unm.edu/~purch/commcodes.pdf)  
Purchasing Team 1

Provide a basic description of goods/services to be provided:

David Alexander will provide support to a grant, which will include: Reviewing the past Testable Hardware Program test and design protocols for applicability to a new comprehensive interface/protocol MIL-STD for x-rays, identifying gaps in existing analytical and testing capability needed to complete the MIL-STD, Support development of the draft modeling and simulation plans and test plans to support MIL-STD development, Performing the modeling, simulation, and testing to fill the Gaps identified in the Base Period, and Support updating the initial draft MIL-STD developed.

Why is this purchase needed?

COSMIAC has received the award for their research with the Northrop Grumman Corporation. Their goals with this project is to provide more reliable predictions and design services for satellites to no be subject to damage from radiation, both natural and man-made. This request is for Funding Fiscal Years 2018-2020.

II. **BASIS FOR SOLE SOURCE PROCUREMENT. CHOOSE APPLICABLE BOX(ES) AND PROVIDE ADDITIONAL INFORMATION, AS REQUESTED:**

- Proprietary item, technology or service only available from the proposed vendor. (Check box and describe proprietary component)

  Mr. Dave Alexander is a subject matter expert in the areas of radiation effects design and mitigation. Dave has been doing this for 40 years, and has knowledge that is unique to his background and this research.

- Compatibility requirement with existing item, technology or service. (Check box and describe compatibility requirement)

  Continuation of Mr. Alexander’s and P.I.’s research.
Renewal of support/maintenance/subscription of software, technology or other intellectual property. (Check box and describe)

To continue with Mr. Alexander's and P.I.'s research.

Other Basis for Sole Source: Please describe below:

III. SUPPLEMENTAL DETAILS. PLEASE PROVIDE ADDITIONAL INFORMATION AS REQUESTED BELOW:

Describe in detail the unique capabilities of the proposed vendor's goods/service and/or personnel performing the work and why this constitutes the only source. Focus on what is unique about the goods/service and why no other vendor could meet your needs.

The reason we chose Mr. David Alexander is because he is a Sole Source Consultant and a Subject Matter Expertise in the areas of radiation effects design and mitigation and has worked with NASA effects mitigation personnel for many years. He began his career in 1968 as an Air Force 2nd Lieutenant at the Transient Radiation Effects Branch of the Air Force Weapons Laboratory in Albuquerque. Mr. Alexander worked for the BDM Corporation, Sandia National Laboratory, the Mission Research Corporation, and the Institute for Space and Defense Electronics. His work experience constitutes him being a sole source consultant for COSMIAC. Mr. Alexander's Sole Source Expertise co-insides with the Grant Program and the Statement of Work. His achievements are outlined below:

- At the Air Force Weapons Laboratory in Albuquerque Mr. Alexander’s duties included radiation testing, model development, and circuit analysis of microcircuits exposed to nuclear radiation effects
- Mr. Alexander received the Air Force Scientific Achievement Award for the development of a drift tube for high dose radiation testing in the electron mode of a flash X-ray machine.
- At the BDM Corporation Mr. Alexander developed, performed electrical overstress modeling, and testing of transistor and microcircuit models for the SPICE circuit analysis code.
- At Sandia National Laboratory Mr. Alexander developed testing and data analysis techniques for radiation hardened, high reliability microcircuits fabricated in the Sandia Microelectronics Development Laboratory.
- Mr. Alexander was the Microelectronics Division Manager at the Mission Research Corporation from 1992 through 2002. There he served as a technical advisor to the Defense Threat Reduction Agency and Space and Missile Defense Center for the development of radiation hardened microcircuits.
Mr. Alexander’s team at MRC developed computer aided techniques for evaluating radiation hardness from microcircuit layout files.

Mr. Alexander assisted in writing several sections of Mil-Prf-38535, and served on the audit committee for qualifying the manufacturers of radiation hardened microelectronics.

Mr. Alexander was an early advocate of hardening-by-design (HBD) techniques for developing radiation tolerant microcircuits in commercial processes. His presentation in the 1996 NSREC Short Course entitled “Design Issues for Radiation Tolerant Microcircuits in Space” described the foundational HBD approaches.

In 2003, Mr. Alexander began work at the Institute for Space and Defense Electronics, at Vanderbilt University supporting the Space Electronics Division at the Air Force Research Laboratory in Albuquerque

In 2005, Mr. Alexander became a member of the AFRL staff. In addition to his responsibilities for radiation testing and development of space qualified, nano-scale electronics, he advocated and demonstrated techniques for reliability evaluation and qualification for small sample microcircuit designs fabricated in multi-project lots.

Mr. Alexander is an author of numerous technical reports, presentations, and papers in IEEE Transactions on Nuclear Science, the HEART Conference, International Reliability Physics Symposium, Electrical Overstress Symposium, and Government Microcircuit Applications Conference.

Mr. Alexander is also a Senior Member of the IEEE, where he was awarded with the IEEE NPSS Radiation Effects Award for "contributions to the development of Qualified Manufacturer List (QML) procedures for radiation hardened components and to the foundation of radiation hardening by design concepts."

Describe the due diligence made to locate other possible sources including communications with other universities, communications with similar providers, web searches, yellow page searches, review of advertisements and trade publications, etc.

David Alexander is a Sole Source Expert due to his work experience, expertise, and publications. He is only vendor with this experience; no known vendors to be contacted.

List the other vendors who were contacted. Please describe the specs/qualifications/criteria that the other vendors were unable to satisfy.

N/A