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:**

- **Date of Request:** 10/9/2017
- **Request Submitted by:** Abdulmehdi Ali
- **Department:** Earth and Planetary Sciences Dept.
- **Email:** mehdiali@unm.edu
- **Phone:** 505-277-1637

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

NexION 2000P Inductively Coupled Plasma-Mass Spectrometer (ICP-MS) instrument.

**Why is this purchase needed?**

This purchase is needed to support the analytical services provided by the BioMed Specimen Trace Metals Analytical Laboratory at the Earth and Planetary Department “main campus” and the Health Sciences Center “HSC north campus”, the University of New Mexico. The laboratory is a service center that support UNM research and teaching programs for various Departments including north and main campuses. The acquisition of the ICP-MS is necessary to continue providing trace elemental and metals analytical capabilities for biomedical samples and services need for the success of UNM’s research and teaching projects and programs. The ICP-MS is an important and key instrument for analyzing elements and metals in such samples.

**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)**

  The requested instrument from PerkinElmer vendor has unique technology and items that other vendors don't provide. Key components like the Dynamic Reaction Cell (DRC) in which we can use full strength (100%) anhydrous ammonia to significantly minimize mass interferences. Also, the triple cone (sample, skimmer, and hyper skimmer cones) application to filter masses. The maintenance free RF coil guaranteed for the life of the instrument that does not require water, air, or gas cooling. The system includes three (3) gas channels for the DRC cell for using different gasses for different analytical application. All these three gas modes can be applied in a single analytical method protocol for different elements for better and more accurate results. The Single Cell (SC ICP-MS) upgradable software and hardware to analyze single biomedical specimen cell capability of this system to provide vital information to strongly support the research project.

- **Compatibility requirement with existing item, technology or service. (Check box and describe compatibility requirement)**
The analytical chemistry laboratory has existing PerkinElmer NexION 300D ICP-MS that is compatible with acquired new NexION 2000P. It utilized similar, if not the same, software and hardware. The laboratory personnel/staff and all our graduate and undergraduate students are already trained and very familiar with both software and hardware. This makes it very easy to operate and maintain the instrument. Also to generate reliable and accurate data for the laboratory clients, users, and students to maintain the integrity of the laboratory as UNM service center facility.

Renewal of support/maintenance/subscription of software, technology or other intellectual property. (Check box and describe)

To my understanding PerkinElmer, the manufacturer, have their instruments electronic and hardware schematics and will not provide them to service engineers other than PerkinElmer service engineers. This instrument software is compatible with other instrument previously purchased and to be interfaced with the ICP-MS. This will facilitate the interchange of the attached existing Laser Ablation and/or the SeaFast SP3 autosampler systems to be used simultaneously, if needed, since the ICP-MS can be interfaced with PerkinElmer compatible software. Our local (Resides in Albuquerque, NM) PerkinElmer service engineer is extremely knowledgeable with both software and hardware to provide the best maintenance and software upgrades technologies. This also facilitate services/repairs if needed in a timely manner. We will also receive free of charge specialty softwares like the nanoparticle analysis software.

Other Basis for Sole Source: Please describe below:

With regard to the laboratory users (personnel, staff, and students) they are all trained and familiar with both hardware and software of the existing ICP-MS which is similar to the system to be acquired. This will make it easy transition from the existing NexION 300D to the newly purchased NexION 2000P ICP-MS. This allows them to proceed directly with their research projects without interruption. The laboratory also purchased several instruments through NSF funds and others donated by the US National Laboratories through the Dept. of energy from PerkinElmer. Purchasing service contract for multiple instruments from the same vendor will provide significant discount and expenditure savings for the laboratory budget. Also the service engineer for PerkinElmer is local (ABQ) which facilitate the services required in case of downtime. Also, please refer to the attached document titled “Inductively Couple Plasma Mass Spectrometer (ICP/MS) General System Specification”.

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 RF Plate Inductor technology without Cooling requirements allows for the use of lower plasma flows to reach the same or better detection limits. This equates to huge savings in argon gas over time. This will greatly reduce operating expense. PerkinElmer is the only vendor with this benefit. The Liquid Argon consumption costing the laboratory over $10,000 annually. This significant saving will reduce laboratory expenditures significantly. The readout noise is extremely low providing for excellent detection limits with the use of the Dynamic Reaction Cell (DRC) and multiple gasses in the same method for the different elemental analysis. The PerkinElmer NexION 2000P with the triple cones set up to filter elements masses significantly improve data reliability. The ability to incorporate single cell and nanoparticle analysis capability will provide new venues to solidify our research projects findings.

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.

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

Spectro Analytical Instruments Inc.