140G0326Q0155 PR0044051676 Split Stream Analyses

Sources Sought Notice

The U.S. Geological Survey (USGS) is conducting market research to determine the availability of qualified businesses capable of providing zircon petrochronology analysis services, as described below.

This Sources Sought Notice is for information and planning purposes only and does not constitute a solicitation. This is not a Request for Quote (RFQ). The Government is not obligated to issue a solicitation or award a contract as a result of this notice. The Government will not reimburse any costs associated with responding.

The applicable North American Industry Classification System (NAICS) code is 541690 - Other Scientific and Technical Consulting Services, with a size standard of $19.0 million. The applicable Product Service Code (PSC) is B504 - Special Studies/Analysis Chemical/Biological.

All responsible sources may submit a capability statement demonstrating their ability to meet the requirement. Responses shall be submitted via email to joel_berberena@ios.doi.gov and must be received by the closing date identified in this notice. Late responses or responses submitted by other than email will not be considered.

REQUIREMENT DESCRIPTION

The USGS requires split-stream laser ablation (LASS) zircon petrochronology analysis of igneous or metamorphic rock samples. The requirement consists of analysis of approximately five (5) rock samples to generate U-Th-Pb and Lu-Hf isotopic data in support of geologic research.

The work includes:

- Preparation of rock samples to obtain zircon mineral separates
- Imaging and characterization of zircons
- Split-stream (LASS) laser ablation analysis for U-Pb age determination and Lu-Hf isotopic analysis
- Generation of analytical datasets and associated documentation

CAPABILITY STATEMENT REQUIREMENTS

Interested vendors shall provide the following:

1. Description of laboratory capabilities for zircon petrochronology, including experience with split-stream laser ablation (LASS) methods and capability to perform both U-Pb and Lu-Hf analyses.
2. Description of instrumentation and analytical methods used, including laser ablation systems, mass spectrometry capabilities, and imaging techniques such as BSE and CL.
3. Experience performing similar geochronology or geochemical analysis services.
4. Examples of recent and relevant work performed.
5. Description of quality assurance and quality control procedures, including use of standards, analytical precision, and error reporting.
6. Ability to perform a minimum of 50 analyses per sample.
7. Description of data deliverables, including raw analytical data, interpreted results, and data format such as spreadsheet outputs.
8. Company information, including business name, UEI number, SAM registration status, and business size classification under NAICS 541690.

The Government is seeking information on vendors capable of meeting these requirements. Responses will be used to determine the appropriate acquisition strategy.

STATEMENT OF WORK

1.0 INTRODUCTION

The USGS needs to acquire U-Th-Pb and Lu-Hf data from five (5) rock samples.

2.0 BACKGROUND

The USGS conducts research on regional geology and mineral resources. This involves making geologic maps of the area being investigated and reconstructing the tectonic and metallogenic history. Uranium-lead (U-Pb) zircon petrochronology, or age determination coupled with chemical characterization, is one of the most important laboratory techniques used in this line of research. The samples submitted for zircon petrochronology analysis will help USGS elucidate the geologic evolution of critical mineral ore systems in the United States.

3.0 SCOPE

Zircon petrochronology first requires preparation of the rock sample to obtain a mineral separate. This involves crushing the rock, sieving the crushed sample, concentrating the mineral zircon using heavy liquids, and using a Frantz magnetic separator. The zircons are picked, mounted in epoxy, and imaged using Backscatter Electron (BSE) and Cathodoluminescence (CL). The U-Pb and Lu-Hf petrochronology requires expertise in the use of split-stream laser ablation (LASS), and access to appropriate lab facilities. The age and Lu/Hf of each analyzed zircon is calculated from the analytical data, which comes in spreadsheet format.

4.0 TECHNICAL REQUIREMENTS

The contractor shall have experience in all aspects of mineral separation and zircon petrochronology using LASS methods. For each rock sample that is submitted, at least 50 analyses will be obtained.

5.0 DELIVERABLES

The contractor shall provide deliverables in a report for each sample in spreadsheet format, with both the raw and interpreted data included. The report shall include analysis of standards. A write-up of analytical methods shall be available in digital form as a Word document to USGS upon request. The contractor shall ship the mineral separates and any unprocessed, left-over rock to USGS.

6.0 PERIOD OF PERFORMANCE

Reference notice.

7.0 SUPPORTING INFORMATION

A. Government Provided Samples

The USGS will ship intact rock samples to the vendor in one shipment.

B. Place of Performance

Analyses will be completed at the vendor’s facility.