SOLE SOURCE JUSTIFICATION FOR ACQUISITION UNDER THE SIMPLIFIED ACQUISITION THRESHOLD
[redacted]

1. Contracting Agency and Activity. The Department of the Interior, United States Geological Survey (USGS), Volcano Science Center (VSC).

2. Nature of Action Being Approved. The U.S. Geological Survey, Volcano Science Center requests award of a firm fixed price noncompetitive procurement to Chalmers University of Technology of Gothenburg, Sweden, for thirty Network for Observation of Volcanic and Atmospheric Change Scanners (NOVAC Scanners).

3. Description of Supplies or Services. The USGS Volcano Disaster Assistance Program (VDAP) requires thirty NOVAC Scanners to assemble Scanning Differential Optical Absorption Spectroscopy (Scanning DOAS) systems. These systems will be integrated as part of the existing Network for Observation of Volcanic and Atmospheric Change (NOVAC), which is a community of volcano observatories that uses this specific type of instrumentation to monitor volcanic gas emissions at volcanoes around the world. VDAP supports its partners with volcano monitoring infrastructure, and the NOVAC Scanning DOAS systems represent one of the essential tools by which observatories can monitor volcanic activity.

The NOVAC Scanners are custom-built optics that scan the sky along a cone-shaped envelope that surrounds the volcanic vent being monitored. At each location in the scan, the optics collect scattered skylight and couple it into an ultraviolet (UV)-transmitting fiber optic cable leading to a miniature spectrometer. The spectrometer records the spectral radiance of incident light. The recorded spectra are then analyzed for absorption features related to volcanic gases present in the atmosphere above the instrument. Thus, volcanic gas emissions can be tracked from a distance, without the need to install instrumentation in proximity to a potentially hazardous volcanic vent. In conjunction with other monitoring data, the gathered volcanic gas information can be used by observatory staff to develop eruption forecasts.

The NOVAC Scanners required by VDAP are composed of several individual components including the optical scanners themselves, mounting kits for attaching them to masts, custom cables for wiring the scanner stepper motors, and spare cylindrical quartz windows.

4. Estimated Dollar Value. [redacted]

5. Statutory Authority. The proposed action may be awarded on a sole source basis under the authority of RFO FAR 12.102(a) - For acquisitions valued at or below the simplified acquisition threshold (SAT), document the decision that only one source is available and the basis for the decision.

6. Rationale Supporting Use of Citation in No. 5. The NOVAC Scanners required by the VDAP are custom built by Chalmers University of Technology. No other source for these instruments exists.

The NOVAC Scanners are the only instruments that can be integrated into the existing stations of the Network for Observation of Volcanic and Atmospheric Change. This network consists of close to 120 instruments worldwide monitoring gas emissions from active volcanoes. All

instruments in the network have the same technical specifications. This allows the spectroscopy data collected at any given volcano to be directly compared to data measured elsewhere in the network and enables scientific studies that integrate data from multiple volcanoes. This comparability makes the data extremely valuable for eruption forecasting.

Allowing different scanner models within the network could introduce instrument-specific artefacts that make such cross-cutting analyses impossible. Moving to a different scanner model could require that all (approximately 120) systems installed on volcanoes around the world need to be updated to keep the instrumentation consistent. As instrumentation on volcanoes in foreign countries is maintained by the respective foreign counterparts and not by USGS, such an update is not feasible.

Finally, the NOVAC Scanners' software handles spectral acquisition, archiving, telemetry, spectral retrievals, calculation of emission rates and display of the current conditions. It has taken years to develop and has become the standard DOAS evaluation and display software among volcano observatories. No other instrumentation is compatible with the NOVAC software, and no other software packages for these specific tasks are known to exist.

7. Other Information. N/A

8. The Efforts to Identify Additional Sources Including the Market Research Conducted.

Market research through Sources Sought (4 days on SAM.gov 140G0326Q0113), regular internet searches, discussions with colleagues applying similar technologies, attendance of scientific conferences in which similar applications are presented, and phone/email correspondence with optical engineers at commercial manufacturers indicate that no other single-axis scanners exist with the specific conical geometry needed for volcano surveillance. The volcanic gas monitoring instruments that VDAP requires consist of several components of which the NOVAC Scanners are only one part.

9. Future Plans to Permit Competition. Future requirements will be competed to the maximum extent possible.

10. Recommendation and Certification from Program Office

Based on the above, I recommend this acquisition be conducted on a sole source basis and certify the above statements are true and accurate.

[redacted]

_____
Date

SOLE SOURCE JUSTIFICATION FOR ACQUISITION UNDER THE SIMPLIFIED ACQUISITION THRESHOLD
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11. Certifications from the Contracting Officer:

a. The contracting officer will include a determination that the cost to the Government is fair and reasonable using comparative pricing of similar equipment.

b. This justification is accurate and complete to the best of my knowledge and belief.

12. Approvals

[redacted]

Yangzhi Deng, Contracting Officer _____ Date