



**NATIONAL CENTRE FOR EARTH SCIENCE STUDIES**  
**(An Institution under the Ministry of Earth Sciences, Govt. of India)**  
**P.B. No. 7250, Akkulam, Thiruvananthapuram-695 011, Kerala.**  
**PURCHASE & STORES DIVISION**

**Our Ref : PUR-PROC/58/2022-PUR-NCESS**

(To be quoted in all correspondence)

**Dt. 30/06/2023**

Phone :( 0471) 2511531

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website : [ncess.gov.in](http://ncess.gov.in)

**Sub: e-Procurement Tender**

Dear Sirs,

Please send your offer along with descriptive catalogue/ pamphlet for the following items not later than **09.08.2023 at 06.00 PM (Tender Opening at 11.00 AM on 11.08.2023)**. The terms and conditions governing the tender are given at the bottom.

| <i>Sl. No</i> | <i>DESCRIPTION</i>   | <i>QUANTITY<br/>REQUIRED</i> |
|---------------|--|------------------------------|
| <b>1</b>      | <b>Laser Ablation - High Resolution-Inductively Coupled Plasma Mass Spectrometer (LA-HR-ICPMS)</b> | <b>1 No</b>                  |

**(Detailed specification and conditions are given separately)**

**INSTRUCTIONS TO THE TENDERERS AND TERMS AND CONDITIONS**

- 1. The quotation should be submitted by e-procurement in PDF format by 'logging on' in the website [eprocure.gov.in/eprocure/app](http://eprocure.gov.in/eprocure/app). The total file size of the documents submitted should not exceed 20 MB.**
- 2. The Technical and Financial Bids should be submitted separately (Two Bid System).**
- 3. In place of a Bid security, the bidders must sign a Bid securing declaration along with the bid saying that "We accept that if we withdraw or modify our Bids during the period of validity, or if we are awarded the contract and we fail to sign the contract, or to submit a performance security before the deadline defined in the request for bids document, we will be suspended for the period of time decided by NCESS from being eligible to submit bids for contracts with NCESS". The bids without this declaration or Udyog Aadhar Memorandum /NSIC will be rejected.**
- 4. Bidders from a country which shares a land border with India will not be eligible to participate in this tender, unless the bidder is registered with Department for Promotion of Industry and Internal Trade (DPIIT) under Order (Public procurement No. 1) issued by Ministry of Finance, Department of Expenditure in line with OM No. F.No.6/18/2019-PPD dt 23rd July, 2020 and F.18/37/2020- PPD, dt. 08.02.2021 inserting Rule 144 (xi) in GFR 2017.**
- 5. Preference to Make In India: Preference will be given to the eligible Make in India offered products, in accordance with the CVC letter No. 018/VGL/022-377353 dated 20.04.2018, pertaining to Department of Industrial Policy and Promotion (DIPP) in connection with Preference to Make in India, Order 2017'(PPP-MIIOrder) dated 15.07.2017 pursuant to rule 153(iii) of General Financial Rules 2017. (Declaration may be submitted).**
- 6. Startups: To promote make in India and startups, the prior turnover and prior experience for all startups shall be relaxed subject to their meeting of quality, technical specifications and tender conditions as per tender. The bidder who intends to participate as "startup" company should enclose the certificate towards startup**

enterprise registration/recognition issued by Department of Industrial Policy and Promotion, Ministry of Commerce and the certificate should be certified by the Chartered Accountant or should be registered with GeM as startup. Applicable certificate should be enclosed.

7. **The bidder should enclose all relevant documents in a sequential manner as per the tender format.**
8. **The bid should contain the Bid securing declaration, Authorization from manufacturer, Details of Service Centre, Technical details with make, model and specification of each component, Technical Compliance statement, List of Customers, Brochures etc., wherever applicable.**
9. Catalogue/Brochure/Manual should be submitted along with the offer wherever necessary.
10. Warranty / Guarantee Clause needs to be mentioned necessarily wherever applicable.
11. The material should be delivered at NCESS or installed at the specified location and so the quotation should include all the charges for the delivery at NCESS/installation.
12. **In INR orders, the Customs Duty Exemption Certificate will be given to the supplier upon request. But the entire responsibility of customs clearance and delivery at NCESS will rest with the supplier. High sea sale is not accepted and should not be quoted.**
13. **The offer should be valid for 120 days from the due date of opening of tender.**
14. The Purchaser reserves right to accept any tender in part or full without assigning any reasons. The enquiry is not a commitment and the purchaser reserves the right to reject or cancel any or all offers.
15. **Payment Terms:**

**If Indian Purchase Order**

- a. 90% upon delivery and acceptance of entire system by NCESS and submission of Invoice, applicable Test Certificate, Installation Certificate, Warranty Certificate.
- b. 10% will be paid against submission of advance bank guarantee from a nationalized bank for the like amount valid for the warranty period plus 60 days or after successful completion of warranty period

**If Foreign Purchase Order**

- a. LC will be established for 100% of order value against which 90% will be released on submission of Order Acceptance, Proforma Invoice, LC details and other shipping documents etc.,
- b. Balance 10% will be after submission of advance bank guarantee from a nationalized bank for the like amount valid for the warranty period plus 60 days or successful completion of warranty period or against

*Net payment will be released after statutory deductions. No advance payment will be allowed and no other payment terms will be considered.*

16. **In the event of placement of order, the successful bidder shall provide a Performance Bank Guarantee from a Nationalised Bank for 3–10 % of the order value (DoE OM No. F.1/2/2023-PPD dated 03.04.2023). The PBG shall stand valid for the warranty period + 60 days.**
17. Any further changes in the details, like the date of opening or specification, will be posted on our web site only.

**ADDITIONAL CONDITIONS**

1. **Pre-bid meeting will be conducted on 18.07.2023 at 11.00 AM through hybrid mode.** Interested vendors may attend the pre-bid meeting after informing NCESS by e-mail to [tomson.jk@ncess.gov.in](mailto:tomson.jk@ncess.gov.in) with Cc to [purchase.ncess@nic.in](mailto:purchase.ncess@nic.in) on or before **14.07.2023**, confirming their pre-bid meeting participation. If no such confirmation of attending the pre-bid meeting has been received from any vendors upto this date, no pre-bid meeting will be held. Any decision/ change regarding pre-bid meeting will be informed through NCESS website. All the clarifications required regarding the tender, including the points to be discussed in pre-bid

meeting, should be sent to the e-mail: [tomson.jk@ncess.gov.in](mailto:tomson.jk@ncess.gov.in) with copy to [purchase.ncess@nic.in](mailto:purchase.ncess@nic.in) on or before **14.07.2023**. Late submission/ e-mails will not be considered.

2. Integrity Pact is applicable to this tender. The format of the integrity pact is attached as annexure to this tender document. The Integrity Pact should be filled in and printed on non-judicial stamp paper worth Rs 500/-. Signed Integrity Pact should be submitted by the bidders/ OEMs at Purchase Section, NCESS on or before the date of submission of bid. The bids of only those bidders who have submitted the signed integrity pact within the specified time will be accepted during the bid opening. Late submissions will not be accepted.
3. The Independent External Monitors for this tender are **Shri Ajay Kumar Lal**, IRAS (Retd) (email: [ajay\\_k\\_lal@yahoo.com](mailto:ajay_k_lal@yahoo.com)) and **Shri Pavan Kumar Jain**, IDSC (Retd) (email: [mespkj@gmail.com](mailto:mespkj@gmail.com))

Yours faithfully,

Sd/-

Deputy Manager (Purchase & Stores)

**Laser Ablation - High Resolution-Inductively Coupled Plasma Mass Spectrometer (LA-HR-ICPMS)**

**Detailed Specifications**

| <b>I. HR-ICPMS</b> |                            |   |
|--------------------|----------------------------|---|
| <b>Sl. No.</b>     | <b>Parts/Components</b>    | <b>Specifications</b>   |
| 1                  | Sample Introduction System | <ul style="list-style-type: none"> <li>Standard sample introduction system along with organic and HF resistant kit has to be quoted for analysis of rocks, ores, minerals and other geological matrices.</li> <li>Sample introduction system should be manual and auto controlled and consist of a multi-channel peristaltic pump (with minimum of three channels), concentric glass nebulizer for standard acid-based solutions with varying flow rates (minimum three flow rates; 20 <math>\mu</math>L to 100 <math>\mu</math>L), Peltier-cooled cyclonic spray chamber, injector and quartz torch. Apart from glass nebulizer and spray chamber, HF resistant spray chamber and PFA nebulizer system should be quoted separately.</li> <li>The system should include Desolvating nebulizer for elemental and isotope ratio measurement with a built-in gas-control system and appropriate temperature controller selectable through software for both membrane and spray chamber. A high-sensitivity option has to be available that gives <math>&gt;1E^9</math> cps/ppm In at R=300.</li> </ul> |
| 2                  | Gas flow control system    | <ul style="list-style-type: none"> <li>The gas flow system should be a micro-processor-based precision electronic mass flow controller with a minimum of five MFC for stable plasma gas control, out of which two must be dedicated for laser ablation.</li> <li>The gas flow system must have safety interlocks and automatic gas flow controls and start-up and shut down operations.</li> </ul>  |
| 3                  | Vacuum system              | <ul style="list-style-type: none"> <li>The vacuum system must comprise of turbo-molecular pump backed up by rotary pumps to provide fast pumping and easy maintenance. A noise reducer should be provided with the rotary pump.</li> <li>Proper interlock must be provided to ensure safety in case of eventual power breakdown.</li> <li>Suitable water recirculating chillers must be provided for continuous cooling of turbomolecular pumps.</li> </ul>   |
| 4                  | Ion source                 | <ul style="list-style-type: none"> <li>The ICP source should have an RF generator operating at a minimum frequency of 27 MHz and an output of 1.5 KW or more.</li> <li>The instrument should be provided with a suitable water recirculating chiller for continuous RF load coil and ICP interface.</li> <li>The RF matching and tuning should be completely software controlled.</li> <li>Fully demountable quartz torch with ceramic/sapphire injector suitable for HF and HNO<sub>3</sub> based solutions.</li> <li>The design should be compatible with multiple sample introduction systems such as laser ablation, desolvating nebulizers, organic solvents etc.</li> <li>Auto-alignment and software-controlled alignment of torch XYZ position must be available.</li> </ul>  |

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|---|---|--|
| 5 | ICP interface and extraction lenses                 | <ul style="list-style-type: none"> <li>• The ICP interface must consist of standard sampler and skimmer cones.</li> <li>• The cone should provide long-term stability and should be resistant to clogging.</li> <li>• The interface must be water-cooled with high-efficiency ion extraction optics.</li> <li>• High purity, high efficiency graphite/stainless steel extraction lenses should be provided for optimum beam conditioning, high ion transmission and low mass bias.</li> <li>• Three sets of platinum and skimmer cones should be supplied.</li> <li>• Four additional sets nickel sample and skimmer cones should be supplied.</li> </ul>  |
| 6 | Mass analyser system                                | <ul style="list-style-type: none"> <li>• The mass analyser should be a double-focusing magnetic sector mass spectrometer with an electrostatic analyser.</li> <li>• Magnet should be fully laminated and water-cooled, capable of fast mass scanning.</li> <li>• The scan speed of the magnet should be less than 150ms and scan speed of ESA should be less than 1ms per jump in all mass ranges.</li> <li>• The system should be capable of high-resolution from approximately 300 to 10000 or more. All resolutions to be switched in a single run.</li> <li>• Sensitivity: Low-resolution: R=300; greater than or equal to <math>1E^9</math> cps/ppm In. Medium-resolution: R=4000; greater than or equal to <math>1E^8</math> cps/ppm In. High-resolution R=10000; greater than or equal to <math>1E^7</math> cps/ppm In with standard inlet system in ion counter (SEM mode).</li> </ul> |
| 7 | Detection system                                    | <ul style="list-style-type: none"> <li>• The detection system must be equipped with both SEM and faraday detector to provide a linear dynamic range greater than or equal to <math>10^{12}</math> cps. There should be no data loss over <math>10^9</math> orders of linearity.</li> <li>• The detector dark noise should be 0.2 cps or better.</li> <li>• Abundance sensitivity m/z 237/238 must be better than 20 ppm.</li> <li>• Signal stability must be less than 1% RSD over 10 minutes and greater than 2% RSD over 1 hour in SEM and faraday mode at ppb levels.</li> <li>• Quantification limit better than 2 ppq (non-interfered nuclides).</li> <li>• Oxides <math>BaO^+/Ba^+</math> less than 0.003 or better.</li> <li>• Fully automatic gain calibration to achieve a linear dynamic range of about <math>10^{12}</math> cps.</li> </ul>   |
| 8 | Instrument control, data acquisition and processing | <ul style="list-style-type: none"> <li>• Suitable interface should be provided for real-time data acquisition and instrument control with online and offline data processing options.</li> <li>• Branded PC with i9 core and 16 GB RAM, 2 TB HDD, DVD reader and writer, 4 no USB, two 32' inch LED monitors with reflex facility, colour LaserJet printer and latest version MS Office.</li> </ul>  |
| 9 | Software  | <ul style="list-style-type: none"> <li>• The software shall provide fully integrated user-friendly operation of the instrument and sample inlet systems. It should also support other peripherals such as autosampler, laser ablation system etc.</li> </ul>   |

|                                  |                                  |   |
|----------------------------------|----------------------------------|---|
|                                  |                                  | <ul style="list-style-type: none"> <li>• The software shall be capable of safe instrument operations and should be able to read output values and all devoted parameters involved in the instrument operation.</li> <li>• Free software upgrades for the mass spectrometer should be provided at no additional cost.</li> <li>• Software for remote handling and online servicing/remote diagnostics (form customer support of the manufacturer) of the instrument must be provided.</li> <li>• Software for offline data reduction compatible with HR-ICPMS software should be provided.</li> </ul>  |
| 10                               | User safety and ease of handling | <ul style="list-style-type: none"> <li>• All instrument parts where the user has to access during operation should be at ground potential for enhanced safety.</li> <li>• The sample introduction system, plasma and interface should be at ground potential for safe operation and ease coupling of peripherals, including the laser ablation system.</li> <li>• Complete tool box for the instrument to be provided.</li> </ul>   |
| 11                               | Additional items                 | <ul style="list-style-type: none"> <li>• Autosampler to handle about 30 or more sample vials (5 to 10 ml capacity) should be supplied with HR-ICPMS complete with all probes and tubing. The autosampler should be software controlled and compatible with the main instrument control software. The full specification of the autosampler must be provided.</li> <li>• ULPA filter cabinet for placing autosampler.</li> <li>• Interface kit for connection to 213nm &amp; 193 nm Laser Ablation system, desolvating nebuliser system for HR-ICPMS.</li> <li>• All the supporting systems for HR-ICPMS such as gas cylinders for storing Argon (10 cubic meter)-10 nos, Helium (10 cubic meter) -2 nos and Nitrogen (10 cubic meter)- 2 no, automatic switching, gas panel, purification panel, regulator, fixing and piping for wall mounting should be provided. Argon, Helium and Nitrogen must be 5.7 or better in purity.</li> <li>• Helium, Nitrogen and Argon gas regulators (2 numbers each and double staged) and wall-mounted gas manifold systems of Matheson/Swagelok or similar standard should be provided.</li> <li>• All the gas assembly with imported gas panels and gas regulators and fixing should be done by the supplier.</li> <li>• Plasma exhaust system must be provided with all the necessary tubing and support.</li> <li>• Complete set of consumables and spares that comes as standard supply with the instrument to be provided.</li> </ul> |
| <b>II. LASER ABLATION SYSTEM</b> |                                  |   |
| 12                               | Laser                            | <ul style="list-style-type: none"> <li>• 193 nm ultra-short pulse, compact, water-cooled excimer laser operating between 1 to 500 Hz with an increment of 1 Hz.</li> <li>• Energy density of the system must range from &lt;math&gt;0.5 \text{ J/cm}^2&lt;/math&gt; to about <math>15 \text{ J/cm}^2&lt;/math&gt; or better at the sample surface measured during ablation.</math></li> <li>• Minimum 2 billion shots must be guaranteed.</li> <li>• Pulse to pulse stability less than 2% RMS or better.</li> <li>• Single shot, burst, continuous and fixed dosage mode.</li> <li>• Spot size between 1-to-150-micron size and must be extendable to greater than 200 microns with Demagnification device.</li> </ul>   |
| 13                               | Energy control                   | <ul style="list-style-type: none"> <li>• Integrated energy detector with closed loop energy stabilisation.</li> </ul>   |

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|    |                              | <ul style="list-style-type: none"> <li>• Provision for real-time logging of energy at the point of ablation in the sample chamber during scans.</li> </ul>  |
| 14 | Beam delivery                | <ul style="list-style-type: none"> <li>• Flat top beam profile</li> <li>• Software controlled pressured N<sub>2</sub>purge of laser beam with automatic shut off and interlock.</li> <li>• Continuously variable optical attenuator from less than &lt;0.5 J/cm<sup>2</sup> to 15 J/cm<sup>2</sup>.</li> <li>• Multi-position and user replaceable 193 nm mirrors.</li> <li>• There should not be any bonding of optical components.</li> </ul>   |
| 15 | Triggering                   | <ul style="list-style-type: none"> <li>• Software controlled laser firing based on stage position must be available at high repetition rates for imaging applications.</li> </ul>   |
| 16 | Ablation Cell                | <ul style="list-style-type: none"> <li>• Two volume ablation chamber that offers ultra-fast complete wash-in and wash-out of aerosols.</li> <li>• 100 mm x 100 mm X-Y and 50 mm Z travel stage with sub-micron resolution.</li> <li>• The sample chamber must come with versatile sample holder that can hold standard slides, thin and thick sections, 0.5-1 inch round moulds, grains, NIST or USGS standards.</li> <li>• Automatic sample cell gas routing for highly efficient vacuum per cycle for fast purging of atmospheric gases.</li> <li>• Provision for automatic alignment of Z to maintain ideal spacing between sample surface and sample extraction cell.</li> <li>• Intergraded software controlled dual MFC with provision for a third MFC.</li> <li>• Standard flow rate of MFC must be 0-2 L/min with increments of 0.01 L/min and must be software controlled and provided with auto-flow control.</li> <li>• Provision for versatile gas flow configurations for split-stream analysis.</li> <li>• Provision for ultra-fast wash-out of aerosol to enhance sensitivity, signal smoothing during acquisition of time-resolved data using Laser system.</li> <li>• The ablation cell operation must be software controlled and with interlocks for safety and warning.</li> </ul> |
| 17 | Viewing system               | <ul style="list-style-type: none"> <li>• High-definition zoom video camera with variable magnification, with image capturing facility.</li> <li>• Software controlled LED lighting for reflected, transmitted and oblique illumination.</li> <li>• Software controlled motorised cross polarisers for both transmitted and coaxial lighting.</li> </ul>   |
| 18 | Laser Cabinet                | <ul style="list-style-type: none"> <li>• Fully enclosed and integrated cabinet including all laser gas containers with enhanced safety features.</li> <li>• The system must be mobile and can be moved between instruments and laboratories without disturbing the optical alignment.</li> <li>• Suitable chiller must be provided</li> </ul>   |
| 19 | Gases and supporting systems | <ul style="list-style-type: none"> <li>• The offer should include cylinders (2 cylinders of lase gas and 2 cylinders of flush gas) of all high purity speciality gases for laser system to prove the stated performance specifications during the warranty period (approx. 1000L at NTP each).</li> </ul>   |

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| 20 | Safety                                 | <ul style="list-style-type: none"> <li>• The system must be a class I (eye safe) with safety interlocks that prevent exposure to laser during operation and routine maintenance.</li> <li>• The gas cabinet must be fully sealed and safe. In case of any gas leak, provision for safe venting through high efficiency filter and exhaust system must be provided.</li> </ul>  |
| 21 | Software                               | <ul style="list-style-type: none"> <li>• The software shall provide fully-integrated operation of the instrument and sample inlet system.</li> <li>• The software shall be able to read output values and all important parameters involved in the operations.</li> <li>• The system must include laser ablation software program with auto sampling functions.</li> <li>• Software should have built-in safety warnings features for safe operation and maintenance.</li> <li>• Software for remote handling and online servicing/remote diagnostics (form customer support of the manufacturer) of the instrument must be provided.</li> <li>• The software &amp; interface must be able to connect the LA to Q-ICPMS/HR-ICPMS/MC-ICPMS.</li> <li>• All future software upgrades must be provided free of cost.</li> <li>• The software must include the sample cell map and ability to build the whole sample's mosaic.</li> <li>• The software should have the ability to import wide range of image files.</li> <li>• The system must also include software package for automated elemental imaging.</li> <li>• The software should accept all major ICPMS file formats.</li> <li>• Software also should be able to handle large data points for 2D, 3D or RGB multi-composite images.</li> <li>• Branded PC with i7 core and 16 GB RAM, 2 TB HDD, DVD reader and writer, 4 no USB, two 23' inch LED monitors, and latest version MS Office.</li> </ul> |
| 22 | Spares and consumables                 | <ul style="list-style-type: none"> <li>• Complete list of consumables and spares that comes as standard supply with the Laser to be provided.</li> </ul>   |
| 23 | Training                               | <ul style="list-style-type: none"> <li>• Comprehensive hands-on onsite training (10 working days) for laboratory personnel in preventive maintenance, operations and application software of the HR-ICPMS after installation must be provided by an expert engineer.</li> <li>• Comprehensive hands-on onsite training (10 working days) for laboratory personnel in preventive maintenance, operations and application software of the 193 nm Laser after installation must be provided by an expert engineer.</li> </ul>   |
| 24 | Manuals and circuit diagrams           | <ul style="list-style-type: none"> <li>• A complete set of operation and maintenance modules and circuit diagrams, covering instrument and software operation, instrument maintenance and fault diagnostics should be provided in hard copy as well as in CD along with the HR-ICPMS and LA system.</li> </ul>   |
| 25 | Installation, warranty and maintenance | <ul style="list-style-type: none"> <li>• Installation at the NCESS site must be free of cost.</li> <li>• All the standard solutions and solid/minerals for the specification test should be supplied by the vendor.</li> </ul>   |

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|    |  | <ul style="list-style-type: none"> <li>• Two years warranty for the instrument (HR-ICPMS &amp; LA), support subsystems and the computer systems from the date of satisfactory installation and acceptance of installation by NCESS.</li> <li>• Additional quote for comprehensive on-site maintenance for the HR-ICPMS and LA system and their subsystems including spares and consumables after the warranty period should be provided for three years.</li> <li>• The response should be within 48 hours after lodging a warranty call for troubleshooting.</li> <li>• Instrument downtime during warranty should be accounted for to allow and extend the warranty time.</li> <li>• Annual service and maintenance visits by the engineers must be provided within the warranty period.</li> </ul> |
| 26 | Supply of standards/reference materials/ tool kits | <ul style="list-style-type: none"> <li>• A full kit that includes all the necessary tools for the installation and maintenance of the HR-ICPMS &amp; LA system should be provided.</li> <li>• In addition to the standards/reference materials necessary for installation and testing, the following standards should be provided. <ul style="list-style-type: none"> <li>✓ Sr: SRM 987</li> <li>✓ Ca: Ca standard</li> <li>✓ Pb: Pb standard</li> <li>✓ Zr: Zr standard</li> <li>✓ Si: Si standard</li> <li>✓ U: U standard</li> <li>✓ Tl: Tl standard</li> <li>✓ 91500 Zircon</li> <li>✓ SRM NIST 610, 612, 614, 616</li> <li>✓ Tuning and optimisation solutions</li> <li>✓ Certified multi-element solutions</li> </ul> </li> </ul>   |
| 27 | Other items  | <ul style="list-style-type: none"> <li>• UPS: 50 KVA three-phase UPS, from reliable and reputed bands/manufacturers with automatic correction for phase reversal and 1-hour backup and power out as per instrument requirement. Minimum two years warranty for UPS should be provided.</li> <li>• Licenced version of the data reduction software (latest version of Iolite and Glitter) should be provided.</li> </ul>   |
| 28 | Optional items                                     | <ul style="list-style-type: none"> <li>• Quotation should include complete sets of spares and consumables (other than standard supply) for five years for HR-ICPMS &amp; LA system.</li> <li>• Apart from the above, any other items which are required for operation and maintenance of HR-ICPMS and LA-system should be quoted separately.</li> </ul>   |
| 29 | Other conditions                                   | <ul style="list-style-type: none"> <li>• Comprehensive guidelines and requisites for the development of pre-installation infrastructures including requirement of air conditioning, UPS etc with specifications should be provided.</li> <li>• Supplier must provide a full specification of performance, including both internal and external precision in measurements of HR-ICPMS &amp; LA system.</li> <li>• Various performance parameters of both HR-ICPMS &amp; LA systems according to those mentioned in the brochures or on the</li> </ul>  |

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|  |  | <p>company's website and/or quoted must be demonstrated at NCESS, Thiruvananthapuram during installation.</p> <ul style="list-style-type: none"><li>• Name with full credentials and experience of the factory-trained service engineers currently on role in India and place of normal residency must be submitted in the offered quotation.</li><li>• List of earth science laboratories in India and/or abroad must be provided with contact details of the person-in-charge, model and date of installation of similar models.</li></ul> |
|--|--|--|



**NATIONAL CENTRE FOR EARTH SCIENCE STUDIES**

P.B. No. 7250, MEDICAL COLLEGE P.O., AKKULAM, THIRUVANANTHAPURAM-695 011, INDIA

Tel: 91-471-2511531

Fax: 91-471-2442280

e-mail: purchase@ncess.gov.in

**TENDER FORM**

- Tender No. & Date : **PUR-PROC/58/2022-PUR-NCESS Dt. 30.06.2023.**
- Due Date : **09.08.2023 (06.00 PM).**
- Date of Opening : **11.08.2023 (11.00 AM).**
- Venue of Opening : National Centre for Earth Science Studies, P.B.No.7250,  
Medical College P.O., Thiruvananthapuram – 695 011.
- Description of stores : **Laser Ablation - High Resolution-Inductively Coupled Plasma Mass Spectrometer (LA-HR-ICPMS)**
- Quantity : 1 No

Sirs,

The Senior Manager on behalf of the Director, National Centre for Earth Science Studies (NCESS), invites bids for the supply of stores mentioned above. The tender documents are classified as Annexure-A and Annexure-B. Annexure-A is a specimen tender form meant for suppliers and the bid should contain all the details specified therein. The instructions to the tenderers and the general terms and conditions applicable to the Purchase Orders placed by NCESS are given under Annexure-B. Those who are able to quote for the stores in accordance with the above requirements, may please furnish their offer through eprocurement, on or before the last date and time specified in the tender.

Any deviations from the terms and conditions of the Annexure-B must be clearly indicated in the offer.

Yours sincerely,  
Sd/-

Senior Manager

**ANNEXURE A**

**The Senior Manager,  
National Centre for Earth Science Studies,  
P.B.No.7250, Akkulam, Medical College PO,  
Thiruvananthapuram – 695 011.  
Kerala, India**

Sir,

Sub: Your Tender No .....Dated.....

I/We hereby offer you to supply the stores detailed below at the price hereunder quoted and agree to hold this offer open till .....I/We shall bind to supply the stores hereby offered, upon the issue of the purchase order communicating the acceptance thereof on or before the expiry of the delivery date therein. You are at the liberty to accept any one or more of the items of such stores. I/We, notwithstanding that the offer in this tender has not been accepted in whole shall be bound to supply to you such items and such portion or portions of one or more of the items as may be specified in the purchase order communicating the acceptance.

## 1. Technical Compliance Statement.

| Required Specification  |                            |   | Spec offered<br>(with make<br>and model) | Whether<br>complied |
|---|----------------------------|---|--|---------------------|
| <b><u>Laser Ablation - High Resolution-Inductively Coupled Plasma Mass Spectrometer (LA-HR-ICPMS)</u></b> |                            |   |  |                     |
| <b>Detailed Specifications</b>  |                            |   |  |                     |
| <b>I. HR-ICPMS</b>  |                            |   |  |                     |
| Sl. No.   | Parts/Components           | Specifications  |  |                     |
| 1   | Sample Introduction System | <ul style="list-style-type: none"> <li>Standard sample introduction system along with organic and HF resistant kit has to be quoted for analysis of rocks, ores, minerals and other geological matrices.</li> <li>Sample introduction system should be manual and auto controlled and consist of a multi-channel peristaltic pump (with minimum of three channels), concentric glass nebulizer for standard acid-based solutions with varying flow rates (minimum three flow rates; 20 <math>\mu</math>L to 100 <math>\mu</math>L), Peltier-cooled cyclonic spray chamber, injector and quartz torch. Apart from glass nebulizer and spray chamber, HF resistant spray chamber and PFA nebulizer system should be quoted separately.</li> <li>The system should include Desolvating nebulizer for elemental and isotope ratio measurement with a built-in gas-control system and appropriate temperature controller selectable through software for both membrane and spray chamber. A high-sensitivity option has to be available that gives <math>&gt;1E^9</math> cps/ppm In at R=300.</li> </ul> |  |                     |
| 2   | Gas flow control system    | <ul style="list-style-type: none"> <li>The gas flow system should be a micro-processor-based precision electronic mass flow controller with a minimum of five MFC for stable plasma gas control, out of which two must be dedicated for laser ablation.</li> <li>The gas flow system must have safety interlocks and automatic gas flow controls and start-up and shut down operations.</li> </ul>  |  |                     |
| 3   | Vacuum system              | <ul style="list-style-type: none"> <li>The vacuum system must comprise of turbo-molecular pump backed up by rotary pumps to provide fast pumping and easy maintenance. A noise reducer</li> </ul>   |  |                     |

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|   |                                     | <p>should be provided with the rotary pump.</p> <ul style="list-style-type: none"> <li>• Proper interlock must be provided to ensure safety in case of eventual power breakdown.</li> <li>• Suitable water recirculating chillers must be provided for continuous cooling of turbomolecular pumps.</li> </ul>  |  |  |
| 4 | Ion source                          | <ul style="list-style-type: none"> <li>• The ICP source should have an RF generator operating at a minimum frequency of 27 MHz and an output of 1.5 KW or more.</li> <li>• The instrument should be provided with a suitable water recirculating chiller for continuous RF load coil and ICP interface.</li> <li>• The RF matching and tuning should be completely software controlled.</li> <li>• Fully demountable quartz torch with ceramic/sapphire injector suitable for HF and HNO<sub>3</sub> based solutions.</li> <li>• The design should be compatible with multiple sample introduction systems such as laser ablation, desolvating nebulizers, organic solvents etc.</li> <li>• Auto-alignment and software-controlled alignment of torch XYZ position must be available.</li> </ul> |  |  |
| 5 | ICP interface and extraction lenses | <ul style="list-style-type: none"> <li>• The ICP interface must consist of standard sampler and skimmer cones.</li> <li>• The cone should provide long-term stability and should be resistant to clogging.</li> <li>• The interface must be water-cooled with high-efficiency ion extraction optics.</li> <li>• High purity, high efficiency graphite/stainless steel extraction lenses should be provided for optimum beam conditioning, high ion transmission and low mass bias.</li> <li>• Three sets of platinum and skimmer cones should be supplied.</li> <li>• Four additional sets nickel sample and skimmer cones should be supplied.</li> </ul>  |  |  |
| 6 | Mass analyser system                | <ul style="list-style-type: none"> <li>• The mass analyser should be a double-focusing magnetic sector mass spectrometer with an electrostatic analyser.</li> <li>• Magnet should be fully laminated and water-cooled, capable of fast mass scanning.</li> </ul>   |  |  |

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|   |   | <ul style="list-style-type: none"> <li>• The scan speed of the magnet should be less than 150ms and scan speed of ESA should be less than 1ms per jump in all mass ranges.</li> <li>• The system should be capable of high-resolution from approximately 300 to 10000 or more. All resolutions to be switched in a single run.</li> <li>• Sensitivity: Low-resolution: R=300; greater than or equal to <math>1E^9</math> cps/ppm In. Medium-resolution: R=4000; greater than or equal to <math>1E^8</math> cps/ppm In. High-resolution R=10000; greater than or equal to <math>1E^7</math> cps/ppm In with standard inlet system in ion counter (SEM mode).</li> </ul>   |  |  |
| 7 | Detection system                                    | <ul style="list-style-type: none"> <li>• The detection system must be equipped with both SEM and faraday detector to provide a linear dynamic range greater than or equal to <math>10^{12}</math> cps. There should be no data loss over <math>10^9</math> orders of linearity.</li> <li>• The detector dark noise should be 0.2 cps or better.</li> <li>• Abundance sensitivity m/z 237/238 must be better than 20 ppm.</li> <li>• Signal stability must be less than 1% RSD over 10 minutes and greater than 2% RSD over 1 hour in SEM and faraday mode at ppb levels.</li> <li>• Quantification limit better than 2 ppq (non-interfered nuclides).</li> <li>• Oxides <math>BaO^+/Ba^+</math> less than 0.003 or better.</li> <li>• Fully automatic gain calibration to achieve a linear dynamic range of about <math>10^{12}</math> cps.</li> </ul> |  |  |
| 8 | Instrument control, data acquisition and processing | <ul style="list-style-type: none"> <li>• Suitable interface should be provided for real-time data acquisition and instrument control with online and offline data processing options.</li> <li>• Branded PC with i9 core and 16 GB RAM, 2 TB HDD, DVD reader and writer, 4 no USB, two 32' inch LED monitors with reflex facility, colour LaserJet printer and latest version MS Office.</li> </ul>  |  |  |
| 9 | Software  | <ul style="list-style-type: none"> <li>• The software shall provide fully integrated user-friendly operation of the instrument and sample inlet systems. It should also support other</li> </ul>   |  |  |

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|    |                                  | <p>peripherals such as autosampler, laser ablation system etc.</p> <ul style="list-style-type: none"> <li>• The software shall be capable of safe instrument operations and should be able to read output values and all devoted parameters involved in the instrument operation.</li> <li>• Free software upgrades for the mass spectrometer should be provided at no additional cost.</li> <li>• Software for remote handling and online servicing/remote diagnostics (form customer support of the manufacturer) of the instrument must be provided.</li> <li>• Software for offline data reduction compatible with HR-ICPMS software should be provided.</li> </ul>  |  |  |
| 10 | User safety and ease of handling | <ul style="list-style-type: none"> <li>• All instrument parts where the user has to access during operation should be at ground potential for enhanced safety.</li> <li>• The sample introduction system, plasma and interface should be at ground potential for safe operation and ease coupling of peripherals, including the laser ablation system.</li> <li>• Complete tool box for the instrument to be provided.</li> </ul>  |  |  |
| 11 | Additional items                 | <ul style="list-style-type: none"> <li>• Autosampler to handle about 30 or more sample vials (5 to 10 ml capacity) should be supplied with HR-ICPMS complete with all probes and tubing. The autosampler should be software controlled and compatible with the main instrument control software. The full specification of the autosampler must be provided.</li> <li>• ULPA filter cabinet for placing autosampler.</li> <li>• Interface kit for connection to 213nm &amp; 193 nm Laser Ablation system, desolvating nebuliser system for HR-ICPMS.</li> <li>• All the supporting systems for HR-ICPMS such as gas cylinders for storing Argon (10 cubic meter)-10 nos, Helium (10 cubic meter) -2 nos and Nitrogen (10 cubic meter)- 2 no, automatic switching, gas panel, purification panel, regulator, fixing and piping for wall mounting should be provided. Argon, Helium and</li> </ul> |  |  |

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|                                  |                | <p>Nitrogen must be 5.7 or better in purity.</p> <ul style="list-style-type: none"> <li>• Helium, Nitrogen and Argon gas regulators (2 numbers each and double staged) and wall-mounted gas manifold systems of Matheson/Swagelok or similar standard should be provided.</li> <li>• All the gas assembly with imported gas panels and gas regulators and fixing should be done by the supplier.</li> <li>• Plasma exhaust system must be provided with all the necessary tubing and support.</li> <li>• Complete set of consumables and spares that comes as standard supply with the instrument to be provided.</li> </ul>   |  |  |
| <b>II. LASER ABLATION SYSTEM</b> |                |  |  |  |
| 12                               | Laser          | <ul style="list-style-type: none"> <li>• 193 nm ultra-short pulse, compact, water-cooled excimer laser operating between 1 to 500 Hz with an increment of 1 Hz.</li> <li>• Energy density of the system must range from <math>&lt;0.5 \text{ J/cm}^2</math> to about <math>15 \text{ J/cm}^2</math> or better at the sample surface measured during ablation.</li> <li>• Minimum 2 billion shots must be guaranteed.</li> <li>• Pulse to pulse stability less than 2% RMS or better.</li> <li>• Single shot, burst, continuous and fixed dosage mode.</li> <li>• Spot size between 1-to-150-micron size and must be extendable to greater than 200 microns with Demagnification device.</li> </ul> |  |  |
| 13                               | Energy control | <ul style="list-style-type: none"> <li>• Integrated energy detector with closed loop energy stabilisation.</li> <li>• Provision for real-time logging of energy at the point of ablation in the sample chamber during scans.</li> </ul>  |  |  |
| 14                               | Beam delivery  | <ul style="list-style-type: none"> <li>• Flat top beam profile</li> <li>• Software controlled pressured <math>\text{N}_2</math> purge of laser beam with automatic shut off and interlock.</li> <li>• Continuously variable optical attenuator from less than <math>&lt;0.5 \text{ J/cm}^2</math> to <math>15 \text{ J/cm}^2</math>.</li> <li>• Multi-position and user replaceable 193 nm mirrors.</li> <li>• There should not be any bonding of optical components.</li> </ul>   |  |  |

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| 15 | Triggering     | <ul style="list-style-type: none"> <li>• Software controlled laser firing based on stage position must be available at high repetition rates for imaging applications.</li> </ul>   |  |  |
| 16 | Ablation Cell  | <ul style="list-style-type: none"> <li>• Two volume ablation chamber that offers ultra-fast complete wash-in and wash-out of aerosols.</li> <li>• 100 mm x 100 mm X-Y and 50 mm Z travel stage with sub-micron resolution.</li> <li>• The sample chamber must come with versatile sample holder that can hold standard slides, thin and thick sections, 0.5-1 inch round moulds, grains, NIST or USGS standards.</li> <li>• Automatic sample cell gas routing for highly efficient vacuum per cycle for fast purging of atmospheric gases.</li> <li>• Provision for automatic alignment of Z to maintain ideal spacing between sample surface and sample extraction cell.</li> <li>• Intergraded software controlled dual MFC with provision for a third MFC.</li> <li>• Standard flow rate of MFC must be 0-2 L/min with increments of 0.01 L/min and must be software controlled and provided with auto-flow control.</li> <li>• Provision for versatile gas flow configurations for split-stream analysis.</li> <li>• Provision for ultra-fast wash-out of aerosol to enhance sensitivity, signal smoothening during acquisition of time-resolved data using Laser system.</li> <li>• The ablation cell operation must be software controlled and with interlocks for safety and warning.</li> </ul> |  |  |
| 17 | Viewing system | <ul style="list-style-type: none"> <li>• High-definition zoom video camera with variable magnification, with image capturing facility.</li> <li>• Software controlled LED lighting for reflected, transmitted and oblique illumination.</li> <li>• Software controlled motorised cross polarisers for both transmitted and coaxial lighting.</li> </ul>   |  |  |

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| 18 | Laser Cabinet                | <ul style="list-style-type: none"> <li>• Fully enclosed and integrated cabinet including all laser gas containers with enhanced safety features.</li> <li>• The system must be mobile and can be moved between instruments and laboratories without disturbing the optical alignment.</li> <li>• Suitable chiller must be provided</li> </ul>   |  |  |
| 19 | Gases and supporting systems | <ul style="list-style-type: none"> <li>• The offer should include cylinders (2 cylinders of lase gas and 2 cylinders of flush gas) of all high purity speciality gases for laser system to prove the stated performance specifications during the warranty period (approx. 1000L at NTP each).</li> </ul>   |  |  |
| 20 | Safety                       | <ul style="list-style-type: none"> <li>• The system must be a class I (eye safe) with safety interlocks that prevent exposure to laser during operation and routine maintenance.</li> <li>• The gas cabinet must be fully sealed and safe. In case of any gas leak, provision for safe venting through high efficiency filter and exhaust system must be provided.</li> </ul>   |  |  |
| 21 | Software                     | <ul style="list-style-type: none"> <li>• The software shall provide fully-integrated operation of the instrument and sample inlet system.</li> <li>• The software shall be able to read output values and all important paraments involved in the operations.</li> <li>• The system must include laser ablation software program with auto sampling functions.</li> <li>• Software should have built-in safety warnings features for safe operation and maintenance.</li> <li>• Software for remote handling and online servicing/remote diagnostics (form customer support of the manufacturer) of the instrument must be provided.</li> <li>• The software &amp; interface must be able to connect the LA to Q-ICPMS/HR-ICPMS/MC-ICPMS.</li> <li>• All future software upgrades must be provided free of cost.</li> <li>• The software must include the sample cell map and ability to build the whole sample's mosaic.</li> <li>• The software should have the ability to import wide range of image files.</li> </ul> |  |  |

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|    |  | <ul style="list-style-type: none"> <li>• The system must also include software package for automated elemental imaging.</li> <li>• The software should accept all major ICPMS file formats.</li> <li>• Software also should be able to handle large data points for 2D, 3D or RGB multi-composite images.</li> <li>• Branded PC with i7 core and 16 GB RAM, 2 TB HDD, DVD reader and writer, 4 no USB, two 23' inch LED monitors, and latest version MS Office.</li> </ul>  |  |  |
| 22 | Spares and consumables                 | <ul style="list-style-type: none"> <li>• Complete list of consumables and spares that comes as standard supply with the Laser to be provided.</li> </ul>  |  |  |
| 23 | Training                               | <ul style="list-style-type: none"> <li>• Comprehensive hands-on onsite training (10 working days) for laboratory personnel in preventive maintenance, operations and application software of the HR-ICPMS after installation must be provided by an expert engineer.</li> <li>• Comprehensive hands-on onsite training (10 working days) for laboratory personnel in preventive maintenance, operations and application software of the 193 nm Laser after installation must be provided by an expert engineer.</li> </ul>  |  |  |
| 24 | Manuals and circuit diagrams           | <ul style="list-style-type: none"> <li>• A complete set of operation and maintenance modules and circuit diagrams, covering instrument and software operation, instrument maintenance and fault diagnostics should be provided in hard copy as well as in CD along with the HR-ICPMS and LA system.</li> </ul>  |  |  |
| 25 | Installation, warranty and maintenance | <ul style="list-style-type: none"> <li>• Installation at the NCESS site must be free of cost.</li> <li>• All the standard solutions and solid/minerals for the specification test should be supplied by the vendor.</li> <li>• Two years warranty for the instrument (HR-ICPMS &amp; LA), support subsystems and the computer systems from the date of satisfactory installation and acceptance of installation by NCESS.</li> <li>• Additional quote for comprehensive on-site maintenance for the HR-ICPMS and LA system and their subsystems including spares and</li> </ul> |  |  |

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|    |  | <p>consumables after the warranty period should be provided for three years.</p> <ul style="list-style-type: none"> <li>• The response should be within 48 hours after lodging a warranty call for troubleshooting.</li> <li>• Instrument downtime during warranty should be accounted for to allow and extend the warranty time.</li> <li>• Annual service and maintenance visits by the engineers must be provided within the warranty period.</li> </ul>   |  |  |
| 26 | Supply of standards/reference materials/ tool kits | <ul style="list-style-type: none"> <li>• A full kit that includes all the necessary tools for the installation and maintenance of the HR-ICPMS &amp; LA system should be provided.</li> <li>• In addition to the standards/reference materials necessary for installation and testing, the following standards should be provided. <ul style="list-style-type: none"> <li>✓ Sr: SRM 987</li> <li>✓ Ca: Ca standard</li> <li>✓ Pb: Pb standard</li> <li>✓ Zr: Zr standard</li> <li>✓ Si: Si standard</li> <li>✓ U: U standard</li> <li>✓ Tl: Tl standard</li> <li>✓ 91500 Zircon</li> <li>✓ SRM NIST 610, 612, 614, 616</li> <li>✓ Tuning and optimisation solutions</li> <li>✓ Certified multi-element solutions</li> </ul> </li> </ul> |  |  |
| 27 | Other items  | <ul style="list-style-type: none"> <li>• UPS: 50 KVA three-phase UPS, from reliable and reputed bands/manufacturers with automatic correction for phase reversal and 1-hour backup and power out as per instrument requirement. Minimum two years warranty for UPS should be provided.</li> <li>• Licenced version of the data reduction software (latest version of Iolite and Glitter) should be provided.</li> </ul>   |  |  |
| 28 | Optional items                                     | <ul style="list-style-type: none"> <li>• Quotation should include complete sets of spares and consumables (other than standard supply) for five years for HR-ICPMS &amp; LA system.</li> <li>• Apart from the above, any other items which are required for operation and maintenance of HR-ICPMS and LA-system should be quoted separately.</li> </ul>   |  |  |

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| 29 | Other conditions | <ul style="list-style-type: none"> <li>• Comprehensive guidelines and requisites for the development of pre-installation infrastructures including requirement of air conditioning, UPS etc with specifications should be provided.</li> <li>• Supplier must provide a full specification of performance, including both internal and external precision in measurements of HR-ICPMS &amp; LA system.</li> <li>• Various performance parameters of both HR-ICPMS &amp; LA systems according to those mentioned in the brochures or on the company's website and/or quoted must be demonstrated at NCESS, Thiruvananthapuram during installation.</li> <li>• Name with full credentials and experience of the factory-trained service engineers currently on role in India and place of normal residency must be submitted in the offered quotation.</li> <li>• List of earth science laboratories in India and/or abroad must be provided with contact details of the person-in-charge, model and date of installation of similar models.</li> </ul> |  |  |
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ANNEXURE B

**INSTRUCTIONS TO THE TENDERERS AND GENERAL TERMS AND CONDITIONS OF THE CONTRACT**

1. **PRICES:** Tenders shall be made in ENGLISH and submitted with price for delivery at National Centre for Earth Science Studies, Akkulam, Medical College PO, Thiruvananthapuram-11, Kerala. The quoted amount should be inclusive of all charges like packing & forwarding charges, inland freight & other related charges, freight, statutory levies, unloading, installation etc.
2. **RIGHTS OF THE PURCHASER:** The Purchaser shall be under no obligation to accept the lowest or any other tender and shall be entitled to accept or reject any tender in part or full without assigning any reason whatsoever.
3. **VALIDITY OF OFFER:** The prices quoted should be firm and quotation has to be valid for a period of 120 days from the date of opening of tender.
4. **CATALOGUE:** Tenderers shall furnish Leaflet/Technical Literature of the Stores offered by him along with the offer.
5. **TRANSPORTATION:** Stores shall be supplied under supplier's risk.
6. **MODE AND TERMS OF PAYMENT:** Full payment after successful installation/commissioning and acceptance of stores at Purchaser's Site.
7. **WARRANTY:** The supply made by the supplier shall be of best quality and workmanship shall be in accordance with the specifications stipulated in the Purchase Order. Defects/deficiencies shall be made good by the supplier free of cost, notified within the applicable warranty period.
8. **SUBMISSION OF TENDERS:** The quotation should be submitted by e-procurement in PDF format by 'logging on' in the website [eprocure.gov.in/eprocure/app](http://eprocure.gov.in/eprocure/app)
9. **ENGINEER'S SERVICE MANUAL AND INSTRUCTION MANUAL:** The Engineer's Service Manual including Circuit Diagram and Instruction Manual (Original Copies) of the equipment shall be supplied along with the delivery/shipment by the supplier in the event of a purchase order. This aspect should be clearly indicated in the offer.

**10. DELIVERY/SHIPMENT:**

- a. The time for delivery of the stores stipulated in the purchase order shall be deemed to be the essence of the contract and delivery must be completed not later than the period specified therein.
- b. Failure and termination: If the contractor fails to deliver the stores or any part thereof within the period prescribed for such delivery, the purchaser shall be entitled at his option either;
  - i) to recover from the contractor as agreed liquidated damages and not by way of penalty, a sum of 2% of the price of any stores which the supplier has failed to deliver as aforesaid, for each month or part of a month, during which the delivery of such stores may be in arrears or

ii) to purchase elsewhere, without notice to the contractor on the account and at the risk of the contractor, the stores not delivered or there of a similar description (where others exactly complying with the particulars are not in the opinion of the purchaser readily procurable, such opinion being final) without cancelling the contract in respect of the portion of stores not yet due for delivery.

iii) to cancel the contract or a portion thereof and if so desired, to purchase or authorize to purchase of stores not so delivered or others of similar description (where others exactly complying with the particulars are not in the opinion of the purchaser readily procurable, such opinion being final) at the risk and cost of the contractor.

**11.LAW GOVERNING THE CONTRACT:** The contract shall be governed by the laws of India for the time being in force. The marking of all stores supplied must comply with the requirements of Indian Acts relating to Merchandise Marks and all the rules made under such Acts.

**12. JURISDICTION:** The courts within the local limits of Thiruvananthapuram, the place from the purchase order is issued, will be the jurisdiction to deal with and decide any matter arising out of the contract subject to the clause 18 hereof.

**13.INDEMNITY:** The contractor shall at all, times indemnify the purchaser against all claims which may be made in respect of stores for infringement of any right protected by patent, registration of design or trade mark and shall take all risk of accidents or damage which may cause a failure of the supply from whatever cause arising and the entire responsibility for the sufficiency of all the means used by him for the fulfilment of the contract.

**14.ARBITRATION:** Notwithstanding anything contained in clause 16 above, in the event of any question, dispute or difference arising under these conditions or any condition contained in the purchase order or in connection with this contract (except as to any matters the decision of which is specially provided for by these conditions) the same may be referred to the sole arbitration of the Director, National Centre for Earth Science Studies, Thiruvananthapuram or some other person appointed by him, there will be no objection that the arbitrator is a Govt. servant, who has to deal with matters to which the contract relates or that in the course of his duties as a Government servant he has expressed views on all or any of the matters in the disputes or difference. The award of the arbitrator shall be final and binding on the parties to this contract.

Terms of this contract: -

a) If the arbitrator be the Director, NCESS, (i) in the event of his being transferred or vacating his office by resignation or otherwise, it shall be lawful for his successor in the office either to proceed with the reference himself, or to appoint another person as arbitrator to (ii) in the event of his being unwilling or unable to act for any reason, it shall be lawful for the Director, NCESS to appoint another person as arbitrator;

**Or**

b) If the arbitrator be a person appointed by the Director, NCESS, in the event of his dying, neglecting or refusing to act, or resigning or being unable to act for any reason, it shall be lawful for the Director, NCESS, to proceed with the reference himself or to appoint another person as arbitrator in place of the outgoing arbitrator.

Subject as aforesaid, the Arbitration Act, 1940 and the rule there under and any statutory modifications thereof for the time being in force shall be deemed to apply to the arbitration proceeding under this clause. The arbitrator shall have the power to extend with the consent of the purchaser and the contractor the time for making and publishing the award. The venue of arbitration shall be the place as the purchaser in the absolute discretion may determine.

- 15. EXERCISING THE RIGHTS & POWERS OF THE PURCHASER:** All the rights, discretions and power of the purchaser under the contract shall be exercisable by and all notices on behalf of the purchaser shall be given by the Director or the Senior Manager of Centre for Earth Science Studies and any reference to ‘the opinion of the purchasers’ in the terms and conditions contained in this general conditions of the contract shall mean and be construed as reference to the opinion of any of the persons mentioned in this clause.
- 16. EXEMPTION FROM PAYMENT OF DUTIES:** The purchaser is eligible for availing customs duty at concessional rate under the relevant rules.
- 17. SPARES & ACCESSORIES:** Offers for plant/machinery/equipment/instrument shall also state prices or essential accessories, optional accessories and spares necessary for 5 years of satisfactory operation of the machinery/equipment/instrument offered. Prices for accessories and spares shall be itemised, offers where only lump sum prices are indicated are liable to be ignored. Particular care must be taken to list out each item of spare and quantity recommended and also individual price for these items.
- 18. QUANTITY:** The purchaser reserves the right to accept or reject lowest or any offers in whole or in part without assigning any reason. It would therefore be in the interest of the tenderers to clearly understand that the purchaser may accept offers for any quantity of his choice and hence, the percentage of reduction, if any in the price quoted in case of acceptance of tender in whole or part shall be clearly stated.
- 19. TRAINING:** The contractor shall, in special cases, if required by the Purchaser provide facilities for the practical training of the purchaser’s engineers and technical personnel in respect of repair, maintenance or operation of the plant/machinery/ equipment/ instrument offered at their manufacturing plant in India or abroad. The cost for such training (including travelling, boarding and other related expenses) and the number of trainees and duration of training and any other terms if any, should be indicated separately in the offer.
- 20. INSTALLATION & COMMISSIONING:** In the event of an order, the supplier shall arrange satisfactory installation and commissioning of the plant/machinery equipment/ instrument at purchaser’s site, free of cost.
- 21. SERVICE SOFTWARE/TOOLS:** The service software, tools required if any for the repair/maintenance of the plant/machinery/equipment/instrument shall be quoted separately.

## **PRE CONTRACT INTEGRITY PACT**

### **General**

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made \_\_\_\_\_ day of the month of \_\_\_\_\_ 2023, between, National Centre for Earth Science Studies (NCESS) through the Director, NCESS (hereinafter called the “BUYER”, which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First Part and M/s \_\_\_\_\_ represented by Shri \_\_\_\_\_, Chief Executive Officer (hereinafter called the “BIDDER/Seller” which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS the BUYER proposes to procure (Name of the Stores/ Equipment/Item) and the BIDDER/Seller is willing to offer/has offered the stores and

WHEREAS THE BIDDER is a private company/public company/Government undertaking/partnership/registered export agency, constituted in accordance with the relevant law in the matter and the BUYER is an organisation under the Ministry of Earth Sciences, Government of India.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealing prior to, during and subsequent to the currency of the contract to be entered into with a view to:-

Enabling the BUYER to obtain the desired said stores/ equipment at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement, and

Enabling BIDDERS to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practise and the BUYER will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

### **Commitments of the BUYER**

1.1 The BUYER undertakes that no official of the BUYER, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves or for any person, organisation or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.

- 1.2 The BUYER will, during the pre-contract stage, treat all BIDDERS alike, and will provide to all BIDDERS the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular bidder in comparison to other BIDDERS.
- 1.3 All the officials of the BUYER will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.
2. In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the BUYER with full verifiable facts and the same is prima facie found to be correct by the BUYER, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the BUYER and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the BUYER, the proceedings under the contract would not be stalled.
3. The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:-
- 3.1 The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER, connected directly or indirectly with the bidding process, or to any person, organisation or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.
- 3.2 The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the Government for showing or forbearing to show favour or disfavour to any person in relation to the contract or any other contract with the Government.
- 3.3 BIDDERS shall disclose the name and address of agents and representatives and Indian BIDDERS shall disclose their foreign principals or associates.
- 3.4 BIDDERS shall disclose the payments to be made by them to agents/brokers or any other intermediary, in connection with this bid/contract.
- 3.5 The BIDDER further confirms and declares to the BUYER that the BIDDER is the original manufacturer/integrator/ authorised government sponsored export entity of the defence stores and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the BUYER or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be

paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.

- 3.6 The BIDDER, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of the BUYER or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
- 3.7 The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting an implementation of the contract.
- 3.8 The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- 3.9 The BIDDER shall not use improperly, for purposes of competition or personal gain, or pass on to other, any information provided by the BUYER as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.
- 3.10 The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.
- 3.11 The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- 3.12 If the BIDDER or any employee of the BIDDER or any person acting on behalf of the BIDDER, either directly or indirectly, is a relative of any of the officers of the BUYER, or alternatively, if any relative of an officer of the BUYER has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filling of tender.

The term 'relative' for this purpose would be as defined in Section 6 of the Companies Act 1956.

- 3.13 The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the BUYER.

#### **4. Previous Transgression**

- 4.1 The BIDDER declares that no previous transgression occurred in the last three year immediately before signing of this integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify BIDDER's exclusion from the tender process.
- 4.2 The BIDDER agrees that if it makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

## **5. Bid Securing Declaration/ Security Deposit**

- 5.1 While submitting commercial bid, the bidders must sign a Bid Securing Declaration as specified in the tender.
- 5.2 The bid securing declaration shall be valid up to a period specified in the tender and this period will cover the complete conclusion of the contractual obligations to the complete satisfaction of both the BIDDER and the BUYER, including warranty period.
- 5.3 In case of the successful BIDDER, a clause would also be incorporated in the Article pertaining to Performance Bond in the Purchase Contract that the provisions of Sanctions for Violation shall be applicable for forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

## **6. Sanctions for Violations**

- 6.1 Any breach of the aforesaid provisions by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle the BUYER to take all or any one of the following action, wherever required:-
- i. To immediately call off the pre contract negotiations without assigning any reason or giving any compensation to the BIDDER. However, the proceedings with the other BIDDER(s) would continue.
  - ii. The Security Deposit/ Performance Bond shall stand forfeited either fully or partially, as decided by the BUYER and the BUYER shall not be required to assign any reason therefore.
  - iii. To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.
  - iv. To recover all sums already paid by the BUYER, and in case of an Indian BIDDER with interest thereon at 2% higher than the prevailing Prime Lending Rate of State Bank of India, while in case of a BIDDER from a country other than India with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the BIDDER from the BUYER in connection with any other contract for any other stores, such outstanding payment could also be utilised to recover the aforesaid sum and interest.
  - v. To encash the advance bank guarantee and performance bond/warranty bond, if furnished by the BIDDER, in order to recover the payment, already made by the BUYER, along with interest.
  - vi. To cancel all or any other Contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such cancellation/ rescission and the BUYER shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.

- vii. To debar the BIDDER from participating in future bidding processes of the Government of India for a minimum period of five years, which may be further extended at the discretion of the BUYER.
- viii. To recover all sums paid in violation of this Pact by BIDDER(s) to any middleman or agent or broker with a view to securing the contract.
- ix. In cases where irrevocable Letter of Credit have been received in respect of any contract signed by the BUYER with the BIDDER, the same shall not be opened.
- x. Forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same without assigning any reason for imposing sanction for violation of the Pact.

6.2 The BUYER will be entitled to take all or any of the actions mentioned at para 6.1(i) to (x) of this Pact also on the Commission by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER), of an offence as defined in Chapter IX of the India Penal code, 1860 or Prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

6.3 The decision of the BUYER to the effect that a breach of the provisions of this Pact has been omitted by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the Independent Monitor(s) appointed for the purposes of this Pact.

## **7. Fall Clause**

7.1 The BIDDER undertakes that it has not supplied/is not supplying similar product/Systems or subsystems at a price lower than that offered in the present bid in respect of any other Ministry/Department of the Government of India or PSU and if it is found at any stage that similar product/systems or sub systems was supplied by the BIDDER to any other Ministry/Department of the Government of India or a PSU at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and the difference in the cost would be refunded by the BIDDER to the BUYER, if the contract has already been concluded.

## **8. Independent Monitors**

8.1 . The BUYER has appointed Independent Monitors (hereinafter referred to as Monitors) for this Pact. The independent external monitors for this tender are **Shri Ajay Kumar Lal**, IRAS (Retd) (email: [ajay\\_k\\_lal@yahoo.com](mailto:ajay_k_lal@yahoo.com)) and **Shri Pavan Kumar Jain**, IDSC (Retd) (email: [mespkj@gmail.com](mailto:mespkj@gmail.com))

8.2 The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.

8.3 The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.

8.4 Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings.

8.5 As soon as the Monitor notices, or has reason to believe, a violations of this Pact, he will so inform the Authority designated by the BUYER.

8.6 The BIDDER(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the BUYER including that provided by the BIDDER. The BIDDER will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER/Subcontractor(s) with confidentially.

8.7 The BUYER will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the Monitor the option to participate in such meetings.

8.8 The Monitor will submit a written report to the designated Authority of BUYER/Secretary in the Department within 8 to 10 weeks from the date of reference or intimation to him by the BUYER/BIDDER and, should the occasion arise, submit proposals for correcting problematic situations.

## **9. Facilitation of Investigation**

In case of any allegation of violation of any provisions of this Pact or payment of commission, the BUYER or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

## **10. Law and Place of Jurisdiction**

This Pact is subject to Indian Law. The place of performance and jurisdiction is the seat of the BUYER.

## **11. Other Legal Actions**

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

## **12. Validity**

12.1 The validity of this integrity Pact shall be from date of its signing and extend up to 5 years or the complete execution of the contract to the satisfaction of both the BUYER and the BIDDER/Seller,

including warranty period, whichever is later. In case BIDDER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.

12.2 Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.

13. The parties hereby sign this integrity Pact at \_\_\_\_\_ on \_\_\_\_\_

**BUYER**  
Name of the Officer  
Designation  
National Centre for Earth Science Studies

**BIDDER**  
Chief Executive Officer

Witness

Witness

1. \_\_\_\_\_

1. \_\_\_\_\_

2. \_\_\_\_\_

2. \_\_\_\_\_