RFQ Number	**AR-INSTR-RFQ-25001**
Request for Quotation Date	**2025/09/09**
RFQ Closing Date	**2025/09/20**
RFQ Closing Time	**COB**
Compulsory Site Briefing	**NO**
Contact Person	**Trudy Smith**
Quotation Validity	**90 Days from the closing date**
Submission Details	**RFQ Response must be sent to:** **ltumeleng.mathibe@ntp.co.za** **Technical queries to trudy.smith@necsa.co.za**
RFQ Description	**Electronic Personal Dosimeter**

Dear Service Provider

Kindly provide a quotation for goods and or services as outlined in section 2 of this document.

1. Introduction

The South African Nuclear Energy Corporation Limited (Necsa) is a state-owned public company (SOC), registered in terms of the Companies Act, (Act No. 61 of 1973), registration number 2000/003735/06.

The Necsa Group engages in commercial business mainly through its wholly-owned commercial subsidiaries: NTP Radioisotopes SOC Ltd (NTP), which is responsible for a range of radiation-based products and services for healthcare, life sciences and industry, and Pelchem SOC Ltd (Pelchem), which supplies fluorine and fluorine-based products. Both subsidiaries, together with their subsidiaries, supply local and global markets, earning valuable foreign exchange for South Africa and are among the best in their field in their respective world markets.

Necsa's safety, health, environment and quality policies provides for top management commitment to compliance with regulatory requirements of ISO 14001, OHSAS 18001 and RD 0034 (Quality and Safety Management Requirements for Nuclear Installations), ISO 9001 and ISO 17025.

Necsa promotes the science, technology and engineering expertise of South Africa and improves the public understanding of these through regular communications at various forums and outreach programmes to the community. We are a proudly South African company continuously striving, and succeeding in many respects, to be at the edge of science, technology and engineering related to the safe use of nuclear knowledge to improve our world.

For more information on Necsa, please visit: **www.necsa.co.za**

2. Scope of Work

Item Description	Quantity
EPD (Electronic Personal Dosimeter) (Appendix A for detail)	10

3. Pricing

- All price quoted to include all applicable taxes.
- Price must be fixed and firm
- Price should include additional cost elements such as freight, insurance until acceptance, duty where applicable, disbursements etc.
- Quotation must be completed in full, incomplete quote could result in a quote being disqualified.
- Payment will be according to Necsa's General Conditions of Purchase.

4. Evaluation

4.1. Phase 1- Functionality Evaluation / Technical Evaluation

Where functional or technical evaluation criterion is applicable, assessment will be performed in terms of the criterion listed below and the criterion may include Technical, Performance, Quality and Risk.
If the Bidder's response to the Technical templates does not indicate that the Bidder can support an acceptable technical solution, the Bidder's response will be rejected and not evaluated further.

Together the Technical, Performance & Quality and Risk criteria make up the functionality criterion and a Bidder's Proposal will be evaluated for functionality out of a possible 100 points. Only RFQ responses achieving an evaluation score of greater than the set threshold points out of the possible 100 points and which score several points for functionality that is greater than or equal to the set threshold points of the number of points achieved by the highest scoring Bid for functionality will be selected to progress to the second stage.

4.2. **Phase 2 - Evaluation In Terms Of Preferential Procurement Policy Framework Act, 2022**

This bid will be evaluated and adjudicated according to the 80/20-point system, in terms of which a maximum of 80 points will be awarded for price and 20 points will be allocated based on the specific goals (B-BBE status level).

	POINTS
PRICE	**80**
SPECIFIC GOALS (B-BBEE status level)	**20**
Total points for Price and SPECIFIC GOALS	**100**

Preference goal
B-BBEE status level contributor

B-BBEE Status Level of Contributor	Number of points (80/20 system)
1	20
2	18
3	14
4	12
5	8
6	6
7	4
8	2
Non-compliant contributor	0

5. Required Documentation
   - Tax Clearance Certificate (Tax pin issued by SARS)
   - Declaration of interest (SBD 4)
   - BEE Certificate / Applicable Affidavit if classified as EME
   - Letter of Good Standing (COID) only if Applicable due to the nature of work required
   - Any other document or certification that might have been requested on this RFQ

6. Important

6.1. Quotation must be submitted on or before the RFQ closing date and time stated above.

6.2. Orders above R 30 000 will be evaluated according to the PPPFA 80/20-point system and a functionality scorecard where applicable and the ones above R 1 Million will be subjected to the tender process.

6.3. This RFQ is subjected to the Necsa's General Conditions of Purchase, Preferential Procurement Policy Framework Act 2000 and the Preferential Procurement Regulations, 2022, the General Conditions of Contract (GCC) and, if applicable, any other legislation or special conditions of contract

6.4. Failure on the part of a bidder to submit proof of B-BBEE Status level of contributor together with the bid, will be interpreted to mean that preference points for specific goals are not claimed.

6.5. The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to specific goals, in any manner required by the purchaser.

6.6. For a Bidder to obtain clarity on any matter arising from or referred to in this document, please refer queries, in writing, to the contact details provided above. Under no circumstances may any other employee within Necsa be approached for any information. Any such action might result in a disqualification of a response submitted in competition to this RFQ.

6.7. No goods and/or services should be delivered to Necsa without an official Necsa Purchase order.

6.8. Necsa reserves the right to; cancel or reject any quote and not to award the RFQ to the lowest Bidder or award parts of the RFQ to different Bidders, or not to award the RFQ at all.

6.9. The supplier shall under no circumstances offer, promise or make any gift, payment, loan, reward, inducement, benefit or other advantage, which may be construed as being made to solicit any favour, to any Necsa employee or its representatives. Such an act shall constitute a material breach of the Agreement and the Necsa shall be entitled to terminate the Agreement forthwith, without prejudice to any of its rights

6.10. By responding to this request, it shall be construed that: the bidder, hereby acknowledge to be fully conversant with the details and conditions set out in the Necsa's General Conditions of Purchase, Preferential Procurement Policy Framework Act 2000 and the Preferential Procurement Regulations, 2022, the General Conditions of Contract (GCC), Technical Information and Specifications attached, and hereby agree to supply, render services or perform works in accordance therewith

Appendix A.

Definitions, Acronyms, and Abbreviations
The following definitions, acronyms, and abbreviations shall apply throughout this Specification unless defined otherwise hereinafter:

EPD - Electronic Personal Dosimeter
Hp(10) - Personal equivalent dose rate for strongly penetrating radiation
Hp(0.07) - Personal equivalent dose rate for weakly penetrating radiation

Requirements
Functional and Performance Requirements
The system shall meet the following functional and performance requirements:
The EPD shall measure, calculate and display the strength of the radiation field in personal equivalent dose rate *Hp(10) and Hp(0.07),* as well as dose units to inform the user on its actual exposure level,
the dose rate and dose modes shall have a minimum of two preset able warning levels to setup the EPD for different tasks,
the detectors shall be sensitive to continuous X-ray, gamma and beta radiation,
it shall be light-weighted, self-contained and shall have a clip and a strap to get comfortable worn on all kind of working and protecting suits,
it shall have a minimum amount of buttons to make it easy to get operated,
it shall have a compact and rugged design with digital display to indicate required information in all modes of operation and under all operating conditions,
alarm indicators shall inform the user whenever the radiation is exceeding the preset alarm levels for safety, and
it shall have an outer surface that is easy to decontaminate.

Technical Requirements

The System shall meet the following technical requirements:
Essential features
The essential features for the EPD are:
Personal equivalent dose rate *Hp(10)* for gamma and x-rays and *Hp(0.07)* for beta radiation
Personal equivalent doses, related to both dose rate modes
Giving alarm in case dose rate or dose exceeding preset safety thresholds

Safety requirements
The equipment shall meet the following safety requirements given in IEC61508-1, 61508-2, 61508-3.

Minimum buttons to operate
The EPD shall have a minimum number of buttons for operation. Examples of good practice are 1-3 buttons. All buttons should be clearly marked. The startup and shutdown buttons shall be protected against unintentional operation.

Physical dimensions and mass
Outside dimensions shall not exceed a volume of 120 cm3 and the mass shall be less than 100 g with built in batteries.

Data
The EPD shall provide the possibility to record measured data and to read them out on the instrument as well as with specific software installed on a PC. Data transfer shall happen via serial cable or wireless via infrared or blue tooth interface.

Multilanguage support
The measurement results shall be displayed in SI units. All additional information on the display or in the menu shall be in in English language.

Detector(s)
For dose rate measurement in the required range adequate detectors or a single detector shall be used, having the following requirements:
Sensitive to continuous X-ray and gamma radiation.
Sensitive to beta radiation.
The instrument shall be self-contained, i.e. neither external detector(s) nor cables for routine operation are allowed.

Modes of operation
Essential for the EPD is to have two modes of operation, the personal equivalent dose rate mode and the mode of the accumulated equivalent doses:
Each mode shall measure, calculate and display *Hp(10)* for strongly penetrating radiation, such as gamma and X-ray, and *Hp(0.07)* for weakly penetrating radiation, such as beta radiation,
For each of these modes adjustable alarm thresholds shall be available.
The EPD shall allow for manually switching between both modes.

The dose rate mode

The EPD's dose rate mode shall have the performance characteristics as listed below:

(a) The EPD shall have a dose rate displayed in SI units.

(b) The equipment shall measure and display the personal equivalent dose rate *Hp(10)* for gamma and X-rays, and *Hp(0.07)* for beta radiation.

(c) The EPD shall provide dose rate readings with an internal resolution of at least 1 µSv/h, and a resolution for storage of at least 20 nSv/h;

(d) The dose rate displayed shall be at least from 0 µSv/h up to 4 Sv/h or more.

(e) The upper operating range shall be 50 Sv/h or more;

(f) If the measurement exceeds the upper operating, or display range, an over range indication on the display shall be displayed.

(g) The EPD shall measure photon energy ranges at least from 15 keV up to 10 MeV for *Hp(10);*

(h) The EPD shall measure beta particle energy ranges from at least 250 keV up to 1.5 MeV for *Hp(0.07*);

(i) The dose rate *Hp(10)* accuracy for Cs-137 at room temperatures shall be ±10 %. The required accuracies of the *Hp(10)* measurements between 0,03 µSv/h and 4 Sv/h, and within the energy ranges from 17 keV to 10 MeV.

(j) The dose rate *Hp(0.07)* accuracy for Cs-137 and Sr-90/Y-90 shall be ±15 % and ±20 %, respectively. The required accuracy of the *Hp(0.07)* measurement, between 0,03 µSv/h and 1 Sv/h, and within the energy ranges from 250 keV to 1.5 MeV.

Personal equivalent gamma dose

The instrument shall provide readings of the accumulated personal equivalent gamma dose:

(a) The dose shall be displayed in SI units based on the measured personal equivalent gamma dose rate *H*(10) or H*(0.07);*

(b) The minimum resolution of the readings shall be in µSv;

(c) The accuracy of the reading of the *H*(10)* dose shall be within ±20 % of the actual accumulated dose for photon radiation in an energy range from 20 keV up to 1.5 MeV;

(d) The accuracy of the reading of the *H*(0.07)* dose shall be within ±30 % of the actual accumulated dose for beta radiation in an energy range from 250 keV up to 1.5 MeV

(e) The operating and display range shall be from 0 µSv up to 15 Sv or more for continuous radiation fields.

Alarm indicators and alarm thresholds

The EPD shall have audible and visual alarm indications. The visual alarm indications shall be a light indication and indications or messages displayed on the screen:

(a) The EPD shall provide alarm if the *Hp(10)* dose or dose rate is exceeding the pre-warning or warning threshold.
(b) The EPD shall provide alarm if the *Hp(10)* dose is exceeding the prewarning or warning threshold.
The EPD shall provide alarm if the *Hp(0.07)* dose rate or dose are exceeding the warning thresholds.
(d) Alarm thresholds for the dose rate, and dose shall be adjustable through the instrument's menu or via PC,
(e) The EPD shall have different modes of sound for *Hp(10) and Hp(0.07)* alarms, battery warning and system failure.
(f) Acoustic alarms shall have a minimum intensity of 95 dBA.

Environment:

Temperature:
EPDs shall be able to be switched on and be tolerant to ambient temperature from –10 to +50°C. The instruments should be resistant and tolerant to rapid temperature changes within the temperature range from –10 to +50 °C.

Humidity:
EPDs shall withstand condensing moisture. The EPD shall remain fully functional and tolerant to relative humidity of up to 90% at 40°C

Degree of protection – ingress rating
The housing of the EPDs shall meet ingress protection rating IP55 according to IEC 60529 requirements, i.e., dust proof and water projected by a nozzle (6.3 mm) against enclosure from any direction shall have no harmful effects.

Reliability:
Lifetime
The normal operating period or lifetime of an instrument is the period after an ample initial trial use or burn-in, where the effects of wear are negligibly small and quality has leveled off to a constant failure rate with regard to time. The lifetime of the EPD shall be at least 10 years.
Mean time between failures Mean time between failures (MTBF) shall be at least four years
Mean time to repair. The manufacturer shall be committed assuring that the mean time to repair (MTTR) be a maximum of four weeks.
Availability of spare parts and maintenance services The vendor (manufacturer) shall be committed to ensure the availability of spare parts and maintenance services for the entire lifetime of the EPD.

Quality Requirements
The EPD must be calibrated local by SANAS accredited laboratories. The EPD must meet technical requirements set by regulatory bodies such as SAHPRA and NNR.