

From: BARNETT, Sabine
Sent: Wednesday, 19 May 2021 11:13
To: BARNETT, Sabine
Subject: Clarifications & Deadline Extension for submission of Proposals - RFP 482341-SB for Engineering Design of a PGAA & Neutron Imaging Instrument for Morocco (MOR1012)

Dear Bidders,

In reference to the solicitation in subject, the IAEA has received requests for clarifications and responds as follows:

We recognise that there will be details that require changing, which is why the RFP's first stage involves finalisation of the conceptual design with the assistance of the contractor after the initial kick-off meeting.

1. Can you clarify the type and size of neutron detector that will be used for PGAA?
The bidder is free to propose a suitable technology.
 2. Can you clarify the length and outer sizes of the jacket around the guide (Fig B1)? Do you have definitions for the material composition, dimensions and weight?
These are not yet defined. We would work with the winning bidder to finalize these.
 3. Is the beam shaper to be "self-supporting" (Appendix A4)? Also, can you clarify if you have defined the length, outer dimensions, thickness and weight of the materials?
Not all the physical parameters for this component are defined. The bidder is free to propose a solution regarding support that best suits the size and weight of the component.
 4. Can you clarify the reason why the current design calls for the irradiation chamber to be removable, (e.g. given the large mass of the shielding around the gamma detector) (Fig 5)? Can you clarify why you require the specific dimensions currently given for the chamber? Given the quadratic sample frame of 6x12cm with +/-2.5cm adjustment in a 200 mm tube, only very small space remains for the goniometer. Can these dimensions be changed to accommodate a more robust goniometer?
The dimensions can be changed, and the contractor will be free to propose solutions while maintaining an optimal count rate.
 5. Would a neutron beam monitor placed after the beam shaper be acceptable? Do you have a preferred technology or type of monitor?
The bidder is free to make a proposal. We do not have a preference as to the technology type.
 6. Regarding the beam limiter for NRAD, would it be acceptable to have another beam stop on the upper side to avoid backscatter during PGAA operation?
Yes, indeed. If we should perform combined NI and PGAA, we need another beam stop on the upper side to avoid backscatter during PGAA operation.
 7. Regarding the translation table for NRAD (Fig B5), if the proposed requirements as defined in the draft design cannot be met (200 kg load, accuracy of 0.01 deg, 0.2 mm), are the specification of the physical parameters changeable, or can we change the design?
The design could be changed but the specifications to be met should remain close to 200 kg, accuracy of 0.01, 0.2mm.
 8. Regarding the bunker shielding, why are the roof and wall made of barite concrete? Does this provide sufficient neutron shielding? Has the load from the 20 cm thick roof been taken into account on the floor loading restriction?
 - Yes, Barite concrete provides sufficient neutron shielding.
 - Yes the load of the 20cm roof was taken into account in the floor loading restriction. If the Bidder considers that the roof with such composition and/or thickness could be replaced by other material and/or thickness, he is invited to give an augmented solution. The final design of the bunker will take into account interfacing with the final conceptual design.
 - As shown in Figure C2, the roof include covers the chamber 1 and the area housing the neutron guide & L/D exchanger + first part of flight tube.
 9. As these are important parameters for the design, can bidders make their own MCNP calculations rather than take the ones from CNESTEN? Are the activation foil measurements made in Nov 2014 (Annex D) still considered to be representative as a base of calculation?
The activation foil measurements are still representative. We recommend that the bidders make their own MCNP calculations as well as a verification.
- We have two publications that may assist:
- a. Neutron beam characterization for the Moroccan TRIGA Mark II reactor: <https://doi.org/10.1007/s10967-021-07613-2>
 - b. Simulation of a collimator and sapphire filter for PGAA facility of the Moroccan TRIGA MARK II research reactor: <https://doi.org/10.1016/j.apradiso.2019.04.042>
10. The IAEA notes a typing mistake in Annex B. Line 1.2.2.: "Scintillators mounted on light-tight frames for easy exchange in 25cm square frame" - this should read cm not mm.

To provide bidders with sufficient time to take into account the above explanations/clarifications, the IAEA is extending the deadline for submission of proposals until 5 June 2021, 17 :00 CET.

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