

IARPA-BAA-18-04

Questions and Answers Round 1

Release Date: 2 August 2018

MAEGLIN Phase 2 Questions 1 through 11

Q1: Please check the concentration level requirements in Table 3 (pp. 16 and 18). They are in mg/m³ but the correct units seem to be in g/m³.

A1: The concentration level requirements listed in Table 3 (pp. 16 and 18) are correct, and the units should be mg/m³, not g/m³. Although at first glance it may seem a bit odd to have a parameter listed which contains both an exponent and a metric prefactor, this unit convention is used by OSHA/NIOSH in publishing exposure limits. For example, the Worker Population Limit (8hr/day, 5 days a week) for exposure to G-agents is 3x10⁻⁵ mg/m³, and the General Population Limit (persistent exposure, 24/7 for a lifetime) is 1x10⁻⁵ mg/m³. As an example, in a different unit convention, the BAA threshold for Short Term Exposure (30 minutes) is 1x10⁻³ mg/m³, which for a chemical with a molecular weight of 200 Dalton corresponds to a concentration of ~120 ppt.

Q2: In the template for Organizational Conflicts of Interest certification letter, it says "as it pertains to MIST..." Should "MIST" be "MAEGLIN Phase 2"?

A2: Correct, this is Government oversight and will be corrected via Amendment.

Q3: In paragraph 4.B.2.b Section 2: Estimated Cost Breakdown it states, "The Excel document in the format provided in Appendix B..." and it goes on to say under A. Completed Cost/Price Template – "Offerors shall submit a cost element breakdown for the base period, each option period and the total program summary in the format provided in Appendix B." However the Appendix B does not contain an Excel document or prescribed format for all the cost break downs described. Under section 4.C.2 Proposal Delivery it states that, "Please complete the requested information but DO NOT upload your Volume 2 – Cost Proposal. Directions for submittal of Volume 2 – Cost Proposal will be provided by the contracting officer when offerors are notified of selection for negotiations."

Can you clarify that if we are selected for negotiations a cost/price template will be provided at this time? Is the information required in Section 4 need to be submitted in addition to the cost element sheet table in Appendix B? Or do we need to provide our own excel file based on the description in Section 4, in addition to the cost element sheet table in Appendix B?

A3: The Volume 2 – Cost Proposal, cost/price template is provided in the BAA, Appendix B. Per the BAA Section 4.B.2, offerors should submit a Volume 2 - Cost Proposal only if selected for negotiation. This Cost Proposal shall contain numerical cost and pricing data and other supporting information requested in the BAA including a cost element breakdown using Microsoft Excel, per 4.B.2.b. Appendix B does not include an Excel sheet to use, the Excel document is to be created by the offeror. The cost element breakdown (Excel document) shall be in the format provided in the Appendix B template (pages 67-68, Prime Contractor/Subcontractor Cost Element Sheet for Volume 2, Cost Proposal), and shall include intact formulas and not be hard numbered. Again, please note that Cost Proposals shall only be submitted by offerors selected for negotiation.

Q4: According to our calculations, the Phase II BAA is specifying a minimum threshold concentration for the FID track that is 3 orders of magnitude (1000X) smaller than that in Phase I. That is 50 femtograms/mL, down from 50 picograms/mL. Is this correct?

Phase I BAA: Single Compound Concentration Range that can be Effectively Sampled = 50 pg/cm³ to 500 µg/cm³

Phase II BAA, FID track: Minimum Detectable Exposure

Persistent Exposure: Threshold: >5x10⁻⁵ mg/m³ continuous, Goal: >5x10⁻⁶ mg/m³ continuous

Short Term Exposure: Threshold: >1x10⁻³ mg/m³ for 30 minute exposure, Goal: >1x10⁻⁴ mg/m³ for 30 minute exposure

A4: The Minimum Detectable Exposures listed for the FID and SID tracks as both Persistent Exposure and Short Term Exposure values are correct. These Phase 2 system level metrics cannot be directly compared to the Phase 1 component level metrics, such as the Single Compound Concentration Range that can be Effectively Sampled.

Q5: For the FID track, the limit of detect (threshold) is listed as 1x10⁻³ mg/m³ (ie., 1 pg/mL) over a 30 minute collection time in order to collect 10 ng. This corresponds to a sample volume of 10 L in 30 min for the threshold specification or 100 L for the goal specification. Such a criterion would preclude passive sampling, vastly increasing energy use and increasing the size of the required battery / fuel cell, making it difficult to meet the size specification as well. Is this correct and was it intended?

A5: Minimum Detectable Exposure is a system level metric, while Limit of Identification, Chemical Mass at Analyzer is a component level metric for the FID track analyzer. For a system where the Limit of Identification, Chemical Mass at Analyzer just barely met the BAA requirement, a collection of a sample volume of 10L in 30 minutes would be necessary to meet the Minimum Detectable Exposure threshold, and 100L to meet the goal. However, a system design with a lower Limit of Identification for the analyzer would relax the collection requirement, and still meet all BAA requirements. For example, a system with an analyzer Limit of Identification of 1ng would require only a 1L sample volume in 30 minutes to meet the Minimum Detectable Exposure threshold. This may relax the size and power

requirements for the collector, but require a larger and more power-hungry analyzer. Making tradeoffs between the capability of various system components in order to simultaneously meet all BAA requirements is left to the discretion of the offerors.

Q6: Please clarify the difference between Minimum Detectable Exposure and Limit of Identification.

A6: Minimum Detectable Exposure is a system level metric which describes the minimum concentration of a target chemical that the system must be able to detect, in units of mg/m³. The Persistent Exposure component of this metric is the minimum ambient concentration of a target chemical that the system must be able to detect, given an exposure time of 24 hours (for the FID track) or 4 hours (for the SID track) to the target compound at the Persistent Exposure concentration. The Short Term Exposure component of this metric is the minimum ambient concentration of a target chemical that the system must be able to detect, given an exposure time of 30 minutes to the target compound at the Short Term Exposure concentration. Minimum Detectable Exposure is a system level, time-integrated metric.

Limit of Identification (neat compound), Chemical Mass at Analyzer is the minimum quantity of target chemical that the analyzer component of a FID track system must be able to identify, in units of ng.

Limit of Identification, Chemical Mass at Analyzer is a component level, instantaneous metric.

Depending on the details of a system's collection component, a Limit of Identification, Chemical Mass at Analyzer considerably lower than the BAA requirement may be necessary in order to meet the system level Minimum Detectable Exposure metric.

Q7: The sampling duration for the FID track is listed as 30 min to 24 hours, but the text states that "performers may adapt their actual sampling duty cycle." Does this mean that the performer may choose any sampling time between 30 min and 24 hours? Could a performer choose to operate once a day using a single 30 minute sample?

A7: Performers must be able to accommodate system exposures to ambient of any duration between 30 minutes and 24 hours between analysis cycles. Performers may adapt the exposure time of their collector material to prevent saturation or breakthrough. Solutions which allow periodic sampling of ambient throughout the total system exposure time are preferred to solutions which only sample ambient during a specific portion of the total system exposure time, in order to be able to capture temporally transient or diurnally varying signatures. However, any sampling solution which allow system exposures ranging between 30 minutes and 24 hours is acceptable.

Q8: What is the earliest possible start date?

A8: As stated on page 27 of the BAA, 1.F Period of Performance, the MAEGLIN Phase 2 Program is envisioned as a 24-month effort that is intended to begin January 2019. This is a single phase program with a base period only.

Q9: Regarding the last item in Table 3: MAEGLIN Programmatic Requirements, Metrics, and Milestones 3.A Forensic Identification (FID) Track, and 3.B Screening Identification (SID) Track:

"Ruggedization: Maintain functionality after a drop of 80cm".

Is that drop while the instrument is running? Or is the drop while the instrument is off, for example, during transportation?

A9: The 80cm drop requirement is for a powered-down instrument during transportation. Also note, the Ruggedization requirement is part of the Prototype System Design Requirements, Metrics, and Milestones which will be evaluated in a Critical Design Review of the Prototype System Design, but will not be physically demonstrated in hardware.

Q10: In Table 3, pages 16 and 17, "Background and Interferents" are specified as percentages for some interferents.

- a. If a percentage is not specified, what is the expected range of concentrations?
- b. For hydrocarbon concentrations of 20%, is this a percentage of total air sampled, or a percentage of the target compound and/or true unknown compound concentration?
- c. What are the percentages expressed as (w/w, v/v, w/v, etc.)?
- d. What constitutes a hydrocarbon background vs. a hydrocarbon identified in the target list?

A10:

- a) If a percentage is not specified, the concentration of the interferent tested will not exceed the lesser of 1% v/v in dry air, OR 100% of the saturated partial pressure of the interferent in question in dry air.
- b) The BAA specification of "up to 20% hydrocarbon concentration" indicates up to 20% of the saturated partial pressure of the hydrocarbon in question in dry air, at 25 degrees Celsius (similar to the relative humidity denotation for water).
- c) Percentages are expressed as v/v, with the additional caveat that relative humidity and hydrocarbon concentrations are expressed as percentages of the saturated partial pressure of the compound in dry air at 25 degrees Celsius, not as direct raw percentages.
- d) Hydrocarbons that are specifically identified on the target list will not be used as background compounds. Any other hydrocarbons (not on the target list) may be used as background compounds.

Q11: I am writing to inquire if a white paper is required to participate to this solicitation (IARPA-BAA-18-04). Please let me know if the white paper is required.

A11: No white paper solicitation is required. IARPA-BAA-18-04 (MAEGLIN Phase 2) is a solicitation for full proposals only.