

## **IARPA-BAA-16-01**

### **MAEGLIN BAA QUESTIONS & ANSWERS 8 through 50**

Q8: The MAEGLIN BAA does not explicitly mention a typical range for a requested budget for Phase I. Could you clarify your expectations in this regard?

**A8: IARPA does not disclose organization, program, or phase level budgets. The MAEGLIN BAA section 4.B.2 details what is required in regards to the cost volume of the proposal. All proposals will be evaluated as set forth in the BAA.**

Q9: What instrumentation and equipment will be provided at the government-selected test and evaluation facilities? Would Contractor need to supply and ship any other equipment they need?

**A9: The Government test and evaluation team consists of DoD and National Laboratory partners that have in place a collective analytical chemistry suite appropriate for MAEGLIN test and evaluation. The precise test and evaluation plan will be developed at the completion of the source selection process based on the contractor approaches selected, in order to enable a comprehensive and fair evaluation. The contractors will not be required to purchase or ship testing equipment to MAEGLIN test and evaluation sites during the evaluation process. However, the contractors will be required to ship their systems to the government sites for testing. More information on MAEGLIN Phase 1 test and evaluation will be provided following contract award.**

Q10: Will the month 17 tests be performed at either the Washington, D.C. or the San Diego, CA facility (3 days), or at both facilities (3+3 days)?

**A10: The precise month 17 test and evaluation plan will be developed at the completion of the source selection process based on the contractor approaches selected, in order to enable a comprehensive and fair evaluation of the collective MAEGLIN portfolio. For the month 17 evaluation, contractor systems will be tested in Washington, D.C. and San Diego, CA for 3 days of testing at each facility. Following contract award more information concerning the MAEGLIN test and evaluation process will be made available to the selected contractors.**

Q11: Does the metric for power consumption per analysis run include the processor power for performing computation and signal processing?

**A11: It is the intent of the MAEGLIN program to develop a long term stand-alone chemical detection system, of which power consumption of the entire system is a critical concern. However, in Phase 1 it is acceptable to exempt power consumption for computation and signal processing, since it is not expected that signal processing algorithms will be fully optimized or integrated on a power efficient platform yet. Discussion of a path towards including processing within the allowed power consumption envelope should be provided. Please note, however, that the power requirements originally published in the BAA included an error that has since been amended (Amendment 0003).**

**The original power metrics of 7.5 J (threshold) and 1.5 J (goal) per analysis run are in fact 7.5 kJ and 1.5 kJ per analysis run, respectively.**

Q12: BAA paragraph 1.B.3 refers to technical reviews at months 5, 8, 10, 14, and 17. Paragraph 1.C Figure 7 lists technical reviews at months 5, 10, 14, and 17. Figure 8 lists technical reviews only at months 5, 10, and 14. Please clarify the number of technical reviews intended. Also, it is our normal practice to alternate the review venues between Contractor and Government locations. Paragraph 1.B.3 indicates that all reviews except the on-site review at month 10 are to be held in the Washington metro area. Please confirm that this is the Government's intent.

**A12: Technical reviews for the MAEGLIN program will occur at months 5, 10, 14, and 17. The month 8 technical review was listed in error and is removed in the amended version of the MAEGLIN BAA, which is posted on FebBizOps website. Only 1 on-site (contractor location) review will take place in month 10.**

Q13: BAA paragraphs 1.B.4 and 1.B.5 indicate that the Contractor will travel to Government-selected test facilities in the Washington metro area and San Diego, CA for evaluation of the breadboard system. Please clarify whether the Contractor will actually operate the equipment and conduct the tests, or whether the Contractor is only in a support role to Government personnel who will perform the testing.

**A13: For the Government evaluations the contractors will be expected to operate their own systems. Government personnel will establish all test conditions to ensure that a standardized and fair evaluation is performed on each system. Having the contractors operate their own breadboard system will then help to ensure an equal evaluation process by removing operator error potentially introduced by the Government given the relative immaturity of the Phase 1 contractor systems.**

Q14: BAA paragraph 6.B.3.1 identifies a workshop to be held in the Washington metro area, and paragraph 1.C Figure 7 shows this occurring in month 14. Please clarify whether the Government intends this workshop to be scheduled in conjunction with the month 14 technical review, such that a single trip can cover both events, or should two separate trips be planned?

**A14: The workshop and technical review will be held during the same visit. The technical review will encompass one to two days (depending on the number of MAEGLIN contractors) of proprietary technical review meetings held separately with each contractor. The workshop will be two days in duration. Attendance will consist of all MAEGLIN contractors, IARPA, and Government partners. The workshop purpose will be to socialize MAEGLIN capabilities to a wider Government audience and to work through technical challenges relevant to the MAEGLIN program.**

Q15: BAA paragraph 1.C Figure 7 shows independent Government testing beginning in month 16 and continuing to month 18, which is actually month 19 since the program months are numbered starting from 0. We assume that the activity in month 16 is Government planning, since no hardware is yet available for Government use at that time, and that the activity in months 17 and 18 is Government-only effort and requires no Contractor support, since the

Contractor test and evaluation in month 17 is shown on a different line and the last month is beyond the Contractor's 18 month period of performance. Are these assumptions correct? If not, please clarify.

**A15: The MAEGLIN Phase 1 effort is 18 months in duration, and begins with the program kickoff meeting in month 1. The existence of "month 0" is merely an accounting place holder to accommodate the possibility of performers having contract start dates spread over a week or two prior to the kickoff meeting. The Government evaluation activities that will take place in month 16 include a comprehensive review of contractor reports and tests to date, review of the report describing traceability of component design to Phase 2 goals that is due in month 15, and pre-test activities carried out by the Government test and evaluation team. Government testing of contractor systems will take place in month 17. Depending on the number of systems in the MAEGLIN portfolio these tests will have to be staggered, but all contractors will be required to deliver their systems to the test facility at the same time to ensure equal development time. Month 18 will encompass any overflow testing and Government panel review of system performance against the test metrics in the MAEGLIN Phase 1 BAA.**

Q16: BAA paragraph 1.C Figure 8 lists demonstration hardware and software as deliverables in month 18. Is it the Government's intent to take formal possession of the breadboard hardware (DD250), or does the Government simply desire access to and use of said hardware for independent Government evaluation? Please clarify.

**A16: The Government will take formal possession of contractors' Phase 1 hardware and software at the end of Phase 1 as contract deliverables. Contractors who bid to the Phase 2 MAEGLIN solicitation may request return of their hardware for use in Phase 2 development. Note, however, that systems exposed to hazardous chemicals during the evaluation process cannot be released back to the contractors or out of Government custody. If systems are tested against hazardous chemicals, all components exposed to any chemical hazard will be destroyed and disposed of as hazardous waste. Contractors will be notified of the final test and evaluation strategy, especially concerning exposure to hazardous chemicals, following contract award.**

Q17: BAA Identification Thrust Area Metrics Figure 4 lists the concentration analysis capability, what is the total mass/volume of the analyte that will be provided for identification?

**A17: The minimum mass / volume of analyte provided for identification is set by a 30-minute exposure at the minimum single compound concentration range that can be effectively sampled (50 pg/cm<sup>3</sup>), while the maximum mass /volume of analyte is set by a 24-hour exposure at the maximum single compound concentration range that can be effectively sampled (50 µg/cm<sup>3</sup>). Please refer to question and answer number 7 for additional discussion on the MAEGLIN Phase 1 chemical list.**

Q18: The LOD target given in Figure 4 for the Identification Thrust metric is 10 ng/cm<sup>3</sup>. For GC-based methods, LODs are normally given in terms of mass (injected), so it is not clear what this value means. Is this the concentration of the analyte in the peak emanating from the

separation module? If so, then are we expected to back-calculate what it corresponds to in terms of captured/injected mass for the Collection Thrust metric by making assumptions about the relevant dimensions and operating parameters required to arrive at a value? If not, then is this an environmental concentration? Please advise.

**A18: For the Identification Thrust the limit of detection (LOD) of 10ng/cm<sup>3</sup> is given as a general concentration of a gaseous analyte of interest from an environmental sample (e.g., a gas in a room). For MAEGLIN Phase 1, each of the component thrusts are independent from one another and no back calculations or assumptions about operating parameters of other system components are necessary.**

Q19: The range of collector concentrations given in Figure 4 for the Collection Thrust metric is 10-million fold. Two questions arise.

a. First, this doesn't jibe with the range of concentrations listed for the Separation and Identification Thrusts (10,000-fold); was this intentional or an oversight?

b. Second, the upper end of this range is 500 µg/cm<sup>3</sup> = 500 g/m<sup>3</sup>, yet the saturation vapor concentration of a fairly volatile VOC like toluene (pv = 3.78 kPa), for example, is only 141 g/m<sup>3</sup>. Thus, for vapors less volatile than toluene, this concentration is unattainable. Even water vapor at 50% RH has a concentration of 12 g/m<sup>3</sup> at 25 C and 1 atm of pressure (and, at 100% RH, it has a conc. of only 23 g/m<sup>3</sup>). For compounds whose concentrations cannot possibly reach such a high value, what is the metric for dynamic range of collection?

**A19: The Collection Thrust Area assumes a lower starting concentration of the analyte in a sample, which was determined to require 10M fold dynamic range for the potential aerosol concentration of analyte. The Separation and Identification Thrusts assumes that a pre-concentration event has already taken place, hence the 10K fold dynamic range metric. As discussed in Answer 19, the metrics for the individual component Thrust Areas are not dependent on one another. For Phase 1 each Thrust Area is viewed as a separate system and not anchored by the metrics placed on other thrust areas (excluding the Combined Thrust Areas, where the metrics are determined by the input and output capabilities of the combined system). Component assimilation and the coupling of input and output metrics will be executed in MAEGLIN Phase 2. The dynamic range for a single compound concentration is provided as a general guidance, and not the implied intent that systems are expected to address vapor concentrations physically impossible to obtain. To clarify, dynamic range has been amended to state “50 pg/cm<sup>3</sup> to up to 500 µg/cm<sup>3</sup> (or vapor saturation)”.**

Q20: The so-called “Analysis Capability” given in Figure 4 in the Identification Thrust is 10 µg/cm<sup>3</sup>. Is this concentration referring to the concentration of a target compound in the peak emanating from the Separation module for a GC-based system? If so, do we need to back calculate what this would correspond to in terms of a collected/injected mass for the Collector Module? If not, is it an environmental concentration?

**A20: Analyte concentration refers to an environmental sample concentration; see Answer 18.**

Q21: In Figure 4 for the Collection Thrust you specify a minimum of 30 minutes and a maximum of 24 hrs. Does this mean that the Collector Module must be able to operate over this entire range or that it must operate at a value within this range? That is, is it required that the collector be able to sample for 24 hrs or could it be made to have a shorter duration (provided other metrics were achieved)? Is it required to have a minimum sample collection time of 30 min or could it be longer? Can these duration limits depend on concentration of targets?

**A21: To clarify, the Collector must be able to operate for collection times as short as 30 minutes or as long as 24 hours. The collector does not have to operate continuously for 24 hours if the metrics can be met by the proposed approach. However, the collection must meet the 30 minute collection time. It is the intent of the MAEGLIN program to be able to analyze/determine gaseous analytes at a base resolution of 24 hours with the capability to collect a sample in as little as 30 minutes.**

Q22: You mention that a means for calibration must be included, but you do not specify any metrics for performance, size constraints, power constraints, etc. Can you provide these?

**A22: The MAEGLIN programs seeks to develop a fully autonomous system, therefore if a given approach requires periodic calibration, this system specific requirement must be addressed and traceable to the intent of a fully autonomous system (at end of MAEGLIN Phase 2, which will be encompassed in a separate solicitation). Since each approach would likely require tailored metrics dependent on system physics, IARPA has not issued specific metrics for any required calibration. Offerors must determine what calibrations would be needed to meet the overall system functionality goals, and how these calibration requirements would be carried out.**

Q23: For the optional interchangeable modules for 1) solid/liquid aerosols and 2) bulk solid/liquid samples, you do not specify any metrics. Can you provide them? Can power or size variances be accommodated (beyond 7.5 J/cycle and 1.5 L) and could you specify these?

**A23: The metrics of the optional modules are provided in Figure 4 (Collection Thrust Area) on page 17 of the MAEGLIN BAA, which include an additional 0.25L volume, 1 kg mass, and 7.5 J energy per analysis run on top of the base gas collector metrics for each optional module. No other metrics for these optional modules are provided, to allow offerors the maximum design space to propose solutions to the problem. Offerors are not prohibited from proposing solutions that do not meet certain metric(s) presented in the MAEGLIN BAA, but keep in mind that all solutions will be rigorously evaluated against the metrics outlined in the MAEGLIN BAA. Please note, however, that the power requirements originally published in the BAA included a is an error that has since been amended. The original power metrics of 7.5 J (threshold) and 1.5 J (goal) per analysis run are in fact 7.5 kJ and 1.5 kJ per analysis run, respectively.**

Q24: The energy per analysis metric for the Collector Thrust is 7.5 Joules/analysis. Does that include ancillary electronics for control and signal processing? Also, does it include the energy needed to generate and direct gas flow?

**A24: The energy requirements detailed in the Phase 1 MAEGLIN BAA are for all components and ancillary processes required by the proposed solution, with the exception of processor power for performing computation and signal processing. See Question 11. Please note, however, that the power requirements originally published in the BAA included an error that has since been amended. The original power metrics of 7.5 J (threshold) and 1.5 J (goal) per analysis run are in fact 7.5 kJ and 1.5 kJ per analysis run, respectively.**

Q25: In Section 1.A.4.2, the BAA states that one of the main goals of the MAEGLIN program is to be able to identify all collected components of a complex chemical mixture. Could you please specify what is meant by the term “complex chemical mixture”. Would this complex chemical mixture comprise the entire MAEGLIN Phase 1 library (50 targets, 100 interferors), or would it be a select subset, or set of subsets of this library? If it is a subset, could you please specify the anticipated number of individual target components and also the anticipated number of interferor components that would be present in this complex mixture?

**A25: The precise constituents of the complex chemical mixtures to be tested will be judiciously chosen after source selection is completed in order to fairly test all of the selected MAEGLIN technology approaches. Tests will include both varying numbers of compounds in a mixture as well as differing concentrations and mixed chemical composition, including polar, non-polar, volatile, semi-volatile compounds, and compounds with varying functional groups Offerors may assume that the maximum number of compounds in a mixture for Phase 1 testing will be more than 10, and less than 30.**

Q26: In Figure 4 for the Identification Thrust, the Limit of Identification is listed as 10 ng/cm<sup>3</sup>, but a few rows below in that same Table the Analysis Capability is listed as 10 µg/cm<sup>3</sup>. Please explain why these are two different concentrations.

**A26: The Limit of Identification is the lowest concentration of subset of neat chemicals in the Phase 1 library that contractors are expected to be able to detect and identify. It is understood at the Limit of Identification that all library compounds may not be detectable, depending on their signature strength in response to a particular analysis technique, and that 100 percent correct identification may not occur. The Analysis Capability is the concentration at which contractors are expected to be able to correctly identify all neat compounds in the Phase 1 library.**

Q27: What is the anticipated “carrier” gas for the neat compounds as they are transferred into the Identification Device from a Separation Device?

**A27: The use of a carrier gas at all, as well as its composition and flow rate, is an option left to offeror design. For offerors responding to the Identification thrust area, and requiring**

**connection to a Separation device that uses a carrier gas, please base the input gas and other flow parameters on a typical gas chromatographic column and list your assumptions.**

Q28: What is the expected “carrier” gas volume that we should anticipate? So, if there is a 10 ng/cm<sup>3</sup> concentration, but the flow is, say, 1000 cm<sup>3</sup>, then we are dealing with 10 µg of the target. Please clarify.

**A28: See Answer 27.**

Q29: Is there a possibility that IARPA would issue a list of gases that are targeted under this effort?

**A29: See Answer 7.**

Q30: Is there a possibility to extend the submission deadline, due to the proximity of the Q&As responses to the deadline?

**A30: IARPA has extended the proposal due date by two weeks. The original due date of May 10, 2016 has been moved to May 24, 2016. May 24, 2016 is the due date to assure consideration in the first round of source selections.**

Q31: Isotopes - what is the requirement in terms of unit mass resolution? Please provide more details of isotopic discrimination.

**A31: Specific metrics for the stretch goal of isotopic discrimination are not established for the MAEGLIN Phase 1 effort, since such metrics would likely limit the potential solution trade space. Offerors who propose an isotopic discrimination capability should include a clear explanation (preferably with supporting calculations) in their proposal indicating the appropriate metrics their system must meet in order to perform isotopic discrimination, and the class and mass range of the isotopes they can discriminate.**

Q32: Nuclear materials - what are the targeted chemicals? This system is for gas phase sample collection and analysis; examples of specific target compounds would be helpful.

**A32: See Answer 7. If there are specific exemplar materials that an offeror’s proposed system would be able to detect, please provide this information in the proposal.**

Q33: Page 5 of BAA says "awards based on responses to this BAA are considered to be the result of full and open competition.".....then in the cost section (page 40) there is a reference that "certified 'cost or pricing data' may be require"....inferring that cost should be prepared under TINA compliancy. These seem to be inconsistent, or or least confusing. Can you clarify?

**A33: Selection for negotiation for award will be made to offerors on the basis of the evaluation criteria, program balance, and availability of funds. The evaluation criteria, as stated in the BAA, are: Overall Scientific and Technical Merit, Effectiveness of Proposed Work Plan, Contribution and Relevance to the IARPA Mission and Program Goal, Relevant Experience and Expertise, and Resource Realism. Cost/Price is not an evaluation criterion. Contract award is subject to successful negotiations with the Government. After selection and before award, the contracting officer will determine cost/price realism and**

**reasonableness, to the extent appropriate, and negotiate the terms of the contract to include cost/price (reference BAA section 5.C). During the negotiation process, additional information and supporting data may be requested. This may include requesting certified cost and pricing data.**

Q34: Is the demonstration hardware & software a deliverable to the Government or is it to be considered lab breadboard that would remain with the Contractor?

**A34: See answer 16.**

Q35: Please confirm that it is permissible to respond to one or more of the Phase 1. "Thrust Areas" or must we respond to all three: Collection, Separation, Identification in order to be compliant?

**A35: Offerors can respond to 1 Thrust Area or respond to a Combined Thrust Area. Please refer to MAEGLIN BAA section 1.A.3.**

Q36: Please provide ambient environmental requirements for the system in the field.

**A36: For MAEGLIN Phase 1, the systems will not be evaluated in field tests. However, it is the intent of the MAEGLIN program to demonstrate a field-able capability in Phase 2 (separate solicitation), so proposed solutions should be traceable to a field-able capability with further development.**

Q37: Is remote control of the system in the field an option in addition to the requirement for remote monitoring?

**A37: As stated in the MAEGLIN BAA, all systems should track to a fully autonomous solution. For MAEGLIN Phase 1 the developed systems are not expected to be fully autonomous or remotely controlled. These aspects will be covered in MAEGLIN Phase 2 under a separate solicitation.**

Q38: Is the conversion from a gas collected by the system to a liquid in order to be analyzed by the detectors acceptable?

**A38: Conversion from gas to liquid prior to the analysis step is acceptable if the offerors are proposing an analysis methodology that utilizes the liquid phase. It is not acceptable for offerors to convert to a liquid during the collection or separation step, and not propose a method to complete the analysis in the liquid phase.**

Q39: Can proposals be submitted at any time during the open BAA period from May 10, 2016 thru September 12, 2016, with May 10th being the earliest date for submission?

**A39: Yes, proposals can be submitted at any time during the open BAA period. The original due date for the initial round of selections of May 10 has been modified to May 24. May 24, 2016 is the due date to assure consideration in the first round of source selections.**

Q40: Will a list of the 50 targets and 100 background compounds be provided to offers upon award?



**A40: The full MAEGLIN Phase 1 compound list will be made available to selected contractors following contract award.**

Q41: Depending on the kind of detection technology, the compound library may not be based on retention time or spectra. In a sensor array, the detection will be determined by the individual and overall response of each sensor in a suite of sensors that may be manifested by an optical or electronic response. The response, however, will be specific for each target compound, depending of the magnitude and responsiveness of each sensor associated within the suite of many sensors. The response will be compared to a library of compounds. Is this acceptable?

**A41: IARPA cannot comment on any specific proposed approach. All proposed solutions will be evaluated solely against the metrics outlined in the MAEGLIN BAA. Please refer to section 1.A.3 (page 12) of the MAEGLIN BAA.**

Q42: Government provided metrics for separation will not apply to certain sensor types, such as those based on differential responses from a sensor array. Is this acceptable?

**A42: Yes. As stated section 1.A.3 (page 12) of the MAEGLIN BAA offerors who propose a solution that have an integrated approach or efficiencies (e.g., do not require separation) should apply to a Combined Thrust Area.**

Q43: In several of the Thrust Area Metrics tables, Other Capabilities, it is stated that “Isotopic Analysis Desirable”. Can you provide more information as to any specific isotopes of interest, and the potential CONOPS?

**A43: Please refer to answers 7, 31, and 32.**

Q44: The BAA states that the MAEGLIN program will be structured around three separate thrust areas and that proposers can propose technical approaches to 1, 2, or all three thrust areas. With that in mind, if a proposer has a technical approach that addresses all three thrust areas, but could also be modular (i.e. the collection technical approach could be a standalone solution), is it advantageous for the proposer to submit separate proposals for each “standalone” thrust area in addition to a combined proposal? Put another way, if a proposer only submits one proposal that addresses multiple thrust areas, will their modular/standalone technical approaches also be disqualified if the entire proposal is not selected?

**A44: If the proposed solution encompasses more than one Thrust Area and the solution cannot physically be separated out into modular components, than the offeror should submit one proposal to the appropriate Combined Thrust Area. If a proposed solution encompasses multiple Thrust Areas, but the components are modular and can be physically separated into individual solutions the offeror should submit multiple proposals under each appropriate Thrust Area. If 2 or 3 proposals are submitted by a single offeror IARPA will evaluate all proposals and may fund all, some, or none based on the outcomes of those evaluations.**

Q45: Figure 4, Page 17 in IARPA-BAA-16-01: states "The output from the continued collection thrust area metric is listed as “Each gas aliquot must pass through the output orifice of the

collector at <.25 seconds.” Our question: Does the government have a specific requirement for the volume of the aliquot or a volume metric that cannot be exceeded on the gas aliquot coming from the collector?

**A45: The Government has not defined a volume metric coming from the collector in the MAEGLIN Phase 1 BAA. It was the implicit intent of IARPA not to restrict development in this area for Phase 1. Additional metrics relevant to system integration will be covered in MAEGLIN Phase 2 (covered in a separate solicitation). However, proposers should clearly identify relevant system parameters (such as the volume of the aliquot coming from the collector) in their proposal.**

Q46: At the industry day, a power spec of <5 W threshold and <1 W goal was presented. The question was asked if this was considered average power and the answer was yes from the government. Assuming one sample per day, the goal value in this case is ~86,400 J. In the latest version of the BAA, the power requirements have been changed to energy requirements with values of <7.5J threshold (<1.5 J goal) per sample. Can you confirm that this is in fact correct and comment on the disparity of the values between the industry day presentation and the release of the BAA?

**A46: The power requirements originally published in the BAA included an error that has since been amended. The original power metrics of 7.5 J (threshold) and 1.5 J (goal) per analysis run are in fact 7.5 kJ and 1.5 kJ per analysis run, respectively. Although considerably closer to the Industry Day metrics, these corrected values still do not exactly correspond to the Industry Day metrics. The metrics put forth in the BAA are the final metrics by which proposals will be evaluated against. As stated at the MAEGLIN Industry Day, all draft metrics presented by IARPA in that forum were not considered final and were subject to change prior to the release of the MAEGLIN BAA.**

Q47: 7.5 J per sample represents approximately 5400 J over the course of 2 years or 720 samples. 5400 J when mapped to a common battery form factor is approximately equivalent to 0.5 amp hours at 3 volts for the threshold. This represents a COTS lithium coin cell battery. Is this an accurate characterization of the vision of the MAEGLIN program that each component operate on the equivalent to a lithium coin cell for 2 years? It would seem that this would drastically limit the trade space given the size and mass specifications.

**A47: The power requirements originally published in the BAA included an error that has since been amended. The original power metrics of 7.5 J (threshold) and 1.5 J (goal) per analysis run are in fact 7.5 kJ and 1.5 kJ per analysis run, respectively. Please see the amended BAA for further details.**

Q48: Would a solution that meets the physical size and weight requirements but not the energy per sample requirements be considered acceptable assuming power is provided via an existing source (e.g. a COTS battery) and not some theoretical power source?

**A48: Yes. IARPA is interested in creative solutions, even if such a solution may not precisely meet all metrics detailed in the MAEGLIN BAA. Metrics are designed to guide**

**solutions to the MAEGLIN goal of developing a low SWaP chemical detection system. Proposals should clearly describe how metrics will be met and acknowledge those that will not be met with potential workarounds or justifications for not hitting a particular performance metric. However, please see question 48.**

Q49: If we are planning an integrated sampler and separation device, do we need to speak to both the collection and separation threshold?

**A49: Offerors submitting to a Combined Thrust Area must address the appropriate metrics for that trade space. Refer to MAEGLIN BAA Figure 4 Collection/Separation Combined Thrust Metrics.**

Q50: We are very concerned about the energy thresholds. Are these for the whole system or each thrust area? If we think these values are unobtainable, should we state this in our proposal or no bid?

**A50: Energy thresholds are intended for each individual component (Thrust Area). However, please see question 47.**