

Astrophysics Explorer 2019
Concept Study Step-2 Questions & Answers

| Change Log | | |
|-------------------|-------------|--------------------------------|
| Rev. | Date | Description of Changes |
| 01 | 5/27/2020 | Added Q&A 1-6 |
| 02 | 6/4/2020 | Added Q&A 7 |
| 03 | 6/22/2020 | Added Q&A 8 and 9 |
| 04 | 6/30/2020 | Added Q&A 10 and revised Q&A 9 |
| 05 | 8/5/2020 | Added Q&A 11 |
| 06 | 9/17/2020 | Added Q&A 12 and 13 |
| 07 | 10/30/2020 | Added Q&A 14 |
| 08 | 12/8/2020 | Added Q&A 15 |
| 09 | 2/3/2021 | Added Q&A 16 |
| 10 | 2/4/2021 | Added Q&A 17 |
| 11 | 2/18/2021 | Added Q&A 18 |

Q1: Compared with previous Astrophysics Concept Study Reports (as well as Step 1 of this AO), the required lines per page (48) has decreased by ~ 13%. Will the page limit be increased correspondingly?

A1: Requirement CS-3 in the CSR Guidelines was updated to change the text requirement from 48 lines per page to 55 lines per page.

Q2: What does “column marking” mean in Requirement CS-17 in the CSR Guidelines?

A2: In Section D, Science Investigation, a vertical mark should be placed in the margin beside any text that has changed from the Step 1 proposal. A number may be added beside the vertical marking to show the corresponding part of the change matrix that is required as Appendix L.17.

Q3: Where technologies are proposed that are not yet mature to TRL 6, is the proposed backup plan evaluated against the baseline science?

A3: Yes. TMC only considers the Baseline Science Mission (see Section 5.1.4 of the 2019 Small Explorers Program AO and Section 5.2.4 of the PEA) when evaluating the CSRs. Backup plans are required for technology not yet at TRL 6, and TMC evaluates those plans against the Baseline Science Mission. Proposals generally include less-mature technologies to enable more ambitious baseline science. A team proposing less-mature technology should make its best case for the approach to maturing that technology, and its best argument that the backup technology will produce science that will also meet the baseline, or will produce science only slightly degraded from the baseline. Factor B-4 of the Science Implementation review considers the backup plans in the context of the threshold mission.

Q4: How is the threshold science mission assessed?

A4: Requirement B-18 of the SMEX AO and the SALMON-3 defines the threshold science mission as the "minimum acceptable data and scientific return for the mission, below which the mission would not be worth pursuing". The scientific value of the Threshold Mission is considered in the Form A review. In the Science Implementation review, factor B-4 assesses "the approach to descoping the Baseline Science Mission to the Threshold Science Mission" if development problems force a reduction in scope, while the maturity of both baseline and threshold Level 1 science requirements are assessed under Factor B-8 in the Concept Study Guidelines. Requirement CS-18 specifies that draft mission success criteria should be based on the threshold science requirements.

Q5: Has the NASA Point Of Contact (POC) listed in the NASA’s Space Communications and Navigation (SCaN) Mission Operations and Communications Services (MOCS) document changed?

A5: Yes, the new POC is Jerry Mason (NIMO Office Chief). Phone:(301) 286-9515
Email: jerry.l.mason@nasa.gov

Q6: Has the NASA Point Of Contact (POC) for the ISS Research Integration Office changed?

A6: Yes, the new POC is Brandon Reddell, PhD. Phone:(713) 737-5918 Email:
brandon.d.reddell@nasa.gov. This change will be reflected in the CSR Guidelines.

Q7: Has a further document been provided in the SMEX and MO Program Libraries to provide more information on Protecting SMD Spaceborne assets?

A7: Yes, the document “FAQs for Protecting Spaceborne Assets“can be found under the heading “Documents Referenced by CSR Guidelines (for Step 2)”.

Q8: Are templates provided for all the Microsoft Excel files that are required to be submitted with the CSR document?

A8: Microsoft Excel templates for the Science Traceability Matrix and the Mission Traceability Matrix, the cost tables 3a/3b, the MEL and the conflicted party list are provided in the Program Library. Excel templates are not provided for the other cost tables required in Sections J and K of the CSR Guidelines.

Q9: In light of the impacts of COVID-19 on communications, access to modeling tools, access to lab resources, government facilities, and other considerations prioritizing team health, could additional time be provided for CSR development?

A9: Yes. Due to the impacts of COVID-19, NASA will extend the CSR due date from December 17, 2020 to March 4, 2021. The Launch Readiness Date (LRD) will also be moved to the end of FY2025. The CSR Guidelines will be updated to reflect these changes. *The draft list of the CSR participants that is required three months prior to the due date of the CSR will now be due by December 4th, 2020. (revised 06/30/2020)*

Q10: Section 5.2.4 of the MO PEA states that “NASA intends to assume that all selected Astrophysics missions will offer a Participating Scientist or Guest Investigator Program” and that “proposals should only describe SEOs other than Participating Scientist, Guest Investigator, or Data Analysis Programs.” Is a MO team required to cost out a Guest Investigator (or equivalent) program in the CSR? Do we also need to provide justification for such a program?

A10: The requirements for SEOs are intended to be the same for the MO as for the SMEX: Section 5.1.5 of the SMEX AO states that "Activities such as extended missions, guest investigator programs, general observer programs, participating scientist programs, interdisciplinary scientist programs, and/or archival data analysis programs, where appropriate, have the potential to broaden the scientific impact of investigations. These and other optional activities may be proposed as Science Enhancement Options (SEOs). ... NASA assumes that one or more of the activities specified above will be proposed, even after down-selection, so SEOs need only to be described in proposals if they are atypical (e.g. a guest investigator program that is envisioned to be significantly larger than the historical norm)." A guest investigator or participating scientist program during the prime mission is not considered atypical.

Q11: The NASA SMD Launch Vehicle Secondary Payload Adapter Rideshare Users Guide (2020 SMD ESPA RUG EVM-3, dated 2020-06-02) in the Earth Venture Mission-3 (EVM-3) acquisition program library (at https://essp.larc.nasa.gov/EVM-3/evm-3_library.html) differs from the Rideshare Users Guide "2019-04-01 2019 Astro ESPA RUG" in the 2019 Astro MO program library. Does the newer document better reflect the likely requirements that will be imposed on a rideshare payload?

A11: The newer document 2020 SMD ESPA RUG EVM-3 updates some reference documents, and includes small changes such as a slightly wider range of allowed temperatures in the integration facility, and a warning that rideshare payloads may face stricter contamination requirements. The ground rules and assumptions provided in the new document are likely a better guide to what will be required when manifesting a rideshare payload, but the Concept Study will be evaluated against the 2019-04-01 document provided when the AO was released. However, as stated in the 2019 Astro ESPA RUG section 1.2, "specific interface requirements and generic environment definitions will not be formalized until the launch vehicle contractor and primary observatory have been selected and the mission integration cycle has begun. It is critical that secondary payloads carry additional margins to account for any associated applicable uncertainty".

Q12: Are the mission unique payload isolation system, the Class 100K integration environment, and the T-0 pure GN2 purge included as part of the NASA-provided launch services and not charged against the PI Managed Mission Cost (PIMMC) under the cost cap?

A12: The mission unique payload isolation system, Class 100k integration environment and T-0 GN2 purge are services that are available on the NASA-provided launch services contract and are outside the PIMMC and AO cost cap.

Q13: Will NASA provide a Coupled Loads Analysis (CLA) for the SMEX concept missions based on potential launch vehicles?

A13: LSP is able to perform NASA-provided CLA for the SMEX concept missions at no charge to the PI Managed Cost Cap, if the spacecraft model is provided in the requisite format and if the requested CLA can be accommodated within the analysis staff workload. Study teams for the SMEX payloads should coordinate a request for CLA with Mr. Chuong Nguyen at NASA KSC.

Q14: The Concept Study Guidelines state that all changes to the science section between the CSR and the original proposal, apart from minor updates (typos, references, clarifications) must be tracked with bold or highlighted text, with a bar alongside the text. Does this apply even to information that does not change the science objectives or baseline/threshold mission, but has bearing on the execution of the science mission?

A14: Yes, even information that does not change the baseline and/or threshold mission, science objectives, or any major measurement requirement must be tracked with bold or highlighted text, with a bar alongside the text. The only exceptions are given in requirement CS-17: for corrections and nominal updates that do not constitute a change to the proposed science mission. The section may carry a statement to the effect that the baseline and threshold mission, science objectives, and major measurement requirements have not changed.

Q15: How should impacts of COVID-19 be treated in preparing the Concept Study Reports? For example, are projects required to hold additional reserves to mitigate future effects of COVID-19?

A15: The Concept Study report should be based on vendor quotes and schedules as they are available during the study period. If a study team believes that COVID-19 has significantly affected those quotes and schedules, this should be noted in the Study Report. Any COVID-19 impacts in Phase B and beyond will be addressed after the down-selection: projects are not expected to hold additional reserves of budget or schedule to accommodate those future impacts.

Q16: Will two signed, original, hardcopies of the CSR need to be submitted given the continuing COVID-19 pandemic situation?

A16: Due to the ongoing pandemic, the requirement to submit two signed, original, hardcopies of the Concept Study Reports is waived.

Q17: Some Space Communications and Navigation (SCaN) requirements cost estimates are higher than the estimates that CSR teams were given for their Step-1 proposals, in part because of new requirements imposed on SCaN. Is it appropriate to exclude costs arising from those new requirements from the PI-managed cost cap?

A17: Requirement 28 of the 2019 SMEX AO and requirement 47 of SALMON-3 state that costs for NASA's network services (excluding DSN Aperture Fees) must be included in the PI-Managed Mission Cost and the proposal's cost plan.

Q18: Please confirm that the Phase B Contract Implementation Data is not due until the Site Visit.

A18: The answer is institution dependent:

- Because the Explorers Program Office does not issue contracts to NASA Centers, these institutions are not required to address Appendix L.4 Phase B Contract Implementation Data.
- Because of constraints on modifications to JPL task orders, missions for which the Explorers Program Office awarded the institution Phase A task orders are required to provide draft Phase B task plans, which will facilitate modification of the applicable JPL task order(s) upon down-selection. These are not required until each mission's Site Visit.
- Institutions to which the Explorers Program Office awarded a Phase A contract will be required to provide Appendix L.4 Phase B Contract Implementation Data. However, this may be delayed from CSR submission to each mission's Site Visit.