Proposal Preparation and Submission

1. **Q:** Regarding 4.4.6.20 Project Management Plan (PMP), Control Plans can be part of PMP or separate stand-alone documents that are referenced. Are the Control Plans part of the PMP page limit if they are referenced as standalone documents?

   **A:** Control Plans that are incorporated as part of the PMP are subject to the PMP page count limit. Control Plans implemented as stand-alone documents that are not otherwise listed as required proposal attachments in Table 3 should not be included with proposals. In such cases, sufficient descriptions of the content of these Control Plans should be included in the PMP to fulfill the requirements of section 4.4.6.20.

2. **Q:** Please confirm that for the proposal submittal, Offerors are required to provide the cover sheets, but not the complete alternate standards?

   **A:** As provided in BAA section 4.4.6.27, the Offeror shall provide complete alternate standards as part of its proposal Attachment 27.

3. **Q:** For Attachment 27 of the proposal submittal, is it correct to assume that Offerors are required to only provide a mapping of the NASA standards to our Alternate standards, and not provide the complete text of the Alternate standards?

   **A:** As specified in BAA section 4.4.6.27, Proposed Alternate Standards and Approaches, in its Proposed Alternate Standards and Approaches proposal attachment, "the Offeror shall identify each instance in which it is proposing to not follow one of the NASA standards, and then provide the proposed alternate standard or approach that the Offeror will follow instead.... Offerors should use all proposed alternate standards and approaches, as well as any NASA standards that they plan to meet or exceed, to determine their FFP. In addition, the Offeror’s overall technical approach in Volume I and related technical proposal attachments should reflect its proposed use of alternate standards and approaches, and should specifically reference these items when doing so would add clarity to the proposal overall"

4. **Q:** When an offeror submits a type 2 document per the DRD such as the System Specification with the proposal, when does the 21 days go into effect for the NASA review?

   **A:** The clock begins on the NASA review time at Authority to Proceed (ATP) plus 21 days, which will not occur until after contract award as notified by the Contracting Officer.

5. **Q:** FAR 1852.232-77 Limitation of Funds (Fixed-Price Contract) (Mar 1989) states that additional funds will be allocated to the contract in accordance with a schedule. The funding schedule is not provided. Will NASA provide funding in accordance with the Performance-
Based Milestone schedule to ensure timely funding is provided to support continued
performance?

A: Per the main body of the BAA, section 4.4.6.13, Offeror-proposed milestone payments are
included as part of filling in solicitation Attachment O to be provided as Attachment 13 to the
proposal. For any contract that it awards, NASA will complete the required contract fill-ins at
time of award. Offerors should read the clause in its entirety, as it sets forth the rights and
responsibilities of both parties.

6. Q: Can NASA define the term "Mandatory Interim" milestone for the Option A payment table
for the Critical Design Review (CDR) milestone and whether not meeting a later milestone
provides NASA a claw back for that specific milestone?

A: The main body of the BAA, section 4.4.6.13, describes Interim Milestones. Offeror-proposed
milestone payments are included as part of filling in solicitation Attachment O to be provided as
Attachment 13 to the proposal. As a "Mandatory Interim" milestone, CDR must be included as a
milestone in Attachment 13 to the proposal.

7. Q: From 4.4.6.26 Responsibility Determination Information: The final BAA breaks out required
additional supporting information in two separate lists depending upon whether a Privately or
Publicly-Held company. There appears to be an error on page 48 as “Privately-Held” is listed
twice, once as “Privately-Held” and once as “Publicly or Privately-Held”. Please clarify if both
lists of additional supporting information is required for privately-held companies or if the
second list of additional supporting information applies only to a publicly-held company?

A: This is not an error. The first list applies only to privately-held companies. The second list
applies regardless if a company is publicly or privately held (i.e., applies to all offerors regardless
of ownership status).

8. Q: The model contract contains various yellow-highlighted sections as well as multiple "TBP"
fields. Does NASA intend for offerors to fill out those sections of the model contract when it is
returned with the proposal? Or, will NASA fill out those sections based on information in the
other sections of the offerors proposal?

A: Yes, Offerors are to fill out these TBP (To Be Proposed) areas.

9. Q: BAA section 4.4.1 Title page, final bullet, requires "Name, title, and signature of person
authorized to sign the proposal. Proposals signed by an agent shall be accompanied by
evidence of that agent’s authority, unless that evidence has been previously furnished to the
issuing office." What value does a signed proposal title page add when offerors are also
providing a signed model contract? What kind of "evidence of that agent’s authority" would
NASA find acceptable? Recommend removing this requirement.

A: The title page is another source to locate required information from the offeror, even though
it may be duplicated in other documents. The Offeror shall self-certify their authority to sign on
behalf of the company. NASA may verify that authority through other methods.

10. Q: Attachment D specifically defines “un-reimbursed” as “not funded in any way by the U.S.
Government.” Company equipment and facilities are typically depreciated as well as included
in our overhead rates. Can we assume that equipment and facilities described above, are “un-reimbursed” and therefore allowable in the corporate contribution worksheet?

A: As noted in section 3.2.5 of the Omnibus BAA, for equipment or facility use, corporate contribution should be based on “Fair Market Value” (e.g. equivalent equipment or facility rental/lease rates for the period of use) with the contributions for the space or equipment limited to that necessary for the proposed effort.

**Government-Furnished Resources and Collaboration**

11. Q: Unclear how to quantify NASA FTE needs. Are GTAs required to access NASA FTEs for collaboration?

A: As provided in contract section H clause Use of Government Resources, the Offeror shall document its initial requested approach to collaboration in its Collaboration Plan. GTAs are not required to access NASA FTEs for collaboration.

12. Q: Attachment E, Model Contract Clause – Use of Government Resources Clause: "While collaborative communication between the Contractor and EPs provided is expected in furtherance of the EP's advisory roles, Contractor shall not direct or supervise the work of EPs." Please clarify the role of NASA in collaboration. Is it purely to function in an advisory role or can we assign work products?

A: NASA will make a collaborative workforce available to assist with the design, development, testing, and etc. The contractor will be responsible all elements of contract performance. NASA can be in an advisory role but the collaborative function can be more than just advisory. For example, NASA can assist in design of components, integrated analysis, developing test plans, and/or helping to solve technical problems that arise throughout DDT&E. The supervisory function of the EP will be retained by the NASA supervisor. The identification of the day to day work to be performed by the EP is at the discretion of and defined by the contractor. NASA EP will use the processes and standards agreed to with the contractor. The contractor has sole responsibility for the products and delivery. NASA and the Contractor shall actively ensure the government is not on the critical path of a contractor deliverable or end item. This includes both hardware and software deliverables. Examples of acceptable Collaboration products/tasks include but are not limited to: design and construction standard review and disposition, performing trade studies, engineering expertise, engineering analyses supporting DDT&E, generation of plans, procedures, active participation in contractor’s IDTs, performing independent modeling/analysis as IV&V function, and tool development/enhancement for contractor use (e.g. COPERNICUS updates).

The quoted language is primarily establishing that, despite any collaboration that may occur under the contract, all EP will remain in their normal supervisory chain, and will not report directly to, or be formally supervised by, the contractor. If appropriate NASA personnel, including but not limited to the EP’s supervisor, determine that it is contractually appropriate and otherwise in NASA’s best interest to have the EP follow discrete directions or requests from the contractor, such activities are not prohibited by the contract.
13. Q: In terms of the following hardware items, please clarify whether these items are standalone equipment requiring storage only, or whether they are to be integrated into our vehicle via power or other interfaces? If standalone, we can afford to receive the equipment later. If the equipment requires integration into our vehicle, we need it much earlier.

- Radiation Detection
- Crew Health Monitoring
- Potable Water Dispenser
- Food Warmer
- Sample Return Equipment
- Science Equipment

A:

- Radiation Detection – The radiation detector will require connection to the vehicle for power and data. However, it is not intended to be hard mounted. We expect a soft stow during launch. Crew would retrieve and plug into vehicle port.
- Crew Health Monitoring – Not an item on either mandatory or optional GFE lists.
- Potable Water Dispenser - The Potable Water Dispenser is an optional piece of GFE equipment. If included, it would be integrated with the vehicle and would require interface with the potable water system.
- Food Warmer – The Food Warmer is an optional piece of GFE equipment. If included, it will require connection to the vehicle for power. However, it is not intended to be hard mounted. We expect a soft stow during launch. Crew would retrieve and plug into vehicle port. Food warmer requires 3.4 A at 120V.
- Sample Return Equipment – Sample return equipment may be hard mounted to the vehicle but would require no integration with vehicle systems.
- Science Equipment – Science equipment will not be hard mounted. Items will be soft stowed. No integration is required with vehicle systems.

14. Q: Please clarify the meaning of “Operational Supplies” on the GFE list.

A: ‘Operational Supplies’ includes items that NASA may supply as GFE and which may be utilized by astronauts to support HLS mission operations. The listed mass is an allocation and a final list of items will be established prior to the mission. Items could include: electronic tablets, manuals, check lists, etc.

15. Q: Is the NASA-provided food expected to be non-perishable? If not, what is the shelf-life?

A: The NASA food will be shelf stable. As long as the packaging remains intact it should remain microbiologically safe. The nutrition and quality will degrade over time. Once NASA provides it, shelf life is 1.5 years based on current technology.

16. Q: USE OF GOVERNMENT RESOURCES includes "The Contractor shall be responsible for the cost of any such GTA, and the Parties shall effectuate the addition of new GTAs, and corresponding contract price adjustments, pursuant to FAR 52.243-1 – Changes – Fixed-Price (ALT I) as incorporated herein."
For new GTAs not included in the proposal, if the contractor is paying for the GTA/center services, what contract price adjustment would be made?

A: NASA intends to fund the cost of GTAs entered into during contract performance by transferring funds directly to the relevant Center or Centers. As such, NASA (and not the contractor) will bear the cost for those services. For GTAs submitted with an Offeror’s proposal, NASA will make an upward price adjustment for evaluation purposes only to the Offeror’s proposed price to account for the total cost to the Agency when making its selection. However, after award, the contractor must be responsible for the cost of such subsequent GTAs. This will be effectuated via a downward contract price adjustment to account for such costs.

17. Q: In Attachment I, there are a couple overlapping terms that should be spelled out so it is clear what equipment is included, in particular “xEMU” and “Mounted Interfaces & Equipment.”

A: “xEMU” includes pressure garment, portable life support, and informatics subsystems. “Mounted Interfaces & Equipment” includes wall mounted rack to provide xEMU utilities (ie: VIE, don/doff, and crew restraint).

18. Q: List of GFE (Table 8 and 9 of HLS-RQMT-001) is not detailed, limiting the ability to integrate hardware. Provide details on food (hydrated or dehydrated), food warmer (interfaces, power), WMS, WMS consumables.

A: The food system NASA plans to provide will be based on NASA Nutritional Guidelines, crew preferences and will be a combination of hydrated (thermostabilized) and dehydrated foods. Hot food remains desirable but not a requirement. The food system currently has interfaces with the NASA potable water dispenser.

19. Q: What is included in the GFE list of EVA Radio? Does this include all UHF communication equipment including antenna for the HLS Lander, in addition to the EMU RF equipment? What is mass, power, & thermal budget for this UHF comm subsystem?

A: The GFE list for the EVA Comm system is given below and includes the EVA/IVA radio, cable assembly, switches, and antenna assembly.

- EVA/IVA Radio Qty: 2; 9.20kg total
- EVA Antenna Assembly Qty: 2; 2.30kg total
- EVA Switches Qty: 2; 2.30kg total
- EVA Cable Assembly Qty: 2; 2.30 total
- External and Internal Wireless Comms Qty: 2; 10.00kg total

Does this include all UHF communication equipment including antenna for the HLS Lander, in addition to the EMU RF equipment? Yes, EVA UHF equipment listed above on the HLS Lander; xEMU RF equipment is part of the suit. The HLS Lander vendor may choose to use their own UHF antenna and cable assembly, switches, etc. that is optimized for the vendor’s specific vehicle configuration to interface with the GFE provided EVA/IVA radio on the lander. The xEMU RF equipment on the suit also communicates with an external and internal wireless...
A communication system that is on the HLS Lander to exchange high rate wireless data between the xEMU and HLS.

What is mass, power, & thermal budget for this UHF comm subsystem? Mass is listed above, Power is listed in EVA-EXP-0067 HLS to xEVA System IRCD. The thermal budget is TBD on the HLS lander – analysis would need to be performed based on where and how it is mounted.

20. Q: Can NASA specifically define the details of xEMU ancillary equipment listed in Appendix I? Can NASA provide power, data, mass and volume details?

A: More information regarding the xEMU Ancillary Equipment referenced in Attachment I - GFE-GFP List can be found in Attachment F, EVA-EXP-0067 HLS xEVA IRCD, section 3.4.2.2 EVA Logistics, Spares and Tools Stowage: "EVA ancillary equipment and spares include EVA hardware such as HUT hatches, gloves, drink bags, and MAGs. The amount of logistics/spares and what type of spares are dependent on the frequency of EVAs." Power, data, and volume details are also in EVA-EXP-0067. Mass is provided in the HLS-RQMT-001 SRD HLS-R-0318.

21. Q: Can NASA specifically define the details of mounted interfaces and equipment listed in Appendix I?

A: More details of EVA Mounted Interfaces & Equipment from Attachment I - GFE-GFP List can be found in Attachment F, throughout document EVA-EXP-0067 HLS xEVA IRCD. Mass is provided in the HLS-RQMT-001 SRD HLS-R-0318.

22. Q: Can NASA provide details on the Waste Management System? Can NASA provide power, data, mass and volume details? Also interfaces to ECLSS systems?

A: The following is an initial mass and volume estimate for a partial gravity WMS, based upon initial designs performed by NASA for Altair. Specific elements and the mass allocations are subject to change as NASA advances the WMS design.

<table>
<thead>
<tr>
<th>3.2.1</th>
<th>WMS Structure</th>
<th>9</th>
<th>15%</th>
<th>1.35</th>
<th>10.35</th>
<th>0.014</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2.2</td>
<td>WMS Fan, Urine Vent Valves</td>
<td>4.9</td>
<td>15%</td>
<td>0.74</td>
<td>5.64</td>
<td>0.017</td>
</tr>
<tr>
<td>3.2.3</td>
<td>Urine Tank</td>
<td>7.5</td>
<td>15%</td>
<td>1.13</td>
<td>8.63</td>
<td>0.009</td>
</tr>
<tr>
<td>3.2.4</td>
<td>Odor Filter</td>
<td>2.2</td>
<td>15%</td>
<td>0.33</td>
<td>2.53</td>
<td>0.001</td>
</tr>
<tr>
<td>3.2.5</td>
<td>Restraints or Mobility Aids</td>
<td>1.5</td>
<td>15%</td>
<td>0.23</td>
<td>1.73</td>
<td>0</td>
</tr>
<tr>
<td>3.2.6</td>
<td>Fecal Containers</td>
<td>1.1</td>
<td>15%</td>
<td>0.17</td>
<td>1.27</td>
<td>0</td>
</tr>
<tr>
<td>3.2.7</td>
<td>Urine Funnels</td>
<td>0.3</td>
<td>15%</td>
<td>0.05</td>
<td>0.35</td>
<td>0</td>
</tr>
<tr>
<td>3.2.8</td>
<td>Urine Hose</td>
<td>0.68</td>
<td>15%</td>
<td>0.1</td>
<td>0.78</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>31.26</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

No interface is required to the ECLSS system. However, a vacuum vent for urine will be required.
23. Q: Can NASA provide details on food system and food mass?
   A: The mass for the food can be found in:
   - HLS-R-0318 HLS Operations Mass Delivery from Lunar Orbit – Initial
   - HLS-R-0319 HLS Operations Mass Delivery Return to Lunar Orbit – Initial

24. Q: What is included in the Sample Return Equipment?
   A: The sample return tool suite concept and definition is in work. This is being led by the Astromaterials Research and Exploration Science division and eventually our EVA Tools SMEs once they have refined the science objectives and worked out requirements from a sample curation perspective.

25. Q: Regarding 1852.204-75 SECURITY CLASSIFICATION REQUIREMENTS (SEP 1989), What type of information is anticipated to be classified? Which type of personnel should have TS/SCI clearances to perform contract work? Specific types of engineers (e.g. mechanical, avionics, software?)? Contracts and legal professionals? Would NASA please validate that, at this time, for this proposal, offerors have no requirement to hold or process any classified material/data, i.e. Confidential / Secret / Top Secret (not to be confused with an SBU classification)? And furthermore, as a result of not having this requirement, there is no need to provide any information on the DD254?
   A: At this time, the only anticipated need is for awarded contractors to be able to receive Threat Assessments from the Ground Operations Security Team.

26. Q: Regarding 52.227-14 Rights in Data-General (Deviated), If a contractor has spent and continues to spend significant amounts of its own money for development, would NASA be willing to consider either, in a situation where such contractor is not bidding on a particular mission, a license to NASA under which such contractor receives from NASA or the bid-winner, a reasonable license fee reflective of the amount invested for the development, and solely for that mission?
   A: NASA will handle data rights in accordance with the contract’s terms and provisions, including but not limited to the 52.227-14 clause. An Offeror may elect to calculate its firm fixed price for its HLS proposal to reflect any investment the Offeror feels it has made in development of one or more HLS components. In addition, pursuant to the Rights in Data – General clause, Offerors may elect to deliver technical data or computer software to the Government with less than either unlimited rights or government purpose rights if such data or software was, or will be, developed exclusively at the Offeror’s expense.

27. Q: Is the GPR that NASA seeks limited to the 5 year DoD expiration or is it a GPR perpetual license? Why is NASA adding a DoD Disclosure of Information clause which is typically used for unclassified but sensitive data on SCG covered programs?
A: The GPR license functions as specified in the HLS model contract’s 52.227-14 Rights in Data – General (Deviated) clause.

28. Q: Can Appendix H Offerors also pursue separate Space Act Agreements (SAAs), either reimbursable or non-reimbursable, for work related to the 2024 or 2026 Human Landing System development or demonstration missions?

A: No. Offerors should propose all planned Appendix H work in accordance with the BAA, which does not include provisions for a Space Act Agreement.

**Liability**

29. Q: Model K, 1852.228-76 CROSS-WAIVER OF LIABILITY FOR INTERNATIONAL SPACE STATION ACTIVITIES (OCT 2012) (DEVIATED) and 1852.228-78 CROSS-WAIVER OF LIABILITY FOR SCIENCE OR SPACE EXPLORATION ACTIVITIES UNRELATED TO THE INTERNATIONAL SPACE STATION (OCT 2012) (DEVIATED)

With respect to insurance requirement:

- Please specifically identify which USG property the insurance is intended to cover.
  - If this definition includes HLS cargo on contractor's transfer vehicle, is this the total mission cargo amount? Or for each stage of the mission (E.g. stage 1, to Gateway; stage 2, to the moon, etc.).
- Since both insurance paragraphs state they are in operation throughout contract performance, is it the intent that the contractor must obtain a total of $200M insurance? Or $100M total. Please note insurers only insure cargo to amount/value of the cargo and cargo must be identified.
- Will contractors be able to assess claimed damage/loss?

A:

- Please specifically identify which USG property the insurance is intended to cover.

NASA cannot discretely list the universe of possible types of U.S. Government property that must be covered by this insurance. The insurance must cover any U.S. Government property that could be damaged by the Contractor while the Contractor is performing Protected Space Operations, as that term is defined by the cross-waiver clauses. For example, if the Contractor is on-site at a NASA facility performing HLS development work that is not covered by an FAA license, and in doing so, the Contractor damages NASA property (real or personal), the insurance required by the cross-waiver clauses must cover such damage.

As specified in the clauses, the only exceptions to this insurance requirement are: (1) damage to Orion on-orbit; (2) damage to Gateway element(s) on-orbit; (3) damage or loss resulting from the willful misconduct of the Government or its employees; or (4) damage to U.S. Government property that is otherwise covered pursuant to the insurance required for FAA licensing.
If this definition includes HLS cargo on contractor's transfer vehicle, is this the total mission cargo amount? Or for each stage of the mission (e.g. stage 1, to Gateway; stage 2, to the moon, etc.).

The U.S. Government property contemplated by the clauses does not exclude HLS cargo that is otherwise the property of the U.S. Government.

• Since both insurance paragraphs state they are in operation throughout contract performance, is it the intent that the contractor must obtain a total of $200M insurance? Or $100M total. Please note insurers only insure cargo to amount/value of the cargo and cargo must be identified.

One cross-waiver clause is intended to apply to HLS Contractors that will interface with and dock to Gateway during performance of its HLS demonstration mission. The other cross-waiver clause is intended to apply to contractors that will not interface with or dock to Gateway during performance of its HLS demonstration mission and will instead dock with Orion. Contractors are only required to obtain a total of $100M in insurance coverage total in order to comply with these contract clauses.

• Will contractors be able to assess claimed damage/loss?

The Contractor's insurer is responsible for assessing claimed damages or losses.

30. Q: DELIVERY OF DATA AND HARDWARE IN THE EVENT OF TERMINATION FOR CONVENIENCE OR DEFAULT

This clause states in part "In the event of a termination for the convenience of the Government, or a termination for default, the Government may elect to take title to and request delivery of any items specified in subsections (i) and (ii) of that clause, as well as any: (1) completed or partially-completed work not previously delivered to, and accepted by, the Government, including, but not limited to, any partially completed draft technical data packages, computer software, and computer software documentation otherwise required as deliverables under this contract, and any hardware developed during the performance of this contract, regardless of whether the Contractor would have been required to deliver such hardware; and (2) other property specifically produced or acquired for the terminated or non-terminated portion of this contract, including, but not limited to, any long lead hardware or software items, or components thereof, procured under any CLIN of this contract."

• Will the contractor be provided compensation for the USG's taking title of the items above which go well beyond the requirements of standard FAR Termination for Convenience and Default clauses?
• What protection will be provided to the contractor's intellectual property contained therein--especially for hardware/software that is not required to be delivered under the contract.
• Will refusals to deliver hardware/software be handled under the Disputes clause?

A:
• Will the contractor be provided compensation for the USG’s taking title of the items above which go well beyond the requirements of standard FAR Termination for Convenience and Default clauses?

In the event that the Government elects to take title to any of the items enumerated in this contract clause, the Contractor may be compensated in accordance with the payment provisions of either 52.249-2 or 52.249-9, as appropriate.

• What protection will be provided to the contractor’s intellectual property contained therein—especially for hardware/software that is not required to be delivered under the contract.

In the event that the Government elects to take title to any of the items enumerated in this contract clause, 52.227-14 – Rights in Data – General will generally govern the Parties’ intellectual property rights.

• Will refusals to deliver hardware/software be handled under the Disputes clause?

The Contractor’s refusal to deliver hardware or software as required by the Delivery of Data and Hardware in the Event of Termination for Convenience or Default clause will be handled in accordance with the procedures specified in either 52.249-2 or 52.249-9, as appropriate.

31. Q: INSURANCE FOR HARM TO U.S. GOVERNMENT ASTRONAUTS

This clause requires, in part, for the contractor to obtain $5M of ‘personal liability’ insurance per occurrence and $5M in aggregate annually to compensate for harm to USG Astronauts, sustained during contractor’s performance of mission activities with "harm" defined as

"(i) Bodily injury to, impairment of health of, or death of, any U.S. Government astronaut;

(ii) Damage to, loss of, or loss of use of, any U.S. Government astronaut personal property;

(iii) Other direct, indirect, or consequential damage to any U.S. Government astronaut."

• Please note, clarification is needed regarding the property that’s covered because a policy for an Astronaut’s injury or death will be distinct from a property/cargo policy (since this property is in space and treated differently).

• Will contractors have access to the Astronaut’s medical records to assess their injuries, including pre-existing conditions?

• Will contractors have access to the Astronauts to conduct assessments of their injuries?

• For what period after the mission will Astronauts have the right to make claims? I.e. can an Astronaut make a claim 4 years later for latent injuries?

• How will NASA determine that injuries occurred during “mission activities”?

• Is there a limit on the value of Astro personal property?

• Will contractors be able to inspect when damage claims are made?

• For this clause, does USG Astronaut personal property mean the Astronaut-owned private property?
• If the insurance is to cover harm during mission activities, why must contract maintain such insurance throughout the performance of the contract instead of during the mission activities?
• Why are Astronauts not considered a "user" and covered under an applicable cross-waiver clause?

A:
• Please note, clarification is needed regarding the property that’s covered because a policy for an Astronaut’s injury or death will be distinct from a property/cargo policy (since this property is in space and treated differently).

NASA has amended the Insurance for Harm to U.S. Government Astronauts clause to narrow the definition of harm to exclude damage to, loss of, or loss of use of, any U.S. Government astronaut personal property; as well as other direct, indirect, or consequential damage to any U.S. Government astronaut.

• Will contractors have access to the Astronaut’s medical records to assess their injuries, including pre-existing conditions?
If, during contract performance, NASA determines that it is necessary to provide access to any U.S. Government astronaut information in order for the Contractor to obtain the required insurance coverage, NASA will coordinate as needed with the Contractor’s insurer.

• Will contractors have access to the Astronauts to conduct assessments of their injuries?
The Contractor’s insurer is responsible for assessing claimed damages or losses.

• For what period after the mission will Astronauts have the right to make claims? I.e. can an Astronaut make a claim 4 years later for latent injuries?
No; astronauts will have one year after the completion of mission activities in which to make a claim under this insurance policy.

• How will NASA determine that injuries occurred during “mission activities”?
The Contractor’s insurer is responsible for assessing claimed damages or losses.

32. Q: Pages 53-54 of Model Contract and 34 of SOW. Model contract indicates that partial mission success is defined as achieving all primary objectives and failing to achieve one or more secondary objectives as defined in the SOW. The SOW identifies only a single secondary mission objective. Is it correct that there is only one secondary objective?
A: Yes, that is correct.

33. Q: Pages 53-54 of Model Contract and 34 of SOW. The model contract mission success criteria along with SOW statements on primary and secondary demonstration mission objectives indicates that a provider could safely complete a lunar surface demonstration, safely complete a surface EVA, and safely dispose of the HLS, yet be decremented 50% of the final milestone payment due to a partial mission success evaluation by the CO if they failed to return a lunar sample. Is this NASA’s intended mission success definition?
34. Q: Delivery of Data and Hardware in the Event of Termination for Convenience or Default clause conflicts with the FAR 52.249-2 Termination of Convenience clause that allows Contractors to address as part of the settlement cost to the Government.

A: These clauses do not conflict with one another, they work together. The terms and conditions that apply in the event of default or termination for convenience pursuant to 52.249-2 or 52.249-9 are still applicable if the Government, pursuant to the Delivery of Data and Hardware in the Event of Termination for Convenience or Default clause, elects to take title to and request delivery of any of the items enumerated in paragraphs (1) - (4) of the clause.

35. Q: Mission Success Determination clause- it is not clear if the mission success determination takes precedence over paragraph (e) of FAR 52.246-4, Inspection of Services-Fixed-Price, such that re-performance of service is not required. Please clarify if reperformance of service is required.

A: The contract does not contain FAR 52.246-4, it contains 52.246-7 Inspection of Research and Development -- Fixed-Price. Further, as provided in paragraph (a) of the Mission Success Determination clause, the terms and conditions contained in that clause are in lieu of the terms and conditions that apply in the event of a default as prescribed in paragraphs (e) and (f) of 52.246-7 Inspection of Research and Development -- Fixed-Price.

36. Q: Model Contract p 30. The Contractor shall provide acceptable evidence of the insurance or financial capability to the Contracting Officer, subject to Contracting Officer approval.

We have talked to space insurance experts, and we have been told that the space insurance market has not yet come to a place where the risks of travel to and from and operation in cis-lunar space can be insured. If, upon further investigation, we determine that such insurance is not available in the market, should we submit with our proposal letters from underwriters stating their inability/unwillingness to provide this insurance?

A: Contractor must obtain insurance or otherwise provide evidence of financial capability to compensate for damage to or loss of U.S. Government property, except for damage to on-orbit Gateway structures and for damage or loss to property that is otherwise covered pursuant to insurance required for FAA licensed activities. If insurance coverage for damage to or loss of U.S. Government property cannot be obtained during a particular segment of contract performance and phase of mission operation, the Contractor must otherwise demonstrate satisfactory evidence of its financial capability to cover such damages or losses sustained during those periods.

37. Q: Please confirm that cross waiver and insurance contract terms carve out FAA licensed launch activities. Meaning, only CSLCA risk regime applies during FAA licensed activities; Contract terms for waivers and insurance do not also apply on top of the CSLCA risk regime.

A: In accordance with paragraph (e) of 1852.228-76 (Deviated) and paragraph (f) of 1852.228-78 (Deviated), for any activities for which the Contractor is contractually required to obtain an FAA license in accordance with 51 U.S.C. 50901 et seq., the cross-waivers of claims under 1852.228-
76 and -78 and the other terms and conditions contained within those two clauses are not applicable to the activities covered by the FAA license(s).

38. Q: Please confirm that all Parties to Gateway activities, including NASA, waive claims on behalf of their employees (including astronauts). If this is true, is NASA only waiving claims on behalf of USG astronauts above the amount of required insurance $5M? Otherwise, as written, an astronaut would be prevented from claiming against insurance because NASA has waived their ability to do so.

A: As provided in the 1852.228-76 and -78 Deviated clauses, the contract’s cross-waivers of liability are not applicable to claims made by a natural person, his/her estate, survivors, or subrogees (except when a subrogee is a Party to an Agreement or is otherwise bound by the terms of the cross-waivers) for bodily injury to, or other impairment of health, or death of such person. Astronauts (in their personal capacity and not as employees of the US Government), their estates, survivors, or subrogees may still bring claims against parties.

39. Q: In the Cross Waiver of Liability for Lunar Surface Activities, Section (c), is the language “This reciprocal waiver of claims shall not apply to rights and obligations arising from the application of any of the other clauses in the contract” redundant with (e)(6)? If it is not, to what situations does that language apply?

A: Paragraph (e)(6) provides that, notwithstanding the other provisions of the clause, the cross-waiver of liability shall not be applicable to “[c]laims by a Party arising out of or relating to the other Party’s failure to perform its obligations under this contract.” Paragraph (c) is broader, and provides that the reciprocal waiver of claims shall not apply to rights and obligations arising from the application of any of the other clauses in the contract or to rights and obligations arising from activities that are not within the scope of this Contract.


1. For budgetary considerations, does NASA intend that Contractor's insurance would pay for damages to NASA or other USG property on the ground (pre-launch) and in space (post-launch)?

a. Would this coverage have to be available to pay for NASA assets that might be part of/aboard aLaunch or Transfer Vehicle and are damaged?

b. Does NASA intend that this be a liability policy? Such that, the Contractor must be at fault for the policy to pay damages, or a first party coverage that pays in case of damage or loss?

A:

1. For budgetary considerations, does NASA intend that Contractor’s insurance would pay for damages to NASA or other USG property on the ground (pre-launch) and in space (post-launch)? Yes, up to $100 million, except insurance is not required for damage sustained to Gateway or Orion elements or structures while on orbit, and is also not required for activities covered by FAA licenses (except that the contractor shall comply with all FAA insurance requirements).
a. Would this coverage have to be available to pay for NASA assets that might be part of/aboard a Launch or Transfer Vehicle and are damaged?

Yes, except if the damage or loss occurs during any of the activities under contract that are subject to the FAA license and would otherwise be covered pursuant to insurance required for the license.

b. Does NASA intend that this be a liability policy? Such that, the Contractor must be at fault for the policy to pay damages, or a first party coverage that pays in case of damage or loss?

NASA’s intention is that the Contractor will acquire a liability policy such that the Contractor must be at fault for the policy to pay claims for damage to U.S. Government property.

**Technical Design**

41. Q: In HLS-OBJ-007a the requirement states “survive with pre-emplaced surface infrastructure.” Which is different than surviving all alone. Will there be “pre-emplaced infrastructure” and if so, what does NASA imply that infrastructure is providing (i.e. power to lander, shelter for the crew etc.)

A: Surviving the eclipsed periods on the lunar night for a human rated lander is expected to be very difficult. To survive with humans during periods of darkness, there must be enough operational attributes to keep the crew safe. The minimum operational requirements for surviving the dark periods (eclipses) with crew have not been determined. For the HLS-OBJ-007a, the intent is that the lander should survive/minimally operate during several hours of darkness. The exact number of hours of darkness for the mission has not been determined since it is landing site and day of year specific. Since it will be difficult for the lander to survive the eclipses, NASA is allowing an assumed pre-emplaced asset to assist the lander in surviving the eclipse period. This asset is likely to be energy storage / power source.

42. Q: In HLS-R-0070a, the requirement says “operate”; but rationale says “survive.” These are different things. Please clarify if the Lander is to “survive” or “operate” and what does that mean to NASA?

A: With crew, surviving means a minimum operational capability to keep crew safe.

43. Q: BAA Section 4.4.3.6 Sustainability - In reference to the 2026/28 missions the text refers to a requirement for carrying 4 crew. NASA HLS Con-ops Under “Sustainable Mission” Lists that 4 crew would land on the surface and pre-deployed surface assets would be available but does not list what those assets are (Could be Fuel, O2/N2, Food, a rover or a surface hab). Under “Surface Communications” the first paragraph describes a scenario where two crewmembers are in the HLS while another two are on EVA. The two sets of crew must be able to talk to each other.

Referring to the referenced documents the descriptions of the 4-crew mission DRM appear to be inconsistent. Can NASA please clarify if offerors can assume that for 4-crew missions the surface infrastructure will provide habitation elements such that the HLS will not be required
to support 4 crew for the entirety of the surface mission? In other words, can offerors assume that upon successful landing that all 4 crew will depart HLS and reside in a separate surface habitat during nominal surface operations and only return to HLS for return to Gateway? Additionally, we would recommend that supporting 4 crew on the surface for 12 hours be made a separate requirement to further delineate the 4-crew DRM from the 2-crew DRM which requires 6.5 Days of support on the surface.

A: For purposes of the proposal, surface systems are expected to be available but have not been defined (pressurized rover, habitats, etc). Therefore it is expected that the four-crew missions will have additional surface assets to assist in habitable volume and logistics supplies. Option B of the proposal will be further defined as the plan for initial capabilities are solidified. Option B of this solicitation is intended to require steps toward a sustainable capability of carrying 4 crew to the surface. It is not intended that the 4 crew will live in the lander for the duration of a 6.5 day or longer mission.

44. Q: In 4.4.3.1. Technical Design Concept, NASA has referenced that HLS has to interface and dock with Gateway or Orion for crew transfer. Can industry propose a commercial crew lunar service that would provide an alternative crew vehicle to Orion that HLS can interface and dock with? Will Orion (and the SLS launch of Orion) be considered as Commercial Service similar to how the BAA addresses SLS for HLS?

A: Orion launched on SLS is NASA’s crew launch baseline for Appendix H. For the 2024 demonstration mission, HLS must interface with Gateway or Orion. For 2026 missions and beyond, interfacing with Gateway is required.

45. Q: Regarding the use of the Gateway, will the nominal HLS mission concept envision by NASA possess multiple HLS transport commercial vehicles to the lunar surface operating simultaneously following 2026 demonstration?

A: NASA is open to post-2026 mission concept of operation that allows for simultaneous operations in the future.

46. Q: Offeror requests further information from NASA to better understand the configurations and scope of the xEMU and associated EVA requirements, so that we can best optimize the interior configuration of the HLS to meet system level needs, such as dust mitigation.

A: xEMU will be compatible with a conventional airlock (whether cabin as airlock or separate airlock. Offerors should review EVA-EXP-0067 and EVA-EXP-0070 documents provided as part of Attachment F.

47. Q: If crew safety requirements and xEMU storage requirements can be met, would NASA allow the crew to wear the Orion or other spacesuit for HLS dynamic events? Can NASA provide some interface information about the Orion spacesuit?

A: Initial NASA analyses favor using the xEMU for surface descent/ascent in order to better address contingencies, simplify crew training and interfaces, and increase likelihood of mission success during the surface operations phase. The initial analysis also indicated a mass savings with the xEMU approach. As such, xEMU is the primary option for HLS descent and ascent.
operations and the solicitation is written with only requirements for operations with the xEMU system, which is considerably different from the Orion Crew Survival System (OCSS) suit interfaces. NASA will evaluate alternate approaches but will not provide any additional interface information or requirements during this proposal period. The use of the OCSS suit for any operations outside of the Orion vehicle will require negotiation with the Orion Program and may require delta certification to the system as it is scheduled for CDR this year – both of which could create significant schedule risk for Artemis III and will be factored into the evaluation process.

48. Q: In the latest version of EVA-EXP-0067, 3.1.2 XEMU system, multiple devices are identified, including the xPLSS, xPGS, and xINFO. Additionally, the IRD specifies that the xPLSS will be removed. However, the configuration of the xPGS is unclear. Can additional information on the xPGS / xEMU be provided, either graphically, or systematically? Some key areas of interest for the offeror are: Does the xEMU / xPGS configuration required for dynamic events include components that will be directly exposed to lunar dust?

For context - previous concepts for surface EMUs have been represented as having multiple layers including a removable overleg type component to limit dust and particulate transfer from the exterior surface. Will the xEMU / xPGS as donned for dynamic flight events, include garments that will be directly exposed to lunar dust?

A: Yes, the xPGS required for dynamic events does include components that will be directly exposed to lunar dust during an EVA. Mission-wide dust mitigation techniques will minimize, but not eliminate dust during dynamic events upon return from the lunar surface (environmental scrubbing, a more mobile suit leading to less falls, dusting off before ingress, etc). Additional concepts include cover layers and removal techniques for the xPGS.

49. Q: Can NASA clarify which requirements apply while the xEMU is donned during dynamic events? e.g., Do crew interfaces need to meet EVA requirements or IVA requirements. More specifically:
   • Do work sites / tools / handles hardware intended to be used while the xEMU is donned during dynamic events need to meet the EVA requirements (e.g., EVA-EXP-0070 3.1.6 Handrail Side Clearance, 3.1.4 Gloved Hand Clearance, 3.3.8 EVA Gloved Hand Compatibility)?
   • For context – It is the offeror’s understanding that most EVA gloves are limited in dexterity, and require significantly larger contact areas and handling areas. This drives significantly more hardware requirements than a typical IVA design. Does the xEMU in the dynamic event configuration have a common EVA glove, or is there a separate glove that provides more dexterity that may be used during the dynamic events?
   • Similar to the above, do worksite requirements, clearances, and volume (e.g., EVA-EXP-0070 3.4.1 – Worksite Mobility, 3.4.2.1 Worksite Field of View, 3.4.2.2 EVA Entrapment) apply during these dynamic phases of flight while the xEMU is donned?

A:

Currently dynamic phases of flight are not defined in EVA-EXP-0067 or EVA-EXP-0070. Defining these phases and the expectations for crew safety remains to be determined.
a. There will be a mixture of interfaces inside the lander cabin / airlock that need to meet either EVA and/or IVA requirements. However, it should not be expected that all interfaces would have to meet those associated with EVA requirements. This depends on the contractors approach to cockpit design and airlock functionality. Any tools, handles/handrails, or controls required for EVA prep and ingress/egress should be EVA compatible.

b. The xEMU can be modified to accept an IVA glove or a modified version of the current EVA glove to ensure compatibility with displays and controls for piloting the lander during IVA operations (dynamic phases), if determined that is required. Caveat, this is not the current plan at this time.

c. We are still researching, however at this time we have not found a precedent for more uniquely defining these types of requirements to ensure compatibility between the suit and lander "cockpit". At this time these requirements along with other crew safety and human integration requirements (NASA-STD-3001) should be used to ensure compatibility between the crew and IVA operations. NASA will work with the vendor to assess their unique concepts and approaches to ensure crew safety as well as ensure NASA requirements have NOT over constrained the situation.

50. Q: EVA-EXP-0067 Paragraph 3.3. For the vehicle dynamic operations, is the intention for the crew to don the xEMUs that were used for surface EVAs which could require dedicated dust mitigation to avoid contamination of the Ascent Element upon ascent? This would also pose a contamination risk for Gateway and Orion once the Ascent is docked? Would it be better to leave the xEMUs with the Descent Element versus bringing them back to the Gateway? Why is NASA requiring the xEMUs return to the Gateway/Orion?

A: The current assumption is to use the xEMU pressure garment subsystem for both descent/ascent and surface EVAs. A dust mitigation protocol across systems in the Ascent Element will need to be in place to minimize the amount of dust returned. One of many options could include removing the outer layer of the pressure garment and bagging that hardware and/or finding a way to leave the outer garment behind with the PLSS as well. HLS-R-0319 rationale includes the option of leaving the xPLSS behind.

The con ops of leaving the xEMUs on the surface has been discussed for dust mitigation purposes; however having the mass of both the EVA suits and dedicated Launch Entry Abort suits could pose a mass problem for an Ascent Abort case.

If the contractor can show it is feasible to carry both suits either mass-wise or architecture-wise, NASA would only require the xEMUs to be used during the surface EVAs.

51. Q: EVA-EXP-0067 Paragraph 3.1.3, Figure 3.1.3-2. For the vehicle dynamic operations, must the GFE UIP be utilized to interface to the xEMU without the xPLSS or is the HLS provider able to provide alternate interfaces to the xEMU umbilicals?

A: The GFE shall be utilized so that the xEMU team can interface with common servicing equipment (xSPCE) across multiple vehicles. The contractor shall interface with the xSPCE according to EVA-EXP-0067 HLS xEVA IRCD.
52. Q: EVA-EXP-0067 Paragraph 3.3. When the crewmember has donned the xEMU with helmet during vehicle dynamic operations, are there requirements for how digital displays would need to appear in order to be visible through the helmet?

A: EVA-EXP-0070 provides EVA work envelope and NASA-STD-3001 addresses displays (that should cover dynamic phases of flight).

Price

53. Q: With the movement of Price above Management in the evaluation criteria, how will NASA evaluate/value offers that propose docking with Orion directly versus the Gateway? Are Orion (including the SLS launch) and Gateway provided GFE at no cost to the offerors? Is there a cost added to the Price evaluation for a bidder that utilizes Gateway versus Orion?

A: Orion and Gateway are not GFE. The HLS solicitation requires HLS to dock with either one of them, but NASA is not providing them as GFE. The Offeror’s FFP should reflect the amount of compensation that the Offeror requires in order to achieve its proposed docking approach, whether that is docking to Orion or Gateway. NASA will not add any amount to an Offeror’s Total Evaluated Price based on the Offeror’s proposed approach to dock to either Gateway or Orion.

54. Q: There are various requirement documents and reference documents throughout the BAA that do not include a date. To accurately price a fixed price proposal, please provide dates and/or version information.

A: Fixed price offers shall apply to the versions of documents included with the final Amended solicitation as posted on FBO. For referenced documents and standards, the "_Referenced Documents and Standards Locations" spreadsheet included in Attachment A2, Reference Documents and Standards, has been updated to include a "Version" column to clarify.
55. Q: Given that the HLS program is in the pre-award phase and the HLS concepts are relatively undeveloped as PDR is still in the future, please confirm that it is NASA's expectation that for the required "initial" version of the attachments/DRDs listed below, the content should be approximately equivalent to the "preliminary approach" content referenced in Appendix I, Table I-5 of NPR 7120.5E, and not the "baseline" or other level of maturity expected for later phases of the program.

- Human Error Analysis Plan
- Integrated Operations Training
- Mission Operations and Mission Systems Plan
- HLS Integrated Lander System Specification
- Verification, Validation, and Certification Plan
- Software Verification, Validation, and Certification Plan
- Software Plan

A: NASA can confirm that a "PDR-light" version of the documents is sufficient.

56. Q: Regarding 1852.235-74 ADDITIONAL REPORTS OF WORK—RESEARCH AND DEVELOPMENT (FEB 2003), please include the # of days within which the final report shall be submitted.

A: In accordance with DRD No 1665MA-006, the Final Scientific and Technical Report is required to be submitted during the Post Mission Assessment Review.

57. Q: Would NASA please provide more information about SBU “Sensitive But Unclassified” information requirements? The BAA and provided documents are not clear on what the requirement documents are that dictate the handling and access to SBU. Offerors need those documents to ensure they are meeting any NASA specific requirements since NASA has the right/ability to dictate how NASA SBU is handled/accessed above and beyond DNI requirements.

A: In accordance with NASA SBU Interim Directive: NID 1600.55, only the Designating Official may designate information as SBU.

58. Q: GOVERNMENT INSIGHT. It is anticipated that much of the insight data on contractor systems will not have or be able to include HLS specific data markings, or perhaps any data markings.

- If NASA downloads or transfers this data, how will NASA protect it?
- If contractors’ in-house databases provide site banners with data protection requirements, will NASA honor these for data they are gathering under the insight clause?

A: NASA will protect the data as provided in paragraph (h) of the Government Insight clause.

59. Q: The Model Contract cites the requirement for a small business plan but does not include reference to historically black colleges. However, Section 4.4.6.4 does include reference to HBCUs/MSIs. Can NASA please reconcile this discrepancy and specify whether HBCUs/MSIs should or should not be included in Offerors’ Small Business plans?
A: The Model Contract references HBCUs/MSIs under 52.219-9(d)(10)(iv). HBCUs/MSIs should be included in Offerors’ Small Business plans as stated within Section 4.4.6.4 of the BAA. Any percentage proposed under HBCUs/MSIs will also be counted towards Small Disadvantaged Business Concerns.