

ANNEX
BETWEEN
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GEORGE C. MARSHALL SPACE FLIGHT CENTER
AND BLUE ORIGIN, LLC
UNDER SPACE ACT UMBRELLA AGREEMENT
NO. SAA-EA-20-29343, DATED 2/8/2020 SAA8-2236614.8

ARTICLE 1. PURPOSE

The purpose of this Annex is for collaboration with Blue Origin on the development of Environmental Control and Life Support hardware, including the Urine Processing Assembly (UPA), for commercial space systems.

The legal authority for this Annex, consistent with the Umbrella Agreement, is in accordance with the Space Act, Other Transactions Authority (OTA), 51 U.S.C. § 20113(e).

ARTICLE 2. RESPONSIBILITIES

A. NASA MSFC will use reasonable efforts to:

1. Provide data exchange of Environmental Control and Life Support hardware design and performance
2. Provide consultation and SME support for design, development, test, and evaluation. Support includes insight on existing Urine Processor Assembly (UPA) and proposed/planned upgrades to improve performance and reliability.
 - a. Supply chain and vendor engagement (potential GFE leverage)
 - b. On-orbit failures, lessons learned, and performance data
 - c. Hardware updates and full redesign considerations
 - d. Telemetry insights
 - e. Modeling tools and new approaches
3. Support formulation of a co-development plan for use of NASA MSFC existing testbeds, component designs, and fabrication.

B. BLUE ORIGIN will use reasonable efforts to:

1. Provide initial Environmental Control and Life Support point of departure for, system design, hardware development targets and related information.
2. Conduct an initial kick-off meeting.
3. Conduct regular tag-ups to, interface with NASA MSFC personnel.
4. Conduct a Technical Interchange Meeting to review the co-development plan.
5. Conduct a mid-term status review with NASA MSFC.
6. Conduct a final review of, hardware, designs, test planning, data, and analysis.

ARTICLE 3. SCHEDULE AND MILESTONES

The planned major milestones for the activities for this Annex defined in the "Responsibilities" Article are as follows:

1. Blue Origin will provide an initial Environmental Control and Life Support point of departure for, system design, hardware development targets and related information. Effective Date + 2 week
2. Blue Origin will conduct an initial kick-off meeting Effective Date + 2 week
3. NASA MSFC will provide data exchange of Environmental Control and Life Support hardware design and performance Milestone 2 + 2 months
4. Blue Origin will hold a Technical Interchange Meeting to review the co-development plan. Milestone 2 + 2 months
5. Blue Origin will hold and NASA MSFC will support a mid-term status review Milestone 3 + 4 months
6. Blue Origin will hold and NASA MSFC will support a final review of hardware designs, test planning, data, and analysis Milestone 4 + 6 months

ARTICLE 4. FINANCIAL OBLIGATIONS

A. Partner agrees to reimburse NASA an estimated cost of \$73,004.00 for NASA to carry out its responsibilities under this Annex.

Each payment shall be marked with NASA MSFC and SAA8-2236614.8.

B. NASA will not provide services or incur costs beyond the current funding. Although NASA has made a good faith effort to accurately estimate its costs, it is understood that NASA provides no assurance that the proposed effort under this Annex will be accomplished for the estimated amount. Should the effort cost more than the estimate, Partner will be advised by NASA as soon as possible. Partner shall pay all costs incurred and have the option of canceling the remaining effort, or providing additional funding in order to continue the proposed effort under the revised estimate. Should this Annex be terminated, or the effort completed at a cost less than the agreed-to estimated cost, NASA shall account for any unspent funds within one year after completion of all effort under this Annex, and promptly thereafter, at Partner's option return any unspent funds to Partner or apply any such unspent funds to other activities under the Umbrella Agreement. Return of unspent funds will be processed via Electronic Funds Transfer (EFT) in accordance with 31 C.F.R. Part 208 and, upon request by NASA, Partner agrees to complete the Automated Clearing House (ACH) Vendor/Miscellaneous Payment Enrollment Form (SF 3881).

ARTICLE 5. INTELLECTUAL PROPERTY RIGHTS - DATA RIGHTS

A. Data produced under this Annex which is subject to paragraph C. of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement will be protected for the period of five years.

B. Under paragraph H. of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement, Disclosing Party provides the following Data to Receiving Party. The lists below may not be comprehensive, are subject to change, and do not supersede any restrictive notice on the Data provided.

1. Background Data:

None

2. Third Party Proprietary Data:

None

3. Controlled Government Data:

None

4. The following software and related Data will be provided to Partner under a separate Software Usage Agreement:

None

ARTICLE 6. TERM OF ANNEX

This Annex becomes effective upon the date of the last signature below ("Effective Date") and shall remain in effect until the completion of all obligations of both Parties hereto, or two years from the Effective Date, whichever comes first, unless such term exceeds the duration of the Umbrella Agreement. The term of this Annex shall not exceed the term of the Umbrella Agreement. The Annex automatically expires upon the expiration of the Umbrella Agreement.

ARTICLE 7. RIGHT TO TERMINATE

Either Party may unilaterally terminate this Annex by providing thirty (30) calendar days written notice to the other Party.

ARTICLE 8. POINTS OF CONTACT

The following personnel are designated as the Points of Contact between the Parties in the performance of this Annex.

Technical Points of Contact

NASA George C. Marshall Space Flight
Center
Paul Hintze
ECLSS Branch Chief
Mail Suite: ES62

BLUE ORIGIN, LLC
Wade Davis
Senior Commercial Advisor
21218 76th Avenue S
Kent , WA 98032-2442

Marshall Space Flight Center, AL 35812
Phone: 256-736-4864
paul.e.hintze@nasa.gov

Phone: 253-437-3052
wdavis@blueorigin.com

ARTICLE 9. MODIFICATIONS

Any modification to this Annex shall be executed, in writing, and signed by an authorized representative of NASA and the Partner. Modification of an Annex does not modify the terms of the Umbrella Agreement.

ARTICLE 10. SIGNATORY AUTHORITY

The signatories to this Annex covenant and warrant that they have authority to execute this Annex. By signing below, the undersigned agrees to the above terms and conditions.

NATIONAL AERONAUTICS AND
SPACE ADMINISTRATION
GEORGE C. MARSHALL SPACE
FLIGHT CENTER

BLUE ORIGIN, LLC

BY: _____
Mary E. Koelbl
Director Engineering Directorate

BY: _____
Wade Davis
Senior Commercial Advisor

DATE: _____

DATE: _____