

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 SAA8-2236606.7

ARTICLE 1. PURPOSE

This Annex shall be for the purpose of NASA will collaboration with Blue Origin in the areas of engineering analysis and testing and related support in the development of commercial space transportation systems. This Annex shall be for the purpose of consultation and analysis in the partner's development of testing equipment and procedures for electromechanical components for cryogenic liquid management. MSFC will use unique experience and knowledge of the performance of components in the MSFC "Hardware-in-the-loop" (HIL) testing system to assist the partner in development and qualification of equipment and procedures to develop their own system. MSFC will provide guidance through support for a formal System Requirements Review (SRR) of the Partner's development.

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 support to meetings, phone calls, and email communication, as established by Blue Origin,
2. Provide documentation on testing systems at NASA MSFC and procedures for conducting HIL tests at NASA MSFC, and
3. Provide review and comment to the design and testing documentation of the Blue Origin testing system in the SRR of Milestone 5.

B. BLUE ORIGIN will use reasonable efforts to:

1. Establish scheduled meetings, phone call and email communication protocols to support test systems development,
2. Conduct kickoff meeting to review current requirements and establish status of the Blue Origin test system design,
3. Provide draft design and testing documentation to NASA MSFC Subject Matter Experts and provide SRR success criteria for assessment, and

4. Conduct an SRR for implementation of their HIL testing system.

ARTICLE 3. SCHEDULE AND MILESTONES

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

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|--|------------------------------------|
| 1. Blue Origin to establish scheduled meetings, phone call and email communication protocols to support test systems development | Within 1 week after Effective Date |
| 2. Blue Origin to conduct kickoff meeting to review current requirements and establish status of the Blue Origin test system design | Within 1 week after Effective Date |
| 3. NASA MSFC to provide documentation on testing systems at NASA MSFC and procedures for conducting tests at the MSFC HIL | Within 2 weeks after Milestone 2 |
| 4. Blue Origin to provide draft design and testing documentation to NASA MSFC Subject Matter Experts and provide SRR success criteria for assessment | Within 2 weeks after Milestone 2 |
| 5. Blue Origin to conduct an SRR for implementation of their HIL testing system | Within 1 month after Milestone 2 |
| 6. NASA MSFC to provide review and comment to the design and testing documentation of the Blue Origin testing system in the SRR of Milestone 5 | Within 2 weeks after Milestone 5 |

ARTICLE 4. FINANCIAL OBLIGATIONS

A. Partner agrees to reimburse NASA an estimated cost of \$11,882 for NASA to carry out its responsibilities under this Annex.

Each payment shall be marked with NASA MSFC and SAA8-2236606.7.

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 two 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 one year 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
Drew Hall
Theoretical Sim Techniques Engineer
Mail Suite: ES53
Marshall Space Flight Center, AL 35812
Phone: 256-5443924
drew.hall@nasa.gov

BLUE ORIGIN, LLC
John Finigan
Senior Technical Program Manager
21218 76th Avenue S
Kent , WA 98032-2442
Phone: 253-4379300x10328
jfinigan@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.

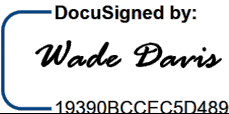
ARTICLE 10. SIGNATORY AUTHORITY

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:  _____
19390BCCFC5D489
Wade Davis
Senior Commercial Advisor

DATE: _____

DATE: 5/19/2022 | 9:46 AM PDT
