

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 (ANNEX NUMBER 37).

ARTICLE 1. PURPOSE

The purpose of this annex is for NASA MSFC to provide technical expertise on hot hydrogen exposure of selected test materials, perform Compact Fuel Element Environmental Test (CFEET) testing on Blue Origin supplied test samples and perform pre- and post-test characterization of selected test samples.

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

NASA MSFC will use reasonable efforts to:

1. Provide technical expertise and input on experimental design and testing.
2. Characterize as-fabricated samples.
3. Conduct testing in the hot hydrogen furnace (CFEET).
4. Characterize post-test samples.
5. Conduct meetings as needed to provide status updates and coordination of potential upcoming activities.
6. Deliver test report outlining analyses of test findings and collected test data.

BLUE ORIGIN will use reasonable efforts to:

1. Provide test matrix and design of test subject to NASA MSFC.
2. Deliver test samples to the CFEET facility in compliance of test requirements (including chemical analyses of samples provided).
3. Support activity status, out-brief, and coordination meetings as needed.
4. Provide access to technical experts to define criteria required to perform analysis at NASA MSFC discretion.

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 provides test matrix and design of Effective Date plus two

test to NASA MSFC.	weeks
2. Blue Origin delivers test samples to NASA MSFC CFEET facility in compliance with test requirements.	Milestone 1 completion plus two weeks
3. MSFC performs characterization as-fabricated samples.	Milestone 2 plus three weeks.
4. NASA MSFC performs CFEET testing.	Milestone 3 completion plus six weeks
5. MSFC performs characterization of post-test samples	Milestone 4 plus two weeks.
6. NASA MSFC delivers test report and data collected to Blue Origin.	Milestone 5 completion plus one week

ARTICLE 4. FINANCIAL OBLIGATIONS

A. Partner agrees to reimburse NASA an estimated cost of \$35,827 for NASA to carry out its responsibilities under this Annex.

Each payment shall be marked with MSFC SAA-EA-20-29343.37.

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

Jhonathan Rosales

AST, Technical Management

Marshall Space Flight Center, AL 35812

Phone: 256.961.2491

jhonathan.rosales@nasa.gov

BLUE ORIGIN, LLC

Scott Palmer

Principal Technologist, Fluids, Propulsion,
Power

21218 76th Avenue S

Kent , WA 98032-2442

Phone: 253.437.9300

spalmer@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: _____
Jessica Curry
Sr. Manager, Subcontracts

DATE: _____

DATE: _____ 4/17/23 _____