

ANNEX
BETWEEN
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
LYNDON B. JOHNSON SPACE CENTER
AND PARAGON SPACE DEVELOPMENT CORPORATION
UNDER SPACE ACT UMBRELLA AGREEMENT
NO. 37725, DATED 4/11/2023 (ANNEX NUMBER 2).

ARTICLE 1. PURPOSE

Paragon is developing a membrane-based primary urine processor (PUP) as a high reliability option for human spaceflight. Paragon wishes to leverage NASA's expertise in urine stabilization to speed their PUP development timeline. NASA would like to leverage Paragon's PUP development effort as part of their continued investigation into alternative water processing technologies and architectures for future human exploration missions.

The activities in this Annex will 1.) Investigate urine pretreatment and stabilization options for Paragon's PUP concept, 2.) Explore potential improvements to the PUP membrane design, and 3.) Facilitate investigations into alternate technologies and architectures related to urine collection, storage, and wastewater processing for both commercial and other related space missions. Information generated during execution of this collaborative effort will be shared with NASA and Paragon

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 will use reasonable efforts to:

1. Provide information and/or data on candidate pretreatment technologies, esp., as related to Paragon's PUP system requirements and/or concepts and including any relevant data or information on how to prepare and store solutions.
2. Provide information on current concepts for Brine Processor Assembly (BPA) bladder improvement.
3. Provide recommendations and/or test support related to:
 - a. Target compounds and/or types of analyses that might be considered as part of the PUP development campaign.
 - b. Information on what types of liquid and gas analysis can be performed within NASA's internal labs.
 - c. Execution of liquid and/or gas analysis for PUP testing, if funding and/or time should be available to support such effort.
4. Provide access to Subject Matter Experts (SME) in the urine processing field for limited consultation and/or technical reviews.

5. Support Paragon led Technical Interchange Meetings (TIMs).

Paragon will use reasonable efforts to:

1. Provide information on design and/or concept(s) of operation for their alternative urine collection and PUP/BPA processing system, e.g., driving requirements (functional, performance and/or interface).
2. Conduct pretreat formulation testing to evaluate performance against the driving requirements, including development of test objectives, plans, and procedures.
3. Provide JSC lab(s) with pretreatment and/or other PUP development samples for liquid and/or gas analysis testing, if funding and/or time should be available to support such effort.
4. Conduct system-level trade analysis on pretreat options.
5. Provide NASA data and/or technical information on:
 - a. Evolving urine collection and processing architectures.
 - b. PUP urine pretreatment test and trade study results.
 - c. Test results and/or test outcomes from the PUP direct feed development effort.
 - d. Organize and conduct TIMs

ARTICLE 3. SCHEDULE AND MILESTONES

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

NASA JSC and Paragon will exchange information on BPA and Paragon will conduct 1st TIM. Paragon shares BPA design/challenges, Paragon and JSC share concepts for membrane improvements, PUP system, urine collection, storage, and processing system architectures, and driving requirements. Note: Paragon Responsibility 1, 5; NASA responsibility 5	1 month after Authority to Proceed (ATP)
NASA JSC will provide pretreat candidate list Note: NASA responsibility 1	2 months after ATP
Paragon will conduct PUP/pretreat experiment and provide results from testing. Note: Paragon Responsibility 2, 3; NASA responsibility 3	4 months after ATP
Paragon will host 2nd TIM Note: Paragon Responsibility 5; NASA responsibility 5	5 months after ATP
Paragon/NASA will conduct trade study on direct urine feed to PUP Note: Paragon Responsibility 4; NASA responsibility 4	6 months after ATP
Paragon will evaluate alternative membrane study for	9 months after ATP

potential bladder material improvements.

Note: Paragon Responsibility 1; NASA responsibility 2

Paragon will provide final tech briefing of activities and host 11 months after ATP
3rd and final TIM.

Note: Paragon Responsibility 5

JSC/Paragon will discuss strategic forward planning. 18 months after ATP

Note: Paragon Responsibility 5; NASA responsibility 5

ARTICLE 4. FINANCIAL OBLIGATIONS

There will be no transfer of funds between the Parties under this Agreement and each Party will fund its own participation. All activities under or pursuant to this Agreement are subject to the availability of funds, and no provision of this Agreement shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, (31 U.S.C. § 1341).

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:

The Disclosing Party's Background Data, if any, will be identified in a separate technical document.

2. Third Party Proprietary Data:

The Disclosing Party's Third Party Proprietary Data, if any, will be identified in a separate technical document.

3. Controlled Government Data:

The Disclosing Party's Controlled Government Data, if any, will be identified in a separate technical document.

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 eighteen (18) months 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.

Management Points of Contact

NASA Lyndon B. Johnson Space Center
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Technical Points of Contact

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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
LYNDON B. JOHNSON SPACE
CENTER

PARAGON SPACE DEVELOPMENT
CORPORATION

BY: 
Julie Kramer White
Director, Engineering

Grant A.
BY: Anderson
Grant A. Anderson
President & CEO

Digitally signed by Grant A. Anderson
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Space Development Corporation,
ou=President & CEO,
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Date: 2023.08.29 14:41:46 -07'00'

DATE: 9/8/23

DATE: 8/29/23