

ANNEX
BETWEEN
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GEORGE C. MARSHALL SPACE FLIGHT CENTER
AND
ANTARES NUCLEAR, INC.
UNDER
SPACE ACT UMBRELLA AGREEMENT
NO. SAA8-2440703, DATED _____
SAA8-2440703.1

ARTICLE 1. PURPOSE

This Annex shall be for the purpose of Antares and MSFC jointly conceptualizing, designing, manufacturing, and testing an electrically heated demonstrator core for Antares' microreactor. This effort is similar in concept to the SAFE-30 performed at MSFC in the year 2000/2001, but at a larger scale. Antares will partner with MSFC and provide the designs (computer-aided designs (CAD), calculations, etc.) for the most current reactor design (subject to continual iteration). Additionally, Antares will provide designs for the heat transfer system and primary heat exchange system. MSFC will use their knowledge of their existing manufacturing and test facilities to suggest test-appropriate design adaptations.

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 will use reasonable efforts to:

1. Host an in-person project kickoff.
2. Conduct a Preliminary Design Review (PDR) to review initial test rig design and shall provide integrated test rig computer-aided design (CAD) files and interface control document (ICD) to Partner.
3. Conduct Test Readiness Review (TRR) to review any needed component certification, fabrication of test rig, and results of checkout tests of rig components and instrumentation to proceed to subscale testing.
4. Conduct subscale tests using the test articles.
5. Conduct a Post-test Review of the data from the subscale testing.
6. Conduct a Critical Design Review (CDR) of the design and analysis of the full-scale test system.

B. Partner will use reasonable efforts to:

1. Participate in project kickoff.

2. Participate in PDR.
3. Provide designs for the most current reactor design, heat transfer system, and primary heat exchanger system.
4. Provide heat exchanger and graphite block test rig components.
5. Support assembly of test rig and article as needed.
6. Participate in TRR to review any needed component certification, fabrication of test rig, and results of checkout tests of rig components and instrumentation to proceed to subscale testing.
7. Deliver test articles for evaluation.
8. Participate in CDR.
9. Provide any updates to the designs for the reactor, heat transfer system, and primary heat exchanger system.

ARTICLE 3. SCHEDULE AND MILESTONES

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

- | | |
|---|-------------------------|
| 1. With Antares' participation, NASA MSFC shall host an in-person project kickoff | Effective Date + 1 week |
| 2. Antares shall provide designs for the most current reactor design, heat transfer system, and primary heat exchanger system | Milestone 1 + 1 week |
| 3. With Antares' participation, NASA MSFC shall conduct a PDR to review initial test rig design and shall provide integrated test rig CAD files and ICD to Partner | Milestone 2 + 3 months |
| 4. Antares shall provide heat exchanger and graphite block test rig components | Milestone 3 + 3 months |
| 5. With Antares' participation, NASA MSFC shall conduct a TRR to review any needed component certification, fabrication of test rig, and results of checkout tests of rig components and instrumentation to proceed to subscale testing | Milestone 4 + 3 months |
| 6. Antares shall deliver test articles for evaluation | Milestone 5 + 1 day |
| 7. With Antares' participation, NASA MSFC shall conduct subscale tests using the test articles and perform a Post-test Review of the data from the subscale testing | Milestone 6 + 3 months |
| 8. Antares shall provide any updates to the designs for the reactor, heat transfer system, and primary heat exchanger system | Milestone 7 + 1 week |

9. With Antares' participation, NASA MSFC shall conduct Milestone 8 + 2 months a CDR of the design and analysis of the full-scale test system

ARTICLE 4. FINANCIAL OBLIGATIONS

A. Partner agrees to reimburse NASA MSFC an estimated cost of \$999,631 for NASA to carry out its responsibilities under this Annex.

Each payment shall be marked with MSFC and SAA8-2440703.1.

The Partner to pay \$400,000.00 at the start, \$299,815.50 after milestone 3, and \$299,815.50 after milestone 4.

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 [insert timeframe, cannot exceed 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 four 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 15 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.

Technical Points of Contact

NASA George C. Marshall Space Flight Center
Matthew Hitt
Nuclear Engineer
Mail Suite: ER64
Marshall Space Flight Center, AL 35812
Phone: 256-544-1226
matthew.hitt@nasa.gov

Antares Nuclear, Inc.
Neil Mason
Head of Mechanical Engineering
2400 Marine Ave
Suite 104
Redondo Beach, CA 90278-5453
neil@antaresindustries.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

ANTARES NUCLEAR, INC.

BY: _____
Larry Leopard
Associate Director, Technical

BY: _____
Neil Mason
Head of Mechanical Engineering

DATE: _____

DATE: _____