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NONREIMBURSABLE SPACE ACT UMBRELLA AGREEMENT BETWEEN THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AMES RESEARCH CENTER AND REGENTS OF THE UNIVERSITY OF MINNESOTA FOR COLLABORATIVE DEVELOPMENT OF ADDITIONS TO US3D FLOW SOLVER

ARTICLE 1. AUTHORITY AND PARTIES

In accordance with the National Aeronautics and Space Act (51 U.S.C. § 20113(e)), this Agreement is entered into by the National Aeronautics and Space Administration Ames Research Center, located at Moffett Field, CA 94035 (hereinafter referred to as "NASA" or "NASA ARC") and the Regents of the University of Minnesota (UMN) located at 200 Oak Street SE, Suite 450, Minneapolis, MN 55455-0213 (hereinafter referred to as "Partner" or "UMN"). NASA and Partner may be individually referred to as a "Party" and collectively referred to as the "Parties."

ARTICLE 2. PURPOSE AND IMPLEMENTATION

This Umbrella Agreement (hereinafter referred to as the "Agreement" or "Umbrella Agreement") shall be for the purpose of establishing a formal vehicle for NASA and UMN to collaborate on the development of additions to the US3D flow solver. US3D is a modern, unstructured, finite volume flow solver designed for efficient and accurate estimation of aerothermodynamic heating experienced by aerospace vehicles as they transit planetary atmospheres at hypersonic, orbital, and super-orbital velocities. US3D's development has been primarily funded by research grants to UMN from various federal agencies, with the vast majority of funding provided by the Department of Defense (Air Force, Army), and limited funding provided by NASA. The US3D Disclosure of Invention and New Technology form, case number ARC-17742-1, provides a summary of the relevant development and funding history of US3D through 2015. For the purposes of this Umbrella Agreement, "US3D-Core Software" shall mean the SOURCE CODE, EXECUTABLE CODE and related SOFTWARE DOCUMENTATION for the software entitled "US3D v1.0.0" through "US3D v1.2.0", and any future versions developed during the term of this Agreement and made available to UMN LICENSED END USERS. The above definitions are set forth in the related JOA. US3D-Core Software provides critical engineering capabilities needed for the design and analysis of NASA's current and upcoming exploration and science missions such as Artemis, Mars Sample Return, and Dragonfly. To date, NASA has relied on in-house developed tools (DPLR, LAURA) to meet mission needs, but the US3D-Core Software provides novel capabilities and improved software architecture that make it a preferred platform for future engineering analysis and research.

Under this Umbrella Agreement, both Parties will contribute labor and subject matter expertise to further refine and expand the capabilities of the US3D code, either by collaboratively modifying the background US3D-Core Software or by collaboratively developing new software

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that extends the capability of the US3D-Core Software. NASA expertise will be leveraged to enhance US3D with high fidelity models needed to support NASA missions and extend the demonstrated capabilities of the US3D solver to the full range of planetary atmospheres found in our solar system. UMN expertise will be leveraged to assist with software maintenance, integration of new capabilities, and deployment of US3D to agency compute resources. Both Parties expect to collaborate on fundamental research to improve the capabilities and performance of US3D-Core Software, including potential extensions to multi-physics simulation and non-traditional computing architectures. Modifications to each Party's background software are being cross licensed to both Parties under the related Joint Ownership Agreement (JOA) DJ-690 entered into between the Parties concurrent herewith, while new collaborative software developments will follow the terms of this Agreement and its subsequent Annexes.

The Parties shall execute one (1) Annex Agreement (hereinafter referred to as the "Annex") concurrently with this Umbrella Agreement. The Parties may execute subsequent Annexes under this Umbrella Agreement consistent with the purpose and terms of this Umbrella Agreement. This Umbrella Agreement shall govern all Annexes executed hereunder; no Annex shall amend this Umbrella Agreement. Nevertheless, Annexes may include an additional sentence to Article 8.C. (titled "Liability"), in standard approved form, which shall be applicable solely to the activities conducted under such Annex. Each Annex will detail the specific purpose of the proposed activity, responsibilities, schedule and milestones, and any personnel, property or facilities to be utilized under the task. This Umbrella Agreement takes precedence over any Annexes. In the event of a conflict between the Umbrella Agreement and any Annex concerning the meaning of its provisions, and the rights, obligations and remedies of the Parties, the Umbrella Agreement is controlling.

ARTICLE 3. RESPONSIBILITIES

A. NASA ARC will use reasonable efforts to:

1. Provide support of projects undertaken in any Annex;
2. Provide internal coordination of approvals for Annexes;
3. Provide for a single point of contact for Annex development and operations.

B. Partner will use reasonable efforts to:

1. Provide support of projects undertaken in any Annex;
2. Provide internal coordination of approvals for Annexes;
3. Provide for a single point of contact for Annex development and operations.

ARTICLE 4. SCHEDULE AND MILESTONES

The Parties shall execute one (1) Annex concurrently with this Umbrella Agreement. The initial Annex and any subsequent Annexes will be performed on the schedule and in accordance with the milestones set forth in each respective Annex.

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ARTICLE 5. 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 6. PRIORITY OF USE

Any schedule or milestone in this Agreement is estimated based upon the Parties' current understanding of the projected availability of NASA goods, services, facilities, or equipment. In the event that NASA's projected availability changes, Partner shall be given reasonable notice of that change, so that the schedule and milestones may be adjusted accordingly. The Parties agree that NASA's use of the goods, services, facilities, or equipment shall have priority over the use planned in this Agreement. Should a conflict arise, NASA in its sole discretion shall determine whether to exercise that priority. Likewise, should a conflict arise as between two or more non-NASA Partners, NASA, in its sole discretion, shall determine the priority as between those Partners. This Agreement does not obligate NASA to seek alternative government property or services under the jurisdiction of NASA at other locations.

ARTICLE 7. NONEXCLUSIVITY

This Agreement is not exclusive; accordingly, either Party may enter into similar agreements for the same or similar purpose with other private or public entities.

ARTICLE 8. LIABILITY

A. Each Party hereby waives any claim against the other Party or one or more of its Related Entities (defined below) for any injury to, or death of, the waiving Party or one or more of its Related Entities, or for damage to, or loss of, the waiving Party's property or the property of its Related Entities arising from or related to activities conducted under this Agreement, whether such injury, death, damage, or loss arises through negligence or otherwise, except in the case of willful misconduct.

B. Partner further agrees to extend this waiver to its related entities by requiring them, by contract or otherwise, to waive all claims against NASA and its Related Entities for injury, death, damage, or loss arising from or related to activities conducted under this Agreement. For purposes of this Agreement, "Related Entities" shall mean contractors and subcontractors of a Party at any tier; grantees, investigators, customers, and users of a Party at any tier and their contractors or subcontractor at any tier; or, employees of the Party or any of the foregoing.

C. Notwithstanding the other provisions of this Article, the waivers of liability set forth in this section shall not be applicable to:
   i. Claims between a Party and its own Related Entity or between its own Related Entities;
   ii. Claims made by a natural person, his/her estate, survivors, or anyone claiming by or through him/her (except when such person or entity is a Party to this Agreement or is otherwise bound by the terms of this waiver) for bodily injury to, or other impairment of health of, or death of, such person;
   iii. Claims for damage caused by willful misconduct;
   iv. Intellectual property claims;
   v. Claims for damage resulting from a failure of a Party to extend the waiver of liability to its Related Entities, pursuant to paragraph B of this Article; or
   vi. Claims by a Party arising out of or relating to another Party's failure to perform its obligations under this Agreement.

ARTICLE 9. LIABILITY - PRODUCT LIABILITY

With respect to products or processes resulting from a Party's participation in an SAA, each Party that markets, distributes, or otherwise provides such product, or a product designed or produced by such a process, directly to the public will be solely responsible for the safety of the product or process.

ARTICLE 10. INTELLECTUAL PROPERTY RIGHTS - DATA RIGHTS

A. General
   1. "Contributing Entity" means a contractor, subcontractor, Partner's value-added resellers, or other entity having a legal relationship with NASA or Partner that is assigned, tasked, or contracted to perform activities under this Agreement.
   2. "Data" means recorded information, regardless of form, the media on which it is recorded, or the method of recording.
   3. "Proprietary Data" means Data developed at private expense that embody trade secrets or are commercial or financial and confidential or privileged, and that includes a restrictive notice, unless the Data is:
      a. known or available from other sources without restriction;
      b. known, possessed, or developed independently;
      c. made available by the owners to others without restriction; or
      d. required by law or court order to be disclosed without restriction.
   4. "Background Data" means Partner's Proprietary Data developed outside of this Agreement.
   5. "Third Party Proprietary Data" means Proprietary Data of third parties that disclosing Party has agreed to protect or where the Government is required to protect under federal law (e.g., 18 U.S.C. §1905).
   6. "Controlled Government Data" means information the United States Government creates or possesses that requires safeguarding or dissemination controls.
   7. "US3D Ecosystem Software" means the software jointly developed under this agreement that is not embodied as a modification of or addition to the existing US3D-

Core Software. Examples include novel plug-ins, stand-alone utilities, or stand-alone algorithm prototypes.

8. Data exchanged under this Agreement is exchanged without restriction except as otherwise provided herein.
9. Notwithstanding any restrictions provided in this Article, the Parties are not restricted in the use, disclosure, or reproduction of Data provided under this Agreement that meets one of the exceptions in 3., above. If a Party believes that any exceptions apply, it shall notify the other Party before any unrestricted use, disclosure, or reproduction of the Data.
10. If the Parties exchange Data having a notice that the receiving Party deems is ambiguous or unauthorized, the receiving Party shall notify the disclosing Party. If the notice indicates a restriction, the receiving Party shall protect the Data under this Article unless otherwise directed in writing by the disclosing Party.
11. The Data rights herein apply to the employees and Contributing Entities of Partner. Partner shall ensure that its employees and Contributing Entity employees know about and are bound by the obligations under this Article.
12. Disclaimer of Liability: Neither Party is restricted in, or liable for, the use, disclosure, or reproduction of Proprietary Data without a restrictive notice. NASA is not restricted in, or liable for, the use, disclosure, or reproduction of Data Partner gives, or is required to give, the U.S. Government without restriction.
13. Partner may use the following or a similar restrictive notice:

    Proprietary Data Notice
    The data herein include Proprietary Data and are restricted under the Intellectual Property Rights - Data Rights provisions of Space Act Agreement SAA2-403774.

    Partner should also mark each page containing Proprietary Data with the following or a similar legend: “Proprietary Data – Use And Disclose Only Under the Notice on the Title or Cover Page.”

14. Use, Disclosure, Reproduction, and Handling of the US3D-Core Software and Related Software Developments:
    a. Use, disclosure, and reproduction of the US3D-Core Software shall be governed by the terms agreed to in the related JOA and are not addressed in this Agreement.
    b. To facilitate efficient collaborative development of the US3D-Core Software, draft modifications of or additions to the software developed by either Party or their Contributing Entities may be exchanged and will be protected according to the requirements set forth in Paragraph H.3 below. Upon incorporation into a released version of the US3D-Core Software, handling requirements shall be in accordance with the distribution and license grant limitations set forth in the related JOA.
    c. US3D Ecosystem Software jointly developed under this agreement that is not embodied as a modification of or addition to the existing US3D-Core Software are not subject to the provisions of this Paragraph and shall be

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used, disclosed, and reproduced according to the standard provisions defined in this article.

B. Data First Produced by Partner Under this Agreement

Except as otherwise provided in Paragraph A.13 of this Article, if Data first produced by Partner or its Contributing Entities under this Agreement is given to NASA, and the Data is Proprietary Data, and it includes a restrictive notice, NASA will use reasonable efforts to protect it. The Data will be disclosed and used (under suitable protective conditions) only for U.S. Government purposes.

C. Data First Produced by NASA Under this Agreement

If Partner requests that Data first produced by NASA under this Agreement be protected, and NASA determines it would be Proprietary Data if obtained from Partner, NASA will both mark the Data with a restrictive notice and use reasonable efforts to protect it for the period of time specified in the Annex under which the Data is produced. During this restricted period the Data may be disclosed and used (under suitable protective conditions) for U.S. Government purposes only, and thereafter for any purpose. Partner must not disclose the Data without NASA's written approval during the restricted period. The restrictions placed on NASA do not apply to Data disclosing a NASA owned invention for which patent protection is being considered.

D. Publication of Results

The National Aeronautics and Space Act (51 U.S.C. § 20112) requires NASA to provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof. As such, NASA may publish unclassified and non-Proprietary Data resulting from work performed under this Agreement. The Parties will coordinate publication of results allowing a reasonable time to review and comment.

E. Data Disclosing an Invention

If the Parties exchange Data disclosing an invention for which patent protection is being considered, and the disclosing Party identifies the Data as such when providing it to the receiving Party, the receiving Party shall withhold it from public disclosure for a reasonable time (one (1) year unless otherwise agreed or the Data is restricted for a longer period herein).

F. Copyright

With respect to the US3D-Core Software, the rights and responsibilities of the Parties are set forth in the related JOA and are not addressed in this Umbrella Agreement.

Other Data exchanged with a copyright notice and with no restrictive notice is presumed to be published. The following royalty-free licenses apply:

1. If indicated on the Data that it was produced outside of this Agreement, it may be reproduced, distributed, and used to prepare derivative works only for carrying out the receiving Party's responsibilities under this Agreement.
2. Data without the indication of F.1 is presumed to be first produced under this Agreement. Except as otherwise provided in paragraph E of this Article, and in the Invention and Patent Rights Article of this Agreement for protection of reported inventions, the Data may be reproduced, distributed, and used to prepare derivative works for any purpose.

G. Data Subject to Export Control

Whether or not marked, data subject to the export laws and regulations of the United States provided to Partner under this Agreement must not be given to foreign persons or transmitted outside the United States without proper U.S. Government authorization.

H. Handling of Background, Third Party Proprietary and Controlled Government Data

1. NASA or Partner (as disclosing Party) may provide the other Party or its Contributing Entities (as receiving Party) any Background Data, Controlled Government Data, and/or Third-Party Proprietary Data, subject to the following conditions:
    a. Background Data, Third Party Proprietary Data, and Controlled Government Data provided by disclosing Party to receiving Party shall be marked by disclosing Party with a restrictive notice; and
    b. Background Data, Third Party Proprietary Data, and Controlled Government Data shall be identified in a separate technical document. The technical document should be comprehensive, should be kept current, and does not supersede any restrictive notice on the Data.
    c. Other than the jointly-owned US3D-Core Software, which is addressed in the JOA, NASA software and related Data provided to Partner shall be identified in the Annex under which it will be used.
2. Notwithstanding H.3., NASA software and related Data will be provided to Partner under a separate Software Usage Agreement (SUA). Partner shall use and protect the software and related Data in accordance with the SUA. The NASA software and related Data expected to be provided is: See related Annexes.
3. For such Data identified with a restrictive notice pursuant to H.1, receiving Party shall:
    a. Use, disclose, or reproduce such Data only as necessary under this Agreement;
    b. Safeguard such Data from unauthorized use and disclosure;
    c. Allow access to such Data only to its employees and any Contributing Entity requiring access under this Agreement, or as required by law or court order to be disclosed;
    d. Except as otherwise indicated in 3.c., preclude disclosure outside receiving Party's organization;

e. Notify its employees with access about their obligations under this Article and ensure their compliance, and notify any Contributing Entity with access about their obligations under this Article; and
f. Dispose of such Data as disclosing Party directs.

I. Oral and visual information

If either Party discloses Proprietary Data or Controlled Government Data orally or visually, the other Party will have no duty to restrict, or liability for disclosure or use, unless the disclosing party:

1. Orally informs the other Party before initial disclosure that the Data is Proprietary Data or Controlled Government Data, and
2. Reduces the Data to tangible form with a restrictive notice and gives it to the other Party within ten (10) calendar days after disclosure.

ARTICLE 11. INTELLECTUAL PROPERTY RIGHTS - INVENTION AND PATENT RIGHTS

A. General

1. NASA has determined that 51 U.S.C. § 20135(b) does not apply to this Agreement. Therefore, title to inventions made (conceived or first actually reduced to practice) under this Agreement remain with the respective inventing party(ies). No invention or patent rights are exchanged or granted under this Agreement, except as provided herein.

2. "Contributing Entity" as used in this Invention and Patent Rights Article means a contractor, subcontractor, grantee, Partner's value-added resellers, or other entity having a legal relationship with NASA or Partner assigned, tasked, or contracted with to perform activities under this Agreement.

3. The invention and patent rights herein apply to employees and Contributing Entities of Partner. Partner shall ensure that its employees and Contributing Entity employees know about and are bound by the obligations under this Article.

B. NASA or Partner Inventions

1. NASA Inventions - NASA will use reasonable efforts to report inventions made under this Agreement by its employees. Upon request, NASA will use reasonable efforts to grant Partner, under 37 C.F.R. Part 404, a negotiated license to any NASA invention made under this Agreement. This license is subject to paragraph E.1. of this Article. In the unlikely event that NASA produces a US3D-Core-Software-related invention that UMN decides to incorporate into the US3D-Core Software, the Parties will address such invention as described below in Paragraph D for Joint Inventions.
2. Partner Inventions - Partner will use reasonable efforts to report inventions made under this Agreement by its employees. If Partner produces a US3D- Core-Software-related invention that is incorporated into the US3D-Core Software, the Partner will

grant NASA a license of commensurate scope of the copyright license granted in the related JOA.

C. NASA-Contributing-Entity or Partner-Contributing-Entity Inventions

1. NASA-Contributing-Entity Inventions - NASA will use reasonable efforts to report inventions made under this Agreement by its Contributing Entity employees, or jointly between NASA and Contributing Entity employees, where NASA has the right to acquire title. Upon request, NASA will use reasonable efforts to grant Partner, under 37 C.F.R. Part 404, a negotiated license to any of these inventions where NASA has acquired title. This license is subject to paragraph E.2. of this Article. In the unlikely event that a NASA Contributing Entity produces a US3D-Core-Software-related invention that is acquired by NASA, and UMN decides to incorporate into the US3D-Core Software, the Parties will address such invention as described below in Paragraph D for Joint Inventions.
2. Partner-Contributing-Entity Inventions - Partner will use reasonable efforts to report inventions made under this Agreement by its employees and Contributing Entities. In the event that a Partner Contributing Entity produces a US3D-Core-Software-related invention that is incorporated into the US3D-Core Software, the Partner will grant NASA a license of commensurate scope of the copyright license granted in the related JOA.

D. Joint Inventions With Partner

The Parties will use reasonable efforts to report, and cooperate in obtaining patent protection on, inventions made jointly between NASA employees, Partner employees, and employees of either Party's Contributing Entities. In the unlikely event that the Parties produce a joint invention under this Agreement that is incorporated into the US3D-Core Software, upon making a determination to protect such invention, the Parties will amend the related JOA to address which Party will file the patent application, who will pay to maintain any resulting patent that issues, and, based upon the inventor contributions, any royalty sharing between the Parties from commercialization.

E. Rights to be Reserved in Partner's Licenses

Any license granted Partner under paragraphs B. or C. of this Article is subject to the following:

1. For inventions made solely or jointly by NASA employees, NASA reserves the irrevocable, royalty-free right of the U.S. Government to practice the invention or have it practiced on behalf of the United States or on behalf of any foreign government or international organization pursuant to any existing or future treaty or agreement with the United States.
2. For inventions made solely or jointly by employees of a NASA Contributing Entity, NASA reserves the rights in 1. above, and a revocable, nonexclusive, royalty-free license retained by the Contributing Entity under 14 C.F.R. § 1245.108 or 37 C.F.R. § 401.14 (e).

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F. Protection of Reported Inventions

For inventions reported under this Article, the Receiving Party shall withhold all invention reports or disclosures from public access for a reasonable time (1 year unless otherwise agreed or unless restricted longer herein) to facilitate establishment of patent rights.

G. Patent Filing Responsibilities and Costs

1. The invention and patent rights herein apply to any patent application or patents covering an invention made under this Agreement. Each Party is responsible for its own costs of obtaining and maintaining patents covering sole inventions of its employees. The Parties may agree otherwise, upon the reporting of any invention (sole or joint) or in any license granted.

2. Partner shall include the following in patent applications for an invention made jointly between NASA employees, its Contributing Entity employees and Partner employees:

   The invention described herein may be manufactured and used by or for the U.S. Government for U.S. Government purposes without the payment of royalties thereon or therefore.

ARTICLE 12. USE OF NASA NAME AND NASA EMBLEMS

A. NASA Name and Initials

Partner shall not use "National Aeronautics and Space Administration" or "NASA" in a way that creates the impression that a product or service has the authorization, support, sponsorship, or endorsement of NASA, which does not, in fact, exist. Except for releases under the "Release of General Information to the Public and Media" Article, Partner must submit any proposed public use of the NASA name or initials (including press releases and all promotional and advertising use) to the NASA Associate Administrator for the Office of Communications or designee ("NASA Communications") for review and approval. Approval by NASA Office of Communications shall be based on applicable law and policy governing the use of the NASA name and initials.

B. NASA Emblems

Use of NASA emblems (i.e., NASA Seal, NASA Insignia, NASA logotype, NASA Program Identifiers, and the NASA Flag) is governed by 14 C.F.R. Part 1221. Partner must submit any proposed use of the emblems to NASA Communications for review and approval.

C. Partner Name and Trademarks

NASA shall not use Partner's name or trademarks in any way that suggests Partner endorses NASA. Partner granted NASA permission to use its "US3D" Trademark in the related JOA.

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ARTICLE 13. RELEASE OF GENERAL INFORMATION TO THE PUBLIC AND MEDIA

NASA or Partner may, consistent with Federal law and this Agreement, release general information regarding its own participation in this Agreement as desired. Pursuant to Section 841(d) of the NASA Transition Authorization Act of 2017, Public Law 115-10 (the "NTAA"), NASA is obligated to publicly disclose copies of all agreements conducted pursuant to NASA's 51 U.S.C. §20113(e) authority in a searchable format on the NASA website within 60 days after the agreement is signed by the Parties. The Parties acknowledge that a copy of this Agreement, which in the case of umbrella agreements includes any associated annexes, will be disclosed, without redactions, in accordance with the NTAA.

ARTICLE 14. DISCLAIMER OF WARRANTY

Goods, services, facilities, or equipment provided under this Agreement are provided "as is." Parties make no express or implied warranty as to the condition of any such goods, services, facilities, or equipment, or as to the condition of any research or information generated under this Agreement, or as to any products made or developed under or as a result of this Agreement including as a result of the use of information generated hereunder, or as to the merchantability or fitness for a particular purpose of such research, information, or resulting product, or that the goods, services, facilities or equipment provided will accomplish the intended results or are safe for any purpose including the intended purpose, or that any of the above will not interfere with privately-owned rights of others. Neither Party nor its contractors shall be liable for special, consequential or incidental damages attributed to such equipment, facilities, technical information, or services provided under this Agreement or such research, information, or resulting products made or developed under or as a result of this Agreement.

ARTICLE 15. DISCLAIMER OF ENDORSEMENT

NASA does not endorse or sponsor any commercial product, service, or activity. NASA's participation in this Agreement or provision of goods, services, facilities or equipment under this Agreement does not constitute endorsement by NASA. Partner agrees that nothing in this Agreement will be construed to imply that NASA authorizes, supports, endorses, or sponsors any product or service of Partner resulting from activities conducted under this Agreement, regardless of the fact that such product or service may employ NASA-developed technology.

ARTICLE 16. COMPLIANCE WITH LAWS AND REGULATIONS

A. The Parties shall comply with all applicable laws and regulations including, but not limited to, safety; security; export control; environmental; and suspension and debarment laws and regulations. Access by a Partner to NASA facilities or property, or to a NASA Information Technology (IT) system or application, is contingent upon compliance with NASA security and safety policies and guidelines including, but not limited to, standards on badging, credentials, and facility and IT system/application access, including use of Interconnection

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Security Agreements (ISAs), when applicable.

B. With respect to any export control requirements:
   1. The Parties will comply with all U.S. export control laws and regulations, including the International Traffic in Arms Regulations (ITAR), 22 C.F.R. Parts 120 through 130, and the Export Administration Regulations (EAR), 15 C.F.R. Parts 730 through 799, in performing work under this Agreement or any Annex to this Agreement. In the absence of available license exemptions or exceptions, the Partner shall be responsible for obtaining the appropriate licenses or other approvals, if required, for exports of hardware, technical data and software, or for the provision of technical assistance.
   2. The Partner shall be responsible for obtaining export licenses, if required, before utilizing foreign persons in the performance of work under this Agreement or any Annex under this Agreement, including instances where the work is to be performed on-site at NASA and where the foreign person will have access to export-controlled technical data or software.
   3. The Partner will be responsible for all regulatory record-keeping requirements associated with the use of licenses and license exemptions or exceptions.
   4. The Partner will be responsible for ensuring that the provisions of this Article apply to its Related Entities.

C. With respect to suspension and debarment requirements:
   1. The Partner hereby certifies, to the best of its knowledge and belief, that it has complied, and shall comply, with 2 C.F.R. Part 180, Subpart C, as supplemented by 2 C.F.R. Part 1880, Subpart C.
   2. The Partner shall include language and requirements equivalent to those set forth in subparagraph C.1., above, in any lower-tier covered transaction entered into under this Agreement.

D. With respect to the requirements in Section 889 of the National Defense Authorization Act (NDAA) for Fiscal Year 2019, Public Law 115-232:
   1. In performing this Agreement, Partner will not use, integrate with a NASA system, or procure with NASA funds (if applicable), "covered telecommunications equipment or services" (as defined in Section 889(f)(3) of the NDAA).
   2. The Partner will ensure that the provisions of this Article apply to its Related Entities.

ARTICLE 17. TERM OF AGREEMENT

This Agreement 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 five years from the Effective Date, whichever comes first.

ARTICLE 18. TERMINATION

Either Party may unilaterally terminate this Umbrella Agreement or any Annex(es) by providing thirty (30) calendar days written notice to the other Party. Termination of an Annex does not

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terminate this Umbrella Agreement. However, the termination or expiration of this Umbrella Agreement also constitutes the termination of all outstanding Annexes.

ARTICLE 19. CONTINUING OBLIGATIONS

The rights and obligations of the Parties that, by their nature, would continue beyond the expiration or termination of this Agreement, e.g., "Liability and Risk of Loss" and "Intellectual Property Rights"-related clauses shall survive such expiration or termination of this Agreement.

ARTICLE 20. POINTS OF CONTACT

The following personnel are designated as the Points of Contact between the Parties in the performance of this Agreement. Annexes may designate Points of Contact for purposes of the Annex activities.

Management Points of Contact

NASA Ames Research Center
Nahri Ahn
Agreement Manager
Moffett Field, CA 94035
Phone: 650-604-1179
nahri.i.ahn@nasa.gov

University of Minnesota
Nic Allyn, Assistant Director
Sponsored Projects
226 McNamara Alumni Center
200 Oak Street SE
Minneapolis, MN 55455-0213
Phone: (612) 624-0550
umotc@umn.edu

Technical Points of Contact

NASA Ames Research Center
Jeffrey Hill
Branch Chief
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Phone: 650-604-6229
jeffrey.p.hill@nasa.gov

University of Minnesota
Graham Candler
Professor, Aerospace Engineering & Mechanics
107 Akerman Hall
110 Union St SE
Minneapolis, MN 55455-0213
Phone: 612-625-2364
candler@umn.edu

ARTICLE 21. DISPUTE RESOLUTION

Except as otherwise provided in the Article entitled "Priority of Use," the Article entitled "Intellectual Property Rights – Invention and Patent Rights" (for those activities governed by 37 C.F.R. Part 404), and those situations where a pre-existing statutory or regulatory system exists (e.g., under the Freedom of Information Act, 5 U.S.C. § 552), all disputes concerning questions of fact or law arising under this Agreement or Annex shall be referred by the claimant in writing to the appropriate person identified in this Agreement for purposes of the activities undertaken in the Agreement, or Annex(es) for purposes of the activities undertaken in the Annex(es) as the

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"Points of Contact." The persons identified as the "Points of Contact" for NASA and the Partner will consult and attempt to resolve all issues arising from the implementation of this Agreement. If they are unable to come to agreement on any issue, the dispute will be referred to the signatories to this Agreement, or their designees, for joint resolution. If the Parties remain unable to resolve the dispute, then the NASA signatory or that person's designee, as applicable, will issue a written decision that will be the final agency decision for the purpose of judicial review. Nothing in this Article limits or prevents either Party from pursuing any other right or remedy available by law upon the issuance of the final agency decision.

ARTICLE 22. MODIFICATIONS

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

ARTICLE 23. ASSIGNMENT

Neither this Agreement nor any interest arising under it will be assigned by the Partner or NASA without the express written consent of the officials executing, or successors, or higher- level officials possessing original or delegated authority to execute this Agreement.

ARTICLE 24. APPLICABLE LAW

U.S. Federal law governs this Agreement for all purposes, including, but not limited to, determining the validity of the Agreement, the meaning of its provisions, and the rights, obligations and remedies of the Parties.

ARTICLE 25. INDEPENDENT RELATIONSHIP

This Agreement is not intended to constitute, create, give effect to or otherwise recognize a joint venture, partnership, or formal business organization, or agency agreement of any kind, and the rights and obligations of the Parties shall be only those expressly set forth herein.

ARTICLE 26. LOAN OF GOVERNMENT PROPERTY

The parties shall enter into a NASA Form 893, Loan of NASA Equipment, for NASA equipment loaned to Partner.

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ARTICLE 27. SIGNATORY AUTHORITY

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

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AMES RESEARCH CENTER

BY: Rupak Biswas Digitally signed by Rupak Biswas Date: 2025.12.29 15:16:17 -08'00'

Dr. Rupak Biswas
Director of Exploration Technology

DATE: December 29, 2025

REGENTS OF THE UNIVERSITY OF MINNESOTA

BY: DocuSigned by: Nic Allyn 55E755588D4341D...

Nic Allyn
Assistant Director
Sponsored Projects

DATE: December 29, 2025 | 10:01 AM PST