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NASA Procedural Requirements

COMPLIANCE IS MANDATORY**NPR 2190.1B**
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Responsible Office: Export Control & Interagency Liaison Division

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Appendix E. NASA Fundamental Research Designation Guidelines

E.1. Summary

E.1.1 The fundamental research designation applies to information, not hardware, and could encompass an entire program or an element of a program.

E.1.2 NASA sponsors fundamental research at Federal laboratories, at universities, and within industry. This guideline is to be followed by NASA program managers to determine when research sponsored by NASA will be designated as fundamental research, allowing the public dissemination of results. Reference to NASA program managers in this document also includes NASA project managers that have authority to commit NASA resources to a course of action (i.e., grant or contract). JPL (an FFRDC) implementation of this guidance will be done as directed by the NASA Management Office (NMO) Procurement Officer at JPL-FFRDC. This guidance does not eliminate exemptions in the ITAR specifically for fundamental research at accredited institutions of higher learning in the U.S.

E.1.3 The National Aeronautics and Space Act of 1958 established NASA and charged it to "provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof." Programs designated as conducting fundamental research are expected to fulfill this charge and will have limited review for export control beyond the initial designation review. This limited review refers to the process program managers establish to ensure that export-controlled background or resource data is not co-mingled with fundamental research results data in publications. Release of NASA scientific and technical information from programs not designated as fundamental research will be handled in accordance with NPR 2200.2, Requirements for Documentation, Approval, and Dissemination of NASA Scientific and Technical Information (STI), and will require an export control review by the appropriate NASA Export Control official before such information is released.

E.1.4 A copy of the documentation that designates a program or project as fundamental research must be forwarded to the Center's STI Program (STI Manager) who will alert the Center's Document Availability Authorization, NF 1676, representative. This documentation will include an approved NF 1676 designating the program/project as fundamental research, and sufficient description of the program or project for the reviewers of the NF 1676 to evaluate potential export issues. In addition, NASA STI from these programs or projects designated as fundamental research must be sent through the Center's STI process via the NF 1676, with the blanket authorization checked, prior to release or providing access to non-U.S. persons (foreign persons). STI not designated as fundamental research will be handled in accordance with NPR 2200.2, and will require full NF-1676 review, including an export control review by the appropriate NASA Export Control official before such information is released.

E.1.5 NASA program managers will coordinate with the local NASA/Center Export Administrator on the designation of a program as fundamental research, and JPL (an FFRDC) is required to coordinate with the Export Officer in the NMO. The designation criteria track the fundamental research definitions presented within the ITAR and EAR with the additional considerations detailed in this policy. Center designations of programs as fundamental research will also be coordinated with the appropriate HQ Mission Directorate to ensure consistency. Maintaining documentation of fundamental research program designations will assist authors and simplify the review of future publications and other releases into the public domain. The program manager making the fundamental research designation and the

Export Administrator consulted will keep a copy of the documentation to facilitate future NASA STI reviews and to support approval of blanket dissemination authority. NASA program management fundamental research designations impact NASA grants and contracts (NFS 1852.235-73, 52.227-14).

E.2 Defining Fundamental Research by the Regulations

E.2.1 The basic definition of fundamental research is the same under the ITAR and the EAR. There are some differences in how fundamental research is treated under the two sets of regulations. For instance, it is suggested that in order for fundamental research to be exempted from export controls under the ITAR, it must be performed by an institution of higher learning in the U.S. while under the EAR, universities, Federally Funded Research and Development Centers (FFRDC), and even private corporations and Federal agencies may perform fundamental research.

E.2.2 Fundamental research is defined by the ITAR in 22 CFR 120.11: Public domain means information which is published and which is generally accessible or available to the public: Through fundamental research in science and engineering at accredited institutions of higher learning in the U.S. where the resulting information is ordinarily published and shared broadly in the scientific community. Fundamental research is defined to mean basic and applied research in science and engineering where the resulting information is ordinarily published and shared broadly within the scientific community, as distinguished from research the results of which are restricted for proprietary reasons or specific U.S. Government access and dissemination controls. University research will not be considered fundamental research if: (i) The university or its researchers accept other restrictions on publication of scientific and technical information resulting from the project or activity, or (ii) The research is funded by the U.S. Government and specific access and dissemination controls protecting information resulting from the research are applicable.

E.2.3 Basic research (as defined in ITAR §125.4(c)(3) and § 126.5(c)(6)(iii)) means a systemic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and observable facts without specific applications towards processes or products in mind. Basic research does not include applied research. Applied research (also defined in sections referenced) is systemic study to gain knowledge or understanding necessary to determine the means by which a recognized and specific need may be met. It is the systemic application of knowledge toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements.

E.2.4 The EAR provides a similar discussion of fundamental research in 15 CFR 734.8. Fundamental research is distinguished from proprietary research and from industrial development, design, production, and product utilization, the results of which are usually restricted for proprietary reasons or national security reasons defined in 734.11(b). The EAR also posits, in 734.8(c), that research conducted by scientists or engineers working for a Federal agency or a FFRDC may be designated as fundamental research within any appropriate system devised by the agency or the FFRDC to control the release of information by such scientists and engineers.

E.3 Consideration Factors for Fundamental Research Designation

E.3.1 National Security Decision Directive (NSDD) 189- National Policy on Transfer of Scientific, Technical, and Engineering Information; and Executive Order 12958 (Classified National Security Information) controls include:

- a. Prepublication review by the Government with the right to withhold permission for publication.
- b. Restrictions on prepublication dissemination of information to non-U.S. citizens or other categories of persons.
- c. Restrictions on participation of non-U.S. citizens or other categories of persons in the research.

E.3.2 National security considerations are to be guided by NPR 1600.1, NASA Security Program Procedural Requirements, specifically section 5.23, Security Classification Reviews for NASA Programs and Projects, which requires that programs and projects conduct formal security reviews to include reviews for traditional information classification security needs to determine if information used or produced as part of a program or project meets the requirements for designation as Classified National Security Information (CNSI) and/or Sensitive But Unclassified (SBU) controlled information. NASA Form 1733 can assist program managers' review of projects for national security concerns.

E.3.3 Information that is SBU is official information and material of a sensitive, but unclassified, nature, which does not contain CNSI. It includes any information, the loss or release of which would cause harm to a person's privacy or welfare, adversely impact economic or industrial institutions, or compromise programs or operations essential to the safeguarding of our national interests. Refer to NASA Interim Directive: 5.24 Sensitive But Unclassified (SBU) Controlled Information, NM 1600-55, for additional SBU guidance. Some examples of SBU are drawings and specifications for existing or proposed essential mission infrastructure.

E.3.4 The essential criterion for a fundamental research designation is whether the sponsor NASA intends for the results of the research is to be widely disseminated without restriction. Guiding considerations are provided for

NASA program managers making such decisions; other factors or issues may be added as appropriate. In order to make an informed fundamental research designation decision for a program, program managers need an understanding of:

- a. The research area.
- b. The factors contributing to the research.
- c. The export classification or jurisdiction of the technology and/or hardware involved.
- d. The National Security-required control.
- e. The export-control access limitations that may be present.

E.3.5 Examples of areas of research with potential to receive NASA designation as fundamental research include: solar system science, planetary physics, astrophysics, astrobiology, heliophysics, Earth sciences, Earth and planetary environmental phenomena, space biological and physical sciences, and development of software tools and databases to capture, catalogue, refine, and interpret results data. The NASA fundamental research designation can also include applied research (also defined in §125.4(c)(3)). As with any fundamental research activity, the resulting information obtained through fundamental research involving the item must be published and shared broadly within the scientific community, and the information may not be restricted for proprietary reasons or specific U.S. Government access and dissemination controls or other restrictions accepted by the institution or its researchers on publication of scientific and technical information resulting from the project or activity. Export controlled or proprietary technical data used as background to fundamental research cannot normally be included in the resulting publication; grant recipients and contractors should ensure such disclosure is not made. NASA program managers should establish a mechanism to preclude inclusion of export controlled or proprietary data in fundamental research publications.

E.3.6 Generally, if research requires access to export-controlled technology, it may not be designated as fundamental research without further discussion between the subject matter experts, a NASA Export Control Administrator, and an Office of Protective Services representative to determine if a fundamental research designation is appropriate. A NASA program may not be designated as fundamental research if there are existing specific national security controls on a research project or activity within the program. Fundamental research cannot be SBU and vice versa.

E.3.7 An assessment of the Technology Readiness Level (TRL) or maturity of a particular technology or research area can also support the fundamental research designation of a program/project. A TRL of 5 and above generally would not support a fundamental research designation and will require coordination with NASA Export officials. Additional information on TRL levels can be found in NPR 7123.1, NASA Systems Engineering Processes and Requirements.

E.3.8 The questions below are intended to help the program manager and CEA work through the fundamental research decision process.

1. Does NASA intend for all the resulting data to be published and widely disseminated?

If the answer is "no," stop. Your project is not fundamental research. If the answer is "yes," review the considerations to clarify and support a fundamental research designation.

2. What is the current export classification of the research area, technology, software, or hardware involved?

The answer will guide further discussion. If the technology or hardware, as it currently exists, includes export controlled technical data, fundamental research classification for future research may not be appropriate and further discussion is required.

3. Is the proposed fundamental research related to any export controlled technology or hardware? Are there foreign national access limitations to export controlled hardware or technical data required in the fundamental research?

A "yes" answer may preclude a project from being designated as fundamental research, and further discussion is needed.

4. Will access to export controlled technical data, proprietary data, or systems be required for the research?

A "yes" answer may preclude research from being designated as fundamental research. If research is designated as fundamental research, it will require safeguards to preclude any co-mingling of export-controlled and proprietary data with results data. Program managers should have a mechanism in place to ensure that neither export controlled nor proprietary data are included in the published results.

5. Could the results be categorized as SBU? Could the results data adversely impact NASA or NASA assets, or compromise programs or operations essential to the safeguarding of our national interests? Refer to

NPR 1600.1, NASA Interim Directive: 5.24 Sensitive But Unclassified (SBU) Controlled Information, NM 1600-55, and NSDD 189.

A "yes" answer precludes the project from being designated as fundamental research.

6. Could the results be categorized as proprietary and or include proprietary information provided by NASA or another source?

A "yes" answer precludes research from being designated as fundamental research.

7. Would publishing the expected research data generate National Security concerns? Refer to NPR 1600.1 and NSDD 189.

A "yes" answer precludes research from being designated as fundamental research.

8. Will there be intellectual property issues connected to the results of the research?

A "yes" answer will require compliance with 734.8(b)(2) and safeguards to preclude co-mingling of proprietary data with results data. Proprietary data requires General Counsel review. Research papers will not include proprietary and export-controlled background data.

E.4 Document the Fundamental Research Designation Decision

(Attach a document (containing the information below) to the NF 1676 that approves the blanket authorization for fundamental research. Submit this form along with the NF 1676 (called the master NF 1676) with all required signatures as indicated on the form and send it to the recipients listed in item 5. Subsequent documents processed under this approved Fundamental Research Designation Decision and master NF 1676 must be submitted via a NF 1676 with only the signature of the program manager who approved the designation and the Center DAA representative.)

Program Description (technology, organizations participating):

Will export controlled data be used in background? Yes ____, No _____. If NO, skip this section. If YES, indicate how the export controlled hardware or data will be protected and restricted from foreign person participants in the research and how program manager review of publications to preclude co-mingling of export controlled data will be accomplished:

Designation as fundamental research (supporting justification why it fits, when publications are expected):

Concurrence (NASA Program Manager, CEA, others as required), date:

Forward a copy, affixed to the completed NASA Form 1676, to:

- a. The CEA.
- b. The Center Records Manager.
- c. NASA Export Administrator at NASA HQ, Office of International and Interagency Relations.
- d. The HQ Mission Directorate.
- e. The Center for AeroSpace Information (CASI).
- f. The Center STI Manager who will alert the Center DAA, NF 1676 representative.

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