NASA Procedural Requirements

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COMPLIANCE IS MANDATORY FOR NASA EMPLOYEES

Requirements for the Conduct of NASA Research and Technology (R&T)

Responsible Office: Science Mission Directorate

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Preface

P.1 Purpose

a. In conjunction with NASA Procedural Requirements (NPR) 7120.8, this document establishes the requirements that govern how NASA will conduct R&T (as defined in Appendix A), consistent with the governance model contained in NPD 1000.0.

b. While R&T program and project management requirements are established in NPR 7120.8, this document establishes requirements for R&T planning, solicitation and selection of R&T proposals, peer review, quality assessment and performance metrics, data protection, publication, and R&T misconduct. The requirements described in this NPR are used to develop Mission Directorate (MD) and Mission Support Office (MSO) R&T management processes. These general principles also apply to the MD, MSO and functional offices that fund R&T that is specifically reported as part of the GPRA Modernization Act (GPRAMA).

P.2 Applicability

a. This NPR is applicable to NASA Headquarters and NASA Centers, including Component Facilities and Technical and Service Support Centers and to the Jet Propulsion Laboratory (JPL), a Federally Funded Research and Development Center (FFRDC), other contractors, grant recipients, or parties to agreements only to the extent specified or referenced in the appropriate contracts, grants, or agreements. Certain cooperative or partnership arrangements involving cost sharing with the private sector may be excluded from the scope of this NPR when approved by the appropriate Mission Directorate Associate Administrator (MDAA) or Mission Support Office Director (MSOD).

b. This NPR applies to all current and future R&T managed or funded by NASA.

c. R&T involving human subjects should be conducted in conformance with this NPR except in the areas of release and maintenance of resulting data (see NPD 7100.8, and NPR 7100.1).

d. Any conflict between NPR 7120.8, and this NPR will be jointly resolved by the Science Mission Directorate (SMD) and the Office of Chief Engineer (OCE).

e. In this directive, all mandatory actions (i.e., requirements) are denoted by statements containing the term "shall." The terms: "may" or "can" denote discretionary privilege or permission, "should" denotes a good practice and is recommended, but not required, "will" denotes expected outcome, and "are/is" denotes descriptive material.

P.3 Authority

a. National Aeronautics and Space Act, 51 U.S.C. 20113 (a).

b. NPD 1080.1, Conduct of NASA Research and Technology Development

P.4 Applicable Documents and Forms

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a. Procurement Integrity, 41 U.S.C. 423

b. Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, 2 CFR pt. 200

c. NASA supplement for the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, 2 CFR pt.1800

d. Grant and Cooperative Agreement Manual

e. Cooperative Agreements with Commercial Firms, 14 CFR pt. 1274

f. Research Misconduct, 14 CFR pt. 1275

g. NASA/FAR Supplement, 48 CFR pts. 1800-1899

h. NPD 1001.0, NASA Strategic Plan

i. NPD 1150.11, Federal Advisory Committee Act (FACA) Committees. j. NPD 2200.1, Management of NASA Scientific and Technical Information

j. NPD 1200.1, NASA Internal Control and Accountability

k. NPD 1360.2, Initiation and Development of International Cooperation in Space and Aeronautics Programs

l. NPD 1440.6, NASA Records Management

m. NPD 1600.2, NASA Security Policy

n. NPD 2230.1 Research Data and Publication Access

o. NPD 7100.8, Protection of Human Research Subjects

p. NPD 8910.1, Care and Use of Animals

q. NPR 1441.1, NASA Records Retention Schedules

r. NPR 1600.1, NASA Security Program Procedural Requirements.

s. NPR 2200.2, Requirements for Documentation, Approval, and Dissemination of NASA Scientific and Technical Information

t. NPR 2810.1, Security of Information Technology

u. NPR 5101.33, Procurement Advocacy Programs

v. NPR 7100.1, Protection of Human Research Subjects

w. NPR 7120.8, NASA Research and Technology Program and Project Management Requirements

x. NPR 7500.1, NASA Technology Commercialization Process

y. Guidance for the Preparation and Submission of Unsolicited Proposals

z. NASA Publication NP-2015-05-1796-HQ, NASA Plan for Increasing Access to the Results of

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Scientific Research

aa. NRA or Cooperative Agreement Notice Proposers' Guidebook

P.5 Measurement/Verification

Compliance with this document is verified through oversight by the governing Program Management Council (PMC) and NASA internal controls described in NPD 1200.1, NASA Internal Control and Accountability, NASA Internal Management Council (PMC) and NASA internal controls described in NPD 1200.1. The cognizant MD or MSO periodically reviews and make recommendations to the governing PMC on the metrics that are used for inclusion in the Agency's budgetary, performance planning, and review documents and for other evaluative purposes.

P.6 Cancellation

NPR 1080.1A, NASA Science Management, May 30, 2008.

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Chapter 1. Introduction

1.1 Background

1.1.1 The requirements specified in this document ensure that NASA R&T is scientifically and technologically well founded, of excellent quality, appropriate for intended applications, and that the results of NASA-funded R&T are made available to the public.

1.1.2 Contracts are governed by the NASA Federal Acquisition Regulation Supplement, 48 CFR 1800. Grants and cooperative agreements are governed by 2 CFR pts. 200 and 1800, or 14 CFR pt. 1274 in the case of commercial firms.

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Chapter 2. R&T Planning and Prioritization

2.1 Acquire Advice

2.1.1 NASA R&T programs are initiated with the advice of the R&T community (internal and external to NASA) in the form of studies or advisory committee recommendations. These inputs are used by the MDAA or MSOD, with assistance from assigned program staff, to develop priorities and documentation in accordance with NPR 7120.8, NASA Research and Technology Program and Project Management Requirement.

2.1.2 NASA uses a broad variety of mechanisms to obtain external input, including, for example, advisory committees comprised of outside experts, contracted external studies, and NASA-managed internal studies. Advice may be obtained from NASA-formed advisory committees. Studies may also be requested from for-profit concerns, professional societies, the National Research Council, or other qualified organizations, depending on the specific need.

2.1.3 NASA-formed advisory committees will be established and managed in accordance with NPD 1150.11, Federal Advisory Committee Act (FACA) Committee.

2.1.4 In obtaining advice on a given topic or area, NASA seeks to maximize expertise and objectivity; this will often require balancing the independence of advising individuals or organization(s) who receive NASA funding against the need for familiarity with NASA programs and issues. NASA avoids financial conflicts of interest and minimizes the potential for bias when selecting members of advisory groups.

2.2 Plan and Set Priorities

2.2.1 Strategic Acquisition Planning for R&T investments is accomplished as described in NPR 7120.8.

2.2.2 The setting of priorities requires the balancing of many factors: NASA strategic goals, intrinsic merit, technical feasibility, and resources availability, and safety, likelihood of mission success, potential environmental impact, and national policy. While achieving R&T objectives is a priority, there will always be a risk of failure when NASA is challenging its researchers to push the state of the art. A good R&T program does not compromise on advancing the state of the art to ensure that every research goal is achievable.

2.2.3 R&T priorities are based on strategies and implementation plans derived from advice received, MDAA or MSOD investment criteria of relevance, quality, cost and performance, and other considerations and are aligned with the Agency's vision and mission, as defined by NPD 1001.0, NASA Strategic Plan, programmatic or societal considerations can enter the planning and priority-setting process at several stages. Contributions to broad national needs identified by the Administration or Congress will also play a role in establishing R&T priorities and in arriving at the decision to proceed with a particular investment.

2.2.4 The processes used to set priorities and the rationale and conclusions of priority setting should be clearly and publicly promulgated in the interest of fostering stakeholder input and credibility among non-participants.

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Chapter 3. R&T Solicitation and Selection

3.1 R&T Solicitation Process

3.1.1 Open competition and peer review (the scientific or technical review of proposals by qualified unbiased experts in the appropriate fields) is the standard method of ensuring that the most qualified R&T proposals are selected.

3.1.2 Solicitation Mechanisms

3.1.2.1 NASA solicits proposals for R&T investigations using Broad Agency Announcements (BAAs) such as an Announcement of Opportunity (AO) or NASA Research Announcement (NRA). A NASA Cooperative Agreement Notice (CAN) is also used for activities in which a substantial collaboration is expected between NASA and the recipient during the performance of the proposed activity. BAAs, NRAs, AOs, and CANs are also referred to as "research solicitations."

3.1.2.2 Specific guidance on the use of these solicitation mechanisms is found in the following documents.

a. AOs are described in 48 CFR 1872.

b. Selection of Funding Instruments is described in the NASA Grant and Cooperative Agreement Manual (GCAM). The GCAM provides internal policy guidance to NASA Program Officers and Grant Officers to implement Government-wide and NASA specific regulations for awarding and administering grants and cooperative agreements.

c. The Government-wide regulations are set forth in 2 CFR pt. 200 and are supplemented by NASA specific regulations provided in 2 CFR pt. 1800.

3.1.3 Proposal Evaluation

3.1.3.1 Customarily, the principal elements considered in evaluating a proposal are relevance to NASA's objectives, intrinsic merit, and cost reasonableness.

3.1.3.2 These three evaluation criteria are described in the NRA or Cooperative Agreement Notice Proposers' Guidebook.

3.1.3.3 Proposals submitted to NASA are reviewed by panel reviewers, external reviewers (who submit written reviews but do not participate in a panel), or a combination of both as described below:

a. The responsible R&T Program Officer (or other designee, if assigned) selects the panel and, if used, external reviewers based on their known expertise relevant to the content of each proposal. These panel reviewers or individual reviewers are the proposer's professional peers who do not have a conflict of interest or potential bias (See Section 4.3).

b. There are at least two reviewers of each proposal.

c. In all cases, copies of every proposal will be available for inspection by the non-conflicted members of the panel while it is in session.

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d. The final evaluation determined by the panel is reviewed and approved for completeness and clarity by the chairperson of the panel and the cognizant NASA Program Officer (or other designee, if assigned).

3.2 Proposals Received Other than Through a Competed Solicitation

Open competition and peer review (the scientific or technical review of proposals by qualified, unbiased experts) are the standard methods of ensuring that the most qualified R&T proposals are selected. Procedures for employing other than full and open solicitation and selection of proposals may be used on an exceptional basis according to governing legal and agency standards. All proposals that were not openly solicited and competed (sometimes referred to as non-competitive) including Unsolicited Proposals and Single-source Proposals are subject to the rules described in 2 CFR pt. 1800, Section 5.2 of the GCAM, and any other policies, procedures, concurrences, and/or approvals established by the NASA funding sponsor's organization and/or Center.

3.2.1 Unsolicited Proposals

3.2.1.1 Unsolicited proposals are those submitted to NASA on the initiative of the applicant rather than in response to a NASA formal or informal solicitation. NASA Guidance for the Preparation and Submission of Unsolicited Proposals are used by the proposer to develop and submit an unsolicited proposal. The information NASA personnel may provide in discussing the development of an unsolicited proposal is described in 2 CFR pt. 1800 (applicable to unsolicited proposals for grants or cooperative agreements). However, the decision to submit an unsolicited proposal rests solely with the proposer.

3.2.1.2 The procedures for receiving and reviewing unsolicited proposals are contained in the 2 CFR pt. 1800, and the NASA Guidance for the Preparation and Submission of Unsolicited Proposals.

3.2.1.3 If an unsolicited proposal is determined to be compliant with 2 CFR pt. 1800, NASA will conduct an evaluation, consistent with the GCAM and the NASA Guidance for the Preparation and Submission of Unsolicited Proposals, after which the proposal is submitted to an appropriate NASA Selection Official for selection or rejection. Waivers from the peer review process may be granted for proposals that meet the criteria stated in Section 3.3.4, or otherwise established in policy.

3.2.1.4 If an unsolicited proposal is selected, a written justification that addresses the criteria in 2 CFR pt. 1800 and the GCAM is submitted to the Selection Official for concurrence and then to the appropriate procurement office. This documentation includes a verification that there are not current or planned competitive solicitations to which the proposal could have been submitted.

3.2.1.5 Unsolicited proposals from foreign sources are subject to policy established in NPD 1360.2.

3.2.2 Solicited Non-Competitive Proposals

3.2.2.1 The circumstances under which NASA may solicit a single-source R&T proposal are contained in 2 CFR pt. 1800 and the GCAM. The fact that NASA has done business with a potential non-Federal source for years is not an acceptable justification for NASA to request a single-source proposal. NASA technical staff should be able to demonstrate that the proposing organization is uniquely qualified to fulfill the project needs or that that circumstances of the project necessitate a non-competitive grant or cooperative agreement.

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3.2.2.2 Solicited non-competitive proposals should be subjected to appropriate review, consistent with the GCAM, after which the selection recommendation is submitted to an appropriate NASA Selection Official for selection or rejection. Waivers from the peer review process may be granted for proposals that meet the criteria stated in Section 3.3.4.

3.2.2.3 If a single-source proposal is selected, a written justification consistent with 2 CFR pt. 1800, is submitted to the Selection Official for concurrence and then to the appropriate procurement office.

3.2.3 Congressionally directed funding for R&T programs and policies is often divided between assistance to non-Federal entities (site-specific) and increases to specific NASA programs (programmatic). Proposals submitted in response to congressionally directed site-specific funding are normally evaluated using criteria based upon those included in the NASA Guidance for Preparation and Submission of Unsolicited Proposals but are not necessarily peer reviewed. Technical evaluations to assure the validity of the evaluation and the independent quality inherent in merit review may be carried out by a qualified person who is not serving as the cognizant NASA Program Officer. The independent technical evaluation, if done in this manner, should not require the independent technical evaluator to make a recommendation for funding. If an impasse occurs after a good faith effort to resolve outstanding issues has been made, the cognizant MDAA shall inform the Associate Administrator (AA) and the Deputy Chief Financial Officer for Appropriations.

3.3 Peer Review

3.3.1 Peer review is the scientific or technical evaluation of proposals by qualified, unbiased experts. Specific goals of peer review are to:

a. Assess the work proposed according to the three main criteria given in 3.1.3 Proposal Evaluation: intrinsic merit, relevance, and cost reasonableness.

b. Assess the work proposed according to its consistency with any other evaluation criteria in the solicitation.

c. Demonstrate to internal and external communities that excellence and fairness are achieved in arriving at scientific and technical decisions by making the R&T communities themselves participants in the selection process.

3.3.2 To accomplish the goals of peer review, a person designated by the responsible MDAA or MSOD (e.g., the Deputy Associate Administrator for Research in SMD) ensures that:

a. Reviewers are knowledgeable and collectively cover the full range of scientific and technical expertise required for thorough proposal evaluation.

b. Conflicts of interest are scrupulously avoided. Screening for conflicts of interest must be a mandatory precondition for participation in NASA peer review activities.

c. NASA programmatic and technical needs and requirements, as described in the R&T solicitation, are communicated to and understood by reviewers.

d. The criteria for evaluation are understood by the reviewers, traceable to the needs and requirements outlined in the R&T solicitation, and clearly and objectively stated in that solicitation.

e. The responsible Program Officer or another NASA civil servant or Intergovernmental Personnel

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Act appointee monitors the peer reviewers.

3.3.3 To maintain equity in competitions open to both external and internal proposals (in which personnel of a Center or JPL may be participants), selection of investigations and investigator teams is always a function of the MD or MSO (i.e., a Center that is proposing should not also be selecting as this creates an appearance of bias).

3.3.4 The source selection authority may excuse proposals from the peer review process, but not merit review for:

3.3.4.1. Proposals to provide unique infrastructure facilities or capabilities necessary for the conduct of R&T programs and for which the requisite experience and technical background to provide competent peer review are not available.

3.3.4.2. Proposals for small grants (see Agency-level or MD policies as appropriate), especially for activities such as scientific meetings and publications by recognized scientific organizations.

3.3.4.3. Congressionally directed funding (see section 3.2.3).

3.3.5 The decision to conduct merit review without peer review must be briefly explained in the recommendation document. Funding proposals above the simplified acquisition threshold (of $150K) without peer review is reported to the NASA Chief Scientist.

3.4 R&T Selection Process

3.4.1 After solicitation and peer review of proposals, the NASA Program Officer (or other NASA civil servant or IPA appointee) recommends to the Selection Official, identified in the solicitation, the suite of proposals to be selected for funding and those to be declined. These recommendations are based on results of the peer and or internal review of the proposals according to the evaluation criteria (see 3.1.3) and any other criteria identified in the research solicitation, which may include any programmatic considerations (such as program balance), comparison of recommended proposals to competing proposals with similar scores and objectives, and what the program can afford given the available budget.

The Selection Official decides which proposals will be supported and which will be declined in a formal selection statement that identifies all bases for the selection. For grants and cooperative agreements, all selections are final and not subject to protest, although Agency-level review (as defined in the NASA FAR Supplement) and judicial review is a possibility (albeit rare). Individual Mission Directorate reconsideration processes (e.g., SMD has a directorate policy document on this subject) are permitted. No funding will be disbursed without explicit concurrence from the Selection Official. In some cases, NASA may elect to support only a portion of a proposed investigation. Partial selection is discussed in more detail in Section 3.4.4.

3.4.2 Selection Prerequisites

3.4.2.1 Care and Use of Animals. R&T involving the use of animals should comply with the policy established in NPD 8910.1, Care and Use of Animals and NPR 8910.1.

3.4.2.2 Use of Human Research Subjects. R&T involving human subjects should comply with the policy established in NPD 7100.8, NASA Research and Technology Program and Project Management Requirement.

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3.4.2.3 For AOs, which only result in contracts, the proposals are categorized as required by 48 CFR 1872. Per these provisions, the proposals and their evaluations are reviewed by an AO Steering Committee prior to submission of the recommendation for selection.

3.4.3 Selection Activities

a. The NASA Selection Official shall prepare Selection Statements as required by 48 CFR pts. 35, 1872 or the GCAM as applicable. In the case of grants and cooperative agreements, the NASA Selection Official may simply concur on the Recommendation/Selection Statements by the NASA Program Officer, who is then authorized to make awards and communicate with proposers.

b. After selection, each proposer is notified (by NSPIRES, NASA Solicitation and Proposal Integrated Review and Evaluation System, letter, or electronic mail) of the disposition of the proposal. Unless otherwise specified in the solicitation, each proposer should be offered a debriefing based on identified strengths and weaknesses, as described in 3.4.6.

c. The responsible NASA Program Officer forwards official notification of selection and required documentation to the appropriate NASA Procurement Office, which contacts the proposing institution to negotiate funding and all required terms and conditions through an appropriate award instrument.

3.4.4 NASA may select only a portion of a proposed investigation, e.g., only selected tasks, or all tasks for a shorter duration (e.g., a one year pilot study), or a combination. The proposer is not obliged to accept the offer and NASA may withdraw the offer entirety. An award may be contingent on an acceptable revised budget, statement of work, data management plan, or other element of proposals described in the solicitation or in the *NASA Guidebook for Proposers.*

3.4.5 Disclosure of Selections and Non-Selections

3.4.5.1 For selected proposals, NASA will require the Principal Investigator to agree to the publication of the Proposal Title, the Principal Investigator's name and institution, Co-investigators' names and institutions (if applicable), and the Proposal Summary. NASA will include this condition in the solicitation and in the award instrument. After the award is made, NASA will post that information on an appropriate publicly accessible location. Selected proposers may release additional information about their proposals, subject to the requirements of NPD 2200.1, if the proposer is from NASA, the STI is produced by NASA, or a NASA channel will be used for information release.

3.4.5.2 NASA considers other portions of selected proposals to be proprietary and will treat this information as confidential to the extent permitted by law. NASA will not release these sections of successful proposals to the public without consultation with the proposer.

3.4.5.3 Except as required by law, NASA will not release any information from unselected proposals without permission of the proposer.

3.4.5.4 The non-selection of a proposal does not restrict the submission of a similar or even the same effort by the proposer(s) in response to appropriate future NASA solicitations or to other appropriate funding agencies or organizations. However, if submission of the same or nearly the same proposal to NASA in the future is contemplated, proposers should be strongly urged to carefully consider the totality of the comments offered during their debriefing, as well as the proposal guidelines, before making their decision. Merely correcting any perceived deficiencies in a proposal as noted by a review process for one BAA in no way guarantees a higher rating in another solicitation.

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3.4.5.5 Proposers may use the NASA Ombudsman process, file protests and process contract disputes and appeals in accordance with the policy and procedures established in the Federal Acquisition Regulation (FAR), the NASA FAR Supplement, and NPR 5101.33, Procurement Advocacy Program.

3.4.6 Debriefing of Proposers

3.4.6.1 A proposer should be informed of the major factor(s) that led to the acceptance or rejection of the proposal unless the competitive solicitation explicitly states otherwise. At the discretion of the NASA Program Officer, such debriefings may be oral, written, or both. However, it is a best practice that these should be provided in writing to the proposer. If peer review was employed, then the (appropriately edited) comments from the peer reviewers is ideal. Debriefing of proposers should be in accordance with 48 CFR pts. 1800-1899.

3.4.6.2 NASA informs non-selected proposers that proposals of nominally high intrinsic and programmatic merit may be declined for programmatic or financial reasons that may be unrelated to any scientific or technical qualities of the proposal.

3.4.6.3 Awarded funds may not be used to defray debriefing travel costs.

3.5 Partnerships and International Collaboration

3.5.1 In accordance with NPD 1080.1, Policy for the Conduct of NASA Research and Technology, NASA's policy is to encourage the participation of organizations of every type, domestic and foreign, Government and private, for profit and not-for-profit, in collaborative R&T partnerships. Broad participation can be encouraged through public announcements seeking proposals for R&T partnerships or through similar means. Foreign organizations can be encouraged to submit proposals directly as appropriate or to participate on proposals submitted by U.S. organizations, subject to compliance with applicable laws and regulations. It is NASA policy that all R&T investigations involving non-U.S. organizations will be conducted on a no exchange of funds basis. Any such R&T partnerships shall be conducted in accordance with all applicable laws, regulations, and policies.

3.5.2 The Office of International and Interagency Relations (OIIR), in conjunction with the relevant MD or MSO, shall negotiate all international collaborations. All international negotiations follow NPD 1360.2, Initiation and Development of International Cooperation in Space and Aeronautics Programs.

3.5.2.1 For international collaborations involving NASA, each partner assumes full financial responsibility for its own commitments, pursuant to NPD 1360.2.

3.5.2.2 Any foreign contract acquisition valued above $100,000 or involving export control issues is coordinated with OIIR, in accordance with 48 CFR pts.1800-1899 and Subpart 1825.7002.

3.5.2.3 International agreements that contemplate the procurement of goods or services using U.S.-appropriated funds, unless done solely on a cooperative basis will require the Office of Procurement concurrence in accordance with 48 CFR pts. 1800-1899 and Subpart 1825.7003, International Agreements.

3.6 Conflicts of Interest and Confidentiality

3.6.1 The issues of conflict of interest and confidentiality are of critical importance to the peer

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review process. Regardless of whether the review process is conducted by external reviewers or by a convened panel, the presiding NASA Program Officer shall address and resolve conflicts of interest based on the following requirements:

a. Every reviewer is screened for potential personal and organizational conflicts of interest, agrees to provide immediate notice to the Selection Official and NASA Program Officer if any conflicts arise, agrees to maintain the confidentiality of proposals and the information therein, and agrees to maintain the confidentiality of all aspects of the review process, except when otherwise required by law.

b. U.S. Government employees who serve as reviewers are governed by 41 U.S.C 423. Non-Federal reviewers sign a nondisclosure agreement in advance of being sent any proposals. By signing and executing a nondisclosure agreement, a non-civil servant reviewer agrees to abide by its requirements for confidentiality.

c. Should an unanticipated conflict arise or otherwise become known during the course of examining the proposal under review, the reviewer will inform the cognizant NASA Program Officer and cease participation pending a NASA decision on the issue.

d. NASA will not condone disclosure by a reviewer of either the proposals themselves or their evaluation materials and discussions under any circumstances at any time even after the selections are announced. Since the review process is not complete until the selections are announced, a breach of confidentiality of the review process could result in the entire selection process being declared invalid. Just as serious, unauthorized disclosure of privileged review information may lead to the proposer and/or his/her proposing colleagues to make critical career decisions based on erroneous, preselection hearsay information. Civil servants who disclose confidential proposal information and results are subject to disciplinary action and criminal penalties under 41 U.S.C. 423.

e. In certain situations, the individuals selected to participate as reviewers may have been identified in a competing proposal or have, otherwise, been identified as having a conflict of interest. In such situations, NASA takes appropriate measures to assure the objectivity and integrity of the evaluation process, including, for example, excluding the individual from panel discussions of proposals for which a conflict exists. In some cases, the individual may also be excluded from the discussion of proposals that are in direct programmatic competition with proposals with which he or she is conflicted.

f. The Office of General Counsel is responsible for assisting with the resolution of conflicts of interest.

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Chapter 4. R&T Quality Assessment and Performance Measurement Metrics

4.1 Overview

The cognizant MDAA or MSOD is responsible for conducting quality and performance assessments of each R&T program, using the reviews required by NPR 7120.8. Additional mechanisms as described in this chapter are also, sometimes, used by NASA to assess the quality and performance of R&T investments.

4.2 Assessment

4.2.1 Program Officers of R&T programs demonstrate the extent to which their programs meet the following criteria:

a. Relevance - R&T programs will articulate why this investment is relevant and appropriate and have well-conceived plans that identify program goals, priorities, and linkages to national and stakeholder/beneficiary needs.

b. Quality - R&T programs will justify how funds will be allocated to support a portfolio of important, valuable, high-impact R&T activities.

c. Performance - R&T programs will establish plans and management processes to monitor and document performance, including appropriate outcome measures and milestones that can be used to track progress toward goals, and assess whether funding is to be enhanced or redirected. The U.S. Government has established a standard annual Research Performance Progress Report (RPPR) to monitor and document performance for research grants. This process is generally also effective for other R&T awards such as internal NASA research, interagency transfers (IATs), and Contracts.

4.2.2 NASA demonstrates compliance with these criteria in the Congressional Budget Justification utilizing the results from status reviews and independent assessments required by NPR 7120.8. NASA internal reviews of R&T programs include program and project level assessments at NASA Centers, contractor sites, and NASA Headquarters, as needed. For external review of R&T programs, NASA relies on peer review panels of R&T experts from outside NASA to conduct quality and performance assessments. An evaluation of research results may also be performed by the Science committees of the NASA Advisory Council (NAC), with findings published in the Agency's Annual Performance Report (APR).

4.3 Performance Measurement

4.3.1 Government wide mandates, such as the GPRA Modernization Act (GPRAMA), are also used to measure the performance of NASA R&T programs. Each MD or MSO that solicits, selects, funds, and conducts R&T is responsible for maintaining statistics on this process for its respective R&T programs. These statistics are reported annually as part of GPRAMA reporting (Section 4.3.2). Because the outcome of R&T may be difficult to evaluate on a short-term basis, a retrospective

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assessment covering the previous three to five years may be used to provide a more complete and accurate indicator with respect to the quality, relevance, and performance of the R&T investment. Evaluating the inputs provided, the outcomes achieved, and the value of those outcomes to the R&T community, determines performance measurements for R&T investments.

4.3.2 The GPRAMA requires the following activities: an Agency-level strategic plan that sets goals and objectives, an annual performance plan that translates goal into annual targets, and an annual performance report that demonstrates whether targets are met. Each MD or MSO submits a report on annual performance goals, based on its strategic plans, for internal NASA review by the Office of Management and Budget (OMB) before it is sent to Congress as mandated by GPRAMA.

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Chapter 5. Quality, Publication and Dissemination of Results, and Data Protection

5.1 Responsibilities

5.1.1 NASA and NASA-sponsored investigators are responsible for the quality of the R&T information submitted for publication or presented at technical meetings.

5.1.2 When scientific and technical information (STI) is released by NASA, NPR 2200.2, Requirements for Documentation, Approval and Dissemination of Scientific and Technical Information will be followed for obtaining approval for dissemination of the information.

5.2 Quality of R&T Information

5.2.1 The OMB defines "quality" of R&T information as the encompassing term, of which "utility," "objectivity," and "integrity" are the constituents. "Utility" refers to the usefulness of the information to the intended users. "Objectivity" focuses on whether the disseminated information is being presented in an accurate, clear, complete, and unbiased manner, and as a matter of substance, is accurate, reliable, and unbiased. "Integrity" refers to security -- the protection of information from unauthorized access or revision to ensure that the information is not compromised through corruption or falsification.

5.2.2 NASA conforms to these requirements by using program/project reviews as discussed in NPR 7120.8, to ensure utility and objectivity. External peer review, as described in Paragraph 3.3, is used by NASA to measure utility and objectivity of R&T programs. Integrity is maintained through compliance with the requirements established in Section 5.4.

5.3 Publication and Dissemination of Results

5.3.1 NASA and NASA-sponsored investigators publish or disseminate the results of NASA R&T activities using mechanisms that include the NASA Scientific and Technical Information (STI) Report Series, NASA Web sites, and non-NASA scientific and technical channels such as professional journals, conference presentations, or conference proceedings. NASA policy and requirements for STI are described in the NPD 2200.1 and NPR 2200.2.

5.3.2 In order to ensure that high quality standards are maintained, NASA and NASA-sponsored investigators should publish research results in the peer-reviewed literature to the greatest practical extent. Peer review of results, methodologies, and techniques helps ensure technical excellence of research conducted or supported by NASA.

5.3.3 Technical publications and reports resulting from grants and cooperative agreements are provided as required 2 CFR pt. 200 and 2 CFR pt. 1800.

5.3.4 NASA and NASA-sponsored investigators should also support education and public outreach, collaborate with the NASA's Office of Communication in preparing press releases and related materials, and engage in community service activities such as serving on peer review panels and

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advisory bodies.

5.3.5 NASA places no restrictions on publication or dissemination solely by contractors or grantees of the results of R&T conducted under a NASA contract or grant. Contractors and grantees have the right to publish or disseminate STI first produced by the contractor or grantee in the performance of a contract or grant, except to the extent such STI may be subject to Federal export control or national security laws or regulations, or unless otherwise provided in the contract or grant.

5.3.6 NASA's Document Availability Authorization (DAA) review of materials to be released publicly applies only when there is a NASA civil servant author or when contractors are releasing information under the direction of NASA. DAA is not required before a grant recipient can release information but the recipient is required to follow statutes and regulations on export control when releasing information.

5.3.7 In keeping with NPD 2230.1, all award recipients will be required to upload the as-accepted manuscript versions of peer reviewed publications to NASA's "PubSpace" part of PubMed Central. For more information see http://www.nasa.gov/open/researchaccess.

5.4 Data Protection

Protection of R&T data and documents is maintained in accordance with NPD 1440.6, NPD 1600.2, NPR 1600.1, NPR 2810.1, NPR 7500.1, NPD 2200.1 and NPR 2200.2.

5.5 Record Retention

All documentary information, regardless of format, made or received in the course of conducting NASA R&T programs are Federal records and are maintained, safeguarded, and dispositioned in accordance with the requirements of NPR 1441.1, NASA Records Management Program Requirements.

5.6 Data Availability

5.6.1 To the extent practicable, when NASA solicits proposals for analysis of mission data (and comparably unique data from large facilities) it should allow only proposals that focus primarily on data that is accessible to all proposers far enough in advance of the due date that competitors have a chance to propose to this data. This restriction would not apply to proposals to acquire data and analyze/model/interpret it in a single project, nor should it preclude proposals on data previously acquired without Federal funding, but which is of interest to NASA.

5.6.2 In keeping with NPD 2230.1, NASA requires data management plans from proposers.

5.6.3 NASA seeks to continue and increase the long-standing culture of promoting the full and open sharing of digital data produced by R&T both from intramural researchers and by recipients of NASA R&T grants, cooperative agreements, and contracts, while precluding the inappropriate dissemination of sensitive but unclassified information and protecting intellectual property rights.

5.6.4 Per NPD 2200.1, NASA and NASA-funded investigators disseminate STI in a manner consistent with U.S. laws and regulations, Federal information policy, intellectual property rights, technology transfer protection requirements, and budgetary and technological limitations.

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5.6.5 To the extent a contractor or grantee receives or is given access to STI necessary for the performance of a contract or grant, and the STI contains restrictive markings, the STI is treated in accordance with the markings. Such restrictive markings identify specific STI, which may be used only for specific purposes and is not disclosed or disseminated.

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Chapter 6. R&T Misconduct

6.1 Handling of R&T Misconduct Allegations

6.1.1 R&T misconduct means fabrication, falsification, or plagiarism in proposing, performing, or reviewing R&T or in reporting R&T results. R&T misconduct does not include honest error or differences of opinion. For R&T that is sponsored or conducted by NASA, the organization accomplishing activity is responsible for compliance with NASA's R&T misconduct policy.

6.1.2 NASA handles allegations of R&T misconduct following the requirements published by the Office of Science and Technology Policy (65 Federal Register 76260, Dec. 6, 2000). NASA's policies and procedures for handling these investigations are published in 14 CFR pt. 1275.

6.1.3 NASA individuals, who receive allegations of R&T misconduct that may have occurred within or outside NASA, notifies the NASA Inspector General. The NASA Inspector General is responsible for R&T misconduct inquiries and investigations and for the preparation and submission of its findings and recommendations in a report to NASA. The cognizant MDAA or MSOD is responsible for implementing any administrative actions that may result from adjudication of research misconduct.

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Appendix A. Definition of Terms

Grant Officer. The NASA employee who is responsible for the business, financial, and administrative (non-programmatic) aspects of a particular grant(s) or grant program and has the authority to obligate the NASA funds under grant awards. In this capacity, the Grant Officer is the Federal official responsible for non-programmatic matters associated with the review, negotiation, award, administration, and closeout of assigned grants, and interprets and applies grants administration requirements.

Peer review. The scientific or technical review of proposals by qualified, unbiased experts to provide unbiased evaluations of proposed work.

Principal Investigator (PI). A person who conceives an investigation and is responsible for carrying it out and reporting its results. Official definitions of all team member roles, including PI, appear in the guidebook for proposers. In some cases, PIs from industry and academia act as managers (Project Managers) for smaller development efforts with NASA personnel providing oversight.

Program Officer. The person who performs the duties generally assigned to a "Program Office" i.e., manages the solicitation, evaluation, and selection process for an R&T program or portfolio project. The Program Officer is, responsible for assuring the Selecting Official prior to selection that all requirements in this NPR and other applicable regulations have been followed. Note, the Program Officer is usually but not always, also the person who monitors the award after it is in place, called the "Technical Officer" by the NSSC.

Programmatic. Relating particularly to the broad (e.g., scientific, technological, demographic, etc.) goals of a grant program and the portfolio of R&T activities it supports.

R&T Misconduct. Fabrication, falsification, or plagiarism in proposing, performing, or reviewing research or technology, or in reporting research or technology results. R&T misconduct does not include honest error or differences of opinion.

Research and Technology (R&T). Basic research, applied research, and technology development.

Scientific and Technical Information (STI). The results (facts, analyses, and conclusions) of basic and applied scientific, technical, and related engineering research and development. STI also includes management, industrial, and economic information relevant to this research.

Unsolicited proposal. Application for financial assistance for support of an idea, method, or approach to carry out a project for a public purpose that is relevant to NASA's mission and that is submitted to NASA on the initiative of the applicant rather than in response to a BAA or CAN or other solicitation. See NASA's Guidance for the Preparation and Submission of Unsolicited Proposals.

Waiver. A documented authorization intentionally releasing a program or project from meeting a requirement.

Note: See NPR 7120.8.

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Appendix B. Acronyms

AA	Associate Administrator
AO	Announcement of Opportunity
BAA	Broad Agency Announcement
CAN	Cooperative Agreement Notice
CFR	Code of Federal Regulations
FACA	Federal Advisory Committee Act
FAR	Federal Acquisition Regulation
GPRA	Government Performance and Results Act
GPRAMA	GPRA Modernization Act
IAT	Inter-Agency Transfer
IBPD	Integrated Budget and Performance Document
JPL	Jet Propulsion Laboratory (a Federal Funded Research Center (FFRDC)
MD	Mission Directorate
MDAA	Mission Directorate Associate Administrator
MSO	Mission Support Office
MSOD	Mission Support Office Director
NASA	National Aeronautics and Space Administration
NFS	NASA Federal Acquisition Regulation (FAR) Supplement
NPD	NASA Policy Directive
NPR	NASA Procedural Requirements
NRA	NASA Research Announcement
NSPIRES	NASA Solicitation and Proposal Integrated Review and Evaluation system
OCE	Office of the Chief Engineer
OMB	Office of Management and Budget
PA&E	Program Analysis and Evaluation
PI	Principal Investigator

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PMC	Program Management Council
R&T	Research and Technology
SMD	Science Mission Directorate
STI	Scientific and Technical Information
TD	Technology Development

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Appendix C. References

C.1 NPD 1000.0, Strategic Management and Governance Handbook

C.2 NPD 1001.0, NASA Strategic Plan

C.3 NPD 1000.3, The NASA Organization

C.4 NPD 1080.1, Policy for the Conduct of NASA Research and Technology

C.5 NPD 1150.11, Federal Advisory Committee Act (FACA) Committee

C.6 NPD 1360.2, Initiation and Development of International Cooperation in Space and Aeronautics Programs

C.7 NPD 7100.8, Protection of Human Research Subjects

C.8 NPD 7120.4, Program/Project Management

C.9 NPD 8700.1, NASA Policy for Safety and Mission Success

C.10 NPR 1441.1 NASA Records Managements Program Requirements

C.11 NPR 2200.2 Requirements for Documentation, Approval and Dissemination of Scientific and Technical information

C.12 NPR 5101.33 Procurement Advocacy Programs

C.13 NPR 7120.5, NASA Space Flight Program and Project Management Requirements

C.14 NPR 7120.8, NASA Research and Technology Program and Project Management Requirement

C.15 NPR 8715.3, NASA General Safety Program Requirements

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