National Aeronautics and
Space Administration
Office of the Administrator
Washington, DC 20546-0001

June 3, 2015

Dr. Steven W. Squyres
Chairman
NASA Advisory Council
Washington, DC 20546

Dear ~~Dr. Squyres~~ Steve:

Enclosed is NASA's response to the Sample Retention Requirement recommendation from the NASA Advisory Council meeting held on April 9-10, 2015, at NASA Headquarters and a March 20, 2014, memorandum from Dr. John Holdren, Director of the White House Office of Science, Technology and Policy. Please do not hesitate to contact me if the Council would like further background on this response. I appreciate the Council's thoughtful consideration leading to the recommendation and welcome its continued findings, recommendations, and advice concerning the U.S. civil space program.

I look forward to working closely with you and members of the Council in the future.

Sincerely,

Charles F. Bolden, Jr.
Administrator

2 Enclosures:
2015-02-01 (SC-01) Sample Retention Requirement
Memorandum from Dr. John Holdren, dated March 20, 2014

NASA Advisory Council Recommendation

Sample Retention Requirement
2015-02-01 (SC-0I)

Recommendation:
The Council recommends that NASA establish a requirement for retention of a large fraction (e.g., 75% has been used historically) of the samples obtained by all sample return missions, robotic and human, for future scientific studies.

Major Reasons for Proposing the Recommendation:
This recommendation preserves precious extraterrestrial samples for future analysis by a broad spectrum of investigators using as-to-be developed technologies. A requirement to retain 75% of samples already applies to Discovery and New Frontiers Announcements of Opportunity and has proved to be critical in maximizing science return. Exceptions from the policy should be justified (e.g., renewable sampling, planetary protection requirements that cannot be otherwise met, etc.)

Consequences of No Action on the Proposed Recommendation:
Missed opportunities to apply new analytical technologies and preserve samples as baseline for future reference.

NASA Response:
NASA concurs with the recommendation of the NAC for NASA sample return missions.

As the NAC noted, the 75 percent sample-retention requirement is already part of the standard Announcement of Opportunity used for competed Planetary Science sample-return missions in the Discovery and New Frontiers programs. The Origins, Spectral Interpretation, Resource Identification, Security, Regolith Explorer (OSIRIS-Rex) is an example of a mission that has been designed to meet this requirement.

NASA now plans to incorporate similar language into Agency policy for its own missions. In a March 20, 2014, memorandum from Dr. John Holdren, Director of the White House Office of Science and Technology and Policy (enclosed), Federal agencies holding scientific collections, including NASA, were directed to develop collection policies consistent with a set of 15 requirements, including "procedures for obtaining or supporting the development of new scientific collections" and "requirements for long-term preservation [of collections]." NASA's current policy on Curation of Extraterrestrial Materials (NASA Policy Directive 7100.10E) does not fully address these requirements. The new policy will include the 75 percent sample-retention requirement for all missions planning to return extraterrestrial materials to Earth. Exceptions will be allowed in extraordinary circumstances, including those noted by the NAC, subject to internal review.

Enclosure

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20502

March 20, 2014

MEMORANDUM FOR THE HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES

FROM: John P. Holdren, Assistant to the President for Science and Technology, and Director, Office of Science and Technology Policy JPH

SUBJECT: Improving the Management of and Access to Scientific Collections

1. Scientific-Collections Policy Principles

Scientific collections provide an essential base for developing scientific evidence and are an important resource for scientific research, education, and resource management. Scientific collections represent records of our past and investments in our future. They are also tools that can be harnessed to address challenges facing humankind. Federally supported scientific collections are public assets, and their stewardship by Federal agencies carries with it trustee responsibilities. Policies and procedures for maintaining, preserving, and developing Federal scientific collections while also increasing access to those collections for appropriate use are, therefore, central to their value.

The Administration is committed to ensuring the proper management, preservation, security, and ethical use of Federal scientific collections to inform scientific research and maintain the Nation's legacy of exploration and discovery. The Federal Government has a responsibility to help ensure that scholars and resource managers are able to locate and access Federal collections, while also ensuring that collections are appropriately preserved and ethically managed. In some cases, these goals may be served by providing access to digital or other reproductions of elements of the collections.

In response to the policy memorandum I issued on scientific collections in 2010[1] and the requirements of Section 104 of the America COMPETES Reauthorization Act of 2010 (P.L. 111-358),[2] Federal agencies have been working diligently through the Interagency Working Group on Scientific Collections (IWGSC) of the National Science and Technology Council (NSTC) to develop guidelines for the management of scientific collections. Through these

[1] http://www.whitehouse.gov/sites/default/files/microsites/ostp/ostp-2010-scientific-collections.pdf

[2] http://www.gpo.gov/fdsys/pkg/USCODE-2011-title42/html/USCODE-2011-title42-chap79-subchapII-sec6624.htm

efforts, it has become evident that to ensure the faithful stewardship of scientific collections, clear policies for their development, management, and ethical use must be developed by Federal agencies.

The policy requirements listed in this memorandum were developed with input from the NSTC IWGSC and in compliance with the America COMPETES Reauthorization Act of 2010 (P.L. 111-358). Each agency's policy on scientific collections shall be consistent with law, agency mission, resource constraints, and U.S. national, homeland, and economic security.

2. Agency Scientific-Collections Policies

Therefore, the Office of Science and Technology Policy (OSTP) hereby directs each Federal agency that owns, maintains, or otherwise financially supports permanent scientific collections to develop a draft scientific-collections management and access policy within six months. Agencies should collaborate through the IWGSC while developing these draft policies to reduce redundancy and identify opportunities for common requirements and standards. The end goal will be a systematic improvement of the development, management, accessibility, and preservation of scientific collections owned and/or funded by Federal agencies.

The requirements below are intended to apply to institutional scientific collections owned, maintained, or financially supported by the U.S. Government. This policy applies to scientific collections, known in some disciplines as institutional collections, permanent collections, archival collections, museum collections, or voucher collections, which are assets with long-term scientific value. Materials assembled specifically for short-term use, sometimes referred to as "project collections", and not intended for long-term preservation, do not fall under this policy, but such collections should be reviewed periodically and carefully to ensure that they should not be considered institutional collections.

Each agency policy should be consistent with the Executive Order on Making Open and Machine Readable the New Default for Government Information;[3] my earlier memorandum on Increasing Access to the Results of Federally Funded Scientific Research;[4] other relevant Administration initiatives and policies on open data and open government; and the objectives set out in this memorandum. For the purpose of developing agency policies, scientific collections are broadly defined as sets of physical objects, living or inanimate, and their supporting records and documentation, which are used in science and resource management and serve as long-term

[3] http://www.whitehouse.gov/the-press-office/2013/05/09/executive-order-making-open-and-machine-readable-new-default-government-

[4] http://www.whitehouse.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf

research assets that are preserved, cataloged, and managed by or supported by Federal agencies for research, resource management, education, and other uses. For example, scientific collections can include fossils, tissue specimens, rocks, and many other types of objects essential to scientific research. These policies should apply to scientific collections that are owned, directly managed, or financially supported by Federal agencies.

Each agency's policy must include descriptions of the following requirements:

a) the role and importance of collections in advancing the overall mission of the agency, including examples of how specific collections contribute to advancing the agency mission;

b) the legislative and regulatory requirements and authorities related to the agency's scientific collections;

c) the divisions, offices, or other organizational components within the agency that will be responsible for implementing the policy across the agency;

d) the agency officials with responsibility for carrying out policies related to collections, including their specific responsibilities for ensuring compliance;

e) any differences that may exist between department-wide policies and collections-specific policies established by the agency;

f) the methodologies used for the assessment and projection of costs associated with the development, management, and preservation of agency scientific collections;

g) how the agency budgets for the stewardship of scientific collections, including a description of the overall funding strategy to support scientific collections and ensure online access to information about scientific collections and individual objects;

h) procedures for obtaining or supporting the development of new scientific collections;

i) agency requirements for long-term preservation, maintenance, and accessibility of new and existing collections to maximize public benefit from their use;

j) standards used by the agency for managing collections including ensuring the quality of the collection, its documentation, and for tracking progress on complying with their scientific collections policies and making such progress publicly available;

k) practices for safeguarding individual privacy, confidentiality, intellectual property rights, and national security;

l) a strategy for providing online information about the contents of the agency's scientific collections and, where appropriate, for maximizing access to individual objects in digital form for scientific and educational purposes;

m) how the agency will provide access to the public or other members of the research community, including how collections and information about collections will be disseminated equitably;

n) the process for de-accessioning, transferring, and disposing of scientific collections, including documentation procedures and procedures for moving collections acquired for individual projects to institutional collections; and

o) resources within the existing agency budget to implement the policy.

3. Management Objectives for Scientific Collections:

For the stewardship of scientific collections it supports, each agency shall, where applicable:

a) Develop and clearly describe procedures for making scientific collections more accessible to educators and researchers, including non-Federal scientists, to maximize public benefit.

b) Work with the Smithsonian Institution to ensure that information on the contents of and how to access the agency's scientific collections is available on the Internet in a central Federal clearinghouse and to maintain participation in the Federal clearinghouse once it is established.

c) Use machine-readable and open formats, data standards, and common-core and extensible metadata for all new information creation and collection to facilitate search and discoverability and provide clear public guidance for accessing collections materials, consistent with the Executive Order on Making Open and Machine Readable the New Default for Government Information.

d) When available and where not limited by law, make freely and easily accessible to the public all digital files in the highest available fidelity and resolution, including, but not limited to, photographs, videos, and digital 3D models, and associated records and documentation, describing or characterizing objects in government-managed scientific collections.

e) Associate digital files describing or characterizing scientific collections with the agency's collections catalog and the central Federal clearinghouse referenced in Section 3(b) of this memorandum. By default, this information should be in machine-readable and open formats.

f) Limit access to collections and information about collections for the purpose of protecting national interests including honoring copyright, international or tribal agreement, confidentiality, privacy and other laws, and regulations, or addressing security concerns. For example, locality information could be withheld or its release limited for the purpose of protecting endangered or otherwise protected species or research sites or complying with the Native American Graves Protection and Repatriation Act, the Archaeological Resources Protection Act, the Paleontological Resources Preservation Act, the National Parks Omnibus Management Act, or the Health Insurance Portability and Accountability Act.

g) In the event that access to objects within or information about a collection must be restricted as described by 3(f), restrictions on access shall be limited to the minimal subset of specific objects and records possible, with all other collection content made public. Where possible, redaction of specific metadata fields should be favored over limiting access to the entire object or subset of objects.

h) Clearly describe how the agency will apply its scientific collections policy as a term and condition, as appropriate, of providing funding for the acquisition and stewardship of scientific collections that are being managed by a third party or that the agency does not own, but supports or for which it has oversight responsibilities.

i) Consistent with each agency's mission and authority, establish standards for de-accession and disposal of scientific collections. When transferring collections, give preference to transferring to other Federal agencies or non-Federal institutions that will continue to make the collections and information about the collections accessible for research and education. These standards should include:

   i. review of the research, resource management, and education values of a collection
   ii. consultation with researchers who have used the collection, parties interested in the collection's value for research, resource management, and educational purposes, and other subject matter experts, as needed; and
   iii. procedures to transfer scientific collections that agencies no longer need to researchers at institutions or other entities qualified to manage the collections.

Agencies should work together to share and coordinate policies, where appropriate, through the IWGSC.

OSTP will review draft agency policies to ensure they are consistent with the objectives of this memorandum and other requirements, including the America COMPETES Reauthorization Act of 2010. During the drafting and review process, OSTP will seek opportunities to harmonize policies among Federal agencies and will provide feedback to facilitate the development of final agency policies that are consistent with the objectives of this memorandum.

Some Federal agencies already have policies that partially or fully meet the requirements of this memorandum. Those agencies should adapt or maintain those policies, as necessary, to fully

meet these requirements. Once finalized, each agency should post its scientific collections policy on its Open Government website.

4. General Provisions

Nothing in this memorandum shall be construed to impair or otherwise affect authority granted by law to an executive department, agency, or the head thereof; or functions of the Director of OMB relating to budgetary, administrative, or legislative proposals.

This memorandum is not intended to, and does not create any right or benefit, substantive or procedural, enforceable at law or in equity, by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.