

Space Shuttle Program Transition and Retirement



Personal Property Disposition Plan

November 2008

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Space Shuttle Program Transition and Retirement Personal Property Disposition Plan

“We are explorers. Our curiosity propels us to push the frontiers of human possibility and imagination. This is the core of NASA’s mission—we dare to explore.”

Michael D. Griffin
NASA Administrator

1 Introduction

On October 15, 2008, the President signed the National Aeronautics and Space Administration Authorization Act of 2008 (P.L. 110-422). Section 613 of P.L. 110-422 requires that the NASA Administrator submit to Congress a plan describing the process for the disposition of the remaining Space Shuttle Orbiters and other Space Shuttle program-related hardware after the retirement of the Space Shuttle fleet. Section 613(a) of P.L. 110-422 is outlined below.

“(1) IN GENERAL.—Not later than 90 days after the date of enactment of this Act, the Administrator shall submit to Congress a plan describing the process for the disposition of the remaining Space Shuttle Orbiters and other Space Shuttle program-related hardware after the retirement of the Space Shuttle fleet.

(2) PLAN REQUIREMENTS.—The plan submitted under paragraph (1) shall include a description of a process by which educational institutions, science museums, and other appropriate organizations may acquire, through loan or disposal by the Federal Government, Space Shuttle program hardware.

(3) PROHIBITION ON DISPOSITION BEFORE COMPLETION OF PLAN.—The Administrator shall not dispose of any Space Shuttle program hardware before the plan required by paragraph (1) is submitted to Congress.”

The NASA plan responding to this direction focuses on the Space Shuttle Program Transition & Retirement (T&R) component of NASA Transition. NASA Transition is the careful planning, optimized utilization, and responsive disposition of personnel, processes, resources, and real and personal property, focused upon leveraging existing Space Shuttle and International Space Station assets for the safety and mission success of the Exploration Systems Program.

The NASA plan explains the scope of Shuttle T&R; reviews the major statutes, regulations and policies governing Federal property disposition; and describes NASA’s

plan to disposition the program's personal property¹, including hardware. It provides details on the standard personal property disposition process and alternate disposal options. Process innovations being developed to expedite donation of Space Shuttle artifacts to eligible organizations are highlighted.

2 Transition and Retirement (T&R) Scope

Space Shuttle Program T&R (Shuttle Phase-out) is comprised of two activities: closeout of the program (including disposition of excess property), and transfer of any assets needed by Constellation, International Space Station, or other NASA flight programs.

The scope of T&R activities is large; it is one of the largest that the Agency has undertaken in its history. The Space Shuttle Program, approved in 1972, includes an extensive array of assets: the program occupies over 654 facilities, uses over 1.2 million line items of hardware and equipment, and employs over 1,600 civil servants, with more than 13,000 work-year equivalent personnel employed by the contractors. The total equipment acquisition value is over \$12 billion, spread across hundreds of locations. The total facilities replacement cost is approximately \$5.7 billion, which accounts for approximately one-fourth of the value of the Agency's total facility inventory. As of 2008, there are over 1,200 active suppliers for flight hardware and ground support equipment located throughout the United States.

¹ Personal Property is any property except real property (land), real property improvements, buildings, and intellectual property such as software and data. Personal property includes supplies, material, ground support equipment, and flight hardware.



Figure 1: Locations of Key Space Shuttle-related Property

Because of the size, complexity, and geographic dispersion of the program’s assets, T&R requires disciplined planning well in advance of program close-out, especially in the case of the Agency’s personal property. To minimize cost to the taxpayer, early planning may enable NASA to reach agreements with public and private parties, at their own cost, to take Space Shuttle personal property once it is no longer needed by NASA. Thus, NASA is working with its stakeholders and customers to preplan disposition of Space Shuttle assets. The highest T&R priority is to safely complete the Space Shuttle mission manifest by the end of FY 2010. As International Space Station assembly is completed and the Shuttle’s mission comes to a close, exploration development activities will continue and increase in tempo and scope. Use of the Agency’s legacy capabilities will reduce the time and resources necessary to achieve initial operational capability (IOC) of the new vehicles, with the goal of reducing overall costs. But assets no longer needed by NASA must be dispositioned at the lowest cost to the taxpayer.

Because the Space Shuttle Program and NASA use unique terms to describe the Space Shuttle, Appendix A provides a Glossary of Terms, and Appendix B provides the list and definition of acronyms used in this report.

2.1 T&R First Principles of Personal Property Disposition

Personal Property disposition activities will:

- Support the safe completion of all remaining Space Shuttle missions;

- Be disciplined, fair, transparent, and compliant with laws and regulations²;
- Provide personal property placement opportunities to preserve the history of the Space Shuttle Program;
- Balance potential value to the public with least cost to the taxpayer; and,
- Include appropriate stakeholders and subject matter experts in the planning phase of the disposition process.

3 Governance

3.1 External and Internal Requirements, Policies, and Governing Regulations

NASA will follow existing laws, policies, and Federal regulations as it begins to disposition Shuttle property. In addition, the Agency will follow internal policies and guidelines throughout the property disposition process. However, when not prohibited by Federal laws or regulations from doing so, NASA will explore implementing innovative ideas and modify internal guidance to minimize negative impact to the Agency. NASA may also seek deviations and waivers, if required, to external regulations and statutory requirements in order to disposition property in a manner that is consistent with available resources and capabilities at the least cost to the taxpayer. Please see Appendix C: NASA Regulations Relating to Property Disposition for a full list of all relevant NASA policies and regulations.

3.2 Legislative and Regulatory Background

The following provides some of the legislative and regulatory background associated specifically with the disposition of Federal property. Additional laws and regulations may apply to property with special characteristics, such as hazardous property, sensitive or military property, International Traffic in Arms Regulations (ITAR) and commerce-controlled items, and others.

Congress' authority over Government property is derived from the Constitution, Article IV, Section 3, Paragraph 2. Most Federal property management and disposition actions are derived from instructions in the Federal Property and Administrative Services Act of 1949 as amended, (40 USC). The principal responsibilities of Federal agencies under the Act are:

“§ 524. Duties of executive agencies

(a) REQUIRED.—Each executive agency shall—

- (1) maintain adequate inventory controls and accountability systems for property under its control;*
- (2) continuously survey property under its control to identify excess property;*
- (3) promptly report excess property to the Administrator of General Services;*
- (4) perform the care and handling of excess property; and*

² NASA may request modifications to codes, regulations and laws to enable the lowest cost disposition to the taxpayer, while providing opportunities for educational institutions, science museums, and other appropriate organizations to acquire educationally useful property and items designated as potential artifacts.

(5) transfer or dispose of excess property as promptly as possible in accordance with authority delegated and regulations prescribed by the Administrator.

(b) REQUIRED AS FAR AS PRACTICABLE.—Each executive agency, as far as practicable, shall—

(1) reassign property to another activity within the agency when the property is no longer required for the purposes of the appropriation used to make the purchase;

(2) transfer excess property under its control to other Federal agencies and to organizations specified in section 321(c)(2) of this title; and

(3) obtain excess property from other Federal agencies.

§ 527. Abandonment, destruction, or donation of property

The Administrator of General Services may authorize the abandonment or destruction of property, or the donation of property to a public body, if—

(1) the property has no commercial value; or

(2) the estimated cost of continued care and handling exceeds the estimated proceeds from sale.”

The National Aeronautics and Space Act (P.L. 85-568, as amended) requires that NASA manage and disposition property in accordance with the Federal Property and Administrative Services Act. Section 203 of the National Aeronautics and Space Act authorizes the Agency “...to sell and otherwise dispose of real and personal property (including patents and rights thereunder) in accordance with the provisions of the Federal Property and Administrative Services Act of 1949, as amended (40 U.S.C. 471 et seq.);”.

4 Shuttle Program Property Evaluation Process

At NASA, careful and systematic property management is an integral element of successful program planning. It ensures that NASA property is available to the programs when needed in a safe, secure, environmentally sound and affordable manner. For disposition of Space Shuttle property, Agency-level coordination and planning is essential to ensure comprehensive asset management and analysis across the entire property portfolio to achieve: maximum reutilization of property needed for future missions, reduced acquisition costs for replacement property, preservation of historic artifacts, appropriate donation of educationally useful equipment, recovery of fair market value from items offered for sale, and compliance with property management, environmental, health and safety, and export control requirements. NASA has benchmarked several major program close-outs³ to manage this process as effectively as possible.

³ NASA has conducted a number of benchmarking studies of close-outs of previous large-scale, high technology system transitions, including the Titan IV rocket flyout, the F-14 fighter production closeout, the F-117 program closeout, and Navy base realignment and closure activities.

A primary objective of Space Shuttle property transition activities is the identification of existing Shuttle assets that should be transferred to the Constellation Program, or other programs, when it is cost-effective and beneficial to do so. Internally, NASA is in the process of completing a transition property assessment to identify, characterize, and determine the future need for each line item of property currently used by the program.

The Space Shuttle Program will continue to evaluate its requirements for all personal property and identify when it will no longer need specific capabilities. NASA will then release Shuttle property when such disposition will not present a risk to flight safety and mission success. This ongoing analysis includes an assessment of the broader implications for release of the property in the context of potentially impacting: personnel, contracts, sustaining costs, and unique capabilities. The analysis also takes into account other applicable information provided in the form of a decision package to help determine asset disposition. The key task for Shuttle property transition efforts will be to determine the last need dates of serviceable property with follow-on potential, and generate disposition decision packages for those properties with potential for follow-on usage, significant historical value, or other issues that require program or Headquarters decisions. The key task of Constellation and other NASA programs will be to determine their technical and schedule requirements for released Shuttle property. This dynamic provides the essential “push” and “pull” of requirements that will guide decision-makers.

Decisions on property disposition will be conducted at the lowest level permitted by budget and technical authority, in consultation with the three major program offices: Space Shuttle, Constellation, and the International Space Station. It is expected that a significant level of property transition will be approved through the existing program control board processes, which serve to coordinate the phasing of program requirements and associated disposition/transfer/disposal decisions. In cases where the Shuttle Program no longer requires property and its future utility to NASA is uncertain or the program recommends it should be disposed, the property will transition to the cognizant NASA Center. NASA Centers will continue to perform their historical oversight function for all Government property by maintaining stewardship or divesting themselves of the property. Center Property Disposal Officers (PDO) will interface with the Shuttle Program throughout T&R, and NASA’s needs will be given the highest priority while they determine property disposition. When NASA determines that the Agency no longer has a need for specific property, that property will be declared as excess and its disposition will follow the standard processes for excess property as administered by the responsible Center.

It is critical to the success of these activities that Transition be well planned and that property requirements be defined as early as possible with well understood decision implications, direction and allocation of resources for sustaining or disposal costs in compliance with applicable laws and regulations. The Agency will seek to minimize the cost to the taxpayer of property disposition by incorporating innovation and lean principles into existing processes and procedures, and providing opportunities for external organizations to take unneeded property at their own cost. NASA will be creative in its approach to property disposition by using existing facilities for safe storage

and employing disposition-in-place methods where it makes fiscal sense to do so. This will require close coordination among the Shuttle Program, NASA's institutional organizations at Headquarters and the Centers, and its external partners. It may also require that NASA seek deviations and waivers, if required, to certain internal policies, external regulations, and, perhaps, statutory requirements in order to disposition property in a manner that is consistent with existing resources and capabilities, and at lowest cost to the taxpayer. Deviation and waiver requests will be made judiciously and following the overarching principle of doing what is in the best interest of the American taxpayer.

It is important to remember that the property that NASA uses does not belong to any one employee, NASA program, or even to NASA. Government property belongs to the public. NASA must follow the appropriate disposition process because it has a fiduciary responsibility to act in the best interests of the public and to be a trusted steward of public property.

5 Personal Property Disposition Process

Personal property management provides for the efficient and effective use of personal property resources. The disposition process is, in large part, a recycling process that provides many opportunities and benefits to the Agency and its internal and external stakeholders and customers. The process follows a logical sequence as the property to be dispositioned passes a suite of decision and control gates, becoming available to an increasingly large pool of stakeholders. The process of dispositioning Space Shuttle property after last mission is described in Figure 2. The following sections focus on the disposition portion of the life cycle.

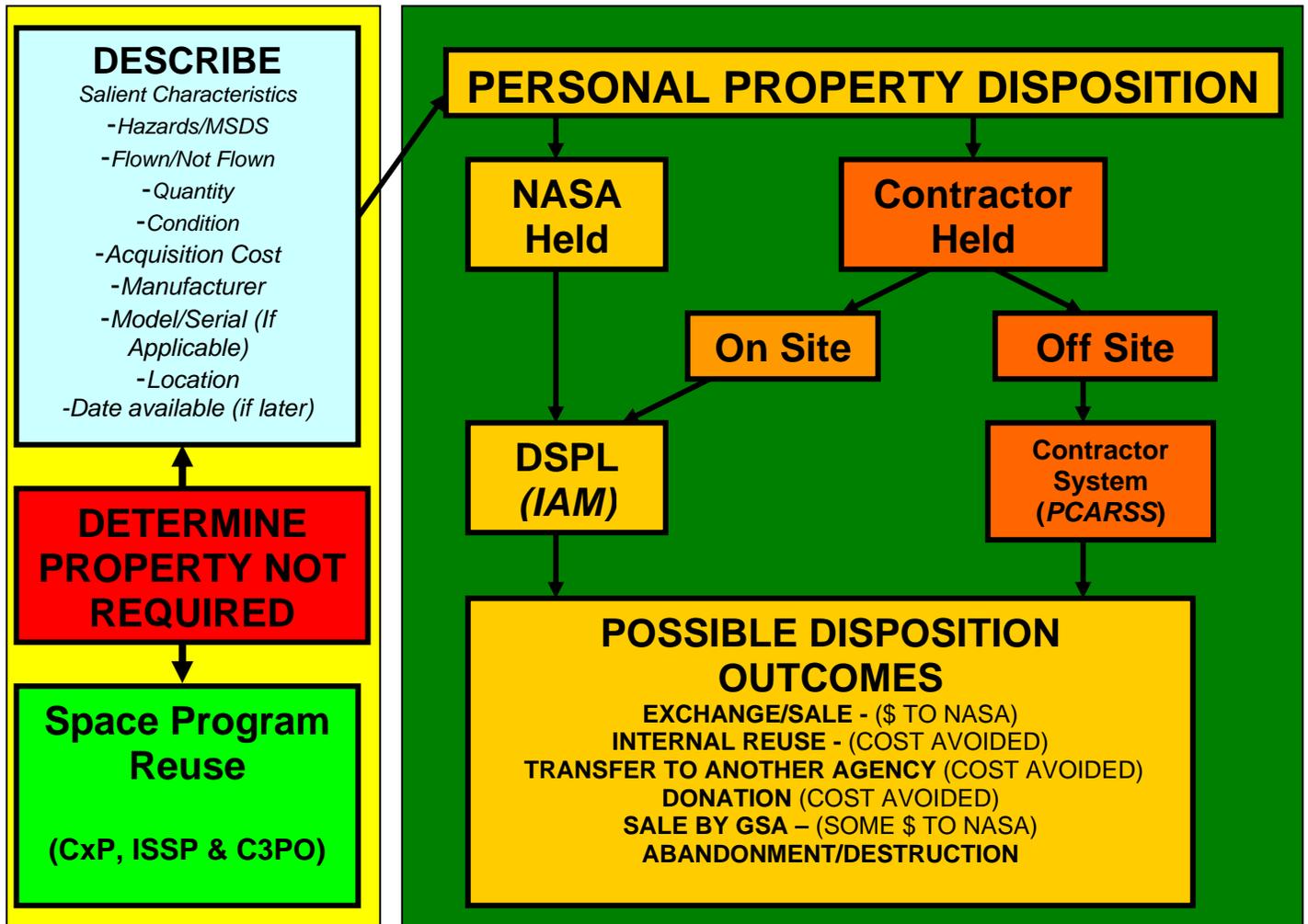


Figure 2: The NASA Property Disposition Process⁴

⁴ Legend for the NASA Property Disposition Process:
 C3PO – Commercial Crew and Cargo Program Office
 CxP – Constellation Program
 ISSP – International Space Station Program

5.1 Procedural Hierarchy

Once all Shuttle property has been described and characterized and it has been determined that the property is no longer required for its original use within a NASA program or project, the disposition process requires the following analyses:

- Determination of human spaceflight programs' need for the property in question;
- Determination of other NASA programs' need for the property in question;
- Determination if the property is NASA-held or contractor-held;
 - If NASA-held, the property proceeds through the existing NASA property disposition system;
 - If contractor-held, property is disposed of through the Plant Clearance Automated Reutilization Screening System (PCARSS) system, administered for NASA and other Federal agencies by the Defense Contract Management Agency (DCMA);
- Determination of other Federal agencies' need for the property in question.



Constellation's Crew Launcher - Ares I rocket

Thus, possible disposition outcomes include re-use; transfer to another Federal agency; donation (to museums or other eligible donees); exchange or sale in partnership with the General Services Administration (GSA); or abandonment and/or destruction if required by the export control regime⁵.

NASA's property disposition actions must comply with Export Control laws and International Traffic in Arms Regulations in determining if property can be released outside NASA or the Federal government, or what restrictions are passed to the receiving organizations. Some items may

not be able to be released from NASA to the public, or may need to be substantially modified or even destroyed to prevent release of export controlled information.

To be consistent with the GSA terminology, the term “direct transfer” refers to the disposition of property within NASA; to other Federal agencies; or to qualified schools and non-profit organizations under the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3701 et. Seq., as amended). “Donation” refers to disposition of property

DSPL – The property DiSPosaL module of NASA's Integrated Asset Management (IAM) system

MSDS – Material Safety Data Sheet

PCARSS – Defense Contract Management Agency's Plant Clearance Automated Reutilization Screening System

⁵ The Space Shuttle System and some of its associated hardware are considered controlled items under the ITAR, specifically Category IV (as a Launch Vehicle) and Category XV (as Spacecraft Systems).

through GSA to qualified non-Federal organizations, generally through State Agencies for Surplus Property (SASP) offices.

The term “donation” means the permanent transfer of property ownership and accountability from NASA to an eligible organization. Donations are fundamentally different than “loan” arrangements, under which NASA retains property ownership and accountability.

When dispositioning property, NASA will remove or render safe all known safety and environmental hazards associated with the property, or clearly identify any unusual hazards that are not removed, prior to donating the property or offering it for sale.

5.2 Step 1: Re-use Within NASA

The initial activity within the disposition process involves determining if there is another NASA requirement for Space Shuttle property, and reassigning it accordingly. Through the internal reassignment of personal property that is no longer required for its original purpose, NASA avoids new procurement costs, allowing other programs to benefit directly from this activity. The projected reuse of significant amounts of Space Shuttle property by Constellation and the International Space Station Program are prime examples of this cost avoidance.

While NASA addresses Space Shuttle hardware disposition, the Agency must manage and mitigate the associated impacts to the schedules and lifecycle configurations of Constellation, the International Space Station Program, the Commercial Crew and Cargo Program Office (C3PO), and their associated projects. Decisions must be made regarding which facilities, hardware, tools, and processes will be needed for new programs. Post-2010, the Agency will disposition residual assets and resources remaining from the Shuttle Program. This activity could have a significant negative impact on the remaining programs unless the effort is properly planned and executed.

Many of the heritage Shuttle program assets and infrastructure will form key elements of the overall exploration architecture. For some elements of Constellation, the Shuttle-derived exploration architecture and associated Space Shuttle hardware were found to be more affordable, safe, and reliable than other approaches. This provides an opportunity for a relatively smooth transition of many Space Shuttle hardware components to meet schedule milestones, achieve lower lifecycle costs, and reduce industrial base and programmatic risks.

5.3 Step 2: Use by Other Federal Agencies

When NASA determines that the Agency no longer requires property, it is declared excess and reported to GSA to be made available to other Federal agencies. If no Federal agency has an interest in acquiring the property, the property is made available for donation as surplus property. As noted above, the first significant external reutilization efforts are those performed by GSA or, for contractor held property, the DCMA and the Office of Naval Research. These activities make property available first for transfer to



Space Shuttle Discovery on Launch Pad 39B

other Federal agencies that need it, and then to other qualifying entities -- such as museums -- as described in Step 3.

NASA has a special artifacts agreement with the Smithsonian Institution's National Air and Space Museum (NASM). Under that agreement, NASA property is available to NASM if there is no other NASA program requirement or other Federal program use (see Appendix D).

5.4 Step 3: Public Engagement in Partnership with GSA

After the Federal agency transfer process, there are two significant public donation efforts. The first involves the transfer of property to the various SASP offices for reuse by state and local governments, museums and other public bodies and non-profit organizations that may qualify as eligible recipients under the program. Recipients are responsible for all costs associated with the transfer of property to their activity, including pickup, transportation, packaging, preparation and extra storage charges if the property must be stored after transfer.

The second process involves the direct transfer of NASA property under the Stevenson-Wydler Act and Executive Order 12999. The Executive Order makes educationally useful property available to schools. The Stevenson-Wydler Act also makes research equipment available to universities and non-profit research institutions. Property transferred under either authority extends the ability of the Agency to support research and to stimulate the development of the next generation of scientists, engineers, and space travelers.

For those limited items that qualify for direct transfer as a gift under NASA's interpretation of the Stevenson-Wydler Act program, all educational institutions (public, private, or parochial) that intend to use the NASA excess research equipment for the conduct of technical and scientific education and research activities are generally eligible, including pre-kindergarten through 12th grade schools and higher education universities and colleges. Currently, NASA's Stevenson-Wydler Act program does not include any non-profit institutions that are not educational institutions.

When a direct transfer is authorized, NASA attempts to give preference to schools located in Federal enterprise communities and empowerment zones established in the Omnibus Reconciliation Act of 1993 (P.L 103-66). NASA partnership schools or others that have a formal prior relationship with NASA may receive preference. Additionally, NASA attempts to provide unique, one-of-a-kind property to the appropriate educational institution level that would appear to derive the most benefit from the property.

NASA currently authorizes direct transfers as a gift under the Stevenson-Wydler Act for Agency property in a limited number of specific Federal Supply Classification Groups (FSCGs) and for Space Shuttle thermal protection tiles. Except for Shuttle tiles, artifacts that do not fit within those specific NASA-designated FSCGs are not currently eligible for direct donation under the Stevenson-Wydler Act.

Both the Agency and the public benefit from property donations and transfers. NASA avoids possible disposition costs associated with abandonment and destruction, long-term storage costs, and even transportation costs. The public benefits when other agencies and public entities that make use of the property also avoid acquisition costs.



Space Shuttle Tile

Surplus Federal property which is not donated to museums or other qualifying organizations may be sold.

Current Federal regulations require that NASA-held, on-site property be reported to GSA for sale through the Federal Asset Sales Program. The Federal Asset Sales Program collects information from Federal agencies regarding surplus Government property, advertises the property, and contracts for the sale of the property.

NASA derives some benefit from the proceeds of property sales. NASA may use some of the sales proceeds to offset the costs of conducting the sales and, in the case of the exchange/sale program, NASA may use the proceeds to offset the costs of new acquisition of an equivalent replacement asset. Experience has shown that NASA property, even those items that may be considered to be scrap, often has considerable value as collectibles. As a result, it is important that NASA property, particularly property flown in space, is properly identified as such, to ensure the maximum return at sale, should the property go to exchange/sale or surplus sale.

This plan anticipates that the close-out of a program as large as Shuttle will result in the retirement of large quantities of equipment and supplies. These unusually large quantities will require the implementation of innovative approaches and strategies within the disposition process in order to properly complete the process within existing budget and time constraints. As noted above, NASA may request modifications to codes, regulations or laws to enable the lowest cost disposition to the taxpayer, while providing opportunities for educational institutions, science museums, and other appropriate organizations to acquire educationally useful property and items designated as potential artifacts.

6 Property Disposition Alternatives

Within the property disposition process, there are several process variations or alternatives available for use. These variations are explained below.

6.1 Exchange/Sale

Federal property may be exchanged or sold, under the “exchange/sale” authority (40 U.S.C. 503 and government-wide regulation 41 CFR Part 102-39), as part of a new procurement in much the same way an automobile would be “traded in” for another automobile. The exchange/sale authority also allows agencies to reserve the proceeds of normal disposition sales by identifying items that will be replaced with similar items as “exchange/sale” and applying the proceeds of those sales to the acquisition of the replacement items. There are several restrictions on the exchange/sale process. First, property cannot be acquired from other Federal agencies for the purpose of putting it in the exchange/sale process. Second, the proceeds of the exchange/sale process must exceed the costs of conducting the process. Third, a new, similar item to the one being exchanged or sold must be acquired. Last, there are restrictions on some classes of items, generally for safety reasons. These include, but are not limited to, used aircraft parts. Space Shuttle hardware is not classified as aircraft parts for this purpose.

Use of the exchange/sale alternative requires that the items are processed through NASA internal disposition processes. Property in the custody of contractors destined for disposal through DCMA that is eligible for exchange/sale shall be identified, and DCMA will account for sale proceeds for return to NASA as an exchange/sale.

6.2 Abandonment/Destruction

NASA Property Disposal Officers may decide to abandon and destroy property when there is no known use for the property and the cost of continued care and handling during the sales process will likely exceed the proceeds from sale. For Space Shuttle property, the decision must be either to do both abandonment *and* destruction or neither; both are required. Property proposed for abandonment must be advertised unless a similar determination is made that the cost of advertisement would exceed any expected proceeds from sale, and there is no known use for the property. To avoid the appearance of a conflict of interest, the individual who proposes abandonment may not be the same individual who approves it. Abandonment cannot be used simply to avoid processing items through the reutilization process.

6.3 Contractor Buy-back

Contractors are permitted by the Federal Acquisition Regulation (FAR) property clause to purchase back any property that they originally acquired under the contract. That does not include property purchased under preceding contracts. Contractors may purchase the property at full cost prior to the beginning of the disposition process. If they do not wish to purchase the property at full cost, they may wait until sale during disposition. However, the items may be transferred or donated prior to sale and once the disposition sale process begins, they may be in competition with other bidders for the same item.

6.4 Return of Contractor Materials to Suppliers

Contractors are permitted to return contractor acquired property to suppliers and obtain a refund, less reasonable care and handling fees, and credit the refund to the cost of the contract.

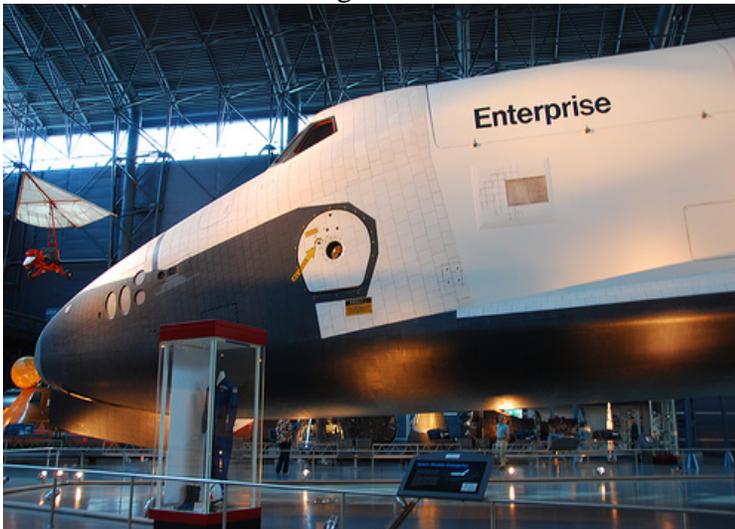
6.5 Contractors with Approved Scrap Procedures

Contractors with approved scrap procedures have authority to disposition property according to those procedures in accordance with the Federal Acquisition Regulation Government property clause in their contract. Sales proceeds from disposition of Federal property under contracts may be credited to the cost of the contract if the contract so states. Otherwise, sales proceeds must be credited to the Treasury.

7 Cultural and Historic Resources and Artifacts

7.1 Historic Assets and Artifacts

Because of the Space Shuttle's national and international importance to human spaceflight history, and its significant contributions to state and regional economies across the Nation through NASA's Centers and contractor facilities, NASA is responsible



The Space Shuttle Enterprise on display at the National Air and Space Museum

for ensuring that T&R activities embody good stewardship of these valuable national assets. Throughout the T&R process, NASA will ensure that national assets and historic artifacts are appropriately dispositioned and that documentation of the Shuttle's history and its contributions are properly captured. This includes disposition of artifacts in accordance with the requirements of NASA policy, NPR 4310.1, Identification and Disposition of NASA Artifacts (see Appendix E for the full text

of this policy). NASA policy NPR 4310.1 was developed to guide the overall Agency; it was not optimized for application to the large quantity of items requiring designation at the close out of the Shuttle Program. Additional Space Shuttle-specific guidance has been developed to define which Space Shuttle personal property should properly be designated as a potential artifact. In addition to its historic significance, the Shuttle also remains a highly visible, highly recognizable symbol of achievement that promotes education in science, technology, engineering and mathematics (STEM) careers that are critical to U.S. security and future economic competitiveness. NASA will work with its Visitor Centers and partners, such as museums and educational institutions, to ensure that critical Shuttle assets are preserved for their historic significance and used for the continued benefit of the public.

NASA is responsible for compliance with the National Historic Preservation Act (NHPA) in the U.S. Code (16 U.S.C. §§ 470 et. Seq.), which directs that Federal agencies

inventory and maintain properties of historic significance. The term “historic property” means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on, the National Register of Historic Places, including artifacts, records, and material remains related to each such property or resource.

NASA currently manages a wide range of historic resources, including buildings and structures listed (or eligible for listing) on the National Register of Historic Places (NRHP), as well as designated National Historic Landmarks (NHL). Many of these resources have supported and continue to support the Shuttle Program. NASA has a Cultural Resource Management program to comply with the NHPA. The NHPA implementing regulations allow NASA to transition assets to best meet the Agency’s mission. The compliance process is the same whether NASA plans to modify, excess, or demolish a historic resource.

The transition from the Space Shuttle to Constellation involves the change in use of many of NASA’s historic resources. To support the corresponding increase in NHPA compliance activity, NASA contracted for the completion of an Agency-wide inventory of assets associated with the Space Shuttle Program. The NASA Center Historic Preservation Officers (HPOs) now have the survey information to proactively work with the State Historic Preservation Officers, as required under the NHPA implementing regulations.

Historic resources often contain equipment and tooling that may be historic artifacts (e.g., assets that have public education or display value). NASA does not manage equipment and tooling under the NHPA or consider them for listing on the National Register. However, if they are located within a historic building, the HPO must consider if/how they contribute to the building use (e.g., are they what make the building historic?). As such, the HPOs will work closely with the PDOs to determine any compliance actions that may be needed before personal property is excessed during T&R. So, while historic resources are not the same historic artifacts, there is a need for coordination due to the overlap.

7.2 Historic Eligibility Surveys

NHPA requires Federal agencies to “provide leadership in the preservation of the prehistoric and historic resources of the United States” (NHPA Section 2, 16 U.S.C. 470-1). In particular, Federal agencies are required to:

1) “...Establish... a preservation program for the identification, evaluation, and nomination to the National Register of Historic Places, and protection of historic properties.” (NHPA Section 110, 16 U.S.C. 470h-2(a) (2); and

2) “...shall, prior to the approval of the expenditure of any Federal funds on the Undertaking..., take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register. The head of any such Federal agency shall afford the Advisory Council on

Historic Preservation established under Title II of this Act a reasonable opportunity to comment with regard to such undertaking.” (NHPA Section 106 16 U.S.C. 470f).

7.3 NHPA Compliance

In response to the NHPA-governed mandate for Federal agencies to preserve historic resources, NASA formed the Space Shuttle Program Historic Preservation Working Group (HPWG) following direction that the Shuttle Program would conclude at the end of FY 2010. The HPWG was formed in 2006 in order to provide Agency-level oversight and execution of NHPA-mandated activities prior to the retirement of the Space Shuttle. The HPWG is co-chaired by Environmental Management Division in the Office of Infrastructure and Administration and the Space Operations Mission Directorate. Membership includes the NASA HPOs at each of the 13 Centers and Component Facilities, as well as members of the Shuttle Environmental Support Team.

In response to NHPA requirements, NASA conducted a historical survey and evaluation of all NASA-owned facilities and properties associated with Shuttle Program activities (real property assets) to determine their eligibility for listing in the NRHP. Such facilities included, but were not necessarily limited to, those used for research, development, design, testing, fabrication, and operations.

The historical survey also included certain types of resources that are not facilities but which are considered “personal property” under Federal regulations. These resources (e.g., Orbiters, retrieval ships, mobile launch platforms) are typically large, and while they may be mobile, they are also usually associated with a geographical location.

The survey of potential historic facilities that supported the Shuttle Program was conducted at the 13 NASA Centers and Component Facilities. The Center-specific historic contexts and survey results were presented in a series of draft reports which were reviewed by the Center HPOs and in consultation with the relevant State Historic Preservation Officers (SHPOs). The Agency-wide Shuttle Program survey report, including all individual Center and Component Facility survey findings, supports NASA’s regulatory obligations to inventory resources in accordance with the NHPA, and also is intended to provide information needed to support any subsequent consultations for undertakings related to Shuttle asset disposition and Constellation facility use planning.

Using the information from the historical survey, the HPWG has developed a listing of historically significant assets that supported the Shuttle. Depending on future NASA programmatic needs, these assets may be transferred in their current state, modified to meet future program requirements, or demolished if it is determined that NASA no longer requires the infrastructure. The role of the HPWG is to provide coordination and general Agency oversight in determining forward planning of the historic assets and, in particular, ensuring that proper mitigation strategies are in place prior to engaging in an undertaking (i.e., any change that alters the asset’s historical significance).

In order to ensure proper NHPA compliance, the HPWG, through the Center HPOs, engages in consultation activities with the appropriate SHPOs and coordinates activities with the Advisory Council on Historic Preservation. The HPWG will draft a Historic Preservation report, depicting the mitigation activities performed, for each Shuttle-supported historic asset.

8 Artifact Identification and Prescreening

Potentially thousands of items that represent portions of the Shuttle’s rich history will be made available to museums, educational institutions, or other authorized recipients. To date, NASA has identified approximately 1.2 million line items of personal property associated with the Shuttle Program. Of these, approximately one-third are anticipated to be transferred to the Constellation Program for its use. Approximately 700,000 line items associated with the Shuttle Program must be excessed and dispositioned within the next few years; based on October 2008 estimates, 20,000 to 80,000 line items may be potential artifacts.

8.1 Artifact Identification

NASA is working diligently to identify and address the influx of personal property that may be considered historic artifacts during the disposition process. These potential artifacts are receiving extra scrutiny, as they represent those items that have significance to the history of human spaceflight in the Space Shuttle era – from its inception in 1972 to its retirement in 2010. It is NASA’s intent to preserve these artifacts to capture and document the rich history of the U.S. space program.



The Shuttle during launch

As part of the Shuttle Program's close-out assessment of personal property, the program has identified which property may be potential artifacts using standardized definitions (e.g., "flown repairable hardware that has a documented flight history"). This list of items, and items identified by the NASA Center Public Affairs Offices, the National Air and Space Museum, and the National Museum of the U.S. Air Force, will be considered as potential Shuttle artifacts.

An Agency-level Shuttle Program Artifacts Working Group has been established to support and effect careful, efficient, and expeditious disposition of Shuttle artifacts during Program close-out and planning for close-out, and to enable preservation of historically-important Shuttle-related property in the national interest, including items that belong in the Smithsonian's national collection. The Working Group's primary customers are the NASA-NASM Joint Artifacts Committee, the NASA Artifacts Committee, and the NASA Transition Control Board.

As artifacts become available for other use (i.e., released when no longer needed by the program) they will become available to interested parties. In partnership with GSA, NASA will advertise Shuttle artifacts *before they are officially excessed* so that eligible recipients will have adequate time to acquire their own resources for property preparation, packaging, and transportation. This will be a lean, integrated process that is flexible, low- risk, and responsive and sensitive to customers' needs.

NASA's Logistics, Education, and Public Affairs offices are working together to notify U.S. museum consortia, associations, and education/university communities about the opportunity for Shuttle Program hardware when it is no longer needed by NASA. In 2008, NASA presented information on the process for acquiring Shuttle artifacts at the Mutual Concerns of Air and Space Museums Conference in Washington, D.C.; at the 18th Annual Users and Screeners Association, Federal Excess Personal Property Professional Development Workshop in Boise, Idaho; at the 43rd Annual International Logistics Conference and Exhibition in Orlando, Florida; and at the Association of Science-Technology Centers Conference in Philadelphia, Pennsylvania. An informational pamphlet on Shuttle artifacts was distributed by NASA at these events and also by GSA as a mailing to the SASP offices.

8.2 Prescreening

To handle this surge of property efficiently, NASA is working closely with GSA to ensure the disposition of these assets is performed in a timely manner. To this end, GSA has agreed to advertise potential artifacts *before they are officially excessed (i.e., prior to actual availability)* to give interested parties time to determine specific needs associated with acquiring, displaying, or transporting the item. GSA has also agreed to assist NASA in making final recipient determinations and identifying any conditions associated with the property transfer or donation.

NASA and GSA are working to ensure that the process for prescreening potential Shuttle Program artifacts is streamlined while following the basic tenets of the normal disposal process. This process will be efficient, equitable, impartial, auditable, transparent and

designed to meet both NASA requirements and the anticipated demand for donated Shuttle artifacts. The process will allow potential recipients to prescreen property for future acquisition under the Stevenson-Wydler Technology Innovation Act authority as well as acquisition under GSA's utilization and donation programs.

It is important to note that much of the Shuttle property to be prescreened for future donation is still in use; it is not yet available and not legally considered "excess." NASA will determine when these items are no longer needed and can be made available for actual transfer/donation.

The prescreening will be accomplished within GSAXcess®, a Web-enabled platform that eligible customers can use to search GSA's inventory of available property. Space Shuttle Program property available for prescreening will not be mixed with regular Government excess/surplus property; a separate GSAXcess® module will be created solely to support NASA prescreening. Development of prescreening procedures and tools is underway, and NASA and GSA anticipate beginning external screening in mid-2009. The dialogue created by prescreening may spread word of the Shuttle T&R in smaller education and museum circles, sparking additional donation or sale requests and possibly building a larger user base for GSAXcess®.

9 Stakeholders and Partnerships

Stakeholders for the T&R efforts include NASA Headquarters, Centers, NASM, GSA, the Department of Defense, museums and educational institutions, media, state and local authorities, and the American public.

Wherever appropriate and possible, NASA seeks to establish innovative and resourceful partnerships and collaborations across a broad spectrum of communities⁶ to ensure that the rich cultural and historic legacy of the Shuttle is preserved for generations of the Nation's citizens. The Space Shuttle Orbiters, as well as other major flight assets, are core components of this legacy.

The Congress and state legislatures are important stakeholders in the transfer or donation of Shuttle hardware. NASA Center PDOs and Public Affairs Offices may receive inquiries or requests for property transfers directly from local, state or Federal lawmakers on behalf of their constituents. Such requests should be responded to in a timely manner.

10 Orbiters

The Space Shuttle Orbiter is the spacecraft currently used by the U.S. Government for its human spaceflight missions. With a payload capacity of 50,000 lbs, this unique reusable

⁶ Including but not limited to state, local, Federal, and educational and cultural institutions.

craft is the largest and most significant asset that NASA must disposition after completion of the program.



The Space Shuttle prototype *Enterprise* flies free of NASA's 747 Shuttle Carrier Aircraft during an early Approach and Landing Test

Six air-worthy Orbiters have been built: *Enterprise*, *Columbia*, *Challenger*, *Discovery*, *Atlantis*, and *Endeavour*. The first Orbiter, *Enterprise*, was not built for spaceflight, and was used only for testing purposes. NASM has the title to the *Enterprise*; and the vehicle currently resides at the Smithsonian's Udvar-Hazy facility near Dulles Airport in suburban Virginia. *Challenger* disintegrated 73 seconds after launch in 1986, and *Endeavour* was built as a replacement. *Columbia* broke apart during re-entry in 2003.

Debris from both the *Challenger* and *Columbia* accidents are not considered program hardware and fall outside of the scope of T&R. In general, *Challenger* and *Columbia* debris is not to be used for public display unless and until adequate security procedures have been put into place. Any future recovered *Columbia* debris remain the property of the U.S. Government.

There are three remaining Orbiters slated for disposition at the close of the program: *Atlantis*, *Discovery*, and *Endeavour*. Interest in the public and private sectors to acquire the Orbiters has been significant and is expected to increase with the passage of time.

Due to the significance of the Space Shuttle Orbiters and the role they played in the Nation's space program, special attention will be paid to ensuring they will retire to appropriate places. NASA is keenly aware of the essential value of these key assets to the space program's rich history; the Agency is therefore committed to making placement decisions that are determined to be in the best interest of the American taxpayer.

10.1 Evaluation Process for Orbiter Placement

NASA recognizes the breadth and depth of interest in the museum and educational communities in acquiring one of the Orbiters following the last flight of the Space Shuttle. As part of early planning actions, NASA will begin discussions with the NASM to accession a flown Orbiter (most likely *Discovery*) to the national collection. NASM houses the national collection of aerospace artifacts, and provides a central organization for preservation of historic aerospace items. NASA expects that NASM will formally request to take possession of one flight Orbiter. NASA plans to issue a "Request for Information" (RFI) in the coming months as a vehicle to specifically focus on expressions of interest in the acquisition of the remaining Space Shuttle Orbiters and other major flight hardware, once they are officially excessed by NASA.

10.2 Request for Information (RFI)

NASA will solicit information to gauge the level and scope of interest of U.S. educational institutions, science museums, and other appropriate organizations in acquiring a Space Shuttle Orbiter. Responses to the RFI will be used to identify potential recipients and evaluate Orbiter placement alternatives to allow NASA to develop recommendations for Orbiter placement that are in the best interests of NASA and the Nation.

NASA has developed basic high-level requirements for Orbiter acquisition. In order to be considered by NASA, an organization responding to the RFI must be: 1) a U.S. museum normally open to the public; 2) a U.S. Federal, state, or local government entity; or 3) a U.S. institution or organization dedicated to educational outreach. NASA is interested in identifying qualified recipient organizations that may also be capable of offsetting the high cost of Orbiter safing, display preparation, and transportation in order to reduce cost and schedule risks to the Agency. Organizations interested in receiving one of the Orbiters for public display should be prepared to raise sufficient funding by October 2010 to enable that organization to enter into a reimbursable Space Act Agreement with NASA for Orbiter safing, final display preparation, and transportation services.

Information gained from the RFI process will inform the development of further selection criteria to be used in subsequent Orbiter placement determination assessments. The criteria will be developed internally by NASA, with the assistance of impartial external authorities knowledgeable about the museum community standards and practices, as well as the Space Shuttle's significance in the history of human spaceflight.

11 Other Major Flight Assets

11.1 Space Shuttle Main Engines (SSMEs)

The Space Shuttle Main Engines (SSMEs) are the three main engines on the Space Shuttle Orbiter. Constructed by Pratt & Whitney Rocketdyne, these unique engines burn liquid hydrogen and liquid oxygen from the Space Shuttle External Tank. Each engine can generate almost 400,000 lbs. of thrust at liftoff. Overall, a Space Shuttle Main Engine weighs approximately 7,000 lbs. The engines are removed after every flight and taken to the SSME Processing Facility for inspection and replacement of any necessary components.

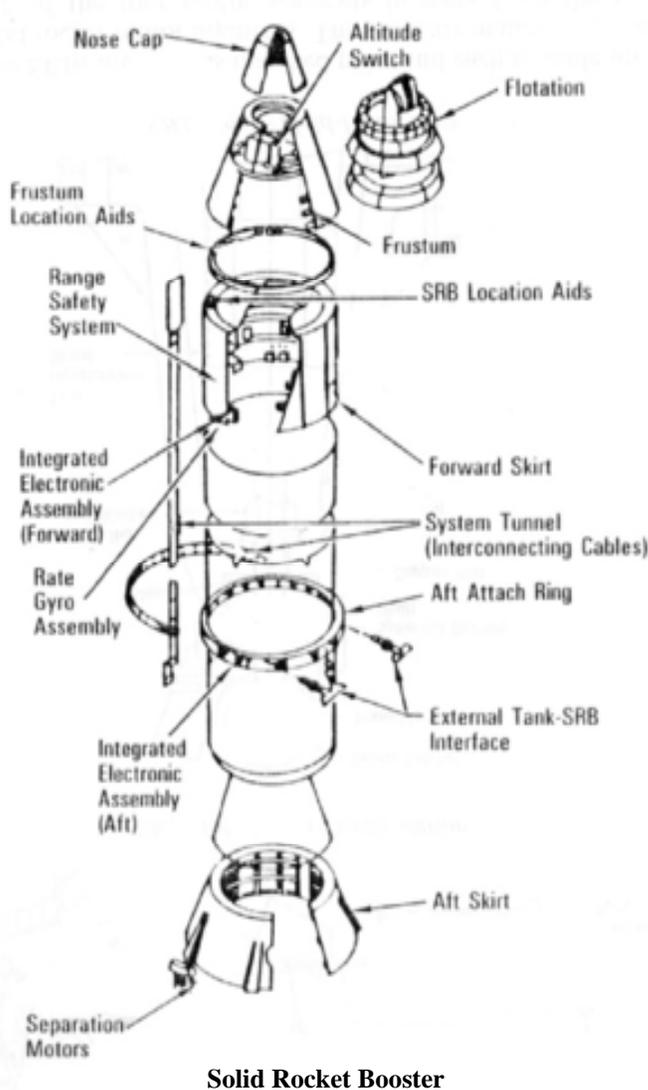


The Space Shuttle Main Engine

Current planning calls for the SSMEs to be retired along with the Shuttle fleet. In the immediate future, however, NASA will retain engines that are flight-worthy for technical mitigation and potential programmatic reuse within NASA or DOD until final disposition decisions are made. Non-flight-capable parts will be placed into the Agency excess property disposition process, where NASA will work with the GSA to conduct prescreening evaluations and subsequent potential placements in museums and other educational institutions, as appropriate.

It is NASA's intent to preserve these potentially historic artifacts as warranted, in the interest of the American public. Obsolete and non-flight-worthy unassembled -- but largely complete -- engines and major subsystem components will be included in the Orbiter RFI to gauge the level and scope of interest from U.S. educational institutions, science museums, and other appropriate organizations in acquiring entire SSMEs or major components for display purposes. Interested organizations would be responsible

for transporting, assembling and preparing the engines and components for display with in-house staff or through separate agreements with NASA's contractors.



11.2 Solid Rocket Boosters (SRBs)

The Space Shuttle Solid Rocket Boosters (SRBs) are the pair of large solid rockets used by the Space Shuttle during the first two minutes of powered flight.

The SRBs are the largest solid-propellant motors ever flown and the first of such large rockets designed for reuse. Each SRB is about 150 feet long and 12 feet in diameter and weighs approximately 1,300,000 pounds at launch. The spent SRBs are recovered from the ocean, refurbished, reloaded with propellant, and reused for several missions.

NASA plans to reuse the SRB designs and infrastructure in both the Ares I and Ares V rockets. The Ares I will feature a 5-

segment SRB first stage, with a second stage powered by an Apollo-derived J-2X rocket engine. The Ares V will feature a pair of 5-1/2 segment SRBs located on either side of the liquid-fueled first stage.

11.3 External Tanks (ETs)

The ET contains the liquid hydrogen fuel and liquid oxygen oxidizer and supplies them under pressure to the three SSMEs in the Orbiter during liftoff and ascent.

The ETs are jettisoned just over 10 seconds after main engine cut off, when the SSMEs are shut down, and then re-enter the Earth's atmosphere. Unlike the SRBs, External Tanks are not reusable. They break up before impact in the Indian Ocean (or Pacific Ocean in the case of direct-insertion launch trajectories, which are currently used) away from known shipping lanes. Current planning calls for all ETs to be used to support fly-out the remaining Space Shuttle manifest. If any ETs remain at the end of the program, they will be treated as potential artifacts and appropriately dispositioned.



External Tank after separation

11.4 Extravehicular Mobility Units (EMUs)

The Extravehicular Mobility Unit (EMU)⁷ provides a Shuttle crewmember with the life support equipment and mobile pressure enclosure necessary to perform Extravehicular Activity (EVA). The EMU consists of two major subsystems--the Life Support Subsystem (LSS) and the Space Suit Assembly (SSA). This integrated LSS and SSA permits astronauts to work comfortably and safely in space. During ascent and re-entry, crewmembers wear Advanced Crew Escape Suit (ACES) pressure suits.



An Extravehicular Mobility Unit

The EMU has demonstrated the ability of humans to work effectively in space by performing complex activities, such as the refueling and repair of satellites on orbit, retrieval of satellites for refurbishment on Earth, and the assembly of the International Space Station. NASA will continue to use the

⁷ Colloquially, this ensemble is known as a “spacesuit.”

Space Shuttle EMUs on the International Space Station from 2011 through the end of the life of the Station.

The ACES pressure suit will no longer be used once Station assembly is completed and the Space Shuttle is retired. For Constellation, NASA has decided to replace the EMU and the ACES pressure suit with the new Constellation Space Suit system. The new suit, which is capable, depending upon the configuration, of protecting the astronaut during launch, in-flight emergencies, reentry, landing, and both microgravity and lunar EVAs, will feature common hardware and the modular features used in the ACES and EMU suits. The retired ACES pressure suits will be treated as potential artifacts and appropriately dispositioned.

12 Aircraft

There are currently seven Gulfstream IIs and IIIs used by the Shuttle Program and based at Johnson Space Center. Three are available for reassignment: one Gulfstream II has been requested for use external to NASA, while another Gulfstream II and a Gulfstream III will most likely stay with NASA for use by other programs. The remaining four Gulfstream II's will be available late in FY 2010, but have been highly modified, which reduces their commercial appeal. They may, however, be desired for parts to support NASA programs.



NASA Gulfstream II

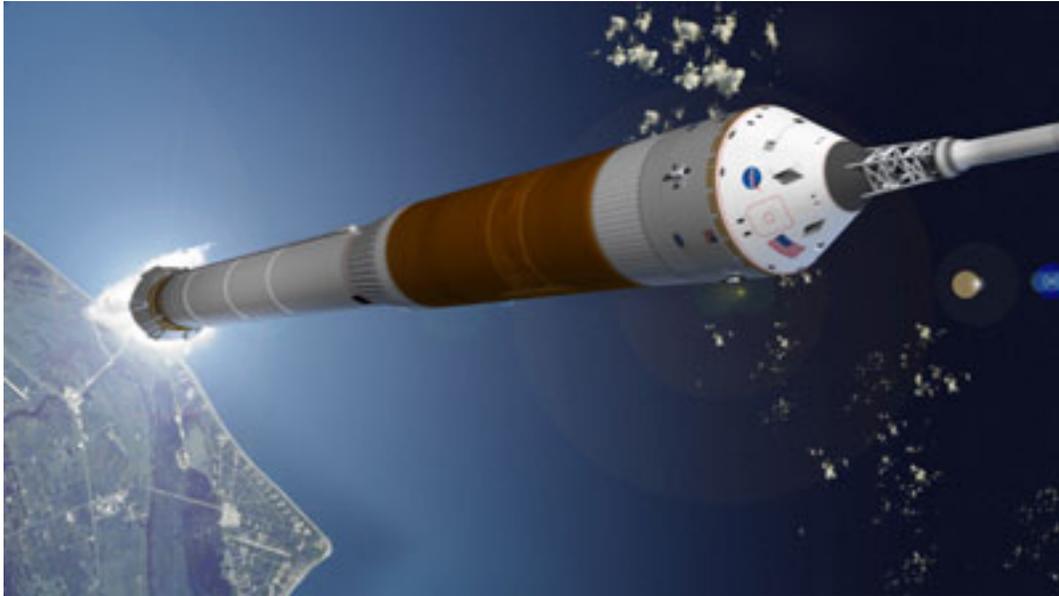
In addition to the Gulfstream aircraft, the program also uses two modified Boeing 747s to transport the Shuttle Orbiter. Due to the high level of modifications to the planes, it is likely these will be retained solely for parts to support the Stratospheric Observatory for Infrared Astronomy (SOFIA) Boeing 747.

The anticipated reduction in size of the astronaut corps after Shuttle retirement will also result in a need for fewer T-38 jet trainers. NASA currently plans to reduce its T-38 fleet to 20 aircraft by 2010. Any T-38 jets excess to the Agency's future operational needs will be disposed of in accordance with NASA's personal property disposition guidelines and procedures.

13 Conclusion

Transition and Retirement represents a series of strategic challenges influenced by the interaction of people, organizations, processes, regulations, ongoing tactical decisions, external drivers, technology, and the interconnections between different events. To

ensure success, NASA has initiated an Agency-wide T&R approach, led by a joint team comprised of Headquarters and Center Transition Managers. Working through formalized Transition Control Board processes, NASA is responsibly managing decisions in a way that optimizes opportunities for success in the Constellation Program, while at the same time preserving the Shuttle's rich legacy. T&R planning emphasizes best practices, sound program management guidance, and robust systems engineering principles to effectively implement T&R activities.



**Lockheed Martin Corp. artist rendering of an Orion
Crew Exploration Vehicle launching atop an Ares I rocket**

“Human spaceflight is about inspiration, leadership in great endeavors, pushing the edge of the possible, and reaping the benefits of those things for our society. It is about living and working in a far-away land, learning to exploit its resources, and expanding our reach to other worlds. It is about the survival of our species.”

Michael D. Griffin
NASA Administrator
March 2008

APPENDIX A: GLOSSARY

- *Agency Inventory* is Government property that is still in the custody of NASA or its contractors, but it is no longer needed for its original purpose.
- *Contractor Acquired Property* is property the contractor acquired but which was titled to the Government in accordance with the Government property clause in the contract.
- *Contractor Inventory* is Government property that is no longer required for performance of a Government contract.
- *Demilitarization* is the act of destroying the offensive or defensive characteristics of equipment or material to prevent its further military or lethal use.
- *Direct Transfer* refers to the disposition of property within NASA; to other Federal agencies; or to qualified schools and non-profit organizations under the Stevenson-Wydler Technology Innovation Act.
- *Disposition* is the act of preparing property for transfer, abandonment, destruction, sale, or donation.
- *Donation* refers to disposition of property through GSA to qualified non-Federal organizations, generally through SASP offices.
- *Eligible Donees* are entities that are approved by the General Services Administration to receive donated Federal Government property. They typically request this property through their State Agency for Surplus Property.
- *Excess Property* is Government property that is no longer required by the holding agency and is available for use by other agencies and departments of the Federal Government.
- *Exchange/Sale Property* is personal property not excess to the needs of the holding agency but eligible for replacement, which is exchanged or sold in order to apply the exchange allowance or proceeds of sale in whole or part payment for replacement with a similar item.
- *Government Furnished Property* is property that was held by the Government and transferred to the contractor. It also includes contractor acquired property from prior contracts and completed deliverable items left in place at the contractor's site.
- *Near-site* is a NASA contractor site located physically adjacent to a NASA Center or within close proximity to a NASA Center. Contract language may instruct near-site contractors to disposition Government property through the Center Property Disposal Officer rather than through the Plant Clearance process.
- *On-site* is within the physical boundaries of a NASA Center.
- *Off-site* is outside of the physical boundaries of a NASA Center.

- *PCARSS*, also known as the Plant Clearance Automated Reutilization Screening System, is part of the Government directive to achieve a paperless Contracting environment. It automates the process for reporting, screening, requisitioning and disposing of excess Government property located at contractor facilities.
- *Personal Property* means any property, except real property (land), real property improvements, buildings, and intellectual property such as software and data.
- *Surplus Personal Property* means excess personal property no longer required by the Federal agencies as determined by GSA.
- *NASA Transition* is the careful planning, optimized utilization, and responsive disposition of personnel, processes, resources, and real and personal property, focused upon leveraging existing Shuttle and Station assets for Exploration programs' safety and mission success. NASA Transition has four components: 1) Space Shuttle Program Transition & Retirement (T&R); 2) International Space Station Program Shuttle Transition and Retirement (STaR); 3) Constellation Transition(s) from Development to Operations; and 4) Commercial Orbital Transportation Services (COTS) Transition to Space Station Crew Resupply Services. Space Shuttle Transition and Retirement (Shuttle Phase-out) is comprised of two activities - Close Out of the Space Shuttle Program (including disposition of excess property), and transfer of any assets needed by Constellation, International Space Station, or other NASA flight programs.

APPENDIX B: ACRONYMS

ACES	Advanced Crew Escape Suit
CxP	Constellation Program
DCMA	Defense Contract Management Agency
EMS	Environmental Management System
EMU	Extravehicular Mobility Unit
ET	External Tank
EVA	Extravehicular Activity
FAR	Federal Acquisition Regulation
FSCG	Federal Supply Classification Group
FY	Fiscal Year
GSA	General Service Administration
HPO	Historic Preservation Officer
HPWG	Historic Preservation Work Group
HPWG	Historic Preservation Working Group
ISSP	International Space Station Program
IT	Information Technology
ITAR	International Traffic in Arms Regulations
LSS	Life Support Subsystem
NASA	National Aeronautics and Space Administration
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
PCARSS	Plant Clearance Automated Reutilization Screening System
PDO	Property Disposal Officer
RFI	Request for Information
SASP	State Agency for Surplus Property
SHPO	State Historic Preservation Officers
SOFIA	Stratospheric Observatory for Infra-red Astronomy
SRB	Solid Rocket Booster
SSA	Space Suit Assembly
SSME	Space Shuttle Main Engine
T&R	Transition and Retirement

APPENDIX C: NASA DIRECTIVES RELATING TO PROPERTY DISPOSITION

The table below outlines the list of primary NASA Policy Directives and NASA Procedural Requirements that are either directly applicable or related to T&R personal property disposition. The list is not exhaustive. T&R activities shall use existing guidance, processes, and/or direction whenever applicable and appropriate. Unless a specific exception is requested and approved, the latest approved edition of each directive shall apply. In the table below, policies with direct impact on the Transition efforts are labeled as “Applicable,” while policies that may be related or are tangentially related are labeled as “Related.”

Document Number	Document Name	Category
NPD 1000.0	Strategic Management and Governance Handbook	Applicable
NPD 1000.3	The NASA Organization	Applicable
NPD 1001.0	2006 NASA Strategic Plan	Applicable
NPD 1050.1	Authority To Enter Into Space Act Agreements	Related
NPD 1440.6	NASA Records Management	Related
NPR 1441.1	NASA Records Retention Schedules	Related
NPD 1600.2	NASA Security Policy	Related
NPR 1600.1	NASA Security Program Procedural Requirements	Related
NPR 1620.3	Physical Security for Facilities and Property	Related
NPD 2110.1	Foreign Access to NASA Technology Transfer Materials	Applicable
NPD 2190.1	NASA Export Control Program	Related
NPR 2190.1	NASA Export Control Program	Applicable
NPR 2200.2	Requirements for Documentation, Approval, and Dissemination of NASA Scientific and Technical Information	Applicable
NPR 2210.1	External Release of NASA Software	Applicable
NPD 4100.1	Supply Support and Material Management Policy	Applicable
NPR 4100.1	NASA Materials Inventory Management Manual	Applicable
NPD 4200.1	Equipment Management	Applicable
NPR 4200.1	NASA Equipment Management Procedural Requirements	Applicable
NPR 4200.2	Equipment Management Manual for Property Custodians	Applicable
NPD 4300.1	NASA Personal Property Disposal Policy	Applicable

NPR 4300.1	NASA Personal Property Disposal Procedural Requirements	Applicable
NPD 4300.4	Use of Space Shuttle and Aerospace Vehicle Materials as Mementos	Applicable
NPR 4310.1	Identification and Disposition of NASA Artifacts	Applicable
NPD 7120.4	Program/Project Management	Related
NPR 7120.5D	NASA Space Flight Program and Project Management Requirements	Related
NPD 7500.1	Program and Project Logistics Policy	Applicable
NPR 8000.4	Risk Management Procedures and Guidelines	Related
NPD 8010.3	Notification of Intent to Decommission or Terminate Operating Space Systems and Terminate Missions	Applicable
NPD 8500.1	NASA Environmental Management	Applicable
NPR 8553.1	NASA Environmental Management System (EMS)	Applicable
NPR 8580.1	Implementing The National Environmental Policy Act And Executive Order 12114	Applicable
NPD 9010.2	Financial Management	Applicable

APPENDIX D: MEMORANDUM OF UNDERSTANDING BETWEEN NASA AND NASM

AGREEMENT BETWEEN THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AND THE SMITHSONIAN INSTITUTION CONCERNING THE TRANSFER AND MANAGEMENT OF NASA HISTORICAL ARTIFACTS

WHEREAS in the course of its programs the National Aeronautics and Space Administration produces a large number of artifacts, many with great historical value and others with great value for education, exhibition, and other purposes, relating to the development, demonstration, and application of aeronautical and astronautical science and technology of flight; and will continue to acquire such materials; and

WHEREAS such artifacts are unique specimens relating to the science and technology of aeronautics and astronautics, and of flight in the atmosphere and space, which may consist of aeronautical and astronautical objects including, but not limited to, aircraft, space launch vehicles, spacecraft (both manned and unmanned), subsystems of the above, such as rocket engines, pressure suits and personal equipment, instruments, significant recorded data, operating handbooks, drawings, photographs, motion picture film and related documents, audio and video tapes, training devices, simulators, and memorabilia; and

WHEREAS the Smithsonian Institution is charged with the responsibility to preserve for perpetuity artifacts representative of aviation and space flight; to collect, preserve, and display aeronautical and space flight equipment of historical and educational interest and significance; to serve as a repository for scientific equipment and data pertaining to the development of aviation and space flight; and to provide educational material for the historical study of aviation and space flight.

THEREFORE, under the authority set forth in Section 203(c)(6) of the National Aeronautics and Space Act of 1958, as amended (72 Stat. 430; 42 U.S.C. 2473(c)(6); Section 4 of the Act of August 30, 1961 (75 Stat. 415, 20 U.S.C. 80c); and Sections (4) and (8) of the National Air Museum Amendments Act of 1966 (80 Stat. 310, 311; 20 U.S.C. 77a, 77d), the National Aeronautics and Space Administration (hereafter called "NASA") and the Smithsonian Institution (hereafter called "Smithsonian") enter into this Agreement concerning the transfer and management of those artifacts having such historical and educational or other value which have emerged and will emerge from the aeronautical and space programs administered by NASA.

1. NASA shall offer to transfer to, and the Smithsonian may accept such artifacts under NASA control which become available, after programmatic utility to NASA or other government agencies has been exhausted, although, in extraordinary circumstances, exceptions or alternative dispositions can be made by NASA. Before the decision to make an exception or alternative disposition is made, the proposed action shall be referred to the Joint Artifacts Committee (established in paragraph 4, below) for consideration. In addition, the Smithsonian may, pursuant to the procedures contained in paragraph 4, call a special meeting of the Joint Committee to discuss the transfer or

preservation of items of unusual historical interest that NASA has not yet declared to be artifacts. In either instance, if no consensus can be achieved by the Joint Artifacts Committee, the issue shall, upon request of either NASA or the Smithsonian, be referred to the NASA Administrator and the Director of the Smithsonian's National Air and Space Museum (NASM) for consideration. In the event agreement still cannot be reached, the NASA Administrator will decide the issue. NASA undertakes no obligation to provide financial support to the Smithsonian for the storage, transport, preparation, and final transfer of space artifacts.

2. The Smithsonian Institution's National Air and Space Museum will accession into its National Collections and accept responsibility for the custody, control, protection, preservation, and display of such artifacts transferred by NASA both in the Museum itself and on loan to NASA and other appropriate organizations in a manner consistent with the prevailing collections policy of NASM. If NASM refuses a request from a NASA component or visitor center for a loan of a NASA artifact, or states its intention to terminate or not to renew an existing loan to NASA, NASA may call a meeting of the Joint Committee at which the reasons for and possible alternatives to the denial will be discussed. Loans of artifacts to NASA shall be made for periods of from three to five years, with the expectation that renewals will be granted. NASM may specify reasonable curatorial practices to be followed by NASA components or visitor centers with respect to loaned NASA artifacts, and NASA will implement these practices to the extent practicable.

3. In connection with the NASA artifacts transferred to the Smithsonian, it is understood that in no instance shall a NASA artifact be finally disposed of to an agency other than the United States Government, or destroyed, before an opportunity is extended to NASA to reacquire, not on a basis of purchase but of reasonable defrayment of the costs involved, custody, and control of the artifacts. Further, in the event that NASA determines that an item declared an artifact and transferred to the Smithsonian has renewed technical utility with respect to NASA's programs, the NASA Chair of the Joint Artifacts Committee may request NASM to loan the item back to NASA. NASM will make a good faith effort to comply with the NASA request in light of NASA's stated need and the potential impacts on the NASM collection and/or operations. In utilization of this procedure, both NASA and the NASM will work promptly and closely to minimize any adverse impact that the loan could have on NASM operations. Cost of shipping and packaging the item for return to NASA will be borne or reimbursed by NASA.

4. The Smithsonian and NASA will establish a Joint Artifacts Committee to collect information on and consider issues relating to NASA artifacts and their transfer to the Smithsonian. This charter includes, but is not limited to, those issues identified for Committee consideration in paragraphs 1 and 2 above. It is anticipated that the Committee will meet at least two times per year, although either NASA or NASM may call a special meeting on 30 days notice.

5. The agreement shall be effective for five years from the date of the latest signature. Unless written notification is given by either party at least six months prior to expiration, it will be renewed automatically for an additional five years.



Michael D. Griffin
Administrator
National Aeronautics and Space
Administration



John R. Dailey
Director
National Air and Space Museum
Smithsonian Institution

Date 8 Aug 2008

Date 8.20.08

APPENDIX E: NPR 4310.1, IDENTIFICATION AND DISPOSITION OF NASA ARTIFACTS

Preface

P.1 Purpose

This NPR provides procedures and guidance for the identification, reporting, transfer, or disposal of NASA articles, equipment and hardware of historical interest.

P.2 Applicability

This NPR applies to NASA Headquarters and all NASA Centers, including Component Facilities.

P.3 Authority

42 U.S.C., Section 203(a), of the National Aeronautics and Space Act of 1958, as amended.

P.4 References

P.4.1. Agreement Between the National Aeronautics and Space Administration and the Smithsonian Institution Concerning the Transfer and Management of NASA Historical Artifacts, dated May 28, 1998; (Appendix A).

P.4.2. NPD 4200.1, NASA Equipment Management Policy.

P.4.3. NPR 4200.1, NASA Equipment Management Manual.

P.4.4. NPR 4300.1, NASA Personal Property Disposal Manual.

P.4.5. NPD 1387.1, NASA Exhibits Program.

P.5 Cancellation

None

Revalidated January 31, 2006

Chapter 1. Background

1.1 Artifact Administration

1.1.2. Under the terms of agreement referenced in subparagraph P.4.1., the National Air and Space Museum (NASM), which is administered by the Smithsonian Institution, is responsible for the custody, protection, preservation, exhibition, and loan of artifacts received from Government agencies. Repositories for NASA artifacts are identified with the assistance of the NASM so as to most effectively inform the public regarding

NASA's endeavors. Artifacts are offered to the NASM when programmatic utility to NASA has been exhausted. Requirements for artifacts may include support for NASA's public affairs, industrial outreach, and education programs. It is NASM policy not to accept items into the General Collection solely for the purpose of loans to other agencies, organizations, and institutions. NASA may loan available artifacts as exhibits pursuant to the policy directive referenced in subparagraph P.4.5., provided no other programmatic requirement exists for the item.

1.2. Defining NASA Artifacts

1.2.1. Artifacts, as applied to NASA, are unique objects that document the history of the science and technology of aeronautics and astronautics. Their significance and interest stem mainly from their relation to the following: historic flights, programs, activities, or incidents; achievements or improvements in technology; our understanding of the universe; and important or well-known personalities.

1.2.2. Space-related artifacts may include, but are not limited to, objects such as major program vehicle components, unique devices, prototype and proof test articles, payloads or individual instruments, flight spares, astronaut tools and paraphernalia, design concept models, and high-fidelity simulators. Aeronautics artifacts include, but are not limited to, experimental aircraft, test and simulation devices, prototype systems, structural and test models, and flight-tested materials.

1.2.3. Flags, insignia, and other mementos carried in Official Flight Kits and astronaut Personal Preference Kits, or items specifically approved as reminders of specific flights are not to be considered artifacts. Artifacts also do not include non-serialized parts, or parts that exist in large numbers, except when such parts acquire special significance as indicated in subparagraph 1.2.1.

1.2.4. Questions regarding the classification of items as artifacts should be referred first to the Center Public Affairs Office, then, if necessary, to the Assistant Director, Collection Management, National Air and Space Museum (NASM), Washington, DC. Centers will forward information copies of any correspondence to the NASM regarding artifacts to NASA Headquarters, Office of Public Affairs, and Office of Infrastructure, Management, and Headquarters Operations.

Chapter 2. Responsibilities

2.1 NASA Artifacts Committee

The NASA Artifacts Committee, an internal Headquarters staff composed of full-time Federal employees, is hereby continued in effect as being necessary and in the public interest.

2.1.1. The NASA Artifacts Committee is responsible for general NASA policies regarding the identification and disposal of artifacts and for routine review of screening and reporting procedures.

2.1.2. The committee will review and approve the exhibition of major artifacts at NASA Centers, act on competing requests for artifacts within NASA, and request the return to NASA of artifacts transferred to the NASM for further technical use.

2.1.3. The membership of the NASA Artifacts Committee is set forth in Appendix B. The committee will meet as required, but not less than once each year, to review artifact processing and the previous year's activities.

2.1.4. The committee Chairperson is delegated the authority to execute the committee functions described above, with the advice of the full committee. The Chairperson will keep the NASA Administrator informed of significant actions, issues, or other matters related to NASA artifacts.

2.2. The Assistant Administrator for Public Affairs

The Assistant Administrator for Public Affairs is responsible for establishing policy and procedures for the exhibition of artifacts and will chair the NASA Artifacts Committee.

2.3. The Assistant Administrator for Institutional and Corporate Management

The Assistant Administrator for Institutional and Corporate Management is responsible for the transfer and accounting of artifacts and will act as the primary contact for artifact materials management and reporting to the NASM and the General Services Administration.

2.3.1. The Logistics Management Division will provide advice and guidance to NASA Centers on the handling, reporting, and transfer of artifacts. The Director is also responsible for the coordination of activities attendant to decisions regarding specific artifacts made by the NASA Artifacts Committee.

2.4. Enterprise Associate Administrators

Enterprise Associate Administrators are responsible for ensuring compliance with NASA policy regarding the identification, administration, and transfer of artifacts. They are also responsible for providing Enterprise specific policy and guidelines.

2.5. Center Directors

Center Directors will ensure that adequate processes and controls are in effect to identify, control, transfer, and report artifacts at their respective Centers or in the possession of contractors supporting their Centers.

2.5.1. Center Property Disposal Officers will screen potential artifacts in accordance with the procedures and guidance contained herein. They will also control, transfer, and report artifacts in accordance with subparagraphs P.4.1. through P.4.5.

Chapter 3. Procedures and Guidelines

3.1. Identification and Reporting of Artifacts

3.1.1. The identification of artifacts will begin as items produced and utilized by historically significant programs and projects lose their technical utility and are scheduled for disposal. The directive referenced in subparagraph P.4.2. provides overall policy for the control and custody of items of equipment classified as artifacts. Center Property Disposal Officers, working with their respective Public Affairs Offices, will assist program and project managers and Center Directors in determining which items qualify as artifacts. They will ensure that these items are reported in accordance with the procedures and guidance referenced in subparagraphs P.4.3. and P.4.4. and that special handling and reporting requirements for artifacts that are also controlled equipment are observed.

3.1.2. The appropriate turn-in document will clearly indicate that the property is designated an artifact. It will contain a description of the item's relationship to the historically significant program or project, system, subsystem, prototype, test unit, or facility. The artifact will be accompanied by other identifying documents such as operating handbooks, summary reports, drawings, log books, photographs, videotapes, motion picture film, audio tapes, and historically significant telemetry and test data. If possible, a recent photograph of the artifact will accompany the turn-in document.

3.1.3. The turn-in document may also cite a recommended disposition for the artifact, including known requests for custody from NASA Centers, other Government agencies, museums, and institutions. In these cases, a statement will be made as to the intended use of the artifact, and the name and telephone number of a point of contact will be included.

3.1.4. Artifacts should be grouped by their relationship to each other as much as possible. Components of a vehicle, though separately identified and controlled, would be grouped to show their relationship to the next higher assembly, to subsystems, to systems, and to the complete vehicle.

3.1.5. As artifacts become available for transfer, Centers will notify the Assistant Director, Collection Management, NASM, and NASA Headquarters, Office of Public Affairs, and Office of Infrastructure and Administration. Artifacts will be reported by the Center having property accountability as opposed to the Center that may be programmatically involved or that may have physical custody of the artifact.

3.2. Screening and Transfer of Artifacts

3.2.1. In accordance with the agreement between NASA and the Smithsonian Institution contained in Appendix A, NASM will review the notices of artifact availability submitted by the NASA Centers and indicate which items the museum wishes to acquire. The annotated notice will be returned to the Center, along with shipping instructions for the items desired, within 30 days of receipt. If no response is received from the NASM

within 45 days of notice transmittal, the Center can assume the NASM has declined to acquire any item in the notice.

3.2.2. Competing requests for an artifact will be forwarded to the Director, Logistics Management Division will present the issue to the NASA Artifacts Committee for a decision. When competing requests are for exhibition only, the issue will be given to the NASA Exhibits Coordinator, in accordance with subparagraph P.4.5. for resolution.

3.2.3. The reporting Center will transfer the artifacts in accordance with the shipping instructions provided by NASM and as coordinated through the appropriate General Services Administration office. In all cases involving the transfer of aircraft artifacts, coordination will be conducted through the General Services Administration, Region Nine.

3.2.4. Requests for artifacts submitted by NASA Centers will be forwarded to the accountable Center's Property Disposal Officer. The request will include a statement on the intended use of the artifact, which describes the technical application, applicable program, or nature of the exhibition planned for the artifact. If the allocation of the artifact will require the expenditure of funds, the request will identify the fund source, project plan, and approving official. In general, requests for the transfer of artifacts for program requirements will have priority over requests for exhibitions.

3.2.5. Request for the exhibition of artifacts from non-Government organizations will be handled by the Center Exhibits Coordinator in accordance with the policy directive referenced in subparagraph P.4.5.

3.2.6. Items not transferred to the NASM or referred to the Center Exhibits Coordinator will be disposed of in accordance with the procedures and guidance referenced in subparagraph P.4.4.