Waivers Process
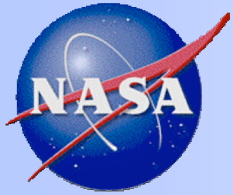
NPR 7120.5D

This is one of a series of training presentations covering important topics in NPR 7120.5D**.**
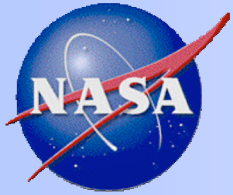
Rev. 9/5/07

Purpose

The objective of this presentation is to provide an understanding of the NPR 7120.5D requirements and principles related to the processing of requirement changes, exceptions, and waivers.

Note:

NPR 7120.5D issued in March 2007 only recognizes changes and waivers. This presentation includes the standard terminology for requirements management that were adopted by the OCE and OSMA in January 2007. These terms are currently being incorporated into a NASA Interim Directive (NID) for NPR 7120.5D.

Points to be Covered

- *Standard Terminology for Requirements Management*

- *Waiver Process for NPR 7120.5D Requirements*

- *Waiver Process for All Other Requirements – Principles*

- *Waiver Process for Technical Authority Requirements – Principles*

- *How is the <u>Lead Technical Authority</u> identified ?*

- *What is the role of the Lead Technical Authority ?*

- *How is the "appropriate" Technical Authority level for the disposition determined?*

- *How will waivers be handled for non-NASA standards?*
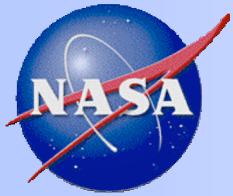
Standard Terminology for Requirements Management

- **Waiver** - A written authorization allowing relief from a requirement

- **Exception** - A written authorization granting permanent relief from a specific, non-applicable requirement

  - Non-applicable – not relevant or capable of being applied

  - Does not include modifiers like: It's too hard, expensive, or time consuming; I don't like it; I missed it, etc.
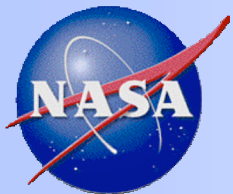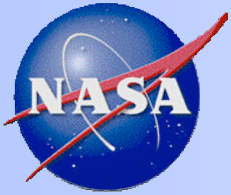
Waiver Process for NPR 7120.5D Requirements

- Requests for waivers to <u>NPR 7120.5D requirements</u> are documented and submitted for approval using the NPR 7120.5D Waiver form.

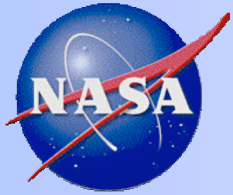|	Project Manager	Program Manager	Center Director	MDAA	Chief Engineer	NASA AA	Approval Authority for Waivers with Dissent
Programs (except tightly coupled programs)		R	A	A	A	I	NASA AA
Programs (tightly coupled programs)		R		A	A	I	NASA AA
Category 1 Project	R	A	A	A	A	I	NASA AA
Category 2 and 3 Projects	R	A	A	A	A	I	NASA AA
Reimbursable Space Flight Projects	R		A	A*	A	I	NASA AA

* As Applicable

Legend

R - Recommends, A - Approves, I - Informed

Waiver Process for NPR 7120.5D Requirements

- NPR 7120.5D paragraph 1.3.1 states, Chapter 4 is written using verifiable "*shall*" statements that define the requirements that the program/project must meet. Chapters 2 and 3 are written in the indicative mood (to affirm statements of fact) because they describe NASA's policy on how does program/project work is done.

- Chapters 2, 3, 4, and the content of the templates located in the Appendices must be met to be in compliance with NPR 7120.5D.
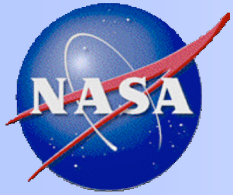
Waiver Process for *All Other Requirements* – *Principles*

- **The organizations and the organizational levels that agreed to the establishment of a requirement must agree to the change or waiver of that requirement, unless this has been formally delegated elsewhere.**

  (Note the need for good requirement traceability)

- **The next higher programmatic authority and Technical Authority are informed in a timely manner of change requests or waivers that could affect that level.**

NPR 7120.5D distinguishes between

Management Process Requirements

- Focus on how NASA does business
- Are independent of any particular program or project.
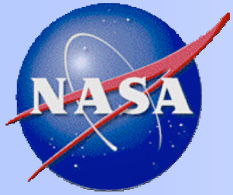- Are the responsibility of originating office unless delegated elsewhere

Programmatic Requirements

- Focus on the products to be developed and delivered
- Are related to the goals and objectives of a particular NASA program/project
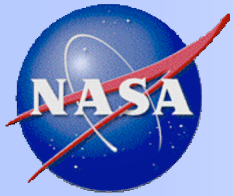- Include Derived Requirements
- Are the responsibility of the Programmatic Authority
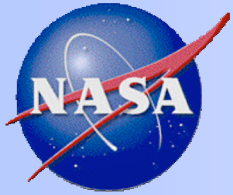
Waiver Process
Derived Requirements - Definition

- Arise from constraints, consideration of issues implied but not explicitly stated in the high-level direction provided by NASA Headquarters and Center institutional requirements, factors introduced by the selected architecture, and the design

- Are definitized through requirements analysis as part of the overall systems engineering process and become part of the program/project requirements baseline

- Are established by and are the responsibility of the Programmatic Authority

Waiver Process
Who Can Waive a Derived Requirement?

- It depends on the organization and level that agreed to the establishment of the requirement and whether waiver authority has been delegated.

- If the waiver of a derived requirement would result in failure to meet an imposed Agency or Center requirement, the program or project would submit the waiver to the lead Technical Authority for the requirement.

- If the derived requirement were established by a program or project and the waiver of the requirement did not result in a failure to meet a requirement levied by a higher authority, then the program or project change board could change or waive the requirement.

A project determines that it needs to specify a pressure vessel.

In the design implementation the project decides to use a composite overwrap pressure vessel that meets Agency-level requirement for a safety factor of N.

Because of a perceived technology risk, the project decides to impose a safety factor of N+m.

Both the requirement to use a composite overwrap vessel and the extra increment on the safety factor are derived requirements. Both are the responsibility of the Programmatic Authority at the level that established them.
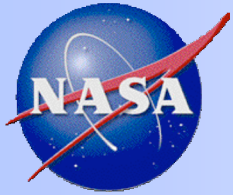
If the project decides to change the design from a COPV to a metallic pressure vessel, the associated changes in specified requirements can be approved at the project level with notification to the next higher level.

Similarly, if the project decides to eliminate the extra added safety factor (+m), the requirement can be changed at the project level.

However, if the project proposes that the new metallic tank need only meet a safety factor of N-x (less than the Agency requirement), the NPR 7120.5D waiver principles would require the appropriate Technical Authority approval.
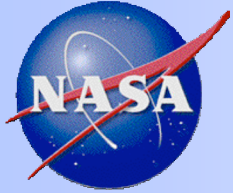
Waiver Process
Technical Authority Requirements

- **Are invoked by OCE, OSMA, or OCHMO documents (e.g. NPRs, Standards specified as NASA core or mandatory standards)**

- **Are contained in Center Institutional documents**

- **Are the responsibility of the Office or organization that established the requirement unless delegated elsewhere**
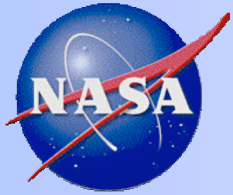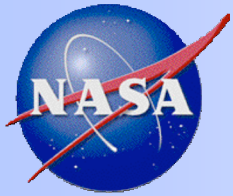
Waiver Process for Technical Authority Requirements – Principles

- **The Programmatic Authority (program or project) would submit a waiver, exception, or change to the lead Technical Authority at the level at which the waiver is being sought.**

     The Technical Authority designated for a specific program, project, or sub-system is the single point of contact for formal Technical Authority action for that specific Technical Authority at that level. (NPR 7120.5D)
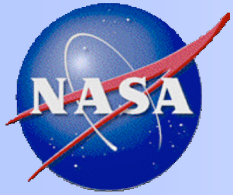
- **Each involved Technical Authority is responsible for assuring that changes, exceptions, and waivers are submitted to and acted upon by the appropriate level of Technical Authority. (NPR 7120.5D)**

What is the *role* of the Lead Technical Authority ?

Prior to providing the Technical Authority disposition to the Programmatic Authority, the lead Technical Authority must:

- Ensure that the issue is acted on by the appropriate level of their Technical Authority.

- Coordinate with the other involved Technical Authorities to ensure that they have their respective community positions.

- Confirm that any differences within a Technical Authority or among Technical Authorities are resolved (by the Dissenting Opinion process if necessary).

- Confirm that the required mandatory concurrences have been obtained and all required Technical Authority notifications have been made.

- Provide a Technical Authority community response to the Programmatic Authority.

# *How is the <u>Lead Technical Authority</u> identified?*

Agency level requirements

A database is being developed to define the lead Authority for Agency-level Technical Authority requirements and the role of the other Technical Authorities in the dispositioning process.

If the requirement lead is not available from the database, the Technical Authority responsible for the document in which the requirement appears is the default Lead Authority.

Center level requirements

Handled per Center processes
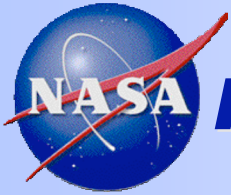
How is the *"appropriate"* Technical Authority level for the disposition determined?

"Appropriate" is determined by the <u>higher</u> of the following:

- The level at which <u>a Chief</u> Technical Authority has reserved dispositioning authority

- The level at which the parent requirement was established **unless formally delegated elsewhere**

    For delegations:

    <u>Agency-level requirements</u> - See database previously noted.

   <u>Center-level requirements</u> - Handled per Center processes
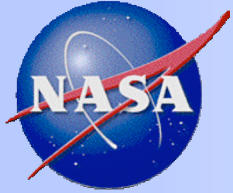
How will waivers be handled for non-NASA standards?

The process will be the same as for other standards.

Each adopted non-NASA standards will be assigned a NASA lead or responsible party. This responsibility can be formally delegated and will be documented in the database previously noted.

The lead would be responsible for approving waivers, exceptions, and changes to the document that are necessary to implement the standard in a NASA environment.
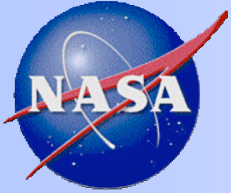
Conclusion

- **The waiver principles in NPR 7120.5D support NASA's goal of Technical Excellence by providing and maintaining a sound basis for the technical requirements imposed on NASA's programs and projects.**

- **They can be viewed as another piece of providing proper balance between organizational elements and having a robust check and balance system as specified in the NASA Governance Model in NPD 1000.0.**
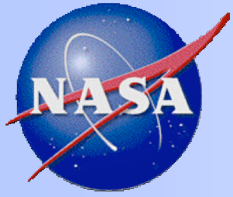
Back-up
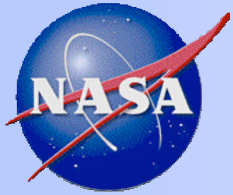
Standard Terminology for Requirements Management

The January 2007 joint meeting of the NASA Engineering Management Board and the OSMA Directors agreed to the following standard terminology for requirements management:

- **Non-conformance** – the state or situation of not fulfilling a requirement

- **Tailoring** - the process of adapting requirements to a specific task or activity (e.g. program or project)

- **Exception** - a written authorization granting <u>permanent</u> relief from a specific, <u>non-applicable</u> requirement

- **Non-applicable** – not relevant or capable of being applied
  - Does not include modifiers like: It's too hard, expensive, or time consuming; I don't like it; I missed it, etc.

- **Waiver** - a written authorization allowing relief from a requirement

  Note - The following are <u>**not**</u> standard terminology for requirements management.

- **Deviation**
  - The concepts previously covered by the term deviation are now encompassed by the terms exception and waiver.
  - The term deviation may continue to be used in ongoing programs/projects but is proposed that it should not be used in new programs/projects.

- **Variance** – This term has specific significance in the administration of OSHA requirements and should only be used in relation to OSHA regulations and requirements.