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Center Procedure No.

GRC-P2.9

Revision

Basic

# Center Procedure

# Risk Management

*Approved*

Director, Glenn Research Center

**NASA Glenn Research Center  
Cleveland, OH 44135**

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### Change Record

Rev.	Effective Date	Description
Basic	November 30, 1998	Initial Issue, CR-2
Basic	12-18-2002	Document Review, No Changes

*Include all information for each revision. Do not remove old revision data. Add new rows to table when space runs out by pressing the tab key in the last row, far right column.*

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## 1.0 INTRODUCTION

Risk Management is a *continuous process*. It identifies risks; analyzes their impacts and prioritizes them; develops and implements plans for their mitigation or retirement, or for their acceptance; supports informed, timely and effective decisions to control risks; and assures that risk information is communicated among all levels of a program, project, or subproject.

### 1.1 Purpose

This procedure implements the Risk Management provisions of NASA Policy Directive (NPD) 7120.4, PROGRAM/PROJECT MANAGEMENT; and NASA Procedures and Guidelines (NPR) 7120.5, NASA Program and Project Management Processes and Requirements, at the Glenn Research Center. These Directives require that each NASA program and project perform a thorough assessment of the risks to schedule, cost and technical performance; as well as to safety, the environment, and mission success. The program or project is then required to develop and implement a plan to mitigate, retire, or accept each such risks in the most resource-effective manner, based on its impact on the program or project objectives.

### 1.2 Scope

This procedure establishes the Risk Management Formulation and Implementation Process at Glenn. This process is applied to all Glenn programs, projects and sub-projects that Provide Aerospace Products and Capabilities (PAPAC); i. e. provide space and aeronautics, flight and ground systems, technology, research and analysis, and operations (test and computational) products. It is not required, but may be used for, activities such as non-flight infrastructure, Construction (Coff), and Small Business Innovation Research (SBIR) projects.

## 2.0 REFERENCES

### 2.1.1 Applicable Documents

<b>Document Number</b>	<b>Document Title</b>
<a href="#">NPD 7120.4</a>	PROGRAM/PROJECT MANAGEMENT
<a href="#">NPR 7120.5</a>	NASA Program and Project Management Processes and Requirements
<a href="#">GLPG 8730.5</a>	Glenn Research Center Business Management System Quality System Manual
<a href="#">GRC-P3.7.2.1</a>	Creation and Revision of Center Level Procedures, Center Level Manuals, and Lower Level Procedures
<a href="#">GRC-P3.7.3</a>	Records Management

### 2.1.2 Reference Documents

<b>Document Number</b>	<b>Document Title</b>
<a href="#">GRC-P2.4</a>	Program/Project/Subproject Management - Formulation
<a href="#">GRC-P2.6</a>	Program/Project/Subproject Management - Implementation

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## 2.2 Records

**The Risk Management Plan** as a stand-alone document, or as part of the Program/Project/SubProject Plan, incorporates required sub-planning for cost, schedule, and technical performance; acquisition; safety and mission success (product assurance); and environmental management as required by Reference 2.1.2.

## 2.3 Definitions

<b>Risk</b>	The combination of 1) the probability (quantitative or qualitative) that a program, project, or subproject will experience an undesired event such as cost overrun, schedule slippage, safety mishap, or failure to achieve Program, Project, or SubProject Objectives (mission success); and 2) the consequences, impacts, or severity of the undesired event, were it to occur.
<b>Primary Risk</b>	Those undesirable events having both a high probability of occurrence and severe impact if they should.
<b>Risk Management Process</b>	An organized, systematic decision-making process that efficiently identifies, analyzes, plans, tracks, controls, communicates, and documents risk to increase the likelihood of achieving program/project/subproject objectives.

## 3.0 RESPONSIBILITIES

### 3.1 Program/Project/Subproject (P/P/SP) Management

Each Program, Project and Subproject at Glenn shall develop a Risk Management Plan in accordance with the provisions of NPR 7120.5, NASA Program and Project Management Processes and Requirements, and in particular, Sections 4.2, Risk Management and 4.5, Safety, Mission Success and Environmental Management, of that Directive (See Figure 1). The Risk Management Plan shall be developed during the Formulation Phase, included in the Program, Project or Subproject Plan, and executed/maintained during the Implementation Phase.

### 3.2 Safety and Assurance Directorate (SAD)

The Glenn Safety and Assurance Directorate (SAD) is responsible to the Director, Glenn Research Center and to the NASA Associate Administrator for Safety and Mission Assurance to provide Independent Assessment of Program, Project, and Subproject Risk Planning and Implementation activities. SAD may also perform assessments on behalf of the Governing Program Management Council or other Management Authority.

SAD shall also support the Program/Project/Subproject in the development of the Risk Management Plan, specifically in the development and implementation of risk and hazard identification, tracking, and control technologies. SAD support may include the performance of assurance assessments, quantification and prioritization of risks, application of techniques for risk trade studies, and evaluations of the effectiveness of mitigation initiatives.

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### 3.3 Other Program/Project/Subproject Support Activities

Organizations or activities which support the development, implementation and execution of a Program, Project or Subproject may aid in the identification, analysis, planning, tracking, and control of specific threats and in the preparation and execution of the Risk Management Plan, as required by References 2.1.1 and 2.1.2 (See Figure 1). These organizations may include Engineering, Safety and Mission Assurance (as noted in 3.2, above), Resource and Financial Management, Acquisition, Facilities Management, and others providing Technical and Administrative support as requested by Program/Project/Subproject Management.

### 3.4 Program Management Council(s)

The appropriate Glenn, or other Governing, Program Management Council (GPMC), shall review the status of the Risk Management efforts during the regular review of the Program's, Project's, or Subproject's progress. The Program's, Project's or Subproject's adherence to planned risk identification, analysis, and trade activities will be evaluated; appropriate remedial actions will be levied; and the confidence Reviewers attain in the risk management process will be a consideration in funding, progress and termination review deliberations.

## 4.0 PROCEDURE

### Responsible Person or Organization

### Block No. Activity

Program/Project/ Subproject Management	<b>4.1</b>	Perform a thorough assessment of the threats to success, including risks to schedule, cost and technical performance; as well as to safety, the environment, and mission success. Develop and implement a plan to mitigate, retire, or accept each such risk in the most resource-effective manner.
Program/Project/ Subproject Management	<b>4.2</b>	Develop a Program or Project Risk Management Approach and Plan in compliance with NPR 7120.5, Sections 4.2 and 4.5, and Appendix 3/4; and that addresses the following Risk Management Functions: (see figure 1)
Identify	<b>4.2.1</b>	State the risk in terms of condition and consequences and capture the content of the risk (what, when, where, how, why).
Analyze	<b>4.2.2</b>	Evaluate risk probability, impact/severity and time frame; classify or sort with similar rated risks, and prioritize.
Plan	<b>4.2.3</b>	Assign responsibility, determine approach, and define mitigation level (if applicable). Execute plan.
Track	<b>4.2.4</b>	Acquire or update, compile, analyze, and organize risk data; report on tracking results; and verify and validate mitigation actions.
Control	<b>4.2.5</b>	Analyze tracking results, modify plan as appropriate for improvement based on analyses and review results, proceed.

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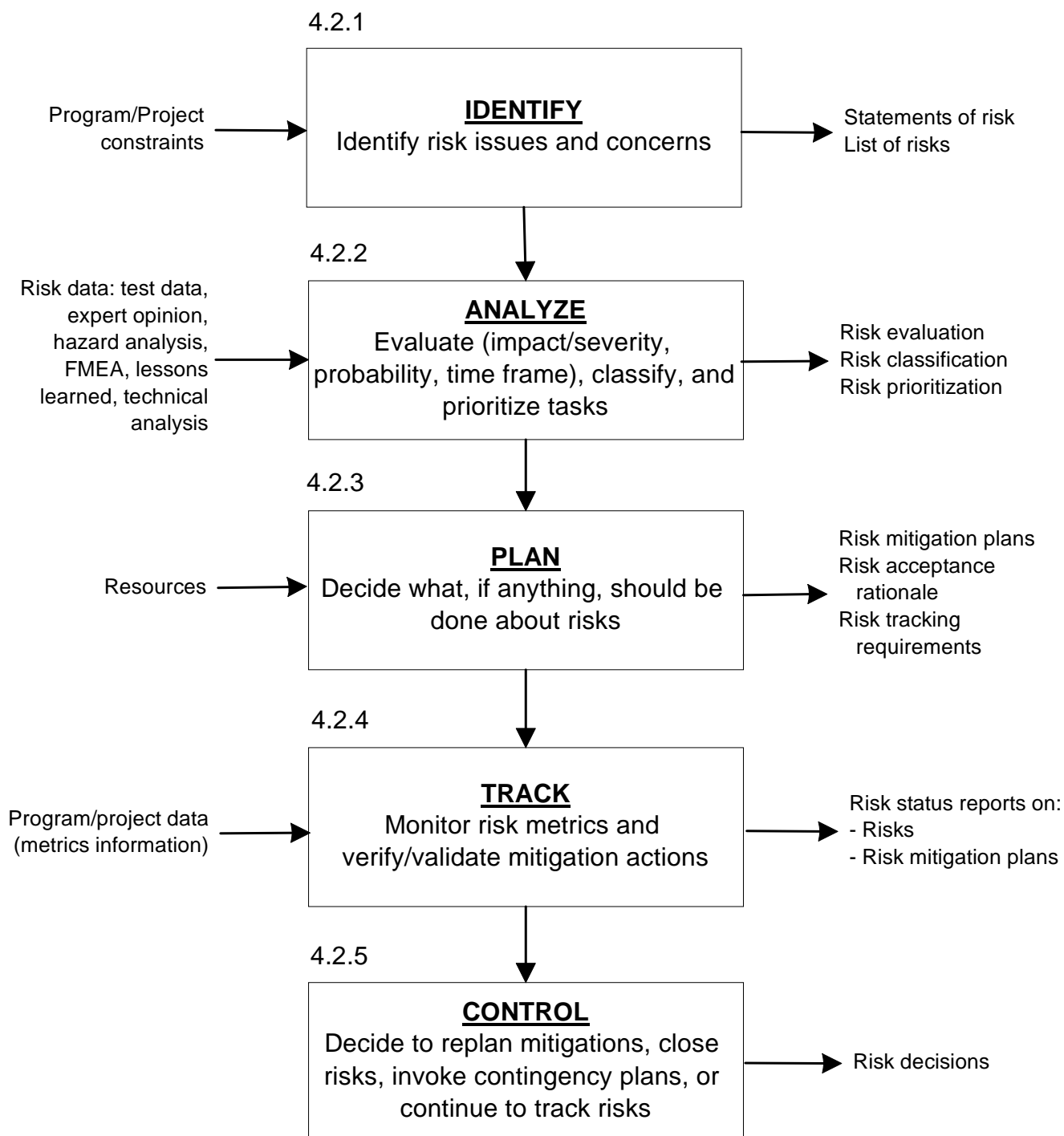
**Responsible Person or  
Organization**

**Block No.   Activity**

Director, SAD	<b>4.3</b>	Perform Independent Assessments and other evaluations as requested by the Center Director, Headquarters Management, the GPMC, Program/Project/Subproject Management, or other Senior Management Authority. Support the Programs/Projects/Subprojects in the development and implementation of Risk Management Approaches, Tools and Plans.
Management of Other Program/Project/Subproject Support Organizations	<b>4.4</b>	Aid in the identification, analysis, planning, tracking, and control of specific threats and in the preparation and execution of the Risk Management Plan, as assigned.
Governing Program Management Council (GPMC)	<b>4.5</b>	As part of scheduled reviews, assess the Program's, Project's, or Subproject's management of the risks threatening mission success and other program objectives and requirements.

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## **RISK MANAGEMENT PROCESS**



**NOTE: Communication and documentation extend throughout all of the functions.**

**FIGURE 1**

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**5.0 PROGRAM/PROJECT/SUBPROJECT (P/P/SP) RISK MANAGEMENT PROCESS FLOW:**

