

 Independent Verification & Validation Program	Risk Management	IVV 22 Version: G Effective Date: December 17, 2014
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AUTHORITY		DATE
Jeffrey Northey (original signature on file)	IMS Manager	12/17/2014
Scott Kinney (original signature on file)	Process Owner	11/26/2014

REFERENCES	
Document ID/Link	Title
IVV QM	NASA IV&V Quality Manual
IVV 16	Control of Records
NPR 1441.1	NASA Records Retention Schedules
S3001	Guidelines for Risk Management
T2006	Risk Review Template

If any process in this document conflicts with any document in the NASA Online Directives Information System (NODIS), this document shall be superseded by the NODIS document. Any external reference shall be monitored by the Process Owner for current versioning.

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1.0 Purpose

The purpose of this system level procedure (SLP) is to establish a consistent and documented method of performing risk management within the NASA IV&V Program. The goals of risk management are to:

- Ensure that decisions between alternatives are made with an awareness of the risks associated with each
- Manage the aggregate risk that threatens the achievement of performance objectives
- Identify factors that are likely to impact NASA IV&V Program/Project objectives in the areas of performance (quality), schedule, and cost
- Determine mitigation approaches to limit the impact of the identified factors
- Communicate risk status and approaches for mitigation

2.0 Scope

The procedures in this document apply to the Risk Management System (RMS) within the NASA IV&V Program, to include risk management process and the RiskManager Tool (RMT). Risk management is a means to anticipate, mitigate, and control risks, and to make risk informed decisions to increase the overall success of the NASA IV&V Program.

3.0 Definitions and Acronyms

Official NASA IV&V roles and terms are defined in the [Quality Manual](#).

3.1 Risk Management System (RMS)

The Risk Management System (RMS) within the NASA IV&V Program includes the functional organizations, risk process, and RMT. The RMS produces results through the interaction of the functional organizations, processes, and the RMT.

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3.2 RiskManager Tool (RMT)

The RiskManager Tool (RMT) is a computer automated tool designed to facilitate the IV&V risk process. The RMT is the primary risk repository that is used to document, capture, and support the management of risk data in support of this SLP. The RMT can be accessed via the following link at <http://risk.ivv.nasa.gov/>.

3.3 Acronyms

IMS	NASA IV&V Management System
NODIS	NASA Online Directives Information System
NPR	NASA Procedural Requirements
OSMA	Office of Safety and Mission Assurance
QM	Quality Manual
RMS	Risk Management System
RMT	RiskManager Tool
RRB	Risk Review Board
SLP	System Level Procedure

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4.0 Risk Management System (RMS)

The RMS process flow is depicted in section 4.2. The responsibilities and actions that shall be performed by process participants are described in this document. Any information supplemental to a depicted process will appear after the diagram.

4.1 Risk Roles and Responsibilities

Everyone has some responsibility for risk management and the identification of risk occurs at all levels of the Program. However, there is an overall structure to the responsibility that starts with the IV&V Program Manager and flows down to the functional organizations and the projects within those units.

The NASA IV&V Program Manager has overall responsibility for the execution of the NASA IV&V Program.

Risk communication takes place among stakeholders within the IV&V Program and externally including Office of Safety and Mission Assurance (OSMA), Mission Directorates, Missions, and Projects. Internal informal communication can take place in a variety of forms and forums ranging from project meetings and telecons to email.

The primary formal communication method within the IV&V Program is the Risk Review Boards (RRB). It is through the Office level and Program level RRBs that the formal communication, approval and escalation of risks (Internal & External) occur, as depicted in the following Figure 4-1, *Risk Communication and Escalation*.

Lower level risk information is communicated at the IV&V Program RRB meetings to provide status on risks being managed at that organizational level as well as to elevate risks when they cannot be addressed at that functional level. The IV&V Program RRB also develops and manages its own programmatic and institutional risks.

Top priority score risks (Internal & External) that are reported to OSMA, on quarterly basis, are formally communicated and approved through the Program RRB. External Risks approved by the Office Level RRB and

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communicated to the Program Level RRB are submitted to the IV&V projects by the Project Manager for disposition. External risk disposition status is documented and updated in the RMT by the Project Manager.

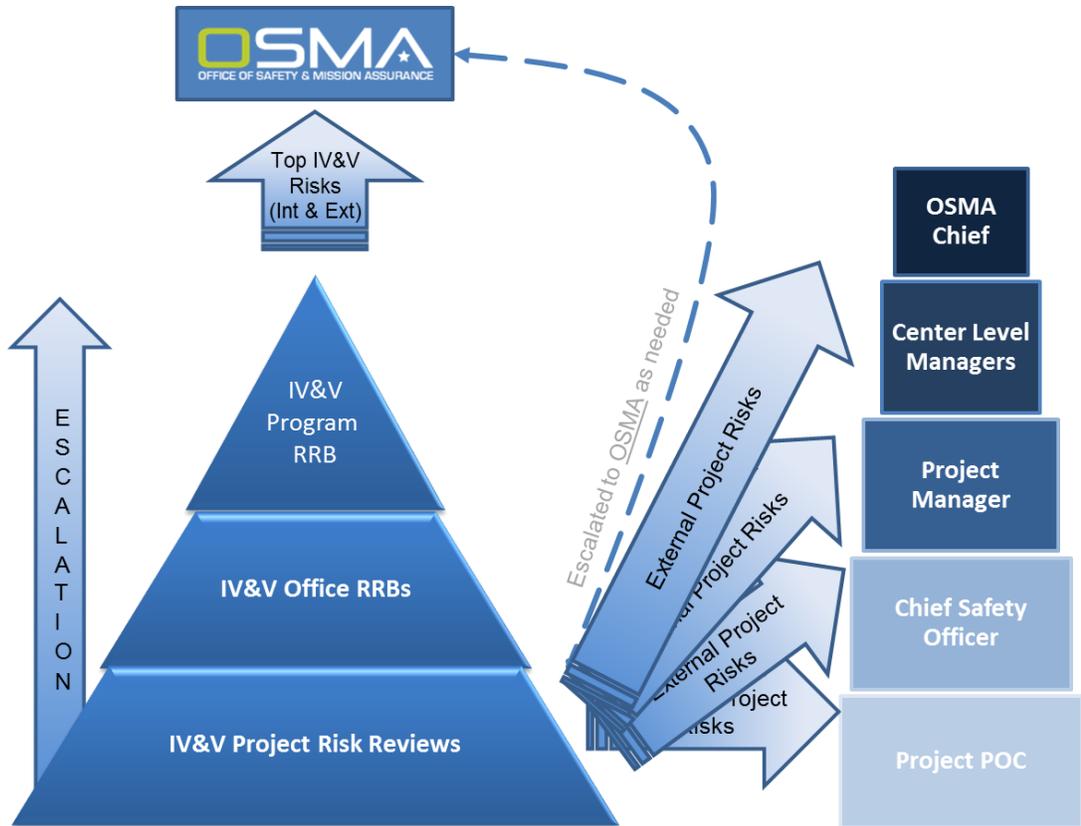


Figure 4-1 - Risk Communication and Escalation

The risk communication process as facilitated by the RMT establishes a real-time top risk list for an office by communicating risk information and status to the next organizational level.

The IV&V Program also assures that performance requirements assigned to the organizational units reflect appropriate tradeoffs between/among competing objectives and risks.

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Each functional organization within the IV&V Program has a functional lead. The Functional Leads have the overall responsibility of ensuring that risks are identified, documented in the RMT or via T2006, tracked, and approved within their respective functional organizations. Each functional organization has an associated governing RRB. This RRB is led by the Functional Lead with support from the IV&V Program Risk Manager. The Functional Lead (or designee) and the IV&V Program Risk Manager (or designee) are mandatory attendees at a governing RRB.

On a monthly basis the Functional Leads are responsible for maintaining awareness of their Risks. The Functional Leads are also responsible for managing the top risks within their organizational unit, and for providing infrastructure and resources for risk management support.

The Project Manager and Project Lead are responsible for identifying, analyzing, monitoring, maintaining status in the RMT, and communicating risks in regard to his/her projects. External risks approved to be submitted to the project will be informally managed in the RMT by the Project Manager and Project Lead. Thus no additional RRB action is required but periodic informal coordination with the Office Lead/RRB Manager is required.

The Risk Management Lead is responsible for the RMS. In addition, the Risk Management Lead provides training on the implementation of the process and the RMT. The Risk Management Lead is responsible for monitoring the RMS process execution to understand how well the process is working, and to improve the process when possible.

4.2 Risk Management and Approval Process

The risk management and approval process, as depicted in Figure 4-2, *Risk Management and Approval Process*, facilitates the decision to validate candidate risks and the authorization to proceed to the subsequent steps of managing risk. This process includes developing a strategy for risk management for a particular program, project, or activity to tracking and communicating risks as required. The goal of risk management is to manage risk at a level where budget and resources can be managed. For specific information regarding risk management, see S3001, *Guidelines for Risk Management*.



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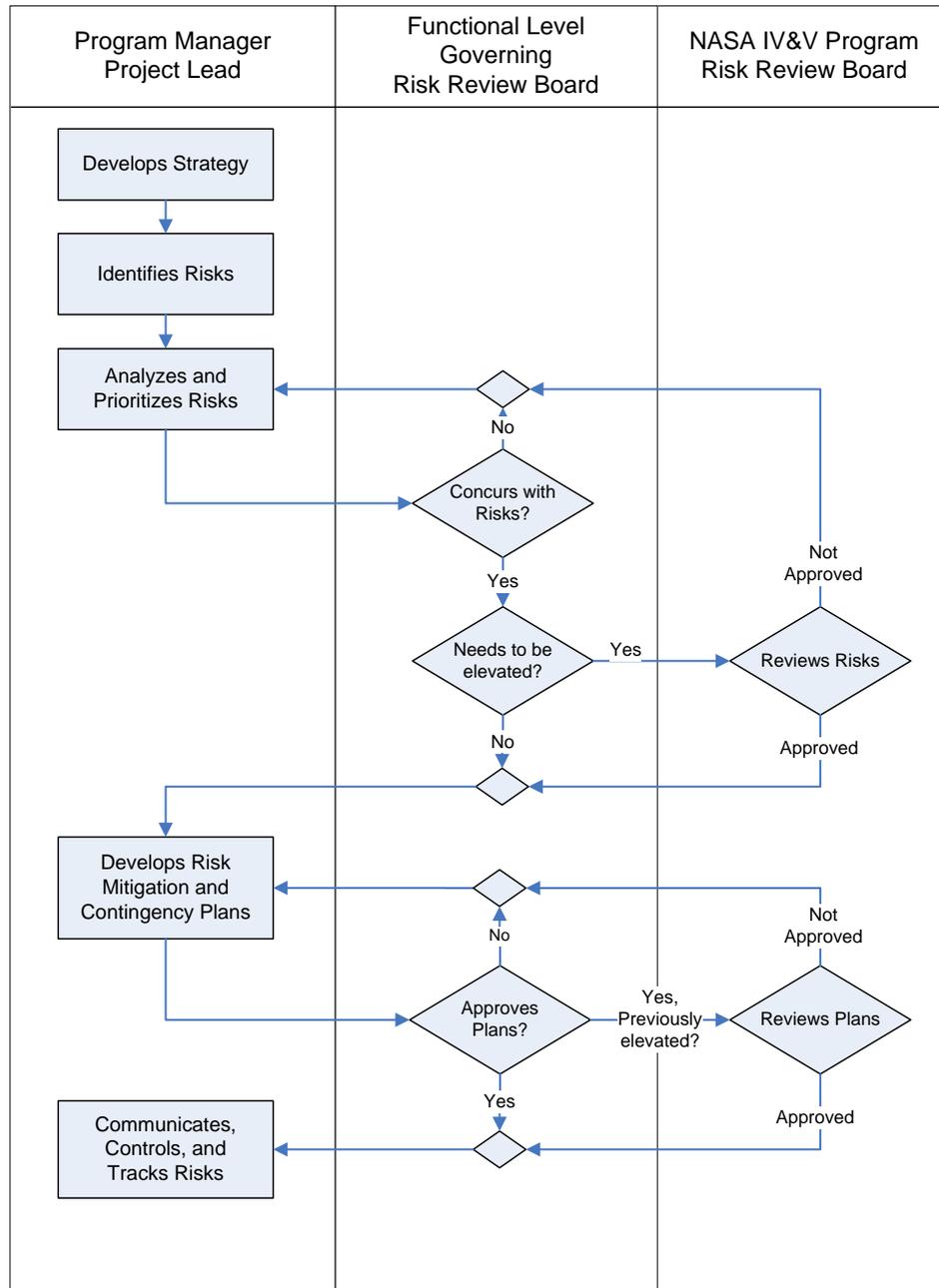


Figure 4-2 - Risk Management and Approval Process

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4.3 RiskManager Tool (RMT)

The RMT is the central repository for documenting risk status in the IV&V Program. All risks that fall within the scope of this SLP shall be documented in the RMT. Exceptions are for risks that are sensitive and/or classified risks. Sensitive risks shall be documented using the template T2006, *Risk Review Template*, and the RMT. The T2006 template will document the risk details and shall be stored by an appropriate civil service employee in a manner that properly restricts access. The RMT will be used for tracking sensitive risks (Risk Number, Title, Score, etc.) but consist of limited information.

- Procurement, Supervisory, or Legislative risks are some examples of possible sensitive risks.
- Classified risks will be documented and managed according to the inherent classification restrictions and restricted access requirements.

In addition the RMT facilitates the communication, capture, tracking, and management of risk data in support of the Risk Management and Approval Process flow depicted in section 4.2. The RMT can be accessed via the IV&V Program Portal or directly at: <http://risk.ivv.nasa.gov>. To get access to the RMT notify SWAT by email at ivv-swat@lists.nasa.gov or by submitting a service request in JIRA (a proprietary issue tracking product) RMT training videos are available through the RMT itself under the 'Help' menu, or in Confluence at: <http://confluence.ivv.nasa.gov:8090/display/SWAT/RiskManager>.

5.0 Metrics

Any metrics associated with this SLP are established and tracked within the NASA IV&V Metrics Program.

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6.0 Records

The following records will be generated or updated and filed in accordance with this SLP and IVV 16, *Control of Records*, and in reference to NASA Procedural Requirement (NPR) 1441.1, *NASA Records Retention Schedules*.

Record Name	Original	Vital	Responsible Person	Retention Requirement	Location
Risk	Y	N	Project Manager	Destroy when 7 yrs old (1/26.5A)	ECM System, and/or RMT
Risk Board Minutes	Y	N	Risk Management Lead	Destroy when 7 yrs old (1/26.5A)	ECM System



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VERSION HISTORY

Version	Description of Change	Rationale for Change	Author	Effective Date
Basic	Initial Release		Kenneth Costello	01/24/2008
A	Update terminology changed due to re-engineering process		Kenneth Costello	04/07/2008
B	Changed "IV&V Facility" to "IV&V Program"		Stephanie Ferguson	02/19/2009
C	Change document number from IVV 09-9 to IVV 22; update Section 6.0, <i>Records</i>		Kurt Kehl	04/22/2010
D	Added reference document precedence statement		Sara Cain	07/29/2010
E	Streamline and bring in line with the overall NASA requirements for risk management specifically with respect to risk informed decision making.		Kenneth Costello	09/27/2012
F	Add RiskManager Tool (RMT) verbiage. Add sensitive risks to use T2006, <i>Risk Review Template</i> , and store on ECM.	PAR 2013-P-390. Integrate RiskManager Tool (RMT).	Scott Kinney	01/22/2014

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Version	Description of Change	Rationale for Change	Author	Effective Date
G	Updates as a result of expanding the external risk states, clarifications of risk communication, escalation and approval, changed “organizational units” to “functional organizations”, and editorial changes.	Process improvement and recommended updates as a result of an internal audit.	Scott Kinney	12/17/2014

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