

 Independent Verification & Validation Facility	Project Startup	IVV 09-8 Revision: C Effective Date: October 4, 2004
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APPROVAL SIGNATURES		DATE
Gregory Blaney (original signature on file)	Management System Representative	10/01/2004

REVISION HISTORY			
Rev. No.	Description of Change	Author	Effective Date
Basic	Initial Release	John Marinaro	09/12/2002
A	Change process owner to Christina Moats and remove bullet referring to "allow approx. 55k dollars for contractor costs"	Christina Moats	09/24/2003
B	Added SAR peer review process, additional definitions, records in section 8, and other minor corrections.	Steve Pukansky, Stephanie Ferguson	05/07/2004
C	Added metrics references in section 8 to address PAR#13775, added Website curator to definitions section 3, and other minor grammatical corrections.	Frank Huy, Christina Moats	10/04/2004

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REFERENCE DOCUMENTS	
Document Number	Document Title
Current versions posted by NASA	Federal Acquisition Regulations and Supplements
NPD 7120.4	NASA Policy Directive for Program/Project Management
NPR 1441.1	NASA Records Retention Schedule
IVV QM	Independent Verification & Validation Quality Manual
IVV 09-1	Independent Verification and Validation System Level Procedure
IVV 09-2	Independent Assessments System Level Procedure
IVV 14	Corrective and Preventative Action System Level Procedure
IVV 16	Control of Quality Records System Level Procedure
IV&V Form 1007	CONCURRENCE SHEET

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1.0 Purpose

The purpose of this procedure is to establish a consistent and documented method of performing the project startup process at the NASA Independent Verification and Validation (IV&V) Facility.

2.0 Scope

This procedure applies to all IV&V Facility personnel who perform project startup activities for Independent Verification and Validation (IV&V) or Independent Assessment (IA) tasks for the IV&V Facility.

3.0 Definitions and Acronyms

3.1 IV&V Facility Management

NASA personnel holding official management positions at the IV&V Facility.

3.2 IV&V Services Lead

IV&V Facility civil servant who provides management, leadership and guidance within the IV&V Services Organization.

3.3 New Business Lead

The New Business Lead is a NASA civil servant responsible for monitoring the establishment of new Agency missions and assessing the high level IV&V needs for those missions. The New Business Lead is responsible for the Mission Model which is used as input into the IV&V Board of Directors (IBD). The New Business Lead works closely with the Senior Leads and the IV&V Services Lead.

3.4 Senior Lead

A NASA civil servant appointed by IV&V Services Lead to act as the Facility's Primary Point of Contract for their assigned area of responsibility (e.g. NASA Enterprise/Center). The Senior Lead is responsible for ensuring consistent, effective and efficient project management amongst

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the various projects within the Lead's scope. The Senior Lead will work with the Project Managers assigned to those projects to help resolve technical and performance issues related to management of the project.

3.5 Facility Project Manager (PM)

IV&V Facility civil servant personnel, appointed by the IV&V Services Lead for a specific Project, who performs project management functions.

3.6 Independent Verification and Validation (IV&V)

A core process function performed by the IV&V Facility. See System Level Procedure IVV 09-1 for more explanation and detail.

3.7 Independent Assessments (IA)

A core process function performed by the IV&V Facility. See System Level Procedure IVV 09-2 for more explanation and detail.

3.8 Project

For this SLP, a project is either any IV&V or IA task being performed by the IV&V Facility for a customer or a NASA development project (depending on context).

3.9 Contracting Officer's Technical Representative (COTR)

A NASA civil servant responsible for the technical management of a contract and other duties as described in the NASA Federal Acquisition Regulations (FARs) and Supplements.

3.10 Formal Agreement (FA)

A document used to identify the managerial, technical and business aspects of an agreement between the IV&V Facility and a customer to perform an IV&V or IA task.

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3.11 IV&V Board of Directors (IBD)

The IV&V Facility is funded through the NASA General and Administrative (G&A) budget. The IV&V Board of Directors is comprised of representatives from NASA Code Q, each Enterprise and IV&V. The IBD is responsible for identifying projects that will receive G&A funding for IV&V support.

3.12 IV&V Facility Concurrence Form (IV&V Form 1007)

An IV&V Form used to capture concurrence by IV&V Facility Management or an IV&V PM that a product has been reviewed and is acceptable for distribution.

3.13 Mission Model

A matrix identifying IV&V life-cycle cost estimates for projects is available on the Facility's shared drive. The IV&V Facility used this model for planning purposes. The New Business Lead is the Mission Model owner.

3.14 IV&V Facility Web Site Curator

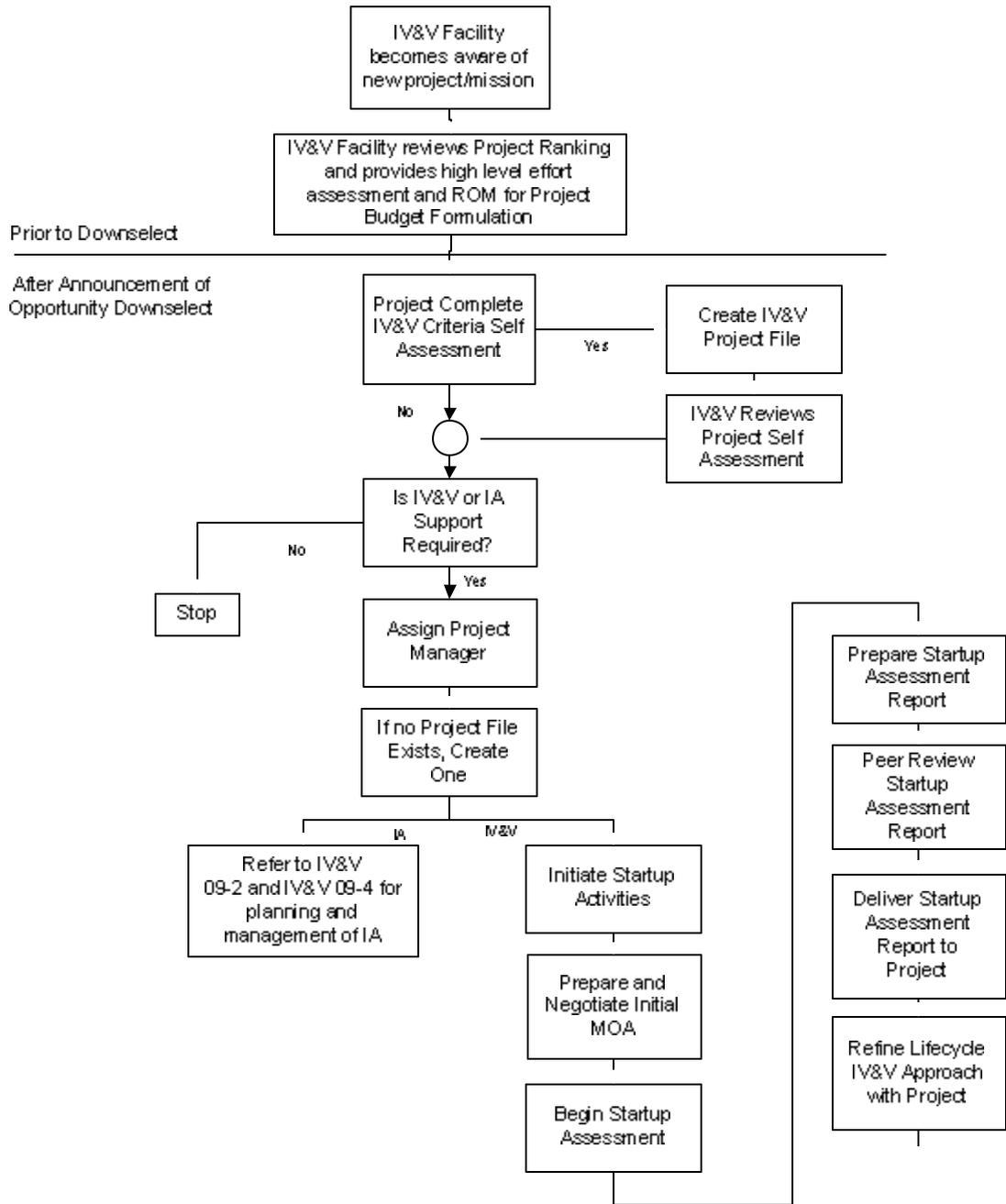
This is the individual who is responsible for the update and maintenance of the IV&V Facility web sites. This person is denoted within the "footers" of each IV&V Facility webpage.

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3.15 Acronyms

CCHR	Catastrophic/Critical/High-risk
CFL	Catastrophic/Critical/High-risk Functions List
COTR	Contracting Officer's Technical Representative
FA	Formal Agreement
FAR	Federal Acquisition Regulation Supplement
G&A	NASA General and Administrative budget alloc. by the IBD
IA	Independent Assessment
IBD	IV&V Board of Directors
IV&V	Independent Verification and Validation
MOA	Memorandum of Agreement
Non-G&A	Funding rec. from other sources (e.g. Project, DDF, etc.)
NPD	NASA Policy Directive
NPR	NASA Procedural Requirement
PM	Project Manager
ROM	Rough Order of Magnitude
SAR	Startup Assessment Report

4.0 Flow Chart



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5.0 Responsibilities

Responsibilities are defined in Sections 3.0 and 6.0 of this SLP.

6.0 Procedure

This procedure establishes a consistent and documented method of performing project startup at the NASA Independent Verification and Validation (IV&V) Facility.

6.1 IV&V Facility Becomes Aware of New Mission or Project

The IV&V Facility will become aware of new missions or projects in a variety of ways. The Facility will use the knowledge base of Headquarters and Centers to compile a list of Projects with software under development or maintenance governed by NPR 7120.5 or 8719.

Regardless of the method, Facility awareness of a new Project initiates this startup process and a new mission place holder.

6.2 Facility Review of New Mission or Project

The New Business Lead will review the available information about the new Mission or Project. The New Business Lead along with the appropriate Senior Lead will review the new mission place holder, the announcement of opportunity and follow the proposal development if applicable. Based on this information, the New Business Lead will create a mission financial profile forecast in the Facility Mission Model and begin tracking the new mission.

6.3 Project Completes IV&V Criteria Self Assessment

For targeted missions, the Project will be asked to complete a new self assessment with the accepted proposal information and defined development approach for mission software.

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6.4 Create Project File

Once a Project has completed their Self Assessment, the New Business Lead shall establish a project file in the IV&V Facility's filing system. The New Business Lead shall provide the full project name and acronym along with the enterprise code to the IV&V Facility Administrative Staff to enable the establishment of a project file in the IV&V Facility's filing system by the Administrative Staff. The Administrative Staff will create the project file in accordance with the Facility's System Level Procedure titled Control of Quality Records (IVV 16).

6.5 Facility Reviews IV&V Criteria Self Assessment Results

The New Business Lead and cognizant Senior Lead will review the Self Assessment results and compare it to the project data. The results will then be discussed with the Project to clarify the rationale.

For non-G&A funded projects, an approach determination will be made regarding the level of support (None, Independent Assessment or Independent Verification and Validation). If the level of support is agreed to be "None", this conclusion will be recorded in the project file, and this process is complete. If the level of support is agreed to be "Independent Assessment", a Facility Project Manager (PM) is assigned. The IA is then scoped and negotiated in accordance with IVV 09-2 and IVV 09-4 and this process is complete.

If the level is IV&V or the Project is G&A funded, then this process continues.

The Self Assessment Results shall be provided to the Administrative Staff to file in the appropriate Project File as a Quality Record per Section 8.0 of this procedure and in accordance with IVV 16.

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6.6 Project is Ranked

Projects are ranked using an Agency-wide criticality criteria:

6.6.1 Projects are divided into four major classes – Human Rated (H), Robotic (R), Instruments (I), and Information or Data Analysis systems (D).

6.6.2 Each project is given a score based on the characteristics of the project. Engineering notes can provide mitigations to the score or ranking.

6.7 Facility Reviews Project Ranking

The New Business Lead and cognizant Senior Lead will review the project ranking results.

If a Project is non-G&A funded and the level of support is agreed to be “Independent Assessment”, a Facility Project Manager (PM) is assigned. The A is then scoped and negotiated in accordance with IVV 09-2 and IVV 09-4 and this process is complete. If the level is IV&V, then this process continues.

If a Project is G&A funded, then full life-cycle IV&V is assumed and this process continues.

6.8 Assign Project Manager for IV&V Projects

For projects requiring “Independent Verification and Validation” as identified by the IV&V Board of Directors (IBD), a Facility PM will be assigned by the IV&V Services Lead in cooperation with the New Business Lead and the cognizant Senior Lead.

6.9 Initiate Startup Activities

The PM, cognizant Senior Lead, and COTR will work with the appropriate IV&V Contractor to determine the approach and appropriate time to begin the startup activities for lifecycle IV&V.

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6.10 Plan Startup Assessment and Negotiate Startup Assessment MOA

The Facility PM and the cognizant Senior Lead will work together to plan the Startup Assessment and negotiate a Formal Agreement (FA) for the Startup Assessment with the customer in accordance with IVV 09-4. The schedule, tasks, and resources for the Startup Assessment should be tailored to the specifics of the Project or Mission; however, the following guidelines can be used as a starting point.

- 80 working days for the duration of the activities
- Deliver the Startup Assessment Report (SAR) at 60 working days or less
- Schedule delivery of SAR from contractor soon enough to accommodate peer review, and potential presentation scheduling with the Project or Mission
- The Facility PM shall establish a customer agreement in accordance with IVV 09-4.

6.11 Conduct IV&V Startup Assessment

The Facility PM will put a task order in place in accordance with IVV 09-4 to allow the contractor to begin the Startup Assessment. The Facility PM is responsible for coordinating the startup activities with the Project or Mission PM including data management activities related to identifying and securing artifacts and other required project data, as well as identifying and adhering to any privacy and/or security related requirements associated with this data.

The Facility PM shall take an active role in the Startup Assessment by participating in criticality and risk assessments, scope determination discussions, and other IV&V planning activities. In addition, the Facility PM shall identify risks associated with the Startup Assessment efforts, and follow-on IV&V efforts as applicable, and report on these risks at appropriate forums (Project Management Reviews [PMRs], etc).

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6.12 Prepare Startup Assessment Report (SAR)

The Facility PM shall ensure the preparation of a “Draft” SAR that includes, but is not limited to, the following content:

- An identification of the Project/Mission “success criteria”;
- A description of the software components or elements and how they support the mission;
- The objectives of the IV&V effort (software certification, early detection of errors or both);
- For each software component/element,
 - An evaluation of the risk,
 - The specific rationale for the risk evaluation,
 - The recommended IV&V analysis tasks,
 - The rationale for recommending the tasks;
- A schedule for the IV&V tasks shown with respect to the software development schedule;
- The products of the IV&V effort (deliverables);
- An estimate of the magnitude of effort to accomplish the IV&V tasks, and the basis for this estimate;
- An estimate of the costs for the IV&V effort; and
- Discussion of heritage previous to IV&V activities performed on other missions and software reuse.

6.13 Peer Review of Draft Startup Assessment Report (SAR)

The “Draft” SAR content will be subjected to an IV&V Facility peer review by the Senior Leads to ensure that it is accurate, complete, consistent and ready for delivery to the Mission or Project Manager. The Facility PM shall prepare a presentation summarizing the contents of the “Draft” SAR to facilitate the peer review. The format for the SAR presentation can be found on the NASA Shared Drive. Any comments provided at the peer review will be incorporated into the SAR and the report finalized. After the SAR report is finalized, the SAR can be submitted to the Mission or Project PM for comment/acceptance. The Facility PM shall submit the “Draft” SAR for review and approval using an IV&V Facility Concurrence Form, IV&V Form #1007.

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The Facility PM shall submit the completed and signed IV&V Facility Concurrence Form to the Administrative Staff to file in the appropriate Project File as a Quality Record per Section 8.0 of this procedure and in accordance with IVV 16. The Facility PM will save an electronic version of the Draft SAR on the Facility shared drive.

6.14 Review of Final Startup Assessment Report

The SAR will be subject to a review by the cognizant Senior Lead. This review is to ensure that the appropriate level of detail is contained in the SAR prior to finalizing the report. Upon completing the review of the SAR, the Facility PM shall submit the SAR for review and approval using an IV&V Facility Concurrence Form, IV&V Form #1007.

The Facility PM shall submit the completed and signed IV&V Facility Concurrence Form to the Administrative Staff to file in the appropriate Project File as a Quality Record per Section 8.0 of this procedure and in accordance with IV&V-16. The Facility PM will save an electronic version of the Final SAR on the Facility shared drive. In addition, the PM shall provide an electronic copy of the SAR to the IV&V Facility Web Site Curator.

6.15 Deliver Startup Assessment Report

The SAR will be delivered to the Mission or Project Manager to allow project review. An agreeable amount of time should be given to facilitate questions regarding accuracy and to clarify any misinterpretation/misunderstandings between the two organizations.

6.16 Refine Lifecycle IV&V Approach with the Project

The process now proceeds to IVV 09-4 for the negotiation of the formal agreement and management of the lifecycle IV&V activities.

6.17 Control of Nonconforming Product

Because the IV&V Facility produces independent analysis products that customers may not agree with, disagreement with the analysis does not constitute a nonconformance subject to this section of this SLP.

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If the IV&V Facility identifies a problem with a product that has already been delivered to the project, the Facility PM shall immediately inform the project of the problem. If the customer identifies a product produced by the IV&V Facility as nonconforming (e.g. an inappropriate format or because it was performed on the wrong customer product), the PM is responsible for identifying the issue and discussing it with the customer. Regardless how the problem has been identified:

- The Facility PM shall complete a Corrective Action Request (CAR) form per IVV 14.
- The Facility PM is responsible for ensuring that the problem is resolved and that the customer is provided a full explanation of events.
- Once the nonconforming product has been corrected it shall then be subjected to its established verification process once again.
- Once the nonconforming product has been approved and sent to the customer, the Facility PM should request closure of the CAR.

The C/PAR process insures IV&V Facility Management is involved and aware that the problem has been resolved and documented.

7.0 Metrics

The metrics associated with this SLP are H11, H12, and H13 in the Facility's Metrics Program spreadsheet.

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8.0 Records

The following records will be generated and filed either on a Facility shared network drive, in the Facility PMs file or in the Project File by the Administrative Staff in accordance with IVV-16 and reference to NPR 1441.1 NASA Records Retention Schedule.

Document Name and Identification Number	User Responsible for Record Retention	Retention Requirement	Location
Concurrence Form (IV&V Form 1007) for associated Formal Agreement Submitted to Customer	Facility Project Manager	Permanent – Retire to FRC when file is closed	Administrative Project File
Concurrence Form (IV&V Form 1007) for associated Draft SAR Peer Review	Facility Project Manager	Permanent – Retire to FRC when file is closed	Administrative Project File
Concurrence Form (IV&V Form 1007) for associated SAR Submitted to Customer	Facility Project Manager	Permanent – Retire to FRC when file is closed	Administrative Project File
Startup Assessment Delivered to Customer	Facility Project Manager	Permanent – Retire to FRC when file is closed	Administrative Project File
IV&V Criteria Self Assessment Results	New Business Lead	Permanent – Retire to FRC when file is closed	Administrative Project File

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