NOAA NESDIS
CENTER for SATELLITE APPLICATIONS and RESEARCH

PEER REVIEW GUIDELINE

PRG-6
PROJECT REQUIREMENTS REVIEW
PEER REVIEW GUIDELINE

Version 3.0

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 2 of 2

TITLE: PRG-6: PROJECT REQUIREMENTS REVIEW PEER REVIEW GUIDELINE
VERSION 3.0

AUTHORS:

Ken Jensen (Raytheon Information Solutions)

PROJECT REQUIREMENTS REVIEW PEER REVIEW GUIDELINE
VERSION HISTORY SUMMARY

Version	Description	Revised Sections	Date
1.0	New Peer Review Guideline (PRG-9.1) by Ken Jensen (Raytheon Information Solutions)	New Document	12/29/2006
2.0	New version by Ken Jensen (Raytheon Information Solutions). Minor revisions to References section. References to 9 additional PRR check list items added.	2, 4.2.4	10/19/2007
3.0	Renamed PRG-6 and revised by Ken Jensen (RIS) for version 3.	All	10/1/2009

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 3 of 3

TABLE OF CONTENTS

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 4 of 4

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 5 of 5

LIST OF ACRONYMS

CDR	Critical Design Review
CICS	Cooperative Institute for Climate Studies
CIMSS	Cooperative Institute for Meteorological Satellite Studies
CIOSS	Cooperative Institute for Oceanographic Satellite Studies
CIRA	Cooperative Institute for Research in the Atmosphere
CL	Check List
CLI	Check List Item
CM	Configuration Management
CM/DM	Configuration Management/Data Management
CREST	Cooperative Remote Sensing and Technology Center
DG	Document Guideline
DPP	Development Project Plan
EPG	Enterprise Process Group
EPL	Enterprise Product Lifecycle
IPT	Integrated Product Team
NESDIS	National Environmental Satellite, Data, and Information Service
NOAA	National Oceanic and Atmospheric Administration
OCD	Operations Concept Document
OSDPD	Office of Satellite Data Processing and Distribution
PAR	Process Asset Repository
PBR	Project Baseline Report
PDR	Preliminary Design Review
PRD	Project Requirements Document
PRG	Peer Review Guideline
PRR	Project Requirements Review
PRRR	Project Requirements Review Report
PSR	Project Status Report
QA	Quality Assurance
RAD	Requirements Allocation Document
SG	Stakeholder Guideline
SPSRB	Satellite Products and Services Review Board
STAR	Center for Satellite Applications and Research
TBS	To Be Specified
TD	Training Document
TG	Task Guideline
VVP	Verification and Validation Plan

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 6 of 6

1. INTRODUCTION

The NOAA/NESDIS Center for Satellite Applications and Research (STAR) develops a diverse spectrum of complex, often interrelated, environmental algorithms and software systems. These systems are developed through extensive research programs, and transitioned from research to operations when a sufficient level of maturity and end-user acceptance is achieved. Progress is often iterative, with subsequent deliveries providing additional robustness and functionality. Development and deployment is distributed, involving STAR, the Cooperative Institutes (CICS, CIMSS, CIOSS, CIRA, CREST) distributed throughout the US, multiple support contractors, and NESDIS Operations.

NESDIS/STAR is implementing an increased level of process maturity to support the exchange of these software systems from one location or platform to another. Project Requirements Review (PRR) standards and guidelines are a part of this process improvement.

1.1. Objective

The objective of this Peer Review Guideline (PRG) is to provide STAR standards and guidelines for reviewing a project's compliance with requirements at a project PRR[1]. This PRG defines standards and guidelines for participation on a PRR review team. It contains all information needed to prepare for, conduct, and close the PRR.

The intended users of this PRG are the PRR reviewers.

1.2. Overview

This PRG contains the following sections:

Section 1.0 - Introduction
Section 2.0 - References
Section 3.0 - Preparing For The Review
Section 4.0 - Conducting The Review
Section 5.0 - Closing The Review

---

[1] Refer to the STAR EPL Process Guidelines (PG-1 and PG-1.A) for a description of the STAR EPL gates and reviews.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 7 of 7

2. REFERENCE DOCUMENTS

The reference documents for the PRR include the recommended and optional process assets (c.f. Section 3.4) and the PRR artifacts (c.f. Section 3.5).

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 8 of 8

3. PREPARING FOR THE REVIEW

This section is concerned with how the PRR review team is selected and how the review team members should prepare for the PRR.

3.1. Background – The STAR EPL Process

The PRR is a standard review that occurs at a well-defined stage in the STAR EPL process. It is important that the PRR reviewers understand this process well enough to be able to evaluate the project's status with respect to the PRR entry criteria, objectives and exit criteria.

The STAR EPL consists of 11 process steps that take a product from initial conception through development, operations, maintenance, and retirement. In this lifecycle, project stakeholders work together to enable a product to predictably mature as it progresses through the lifecycle steps.

The process steps are organized into nine project phases:

- Basic (step 1)
- Exploratory (steps 2 – 3)
- Plan (steps 4 – 5)
- Design (steps 6 – 8)
- Build (steps 9 – 11)

The implementation of the process steps can be tailored to be appropriate for the characteristics of a given project, but all steps must be followed to ensure that the products are developed from research to operations by a standard, repeatable process. Tailoring details for a given project should be documented in the project artifacts (c.f. Section 3.5).

The PRR reviewer is referred to the STAR EPL Process Guidelines (PG-1) and Appendix (PG-1.A) for a thorough treatment of the entire process.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 9 of 9

The STAR EPL standards and process assets are managed by a STAR Enterprise Process Group (EPG). The EPG is responsible for maintaining the STAR EPL process standards, managing changes, and providing training and guidance to help stakeholders implement the standards. The PRR reviewers for a project are encouraged to contact the EPG with any questions or concerns as they prepare for and close the PRR. Use the following contact:

Ken Jensen
Ken.Jensen@noaa.gov

3.2. The Project Requirements Review (PRR)

The PRR is a Design Phase Technical Review that occurs during step 6 (Project Requirements) of the STAR EPL process.

The objectives of this phase are to establish the requirements to be satisfied by the project and the means to validate them, develop an algorithm and code design, and determine whether the project is ready to begin development and testing of pre-operational code.

The Design phase of the STAR EPL consists of process steps 6 – 8. Step 6 (Requirements) culminates with a Project Requirements Review (PRR). The project requirements are established in step 6 and approved at the PRR. Step 7 (Preliminary Design) culminates with a PDR. The preliminary design is established in step 7 and approved at the PDR. Step 8 includes the Critical Design Review (CDR) and culminates with a Gate 4 Review. The detailed design is established in step 8 and approved at the CDR.

The primary purpose of the PRR is to establish the project requirements as a prelude to preliminary design of the pre-operational processing system. This includes the identification of requirements, based on customer/user needs and expectations, the analysis of requirements, quality assurance of the requirements and the initial allocation of requirements to system or product components. To achieve this purpose, the development team will produce project artifacts (c.f. Section 3.5) that should demonstrate readiness for pre-operational preliminary design to the satisfaction of the PRR reviewers.

In addition, the PRR should:
- Evaluate risks and proposed actions to mitigate risks
- Review the status of previous actions and new actions

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 10 of 10

3.3. Review Team

Responsibility for development will have previously been assigned to a STAR Division and a specific STAR Branch within the Division.

The PRR Review Lead is nominally the STAR Branch Chief, but the Branch Chief may designate an alternate Lead, especially for relatively small projects). In deciding whether to lead or delegate, the Branch Chief should consider that the PRR is a technical review. Management issues (e.g., recommended modifications to the plan, resources, budget, and schedule) may be raised at the PRR, driven by risks that have developed since the Gate 3 Review, but management decisions on these issues are typically deferred to the Gate 4 Review that follows the CDR.

The Review Lead selects the PRR review team. It is recommended that the following guidelines be followed for selecting the team:

Personnel who are on the project development team are excluded from the review team. There are no exceptions to this rule. The review is intended to be a dialogue between the developers and the reviewers, with the reviewers providing an objective evaluation of the project's requirements. The membership of the project development team should be clearly documented in the project's Development Project Plan (DPP). Any additions to the development team since the Gate 3 Review should be noted in Section 1 of the Project Requirements Document (PRD, c.f. Section 4.2.1 of this PRG).

Include a systems engineer who is familiar with the STAR EPL process, especially with regard to the iterative development of requirements, requirements allocation, solutions and design.

Include one or more scientists who are familiar with the project's algorithm theoretical basis, or can familiarize themselves quickly.

Include one or more software engineers who are familiar with the STAR EPL standards for preliminary design, or can familiarize themselves quickly.

Include one or more representatives from STAR QA who are familiar with the project's QA history and the STAR EPL standards for QA, or can familiarize themselves quickly.

Include one or more representatives from STAR CM/DM who are familiar with the project's CM/DM baseline and the STAR EPL standards for CM/DM, or can familiarize themselves quickly.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 11 of 11

Invite a technical representative from the intended operational organization (e.g. Office of Satellite Data Processing and Distribution - OSDPD). Consult with that organization's management for the selection of its representative. Ideally, this person will become the project's Operations Lead.

Invite one or more representatives from the Satellite Products and Services Review Board (SPSRB). The Review Lead should consult with SPSRB management for the selection of SPSRB representatives.

The review team members will provide a diversity of skills and experience that can be usefully applied to the various aspects of the review. This will be detailed in Section 4.

The Review Lead should meet with the review team as soon as possible to plan the review preparation, including the assignment and scheduling of review preparation tasks (e.g. selection and study of process assets, review of specific Gate 3 artifacts, delivery dates of PRR artifacts, and review of specific PRR artifacts) and should subsequently monitor progress against the review preparation plan.

3.4. Process Assets

STAR EPL process assets are a set of process guidelines, stakeholder guidelines, peer review guidelines, review check lists, task guidelines, document guidelines and training documents that define the enterprise standards and best practices. They are established and maintained under Configuration Management (CM) by an EPG under the direction of a Steering Committee. They are contained in a STAR Process Asset Repository (PAR) on the STAR website:

http://www.star.nesdis.noaa.gov/star/EPL_index.php

Process assets that are relevant for PRR preparation are briefly described in this section. There are separate subsections for recommended process assets and optional process assets.

The process assets described in this section should be available to the PRR reviewers in the STAR EPL PAR.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 12 of 12

3.4.1   Recommended Process Assets

It is very important that the PRR reviewers be familiar with these process assets before conducting the PRR.

CL-6: Project Requirements Review Check List contains the standard PRR Check List Items (CLIs) that the PRR reviewers are required to complete, unless the list has been tailored for the specific project. Refer to the DPP to determine whether the PRR Check List has been tailored. In that case, use the tailored Check List in the DPP Appendix.

SG-18: Technical Reviewer Guidelines contains the stakeholder guidelines for Technical Review reviewers. The PRR reviewer will find general guidelines for conducting technical reviews. These complement the specific PRR guidelines contained in this PRG.

TG-6: Project Requirements Task Guideline contains the task guidelines for the project requirements step (6) of the STAR EPL process. The PRR reviewer will find guidelines for interaction between the PRR review team and other project stakeholders.

DG-6.5: Project Requirements Review Report Guidelines contains the standards and guidelines for writing the Project Requirements Review Report (PRRR, c.f. Section 5.3 of this PRG.). The PRR reviewers, who are responsible for writing this report, will find it highly useful to know the required report content in advance of the review, so they can ensure that the review content will provide them with the information they need for the report.

3.4.2   Optional Process Assets

The process assets designated as optional will be helpful to the PRR reviewers, but are not required. Typically, a PRR reviewer will refer to some of these, depending on the division of responsibilities within the review team.

DG-5.1: Development Project Plan Guideline contains standards and guidelines for the DPP. The DPP is a standard project artifact for the PRR (c.f. Section 3.5.2 of this PRG). The PRR reviewers who are responsible for ensuring that the project's DPP complies with STAR standards should use DG-5.1 as a resource.

DG-5.4: Project Baseline Report Guideline contains standards and guidelines for the Project Baseline Report (PBR). The PBR is a standard project artifact for the PRR (c.f. Section 3.5.7 of this PRG). The PRR reviewers who are responsible for ensuring that the project's PBR complies with STAR standards should use DG-5.4 as a resource.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 13 of 13

DG-6.1: Operations Concept Document Guideline contains standards and guidelines for the Operations Concept Document (OCD). The OCD is a standard project artifact for the PRR (c.f. Section 3.5.4 of this PRG). The PRR reviewers who are responsible for ensuring that the project's OCD complies with STAR standards should use DG-6.1 as a resource.

DG-6.2: Requirements Allocation Document Guideline contains standards and guidelines for the Requirements Allocation Document (RAD). The RAD is a standard project artifact for the PRR (c.f. Section 3.5.5 of this PRG). The PRR reviewers who are responsible for ensuring that the project's RAD complies with STAR standards should use DG-6.2 as a resource.

DG-6.3: Verification and Validation Plan Guideline contains standards and guidelines for the Verification and Validation Plan (VVP). The VVP is a standard project artifact for the PRR (c.f. Section 3.5.6 of this PRG). The PRR reviewers who are responsible for ensuring that the project's VVP complies with STAR standards should use DG-6.3 as a resource.

DG-6.4.A: Project Requirements Document Appendix Guideline contains Microsoft PowerPoint slide templates for the standard PRD slides. The PRR reviewer can use this document to become familiar with the expected content and format of the review.

PG-1: STAR EPL Process Guidelines provides a description of each process step, the roles and functions of stakeholders for each step, and the relevant process assets and artifacts for each step. The PRR reviewer who wishes to become thoroughly familiar with the process can use this document.

TD-9: Project Requirements Training Document includes techniques and tools for the development of project requirements and their allocation to system components and product components. The PRR reviewer will find guidelines for the identification of project requirements from customer/user needs and expectations, guidelines for requirements analysis, guidelines for requirements quality assurance (including traceability, tracking, validation and CM), guidelines for allocating requirements to system components and product components as the design is developed, and guidelines for updating the requirements and requirements allocation.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 14 of 14

3.5. Project Artifacts

Project artifacts are a set of items that are produced by the appropriate stakeholders during the product life cycle to support the reviews. They are maintained under CM in a project artifact repository.

The following PRR artifacts should be established in the project artifact repository via Baseline Build 2.0:

- Project Requirements Document
- Development Project Plan v1.x
- Project Status Report v1.x
- Operations Concept Document v1.1
- Requirements Allocation Document v1.1
- Verification and Validation Plan v1.1
- Project Baseline Report v2.2

The PRR artifacts should be available to the PRR reviewers at least one week in advance of the date scheduled for the PRR. The project plan for some projects may call for some or all of these artifacts to be available to the reviewers earlier than one week in advance of the PRR. Consult the DPP for this information. If an artifact is not available on schedule, contact the Development Lead to resolve any problems that may be caused by late access to the artifacts.

3.5.1   Project Requirements Document

The Project Requirements Document (PRD) consists of the PRR presentation slides. The PRD is described in detail in Section 4.2.

3.5.2   Development Project Plan

The Development Project Plan (DPP) documents the plan for the development, testing, review, and transition to operations for the project, including stakeholders, tasks, work breakdown structure (WBS), schedule and resources. It contains the project objectives, tasks, milestones, stakeholders, and schedule. This information will be useful for the PRR reviewer in reviewing Section 2 of the PRD, and will be needed by the review team for determining a review preparation schedule (c.f. Section 3.7 of this PRG).

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 15 of 15

The DPP includes the PRR review objectives, which may or may not be tailored from the standard STAR EPL objectives for a PRR (c.f. Section 4.1 of this PRG). This information will be useful for the PRR reviewer in reviewing Section 1 of the PRD.

3.5.3   Project Status Report

The Project Status Report (PSR) includes the PRR entry criteria and PRR exit criteria that were established at the Gate 3 Review. This artifact will be useful for the PRR reviewer in reviewing Section 1 of the PRD. The PRR reviewers are responsible for ensuring that PRR entry and exit criteria are met.

The PSR Appendix is a Microsoft Excel workbook that provides a risks/actions table. The Appendix will be useful for the PRR reviewer in reviewing Section 8 of the PRD.

3.5.4   Operations Concept Document

The Operations Concept Document (OCD) contains the development team's concept for how the product should be produced and used. This information will be useful for the PRR reviewer in reviewing Section 3 of the PRD.

The OCD should document operational concepts and scenarios that include functionality, performance, maintenance, support, and disposal as appropriate. A scenario is a sequence of events that might occur in the use of the product, which is used to make explicit some of the needs of the stakeholders. It should identify and develop scenarios, consistent with the level of detail in the stakeholder needs, expectations, and constraints, in which the proposed product is expected to operate.

The OCD is distinct from a ConOps. A ConOps may be generated by the user to provide an overview of how the user envisions a potential product system to operate. It is a high level requirements document that provides a mechanism for users to describe their expectations of the target system in terms that need not be quantifiable and testable. The ConOps is typically used as input to the development of formal testable system and software requirements specifications. The OCD is a technical document created by the development team to describe how the users' vision can be realized in an operational environment.

The OCD should define the environment the product will operate in, including boundaries and constraints, consistent with the current level of detail in the requirements.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 16 of 16

3.5.5   Requirements Allocation Document

The Requirements Allocation Document (RAD) contains the basic and derived requirements for the work products and the allocation of the requirements to system components and product components. This information will be useful for the PRR reviewer in reviewing Sections 4 - 7 of the PRD.

3.5.6   Verification and Validation Plan

The Verification and Validation Plan (VVP) describes the work products to be verified and validated, the requirements for each selected work product and the verification and validation methods for each selected work product. VVP v1.0, produced for the PRR, describes the plan and methodology for validating the project requirements. This information will be useful for the PRR reviewer in reviewing Section 6 of the PRD.

3.5.7   Project Baseline Report

The Project Baseline Report (PBR) v2.0 includes the change history, approval status, and location of every Configuration Item in the project's baseline for Baseline Build 2.0. This information will be useful for the PRR reviewer in reviewing Section 6 of the PRD.

3.6. Entry Criteria

The PRR reviewers should ensure that all PRR entry criteria have been met before commencing the review. The PRR entry criteria should have been established at the Gate 3 Review and documented in the Development Project Plan (DPP) and the Project Status Report (PSR). Note that entry criteria may be tailored from the standard STAR EPL set of PRR entry criteria. In that case, the DPP should provide a rationale for deviations from the standard set.

The standard STAR EPL set of PRR entry criteria, listed in the standard PRR check list (CL-9.1), includes:

- Entry # 1 - A Development Project Plan (DPP) has been written. The PRR reviewers have access to the current baseline version of the DPP.

- Entry # 2 - A Project Status Report (PSR) Appendix has been written. The PRR reviewers have access to the current baseline version of the PSR Appendix.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 17 of 17

- Entry # 3 - An Operations Concept Document (OCD) has been written. The PRR reviewers have access to the current baseline version of the OCD.

- Entry # 4 - A Requirements Allocation Document (RAD) has been written. The PRR reviewers have access to the current baseline version of the RAD.

- Entry # 5 - A Verification and Validation Plan (VVP) has been written. The PRR reviewers have access to the current baseline version of the VVP.

- Entry # 6 - A Project Requirements Document (PRD) has been written. The PRR reviewers have access to the current baseline version of the PRD.

- Entry # 7 - A Project Baseline Report (PBR) has been written. The PRR reviewers have access to the current baseline version of the PBR.

The standard set of entry criteria calls for the availability of the standard set of project artifacts without reference to the quality of these artifacts. Assessment of the quality of the artifacts is the main business of the PRR itself.

It is the responsibility of both the development team and the review team to ensure that PRR entry criteria have been met prior to the PRR. The PRR Review Lead and the Development Lead should be in communication during the entire step 6 process to identify and resolve issues affecting the PRR entry criteria well in advance of the scheduled PRR date.

3.7. Review Team Preparation

The sequence of steps that should be taken by the PRR review team in preparing for the PRR is as follows:

- The STAR Branch Chief selects the Review Lead

- The Review Lead selects the Review Team, following the guidelines in Section 3.3 of this PRG.

- The Review team meets to plan review preparation. The initial meeting should accomplish the following:

    o Assemble the necessary review tasks and assign them to review team members. These tasks include:

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 18 of 18

- Review PRG-6 (this document), focusing on the sections that pertain to the areas you have been assigned to review. All team members should do this.
- Review the project's PRR check list. This will be available as a DPP Appendix or, if there has been no tailoring, as the process asset CL-6. Note CLIs, focusing on the sections that pertain to the areas you have been assigned to review. Refer to these CLIs when reviewing the project artifacts. All team members should do this.
- Review the project's DPP. Guidelines for the DPP review are in Section 4.2.2 of this PRG.
- Review the project's operations concept, documented in the OCD. Guidelines for the operations concept review are in Section 4.2.3 of this PRG.
- Review the project requirements identification, documented in the RAD. Guidelines are in Section 4.2.4 of this PRG.
- Review the project requirements analysis, documented in the RAD. Guidelines are in Section 4.2.5 of this PRG.
- Review the project requirements quality assurance, documented in the RAD. Guidelines are in Section 4.2.6 of this PRG.
- Review the project's baseline of configuration items, documented in the PBR. Guidelines are in Section 4.2.6 of this PRG.
- Review the project's verification plan, documented in the VVP. Guidelines are in Section 4.2.6 of this PRG.
- Review the allocation of project requirements to system components or product components, documented in the RAD. Guidelines are in Section 4.2.7 of this PRG.
- Review the Project Status Report (PSR) Appendix for the project. Guidelines for the PSR review are in Section 4.2.8 of this PRG.
- Review the status of project risks. Guidelines are in Section 4.2.8 of this PRG.
- Review the status of project actions. Guidelines are in Section 4.2.8 of this PRG.

o Begin to identify contacts with the development team and with other stakeholders. Assign the relevant contacts to the review team members, based on their assigned tasks.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 19 of 19

o   Draw up an initial draft review preparation schedule. The initial schedule should include all of the identified tasks, with resource loading based on the task assignments. One task on the draft schedule should be to refine and finalize the schedule, in consultation with the identified stakeholders.

o   Identify contacts with the development team and with other stakeholders, using the DPP to identify the relevant stakeholders. Assign the relevant contacts to the review team members, based on their assigned tasks.

o   Determine the time, place, frequency, required attendees and optional attendees of PRR review team meetings.

- The time should be based on the convenience to the review team.

- The place usually should be at the site of the Review Lead. For cases where a majority of the required attendees are located at a different site than the Review Lead, this site can be selected as an alternative place. The selected site should have the infrastructure for hosting video and/or teleconferencing for off-site attendees.

- The frequency should be determined by the project timeline, the size of the project, and the size of the review team. Short project timelines large-size projects and large review teams typically require more frequent review team meetings. Also, decide whether PRR review team meetings will be held on a regular basis or on an "as needed" basis. It is recommended that meetings initially be held on a regular basis until it is determined that "as needed" meetings will suffice.

- The required attendees should be determined by the Review Lead on a meeting-by-meeting basis, depending on the meeting's agenda and current issues. Usually, all review team members are required attendees, though some may be designated as optional attendees for a meeting whose agenda and issues are not relevant to their role and responsibilities. The Review Lead may designate members of the development IPT as invited attendees for a meeting whose agenda and issues will benefit from their involvement.

- Review preparation plan is iterated, finalized, communicated to stakeholders.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 20 of 20

- The review preparation schedule and risks are finalized, in consultation with the relevant stakeholders. The schedule should include a schedule of deliveries of project artifacts, drawn up in consultation with the Development Lead. It is recommended that informal deliveries of project artifacts in draft condition be included in the schedule. It should be understood that informally delivered "as is" draft artifacts are solely for the purpose of helping the reviewers prepare for the review and are not reviewable items. Reviewers are encouraged to provide feedback to the development team to assist them in improving the artifacts prior to their final pre-review delivery.

- The schedule for closing the review is finalized. This involves the writing and delivery of a PRR Report (PRRR, c.f. Section 5.3 of this PRG).

- Review Lead communicates the proposed review schedule and risks to project management (e.g., STAR Division Chief) and to the Development Lead.

- Review Lead communicates requests for deliveries to the Development Lead, according to the review preparation schedule.

- Review tasks and schedule are finalized, in consultation with project management, and are folded into the DPP.

- Review team members, and relevant stakeholders identified on the review preparation schedule, work their assigned tasks according to the schedule.

- Review Lead monitors the status of the review preparation schedule and risks, and communicates issues to program management and the Development Lead. Review Lead, Development Lead, and program management collaborate in resolving any issues that arise. If necessary, the project plan may be modified to accommodate the resolution of issues.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 21 of 21

4. CONDUCTING THE REVIEW

4.1. Review Objectives

The PRR objectives should be established in the DPP. Nominally, these will be the STAR EPL standard objectives for a PRR. The PRR objectives may be tailored for a specific project, in which case the DPP should document the tailored objectives. If there is no tailoring, it is sufficient for the DPP to state that the standard objectives apply, and note that these are specified in this PRG, as follows:

The STAR EPL standard objectives for a PRR are:

- Identify relevant stakeholders and document their involvement according to the project plan.

- Identify changes to the project plan and project status since the Gate 3 Review

- Translate user and operator needs and expectations into an operations concept for the product processing system

- Develop and describe the initial set of project requirements, including:
    o Basic Requirements
    o Derived Requirements
    o Requirements/Needs matrix
    o Requirements Traceability matrix
    o Requirements Quality Assurance plans and methods
    o Requirements Allocation matrix

- Identify and update project risks. Make recommendations for risk mitigation plans and actions.

- Document the closing of all action items since the Gate 3 Review. Make recommendations for open actions and new actions.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 22 of 22

4.2. The Project Requirements Document

The Project Requirements Document (PRD), a Microsoft PowerPoint file, is the presentation document for a project's PRR. This document should be made available to the PRR reviewers in the project artifact repository.

The PRD should accomplish the PRR objectives stated in Section 4.1 of this PRG.

The intended target audience is the PRR reviewers. Typically, the PRD is prepared by the project's development team under the direction of the Development Lead.

The PRD presentation slides are organized into ten sections. These sections, described in DG-6.4 and illustrated in DG-6.4.A., are:

- Introduction
- Development Project Plan
- Operations Concept
- Requirements Identification
- Requirements Analysis
- Requirements Quality Assurance
- Requirements Allocation
- Risks and Actions
- Summary and Conclusions

A description of these sections is provided in the following nine subsections, taken from the PRD Document Guidelines (DG-6.4), for the benefit of PRR Reviewers who have been assigned the task of reviewing the corresponding PRD section.

4.2.1 Section 1 – Introduction

The PRD shall include an Introduction Section. This section should be organized as follows:

1.0   INTRODUCTION

       1.1   PRR Guidelines and Check List

       1.2   PRR Report

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 23 of 23

1.3   PRR Entry Criteria

1.4   PRR Exit Criteria

1.5   Review Objectives

1.6   Review Outline

- **Section 1.1: PRR Guidelines and Check List**
  - This section should provide pointers to the PRR Peer Review Guidelines (PRG-6, this document) and PRR Check List (CL-6).

- **Section 1.2: PRR Report**
  - This section should provide a pointer to the PRR Report Document Guidelines (DG-6.5).

- **Section 1.3: PRR Entry Criteria**
  - Confirm that the entry criteria (c.f. Section 3.6 of this PRG) listed in this section are complete and correct.
  - Look for examples where the entry criteria listed in this section differ from the set that was established at the Gate 3 Review, as documented in the DPP and/or PSR. For these examples, the PRD should provide a convincing rationale for deviations, including tailored entry criteria and waived entry criteria. The PRR reviewers must approve any deviations. It is the responsibility of the Development Lead to consult with the PRR reviewers well enough in advance of the review to obtain reviewer buy-in for the deviation. If approved, the modified entry criteria should be documented in the PRRR with the modifications and rationale explicitly noted.
  - Confirm that each PRR entry criteria item is satisfied. Use the PRR artifacts as references for deciding on the status of each entry criteria item.

- **Section 1.4: PRR Exit Criteria**
  - Confirm that the exit criteria (c.f. Section 5.1 of this PRG) listed in this section are complete and correct. The PRR exit criteria should be documented in the DPP. Note that exit criteria may be tailored from the standard STAR EPL set of PRR exit criteria. In that case, the DPP should provide a rationale for deviations from the standard set.
  - Look for examples where the exit criteria listed in this section differ from the set that is documented in the DPP. For these examples, the PRD should

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 24 of 24

provide a convincing rationale for deviations, including tailored exit criteria and waived exit criteria. The PRR reviewers must approve any deviations. It is the responsibility of the Development Lead to consult with the PRR reviewers well enough in advance of the review to obtain reviewer buy-in for the deviation. If approved, the modified exit criteria should be documented in the PRRR with the modifications and rationale explicitly noted.

- o For cases where advance reviewer buy-in for exit criteria deviations has not been obtained, the reviewers must decide whether the review should be delayed until the discrepancy is resolved or can continue with an action to resolve the discrepancy after the review.
- o Confirm that each PRR exit criteria item is satisfied. Use the PRR artifacts as references for deciding on the status of each exit criteria item.

- **Section 1.5: Review Objectives**
  - o Ensure that the stated review objectives are satisfactory. Nominally, these objectives will be the STAR EPL standard objectives for a PRR. The standard objectives capture the standard sections of the review (c.f. Section 3).
  - o Tailoring of review objectives is permissible. If the development team wishes to drop standard objectives or add other objectives, it is the responsibility of the Development Lead to consult with the PRR reviewers well enough in advance of the review to obtain reviewer buy-in for deviations. In that case, the PRD should note all deviations and note any impacts on exit criteria. Impacts on exit criteria will be common, since the standard objectives are designed to meet the standard exit criteria.

- **Section 1.6: Review Outline**
  - o This section should list each main section of the review. Confirm that these are consistent with the review objectives and exit criteria.

4.2.2 Section 2 – Project Plan

The PRD shall include a Project Plan Section. This section should be organized as follows:

2.0   PROJECT PLAN

2.1   Development Project Plan

2.2   Project Objectives

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 25 of 25

2.3 Project Stakeholders

2.4 Project Timeline

2.5 Changes To Project Plan

2.6 Stakeholder Involvement

- **Section 2.1: Development Project Plan**
  - o The DPP is an essential artifact for the PRR, because it documents the baseline from which to assess project progress since the Gate 3 Review. The PRD should provide a pointer to this document. Access to this document is part of the PRR entry criteria. If the PRR reviewer cannot obtain access to the DPP by using this pointer, and cannot otherwise obtain access to the current baseline version of the DPP, the reviewer should notify an appropriate person (e.g. Review Lead, Development Lead, Program Manager, STAR Web Manager) to obtain access.

- **Section 2.2: Project Objectives.**
  - o Confirm that the project objectives are identified.

- **Section 2.3: Project Stakeholders.**
  - o Confirm that stakeholder roles have been identified. Stakeholder roles are identified in Section 4.2.1 of the STAR EPL Process Guidelines (PG-1). Stakeholders should be named when known. There may be more than one name for a stakeholder role. Unspecified stakeholders should be identified by role with a TBD. Unspecified stakeholders constitute a project risk that should be addressed in Section 8 of the PRD. The ensemble of roles and named personnel constitute the Integrated Product Team (IPT).
  - o Confirm that a description of the tasks expected for each stakeholder is documented at a level of detail sufficient to give you a good sense of the IPT. This can be done explicitly in the PRR presentation slides and/or by reference to other project artifacts (e.g. DPP).

- **Section 2.4: Project Timeline**.
  - o Confirm that the description of the project plan includes a schedule of milestones and a project timeline. Milestones should include the STAR EPL standard reviews (with the PRR highlighted) and associated review dates. It is recommended that an illustration of the project tasks and schedule be shown (e.g. a Gantt chart taken from a Microsoft Project file of the project plan). In

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 26 of 26

particular, the tasks and schedule for the Design phase should be clearly illustrated, with the PRR milestone indicated.

- **Section 2.5: Changes To Project Plan**
  - o Confirm that any modifications to the Project Plan since the Gate 3 Review are clearly explained, including the rationale and documentation of management concurrence.

- **Section 2.6: Stakeholder Involvement**
  - o Confirm stakeholder involvement according to the project plan. Stakeholder involvement should be described in a way that shows the project plan is being followed.

4.2.3 Section 3 – Operations Concept

The PRD shall include an Operations Concept Section. Most of the content for this section should be obtained directly from OCD v1r0. This section should be organized as follows:

3.0   OPERATIONS CONCEPT

    3.1   Operations Concept Overview

    3.2   Customer/User Concept of Operations

    3.3   Customer/User Needs

    3.4   Customer/User Expectations

    3.5   Operational Scenario

- **Section 3.1: Operations Concept Overview**
  - o This section provides an overview of the operations concept. Confirm that the link between the concept of operations and requirements development has been explained.
  - o Confirm that the PRD introduces the Operations Concept Document (OCD) and provides a pointer to the project OCD. Access to this document is part of the PRR entry criteria. If the PRR reviewer cannot obtain access to the OCD by using this pointer, and cannot otherwise obtain access to the current baseline version of the OCD, the reviewer should notify an appropriate person (e.g. Review Lead, Development Lead, Program Manager, STAR Web Manager) to obtain access.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 27 of 27

- **Section 3.2: Customer/User Concept of Operations**
  - o The concept of operations can be either obtained from customer/user documentation or can be developed from interactions between the customers/users and the development team. This section should describe the concept of operations and explain how it was obtained or developed. The section should also explain why the products are being produced and how they will be used.
  - o Confirm that customer needs and expectations are described.

- **Section 3.3: Customer/User Needs**
  - o Confirm that the PRD and OCD satisfactorily explain why the products are being produced.

- **Section 3.4: Customer/User Expectations**
  - o Confirm that the PRD and OCD satisfactorily explain how the products will be used.

Section 3.5: Operational Scenario
  - o The operational scenario is the development team's description of how the customer/user concept of operations can be achieved in a real operational environment. Confirm that the PRD and OCD satisfactorily explain how the products should be produced, production and delivery scenarios have been described, consistent with the level of detail in the customer's concept of operations and the production environment constraints.

4.2.4 Section 4 – Requirements Identification

The PRD shall include a Requirements Identification Section. The purpose of this section is to demonstrate that the project requirements have been established at PRR. This section explains how the requirements are developed, refined and documented. There are two main aspects of the Requirements Allocation Document (RAD), (1) the basic and derived requirements and (2) their allocation to system components and work products. This section deals with the first aspect. The second aspect will be dealt with in Section 7 of the PRD. Most of the content for this section should be obtained directly from the RAD.

This section should be organized as follows:

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 28 of 28

4.0   REQUIREMENTS

    4.1   Requirements Development Process

    4.2   Requirements Identification

- **Section 4.1: Requirements Development Process**
  - The purpose of this section is to illustrate the iterative development of requirements during the Design phase of the STAR EPL process. The presentation should show that the development of Solutions, Design, Requirements, and Requirements Allocation occurs iteratively in a closed loop with continual feedback between the four, with Requirements driving the Solutions and Design, and the Design then determining the Requirements Allocation.
  - Confirm that the PRD illustrates the iterative development of requirements during the Design phase of the STAR EPL process.

- **Section 4.2: Requirements Identification**
  - Requirements Identification is a process of turning the operations concept into a specific set of requirements on the product processing system.
  - This section should present the basic and derived requirements that have been identified from the customer/user needs and expectations and the operations concept. Basic requirements flow directly from a customer/user need or expectation, as expressed in a customer ConOps or other customer communication. Derived requirements flow from basic requirements. They are the requirements that are deemed necessary or useful to satisfy the basic requirement. They are typically identified by the development team.
  - Requirements are characterized as basic or derived, as product or system, and as operational or functional.
  - Basic requirements flow directly from a customer/user need or expectation, as expressed in a customer ConOps or other customer communication. Derived requirements flow from basic requirements. They are the requirements that are deemed necessary or useful to satisfy the basic requirement. They are typically identified by the development team.
  - Product requirements include requirements on product content, performance, operational production (e.g. timeliness), and end use. System requirements include system component characteristics (e.g. security, portability), interfaces and dependencies (e.g. code, test data, production environments and platforms).

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 29 of 29

- o Operational requirements address how the product will serve the users. Operational requirements characterize the basic user needs for the product. Functional requirements address what the product or service must do to satisfy the required operational requirements and define the necessary tasks, actions, or activities that must be accomplished.
- o Confirm that the PRD provides an overview of Requirements Identification, explaining how requirements are characterized.
- o The current baseline requirements will be documented in the Requirements Allocation Document (RAD). RAD v1r0 is a PRR artifact. The PRD should provide a pointer to this document. Access to this document is part of the PRR entry criteria. If the PRR reviewer cannot obtain access to the RAD by using this pointer, and cannot otherwise obtain access to the current baseline version of the RAD, the reviewer should notify an appropriate person (e.g. Review Lead, Development Lead, Program Manager, STAR Web Manager) to obtain access.
- o Confirm that the PRD and RAD describe each basic requirement and relate each basic requirement to a customer need or expectation that is documented in the OCD.
- o Confirm that the PRD and RAD identify derived requirements for each basic requirement.
- o Confirm that the PRD and RAD identify external interface requirements.
- o Confirm that the PRD and RAD identify security requirements.
- o Confirm that the PRD and RAD identify software requirements.
- o Confirm that the PRD and RAD identify test environment requirements.
- o Confirm that the PRD and RAD identify development environment requirements.
- o Confirm that the PRD and RAD identify transition environment requirements.
- o Confirm that the PRD and RAD identify operational environment requirements.
- o Confirm that the PRD and RAD identify product delivery requirements.
- o Confirm that the PRD and RAD identify product maintenance requirements.
- o Ensure that stakeholders agree with the identification and characterization of the basic and derived requirements.
- o Confirm that the RAD include a Requirements/Needs matrix that is consistent with the Requirements Identification presented in the PRD.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 30 of 30

4.2.5 Section 5 – Requirements Analysis

The PRD shall include a Requirements Analysis Section. The purpose of this section is to present the development team's analysis of the requirements identified in Section 4. Most of the content for this section should be obtained directly from RAD v1r0. This section should be organized as follows:

5.0   REQUIREMENTS ANALYSIS

     5.1   Requirements Analysis

- **Section 5.1: Requirements Analysis**
  - This section presents the development team's analysis of the requirements identified in Section 4. Requirements analysis includes:
    - Technical analysis. The customer requirements may be expressed in the customer's terms and may be non-technical descriptions. The product requirements are the expression of these requirements in technical terms that can be used for design decisions.
    - Functional analysis. Functional analysis is the description of what the product is intended to do. The definition of functionality can include actions, sequence, inputs, outputs, or other information that communicates the manner in which the product will be used.
    - Quantitative analysis of performance requirements. Performance requirements must be specific and quantitative. Analysis should strike a balance between customer needs and expectations, whether quantitative or qualitative, and anticipated constraints. Cost, schedule and technical constraints should be considered.
    - Risk analysis. Project risks generated by the requirements should be identified and evaluated.
  - Confirm that the PRD notes any relevant requirements analysis that was performed during the Project Planning phase, primarily with respect to NESDIS mission and strategic plan.
  - Confirm that the PRD provides a technical analysis of each requirement.
  - Confirm that the PRD provides a functional analysis of each requirement.
  - Confirm that the PRD provides a quantitative analysis of each performance requirement.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 31 of 31

- o Confirm that the PRD notes any potential effects of the requirements on the project plan.
- o Confirm that the PRD identifies and evaluates any project risks generated by the requirements.

4.2.6 Section 6 – Requirements Quality Assurance

The PRD shall include a Requirements Quality Assurance Section. The purpose of this section is to present the plans, methods and tools for assuring requirements quality. This section should be organized as follows:

6.0   REQUIREMENTS QUALITY ASSURANCE

   6.1   Requirements Traceability

   6.2   Requirements Tracking

   6.3   Requirements Validation

   6.4   Configuration Management

- **Section 6.1: Requirements Traceability**
  - o Requirements Traceability includes:
    - Vertical traceability from the basic requirement to its lower level derived requirements and from the lower level requirements back to their source.
    - Traceability from a requirement to its allocation of functions, objects, people, processes, and work products. This is typically deferred until PDR.
    - Horizontal traceability from function to function and across interfaces. This is typically deferred until PDR.
  - o Confirm that the PRD provides an overview of Requirements Traceability.
  - o Confirm that the PRD and RAD v1r0 describe the vertical traceability of the basic and derived requirements and provide the Requirements Traceability matrix.

- **Section 6.2: Requirements Tracking**
  - o Requirements and their allocation must be tracked during the product development lifecycle to:
    - Ensure that risks to requirements quality are managed properly

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 32 of 32

- ▪ Adjust to changes (e.g., design changes, emergence of project or system constraints, changes in customer/user needs)
- ▪ Identify actions needed to maintain requirements quality

o Effective requirements tracking is achieved by consistent referral to the matrices in the RAD whenever an issue arises that may cause a change to requirements, solutions or design. RAD updates and refinement are expected to respond to issues uncovered by requirements tracking

o Confirm that the PRD provides an overview of Requirements Tracking.

o Confirm that the PRD demonstrates that STAR standards for requirements tracking are established in the plan for tracking requirements, and explains any project-unique tailoring of standard requirements tracking practices.

o Confirm that the PRD identifies project stakeholders who will play a role in requirements tracking and how they will do this.

- **Section 6.3: Requirements Validation**

o Requirements Validation is concerned with ensuring that the requirements and requirements allocation provide a satisfactory balance between customer/user needs and expectations, NESDIS mission goals, technical feasibility, the available resources and external constraints.

- ▪ Basic requirements are validated by a demonstration that a balance has been established between customer/user needs and expectations, and constraints on the production, distribution and performance of products.

- ▪ Derived requirements are validated by a demonstration that they are the best set of requirements to satisfy the basic requirements.

- ▪ Requirements allocations are validated by a demonstration that the solution and design provides a feasible, satisfactory implementation for meeting the requirements.

o At PRR, requirements have been identified and analyzed, but have not typically been fully allocated or validated. However, a plan for requirements validation should be in place by PRR

o Confirm that the PRD provides an overview of Requirements Validation.

o Confirm that the PRD and VVP v1r0 describe the plan for continuing and completing requirements validation as the requirements allocation is updated during preliminary design and detailed design.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 33 of 33

- o Confirm that the PRD demonstrates that STAR standards for requirements validation are established in the plan for validating requirements, and explains any project-unique tailoring of standard requirements validation practices.
- o Confirm that the PRD identifies project stakeholders who will play a role in requirements validation and how they will do this.

- **Section 6.4: Configuration Management**
  - o A special derived requirement is for Configuration Management (CM) of the requirements and their allocated functions and work products.
  - o Confirm that the PRD explains CM concepts as they apply to Requirements Quality Assurance and describes the CM tools that are in use for the project.
  - o STAR should assign CM personnel to the project during the Project Planning phase. Identification and commitment of CM personnel is an item of the required entry criteria.
  - o Confirm that the CM stakeholders for the project are identified.
  - o Verify that the CM stakeholders for the project are committed to the plan for CM of requirements and requirements documentation.
  - o The project's baseline and change history are maintained in a PBR. The PRD should provide a pointer to PBR v1r2, a PRR artifact. Access to this document is part of the PRR entry criteria. If the PRR reviewer cannot obtain access to the PBR by using this pointer, and cannot otherwise obtain access to the current baseline version of the PBR, the reviewer should notify an appropriate person (e.g. Review Lead, Development Lead, Program Manager, STAR Web Manager) to obtain access.

4.2.7 Section 7 – Requirements Allocation

The PRD shall include a Requirements Allocation Section. There are two main aspects of the Requirements Allocation Document (RAD), (1) the basic and derived requirements and (2) their allocation to system components and work products. This section deals with the second aspect. The first aspect was dealt with in Section 4 of the PRD.

The primary purpose of this section is to demonstrate that the basic and derived requirements that were presented in Section 4 of the PRD have been properly allocated to the components of the designed product processing system that have been identified at this step in the STAR EPL.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 34 of 34

This section should be organized as follows:

7.0 REQUIREMENTS ALLOCATION

    7.1 Requirements Allocation Development

    7.2 Requirements Allocation

    7.3 Requirements Allocation Document

- **Section 7.1: Requirements Allocation Development**
  - Confirm that the PRD provides an overview of Requirements Allocation. Guidelines for requirements allocation are in STAR EPL Training Document TD-9. The PRD should provide a pointer to this document.
  - Confirm that the PRD illustrates the iterative development of the requirements allocation during the Design phase of the STAR EPL process. The illustration should clearly show that the development of Solutions, Design, Requirements, and Requirements Allocation occurs iteratively in a closed loop with continual feedback between the four, with Requirements driving the Solutions and Design, and the Design then determining the Requirements Allocation.

- **Section 7.2: Requirements Allocation**
  - Confirm that the PRD and RAD v1r0 contains the correct allocation of the requirements to system components and product components that have been identified.

- **Section 7.3: Requirements Allocation Document**
  - This section describes RAD v1r0, a PRR artifact. The PRD should provide a pointer to RAD v1r0.
  - Confirm that RAD v1r0 satisfies PRR requirements for a RAD.

4.2.8 Section 8 – Risks and Actions

The PRD shall include a Risks Section. The purpose of this section is to provide an updated description of the status of identified project risks and associated actions for reviewer assessment and concurrence.

This section should be organized as follows:

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 35 of 35

8.0   RISKS AND ACTIONS

    8.1   Gate 3 Risks and Actions

    8.2   New Risks and Actions

    8.3   Risk Summary

- **Section 8.1: Gate 3 Risks and Actions**
  - The status of project risks at the Gate 3 Review should have been reported in a "Risk Assessment" section of the PSR.
  - Confirm that the PSR and PRD correctly document the status of risks at Gate 3. Each risk should be reported as follows:
    - Risk Statement – the description of the risk
    - Assessment – the results from analysis of the risk. The assessment should include quantitative evaluation of Severity and Likelihood of Occurrence
    - Mitigation – the plan to mitigate the risk
    - Actions – list of actions to implement the mitigation plan
  - Confirm that the PRD provides the status of the associated actions for each Gate 3 risk. Each action should be reported as follows:
    - Action statement
    - Closure Criteria
    - Closure Plan
    - Status – status of the action, with respect to the closure plan

- **Section 8.2: New Risks and Actions**
  - Confirm that the PRD reports the status of each risk that has been identified since the Gate 3 Review in sufficient detail for the reviewers to be able to assess the development team's recommended actions to mitigate the risks. Each new risk should be described in the PRD as follows:
    - Risk Statement – the description of the risk
    - Assessment – the results from analysis of the risk. The assessment should include evaluation (e.g. High, Medium, Low)
    - Mitigation – the plan to mitigate the risk

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 36 of 36

- Actions – list of actions to implement the mitigation plan
  - o Confirm that the PRD provides the status of the associated actions for each new risk. Each action should be reported as follows:
    - Action statement
    - Closure Criteria
    - Closure Plan
    - Status – status of the action, with respect to the closure plan

- **Section 8.3: Risk Summary**
  - o Confirm that the PRD provides a list of risks that can be closed.
  - o Confirm that the PRD provides a list of risks that remain open, in priority order (HIGH, then MEDIUM, then LOW). If the PSR contained a table of risks, look for an updated table that has the same format. The updated table should add risks identified since Gate 3, modify the evaluation and prioritization of Gate 3 risks based on current status, and update the mitigation plans, actions and status. For each risk, list the actions that must be closed to reduce the risk to an acceptable level, with closure plans and estimated closure dates.

4.2.9 Section 9 – Summary and Conclusions

The PRD shall include a Summary and Conclusions Section. This section is organized as follows:

9.0   SUMMARY AND CONCLUSIONS

    9.1   Review Objectives Status

    9.2   Issues, Actions and Risks

    9.3   Next Steps

    9.4   Open Discussion

- **Section 9.1: Review Objectives Status**
  - o Confirm that all review objectives have been addressed by the PRD. Look for notable conclusions from each PRD section to be summarized here.

- **Section 9.2: Issues, Actions and Risks**

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 37 of 37

- o Confirm that the PRD lists all outstanding issues, actions and risks that require attention. Look for notable conclusions from each issue, action and risk to be summarized here.

- **Section 9.3: Next Steps**
  - o Confirm that the PRD lists the recommendations of the development team for the next steps after the PRR, including preparation for Preliminary Design Review and the Preliminary Design step (step 7) of the STAR EPL.

- **Section 9.4: Open Discussion**
  - o The PRD states here that the review is open for free discussion. Note: If the development team has prepared for and conducted the review in accordance with standards and if the reviewers have prepared for the review in accordance with standards, there should be no need for additional discussion.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 38 of 38

5. CLOSING THE REVIEW

5.1. Exit Criteria

The PRR reviewers should ensure that all PRR exit criteria have been met before closing the review. The PRR exit criteria should have been established at the Gate 3 Review and documented in the DPP and PSR. Note that exit criteria may be tailored from the standard STAR EPL set of PRR exit criteria. In that case, the DPP or PSR should provide a rationale for deviations from the standard set. The standard STAR EPL set of PRR exit criteria, listed in the standard PRR check list (CL-6), includes the following 11 items:

- Exit # 1 – Project plan and DPP are satisfactory

- Exit # 2 - Operations concept and OCD are satisfactory.

- Exit # 3 - Requirements identification is satisfactory.

- Exit # 4 - Requirements analysis is satisfactory.

- Exit # 5 - Requirements traceability plan is satisfactory.

- Exit # 6 - Requirements tracking plan is satisfactory.

- Exit # 7 - Requirements validation plan and VVP are satisfactory.

- Exit # 8 - Requirements allocation and RAD are satisfactory.

- Exit # 9 - Project baseline and PBR are satisfactory.

- Exit # 10 - The PRR reviewers' assessment of outstanding risks and actions is documented in the PRR Report.

- Exit # 11 - Project risks and actions are acceptable.

The interpretation of the terms "satisfactory" and "acceptable" in the exit criteria is subjective. That is, an item is "satisfactory" or "acceptable" if the reviewers find it satisfactory or acceptable to them. The reviewers are encouraged to refer to the set of relevant process assets (c.f. Section 3.4 of this PRG) to assist them in determining what their criteria for "satisfactory" and "acceptable" should be.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 39 of 39

5.2. PRR Check List

The PRR check list is an essential item that must be completed to close the review. It contains the CLIs that must be checked off by the PRR reviewers. Checking off a CLI involves recording one of the following dispositions for each item:

- Pass – The item is approved.

- Conditional Pass – The item is approved conditionally. The condition or conditions typically involve one or more specific actions that must be closed to pass the item. Conditional Pass items are typically reconsidered at a delta PRR.

- Defer – The item is deferred for consideration at a later review (e.g. Preliminary Design Review), often with recommended actions to be addressed prior to that review.

- Waive – The item has been excused for this project's lifecycle. It is expected that a rationale for waiving an item be provided in the PRRR.

- Not Applicable (N/A) – The item is not applicable to this project's lifecycle. This disposition will only occur if the item was mistakenly included in the project's PRR check list. The distinction between this disposition and the "Waive" disposition is that "Waive" items are applicable to the project's lifecycle, though they have been excused for some reason.

In addition, the check list includes the following Columns to be filled in for each CLI:

- Risk – A risk evaluation pertaining to the item (e.g. Red/Yellow/Green/Blue or High/Medium/Low/None). An item with a risk evaluation of Medium or worse should generate at least one action. Low risk items may also generate actions, at the discretion of the reviewers.

- Actions (Y/N) – Note (Yes or No) whether there are open actions pertaining to this item.

- Comments – Include any explanatory comments (e.g. rationales for the designation of the item, rationales for the risk evaluation, description of open actions, identification of the review that should address the actions).

The PRR reviewers can use the standard check list provided in the PRR Check List spreadsheet (STAR EPL process asset CL-6) to record their disposition of the CLIs, if the check list for this project's PRR has not been modified. If there has been a modification, the PRR reviewers should use a modified spreadsheet that includes the PRR CLIs that have been agreed to. The PRR CLIs that have been approved for a specific project should be included in the DPP. Any modifications to the check list during the Design phase must be approved by project management and should be documented in a DPP revision.

NOAA NESDIS STAR

PEER REVIEW GUIDELINE PRG-6
Version: 3.0
Date: October 1, 2009

TITLE: Project Requirements Review Peer Review Guideline

Page 40 of 40

Typically, each member of the review team is assigned a subset of the check list to check off, and some items may be assigned to more than one review team member. The Review Lead is responsible for collecting the finished check lists from each review team member, resolving conflicts between team members, and producing a unified check list with all items checked off. The PRRR (c.f. Section 5.3 of this PRG) typically includes a copy of this unified PRR check list.

5.3. PRR Report

The PRRR is the one project artifact that is the responsibility of the PRR review team. Responsibilities for writing parts of the PRRR should be assigned to review team members by the Review Lead. These should be agreed upon well in advance of the review, during review preparation meetings.

Standards and guidelines for the PRRR can be found in STAR EPL process asset DG-6.5 (Project Requirements Review Report Guidelines). The PRR review team should follow the standards and guidelines in DG-6.5, unless there are tailored standards and guidelines specific to this project. In that case, the DPP should either note the tailored standards and guidelines or should provide a reference to a document where these are noted.

The PRRR should be updated to record the closing of "Conditional Pass" and "Defer" items after the PRR. PRRR updates should include a change history. Details can be found in DG-6.5.

END OF DOCUMENT