PROCEDURE: NCSX–PROC–009 Revision 5		Page: 1 of 8
Title **NCSX Request for Deviation Process**	**Initiated by:** Bob Simmons Digitally signed by Bob Simmons DN: cn=Bob Simmons, c=US Reason: I am the author of this document Date: 2006.11.02 09:02:24 -05'00' NCSX Systems Engineering Support Manager	**Effective Date:** **November 2, 2006**
Concurred by: Judith Malsbury Digitally signed by Judith Malsbury DN: cn=Judith Malsbury, c=US, o=PPPL, ou=Quality Assurance Reason: I concur with this document. Date: 2006.11.02 15:15:11 -05'00' NCSX Quality Assurance Manager	**Approved by:** Wayne Reiersen Digitally signed by Wayne Reiersen DN: cn=Wayne Reiersen, c=US, o=PPPL Date: 2006.11.02 16:53:16 -05'00' NCSX Engineering Manager	**Supersedes:** **Revision 4 Dated December 22, 2005**

Record of Revisions

Revision	Date	Description of Changes
0	**1/13/2005**	**Initial Issue**
1	**1/19/2005**	**Changed to a flow chart process and revised process.**
2	**3/8/2005**	**Revised RFD Form & Attachment 1 instructions**
3	**4/15/2005**	**Provided additional flexibility in process and clarified need to annotate drawings with RFD number if drawing is not revised. Added new Section B to show flow chart of incorporating RFDs into electronic drawings. Included process changes in MIT/QA Plans as part of the RFD process.**
4	**12/22/2005**	**Revised RFD Part II form to add disposition of material approved by RFD.**
5	**11/2/2006**	**Clarified use of RFD and revised the RFD Part II form to:** • **Determine whether or not an eventual update of a drawing(s) will be required.** • **Specifically address whether or not the RFD has an impact on PPPL cost and schedule.** • **Add the Manufacturing RLM signature to ensure that the impact of the RFD on ongoing or future manufacturing activities is considered.**

Applicability

This procedure covers the process for preparing and processing Requests for Deviation (RFDs) on the NCSX Project.

Introduction

Prior to performing a specified step in a manufacturing or fabrication process, either the Project or a supplier may identify an alternative design/method/material to the requirements that could result in simpler or easier design to fabricate, cost, or schedule savings. The documentation to formally define this proposed departure from the established performance or design requirements is called a Request for Deviation (RFD). ***The RFD is a specific written request to depart from a particular requirement(s) of the item's current approved design basis documentation.*** RFDs shall be processed and adjudicated under the Engineering Change Process (ECP) process defined in the NCSX Configuration Management Plan (NCSX-PLAN-CMP) and the accompanying NCSX Configuration Control Procedure (NCSX-PROC-002) unless a determination is made by the

NCSX Engineering Manager that an ECP is not required (generally for editorial-type RFDs or process RFDs). Until the ECP associated with the RFD is approved or approval by the NCSX Engineering Manager is received to process without an ECP, the item or process may not deviate from the technical requirements. The RFD may be either a letter or tabular format and shall contain the specific required information as defined in this procedure.

A deviation is distinguished from non-conformance reports (NCRs) in that NCRs address the departure after the manufacturing step or process that incorporates the requirement (design/method/material) has begun. The processing of NCRs is addressed in PPPL Quality Assurance Procedure QA-005, "Control of Nonconformances." RFDs are forward looking and may result from a dispositioned NCR that may provide an alternate design for future work.

The design documentation for any technical design includes a combination of the product specification and the electronic models and drawings, and any approved deviations. The "read me" file on the Supplier FTP site will contain a clarifying note that clearly identifies these three legs of the technical design documentation. However, rather than revise all the design documentation for every deviation, the NCSX Project has adopted a policy of minimizing the changes to the impacted design documentation. The majority of deviations result in a design change, however, it is left to the discretion of the Design or the Manufacturing RLM to determine if a change to the documentation is immediately warranted or can be deferred. When deciding whether or not a particular specification, model(s) or drawing(s) need to be updated, the RLMs should consider the significance of the deviation. If the deviation has a significant impact on the way a particular part is designed or manufactured, then an update of the impacted design documentation is generally warranted. However, if a minor change or a correction of dimensions or tolerances, the RLM must decide whether or not to immediately update the documentation or to defer the update to a later date.

No matter the decision on when, or ever, to update impacted design basis documentation, the Systems Engineering Support Manager should notify project personnel that the RFD is approved, post the approved RFD on the NCSX Engineering Web, and, if it also impacts an existing contract, ensure that the PPPL Procurement Representative is provided a copy to forward to the supplier.

If the decision is made to defer the updating of the documentation, the RFD should clearly identify the specific impacts of a deviation and whether or not that decision is to update or not update the documentation. For drawings, the "stamp" process outlined in ENG-010 and PROC-007 may be used. For specifications pertinent to existing contracts, the product specification does include a list of approved RFDs that are applicable to the contract. However, if the decision is made to defer updating a specification, the PPPL Procurement Representative should provide a copy of the approved RFD to the supplier. In addition, the index listing of specifications on the NCSX Engineering Web should be annotated to show a listing of unincorporated RFDs that impact the specification (whether impacting requirements or the listing of drawings. Models do not use a "stamp" process, however the "read me" files should be annotated if the decision is made to defer updating models.

MIT/QA Plan and detailed manufacturing procedures address specific processes to be utilized. The vendor and cognizant engineer have freedom to modify the MIT/QA Plan and manufacturing procedures as long as the changes do not have the potential to impact the design, quality or cost

and schedule. While the RFD is NOT the vehicle to process these implementation deviations or changes, the text of the RFD should identify the impacts on these lower tier documents if known.

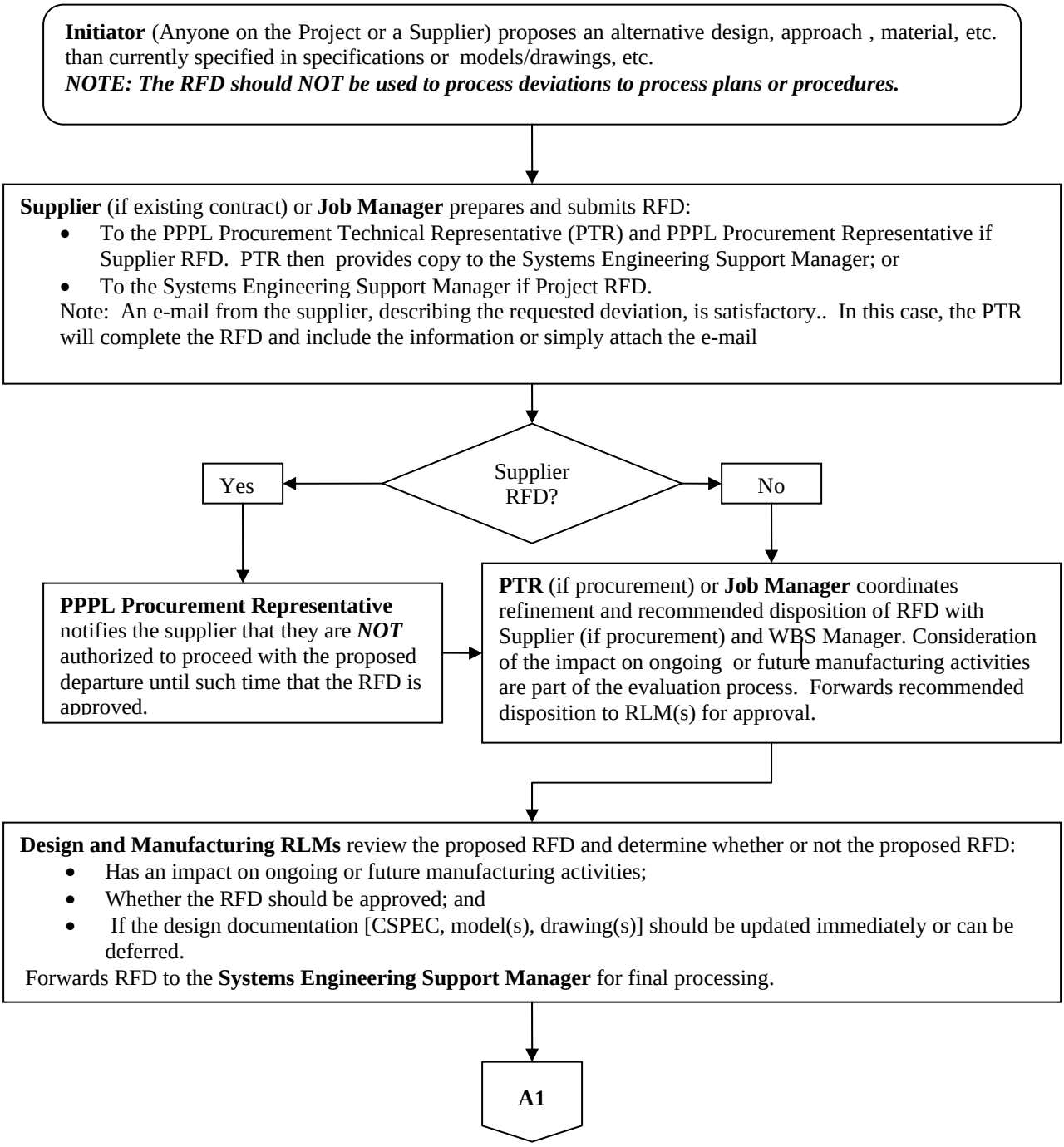
Part A of this procedure provides the general flow chart for processing and approving RFDs. Part B of this procedure provides the flow chart for incorporating RFDs into electronic drawings.

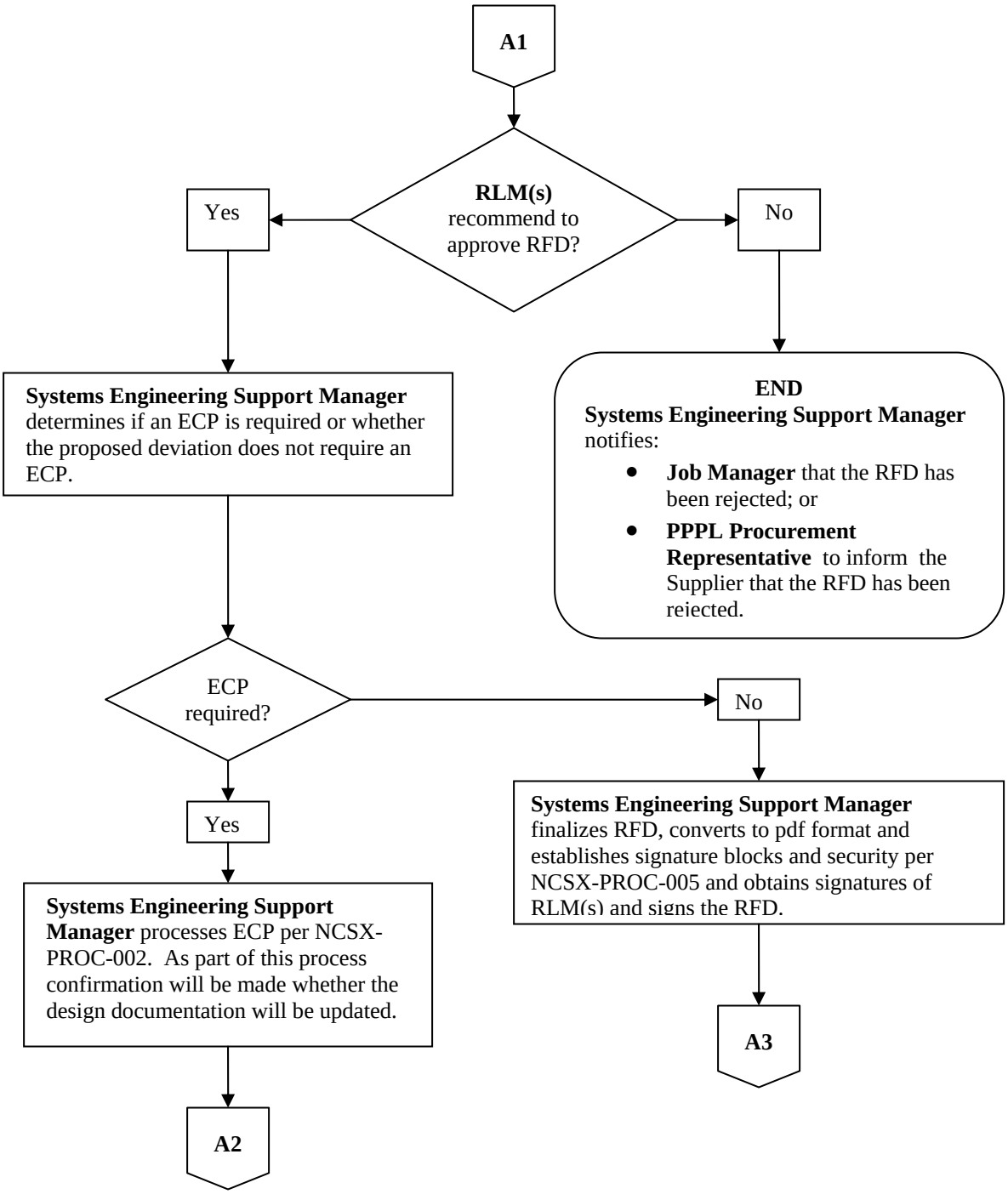
Referenced Documents

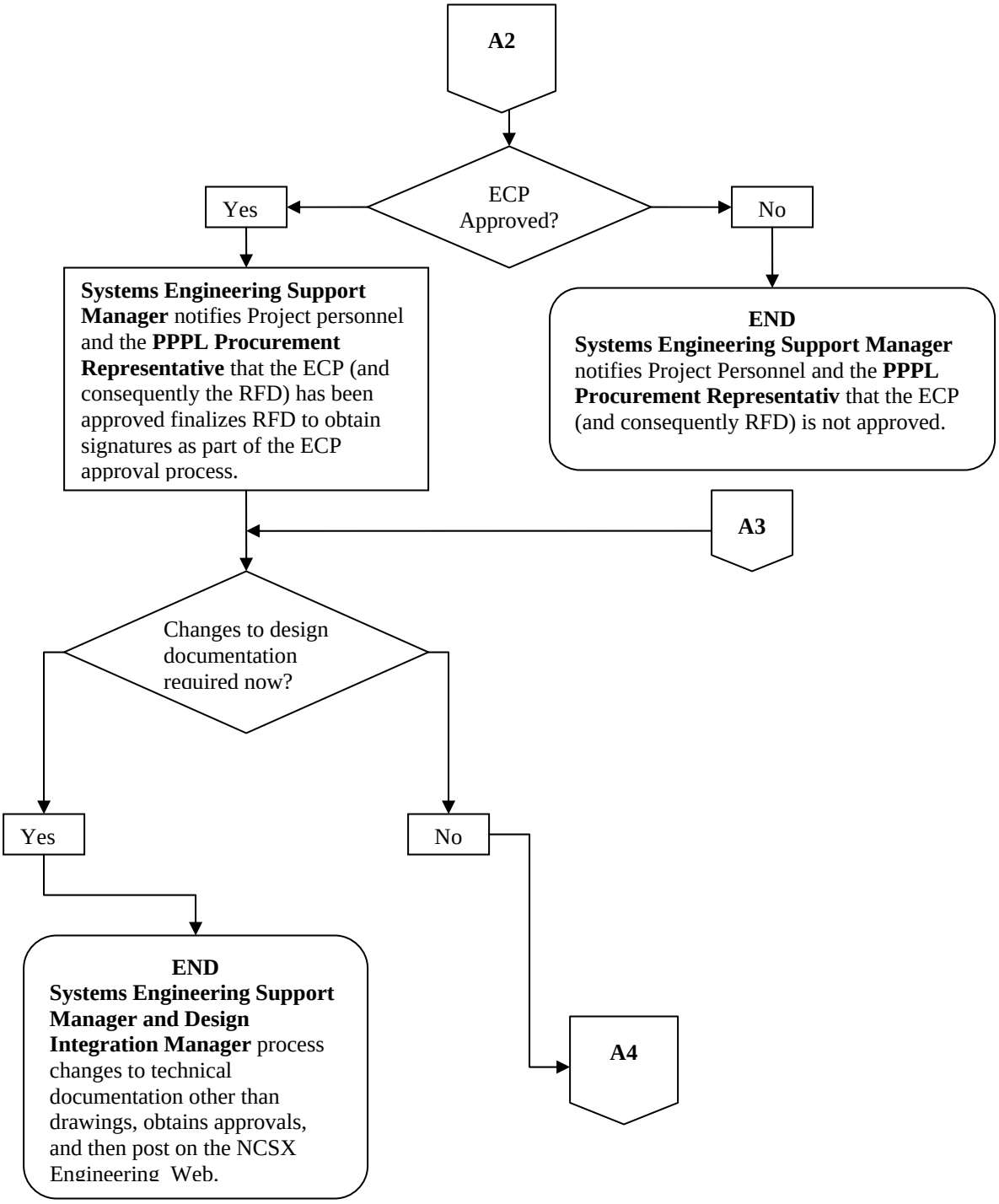
NCSX-PLAN-CMP	NCSX Configuration Management Plan
NCSX-PROC-002	NCSX Configuration Control
NCSX-PROC-005	NCSX Electronic Signatures
NCSX-PROC-007	NCSX Electronic Model and Drawing/INTRALINK Processes
QA-005	Control of Non-conformances
PPPL ENG-010	Control of Drawings, Software, and Firmware

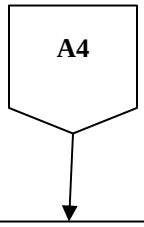
Procedure

Part A - Processing RFDs




A1
RLM(s) recommend to approve RFD?
Yes
No
Systems Engineering Support Manager determines if an ECP is required or whether the proposed deviation does not require an ECP.
END
Systems Engineering Support Manager notifies:
Job Manager that the RFD has been rejected; or
PPPL Procurement Representative to inform the Supplier that the RFD has been rejected.
ECP required?
No
Yes
Systems Engineering Support Manager finalizes RFD, converts to pdf format and establishes signature blocks and security per NCSX-PROC-005 and obtains signatures of RLM(s) and signs the RFD.
Systems Engineering Support Manager processes ECP per NCSX-PROC-002. As part of this process confirmation will be made whether the design documentation will be updated.
A3
A2


A2
ECP Approved?
Yes
No
Systems Engineering Support Manager notifies Project personnel and the PPPL Procurement Representative that the ECP (and consequently the RFD) has been approved finalizes RFD to obtain signatures as part of the ECP approval process.
END
Systems Engineering Support Manager notifies Project Personnel and the PPPL Procurement Representativ that the ECP (and consequently RFD) is not approved.
A3
Changes to design documentation required now?
Yes
No
END
Systems Engineering Support Manager and Design Integration Manager process changes to technical documentation other than drawings, obtains approvals, and then post on the NCSX Engineering Web.
A4



Systems Engineering Support Manager notifies project personnel and the PPPL Procurement Representative (if impacting an existing contract) that the RFD has been approved, but that the update has been deferred.**:**

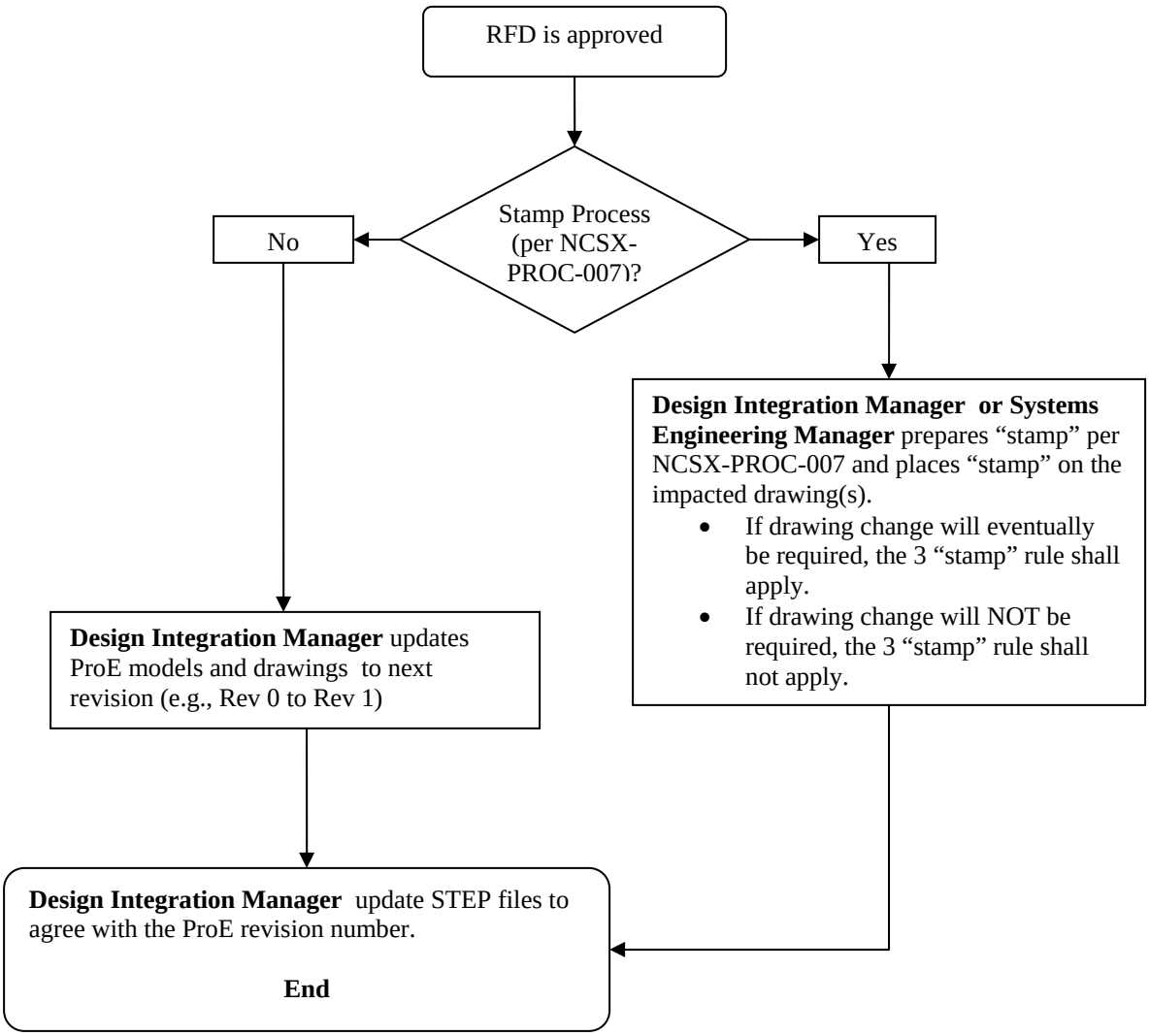
- If drawing, processes "stamp" per Part B of this Procedure**.**
- If a model, works with the **Design Integration Manager** to ensure that the "read me file is updated to indicate that the RFD is approved, but that the update of the model is deferred.
- If a specification, ensures that the specification list on the NCSX Engineering web is annotated to show a listing of unincorporated RFDs.

If impacts an existing contract**, PPPL Procurement Representative** also notifies Supplier via contract addendum:

- That RFD has been approved;
- Of the forthcoming changes in contract documents that will be made if they will be formally update or merely annotated with a "stamp" per part B of this procedure; and
- That the Supplier is authorized to proceed and that a revised MIT/QA Plan (if impacted) should be submitted for PPPL approval.

END

Part B – Incorporating RFDs into Electronic Drawings



Attachments:

1 – Necessary Information Needed on a RFD

2 – RFD Forms

ATTACHMENT 1

The RFD has two parts – Part I is the initial proposal and Part II is the Project review and RLM disposition.

PART I

The RFD may be provided in any format (i.e., letter, tabular, or supplier format), but the initiator must provide at a minimum (If supplier initiated, the supplier must either submit a RFD form or request a deviation in an e-mail to the PTR, who will then complete the RFD) the following information in sufficient detail to permit NCSX Project assessment of the RFD:

- Initiator Name and Organization
- Date RFD was initiated
- RFD Title – short description of the deviation requested
- List of impacted documents (e.g., specification and sections, each model and drawing, MIT/QA Plan sections/steps, SOW sections – if the SOW has been used to convey technical information). Be as specific as possible.
- Impact on cost, schedule, and interfaces with other items – if none so state. If there are impacts, be as specific as possible.
- Full description of the deviation requested, including specific item/part impacted by this RFD and the rationale on why this deviation is needed, including the impact if not accepted - (Should provide sufficient justification to permit Project to make an informed decision). Include amplifying information that may assist in the NCSX Project's assessment of this RFD. This part should contain the specific design documentation impacted (e.g., list the changes to the specification and the specific drawings impacted).
- Attachments – to include e-mail or letter requests or sketches
- Signature of the initiator (actual or electronic or e-mail approval are all satisfactory).

PART II

Once the initiator has provided Part I of the RFD, the Procurement Technical Representative (PTR) or Job Manager (JM) shall review and provide a recommended disposition proposal to the respective RLM as per the attached flow chart (assuming that the PTR and/or JM concurs in the RFD). The RLM shall review the proposed RFD and provide the following disposition information on Part II:

- Impacted WBS Elements
- Whether or not he/she recommends approval
- Action items needed (e.g., whether or not the RLM deems it necessary to revise project documentation – CSPEC and drawings), including any other actions needed.

The following sections of the RFD shall be completed by the Systems Engineering Manager:

- RFD number (using format of NCSX-RFD-XX-###-RRR) where:

- XX is the two digit WBS element identifier;
- ### is a sequential number; and
- RRR is the revision number of the RFD.

- ECP number to be assigned to the RFD (Coordinates with the Systems Engineering Support Manager).

Sample Part I RFD Form (Deviation Request)

NCSX RFD Part I	Number:	RFD Description:
Initiator:	**Organization:**	
List of Impacted Documents: ***(Specification, MIT/QA Plan, SOW, drawing, etc.)***		
Cost Impact: ***(If none, so state)***		
Schedule Impact: ***(If none, so state)***		
Quality Impact: ***(If none, so state)***		
State Requirement Deviation is Requested For***: (Specification, MIT/QA Plan, SOW, drawing, etc.)***		
Full Description of the Deviation Requested: ***(Use continuation pages, e-mails, letter, sketches, etc. as needed and include amplifying information as appropriate to support deviation request.)***		
Attachments:		
Initiator Signature: _____ Date: _____		

Sample Part II RFD Form (Project RLM Recommendation)

NCSX RFD Part II	Number:	RFD Description:

RLM(s): Design: Manufacturing:	Organization: Design: Manufacturing:

Impact on Interfaces with Other WBS Elements/Items: ***(If none, so state)***

Design RLM Recommendations:

☐ **Approve** ☐ **Do Not Approve**

Manufacturing RLM Rcommendations:

☐ **Approve** ☐ **Do Not Approve**

Additional remarks:

Should the impacted drawings be formally revised or should the "stamp" process outlined in NCSX Procedure PROC-007 be utilized and should the specification (or other documents) be updated?

☐ **No, a formal revision required to the drawing or specification is required**

☐ **"Stamp" process outlined in PROC-007 is authorized for a drawing.**

- ☐ **If the change is substantial, a revision to the impacted drawings will be required after the third RFD stamp marking a substantial revision is placed on the drawing.**
- ☐ **This change is NOT substantial and no update to the drawing will ever be required => in this case the "3" RFD stamp process does NOT apply.**

☐ **Specification index is annotated to show unincorporated RFDs.**

Does this Change Impact Material Already Procured or Parts/Assemblies Already Assembled/Manufactured using this Material: ☐ **Yes** ☐ **No**

If "Yes", what is the recommended disposition of this material/part/assembly and what is the impact?

Sample Part II RFD Form (Project RLM Recommendation)

NCSX RFD Part II	Number:	RFD Description:
RLM:	Organization:	

Design RLM Signature: _____

Manufacturing RLM Signature: _____

Project Disposition:

☐ **Approved. No ECP required.** _____

NCSX Systems Engineering Support Manager

☐ **Approved. ECP - assigned and processed.**

☐ **Not Approved. Reason(s) for disapproval:**