PROCEDURE: NCSX–PROC–002 Revision 2		Page: 1 of 8
Title **NCSX Configuration Control**	**Initiated by:** Bob Simmons Digitally signed by Bob Simmons DN: CN = Bob Simmons, C = US Reason: I am the author of this document Date: 2005.12.23 09:21:55 -05'00' NCSX Systems Engineering Support Manager	**Effective Date:** **December 14, 2005**
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: 2005.12.23 09:28:05 -05'00' NCSX Quality Assurance Manager	**Approved by:** Wayne Reiersen Digitally signed by Wayne Reiersen DN: CN = Wayne Reiersen, C = US, O = PPPL Reason: I am approving this document Date: 2005.12.23 09:54:22 -05'00' NCSX Engineering Manager	**Supersedes:** Revision 1 Dated April 21, 2005

Record of Revisions

Revision	Date	Description of Changes
0	**2/23/2003**	**Initial Issue**
1	**4/21/2005**	**Added record of revisions table. Changed to a simplified flow chart format.**
2	**12/14/2005**	**Updated ECP Forms (Attachment 1) and corrected some text.**

Applicability

This procedure covers changes to the following controlled documents that define the functional or technical requirements, the design configuration of NCSX, or cost and schedule baselines associated with the technical baseline:

- Approved NCSX specifications, including the General Requirements Document (GRD) and System Requirements Documents (SRDs);
- Approved NCSX drawings and models;
- Approved Interface Control Documents (ICDs); and
- NCSX cost and schedule baselines.

Notes: ***(1) Approved technical installation and assembly procedures shall be under document control vs. formal configuration control.***

(2) Statements of Work (SOWs) do not normally convey technical information, but may do so in isolated instance s(e.g., for specific and focused R&D efforts that will not become part of the NCSX device) where it is determined that a technical specification is not needed. SOWs will be under revision control, but not configuration control.

Introduction

This procedure describes how the changes to the NCSX Project baselines (technical, cost, and schedule) are processed and controlled. A change request can be initiated by anyone associated with the Project.

Once under configuration control, the "configuration" of the NICS MIE Project may only be changed via the Engineering Change Proposal (ECP) process described in this procedure. An

ECP may be a "stand-alone" ECP that addresses discrete and significant changes in which a change of thinking or understanding causes the project to change something that is already under formal configuration change control; or an "omnibus" ECP that addresses small and multiple changes, may reflect one or more changes that are of a more evolutionary nature in which the design (and the associated cost and schedule impacts) that have advanced to a level of detail, moving beyond but not necessarily changing that which is already under formal change control, or adjustments due to actual cost and schedule performance against established baselines. **Once an ECP is approved, the normal time frame between ECP approval and revision of the impacted documentation shall not exceed 30 days. However, this does not relieve the Project from proper notification of impacted WBS elements and impacted Suppliers – contract amendments/addenda shall be issued in a timely manner with an indication on when the impacted documentation will be updated.**

There are two types of ECPs:

- A "standard" ECP that requires a full review and approval cycle via the NCSX Change Control Board (CCB). .
- An "expedited" ECP that may be approved with only an abbreviated review. Expedited ECPs are reserved for special instances where:
  - If a pending critical procurement needs to reflect the proposed change;
  - If field activities may be delayed by the normal ECP process involving full reviews and the CCB; or
  - If the proposed change is primarily editorial or minor in nature (e.g., clarifications on drawings for dimensions, tolerances, etc.).
  - If either the Project or the Supplier notes an immediate need to revise the contract documentation on a turn around period shorter than the normal ECP processing process. These changes are usually minor in nature (e.g., correction of omissions, dimensional clarifications, clarification of the Statement of Work, specification, and/or models and drawings) and generally are anticipated to have only minor or negligible technical, cost, and schedule impact if the appropriate changes can be made quickly so as to minimize or eliminate rework or delay. If deemed prudent by the NCSX Systems Engineering Support Manager, the decision can be made to delay revising the impacted documentation beyond the normal 30 day time period.

If an expedited ECP is deemed appropriate, the NCSX Engineering Manager, after consultation with the NCSX Project Manager, will be the approving authority after an abbreviated review cycle defined by the Engineering Manager. Nonetheless, following approval of an expedited ECP, the full CCB will review the ECP "after-the-fact" to ensure that major errors and/or omissions were not made. If the full CCB determines major errors and/or omissions that require a modification to the approved "expedited" ECP, a follow-up modification of the ECP will be made in accordance with the NCSX procedures and this ECP shall be a "standard" ECP.

Referenced Documents

NCTX-PLAN-CMP	NCSX Configuration Management Plan
NCSX-PROC-008	NCSX Request for Deviation Process
PPPL- ENG-006	PPPL Procedure on the Review and Approval of Specifications and Statements of Work
NCSX-PROC-006	Supplier Site Postings

A. Procedure for Processing Engineering Change Proposals (ECPs)

Note: NCSX documents do not all come under configuration control at the same time. Rather, as appropriate for the stage of design, the documents and drawings and models will come under configuration control (i.e., are signed and approved) in a phased manner, with the higher-level specifications and drawings coming under configuration control prior to lower-level specification and detailed drawings and models.

Initiator (either Project or Supplier) identifies a need to update the technical baseline documentation to the Cognizant Engineer and PTR and PPPL Procurement Representative if Supplier initiated.

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Cognizant Engineer/PTR evaluates proposed change and develops a proposed resolution and method of documenting proposed change in consultation with the Design Integration Manager, Systems Engineering Support Manager, and RLM, including whether this change might warrant special processing to ensure timely notification to a Supplier. The documentation of the proposed change may take the form of Request for Deviation (RFD) or a ECP:

- If a RFD, directs the initiator to prepare and process a RFD per PROC-009; or
- If a ECP, directs the initiator to prepare a ECP per Attachment 1 of this procedure (or to submit basis of change to the Systems Engineering Support Manager for inclusion in an ECP).

NOTE: The Cognizant Engineer/PTR may decide to prepare the proposed documentation in lieu of the initiator.

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Initiator or Cognizant Engineer/PTR submits the ECP (with any continuation sheets deemed necessary to better explain the rationale for the change) and recommendation whether this ECP requires special handling to ensure timely notification to a Supplier to the Systems Engineering Support Manager for further processing.

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Systems Engineering Support Manager reviews proposed change, and:

- If required, iterates until the additional amplifying information needed to complete the ECP package. If the ECP form is not already completed , completes the ECP form per Attachment 1 of this procedure;
- Determines whether this ECP should be processed as a "standard" or "expedited" ECP and whether this ECP warrants a special handling to ensure timely notification to a Supplier;
- The change level/class of this ECP (determined by the approving official);
- Completes the ECP Cover Page to include:
  - Initiator of the ECP and date ECP prepared;
  - ECP number in accordance with the following format ECP-XXX, where XXX is a sequential number starting with 001;
  - Descriptive Title of the ECP;
  - Required Reviewers;
  - Action items needed to close out the ECP; and
  - Any amplifying information that might assist in the review and disposition of the ECP
- Posts the draft ECP on the Configuration Management Web page and notifies all reviewers if and if this will be a standard, or expedited ECP.

NOTES: (1) An "expedited" ECP process may only be used for change level/class 3 (Project approval) ECPs. If an "expedited" ECP, the NCSX Engineering Manager (or his designee) is the approving official. If not an "expedited" ECP, the NCSX Project Manager (or his designee – usually only the NCSX Engineering Manager) signs for the Project.

(2) "Expedited" ECPs will normally only be considered for those items with potential impact on existing supplier contract or critical field activities.

Standard or Expedited ECP?

Standard ECP

Reviewers provide comments and/or concurrence without comment by completing information required in Part II (e-mail okay). Submit comments/concurrence to the systems Engineering Support Manager.

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Expedited ECP (Only If Class 3 ECP)

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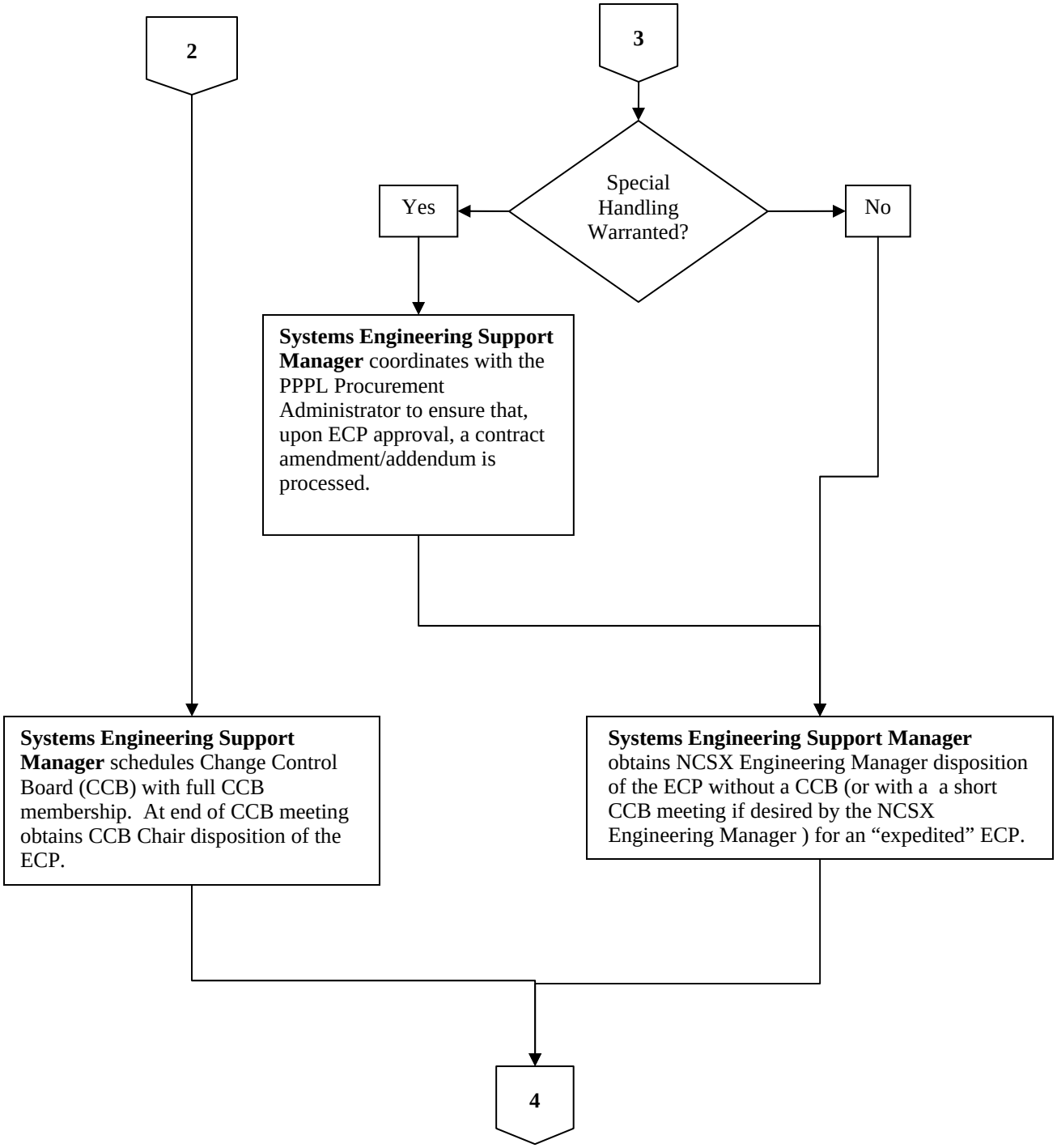

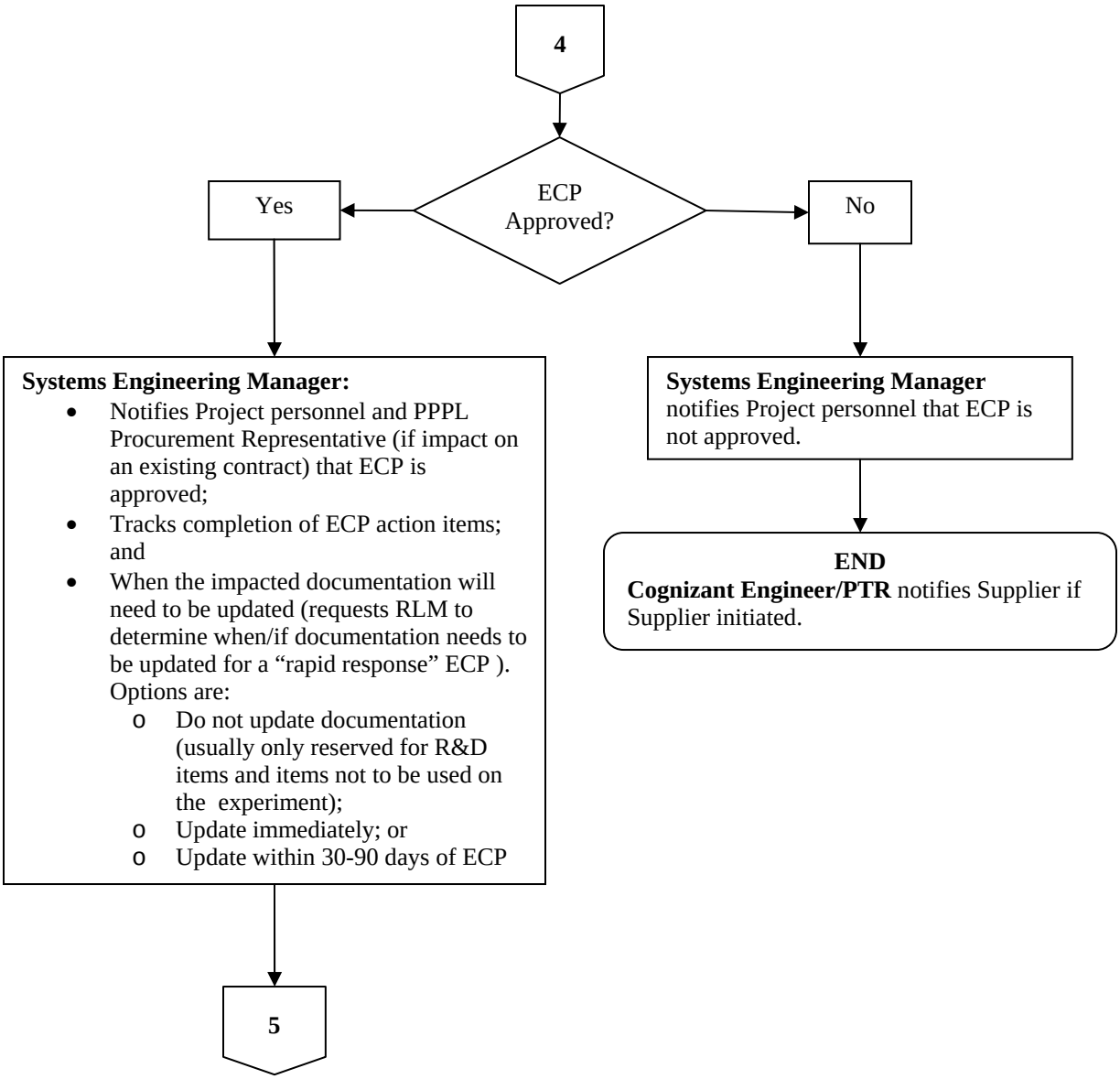
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ECP Approved?
Yes
No
Systems Engineering Manager:
• Notifies Project personnel and PPPL Procurement Representative (if impact on an existing contract) that ECP is approved;
• Tracks completion of ECP action items; and
• When the impacted documentation will need to be updated (requests RLM to determine when/if documentation needs to be updated for a "rapid response" ECP). Options are:
o Do not update documentation (usually only reserved for R&D items and items not to be used on the experiment);
o Update immediately; or
o Update within 30-90 days of ECP
Systems Engineering Manager notifies Project personnel that ECP is not approved.
END
Cognizant Engineer/PTR notifies Supplier if Supplier initiated.
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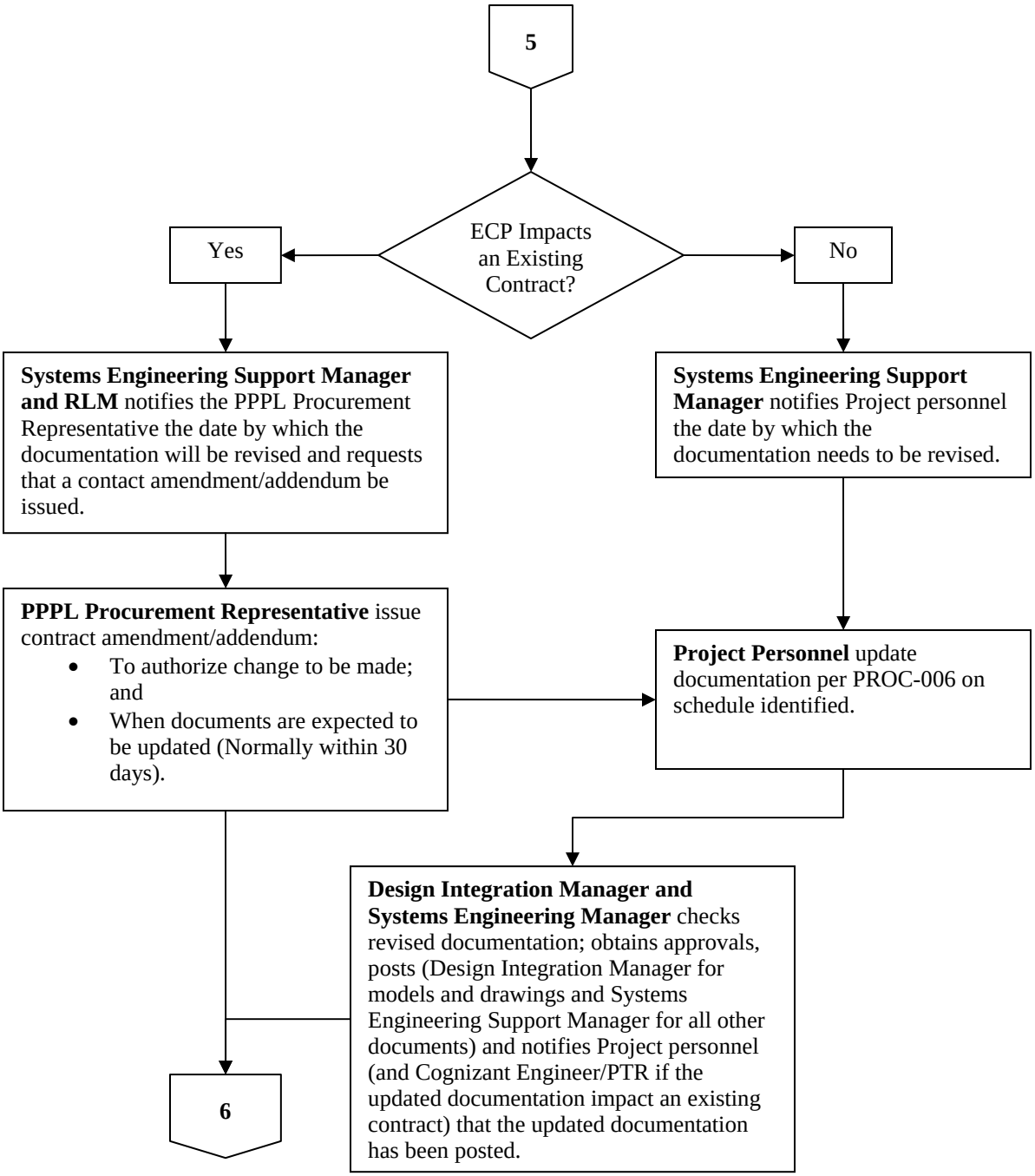

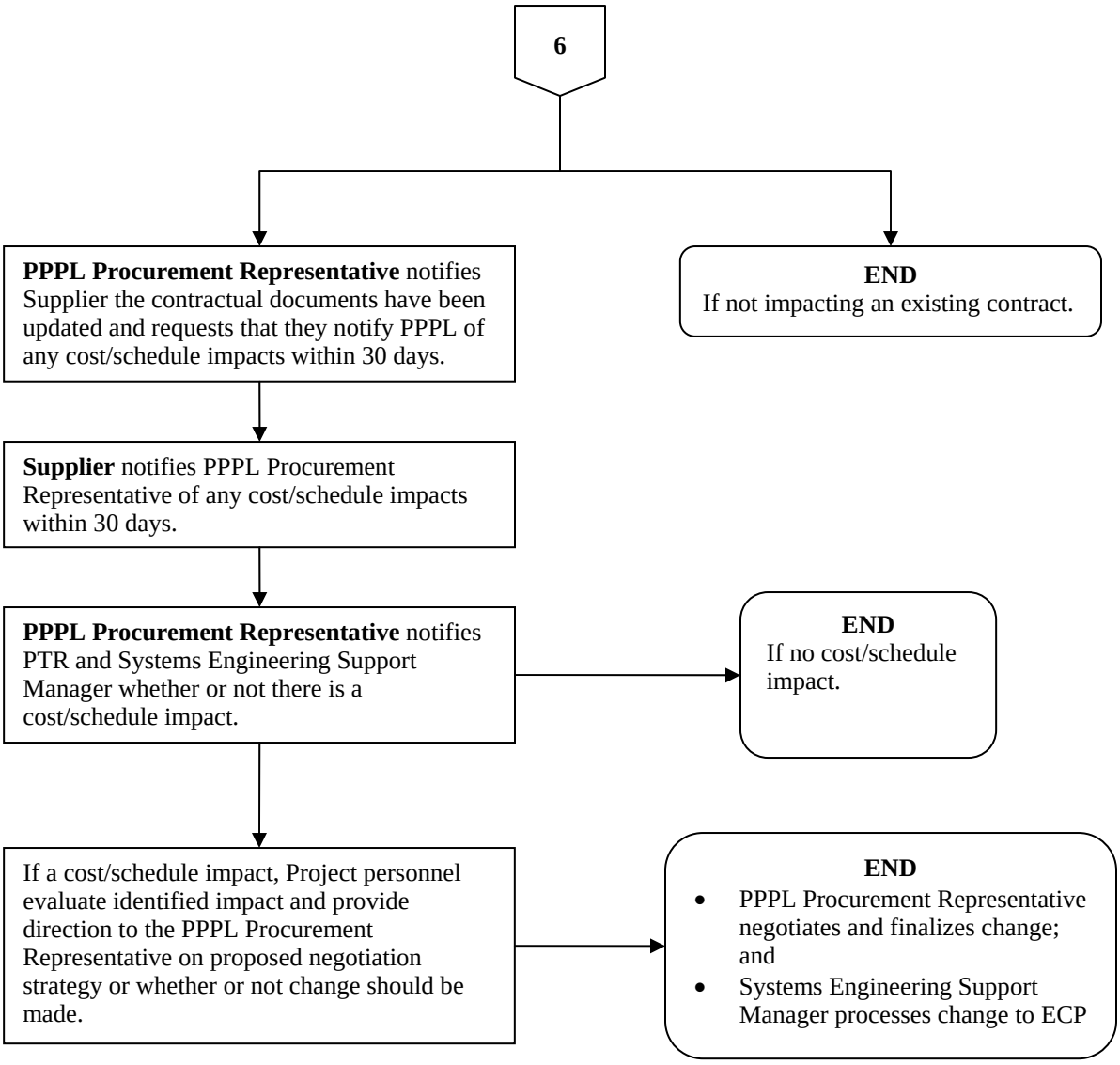

Attachments

1 - ECP Forms (Cover Page and Part I)

2 – Reviewer Comment Form (Part II)

NATIONAL COMPACT STELLARATOR PROJECT
Engineering Change Proposal (ECP)

COVER PAGE
(TO BE COMPLETED BY SYSTEMS ENGINEERING SUPPORT MANAGER)

Originator:	**Date:**
ECP No:	**ECP Title:**

Required Reviewers

Required Reviewers for this ECP:

ECP Approval Level

Expedited ECP? ☐ **Yes** ☐ **No**
Change Level: 3 Project
Approving Official: 3 Reg ECP - Project Manager

Actions

APPROVALS
(TO BE COMPLETED BY APPROVING OFFICIALS)

Change Level	Approving Official	Approval?	Signature
3	NCSX Project Manager	☐ Yes ☐ No	
3a (Expedited ECP)	NCSX Engineering Manager	☐ Yes ☐ No	
2	NCSX Federal Project Director	☐ Yes ☐ No	
1	Associate Director OFES	☐ Yes ☐ No	
0	Deputy Secretary of Energy	☐ Yes ☐ No	

NATIONAL COMPACT STELLARATOR PROJECT
Engineering Change Proposal (ECP)

PART I
(TO BE COMPLETED BY ORIGINATOR)
ECP-

Originator:	**Date:**

Overview of Change

Type of ECP: ☐ **EXPEDITED** ☐ **STANDARD**

Type of Change: ☐ **TECHNICAL** ☐ **COST** ☐ **SCHEDULE** ☐ **EDITORIAL**

(Check all that Apply)

Reason for Change:

Impacted WBS Elements:

Impacts of Change (Briefly Describe):

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?

Assessment of Other Options:

NATIONAL COMPACT STELLARATOR PROJECT
Engineering Change Proposal (ECP)

PART I
(TO BE COMPLETED BY ORIGINATOR)

Originator:	**Date:**

Detailed Description of the Change:
(Use Continuation Sheets and/or Attach Information/Sketches, As Needed)

List Attachments, Impacted Documents, etc.

Description of Change:

NATIONAL COMPACT STELLARATOR PROJECT
Engineering Change Proposal (ECP)

PART I CONTINUATION SHEET
(TO BE COMPLETED BY ORIGINATOR)

Originator:	**Date:**

Reviewer Comment Guidelines

Reviewers will complete a reviewer comment sheet (either using the Part II form included in this procedure or in any other acceptable format such as e-mail, word, etc.). The reviewer comment sheet shall contain at a minimum the following information:

- ECP Number and Title;
- Reviewer Name;
- Indications on whether or not corrections needed and the specific modifications/corrections needed (e.g., additional reviewers, correction to impact statements, modifications to the ECP to include other impacted documents, etc.);
- Whether or not the reviewer concurs in the ECP without comment or concurrence if recommended modifications/corrections are made.

This information should be submitted to the Systems Engineering Support Manager who will tally all the comments and attempt to reach a resolution with the ECP initiator.

A sample Part II of the ECP form is follows in this attachment if the reviewer opts to utilize it.

NATIONAL COMPACT STELLARATOR PROJECT
Engineering Change Proposal (ECP)
PART II
(TO BE COMPLETED BY REVIEWERS)

ECP No: **ECP Title:**

Reviewer:

Corrections Needed? ☐ **Yes** ☐ **No**

- **If yes, identify corrections needed:**

Concur? ☐ **Yes** ☐ **No**

- **Provide reasons for concurrence/rejection:**

Other Recommendations? ☐ **Yes** ☐ **No**

- **Identify Recommendations**

NOTE: Forward completed Part II to Systems Engineering Support Manager via e-mail indicating that your review is completed.

NATIONAL COMPACT STELLARATOR PROJECT
Engineering Change Proposal (ECP)

PART II CONTINUATION SHEET
(TO BE COMPLETED BY REVIEWER)

Originator:	**Date:**

NOTE: Part II – Review Form will be multiple pages from each reviewer.