

<b>NATIONAL COMPACT STELLARATOR PROJECT</b> <b>Engineering Change Proposal (ECP)</b>			
<b>COVER PAGE</b> <b>(TO BE COMPLETED BY SYSTEMS ENGINEERING SUPPORT MANAGER)</b>			
Originator: Bob Simmons		Date: March 11, 2004	
ECP No: 04-005		ECP Title: Revised Estimates for Design, R&D, and Toolin	
Required Reviewers			
Required Reviewers for this ECP: WBS Managers, Project Engineers, Project Control Manager, Engineering Manager, NCSX Project Manager, & NCSX Federal Project Director			
ECP Approval Level			
Expedited ECP? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Change Level: 2 Federal Project Director Approving Official: 2 Federal Project Director			
Actions			
Update cost and schedule baselines to reflect this ECP.			
<b>APPROVALS</b> <b>(TO BE COMPLETED BY APPROVING OFFICIALS)</b>			
Change Level	Approving Official	Approval?	Signature
3	NCSX Project Manager	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>J. H. Kohn</i> 3/11/04
3a (Expedited ECP)	NCSX Engineering Manager	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2	NCSX Federal Project Director	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>En. P. T. ...</i> 3/15/04
1	Associate Director OFES	<input type="checkbox"/> Yes <input type="checkbox"/> No	
0	Under Secretary of Energy	<input type="checkbox"/> Yes <input type="checkbox"/> No	

# NATIONAL COMPACT STELLARATOR PROJECT

## Engineering Change Proposal (ECP)

### *PART I* *(TO BE COMPLETED BY ORIGINATOR)*

Originator: Bob Simmons

Date: March 11, 2004

#### Overview of Change

Type of of ECP: ☐ EXPEDITED ☒ STANDARD

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

(Check all that Apply)

**Reason for Change:** Update NCSX Cost and Schedule Baselines to reflect updated estimates for Final Design, R&D, and Tooling costs, and corrections to prior year actual costs.

**Impacted WBS Elements:** WBS 12, 14, 18, 25, 65, 74, 74, 81, & 84. Allocations and Contingency also impacted.

**Impacts of Change (Briefly Describe):** In summary, this ECP reflects:

- WBS 12. Vacuum Vessel: increases in design, weld joint R&D, and oversight of R&D contracts (Approx. +\$500k)
- WBS 14. Modular Coils: reduced estimates for coil fabrication tooling and MCWF R&D. (approx. -\$300k).
- WBS 18. Field Period Assembly: updated estimate reflecting more mature design (approx. +\$50k)
- WBS 8: Management and Integration, increases in FY04 management costs, outside PDR reviewer costs, PPPL allocated indirect costs; (approx. +\$210).
- WBS 2-7: miscellaneous re-estimates (approx. +\$100k)
- NET INCREASE IN BASE ESTIMATE: \$560K, to be covered by a reduction in contingency.

More detailed breakdown of the changes are found in Attachment 2.

Included in these changes are adjustments to the FY2003 costs (approx. +\$180K) to reflect the difference between the PDR baseline and actual FY2003 costs.

As a result of the above changes, it is proposed to draw down contingency by approximately \$560K from \$15,910K to \$15,350K.

**Assessment of Other Options:** None.

# **NATIONAL COMPACT STELLARATOR PROJECT**

## **Engineering Change Proposal (ECP)**

### ***PART I***

#### ***(TO BE COMPLETED BY ORIGINATOR)***

**Originator:** Bob Simmons

**Date:** March 11, 2004

#### **Detailed Description of the Change:**

(Use Continuation Sheets and/or Attach Information/Sketches, As Needed)

**List Attachments, Impacted Documents, etc.**

**Attachment 1 – Detailed Analyses by WBS Level 2 and 3**

**Attachment 2 – Updated NCSX Project Baseline**

#### **Description of Change:**

This ECP updates the cost and schedule baselines to reflect updated estimates for Final Design, R&D, and Tooling costs, and corrections to prior year actual costs. These changes reflect information learned in both the in-house design and R&D efforts and prototype vendor assessments and discoveries as their work proceeded.

The largest increases are for additional vacuum vessel design, analyses, and R&D; and for additional project management oversight. These changes are necessary to mitigate down-stream risks. The increases are partly offset by reductions in tooling cost estimates for the modular coil winding activities.