

# NATIONAL COMPACT STELLARATOR PROJECT Engineering Change Proposal (ECP)

## COVER PAGE

*(TO BE COMPLETED BY SYSTEMS ENGINEERING SUPPORT MANAGER)*

Originator: Ron Strykowski

Date: August 5, 2005

ECP No: 036

ECP Title: Risk Retirement, Budget Reallocation, Correction of Data Error, and New Work

### Required Reviewers

Required Reviewers for this ECP:

Paul Goranson, Brad Nelson, Dave Williamson, Mike Cole, Wayne Reiersen, H. Neilson, Judy Malsbury, Frank Malinowski, Jerry Levine, Ron Strykowski

### ECP Approval Level

Expedited ECP?  Yes  No

Change Level: 2 Federal Project Director

Approving Official: 2 Federal Project Director

### Actions

- (1) Incorporate Risk Retirement items (#1) into the July Baseline by August 5<sup>th</sup>.
- (2) Incorporate new risk identification item (#2) into the August Baseline by August 31<sup>st</sup>.

## APPROVALS

*(TO BE COMPLETED BY APPROVING OFFICIALS)*

Change Level	Approving Official	Approval?	Signature
3	NCSX Project Manager	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
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	
1	Associate Director OFES	<input type="checkbox"/> Yes <input type="checkbox"/> No	
0	Deputy Secretary of Energy	<input type="checkbox"/> Yes <input type="checkbox"/> No	

**NATIONAL COMPACT STELLARATOR PROJECT**  
**Engineering Change Proposal (ECP)**  
**ECP-036**

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

Originator: Ron Strykowski

Date: August 5, 2005

Overview of Change

Type of ECP:       EXPEDITED       STANDARD

Type of Change:     TECHNICAL     COST     SCHEDULE     EDITORIAL

**Description and Reasons for Change:**

**Summary: Approval of this ECP will require a drawdown of contingency of \$797.1K from \$12,767K in ECP-033 to \$11,969K (~25% of remaining work scope).**

**(1) Risk Retirement Items (+\$896.7K)**

- a. WBS 12 (-\$57.3K) – Closeout of Job 1206 – VV Field Weld Joint R&D. R&D completed to date provides sufficient data. Work now completed and risk retired.
- b. WBS 14 – (+\$954K)
  - i. Closeout of Job 1410 - TRC Fabrication (+\$318K) – Contributors to the overrun included; rework of the final clamps, unanticipated labor to install ground wrap, dimensional control interaction in winding side A, chill plate installation longer than anticipated, and as a result of initial trials the process for installing the outer epoxy shell was changed. Now completed and risk retired.
  - ii. Closeout of Job 1412 – Complete Winding Facility (+\$230K). Contributors to this overrun include modifications and punch list changes to the facility hardware and components due to experience gained in winding the TRC. Work now completed and risk retired.
  - iii. Closeout of Job 1409 – Modular Coil Test Stand (+\$406K). Design and testing of the system more extensive than anticipated due to; electrical isolation problems at cold temperatures, single phase cryogenic operation requirements, and addressing OSHA and IH requirements relative to ventilation. The later required HVAC mods. Work now completed and risk retired.

**(2) Reallocation of Budgets Within 3-Digit WBS Elements (\$0K)**

- a. Reassignment of Coil Test Stand Cryostat Design and Fabrication Task between three-digit WBS elements within WBS 14.
- b. Reassignment of mod coil local instrumentation and control procurement and installation activities between three-digit WBS elements within WBS 14.
- c. Reallocation of budget (\$14k) from WBS 19 Job 1901 - Reduction in estimate for current center demonstration activities to WBS 14 Job 1415 – Dimensional Control Testing for lacing concept demo.

**(3) New Work (+\$14.4K)**

- a. WBS 14 (+\$14.4K) - ECP-035 identified the need to bore 4 holes/casting to accommodate N<sub>2</sub> cooling lines. This work will be accomplished on the completed casting after it is received at PPPL and will be done by PPPL labor.

**(4) Correction of Data Entry Error (-\$114K)**

- a. WBS 12 - Drawdown on Undistributed Budget to correct data entry error reflected in ECP-031 (-\$114K)

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

Originator: Ron Strykowski | Date: August 5, 2005

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

Assessment of Other Options: None. No other offsets identified at this time.

List Attachments, Impacted Documents, etc.

- (1) Budget Reconciliation Sheet
- (2) Revised Cost and Schedule Bar Charts for July 2005

Summary of Cost Impacts:

WBS Element	Previous Baseline (ECP-033 & ECP-034) (\$)	Current Baseline (\$)	Change (\$)
12 – Vacuum Vessel	\$9,571K	\$9,400K	(\$171K)
13 – Conventional Coils	\$4,790K	\$4,790K	-
14 – Modular Coils	\$28,131K	\$29,114K	+\$983K
15 - Structures	\$1,413K	\$1,413K	-
16 – Coil Services	\$1,140K	\$1,140K	-
17 – Cryostat & Base Suppt Structure	\$1,361K	\$1,361K	-
18 – Field Period Assembly	\$5,430K	\$5,430K	-
19 – Stellarator Core Mgmt & Integration	\$2,752K	\$2,738K	-\$14K
<i>Subtotal WBS 1 – Stellarator Core</i>	<i>\$54,588K</i>	<i>\$55,385K</i>	<i>+\$797K</i>
<i>WBS 2 – Auxiliary Systems</i>	<i>\$783K</i>	<i>\$783K</i>	<i>-</i>
<i>WBS 3 – Diagnostic Systems</i>	<i>\$1,143K</i>	<i>\$1,143K</i>	<i>-</i>
<i>WBS 4 – Electrical Power Systems</i>	<i>\$3,301K</i>	<i>\$3,301K</i>	<i>-</i>
<i>WBS 5 – I&amp;C Systems</i>	<i>\$2,050K</i>	<i>\$2,050K</i>	<i>-</i>
<i>WBS 6 – Facility Systems</i>	<i>\$691K</i>	<i>\$691K</i>	<i>-</i>
<i>WBS 7 Test Cell Prep &amp; Machine Assembly</i>	<i>\$4,473K</i>	<i>\$4,473K</i>	<i>-</i>
<i>WBS 8 – Project Oversight &amp; Support</i>	<i>\$11,053K</i>	<i>\$11,053K</i>	<i>-</i>
<i>Subtotal</i>	<i>\$77,982K</i>	<i>\$78,779K</i>	<i>+\$797K</i>
<i>PPPL Allocations</i>	<i>\$1,577K</i>	<i>\$1,577K</i>	<i>-</i>
<i>Contingency</i>	<i>\$12,767K</i>	<i>\$11,969K</i>	<i>-\$797K</i>
<i>DCMA</i>	<i>75k</i>	<i>75k</i>	
<b>TOTALS</b>	<b>\$92,401K</b>	<b>\$92,401K</b>	<b>-</b>

Remaining contingency (\$11,969K) is ~ 25%.