

NATIONAL COMPACT STELLARATOR PROJECT

Engineering Change Proposal (ECP)

COVER PAGE

(TO BE COMPLETED BY SYSTEMS ENGINEERING SUPPORT MANAGER)

Originator: Bob Simmons

Date: August 7, 2007

ECP No: 056

ECP Title: Update of Plasma Spray Coating for Prototype and Production Modular Coil Shims

Required Reviewers

Required Reviewers for this ECP: J.L. Anderson, W. Reiersen, L. Dudek, F. Malinowski, R. Ellis

ECP Approval Level

Expedited ECP? ☒ Yes ☐ No

Change Level: 3 Project

Approving Official: 3a Expedited ECP - Engineering Manager

Actions

Update CSPEC-142-06 and CSPEC-142-07

APPROVALS

(TO BE COMPLETED BY APPROVING OFFICIALS)

Change Level	Approving Official	Approval?	Signature
3	NCSX Project Manager	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3a (Expedited ECP)	NCSX Engineering Manager	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
2	NCSX Federal Project Director	<input 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)

PART I *(TO BE COMPLETED BY ORIGINATOR)* **ECP-056**

Originator: Bob Simmons

Date: August 7, 2007

Overview of Change

Type of ECP: ☒ EXPEDITED ☐ STANDARD

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

(Check all that Apply)

Reason for Change: Updated and corrected references to drawings and/or indicated that sketch would be provided as part of the Procurement Package.

Impacted WBS Elements: 142

Impacts of Change (Briefly Describe):

- **CSPEC-142-06:**
 - Section 2.0 – Revised applicable drawing from SE140-199 to SE140-040
 - Section 3.1: Revised thickness requirement from 0.012" to 0.025", updated drawing reference to SE140-040, eliminated requirement to not spray coat tabs at end of shim, revised the surface roughness minimum requirement from 100 microinches rms to an interval of 125 microinches rms to 400 microinches rms, changed requirement to provide chemical composition as part of the purchase vs. the bid, and revised the part number from SE140-199-8 to SE140-040-X.
 - Section 3.2: Added the requirement that the shear-enhancing bond coat shall be selected by the vendor and submitted to PPPL for approval.
 - Section 3.3: Revised to now read: "Each bidder shall coat forty single hole shims, part SE140-040-X, provided by PPPL, as shown on the attached sketch, with Al₂O₃ and an appropriate shear-enhancing bond coat to a total thickness, including the bonding layer, of 0.025", with a tolerance of +.003"/- .002". The surface roughness on the outer surface shall be in an interval between 125microinches rms and 400microinches rms. The roughness will be measured with a profilometer. Thickness measurements, before and after coating, shall be taken and recorded at two locations on each sample. Two of the samples will be sectioned in two locations by PPPL."
 - Section 8: Revised attachment to reflect SE140-040 as the proper attached drawing.
- **CSPEC-142-07:**
 - Section 2.0: Deleted any references to specific applicable documents.
 - Section 3.1: Revised thickness requirement from 0.012" to 0.025", updated drawing reference to SE140-040, eliminated requirement to not spray coat tabs at end of shim, revised the surface roughness minimum requirement from 100 microinches rms to an interval of 125 microinches rms to 400 microinches rms, and eliminated the part number.

NATIONAL COMPACT STELLARATOR PROJECT

Engineering Change Proposal (ECP)

PART I **(TO BE COMPLETED BY ORIGINATOR)** **ECP-056**

Originator: Bob Simmons

Date: August 7, 2007

Detailed Description of the Change:

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

- **Section 3.2:** Section 3.2: Added the requirement that the shear-enhancing bond coat shall be selected by the vendor and submitted to PPPL for approval.
- **Section 8:** Eliminated this section in its entirety since this information was provided as part of the Procurement Package.

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? Use as is.

Assessment of Other Options: Other possible spray coatings to enhance friction were investigated and rejected.

List Attachments, Impacted Documents, etc.

- NCSX-CSPEC-142-06-01, Plasma Spray Ceramic Coating for Modular Coil Shims
- NCSX-CSPEC-142-06-01, Plasma Spray Ceramic Coating for Prototype Modular Coil Shims