NATIONAL COMPACT STELLARATOR PROJECT Engineering Change Proposal (ECP)				
COVER PAGE				
(TO BE COMPLETED BY SYSTEMS ENGINEERING SUPPORT MANAGER)				
Originator: Phil Heitze	enroeder	Date: February 3, 2006		
ECP No: 042 ECP Title: Relaxation of Tolerances				
Required Reviewers				
Required Reviewers for this ECP: Dave Williamson, Brad Nelson, Wayne Reiersen, Hutch Neilson, Ron Strykowsky, Frank Malinowski, Judy Malsbury, Jim Chrzanowski, Jerry Levine, Larry Dudek, Larry Sutton				
ECP Approval Level ECP Approval Level ECP Approval Level Change Level: 3 Project Approving Official: 3 Reg ECP - Project Manager				
Actions (1) Revised CSPEC (NCSX-CSPEC-141-03) and SOW (NCSX-SOW-141-02) by February 5 th Incorporate ECNs 5045, 5059R1, 5064, AND 5066 by February 9 th (2) Incorporate outstanding RFDs into CSPEC by February 5 th (3) Modify contract documents by Feb 9 th				
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	Y Yes No		

NATIONAL COMPACT STELLARATOR PROJECT				
Engineering Change Proposal (ECP)				
PART I				
(TO BE COMPLETED BY ORIGINATOR)				
Originator: Phil Heitzenroeder Date: February 3, 2006				
Overview of Change				
Type of ECP: EXPEDITED STANDARD				
Type of Change: X TECHNICAL COST SCHEDULE EDITORIAL				
(Check all that Apply)				
Reason for Change:				
To provide relaxation of tolerances to improve machining and inspection times as a result of technical meetings held at MTM the week of January 3, 2006. Project has determined these changes will have no impact on performance, but should assist MTM in improving schedule performance. EIO/MTM to provide schedule improvement impacts in early February and will be the subject of a future rebaselining ECP (ECP-043).				
Impacted WBS Elements: 14				
Impacts of Change (Briefly Describe): See detailed list of changes.				
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?				
Changes will apply to remaining Type C castings and Type A and B castings. Type C-1 and C-2 not impacted by these changes and will be used as received.				
Assessment of Other Options: Considered not relaxing tolerances, but analysis by Project indicated that these tolerances could be relaxed without sacrificing performance				

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(Use Continuation Sheets and/or Attach Information/Sketches, As Needed)			
List Attachments, Impacted Documents, etc.			
(1) NCSX-CSPEC-141-03 – will update to Rev 11			
(2) NCSX-SOW-141-02 – will update to Rev 5			
(3) EUNS 5045, 5059K1, 5064, and 5066 list impacted drawings (4) REDs approved since last revision to CSPEC:			
(4) RFD approved since last revision to CSI EC. a. RFD -14-010 (Material Change for Terminal Lugs for MCWF)			
b. RFD-14-011 (Change in Magnetic Permeability for MCWF Bearing Plates)			
c. RFD-14-012 (Relaxation of Tolerances on Remaining Type C Castings)			
d. RFD-14-013 (Change to C-4 through C-6 Flange Seats from a Spherical Seat to a Counterbore Seat)			
Description of Change:			
Revised technical requirements to improve machining and inspection times as a result of technical meetings held at MTM the week of January 3, 2006. Changes were made to the following sections of the CSPEC and SOW:			
(1) CSPEC Changes:			
• Section 3.1.1.4 (Surface Finish) – Changed and clarified surface finish requirements in the "wing" area to permit "scalloping". New Figure 3-1 added to shows "scalloping" permitted in the "wing" area.			
 3.1.1.5.3 (Relative Magnetic Permeability of Winding Form Bearing Plate) - added to reflect releved normaphility requirements for bearing plates per approved PED 14 011 			
• Section 3118 (Inspection for Internal Defects in the High Stress Areas) - modified to			
remove requirement for RT in combination with UT inspection – now either RT or UT inspection is satisfactory.			
 Section 4.2.2.5 (Weld Filler Material) – provided alternate method (by supplier or material supplier) to verify weld filler material properties. 			
 Section 4.2.5.3 (Verification of Relative Magnetic Permeability for Machined Surfaces) – 			
simplified verification requirements.			
• Section 4.2.6 (Verification of Dimensions and Tolerances) – revised and clarified			
vermications for all cast and machined suffaces. \bigcirc Clarified the verification methods accentable to perform dimensional and			
tolerances checks for cast surfaces.			
• Machined surfaces shall be checked in a defined pattern provided NCSX for all of			
the remaining winding forms. Drawings will be updated and included in Table 6-1,			
Table 6-2, and Table 6-3 to reflect this guidance.			
• The revised pattern to verify the ground clear space dimension in Figure 7-5 is acceptable.			

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<u>Continuation Sheet</u> : (Use Continuation Sheets and/or Attach Information/Sketches, As Needed)			
 The revised pattern to verify the ground clear space dimension in Figure 7-5 is acceptable. Dimensional verification by CMM of the poloidal break bushing holes and break flanges is waived with Rev. 11 of this document. In lieu of this, a 0.002 inch "no-go" 			
feeler gauge or pin gauge shall be used to verify that the fit-up of the polodial break flanges and bushings do not exceed this dimension.			
• Table 6-3 has been added to show the list of revised STEP files since Revision 10 to this CSPEC.			
• List of approved RFDs now shown in Table 6-4.			
 Added Section 7.2 (Appendix B) and Figure 7-5 to show T-Base Grinding Template Added Section 7.3 (Appendix C) to show inspection point details. 			
 (2) SOW Change: Revised Section 5.4.3 to remove reference to "inspection grid." 			