WBS Number: 142 WBS Title: Windings and Assembly Job Number: 1421

Job Manager: David Williamson

Assumptions

Bladder design remaining and testing are in Larry Dudek's job 1431. Still need method to retain bladder and to provide bladder at B-A interface where bladder is much thicker

Engineering and Technician Hours

| Color Key | ORNL PPPL | Total Total Engr Tech hours hours | | Store models by the store work with the store | epow.es Pro-E models (complex) | | Detail drawings 00 40 80 80 80 80 80 80 80 80 | o electrical schematic | 18C schematic Previous | stress analysis | | brand | | R&D reports Read reports Peer, preliminary | | | Book Section 1 S | ocew sz.e | şş Jijus 8 8 8 8hift | gg 450 BU J G G G G G G G G G G G G G G G G G G |
|---|--|---|---|---|--------------------------------------|---|---|------------------------|---------------------------|-----------------|--|---|---|--|--------|----|--|----------------------------|-------------------------------------|---|
| Outboard Interface Design IH4-020 INTRF-045 | Prepare outboard shim dwgs and release FDR outboard shims resolve and issue shim drawings | 60 40 60 | 0 0 0 | | | | 1 | | | | | | | | 1 | | | | | |
| Bolted Joint Tests 1421-3067 1421-3075 1421-3077 1421-3079 1421-3084 1421-3087 1421-3081 1421-3080 | Tension Tests of Botted Joint Procure 2 studs fijorit test Use existing part Procure 2 studs fijorit test Use existing part Procure 2 studs fijorit test Use process for test Meas joint deflect va proload & loss of prelead Measure joint deflect propried v. temp 880K Measure joint deflect propried v. temp 880K Measure joint deflect proload v. temp 880K Measure joint deflect of test post of v. cooldown cyc Penform pullout tests for tapped holes Meas joint deflect & preload v. time (days) at R Document&Conduct review of test results | 8 24 24 24 24 | 48 16 24 24 24 24 26 0 | | | | | | | | | | | | 1 | | 8 engineering judgement 8 engineering judgement 24 engineering judgement 24 engineering judgement 24 engineering judgement 24 engineering judgement 160 engineering judgement 160 engineering judgement | 2 2 1 1 1 1 | 3 1 3 3 3 3 20 | |
| 1421-3112B 1421-3115B 1421-3119B | Bolt Shear Test at 77k Procure/flab parts for test&initial assembly Assemble & test Document test results | 40 320 80 | 0 100 0 | | | | | | | | | | 1 | 1 | | | 320 full time for 2 engr following test | 2.5 | 5 | |
| Inboard Interface Design IH1-001 1421-3125 1421-3127 1421-3132 | Coil to coil analysis Determine geometry&location of high COF shims&pl Structural analyses to performance rights for bol PDR to review requirements, design,&development | 520 80 240 40 | 0 0 0 | | 1 | | | | | 2 | | | | | 1 | | | | | |
| AB/BC/AA welded joints INTRF-050 INTRF-055 | prepare winding form mods for weld clamping bots Complete Shim fabrication drawings (ORNL) Release information for procurement of shim material FDR AB/BC/AA inboard shims | 300 240 24 40 | 0 | 3 | | | 3 4 | | | | | | | | 1 | | No hours included - RTS added 24 hours | | | |
| CC bolted joint IH1-000 IH1-0000 | ESTABLISH CONCEPT PEER REVIEW OF JOINT CONCEPT Add both holes to C winding from for CC interface Both Reach and Access study (mockup) Prepare CC shim drawnings and release FDR CC inboard shims | 680 80 140 200 360 40 | 0 0 0 0 0 | 5 | 3 1 1 | 1 | 2 1 2 3 | | | | | | | | 3 2 | | | | | |
| Welded Joint Tests INTRF-035 INTRF-001 INTRF-005 INTRF-025 INTRF-030 INTRF-010 | Procedure PPPL Determine shim material PPPL but SS plate for weld trials Weld distortion trials at PPPL on SS plate ORNL build pywood mockup of flange ORNL verify weld access, develop alternate welding met Develop Veld Gecentry Procedure | 40 8 40 140 tho: 40 40 | 0 0 0 0 0 | 1 | | 1 | | | | | | 1 | | | | | 40 8 40 40 | | | |
| INTRF-015 INTRF-020 | Test Weld trials on two MCWF's at PPPL Document results and update weld procedure | | 500 0 | | | | | | | | | | 1 | 1 | | | 80 | | | 665 see detail below |
| Overall interface design INTRF-040 1421-3134 1421-3136 1421-3138 | Analysis of tensil loads (ORNL) issue interface drawings for comment Conduct MC interface FDR incl jbb 1416 Resolve issues, release assembly spec&drawings | 320 300 40 240 | 0 0 0 | | 1 | 3 | | | | 1 | | 0 | | | 1 | | AA, AB, BC only 200 | | | |
| FY07 Rebaseline exercise ECP53RBX06 | FY07 Rebaseline Exercise Subtotal scheduled and unscheduled meetings/reporting/presentations (25%) TOTAL | | 00220 | | | | | | | | | | | | | 16 | | | | |

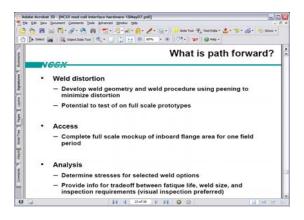
WBS Number: 142

WBS Title: Windings and Assembly

Job Number: 1421

Job Title: Design of Modular Coil Interfaces

Job Manager:David Williamson



NCSX June 2007 ETC TABLE V - Basis of Estimate

WBS Number: 142 WBS Title: Windings and Assembly Job Number: 1421 Job Title: Design of Modular Coil Interfaces Job Manager:David Williamson