

07 February 2006

To: Distribution

From: Wayne Reiersen

Subject: Notes from yesterday's meeting on preparations for MC fabrication

Our weekly telecon to track plans, progress and issues regarding preparations for MC fabrication was held yesterday. Dudek, Chrzanowski, and Reiersen participated from PPPL. Williamson and Fogarty participated from ORNL.

1. Needs for Type C coil assembly.

- a. **Routing of coolant tubes.** Chrzanowski indicated that the guidance he received from Williamson on routing the cooling tubes was adequate to proceed. He indicated that he would wrap the coolant tubes in Teflon through the bag mold. Williamson acknowledged that *the design of the insulating breaks in the coolant tubes still need to be worked out*. A premium should be placed on reliability for the design of the insulating breaks. Teflon, Vespel, and G11CR were identified as candidates. Also, *the details on electrically insulating and supporting the coolant tube off the shell and plugging the hole through the shell need to be resolved in time for the post-VPI activities*.
- b. **Routing of the co-wound loops.** Chrzanowski indicated that the guidance on how to route the co-wound loops around and out the lead blocks was adequate to proceed. *Williamson requested that Chrzanowski provide the details of the routing so that ORNL could reflect those details in the design documentation*.
- c. **Release of the -080 assembly drawing.** Williamson indicated that the -080 drawing has been released.

2. Needs for Type A procurements and assembly

- a. **Lead blocks.** Dudek and Chrzanowski indicated that the G11CR material required for the A1 lead block was already in hand which is a huge win from a schedule POV. The lead blocks are the most schedule-critical procurement because of the long lead time for getting the G11CR blanks. The G11CR will be supplied to the vendor doing the machining of the lead blocks. *The lead block drawings are expected to be released for fabrication by February 17*.
- b. **Prosthetic piece.** Williamson reported that there is one region on the Type A coil that will require a prosthetic piece for coil assembly. The model is complete. *Williamson will send it up to Dudek and Chrzanowski for their review*.

The progress reported has been noteworthy, especially in light of the additional unplanned work on MCWF modifications. Please advise if any additions or corrections are in order. There will be no meeting next week because we seem to be staying ahead of the wave. The next telecon will be the next Monday, February 20, at 9:30am. *Please be prepared to discuss the needs and status of time critical items.* An updated schedule for MC fabrication prep and FPA Station 1 prep activities (courtesy of Larry Dudek) is attached.

Distribution: Dudek, Chrzanowski, Williamson, Nelson, Brown, Cole, Neilson, Fogarty

NCSX Fabrication

| | Job No. | Activity Name | Respon. | Dur. (Work Days) | Revised Start Date | Revised Finish Date | % Comp. | 2005 | | | 2006 | | | | | | | | |
|----|---------|------------------------------------------------------------------|--------------|---------------------|--------------------|---------------------|--------------|------|----|----|------|---|---|---|---|---|---|---|---|
| | | | | | | | | 9 | 10 | 11 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 12** | VV SUBASSEMBLY | | 162.00 | 11/11/05 | 5/23/06 | 37.1% | | | | | | | | | | | | |
| 2 | 1203 | VV Final Design (Job 1203) - Goranson | | 162.00 | 11/11/05 | 5/23/06 | 37.2% | | | | | | | | | | | | |
| 3 | 1203 | <i>Procurement of cryostat interface flange</i> | | 53.00 | 11/11/05 | 1/13/06 | 90.0% | | | | | | | | | | | | |
| 4 | 1203 | Authorize procurement of cryostat interface flange | Nelson | 0.00 | 11/11/05 | 11/11/05 | 100.0% | | | | | | | | | | | | |
| 5 | 1204 | Cryostat interface flange Requisition No. 403465 | Dudek | 5.00 | 11/14/05 | 11/18/05 | 100.0% | | | | | | | | | | | | |
| 6 | 1204 | Cryostat interface flange Requisition Review/Approval/Assignment | Dudek | 6.00 | 11/18/05 | 11/25/05 | 100.0% | | | | | | | | | | | | |
| 7 | 1204 | Cryostat interface flange RFQ | Dudek | 14.00 | 11/25/05 | 12/6/05 | 100.0% | | | | | | | | | | | | |
| 8 | 1204 | Cryostat interface flange Award | Dudek | 2.00 | 12/6/05 | 12/7/05 | 100.0% | | | | | | | | | | | | |
| 9 | 1204 | Cryostat interface flange Procurement /Delivery | Dudek | 25.00 | 12/8/05 | 1/13/06 | 79.0% | | | | | | | | | | | | |
| 10 | 1204 | Receive Cryostat Interface flange for VV seg 1 | | 0.00 | 1/13/06 | 1/13/06 | 100.0% | | | | | | | | | | | | |
| 11 | 1204 | <i>Receive cryostat interface flanges</i> | <i>Dudek</i> | <i>0.00</i> | <i>1/13/06</i> | <i>1/13/06</i> | <i>0.0%</i> | | | | | | | | | | | | |
| 12 | 1203 | <i>Procurement of H/C manifolds</i> | | 53.00 | 12/5/05 | 2/17/06 | 61.5% | | | | | | | | | | | | |
| 13 | 1203 | Authorize procurement of H/C manifolds | Nelson | 0.00 | 12/6/05 | 12/6/05 | 100.0% | | | | | | | | | | | | |
| 14 | 1204 | H/C manifolds Requisition | Dudek | 5.00 | 12/5/05 | 12/9/05 | 100.0% | | | | | | | | | | | | |
| 15 | 1204 | H/C manifolds Requisition Review/Approval/Assignment | Dudek | 6.00 | 12/6/05 | 12/9/05 | 100.0% | | | | | | | | | | | | |
| 16 | 1204 | H/C manifolds RFQ | Dudek | 14.00 | 12/12/05 | 12/20/05 | 100.0% | | | | | | | | | | | | |
| | | | | 744.50 | | | | | | | | | | | | | | | |

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|----|---------|--------------------------------------------------------------|-----------------|---------------------|--------------------|---------------------|--------------|------|----|------|----|---|---|---|---|---|---|---|---|---|----|----|----|--|--|--|
| | | | | | | | | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | |
| 17 | 1204 | H/C manifolds Award | Dudek | 2.00 | 12/20/05 | 1/13/06 | 100.0% | | | | | | | | | | | | | | | | | | | |
| 18 | 1204 | H/C manifolds Procurement /Delivery | Dudek | 25.00 | 1/13/06 | 2/17/06 | 20.0% | | | | | | | | | | | | | | | | | | | |
| 19 | 1204 | Receive H/C manifold | Dudek | 0.00 | 2/17/06 | 2/17/06 | 0.0% | | | | | | | | | | | | | | | | | | | |
| 20 | 1203 | <i>Conduct test of H/C Tube</i> | <i>Goranson</i> | <i>20.00</i> | <i>1/3/06</i> | <i>1/31/06</i> | <i>70.0%</i> | | | | | | | | | | | | | | | | | | | |
| 21 | 1203 | <i>Procurement of H/C tubes and attachments</i> | | 52.00 | 2/14/06 | 4/27/06 | 0.0% | | | | | | | | | | | | | | | | | | | |
| 22 | 1203 | Authorize procurement of H/C tubes and attachments | Nelson | 0.00 | 2/14/06 | 2/14/06 | 0.0% | | | | | | | | | | | | | | | | | | | |
| 23 | 1204 | H/C Tube & Att. Requisition | Dudek | 5.00 | 2/14/06 | 2/21/06 | 0.0% | | | | | | | | | | | | | | | | | | | |
| 24 | 1204 | H/C Tube & Att. Requisition Review/Approval/Assignment | Dudek | 6.00 | 2/22/06 | 3/1/06 | 0.0% | | | | | | | | | | | | | | | | | | | |
| 25 | 1204 | H/C Tube & Att. RFQ | Dudek | 14.00 | 3/2/06 | 3/21/06 | 0.0% | | | | | | | | | | | | | | | | | | | |
| 26 | 1204 | H/C Tube & Att. Award | Dudek | 2.00 | 3/22/06 | 3/23/06 | 0.0% | | | | | | | | | | | | | | | | | | | |
| 27 | 1204 | H/C Tube & Att. Procurement /Delivery | Dudek | 25.00 | 3/24/06 | 4/27/06 | 0.0% | | | | | | | | | | | | | | | | | | | |
| 28 | 1204 | <i>Receive H/C tubes and attachments</i> | <i>Dudek</i> | <i>0.00</i> | <i>4/27/06</i> | <i>4/27/06</i> | <i>0.0%</i> | | | | | | | | | | | | | | | | | | | |
| 29 | 1204 | <i>VV Vertical Supports Procurements</i> | | 120.00 | 12/19/05 | 3/30/06 | 47.2% | | | | | | | | | | | | | | | | | | | |
| 30 | 1204 | G-11CR Parts Procurement | Dudek | 12.00 | 12/22/05 | 3/30/06 | 44.4% | | | | | | | | | | | | | | | | | | | |
| 31 | 1204 | Titanium Rod Ends Procurement | Dudek | 64.00 | 12/19/05 | 3/24/06 | 50.0% | | | | | | | | | | | | | | | | | | | |
| 32 | 1203 | <i>Develop layout of thermocouples on 120-degree segment</i> | <i>Goranson</i> | <i>0.00</i> | <i>1/20/06</i> | <i>1/20/06</i> | <i>0.0%</i> | | | | | | | | | | | | | | | | | | | |
| 33 | 1203 | <i>Conduct PDR for Local I&C</i> | <i>Goranson</i> | <i>0.00</i> | <i>2/3/06</i> | <i>2/3/06</i> | <i>0.0%</i> | | | | | | | | | | | | | | | | | | | |
| 34 | 1203 | <i>Conduct FDR for Local I&C</i> | <i>Goranson</i> | <i>0.00</i> | <i>3/3/06</i> | <i>3/3/06</i> | <i>0.0%</i> | | | | | | | | | | | | | | | | | | | |
| | | | | 744.50 | | | | | | | | | | | | | | | | | | | | | | |

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|---------|---------------|------------------------------------------------------------|---------------------|--------------------|---------------------|---------|--------|----|----|------|---|---|---|---|---|---|---|----|----|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | 9 | 10 | 11 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 | 1203 | Finalize procurement package for Local I&C | Goranson | 0.00 | 3/10/06 | 3/10/06 | 0.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36 | 1203 | Procurement of Local I&C | | 52.00 | 3/13/06 | 5/23/06 | 0.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37 | 1203 | Authorize procurement of Local I&C | Nelson | 0.00 | 3/13/06 | 3/13/06 | 0.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38 | 1204 | Local I&C Requisition | Dudek | 5.00 | 3/13/06 | 3/17/06 | 0.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39 | 1204 | Local I&C Requisition Review/Approval/Assignment | Dudek | 6.00 | 3/20/06 | 3/27/06 | 0.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 1204 | Local I&C RFQ | Dudek | 14.00 | 3/28/06 | 4/14/06 | 0.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41 | 1204 | Local I&C Award | Dudek | 2.00 | 4/17/06 | 4/18/06 | 0.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 42 | 1204 | Local I&C Procurement /Delivery | Dudek | 25.00 | 4/19/06 | 5/23/06 | 0.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 43 | 1204 | Receive Local I&C | Dudek | 0.00 | 5/23/06 | 5/23/06 | 0.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 44 | 1203 | Procure Sample Heater Tape | Dudek | 1.00 | 1/3/06 | 1/23/06 | 100.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | 1203 | Test Sample Heater Tape | Goranson | 10.00 | 1/24/06 | 1/24/06 | 50.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 46 | 1203 | Conduct FDR for Port 12 heater tape to support procurement | Goranson | 5.00 | 1/31/06 | 2/6/06 | 0.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 47 | 1203 | Finalize procurement package for Port 12 heater tape | Goranson | 5.00 | 2/7/06 | 2/13/06 | 0.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 48 | 1203 | Procurement of Port 12 heater tape | | 52.00 | 2/13/06 | 4/26/06 | 0.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 49 | 1203 | Authorize procurement of heater tape | Nelson | 0.00 | 2/13/06 | 2/13/06 | 0.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 1204 | Heater tape Requisition | Dudek | 5.00 | 2/14/06 | 2/20/06 | 0.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 51 | 1204 | Heater tape Requisition Review/Approval/Assignment | Dudek | 6.00 | 2/21/06 | 2/28/06 | 0.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 52 | 1204 | Heater tape RFQ | Dudek | 14.00 | 3/1/06 | 3/20/06 | 0.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 53 | 1204 | Heater tape Award | Dudek | 2.00 | 3/21/06 | 3/22/06 | 0.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 54 | 1204 | Heater tape Procurement /Delivery | Dudek | 25.00 | 3/23/06 | 4/26/06 | 0.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 744.50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|---------|---------------|------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|---------------------|----------|--------|----|------|----|---|---|---|---|---|---|---|---|---|----|----|----|--|
| | | | | | | | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| 69 | 1802 | Complete Station 1 procedure. Issue for review. | | | | | | | | | | | | | | | | | | | | | |
| 70 | 1802 | Finalize Station 1 procedure | | | | | | | | | | | | | | | | | | | | | |
| 71 | 1802 | << Procedures ready to complete Station 1 activities >> | | | | | | | | | | | | | | | | | | | | | |
| 72 | 1803 | FPA Tooling and Constructability (Job 1803) - Brown | | 38.00 | 11/1/05 | 1/24/06 | 81.2% | | █ | | | | | | | | | | | | | | |
| 73 | 1803 | Develop assembly sequence | | 5.00 | 12/5/05 | 12/9/05 | 100.0% | █ | | | | | | | | | | | | | | | |
| 74 | 1803 | Peer review assembly sequence | Brown | 0.00 | 12/8/05 | 12/8/05 | 100.0% | █ | | | | | | | | | | | | | | | |
| 75 | 1803 | Finalize assembly sequence | Brown | 10.00 | 12/9/05 | 12/22/05 | 100.0% | █ | | | | | | | | | | | | | | | |
| 76 | 1803 | Fabricate Station 1 assembly fixture at PPPL | Dudek | 25.00 | 11/1/05 | 1/20/06 | 80.1% | █ | | | | | | | | | | | | | | | |
| 77 | 1803 | Clear North Area of FPA area / Install fixture in Test Cell | Viola | 2.00 | 1/23/06 | 1/24/06 | 0.0% | | | | | | | | | | | | | | | | |
| 78 | 1803 | << Station 1 fixture assembled >> | | 0.00 | 1/24/06 | 1/24/06 | 0.0% | | | | | | | | | | | | | | | | |
| 79 | 1810 | Field Period Assembly (Job 1810) - Viola | | 185.00 | 11/28/05 | 10/26/06 | 0.0% | | █ | | | | | | | | | | | | | | |
| 80 | 1810 | Receive and inspect VVSA (on pallet) | Viola | 0.00 | 3/15/06 | 3/15/06 | 0.0% | | | | | | | | | | | | | | | | |
| 81 | 1810 | Prep 120-degree segment for mounting on Station 1 fixture (includes installation of cryostat interface flange, port flanges, etc.) | Viola | 3.00 | 3/15/06 | 3/17/06 | 0.0% | | | | | | | | | | | | | | | | |
| 82 | 1810 | Check CG and mount 120-degree segment on Station 1 fixture | Viola | 1.00 | 3/22/06 | 3/22/06 | 0.0% | | | | | | | | | | | | | | | | |
| 83 | 1810 | Develop metrology procedure for performing the initial metrology setup. Issue for review. | Raftopoulos | 10.00 | 11/28/05 | 12/9/05 | 0.0% | | | | | | | | | | | | | | | | |
| 84 | 1810 | Issue metrology procedure for review (Station 1 Act) | Raftopoulos | 0.00 | 12/9/05 | 12/9/05 | 0.0% | | | | | | | | | | | | | | | | |
| | | | | 744.50 | | | | | | | | | | | | | | | | | | | |

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|-----|---------|------------------------------------------------------------------------------------------------------------|-------------|---------------------|--------------------|---------------------|---------|------|----|----|----|------|---|---|---|---|---|---|---|---|----|----|----|
| | | | | | | | | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 85 | 1810 | <i>Finalize metrology procedure for performing the initial metrology setup</i> | Raftopoulos | 10.00 | 12/9/05 | 12/23/05 | 0.0% | | | | | | | | | | | | | | | | |
| 86 | 1810 | <i>Develop draft metrology procedure for laying out magnetic diagnostics, H/C Lines. Issue for review.</i> | Raftopoulos | 10.00 | 12/2/05 | 12/15/05 | 0.0% | | | | | | | | | | | | | | | | |
| 87 | 1810 | <i>Leica Verisurf Training</i> | Raftopoulos | 3.00 | 2/27/06 | 3/1/06 | 0.0% | | | | | | | | | | | | | | | | |
| 88 | 1810 | <i>Finalize draft procedure for laying out magnetic diagnostics, H/C lines</i> | Raftopoulos | 10.00 | 3/2/06 | 3/15/06 | 0.0% | | | | | | | | | | | | | | | | |
| 89 | 1810 | <i>Metrology set-up and initial settings</i> | Viola | 4.00 | 3/23/06 | 3/28/06 | 0.0% | | | | | | | | | | | | | | | | |
| 90 | 1810 | <i>Lay out magnetic diagnostics, H/C lines, and thermocouple wiring</i> | Viola | 24.00 | 3/29/06 | 5/1/06 | 0.0% | | | | | | | | | | | | | | | | |
| 91 | 1810 | <i><< 120-degree segment ready for installation activities >></i> | Viola | 0.00 | 5/8/06 | 5/8/06 | 0.0% | | | | | | | | | | | | | | | | |
| 92 | 1810 | <i>Install heater tape on vertical ports</i> | Viola | 4.00 | 5/9/06 | 5/15/06 | 0.0% | | | | | | | | | | | | | | | | |
| 93 | 1810 | <i>Verify installation of heater tapes</i> | Viola | 1.00 | 5/17/06 | 5/17/06 | 0.0% | | | | | | | | | | | | | | | | |
| 94 | 1810 | <i>Install magnetic diagnostics</i> | Viola | 48.00 | 5/18/06 | 7/24/06 | 0.0% | | | | | | | | | | | | | | | | |
| 95 | 1810 | <i>Terminate and verify magnetic diagnostics</i> | Viola | 10.50 | 7/25/06 | 8/8/06 | 0.0% | | | | | | | | | | | | | | | | |
| 96 | 1810 | <i>Attach studs for H/C lines</i> | Viola | 16.00 | 8/8/06 | 8/29/06 | 0.0% | | | | | | | | | | | | | | | | |
| 97 | 1810 | <i>Install H/C lines, headers, and manifolds</i> | Viola | 24.00 | 8/30/06 | 10/3/06 | 0.0% | | | | | | | | | | | | | | | | |
| 98 | 1810 | <i>Verify installation of H/C lines, headers, and manifolds</i> | Viola | 5.00 | 10/3/06 | 10/9/06 | 0.0% | | | | | | | | | | | | | | | | |
| 99 | 1810 | <i>Install Local I&C (including thermocouples)</i> | Viola | 7.00 | 10/10/06 | 10/18/06 | 0.0% | | | | | | | | | | | | | | | | |
| 100 | 1810 | <i>Verify installation of Local I&C</i> | Viola | 3.00 | 10/19/06 | 10/23/06 | 0.0% | | | | | | | | | | | | | | | | |
| | | | | 744.50 | | | | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |