## Schedule Changes: Since 2013-Aug-22

Rearrangement of the Cryo sequence:

- Software not ready to support the 2013-Sep-23 date for start of Cryo reconfiguration
- Risk analysis resulted in a change of plan.
- No 2K cryogens for majority of reconfiguration
- Impact on remaining SRF commissioning tasks (C50-11)

Mitigation:

- Careful planning and execution of parallel activities
- C50-11 and remaining SRF commissioning activities in the South Linac will be concurrent with initial beam operations in the Injector and North Linac.

Result:

• A more serial Cryo reconfiguration plan, less steps with multiple changes.

No change to start of beam Operations.





# CEBAF: SRF & CRYO Schedule

| WBS   | Name                       |                        |            | Aug 2013 Sep 2        |                   | Nov 2013       | Dec 2013    | Jan 2014       | Feb 2014    | Mar 2014      |
|-------|----------------------------|------------------------|------------|-----------------------|-------------------|----------------|-------------|----------------|-------------|---------------|
| WBS   | Name Start                 |                        | Completion | 9 05 12 19 26 02 09 1 | 16 23 30 07 14 21 | 28 04 11 18 25 | 02 09 16 23 | 30 06 13 20 27 | 03 10 17 24 | 03 10 17 24 5 |
| 3.1   | 🖛 Cryogenic Tasks          | Mon 2013-01-21 00:00   | 44%        |                       |                   |                |             |                |             |               |
| 3.1.5 | 2K Cold Box Commissioning  | Mon 2013-09-30 00:00   | 0%         |                       |                   |                |             |                |             |               |
| 3.1.6 | Break CEBAF Cryo into two  | 💊 Thu 2013-10-17 00:00 | 0%         |                       | + <mark>-</mark>  |                |             |                |             |               |
| 3.1.7 | Commission CHL-2 on South  | 💊 Mon 2013-10-21 00:00 | 0%         |                       | L.                | En II          |             |                |             |               |
| 3.1.8 | Commission CHL-1 on North  | S Mon 2013-10-28 00:00 | 0%         |                       |                   | <b>*</b>       |             |                |             |               |
| 3.1.9 | Stabilize Linacs to 2K for | 💊 Mon 2013-11-04 00:00 | 0%         |                       |                   | l <b>∍i≣</b> ⊒ |             |                |             |               |
| 5     | PSS Certification 2013-II  | Fri 2013-09-06 16:00   | 100%       | -                     |                   |                |             |                |             |               |
| 5.1   | PSS pre-checks             | Fri 2013-09-06 16:00   | 100%       |                       |                   |                |             |                |             |               |
| 5.2   | PSS Certification          | Mon 2013-09-09 16:00   | 100%       | + <b>=</b>            |                   |                |             |                |             |               |
| 8     | SRF related activities     | Thu 2013-04-11 00:00   | 35%        |                       |                   |                |             |                | -           |               |
| 8.1   | -C50-11 Cryomodule         | Mon 2013-09-09 00:00   | 50%        |                       |                   |                |             |                |             |               |
| 8.1.1 | Installation               | Mon 2013-09-09 00:00   | 100%       |                       | ■h                |                |             |                |             |               |
| 8.1.2 | Commissioning              | Mon 2013-10-28 00:00   | 0%         |                       |                   | *              |             |                |             |               |
| 8.2   | R100 Cryomodule            | Thu 2013-04-11 00:00   | 20%        |                       | -                 | _              |             |                | -           |               |
| 8.2.1 | Controls and Power Upgrade | Wed 2013-07-31 18:00   | 62%        |                       |                   |                |             |                |             |               |
| 8.2.2 | R100 Cavities at 2K        | Thu 2013-04-11 00:00   | 0%         |                       | <b>1</b>          |                |             |                |             |               |

- Yellow shaded region: beam operations in Injector and North Linac
- Red shaded region: beam operation in South Linac. All SRF commissioning tasks must be completed.
- Not shown is the continuation of the remaining C100 commissioning.





### **CEBAF: SRF Status**

|                                   |                                    |       | SRF Commission  | ing North      | Linac Complete: 130          | 08 MeV of Inte      | grated Grad     | lient! |   |  |
|-----------------------------------|------------------------------------|-------|---|----------------|------------------------------|---------------------|-----------------|--------|---|--|
|                                   |                                    |       | Reported on 2013-09-20  |                |                              |                     |                 |        |   |  |
|                                   |                                    |       | North Linac SRF (re)-Commissioning Complete: Integrated Gradient: 1308 MeV (Goal: 1100 MeV).  |                |                              |                     |                 |        |   |  |
| 🖬 Linac Tasks 86                  |                                    |       | SRF Commissioning update: Progress!!  |                |                              |                     |                 |        |   |  |
|                                   |                                    |       | Reported on 2013-09-20  |                |                              |                     |                 |        |   |  |
|                                   |                                    | 86%   | SRF Commissioning complete in the North. Optimization of LLRF controls on C100 and LEM Fault data on C20 modules will<br>continue will X cryogene disappear. South Lines SRF commissioning on C20/C50 nearly complete as well: C50-11 installation<br>complete, cool down this week. Commissioning of C50-11 to be done late Oct/early Nov. C100 modules in the South is on going,<br>until X kryogene disappear.<br>SRF Commissioning update: Progress |                |                              |                     |                 |        |   |  |
|                                   |                                    |       |   |                |                              |                     |                 |        |   |  |
|                                   |                                    |       | Reported on 2013-09-17  |                |                              |                     |                 |        |   |  |
|                                   |                                    |       | SRF Commissioning is nearing completion in the North. 1/4 cryomodule repair is complete, commissioning continues. C50-11 has  |                |                              |                     |                 |        |   |  |
|                                   |                                    |       | been delivered to the   | e South Linac. | nstallation in progress. Nor | th Linac commission | ing nearly comp | lete.  |   |  |
| 3.2.1                             | 💳 North Linac                      |       | Thu 2013-04-11 00:00  | 100%           |                              |                     |                 |        |   |  |
| 3.2.1.1                           | C20/C50 recomissionin              | ng NL | Thu 2013-04-11 00:00  | 100%           |                              |                     |                 |        |   |  |
| 3.2.1.1.1                         | C20/C50 Cavities at 2K             |       | Thu 2013-04-11 00:00  | 100%           |                              |                     |                 |        |   |  |
| 3.2.1.1.2                         | C20/C50 EMAX Determi               | ned   | Thu 2013-04-11 00:00  | 100%           |                              |                     |                 |        |   |  |
| 3.2.1.1.3                         | 3.2.1.1.3 C20/C50 Q0 vs E Measured |       | Thu 2013-04-11 00:00  | 100%           |                              |                     |                 |        |   |  |
| 3.2.1.2                           | C100 Cryomodule                    |       | Thu 2013-04-11 00:00  | 100%           |                              |                     |                 |        |   |  |
| 3.2.1.2.1                         | C100 Cavities at 2K                |       | Thu 2013-04-11 00:00  | 100%           |                              |                     |                 |        |   |  |
| 3.2.1.2.2                         | Circulator Status                  |       | Thu 2013-04-11 00:00  | 100%           |                              |                     |                 |        |   |  |
| 3.2.1.2.3                         | C100 EMAX Determined               |       | Thu 2013-04-11 00:00  | 100%           |                              |                     | _               | _      |   |  |
| 3.2.1.2.4                         | C100 Q0 vs E Measured              |       | Thu 2013-04-11 00:00  | 100%           |                              |                     |                 |        |   |  |
| 3.2.2                             | 🚍 South Linac                      |       | Thu 2013-04-11 00:00  | 73%            |                              |                     |                 | _      |   |  |
| 3.2.2.1                           | 🚍 C20/C50 recomissionir            | ng SL | Thu 2013-04-11 00:00  | 96%            |                              |                     |                 |        |   |  |
| 3.2.2.1.1                         | C20/C50 Cavities at 2K             |       | Thu 2013-04-11 00:00  | 100%           |                              |                     |                 |        |   |  |
| 3.2.2.1.2 C20/C50 EMAX Determined |                                    | ned   | Thu 2013-04-11 00:00  | 94%            |                              |                     |                 |        |   |  |
| 3.2.2.1.3                         | C20/C50 Q0 vs E Measu              | red   | Thu 2013-04-11 00:00  | 94%            |                              |                     |                 |        |   |  |
| 3.2.2.2                           | C100 Cryomodule                    |       | Thu 2013-04-11 00:00  | 50%            |                              |                     |                 | _      | _ |  |
| 3.2.2.2.1                         | C100 Cavities at 2K                |       | Thu 2013-04-11 00:00  | 100%           |                              |                     |                 |        |   |  |
| 3.2.2.2.2                         | Circulator Status                  |       | Thu 2013-04-11 00:00  | 100%           |                              |                     |                 | _      |   |  |
| 3.2.2.2.3 C100 EMAX Determined    |                                    |       | Thu 2013-04-11 00:00  | 0%             |                              |                     |                 |        |   |  |
| 3.2.2.2.4 C100 Q0 vs E Measured   |                                    |       | Thu 2013-04-11 00:00  | 0%             |                              |                     |                 |        |   |  |





- Complete PSS certification
- Complete  $\frac{1}{4}$  Cryomodule repair and recommissioning
- Complete North Linac SRF Commissioning (1300 MeV integrated gradient)
- Complete C50-11 refurbishment and installation in tunnel (SL10 slot)
- InProgress Establishing beamline vacuum in warm sections
- InProgress Installation of Spectrometer Dump
- InProgress C50-11 (SL10) Cooldown
- InProgress South Linac C100 Commissioning and Recommissioning
- InProgress Arc1 Box Supply tests into a dummy load, Arc2 Box Supply assembly and check out.
- Remaining Cryo reconfigurations (starts Monday), establishing 2K LHe configuration and capacity for 12GeV CEBAF load

Remaining C50-11 (SL10) Commissioning





# **ABIL Compliance**

# Effort to ensure that all interlock jumpers are identified and properly recorded in the new ABIL system.

|                 | 93% | ABIL Compliance: Almost Complete   |  |  |  |  |  |
|-----------------|-----|--|--|--|--|--|--|
|                 |     | Reported on 2013-09-23<br>27 out of the 29 identified jumpers have been addressed by the system owners. Resolution of the two remaining jumpers is not   |  |  |  |  |  |
| ABIL Compliance |     | viewed as arduous and will get addressed as soon as possible.  ABIL Compliance: significant progress   |  |  |  |  |  |
|                 |     | Reported on 2013-09-17<br>ABIL compliance making significant progress. Complete survey of the CEBAF service buildings has been performed, identified<br>jumpers have been communicated to the group owners for resolution. |  |  |  |  |  |

Inspections of the equipment in CEBAF Service buildings identified 29 interlock jumpers (from old 6 GeV CEBAF).

#### Status as of 14:35 today:

#### Not an Interlock Bypass: 3 Clarified by system owners as not an interlock bypass

- Put into ABIL: 7 System owner has confirmed the existence of the jumper and entered the interlock jumper into the ABIL system.
  - Removed: 14 Jumper was no longer needed (obsolete element, or other reason) and was removed.
- Turned into ECO: 5 Jumper was made permanent via Engineering Change Order, drawings have been updated.

Sum: 29 100% !!!



APF OPS

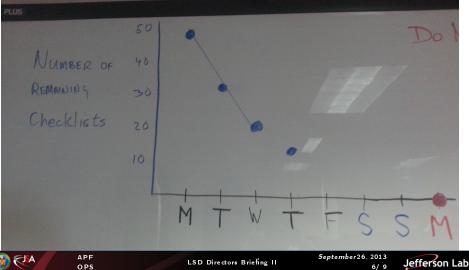
5/9



### **HCO** Preparedness

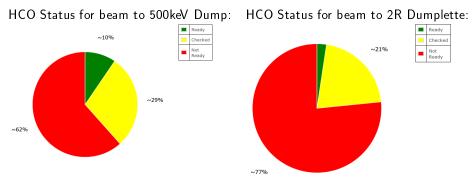
- HCO tool has 101 out of the 109 required checklist published
- 8 checklists remain to be written

Status as of noon today:



### **HCO Tool Status**

- QA of CEBAF Element Database (CED) near completion, geographical review close out is tomorrow.
  - Every element that appears on the Eng. Tunnel drawings (aka SongSheets) has been compared to the content of the Tunnel and the database
  - Once review process is completed tomorrow, OPS views the CED database as the primary CEBAF configuration oracle.
- Web interface appears to be 100% functional, no issue from this user except the disdain of pie-charts.



#### HCO Officially starts Monday 2013-Sep-30

## **Establishing Operations**

- Role of the Program Deputy has resumed (2013-Sep-25)
  - Run 8am MCC meetings
  - Sets goals and drives the program.
- 1:30 Wed Scheduling meetings have resumed: 2013-Sep-25
- 7:45 meetings will resume 2013-Sep-30 Mon
- HCO has priority over non-AccI installation activities

|          | WED 925   | THUR 9 26   | FRI 9/27        | SAT 9128        | SUN 9/29 | MON 9130   | TUES 10 1    |
|----------|---|---|-----------------|-----------------|----------|--|--------------|
| OWL      | 20<br>Checklists<br>REMAINING   |   |                 |                 |          |  |              |
| DAY      | EM HCO<br>HCO   | 2210 Cool Down                                    | -> 2K Pump Down | 11              |          | HCO BEGINS<br>INTEL CW HCO<br>CHL to 4K<br>IND LASSIS ON |              |
| SWING    | SRF COMMISSIONING<br>SL22026 (247)<br>RF. OptimABATION<br>NLD2-NL 12 TEXING | 11  | 1               |                 |          |  |              |
| BEAM STU | TOWR - GON Teachers<br>3-4:30   | Tour Deputition of the State of Ringe Site office |                 |                 |          | Tour-NN city Mar.<br>2-5                                 | 2121 F.M.    |
| •        |   | APF<br>OPS  | LSD Dir         | ectors Briefing |          | September26, 2013<br>8/9                                 | Jefferson La |

### Strains and Stresses: No more than usual





APF OPS

LSD Directors Briefing II

September26, 2013 9/ 9

