



**LCLS 2007 Downtime Readiness Review**  
**DRAFT – Charge to review committee**  
March 16, 2007 Red Slate Conference room, B280

Agenda:

LCLS Readiness Review for 2007 Downtime shall cover:

- Objectives
- Overall Schedule
- Issues and concerns
- Documentation Status
- Product assurance and safety
- Identification of residual risk items
- Open items and plans for close-out

Systems to be installed in the 2007 downtime include Linac mechanical and vacuum hardware, Controls and cable plant, Linac AC Upgrades, and PPS/BCS. This review will cover all components to be installed during the downtime.

Reviewers should come away with a clear understanding that the following items have been addressed, that the installation is planned in sufficient detail at this time to ensure equipment readiness for the downtime, and that any significant risk item has been identified such that the LCLS Project Office has assurance that the downtime scope and schedule can be met.

1. Project Staff are identified for the September 2007 down work
  - a. Assignments are clear, responsibilities known, staff identified
2. September 2007 Downtime Description
  - a. Work areas and scope identified
3. Installation Documentation
  - a. Drawings have been identified, are complete & contain sufficient information for installation
4. Identify procedures necessary for safe operation – Procedure Readiness: Procedures, Engineering Notes, & Approvals
  - a. Necessary procedures have been identified, developed, reviewed and in place.
  - b. Safety processes, reviews and approvals have been identified and are complete.
  - c. Work Authorizations are identified and complete.
5. Detailed Schedule
  - a. A schedule has been developed to ensure adequate time and manpower is available to meet the schedule
  - b. That the schedule is achievable and critical path items identified
6. Identify equipment and systems having safety importance – Hardware Readiness: Equipment and systems having safety importance meet criteria described in the SAD and have been appropriately tested: Results of testing conducted to confirm readiness of hardware to undertake the activity safely have been documented, evaluated to ensure adequacy and meet QA requirements.
  - a. Equipment and systems having safety importance have been identified (stoppers, shielding, etc)
7. Open items - comments

Reviewers:

TBD



## **FY2007 Downtime Review – Scope of work**

Scope of 2007 downtime activities

### **1. Linac Installations**

- a. L2
  - i. Sector 24-3 ID-444-033-43 (removing a DLWG and installing a new wire scanner)
  - ii. Sector 24-4 (removing a DLWG and installing a new wire scanner)
  - iii. Sector 24-5 (removing a DLWG and installing a new wire scanner)
  - iv. Sector 24-6 (install correctors from sector 24-7)
- b. BC2
  - i. Sector 24-7, 8 & 9 (removing all components and DLWG from sectors 24-7, 8 & 9 to make room for BC2)
- c. L3
  - i. Sector 25-1 (remove all NPI components from exit of 25-1b DLWG to upstream of Q25701 and install two DLWG from sector 24; reconfigure waveguides to feed all 4 accelerators)
  - ii. Sector 25-2 (remove 25-2d DLWG and install a toroid and T-Cavity from sector 29-4d)
  - iii. Sector 25-3 (remove 25-3d DLWG and install a X-Kicker Magnet)
  - iv. Sector 25-9 (remove all components and install OTR TCAV)
- d. Other Sectors
  - i. Sector 27-6 (remove 27-6d DLWG and install wire scanner from sector 27-9)
  - ii. Sector 27-9 (install drift tube)
  - iii. Sector 28-5 (remove 25-5d drift and wire scanner; install DLWG from 28-7d and reconfigure waveguides)
  - iv. Sector 28-7 (remove 28-7d DLWG and install wire scanner from 28-5d)
  - v. Sector 29-4 (remove 29-4d DLWG and install drift section and movable collimator)
- e. Waveguide work
  - i. Reconnecting waveguides and transverse cavity waveguides (in sector 25-2)
- f. Water system work
  - i. Waveguide water
  - ii. T-Cavity & Accelerator water
  - iii. Magnet water

### **2. Safety Systems**

- a. Shielding
  - i. BC2
  - ii. Sector 29-4 movable collimators
- b. PPS/BCS
  - i. Mode switching for BCS?
- c. Stoppers
  - i. No new stoppers installed

### **3. Controls**

- a. Power Systems

- i. BC2 racks & PS (install racks and PS at sector 24)
- b. I&C Systems
  - i. I&C racks and systems (install racks at sector 24)
- c. Cable Plant
  - i. Sector 24 ( install new trays and cable plant from sector 24 racks into Linac; terminate at racks and at loads)
  - ii. BTH West (pull cables from B005, 105, 104 through BSY into BTH West and coil cables; no loads & no racks installed yet)
  - iii. B136 through BSY to BTH West

#### **4. Conventional Facilities**

- a. Linac AC Upgrades
  - i. Sector 22, S23 & S24 (K12 sub), S25 (K13 sub), S26, S27 & S28 (K14A sub), S29 & S30 (K15 sub)
    - 1. Install new AC to locations described above; tie into substations as required, terminate into pull boxes above new rack locations, or into panels at already installed racks, or install into each rack via separate feeds.
- b. BTH West cable tray upgrades
  - i. BSY cable trays
  - ii. Trays from service buildings to BTH West
- c. Service building upgrades
  - i. Bldg 005 (install new 480vac to PS racks)
  - ii. Bldg 105 (bring building up to code compliance, install AC to racks)
  - iii. Bldg 106 (bring building up to code compliance, install AC to racks)
- d. BTH West Upgrade
  - i. Lights and AC power (upgrade existing and install new AC & lights are required to meet code)
  - ii. Concrete in sump (remove steel beams, cut sst & remove, remove or relocate 10T concrete blocks, form and cip 3 new concrete pedestals)
  - iii. Fire Sprinkler system
    - 1. Replace BTH West existing with new code compliant sprinkler heads, connect system to BTH
    - 2. Install new fire riser system, instrument and install piping to, and connect to, B406/407
  - iv. LCW system (install new LCW supply and return lines with appropriate stub valves in BTH, source is existing RSY connection @250psi)
  - v. Fire Alarm system (install new smoke detection system to meet code)