

LCLS Milestone Dictionary - February 2008

MS #	MS ID	Milestone Title	Baseline Date	Act	Milestone Completion Criteria	Responsible Person
Level 1 Milestones						
1	MS1_PM000	CD0 - Approve Mission Need	6/17/2001	A	Completion of this milestone is defined as an approved Decision document signed by the Acquisition Executive (SC-1) from DOE.	John Galayda
2	MS1_PM005	CD1 - Approve Preliminary Baseline Range	10/16/2002	A	Completion of this milestone is defined as an approved Decision document signed by the Acquisition Executive (SC-1) from DOE.	John Galayda
3	MS1_PM015	CD2a - Approve Long-Lead Procurement Budget	7/30/2004	A	Completion of this milestone is defined as an approved Decision document signed by the Acquisition Executive (SC-1) from DOE.	John Galayda
4	MS1_PM025	CD3a - Approve Start of Long Lead Procurement	10/29/2004	A	Completion of this milestone is defined as an approved Decision document signed by the Acquisition Executive (SC-1) from DOE.	John Galayda
5	MS1_PM020	CD2b - Approve Performance Baseline	3/31/2005	A	Completion of this milestone is defined as an approved Decision document signed by the Acquisition Executive (SC-1) from DOE.	John Galayda
6	MS1_PM030	CD3b - Approve Start of Construction	3/21/2006	A	Completion of this milestone is defined as an approved Decision document signed by the Acquisition Executive (SC-1) from DOE.	John Galayda
7	MS1_PM040	CD4 - Start of Far Hall Ops - Project Complete	7/30/2010		All additional capital facilities installed to demonstrate that the X-ray Transport Tunnel, Far Experiment Hall (FEH), and all associated technical systems in the Project scope have been installed . Detection of x-rays in the FEH will confirm that these systems are functional.	John Galayda
Level 2 Milestones						
Program Management						
8	MS2_PM045	Prelim Safety Assessment (PSAD) Doc Complete	4/30/2004	A	This milestone is complete when the DOE Stanford Site Office has received the PSAD report from LCLS.	Mark Reichanadter
9	MS2_PM035	DOE External Independent Review (EIR) Complete	6/15/2004	A	This milestone is complete when the LCLS team has conducted an External Independent Review (EIR) of the LCLS.	Mark Reichanadter
10	MS2_PM040	Fire Hazard Analysis Approved	6/30/2005	A	This milestone is complete when the DOE Stanford Site Office accepts the FHA report and issues their acceptance letter.	Mark Reichanadter
11	MS2_PM055	Prelim Safety Assessment (PSAD) Doc Approved	2/28/2006	A	This milestone is complete when the DOE Stanford Site Office accepts the PSAD report and issues their acceptance letter.	Mark Reichanadter
12	MS2_PM005	Safety Assessment Document (SAD) Approved	8/29/2008		This milestone is complete when the DOE Stanford Site Office accepts the SAD report and issues their acceptance letter.	David Schultz
13	MS2_PM030	LCLS ARR Complete	4/17/2009		This milestone is complete when the DOE Stanford Site Office accepts the ARR report and issues a letter authorizing operation.	David Schultz
14	MS2_PM060	Initiate Early Experimental Operations	9/10/2009		This milestone is complete when X-rays are first delivered into the NEH.	Mark Reichanadter
Injector System						
15	MS2_IJ0010	Start Injector Commissioning (Drive Laser)	1/29/2007	A	This milestone is complete when the Injector Drive Laser is installed and commissioning of the drive laser begins.	David Schultz
16	MS2_IJ0027	Injector Laser Commissioning Review Complete	1/31/2007	A	This milestone establishes the plan for commissioning the Injector Laser.	David Schultz
17	MS2_IJ0030	Injector Accelerator Readiness Review (ARR) Comp	1/31/2007	A	This milestone is complete when the DOE Stanford Site Office accepts the ARR report and issues a letter authorizing operation.	David Schultz
18	MS2_IJ0020	Start Injector Commissioning(UV Beam to Cathode)	4/9/2007	A	This milestone is complete when the first UV beam from the drive laser is sent to the gun photocathode.	David Schultz
Linac System						
20	MS2_LN025	Linac (Li20-Li30) Ready for Commissioning	12/1/2007	A	This milestone is complete when the beamline operation from the Injector RF gun, through BC1 and BC2 to the Beam Switchyard has been approved.	David Schultz
21	MS2_LN032	Linac (Li20-Li30) Commissioning Complete	7/30/2008		This milestone is complete when the beam has been brought through BC2 to the end of Linac Sector 30, with BC2 and all major diagnostics operational.	David Schultz
19	MS2_LN110	Start Installation of Beam Transport Hall	9/26/2008		This milestone is complete when the first BTH equipment installation begins.	David Schultz
22	MS2_LN015	Start Linac-to-Undulator (LTU) Commissioning	4/20/2009		This milestone is complete when electrons are delivered to LTU and LTU systems are first activated.	David Schultz

LCLS Milestone Dictionary - February 2008

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Undulator System						
23	MS2_UN010	Delivery of Undulator 1st Articles to MMF	7/3/2006	A	This milestone is complete when the undulator 1st articles have been received at SLAC.	David Schultz
24	MS2_UN005	MMF Qualified & Ready to Measure Prod Undulators	8/28/2006	A	This milestone marks the successful commissioning of the MMF, incl. the completion of the calibration of the test stands, and the acceptance sign-off by the APS project physicist.	David Schultz
25	MS2_UN105	Start Installation of Undulator Facility	7/16/2008		This milestone is complete when the first undulator pedestal installation begins.	David Schultz
26	MS2_UN025	Start Undulator Commissioning (1st Light)	7/6/2009		1st beam through the undulator system with the undulators rolled in.	David Schultz
X-Ray Transport, Optics and Diagnostics System						
27	MS2_XT100	XT Start FEE Installation	1/31/2009		This milestone is complete when the XTOD group begins installation of X-ray instruments in the FEE.	John Arthur
28	MS2_XT050	XT Start Tunnel Installation	5/27/2009		This milestone is complete when the XTOD group begins installation of beam transport equipment in the X-ray transport tunnel.	John Arthur
29	MS2_XT005	Start FEE Commissioning with Beam	8/6/2009		This milestone is complete when x-rays are first delivered into the FEE.	John Arthur
30	MS2_XT075	First X-Rays into FEH	2/26/2010		This milestone is complete when X-rays are first delivered into the FEH.	John Arthur
X-Ray Endstations						
31	MS2_XE060	XE Start Installation in NEH	7/24/2009		This milestone is complete when the XES group begins installation of the AMO instrument in the NEH.	John Arthur
32	MS2_XE015	2-D Detector Shipped to SLAC	7/30/2009		This milestone is complete when the full-sized version of the 2-D detector is shipped from Cornell to SLAC for final integration into the LCLS.	John Arthur
33	MS2_XE005	First X-Rays into NEH	9/10/2009		This milestone is complete when X-rays are first delivered into the NEH.	John Arthur
34	MS2_XE050	XE Start Installation in FEH	9/17/2009		This milestone is complete when the XES group begins installation of components in the FEH.	John Arthur
Conventional Facilities						
35	MS2BO_005	Sector 20 Alcove Beneficial Occupancy	7/21/2006	A	This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
36	MS2BO_025	Research Yards Mods Beneficial Occupancy	10/20/2006	A	This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
37	MS2BO_020	Linac Water/Power Avail	7/11/2007	A	This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
38	MS2BO_030	Beam Transport Hall Beneficial Occupancy	7/21/2008		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
39	MS2BO_035	Undulator Facility Beneficial Occupancy	7/21/2008		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
40	MS2BO_040	Front End Enclosure Beneficial Occupancy	7/21/2008		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
41	MS2BO_050	Near Experimental Hall Beneficial Occupancy	7/21/2008		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
42	MS2BO_065	Central Utility Plant Beneficial Occupancy	7/21/2008		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
43	MS2BO_055	X-Ray Transport Beneficial Occupancy	10/22/2008		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
44	MS2BO_060	Far Experimental Hall Beneficial Occupancy	10/22/2008		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
45	MS2PC_010	Beam Path Project Close Out	2/12/2009		This milestone is complete when the LCLS Conventional Facilities Construction for Beam Path, including commissioning of MEP Systems is complete. This milestone does not include construction of the FEH Hutches and Space Renovations for LCLS Operations.	David Saenz

LCLS Milestone Dictionary - February 2008

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Level 3 Milestones						
Program Management						
46	MS3_PM025	Advanced Procurement Management Plan Complete	2/28/2004	A	This milestone is complete when a draft of the LCLS Advance Procurement Plan is complete.	Mark Reichanadter
47	MS3_PM031	Resource Loaded Cost & Schedule (Final) Complete	4/30/2004	A	This milestone is complete when the LCLS cost and schedule TEC and TPC baselines have been accepted by the LCLS Project Office.	Mark Reichanadter
48	MS3_PM035	1st Monthly Report (with Earned Value) Submitted	4/30/2004	A	This milestone is complete when the LCLS submits its first monthly report on the LCLS TEC and TPC using earned-value assessments.	Mark Reichanadter
49	MS3_PM042	Risk Management Plan Complete	4/30/2004	A	This milestone is complete when a draft of the LCLS Preliminary Safety Assessment Document is complete.	Mark Reichanadter
50	MS3_PM045	Prelim Safety Assessment Doc (PSAD) Submitted	4/30/2004	A	This milestone is complete when a draft of the LCLS Risk Management Plan is complete.	Mark Reichanadter
51	MS3_PM050	Project Mgmt Control Syst (PMCS) Review Complete	4/30/2004	A	This milestone is complete when the LCLS team has conducted an independent review of the LCLS PMCS System and Controls.	Mark Reichanadter
52	MS3_PM055	Project Mgmt Plan Complete	4/30/2004	A	This milestone is complete when a draft of the LCLS Project Management Plan is complete.	Mark Reichanadter
53	MSC_PM000	CRIT: Start Procurement Package - PMCS Support	10/1/2004	A	This milestone is complete when a draft Advance Procurement Plan for the PMCS Support Award is submitted to SLAC Purchasing.	Mark Reichanadter
54	MS3_PM040	Fire Hazard Analysis Review @ SLAC	6/10/2005	A	This milestone is complete when the DOE Stanford Site Office accepts the FHA report and conducts a review using the appropriate peer review at SLAC.	Mark Reichanadter
55	MSBS_115	FY05 Shutdown Start: HW Req'd for Installation	10/3/2005	A	This milestone is complete when date is reached; This date is defined by SLAC, all FY05 HW Req'd for installation must be ready	Mark Reichanadter
56	MSBS_120	FY05 Shutdown Over	10/31/2005	A	This milestone is complete when the date is reached; defines the end of the FY05 installation activities	Mark Reichanadter
57	MSBS_125	FY06 Shutdown Start: HW Req'd for Installation	8/1/2006	A	This milestone is complete when date is reached; This date is defined by SLAC, all FY06 HW Req'd for installation must be ready	Mark Reichanadter
58	MSBS_130	FY06 Shutdown Over	1/5/2007	A	This milestone is complete when the date is reached; defines the end of the FY06 installation activities	Mark Reichanadter
59	MSBS_135	FY07 Shutdown: HW Req'd for Installation	9/4/2007	A	Shutdown start is defined by SLAC, milestone is complete when all hardware required for installation is ready.	Mark Reichanadter
60	MSBS_140	FY07 Shutdown Over	12/3/2007	A	Shutdown completion is defined by SLAC, milestone is complete when all hardware has been installed.	Mark Reichanadter
61	MS3_PM005	Safety Analysis Document (SAD) Approved	7/29/2008		This milestone is complete when the DOE Stanford Site Office accepts the SAD report and issues their acceptance letter.	David Schultz
62	MSBS_145	Start FY08 Shutdown	10/1/2008		Shutdown start is defined by SLAC, milestone is complete when all hardware required for installation is ready.	Mark Reichanadter
63	MSBS_150	FY08 Shutdown Over	11/3/2008		Shutdown completion is defined by SLAC, milestone is complete when all hardware has been installed.	Mark Reichanadter
64	MS3_PM030	LCLS ARR Complete	3/18/2009		This milestone is complete when the DOE Stanford Site Office accepts the ARR report and issues a letter authorizing operation.	David Schultz
Injector System						
65	MSC_IJ000	CRIT: Release RFP for Drive Laser	10/15/2004	A	This milestone is complete when the RFP for the injector drive laser is released.	David Schultz
66	MS3_IJ095	Award of Drive Laser Contract Complete	6/30/2005	A	This milestone is complete when the drive laser contract is awarded to the selected vendor	David Schultz
67	MS3_IJ032	Laser Tables & Optical Paths Installation Comp	8/21/2006	A	This milestone is complete when the LCLS Drive Laser tables and Optical Paths have been installed.	David Schultz
68	MS3_IJ005	Drive Laser Available for Integration	11/16/2006	A	This milestone is complete when the drive laser has been installed and is available for integration into the injector system.	David Schultz
69	MS3_IJ0027	Injector Laser Commissioning Review Complete	12/14/2006	A	This milestone establishes the plan for commissioning the Injector Laser.	David Schultz
70	MS3_IJ0010	Start Injector Commissioning (Drive Laser)	12/14/2006	A	This milestone complete when the drive is installed and tested by the vendor at S20 Alcove.	David Schultz
71	MS3_IJ0030	Injector Accelerator Readiness Review (ARR) Comp	12/15/2006	A	This milestone is complete when the DOE Stanford Site Office accepts the ARR report and issues a letter authorizing operation from the gun through BC1.	David Schultz
72	MS3_CT070	Injector Controls Installation Complete	1/2/2007	A	Milestone is complete when the LINAC control system commissioning is complete.	David Schultz

LCLS Milestone Dictionary - February 2008

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73	MS3_IJ085	Accelerator Region Installation Complete	1/29/2007	A	This milestone is complete when the Injector beamline segment including both accelerator structures is installed in the Injector housing.	David Schultz
74	MS3_IJ080	Gun Region Installation Complete	1/29/2007	A	This milestone is complete when the beamline segment between the Injector RF Gun and the first accelerating structure (LOA) has been installed.	David Schultz
75	MS3_IJ110	Injector RF Subsystem Installation Complete	1/31/2007	A	This milestone is complete when the RF subsystem including the wave guide is installed.	David Schultz
76	MS3_IJ105	Spectrometer Installation Complete	2/2/2007	A	This milestone is complete when the Injector straight-ahead-spectrometer is installed.	David Schultz
77	MS3_IJ100	Insertion Region Installation Complete	2/8/2007	A	This milestone is complete when the Injector beamline segment that connects the injector wall beamline to the SLAC Accelerator is installed.	David Schultz
78	MS3_IJ125	RF Gun Ready for Installation	2/15/2007	A	This milestone is complete when the RF gun is installed and aligned on the beamline.	David Schultz
79	MS3_IJ0020	Start Injector Commissioning(UV Beam to Cathode)	3/6/2007	A	This milestone is complete when the first UV beam from the drive laser is sent to the gun photocathode.	David Schultz
80	MS3_IJ0025	Injector Commissioning Complete	12/21/2007	A	This milestone is complete when the Physics Commissioning goals for Injector Commissioning are met. Goals are provided by the commissioning plan.	David Schultz
81	MS3_IJ120	Laser Heater Installation Complete	9/21/2009		This milestone is complete when the laser heater vacuum chamber, undulator and optical system are installed.	David Schultz
Linac System						
82	MSC_LN005	CRIT: Release RFP X-Band Klystron	2/25/2005	A	This milestone is complete after FY05 Long Lead Procurement funds are received and The RFP has been released.	David Schultz
83	MSBS_090	Shutdown of FFTB Operations	6/1/2006	A	This milestone is complete when the FFTB ceases operations and is ready to be decommissioned and dismantled in preparation of the LCLS.	David Schultz
84	MS3_LN016	BC1 Bend Magnet Ready for Installation	11/13/2006	A	This milestone is complete when the LCLS Linac BC1 Dipoles have been received from the vendor and qualified at SLAC.	David Schultz
85	MS3_LN010	X-Band Klystron Ready for Installation	11/27/2006	A	This milestone is complete when the fabrication and testing of the X-Band Klystron is complete.	David Schultz
86	MS3_LN012	BC1 Installation Complete	1/29/2007	A	This milestone is complete when the LCLS Linac BC1 subsystem has been installed and checked out prior to start of commissioning.	David Schultz
87	MS3_CT072	Linac Controls Ready for BC1 Installation	1/31/2007	A	This milestone is complete when the control system is ready to operate the LINAC BC1.	David Schultz
88	MS3_LN013	Start BC1 Commissioning	2/28/2007	A	This milestone is complete when electrons are delivered to BC1 and BC1 systems are first activated.	David Schultz
89	MS3_LN030	Linac Commissioning Review Complete - S20-30	1/3/2008	A	This milestone is complete when the commissioning plan for Linac sector 20 through 30 is formulated and has been formally reviewed and accepted.	David Schultz
90	MS3_LN011	BC2 Installation Complete	1/14/2008	A	This milestone is complete when the LCLS Linac BC2 subsystem has been installed and checked out prior to start of commissioning.	David Schultz
91	MS3_LN065	BC2 Commissioning Complete	6/30/2008		This milestone is complete when the Physics Commissioning goals for BC2 Commissioning are met. Goals are provided by the commissioning plan.	David Schultz
92	MS3_LN110	Start Installation of Beam Transport Hall	8/28/2008		This milestone is complete when the first BTH equipment installation begins.	David Schultz
93	MS3_LN034	Linac Commissioning Complete	9/19/2008		This milestone is complete when the Physics Commissioning goals for Linac Commissioning are met. Goals are provided by the commissioning plan.	David Schultz
94	MS3_LN055	E-Dump Component Installation Complete	9/22/2008		This milestone is complete when the LCLS Linac E-Dump components have been installed and checked out.	David Schultz
95	MS3_LN035	LTU Component Installation Complete	10/6/2008		This milestone is complete when the LCLS Linac LTU components have been installed and checked out.	David Schultz
96	MS3_LN025	Start Linac (Li20-Li30) Commissioning	1/19/2009		This milestone is complete when the beamline operation from the Injector RF gun, through BC1 and BC2 to the Beam Switchyard has been approved.	David Schultz
97	MS3_LN032	Linac Commissioning Review Complete - LTU	3/19/2009		This milestone is complete when the commissioning plan for Linac LTU is formulated and has been formally reviewed and accepted.	David Schultz
98	MS3_LN015	Start Linac-to-Undulator (LTU) Commissioning	3/20/2009		This milestone starts after installation of the LTU is complete and the beam authorization sheet for LTU is signed and electrons are injected into the LTU.	David Schultz

LCLS Milestone Dictionary - February 2008

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Undulator System						
99	MSC_UN005	CRIT: Release RFP Ti Strongback	1/14/2005	A	Comments of the internal design review have been incorporated into the bid package for the Ti Strongbacks and the RFP has been released.	David Schultz
100	MSC_UN015	CRIT: Release RFP Magnet Poles	2/4/2005	A	The RFP for the procurement of the magnet poles has been released..	David Schultz
101	MSC_UN010	CRIT: Release RFP Magnet Blocks	3/23/2005	A	The RFP for the procurement of the magnet blocks has been released.	David Schultz
102	MSC_UN020	CRIT: Release RFP Magnet Assemblies - 1st Art	6/28/2005	A	The RFP for the procurement of the Mag Assy & Supt has been released.	David Schultz
103	MS3_UN028	AWARD: 1st Articles Mag Assy to Vendors Comp	10/11/2005	A	The award for the 1st article magnet assembly has been made to a vendor.	David Schultz
104	MSC_UN016	CRIT: Release RFP - Quadrupoles	4/12/2006	A	Thr RFP for the procurement of the quadrupoles has been released.	David Schultz
105	MS3_UN018	Undulator SUT Completed	4/28/2006	A	A complete mock-up of the undulator has been assembled and tested.	David Schultz
106	MSC_UN030	CRIT: Release RFP - Fixed Supports	5/9/2006	A	This milestone is complete when the RFP for the Undulator supports has been released.	David Schultz
107	MS3_UN006	1st Article Vendor A Undulator 1 Rcvd @ SLAC	6/2/2006	A	1st article undulator from vendor A has arrived at SLAC.	David Schultz
108	MS3_UN010	1st Article Vendor B Undulator 2 Rcvd @ SLAC	6/2/2006	A	1st article undulator from vendor B has arrived at SLAC	David Schultz
109	MS3_UN005	MMF Qualified & Ready to Measure Prod Undulators	10/27/2006	A	This milestone marks the successful commissioning of the MMF, incl. the completion of the calibration of the test stands, and the acceptance sign-off by the APS project physicist.	David Schultz
110	MS3_UN015	25% production undulators received	1/2/2007	A	The 10th production undulator has been received at SLAC.	David Schultz
111	MS3_UN022	50% production undulators received	3/19/2007	A	The 20th production undulator has been received at SLAC.	David Schultz
112	MS3_UN027	75% production undulators received	6/7/2007	A	The 30th production undulator has been received at SLAC.	David Schultz
113	MS3_UN029	Undulator Production Units (33) Received	7/6/2007	A	This milestone is complete when the 33rd production undulator has been received at SLAC.	David Schultz
114	MS3_UNA45	1st Two Quadrupoles Rcvd at SLAC	11/12/2007	A	This milestone is complete when #3-17 of the Quadrupoles have been received at SLAC.	David Schultz
115	MS3_UNA30	Support/Mover & Fixed Support #01-17 Rcvd @ SLAC	12/14/2007	A	This milestone is complete when #1-17 of the Support Movers and Fixed Supports have been received at SLAC.	David Schultz
116	MS3_UNA35	Support/Mover & Fixed Support #18-33 Rcvd @ SLAC	2/19/2008	A	This milestone is complete when #18-33 of the Support Movers and Fixed Supports have been received at SLAC.	David Schultz
117	MS3_UN030	1st Production Vacuum Chamber Delivered to SLAC	4/3/2008		This milestone is complete when the first production undulator vacuum chamber is delivered to SLAC.	David Schultz
118	MS3_UN045	1st Production BFW Delivered to SLAC	4/11/2008		This milestone is complete when the first production Beam Finder Wire is delivered to SLAC.	David Schultz
119	MS3_UNA50	Quadrupoles #3-17 Rcvd at SLAC	4/11/2008		This milestone is complete when #3-17 of the Quadrupoles have been received at SLAC.	David Schultz
120	MS3_UNA55	Quadrupole #18-33 Rcvd at SLAC	4/11/2008		This milestone is complete when #18-33 of the Quadrupoles have been received at SLAC.	David Schultz
121	MS3_UN035	1st Production Undulator RFBPM Delivered to SLAC	4/17/2008		This milestone is complete when the first production RFBPM is delivered to SLAC.	David Schultz
122	MS3_UN105	Start Installation of Undulator Facility	6/18/2008		This milestone is complete when the first undulator pedestal installation begins.	David Schultz
123	MS3_UN110	Assembled Girders 1-10 RFI	9/17/2008		This milestone is complete when the last girder assembly complete	David Schultz
124	MS3_UN115	Assembled Girders 11-20 RFI	10/29/2008		This milestone is complete when the last girder assembly complete	David Schultz
125	MS3_UN120	Assembled Girders 21-33 RFI	12/26/2008		This milestone is complete when the last girder assembly complete	David Schultz
126	MS3_UNA10	Short Diagnostic Break Assembly Rcvd at SLAC	5/16/2008		This milestone is complete when Short Diagnostic Break Assembly has been received at SLAC.	David Schultz
127	MS3_UNA20	Vac Chmbr/BPM #01 Rcvd at SLAC	5/19/2008		This milestone is complete when the first Vacuum Chamber and BPM have been received at SLAC.	David Schultz
128	MS3_UNA25	Vac Chmbr/BPM #02-16 Rcvd at SLAC	5/19/2008		This milestone is complete when #2-16 of the Vacuum Chamber and BPM have been received at SLAC.	David Schultz
129	MS3_UNA15	Long Diagnostic Break Assembly Rcvd at SLAC	7/2/2008		This milestone is complete when Long Diagnostic Break Assembly has been received at SLAC.	David Schultz
130	MS3_UNA40	Vac Chmbr/BPM #17-33 Rcvd at SLAC	7/11/2008		This milestone is complete when #17-33 of the Vacuum Chamber and BPM have been received at SLAC.	David Schultz
131	MS3_UNA05	Beam Loss Monitoring Rcvd at SLAC (32+2)	7/24/2009		This milestone is complete when 32+2 of the Beam Loss Monitoring have been received at SLAC.	David Schultz

LCLS Milestone Dictionary - February 2008

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132	MS3_CT085	Undulator Controls Ready for Commissioning	3/23/2009		This milestone is complete when the Undulator control system is ready for commissioning.	David Schultz
133	MS3_UN020	Undulator System Installation Complete	3/23/2009		All undulator system installation, alignment, and basic checkout is complete, and the system is ready for beam.	David Schultz
134	MS3_UN040	Hydrostatic Level System Complete	3/23/2009		This milestone marks the date when the HLS is ready to take measurements.	David Schultz
135	MS3_UN042	Wire Monitoring System Complete	3/23/2009		This milestone marks the date when the WMS is ready to take measurements.	David Schultz

LCLS Milestone Dictionary - February 2008

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136	MS3_UN025	Start Undulator Commissioning (1st Light)	6/5/2009		1st beam through the undulator system with the undulators rolled in.	David Schultz
X-Ray Transport, Optics and Diagnostics System						
137	MS3_XT007	Tunnel Mech/Vac Design Review Complete	11/29/2006	A	This milestone is complete when the LCLS X-TOD transport tunnel hardware design is complete.	John Arthur
138	MS3_XT040	AWARD: LE Mirror System	6/25/2007	A	This milestone is complete when the purchase order for the low-energy mirror substrates has been signed.	John Arthur
139	MS3_XT060	AWARD: HE Mirror System	3/3/2008		This milestone is complete when the purchase order for the high-energy mirror substrates has been signed.	John Arthur
140	MS3_XT100	XT Start Phase 1 FEE Installation	12/13/2008		This milestone is complete when the XTOD group begins installation of X-Ray instruments in the FEE.	John Arthur
141	MS3_XT030	Fixed Mask Ready to Ship to SLAC	11/14/2008		This milestone is complete when the fixed mask system has been completed and checked and is ready to ship from LLNL to SLAC.	John Arthur
142	MS3_XT025	Gas/Solid Attenuator Ready to Ship to SLAC	11/14/2008		This milestone is complete when the gas/solid attenuator system has been completed and checked and is ready to ship from LLNL to SLAC.	John Arthur
143	MS3_XT110	XT Start Phase 2 FEE Installation	1/8/2009		This milestone is complete when installation of the total energy monitor, soft x-ray imager, or direct imager begins.	John Arthur
144	MS3_XT120	XT Start Phase 3 FEE Installation	2/16/2009		This milestone is complete when installation of the soft X-ray offset mirror, popup cameras, or shadow wall/wall 2 shielding begins.	John Arthur
145	MS3_XT070	XT Start NEH Installation	3/6/2009		This milestone is complete when installation of the beam line vacuum system in the NEH begins.	John Arthur
146	MS3_XT130	XT Start Phase 4 FEE Installation	3/6/2009		This milestone is complete when installation of the hard X-ray offset mirror system begins.	John Arthur
147	MS3_XT050	XT Start Tunnel Installation	4/27/2009		This milestone is complete when the XTOD group begins installation of beam transport equipment in the X-ray transport tunnel.	John Arthur
148	MS3_XT000	FEE Install/Check Complete	5/21/2009		This milestone is complete when functional checks of the XTOD components in the FEE are complete.	John Arthur
149	MS3_XT005	Start FEE Commissioning with Beam	6/5/2009		This milestone is complete when x-rays are first delivered into the FEE.	John Arthur
150	MS3_XT080	XT Start FEH Installation	8/17/2009		This milestone is complete when installation of the beam line vacuum system in the FEH begins.	John Arthur
151	MS3_XT071	Tunnel/FEH Install/Check Complete	12/3/2009		This milestone is complete when the beamline components of the XTOD group have been installed and checked in the x-ray transport tunnel.	John Arthur
152	MS3_XT075	First X-Rays into FEH	1/29/2010		This milestone is complete when X-rays are first delivered into the FEH.	John Arthur
X-Ray Endstations						
153	MS3_XE030	Complete 2-D X-Ray Detector Statement of Work	7/1/2005	A	This milestone is complete when a Statement of Work has been prepared for the 2-D X-ray Detector development program, and approved by project management.	John Arthur
154	MS3_XE035	Award Initial Funding for 2-D X-Ray Detector	7/15/2005	A	This milestone is complete when an MOU or contract is signed with an outside party, commencing the first phase of development of the 2-D X-ray detector.	John Arthur
155	MS3_XE110	Hire Atomic Physicist	3/17/2006	A	The day the Atomic Physicist begins work for LCLS.	John Arthur
156	MS3_XE100	Hire Detector Physicist	4/3/2006	A	The day the Detector Physicist begins work for LCLS.	John Arthur
157	MS3_XE020	COMP: AMO PDR Meeting	11/26/2007	A	This milestone is complete when the AMO instrument has completed its first Preliminary Design Review meeting.	John Arthur
158	MS3_XE040	LDAC Mid-Project Review - 2-D X-Ray Detector	11/30/2007	A	This milestone is complete upon completion (with written report) of a formal project review by the LCLS Detector Advisory Committee (LDAC) at the half way point of the 2-D X-ray detector development project.	John Arthur
159	MS3_XE025	Award XES Laser System	11/3/2008		This milestone is complete when the first purchase order for the XES laser system is signed.	John Arthur
160	MS3_XE120	Electron Dump Stoppers Certified	3/19/2009		This milestone is complete upon safety certification of the PPS stoppers located in the Electron dump which control x-ray beam propagation into the FEE.	John Arthur
161	MS3_XE060	XE Start Installation in NEH	6/25/2009		This milestone is complete when the XES group begins installation of the AMO instrument in the NEH.	John Arthur
162	MS3_XE130	FEE/NEH PPS Certified	6/5/2009		This milestone is complete upon safety certification of the X-ray Personnel Protection System and Hutch Protection System for the FEE/NEH region.	John Arthur
163	MS3_XE015	2-D Detector Received at SLAC	6/29/2009		This milestone is complete when the full-sized version of the 2-D detector is received at SLAC for final integration into the LCLS.	John Arthur

LCLS Milestone Dictionary - February 2008

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164	MS3_S8010	Photon Flux Density Measurement in FEE achieved	7/9/2009		This milestone is complete when the photon flux density is characterized at 1.5A in the FEE.	John Arthur
165	MS3_S8020	Initiate Early Experimental Operations	8/10/2009		This milestone is complete when X-rays are first delivered into the NEH.	John Arthur
166	MS3_XE005	First X-Rays into NEH	8/10/2009		This milestone is complete when X-rays are first delivered into the NEH.	John Arthur
167	MS3_XE080	XES Laser Operating in Near Hall	8/13/2009		This milestone is complete when the initial components of the NEH laser system have been installed, and the NEH laser room PPS system has been certified so that laser operation can begin.	John Arthur
168	MS3_XE050	XE Start Installation in FEH	8/17/2009		This milestone is complete when the XES group begins installation of components in the FEH.	John Arthur
169	MS3_XE065	AMO Complete Checkout (Phase I)	9/14/2009		This milestone is complete when the basic (phase I) suite of AMO instrumentation has been installed and completed basic checkout.	John Arthur
170	MS3_XE150	TUN/FEH PPS Certified	12/24/2009		This milestone is complete upon safety certification of the X-ray Personnel Protection System and Hutch Protection System for the tunnel/FEH region.	John Arthur
Conventional Facilities						
171	MS3_CF000	A&E Serv (S20, MMF, MCC not incl) Title 1 Comp	4/30/2004	A	This milestone is complete after a Title I review has been completed and all action (or corrective action) items have been resolved.	David Saenz
172	MS3_CF002	A&E Serv Sector 20 Title 1 Complete	4/30/2004	A	This milestone is complete after a Title I review has been completed and all action (or corrective action) items have been resolved.	David Saenz
173	MS3_CF022	A&E Services MMF Title 1 Complete	4/30/2004	A	This milestone is complete after a final Title I review has been completed and all action (or corrective action) items have been resolved.	David Saenz
174	MS3_CF010	A&E Services Sector 20 Title 2 Complete	3/18/2005	A	This milestone is complete after a final Title II review has been completed and all action (or corrective action) items have been resolved.	David Saenz
175	MSC_CF005	CRIT: Rel RFP T3 Const. Pkg. RF Hut & S20/Alcove	4/1/2005	A	This milestone is complete when the RFP for the Title 3 construction of the RF Hut and Alcove has been released.	David Saenz
176	MSC_CF010	CRIT: Release RFP T3 Construction Contract (MMF)	4/14/2005	A	This milestone is complete when the RFP for the Title 3 construction of the MMF has been released.	David Saenz
177	MS3_CF015	A&E Services MMF Title 2 Complete	5/31/2005	A	This milestone is complete after a final Title II review has been completed and all action (or corrective action) items have been resolved.	David Saenz
178	MSC_CF020	CRIT: Release RFP Construction Mgmt Pkg (CM)	7/25/2005	A	This milestone is complete when the RFP for the Construction Management Contract has been released.	David Saenz
179	MS3_CF065	Award of S20 Title 3 Complete	8/5/2005	A	This milestone is complete after a contract award has been issued to a successful General Contractor	David Saenz
180	MS3_CF066	Award of MMF Title 3 Complete	8/5/2005	A	This milestone is complete after a contract award has been issued to a successful General Contractor	David Saenz
181	MS3_CF060	Award of Construction Management Contract Complete	9/30/2005	A	This milestone is complete after a contract award has been issued to a successful Construction Management	David Saenz
182	MSBO_000	RF Hut Beneficial Occupancy	12/7/2005	A	This milestone is complete when the LCLS CF group can release the facility or a subset of the entire facility thereof for use by the system end user, prior to final acceptance.	David Saenz
183	MS3_CF005	A&E Serv (S20, MMF, MCC not incl) Title 2 Comp	1/20/2006	A	This milestone is complete after a final Title II review has been completed and all action (or corrective action) items have been resolved.	David Saenz
184	MSC_CF000	CRIT: Release RFP T3 Construct (RY-CLOC)	1/26/2006	A	This milestone is complete when the pre-qualifications and pre-selection phases have commenced and the RFP has been released.	David Saenz
185	MSBO_010	Magnetic Msmt Facility(MMF) Beneficial Occupancy	4/3/2006	A	This milestone is complete when the LCLS CF group can release the facility or a subset of the entire facility thereof for use by the system end user, prior to final acceptance.	David Saenz
186	MS3BO_005	Sector 20 Alcove Beneficial Occupancy	6/21/2006	A	This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
187	MSC_CF006	CRIT: Release RFP T3 Construction Pkg (Linac)	7/10/2006	A	This milestone is complete when the RFP for the Title 3 construction of the Linac has been released.	David Saenz
188	MS3BO_025	Research Yards Mods Beneficial Occupancy	9/21/2006	A	This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
189	MS3BO_020	Linac Water/Power Avail	6/11/2007	A	This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz

LCLS Milestone Dictionary - February 2008

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190	MS3CO_005	Beam Transport Hall Co-Occupancy	12/4/2007	A	This milestone makes available the facility for early non CF system activities ie: anchor-bolts, cable plant, equipment stands installation, etc. All CF construction activities take precedence between this milestone and the BO milestone. CF systems are not yet commissioned for use by non-CF systems for installation of equipment. This milestone does not include temperature stable environment.	David Saenz
191	MS3CO_010	Undulator Facility Co-Occupancy	12/4/2007	A	This milestone makes available the facility for early non CF system activities ie: anchor-bolts, cable plant, equipment stands installation, etc. All CF construction activities take precedence between this milestone and the BO milestone. CF systems are not yet commissioned for use by non-CF systems for installation of equipment. This milestone does not include temperature stable environment.	David Saenz
192	MS3CO_015	Front End Enclosure Co-Occupancy	12/4/2007	A	This milestone makes available the facility for early non CF system activities ie: anchor-bolts, cable plant, equipment stands installation, etc. All CF construction activities take precedence between this milestone and the BO milestone. CF systems are not yet commissioned for use by non-CF systems for installation of equipment. This milestone does not include temperature stable environment.	David Saenz
193	MS3CO_035	Beam Dump Co-Occupancy	12/4/2007	A	This milestone makes available the facility for early non CF system activities ie: anchor-bolts, cable plant, equipment stands installation, etc. All CF construction activities take precedence between this milestone and the BO milestone. CF systems are not yet commissioned for use by non-CF systems for installation of equipment. This milestone does not include temperature stable environment.	David Saenz
194	MS3CO_020	Near Experimental Hall Co-Occupancy	4/21/2008		This milestone makes available the facility for early non CF system activities ie: anchor-bolts, cable plant, equipment stands installation, etc. All CF construction activities take precedence between this milestone and the BO milestone. CF systems are not yet commissioned for use by non-CF systems for installation of equipment. This milestone does not include temperature stable environment.	David Saenz
195	MS3BO_090	CUP S522 Substation Beneficial Occupancy	4/30/2008		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
197	MS3BO_030	Beam Transport Hall Beneficial Occupancy	5/20/2008		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
198	MS3BO_035	Undulator Facility Beneficial Occupancy	5/20/2008		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
199	MS3BO_040	Front End Enclosure Beneficial Occupancy	5/20/2008		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
200	MS3BO_050	Near Experimental Hall Beneficial Occupancy	5/20/2008		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
201	MS3BO_065	Central Utility Plant Beneficial Occupancy	5/20/2008		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
202	MSBO_045	Beam Dump Beneficial Occupancy	5/20/2008		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
196	MS3CO_025	X-Ray Transport Co-Occupancy	7/22/2008		This milestone makes available the facility for early non CF system activities ie: anchor-bolts, cable plant, equipment stands installation, etc. All CF construction activities take precedence between this milestone and the BO milestone. CF systems are not yet commissioned for use by non-CF systems for installation of equipment. This milestone does not include temperature stable environment.	David Saenz
203	MS3CO_030	Far Experimental Hall Co-Occupancy	7/22/2008		This milestone makes available the facility for early non CF system activities ie: anchor-bolts, cable plant, equipment stands installation, etc. All CF construction activities take precedence between this milestone and the BO milestone. CF systems are not yet commissioned for use by non-CF systems for installation of equipment. This milestone does not include temperature stable environment.	David Saenz
204	MS3BO_055	X-Ray Transport Beneficial Occupancy	8/22/2008		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
205	MS3BO_060	Far Experimental Hall Beneficial Occupancy	8/22/2008		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz

LCLS Milestone Dictionary - February 2008

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206	MS3PC_010	Beam Path Project Close Out	12/12/2008		This milestone is complete when the LCLS Conventional Facilities Construction for Beam Path, including commissioning of MEP Systems is complete. This milestone does not include construction of the FEH Hutches and Space Renovations for LCLS Operations.	David Saenz
207	MS3BO_080	FEH Hutches Beneficial Occupancy	7/6/2009		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
208	MS3BO_070	CEH Office Beneficial Occupancy	9/30/2009		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz
209	MS3BO_075	B028 Office Beneficial Occupancy	9/30/2009		This milestone is complete when the LCLS CF group can release the facility for use by the system end user.	David Saenz