

LCLS TPC Detailed Cost Estimate (FY05FY09)

5/5/2005

| WBS Level | | | | | | LCLA DCE March-2005 | Early | Early | OBS | Fund | Res | Units | Budgeted Quantity | | Fully Burdened and Escalated Cost | | | | |
|--------------------------|----|----|----|----|----|--|-----------|-----------|-----|------|---------|-------|-------------------|-----------|-----------------------------------|------------|--------------------|-----------|--------|
| Run Time: 4/22/05 8:43am | | | | | | Description | Start | Finish | | Type | Code | | Hours | \$ | Labor | M&S | Total (No Conting) | | |
| 1 | 05 | 01 | 01 | 01 | 01 | X-RAY TRANSPORT & DIAGNOSTICS SYSTEMS | | | | | | | 86,585 | 8,141,495 | 14,318,441 | 10,513,287 | 24,831,728 | | |
| 1 | 05 | 01 | | | | System Management & Integration | | | | | | | 11,864 | 140,000 | 2,322,579 | 176,837 | 2,499,416 | | |
| 1 | 05 | 01 | 01 | | | Management | | | | | | | 11,864 | 140,000 | 2,322,579 | 176,837 | 2,499,416 | | |
| 1 | 05 | 01 | 01 | 01 | | XTOD Management - Technical | | | | | | | 8,248 | 76,000 | 1,797,343 | 96,524 | 1,893,867 | | |
| 1 | 05 | 01 | 01 | 01 | | Management & Oversight - FY-05 | 4-Oct-04 | 30-Sep-05 | | P | LL_PHSS | Hrs | 244 | | | 52,316 | | 52,316 | |
| 1 | 05 | 01 | 01 | 01 | | Management - Safety - FY-05 | 3-Jan-05 | 30-Sep-05 | | P | LL_SEE | Hrs | 320 | | | 58,147 | | 58,147 | |
| 1 | 05 | 01 | 01 | 01 | | Management - Mech/Vac - FY-05 | 3-Jan-05 | 30-Sep-05 | | P | LL_ME | Hrs | 900 | | | 163,539 | | 163,539 | |
| 1 | 05 | 01 | 01 | 01 | | Travel - FY-05 | 3-Jan-05 | 30-Sep-05 | | P | LL_MSTR | \$\$ | | 10,000 | | | 12,200 | | 12,200 |
| 1 | 05 | 01 | 01 | 01 | | Meetings - FY-05 | 3-Jan-05 | 30-Sep-05 | | P | LL_MSCS | \$\$ | | 20,000 | | | 24,400 | | 24,400 |
| 1 | 05 | 01 | 01 | 01 | | Meetings - FY06-09 | 3-Oct-05 | 30-Mar-09 | | C | LL_MSCS | \$\$ | | 23,000 | | | 29,962 | | 29,962 |
| 1 | 05 | 01 | 01 | 01 | | Conceptual Design | 4-Oct-04 | 31-Jan-05 | | P | LL_PHSS | Hrs | 366 | | | 78,474 | | 78,474 | |
| 1 | 05 | 01 | 01 | 01 | | Beamline Electronics | 1-Dec-04 | 14-Dec-04 | | P | LL_ME | Hrs | 45 | | | 8,177 | | 8,177 | |
| 1 | 05 | 01 | 01 | 01 | | Beamline Electronics | 1-Dec-04 | 14-Dec-04 | | P | LL_MDD | Hrs | 25 | | | 4,168 | | 4,168 | |
| 1 | 05 | 01 | 01 | 01 | | FEL Monte Carlo | 1-Mar-05 | 5-Jul-05 | | P | LL_CP | Hrs | 426 | | | 83,117 | | 83,117 | |
| 1 | 05 | 01 | 01 | 01 | | Management & Oversight - FY06-09 | 3-Oct-05 | 30-Mar-09 | | C | LL_PHSS | Hrs | 5,922 | | | 1,349,405 | | 1,349,405 | |
| 1 | 05 | 01 | 01 | 01 | | Travel - FY06-09 | 3-Oct-05 | 30-Mar-09 | | C | LL_MSTR | \$\$ | | 23,000 | | | 29,962 | | 29,962 |
| 1 | 05 | 01 | 01 | 02 | | LLNL Project Support | | | | | | | 3,616 | 64,000 | 525,236 | 80,313 | 605,549 | | |
| 1 | 05 | 01 | 01 | 02 | | Financial/Budget Support - LLNL - PED | 3-Jan-05 | 30-Sep-05 | | P | LL_ADMN | Hrs | 302 | | | 41,688 | | 41,688 | |
| 1 | 05 | 01 | 01 | 02 | | Administrative/Database Support - LLNL - PED | 3-Jan-05 | 30-Sep-05 | | P | LL_ADMN | Hrs | 302 | | | 41,688 | | 41,688 | |
| 1 | 05 | 01 | 01 | 02 | | Teleconference/Comp - LLNL - PED | 3-Jan-05 | 30-Sep-05 | | P | LL_MSPS | \$\$ | | 7,000 | | | 8,540 | | 8,540 |
| 1 | 05 | 01 | 01 | 02 | | Project Support M&S - LLNL - PED | 3-Jan-05 | 30-Sep-05 | | P | LL_MSCS | \$\$ | | 30,000 | | | 36,600 | | 36,600 |
| 1 | 05 | 01 | 01 | 02 | | Financial/Budget Support - LLNL - CON | 3-Oct-05 | 30-Mar-09 | | C | LL_ADMN | Hrs | 1,506 | | | 220,930 | | 220,930 | |
| 1 | 05 | 01 | 01 | 02 | | Administrative/Database Support - LLNL-CON | 3-Oct-05 | 30-Mar-09 | | C | LL_ADMN | Hrs | 1,506 | | | 220,930 | | 220,930 | |
| 1 | 05 | 01 | 01 | 02 | | Teleconference/Comp - LLNL-CON | 3-Oct-05 | 30-Mar-09 | | C | LL_MSPS | \$\$ | | 7,000 | | | 9,119 | | 9,119 |
| 1 | 05 | 01 | 01 | 02 | | Project Support M&S - LLNL-CON | 3-Oct-05 | 30-Mar-09 | | C | LL_MSCS | \$\$ | | 20,000 | | | 26,054 | | 26,054 |
| 1 | 05 | 02 | | | | Controls | | | | | | | 6,270 | 30,000 | 1,171,572 | 38,700 | 1,210,272 | | |
| 1 | 05 | 02 | 01 | | | Controls Engineering | | | | | | | | | | | | | |
| 1 | 05 | 02 | 02 | | | Slow Controls | | | | | | | 5,598 | 30,000 | 1,041,327 | 38,700 | 1,080,027 | | |
| 1 | 05 | 02 | 02 | | | Specification - Slow Controls | 1-Feb-05 | 24-May-05 | | P | LL_CE | Hrs | 200 | | | 36,342 | | 36,342 | |
| 1 | 05 | 02 | 02 | | | Design - Slow Controls | 25-May-05 | 5-Jun-06 | | P | LL_CE | Hrs | 1,000 | | | 184,968 | | 184,968 | |
| 1 | 05 | 02 | 02 | | | Design Review - Slow Controls | 6-Jun-06 | 3-Jul-06 | | C | LL_PHSS | Hrs | 8 | | | 1,763 | | 1,763 | |
| 1 | 05 | 02 | 02 | | | Design Review - Slow Controls | 6-Jun-06 | 3-Jul-06 | | C | LL_CE | Hrs | 8 | | | 1,494 | | 1,494 | |
| 1 | 05 | 02 | 02 | | | Prepare Bid Pkg Servers - Slow Controls | 5-Jul-06 | 1-Aug-06 | | C | LL_CE | Hrs | 16 | | | 2,989 | | 2,989 | |
| 1 | 05 | 02 | 02 | | | Vendor Fab/Ship Servers - Slow Controls | 3-Oct-06 | 12-Mar-07 | | C | LL_PHSS | Hrs | 16 | | | 3,618 | | 3,618 | |
| 1 | 05 | 02 | 02 | | | Vendor Fab/Ship Servers - Slow Controls | 3-Oct-06 | 12-Mar-07 | | C | LA_MSEG | \$\$ | | 30,000 | | | 38,700 | | 38,700 |
| 1 | 05 | 02 | 02 | | | Assemble FEE - Slow Controls | 13-Mar-07 | 9-Apr-07 | | C | LL_CT | Hrs | 250 | | | 37,233 | | 37,233 | |
| 1 | 05 | 02 | 02 | | | Assemble FEE - Slow Controls | 13-Mar-07 | 9-Apr-07 | | C | LL_CE | Hrs | 1,000 | | | 191,660 | | 191,660 | |
| 1 | 05 | 02 | 02 | | | Programming FEE - Slow Controls | 10-Apr-07 | 7-May-07 | | C | LL_CP | Hrs | 200 | | | 41,158 | | 41,158 | |
| 1 | 05 | 02 | 02 | | | Assemble Near Hall - Slow Controls | 13-Mar-07 | 9-Apr-07 | | C | LL_CT | Hrs | 250 | | | 37,233 | | 37,233 | |
| 1 | 05 | 02 | 02 | | | Assemble Near Hall - Slow Controls | 13-Mar-07 | 9-Apr-07 | | C | LL_CE | Hrs | 1,000 | | | 191,660 | | 191,660 | |
| 1 | 05 | 02 | 02 | | | Programming Near Hall - Slow Controls | 10-Apr-07 | 7-May-07 | | C | LL_CP | Hrs | 200 | | | 41,158 | | 41,158 | |
| 1 | 05 | 02 | 02 | | | Assemble Far Hall - Slow Controls | 13-Mar-07 | 9-Apr-07 | | C | LL_CT | Hrs | 250 | | | 37,233 | | 37,233 | |
| 1 | 05 | 02 | 02 | | | Assemble Far Hall - Slow Controls | 13-Mar-07 | 9-Apr-07 | | C | LL_CE | Hrs | 1,000 | | | 191,660 | | 191,660 | |
| 1 | 05 | 02 | 02 | | | Programming Far Hall - Slow Controls | 10-Apr-07 | 7-May-07 | | C | LL_CP | Hrs | 200 | | | 41,158 | | 41,158 | |
| 1 | 05 | 02 | 03 | | | Fast Controls | | | | | | | 376 | - | 73,200 | - | 73,200 | | |
| 1 | 05 | 02 | 03 | | | Specification - Fast Controls | 5-Jul-06 | 29-Aug-06 | | C | LL_PHS | Hrs | 80 | | | 15,968 | | 15,968 | |
| 1 | 05 | 02 | 03 | | | Design - Fast Controls | 30-Aug-06 | 25-Oct-06 | | C | LL_PHS | Hrs | 160 | | | 32,310 | | 32,310 | |
| 1 | 05 | 02 | 03 | | | Prepare Bid Pkg - Fast Controls | 26-Oct-06 | 22-Nov-06 | | C | LL_CE | Hrs | 16 | | | 3,067 | | 3,067 | |
| 1 | 05 | 02 | 03 | | | Assemble FEE - Fast Controls | 2-Jul-07 | 30-Jul-07 | | C | LL_CT | Hrs | 40 | | | 5,957 | | 5,957 | |
| 1 | 05 | 02 | 03 | | | Assemble FEE - Fast Controls | 2-Jul-07 | 30-Jul-07 | | C | LL_CE | Hrs | 40 | | | 7,666 | | 7,666 | |
| 1 | 05 | 02 | 03 | | | Programming FEE - Fast Controls | 31-Jul-07 | 27-Aug-07 | | C | LL_CP | Hrs | 40 | | | 8,232 | | 8,232 | |
| 1 | 05 | 02 | 04 | | | Femto Controls | | | | | | | 296 | - | 57,045 | - | 57,045 | | |
| 1 | 05 | 02 | 04 | | | Specification - Femto Controls | 5-Jul-06 | 29-Aug-06 | | C | LL_PHS | Hrs | 80 | | | 15,968 | | 15,968 | |
| 1 | 05 | 02 | 04 | | | Design - Femto Controls | 30-Aug-06 | 25-Oct-06 | | C | LL_PHS | Hrs | 80 | | | 16,155 | | 16,155 | |
| 1 | 05 | 02 | 04 | | | Prepare Bid Pkg - Femto Controls | 26-Oct-06 | 22-Nov-06 | | C | LL_CE | Hrs | 16 | | | 3,067 | | 3,067 | |
| 1 | 05 | 02 | 04 | | | Assemble FEE - Femto Controls | 2-Jul-07 | 30-Jul-07 | | C | LL_CT | Hrs | 40 | | | 5,957 | | 5,957 | |
| 1 | 05 | 02 | 04 | | | Assemble FEE - Femto Controls | 2-Jul-07 | 30-Jul-07 | | C | LL_CE | Hrs | 40 | | | 7,666 | | 7,666 | |
| 1 | 05 | 02 | 04 | | | Programming FEE - Femto Controls | 31-Jul-07 | 27-Aug-07 | | C | LL_CP | Hrs | 40 | | | 8,232 | | 8,232 | |
| 1 | 05 | 03 | | | | Mechanical & Vacuum Subsystem | | | | | | | 3,720 | 2,661,035 | 677,496 | 3,472,221 | 4,149,717 | | |
| 1 | 05 | 03 | 01 | | | Vacuum Systems Engineering | | | | | | | | | | | | | |
| 1 | 05 | 03 | 02 | | | Mech/Vac Front End | | | | | | | 1,520 | 546,147 | 277,862 | 719,755 | 997,617 | | |
| 1 | 05 | 03 | 02 | | | Design - FEE Mech/Vac | 25-May-05 | 26-Jan-06 | | P | LL_ME | Hrs | 1,120 | | | 206,009 | | 206,009 | |
| 1 | 05 | 03 | 02 | | | Specification - FEE Mech/Vac | 1-Feb-05 | 24-May-05 | | P | LL_ME | Hrs | 200 | | | 36,342 | | 36,342 | |
| 1 | 05 | 03 | 02 | | | Design - Electron Dump Mech/Vac | 15-Oct-07 | 9-Nov-07 | | C | LL_ME | Hrs | 80 | | | 15,731 | | 15,731 | |

LCLS TPC Detailed Cost Estimate (FY05FY09)

5/5/2005

| WBS Level | | | | | | LCLA DCE March-2005 | Early | Early | OBS | Fund | Res | Units | Budgeted Quantity | | Fully Burdened and Escalated Cost | | |
|--------------------------|----|----|----|----|---|--|-----------|-----------|-----|------|---------|-------|-------------------|-----------|-----------------------------------|-----------|--------------------|
| Run Time: 4/22/05 8:43am | | | | | | Description | Start | Finish | | Type | Code | | Hours | \$ | Labor | M&S | Total (No Conting) |
| 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | | | | | |
| 1 | 05 | 03 | 02 | | | Vendor Fab/Ship Vacuum System Cart - Mech/Vac | 6-Nov-07 | 5-Dec-07 | L | C | LA_MSEQ | \$\$ | | 133,000 | | 176,890 | 176,890 |
| 1 | 05 | 03 | 02 | | | Vendor Fab/Ship Welding Cart - Mech/Vac | 13-Nov-07 | 12-Dec-07 | L | C | LA_MSEQ | \$\$ | | 14,000 | | 18,620 | 18,620 |
| 1 | 05 | 03 | 02 | | | Vendor Ship Tools - Mech/Vac | 20-Nov-07 | 4-Jan-08 | L | C | LA_MSEQ | \$\$ | | 20,000 | | 26,600 | 26,600 |
| 1 | 05 | 03 | 02 | | | Vendor Fab/Ship Valves - FEE Mech/Vac | 24-Apr-07 | 16-Aug-07 | C | C | LA_MSEQ | \$\$ | | 77,576 | | 100,073 | 100,073 |
| 1 | 05 | 03 | 02 | | | Vendor Fab Stands - FEE Mech/Vac | 24-Apr-07 | 15-Aug-07 | C | C | LA_MSEQ | \$\$ | | 8,043 | | 10,375 | 10,375 |
| 1 | 05 | 03 | 02 | | | Vendor Fab/Ship Ion Pump - FEE Mech/Vac | 24-Apr-07 | 15-Aug-07 | C | C | LA_MSEQ | \$\$ | | 43,933 | | 56,674 | 56,674 |
| 1 | 05 | 03 | 02 | | | Procure Valves - ED Mech/Vac | 12-Nov-07 | 25-Jan-08 | C | C | LL_MSEQ | \$\$ | | 51,405 | | 68,369 | 68,369 |
| 1 | 05 | 03 | 02 | | | Procure Bellows and Spools - ED Mech/Vac | 12-Nov-07 | 25-Jan-08 | C | C | LL_MSEQ | \$\$ | | 5,210 | | 6,929 | 6,929 |
| 1 | 05 | 03 | 02 | | | Vendor Fab/Ship Ion Pumps - ED Mech/Vac | 7-Jan-08 | 4-Feb-08 | C | C | LA_MSEQ | \$\$ | | 14,644 | | 19,477 | 19,477 |
| 1 | 05 | 03 | 02 | | | Procure Vacuum Hardware - ED Mech/Vac | 12-Nov-07 | 25-Jan-08 | C | C | LL_MSEQ | \$\$ | | 6,067 | | 8,069 | 8,069 |
| 1 | 05 | 03 | 02 | | | Procure Ion Gauges - ED Mech/Vac | 12-Nov-07 | 25-Jan-08 | C | C | LL_MSEQ | \$\$ | | 3,596 | | 4,783 | 4,783 |
| 1 | 05 | 03 | 02 | | | Procure Stands - ED Mech/Vac | 12-Nov-07 | 25-Jan-08 | C | C | LL_MSEQ | \$\$ | | 2,681 | | 3,566 | 3,566 |
| 1 | 05 | 03 | 02 | | | Procure Vacuum Hardware - FEE Mech/Vac | 26-Jan-07 | 23-Feb-07 | C | C | LL_MSEQ | \$\$ | | 13,140 | | 16,951 | 16,951 |
| 1 | 05 | 03 | 02 | | | Procure Ion Gauge - FEE Mech/Vac | 26-Jan-07 | 23-Feb-07 | C | C | LL_MSEQ | \$\$ | | 8,572 | | 11,058 | 11,058 |
| 1 | 05 | 03 | 02 | | | Procure Bellows & Spools - FEE Mech/Vac | 26-Jan-07 | 23-Feb-07 | C | C | LL_MSEQ | \$\$ | | 14,280 | | 18,421 | 18,421 |
| 1 | 05 | 03 | 02 | | | Assemble - FEE Mech/Vac | 17-Aug-07 | 14-Sep-07 | C | | LL_MFAT | Hrs | 80 | | 11,914 | | 11,914 |
| 1 | 05 | 03 | 02 | | | Vendor Fab/Ship Leak Detectors - Mech/Vac | 25-Feb-08 | 21-Mar-08 | L | C | LA_MSEQ | \$\$ | | 130,000 | | 172,900 | 172,900 |
| 1 | 05 | 03 | 02 | | | Specification - Electron Dump Mech/Vac | 1-Oct-07 | 12-Oct-07 | C | | LL_ME | Hrs | 40 | | 7,866 | | 7,866 |
| 1 | 05 | 03 | 03 | | | Mech/Vac Near Hall | | | | | | | 1,360 | 311,670 | 249,114 | 402,057 | 651,171 |
| 1 | 05 | 03 | 03 | 01 | | NEH Hutch 1 | | | | | | | 640 | 109,948 | 119,552 | 141,834 | 261,386 |
| 1 | 05 | 03 | 03 | 01 | | Vendor Fab/Ship Ion Pumps - NEH Mech/Vac - H1 | 10-Nov-06 | 22-Feb-07 | C | C | LA_MSEQ | \$\$ | | 29,289 | | 37,783 | 37,783 |
| 1 | 05 | 03 | 03 | 01 | | Vendor Fab/Ship Stands - NEH Mech/Vac - H1 | 10-Nov-06 | 22-Feb-07 | C | C | LA_MSEQ | \$\$ | | 5,362 | | 6,917 | 6,917 |
| 1 | 05 | 03 | 03 | 01 | | Procure Isolation Valves - NEH Mech/Vac - H1 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 1,980 | | 2,554 | 2,554 |
| 1 | 05 | 03 | 03 | 01 | | Procure Berilium Valves - NEH Mech/Vac - H1 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 18,778 | | 24,224 | 24,224 |
| 1 | 05 | 03 | 03 | 01 | | Procure Vacuum Hardware - NEH Mech/Vac - H1 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 9,587 | | 12,367 | 12,367 |
| 1 | 05 | 03 | 03 | 01 | | Procure Ion Gauges - NEH Mech/Vac - H1 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 7,192 | | 9,278 | 9,278 |
| 1 | 05 | 03 | 03 | 01 | | Procure Gate Isolation Valve - NEH Mech/Vac - H1 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 29,640 | | 38,236 | 38,236 |
| 1 | 05 | 03 | 03 | 01 | | Procure Bellow & Spools - NEH Mech/Vac - H1 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 8,120 | | 10,475 | 10,475 |
| 1 | 05 | 03 | 03 | 01 | | Specification - Near Hall Mech/Vac - H1 | 27-Jan-06 | 21-Apr-06 | C | | LL_MVE | Hrs | 200 | | 37,360 | | 37,360 |
| 1 | 05 | 03 | 03 | 01 | | Design - Near Hall Mech/Vac - H1 | 24-Apr-06 | 27-Sep-06 | C | | LL_MVE | Hrs | 440 | | 82,192 | | 82,192 |
| 1 | 05 | 03 | 03 | 02 | | NEH Hutch 2 | | | | | | | 360 | 102,815 | 64,781 | 132,632 | 197,413 |
| 1 | 05 | 03 | 03 | 02 | | Procure Isolation Valves - NEH Mech/Vac - H2 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 1,980 | | 2,554 | 2,554 |
| 1 | 05 | 03 | 03 | 02 | | Procure Berilium Valves - NEH Mech/Vac - H2 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 18,778 | | 24,224 | 24,224 |
| 1 | 05 | 03 | 03 | 02 | | Procure Vacuum Hardware - NEH Mech/Vac - H2 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 9,417 | | 12,148 | 12,148 |
| 1 | 05 | 03 | 03 | 02 | | Procure Ion Gauges - NEH Mech/Vac - H2 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 7,192 | | 9,278 | 9,278 |
| 1 | 05 | 03 | 03 | 02 | | Procure Stands - NEH Mech/Vac - H2 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 5,359 | | 6,913 | 6,913 |
| 1 | 05 | 03 | 03 | 02 | | Procure Gate Isolation Valves -NEH Mech/Vac - H2 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 22,230 | | 28,677 | 28,677 |
| 1 | 05 | 03 | 03 | 02 | | Procure Bellows & Spools - NEH Mech/Vac - H2 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 8,570 | | 11,055 | 11,055 |
| 1 | 05 | 03 | 03 | 02 | | Procure Ion Pump - NEH Mech/Vac - H2 | 3-Oct-06 | 29-Nov-06 | C | C | LA_MSEQ | \$\$ | | 29,289 | | 37,783 | 37,783 |
| 1 | 05 | 03 | 03 | 02 | | Specification - Near Hall Mech/Vac - H2 | 27-Jan-06 | 21-Apr-06 | C | | LL_MVE | Hrs | 200 | | 37,360 | | 37,360 |
| 1 | 05 | 03 | 03 | 02 | | Design - Near Hall Mech/Vac - H2 | 24-Apr-06 | 15-Aug-06 | C | | LL_MDD | Hrs | 160 | | 27,421 | | 27,421 |
| 1 | 05 | 03 | 03 | 03 | | NEH Hutch 3 | | | | | | | 360 | 98,907 | 64,781 | 127,591 | 192,372 |
| 1 | 05 | 03 | 03 | 03 | | Vendor Fab/Ship Ion Pumps - NEH Mech/Vac - H3 | 10-Nov-06 | 22-Feb-07 | C | C | LA_MSEQ | \$\$ | | 29,289 | | 37,783 | 37,783 |
| 1 | 05 | 03 | 03 | 03 | | Procure Gate Isolation Valve - NEH Mech/Vac - H3 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 37,050 | | 47,795 | 47,795 |
| 1 | 05 | 03 | 03 | 03 | | Procure Bellows & Spools - NEH Mech/Vac - H3 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 8,620 | | 11,120 | 11,120 |
| 1 | 05 | 03 | 03 | 03 | | Procure Isolation Valve - NEH Mech/Vac - H3 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 1,980 | | 2,554 | 2,554 |
| 1 | 05 | 03 | 03 | 03 | | Procure Vacuum Hardware - NEH Mech/Vac - H3 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 9,417 | | 12,148 | 12,148 |
| 1 | 05 | 03 | 03 | 03 | | Procure Ion Gauges - NEH Mech/Vac - H3 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 7,192 | | 9,278 | 9,278 |
| 1 | 05 | 03 | 03 | 03 | | Procure Stands - NEH Mech/Vac - H3 | 2-Oct-06 | 28-Nov-06 | C | C | LL_MSEQ | \$\$ | | 5,359 | | 6,913 | 6,913 |
| 1 | 05 | 03 | 03 | 03 | | Specification - Near Hall Mech/Vac - H3 | 27-Jan-06 | 21-Apr-06 | C | | LL_MVE | Hrs | 200 | | 37,360 | | 37,360 |
| 1 | 05 | 03 | 03 | 03 | | Design - Near Hall Mech/Vac - H3 | 24-Apr-06 | 15-Aug-06 | C | | LL_MDD | Hrs | 160 | | 27,421 | | 27,421 |
| 1 | 05 | 03 | 04 | | | Mech/Vac Tunnel | | | | | | | 240 | 1,590,734 | 42,832 | 2,067,811 | 2,110,643 |
| 1 | 05 | 03 | 04 | | | Vendor Fab/Ship Vacuum Hardware- Tunnel Mech/Vac | 5-Oct-07 | 3-Dec-07 | C | C | LA_MSEQ | \$\$ | | 134,116 | | 178,374 | 178,374 |
| 1 | 05 | 03 | 04 | | | Vendor Fab Gate Isolation Valve -Tunnel Mech/Vac | 5-Oct-07 | 3-Dec-07 | C | C | LA_MSEQ | \$\$ | | 185,250 | | 246,383 | 246,383 |
| 1 | 05 | 03 | 04 | | | Vendor Fab/Ship Ion Pumps - Tunnel Mech/Vac | 8-Oct-07 | 4-Dec-07 | C | C | LA_MSXX | \$\$ | | 217,568 | | 241,500 | 241,500 |
| 1 | 05 | 03 | 04 | | | Vendor Fab/Ship Ion Pumps - Tunnel Mech/Vac | 8-Oct-07 | 4-Dec-07 | C | C | LA_MSEQ | \$\$ | | 500,000 | | 665,000 | 665,000 |
| 1 | 05 | 03 | 04 | | | Vendor Fab Spools - Tunnel Mech/Vac | 8-Oct-07 | 4-Dec-07 | C | C | LA_MSEQ | \$\$ | | 233,240 | | 310,209 | 310,209 |
| 1 | 05 | 03 | 04 | | | Vendor Fab/Ship Ion Gauges - Tunnel Mech/Vac | 8-Oct-07 | 4-Dec-07 | C | C | LA_MSEQ | \$\$ | | 140,748 | | 187,195 | 187,195 |
| 1 | 05 | 03 | 04 | | | Vendor Fab/Ship Stands - Tunnel Mech/Vac | 5-Oct-07 | 3-Dec-07 | C | C | LA_MSEQ | \$\$ | | 131,302 | | 174,632 | 174,632 |
| 1 | 05 | 03 | 04 | | | Procure Hand Isolation Valve - Tunnel Mech/Vac | 5-Oct-07 | 3-Dec-07 | C | C | LL_MSEQ | \$\$ | | 48,510 | | 64,518 | 64,518 |
| 1 | 05 | 03 | 04 | | | Specification - Tunnel Mech/Vac | 19-Jun-07 | 2-Jul-07 | C | | LL_MVE | Hrs | 40 | | 7,666 | | 7,666 |
| 1 | 05 | 03 | 04 | | | Design - Tunnel Mech/Vac | 3-Jul-07 | 28-Aug-07 | C | | LL_MDD | Hrs | 200 | | 35,166 | | 35,166 |
| 1 | 05 | 03 | 05 | | | Mech/Vac Far Hall | | | | | | | 600 | 212,484 | 107,688 | 282,598 | 390,286 |
| 1 | 05 | 03 | 05 | 01 | | FEH Hutch 1 | | | | | | | 200 | 79,224 | 35,896 | 105,366 | 141,262 |

LCLS TPC Detailed Cost Estimate (FY05FY09)

5/5/2005

| WBS Level | | | | | | LCLA DCE March-2005 | Early | Early | OBS | Fund | Res | Units | Budgeted Quantity | | Fully Burdened and Escalated Cost | | |
|--------------------------|----|----|----|----|--|--|-----------|-----------|-----|------|---------|-------|-------------------|------------------|-----------------------------------|------------------|--------------------|
| Run Time: 4/22/05 8:43am | | | | | | Description | Start | Finish | | Type | Code | | Hours | \$ | Labor | M&S | Total (No Conting) |
| 1 | | | | | | Vendor Fab/Ship Ion Pump - Far Hall Mech/Vac | 16-Nov-07 | 31-Jan-08 | | C | LA_MSEQ | \$\$ | | 24,434 | | 32,497 | 32,497 |
| 1 | 05 | 03 | 05 | 01 | | Vendor Fab/Ship Stands - Far Hall Mech/Vac | 16-Nov-07 | 31-Jan-08 | | C | LA_MSEQ | \$\$ | | 5,362 | | 7,131 | 7,131 |
| 1 | 05 | 03 | 05 | 01 | | Procure Spools - Far Hall Mech/Vac - H1 | 11-Oct-07 | 7-Dec-07 | | C | LL_MSEQ | \$\$ | | 6,240 | | 8,299 | 8,299 |
| 1 | 05 | 03 | 05 | 01 | | Procure Ion Gauges - Far Hall Mech/Vac - H1 | 11-Oct-07 | 7-Dec-07 | | C | LL_MSEQ | \$\$ | | 4,286 | | 5,700 | 5,700 |
| 1 | 05 | 03 | 05 | 01 | | Specification - Far Hall Mech/Vac - H1 | 19-Jun-07 | 17-Jul-07 | | C | LL_MVE | Hrs | 40 | | 7,666 | | 7,666 |
| 1 | 05 | 03 | 05 | 01 | | Design - Far Hall Mech/Vac - H1 | 18-Jul-07 | 10-Oct-07 | | C | LL_MDD | Hrs | 160 | | 28,230 | | 28,230 |
| 1 | 05 | 03 | 05 | 01 | | Procure Hand Isolation Valve-Far Hall Mec/Vac-H1 | 11-Oct-07 | 7-Dec-07 | | C | LL_MSEQ | \$\$ | | 1,485 | | 1,975 | 1,975 |
| 1 | 05 | 03 | 05 | 01 | | Procure Gate Isolation Valve-Far Hall Mec/Vac-H1 | 11-Oct-07 | 7-Dec-07 | | C | LL_MSEQ | \$\$ | | 29,640 | | 39,421 | 39,421 |
| 1 | 05 | 03 | 05 | 01 | | Procure Vacuum Hardware - Far Hall Mech/Vac - H1 | 11-Oct-07 | 7-Dec-07 | | C | LL_MSEQ | \$\$ | | 7,777 | | 10,343 | 10,343 |
| 1 | 05 | 03 | 05 | 02 | | FEH Hutch 2 | | | | | | | 200 | 83,676 | 35,896 | 111,287 | 147,183 |
| 1 | 05 | 03 | 05 | 02 | | Vendor Fab/Ship Ion Pump - Far Hall Mech/Vac | 16-Nov-07 | 31-Jan-08 | | C | LA_MSEQ | \$\$ | | 24,434 | | 32,497 | 32,497 |
| 1 | 05 | 03 | 05 | 02 | | Procure Gate Isolation Valve - Far Hall Mech/Vac | 11-Oct-07 | 7-Dec-07 | | C | LL_MSEQ | \$\$ | | 7,410 | | 9,855 | 9,855 |
| 1 | 05 | 03 | 05 | 02 | | Procure Vacuum Hardware - Far Hall Mech/Vac | 11-Oct-07 | 7-Dec-07 | | C | LL_MSEQ | \$\$ | | 7,777 | | 10,343 | 10,343 |
| 1 | 05 | 03 | 05 | 02 | | Procure Stands - Far Hall Mech/Vac | 11-Oct-07 | 7-Dec-07 | | C | LL_MSEQ | \$\$ | | 5,362 | | 7,131 | 7,131 |
| 1 | 05 | 03 | 05 | 02 | | Procure Ion Gauges - Far Hall Mech/Vac | 11-Oct-07 | 7-Dec-07 | | C | LL_MSEQ | \$\$ | | 4,286 | | 5,700 | 5,700 |
| 1 | 05 | 03 | 05 | 02 | | Procure Berilium Valves - Far Hall Mech/Vac | 11-Oct-07 | 7-Dec-07 | | C | LL_MSEQ | \$\$ | | 28,167 | | 37,462 | 37,462 |
| 1 | 05 | 03 | 05 | 02 | | Procure Bellows & Spools - Far Hall Mech/Vac | 11-Oct-07 | 7-Dec-07 | | C | LL_MSEQ | \$\$ | | 6,240 | | 8,299 | 8,299 |
| 1 | 05 | 03 | 05 | 02 | | Specification - Far Hall Mech/Vac - H2 | 19-Jun-07 | 17-Jul-07 | | C | LL_MVE | Hrs | 40 | | 7,666 | | 7,666 |
| 1 | 05 | 03 | 05 | 02 | | Design - Far Hall Mech/Vac - H2 | 18-Jul-07 | 10-Oct-07 | | C | LL_MDD | Hrs | 160 | | 28,230 | | 28,230 |
| 1 | 05 | 03 | 05 | 03 | | FEH Hutch 3 | | | | | | | 200 | 49,584 | 35,896 | 65,945 | 101,841 |
| 1 | 05 | 03 | 05 | 03 | | Procure Ion Gauges - Far Hall Mech/Vac | 11-Oct-07 | 7-Dec-07 | | C | LL_MSEQ | \$\$ | | 4,286 | | 5,700 | 5,700 |
| 1 | 05 | 03 | 05 | 03 | | Procure Stands - Far Hall Mech/Vac | 11-Oct-07 | 7-Dec-07 | | C | LL_MSEQ | \$\$ | | 5,362 | | 7,131 | 7,131 |
| 1 | 05 | 03 | 05 | 03 | | Vendor Fab/Ship Ion Pump - Far Hall Mech/Vac | 16-Nov-07 | 31-Jan-08 | | C | LA_MSEQ | \$\$ | | 24,434 | | 32,497 | 32,497 |
| 1 | 05 | 03 | 05 | 03 | | Procure Bellows & Spools - Far Hall Mech/Vac | 11-Oct-07 | 7-Dec-07 | | C | LL_MSEQ | \$\$ | | 6,240 | | 8,299 | 8,299 |
| 1 | 05 | 03 | 05 | 03 | | Procure Hand Isolation Valve - Far Hall Mech/Vac | 11-Oct-07 | 7-Dec-07 | | C | LL_MSEQ | \$\$ | | 1,485 | | 1,975 | 1,975 |
| 1 | 05 | 03 | 05 | 03 | | Specification - Far Hall Mech/Vac - H3 | 19-Jun-07 | 17-Jul-07 | | C | LL_MVE | Hrs | 40 | | 7,666 | | 7,666 |
| 1 | 05 | 03 | 05 | 03 | | Design - Far Hall Mech/Vac - H3 | 18-Jul-07 | 10-Oct-07 | | C | LL_MDD | Hrs | 160 | | 28,230 | | 28,230 |
| 1 | 05 | 03 | 05 | 03 | | Procure Vacuum Hardware - Far Hall Mech/Vac | 11-Oct-07 | 7-Dec-07 | | C | LL_MSEQ | \$\$ | | 7,777 | | 10,343 | 10,343 |
| 1 | 05 | 04 | | | | Optical Subsystem | | | | | | | 24,516 | 2,896,520 | 3,987,920 | 3,690,500 | 7,678,420 |
| 1 | 05 | 04 | 01 | | | Optical Systems Engineering | | | | | | | | | | | |
| 1 | 05 | 04 | 02 | | | Facility Optics | | | | | | | 17,916 | 2,473,820 | 3,260,560 | 3,169,073 | 6,429,633 |
| 1 | 05 | 04 | 02 | 01 | | Facility Optics Engineering | | | | | | | | | | | |
| 1 | 05 | 04 | 02 | 02 | | Fixed Mask | | | | | | | 1,548 | 39,000 | 299,109 | 50,310 | 349,419 |
| 1 | 05 | 04 | 02 | 02 | | Specification - Fixed Mask 1 | 2-Oct-06 | 27-Oct-06 | | C | LL_PHSS | Hrs | 40 | | 9,046 | | 9,046 |
| 1 | 05 | 04 | 02 | 02 | | Design - Fixed Mask 1 | 30-Oct-06 | 6-Apr-07 | | C | LL_PRE | Hrs | 40 | | 7,666 | | 7,666 |
| 1 | 05 | 04 | 02 | 02 | | Design - Fixed Mask 1 | 30-Oct-06 | 6-Apr-07 | | C | LL_PHS | Hrs | 120 | | 24,575 | | 24,575 |
| 1 | 05 | 04 | 02 | 02 | | Design - Fixed Mask 1 | 30-Oct-06 | 6-Apr-07 | | C | LL_PCCA | Hrs | 40 | | 6,874 | | 6,874 |
| 1 | 05 | 04 | 02 | 02 | | Design - Fixed Mask 1 | 30-Oct-06 | 6-Apr-07 | | C | LL_MVE | Hrs | 120 | | 22,999 | | 22,999 |
| 1 | 05 | 04 | 02 | 02 | | Inspect - Fixed Mask 1 | 7-Sep-07 | 10-Sep-07 | | C | LL_PHS | Hrs | 16 | | 3,277 | | 3,277 |
| 1 | 05 | 04 | 02 | 02 | | Fab - Fixed Mask 1 | 11-Sep-07 | 18-Jan-08 | | C | LL_MFAT | Hrs | 100 | | 15,212 | | 15,212 |
| 1 | 05 | 04 | 02 | 02 | | Characterize - Fixed Mask 1 | 22-Jan-08 | 19-Feb-08 | | C | LL_PHSS | Hrs | 80 | | 18,562 | | 18,562 |
| 1 | 05 | 04 | 02 | 02 | | Design Review - Fixed Mask 1 | 9-Apr-07 | 4-May-07 | | C | LL_PHS | Hrs | 16 | | 3,277 | | 3,277 |
| 1 | 05 | 04 | 02 | 02 | | Design Review - Fixed Mask 1 | 9-Apr-07 | 4-May-07 | | C | LL_MVE | Hrs | 16 | | 3,067 | | 3,067 |
| 1 | 05 | 04 | 02 | 02 | | Prepare Bid Pkg - Fixed Mask 1 | 7-May-07 | 11-May-07 | | C | LL_PM | Hrs | 40 | | 8,192 | | 8,192 |
| 1 | 05 | 04 | 02 | 02 | | Vendor Fab - Fixed Mask 1 | 13-Jun-07 | 6-Sep-07 | | C | LA_MSEQ | \$\$ | | 13,000 | | 16,770 | 16,770 |
| 1 | 05 | 04 | 02 | 02 | | Specification - Fixed Mask 2 | 2-Oct-06 | 27-Oct-06 | | C | LL_PHS | Hrs | 40 | | 8,192 | | 8,192 |
| 1 | 05 | 04 | 02 | 02 | | Design - Fixed Mask 2 | 30-Oct-06 | 6-Apr-07 | | C | LL_MVE | Hrs | 80 | | 15,333 | | 15,333 |
| 1 | 05 | 04 | 02 | 02 | | Design - Fixed Mask 2 | 30-Oct-06 | 6-Apr-07 | | C | LL_MDD | Hrs | 72 | | 12,660 | | 12,660 |
| 1 | 05 | 04 | 02 | 02 | | Design Review - Fixed Mask 2 | 9-Apr-07 | 4-May-07 | | C | LL_PHS | Hrs | 16 | | 3,277 | | 3,277 |
| 1 | 05 | 04 | 02 | 02 | | Design Review - Fixed Mask 2 | 9-Apr-07 | 4-May-07 | | C | LL_MVE | Hrs | 16 | | 3,067 | | 3,067 |
| 1 | 05 | 04 | 02 | 02 | | Prepare Bid Pkg - Fixed Mask 2 | 7-May-07 | 11-May-07 | | C | LL_PM | Hrs | 40 | | 8,192 | | 8,192 |
| 1 | 05 | 04 | 02 | 02 | | Vendor Fab - Fixed Mask 2 | 13-Jun-07 | 6-Sep-07 | | C | LA_MSEQ | \$\$ | | 13,000 | | 16,770 | 16,770 |
| 1 | 05 | 04 | 02 | 02 | | Inspect - Fixed Mask 2 | 7-Sep-07 | 10-Sep-07 | | C | LL_PHS | Hrs | 16 | | 3,277 | | 3,277 |
| 1 | 05 | 04 | 02 | 02 | | Fab - Fixed Mask 2 | 11-Sep-07 | 18-Jan-08 | | C | LL_MFAT | Hrs | 100 | | 15,212 | | 15,212 |
| 1 | 05 | 04 | 02 | 02 | | Characterize - Fixed Mask 2 | 22-Jan-08 | 19-Feb-08 | | C | LL_PHSS | Hrs | 80 | | 18,562 | | 18,562 |
| 1 | 05 | 04 | 02 | 02 | | Specification - Fixed Mask 3 | 2-Oct-06 | 27-Oct-06 | | C | LL_PHS | Hrs | 40 | | 8,192 | | 8,192 |
| 1 | 05 | 04 | 02 | 02 | | Design - Fixed Mask 3 | 30-Oct-06 | 6-Apr-07 | | C | LL_PHS | Hrs | 72 | | 14,745 | | 14,745 |
| 1 | 05 | 04 | 02 | 02 | | Design - Fixed Mask 3 | 30-Oct-06 | 6-Apr-07 | | C | LL_MDD | Hrs | 80 | | 14,066 | | 14,066 |
| 1 | 05 | 04 | 02 | 02 | | Design Review - Fixed Mask 3 | 9-Apr-07 | 4-May-07 | | C | LL_PHS | Hrs | 16 | | 3,277 | | 3,277 |
| 1 | 05 | 04 | 02 | 02 | | Design Review - Fixed Mask 3 | 9-Apr-07 | 4-May-07 | | C | LL_MVE | Hrs | 16 | | 3,067 | | 3,067 |
| 1 | 05 | 04 | 02 | 02 | | Prepare Bid Pkg - Fixed Mask 3 | 7-May-07 | 11-May-07 | | C | LL_PM | Hrs | 40 | | 8,192 | | 8,192 |
| 1 | 05 | 04 | 02 | 02 | | Vendor Fab - Fixed Mask 3 | 13-Jun-07 | 6-Sep-07 | | C | LA_MSEQ | \$\$ | | 13,000 | | 16,770 | 16,770 |
| 1 | 05 | 04 | 02 | 02 | | Inspect - Fixed Mask 3 | 7-Sep-07 | 10-Sep-07 | | C | LL_PHS | Hrs | 16 | | 3,277 | | 3,277 |
| 1 | 05 | 04 | 02 | 02 | | Fab - Fixed Mask 3 | 11-Sep-07 | 18-Jan-08 | | C | LL_MFAT | Hrs | 100 | | 15,212 | | 15,212 |

LCLS TPC Detailed Cost Estimate (FY05FY09)

5/5/2005

| WBS Level | | | | | | LCLA DCE March-2005 Description | Early Start | Early Finish | OBS | Fund Type | Res Code | Units | Budgeted Quantity | | Fully Burdened and Escalated Cost | | | |
|--------------------------|----|----|----|----|---|---|-------------|--------------|-----|-----------|----------|-------|-------------------|---------|-----------------------------------|-----------|--------------------|---------|
| Run Time: 4/22/05 8:43am | | | | | | | | | | | | | Hours | \$ | Labor | M&S | Total (No Conting) | |
| 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | | | | | | |
| 1 | 05 | 04 | 02 | 03 | | Characterize - Fixed Mask 3 | 22-Jan-08 | 19-Feb-08 | | C | LL_PHSS | Hrs | 80 | | | 18,562 | | 18,562 |
| 1 | 05 | 04 | 02 | 03 | | Slit/Collimator A | | | | | | | 4,648 | 962,000 | 823,607 | 1,226,550 | 2,050,157 | |
| 1 | 05 | 04 | 02 | 03 | | Specification - Slit/Collimator A | 3-Oct-05 | 28-Oct-05 | | C | LL_PRE | Hrs | 40 | | | 7,472 | | 7,472 |
| 1 | 05 | 04 | 02 | 03 | | Specification - Slit/Collimator A | 3-Oct-05 | 28-Oct-05 | | C | LL_PHSS | Hrs | 80 | | | 17,634 | | 17,634 |
| 1 | 05 | 04 | 02 | 03 | | Design - Slit/Collimator A | 31-Oct-05 | 7-Apr-06 | | C | LL_PHS | Hrs | 80 | | | 15,968 | | 15,968 |
| 1 | 05 | 04 | 02 | 03 | | Design - Slit/Collimator A | 31-Oct-05 | 7-Apr-06 | | C | LL_PCCA | Hrs | 24 | | | 4,020 | | 4,020 |
| 1 | 05 | 04 | 02 | 03 | | Design - Slit/Collimator A | 31-Oct-05 | 7-Apr-06 | | C | LL_MVE | Hrs | 80 | | | 14,944 | | 14,944 |
| 1 | 05 | 04 | 02 | 03 | | Design - Slit/Collimator A | 31-Oct-05 | 7-Apr-06 | | C | LL_ME | Hrs | 800 | | | 149,440 | | 149,440 |
| 1 | 05 | 04 | 02 | 03 | | Design - Slit/Collimator A | 31-Oct-05 | 7-Apr-06 | | C | LL_MDD | Hrs | 500 | | | 85,690 | | 85,690 |
| 1 | 05 | 04 | 02 | 03 | | Design - Slit/Collimator A | 31-Oct-05 | 7-Apr-06 | | C | LL_CT | Hrs | 80 | | | 11,612 | | 11,612 |
| 1 | 05 | 04 | 02 | 03 | | Assemble Tank - Slit/Collimator A | 19-Jul-06 | 18-Apr-07 | | C | LL_MFAT | Hrs | 160 | | | 23,654 | | 23,654 |
| 1 | 05 | 04 | 02 | 03 | | Assemble Tank - Slit/Collimator A | 19-Jul-06 | 18-Apr-07 | | C | LL_ME | Hrs | 400 | | | 76,102 | | 76,102 |
| 1 | 05 | 04 | 02 | 03 | | Assemble Vacuum System - Slit/Collimator A | 19-Jul-06 | 18-Apr-07 | | C | LL_PHS | Hrs | 80 | | | 16,263 | | 16,263 |
| 1 | 05 | 04 | 02 | 03 | | Assemble Vacuum System - Slit/Collimator A | 19-Jul-06 | 18-Apr-07 | | C | LL_MVE | Hrs | 80 | | | 15,220 | | 15,220 |
| 1 | 05 | 04 | 02 | 03 | | Assemble Vacuum System - Slit/Collimator A | 19-Jul-06 | 18-Apr-07 | | C | LL_MFAT | Hrs | 240 | | | 35,481 | | 35,481 |
| 1 | 05 | 04 | 02 | 03 | | Assemble Electronics - Slit/Collimator A | 13-Jun-06 | 14-Mar-07 | | C | LL_PHS | Hrs | 80 | | | 16,206 | | 16,206 |
| 1 | 05 | 04 | 02 | 03 | | Assemble Electronics - Slit/Collimator A | 13-Jun-06 | 14-Mar-07 | | C | LL_MFAT | Hrs | 240 | | | 35,355 | | 35,355 |
| 1 | 05 | 04 | 02 | 03 | | Assemble Electronics - Slit/Collimator A | 13-Jun-06 | 14-Mar-07 | | C | LL_EE | Hrs | 80 | | | 15,166 | | 15,166 |
| 1 | 05 | 04 | 02 | 03 | | Assemble Precision Hardware - Slit/Collimator A | 19-Jul-06 | 18-Apr-07 | | C | LL_PRE | Hrs | 80 | | | 15,220 | | 15,220 |
| 1 | 05 | 04 | 02 | 03 | | Assemble Precision Hardware - Slit/Collimator A | 19-Jul-06 | 18-Apr-07 | | C | LL_PHS | Hrs | 80 | | | 16,263 | | 16,263 |
| 1 | 05 | 04 | 02 | 03 | | Assemble Precision Hardware - Slit/Collimator A | 19-Jul-06 | 18-Apr-07 | | C | LL_MFAT | Hrs | 240 | | | 35,481 | | 35,481 |
| 1 | 05 | 04 | 02 | 03 | | Design Review - Slit/Collimator A | 10-Apr-06 | 5-May-06 | | C | LL_PHS | Hrs | 8 | | | 1,597 | | 1,597 |
| 1 | 05 | 04 | 02 | 03 | | Design Review - Slit/Collimator A | 10-Apr-06 | 5-May-06 | | C | LL_ME | Hrs | 16 | | | 2,989 | | 2,989 |
| 1 | 05 | 04 | 02 | 03 | | Vendor Fab Jaws - Slit/Collimator A | 20-Jun-06 | 18-Jul-06 | | C | LA_MSEQ | \$\$ | | 130,000 | | | 163,800 | 163,800 |
| 1 | 05 | 04 | 02 | 03 | | Vendor Fab Tank - Slit/Collimator A | 20-Jun-06 | 18-Jul-06 | | C | LA_MSEQ | \$\$ | | 75,000 | | | 94,500 | 94,500 |
| 1 | 05 | 04 | 02 | 03 | | Vendor Fab Vacuum System - Slit/Collimator A | 20-Jun-06 | 18-Jul-06 | | C | LA_MSEQ | \$\$ | | 63,620 | | | 80,161 | 80,161 |
| 1 | 05 | 04 | 02 | 03 | | Vendor Fab Precision Hardware - Slit/Col A | 20-Jun-06 | 18-Jul-06 | | C | LA_MSEQ | \$\$ | | 212,380 | | | 267,599 | 267,599 |
| 1 | 05 | 04 | 02 | 03 | | Engineering - Slit/Collimator A | 31-Oct-05 | 19-Jun-06 | | C | LL_PRE | Hrs | 200 | | | 37,360 | | 37,360 |
| 1 | 05 | 04 | 02 | 03 | | Engineering - Slit/Collimator A | 31-Oct-05 | 19-Jun-06 | | C | LL_ME | Hrs | 40 | | | 7,472 | | 7,472 |
| 1 | 05 | 04 | 02 | 03 | | Engineering - Slit/Collimator A | 31-Oct-05 | 19-Jun-06 | | C | LL_CE | Hrs | 120 | | | 22,416 | | 22,416 |
| 1 | 05 | 04 | 02 | 03 | | Assemble Jaws - Slit/Collimator A | 19-Jul-06 | 18-Apr-07 | | C | LL_PHS | Hrs | 80 | | | 16,263 | | 16,263 |
| 1 | 05 | 04 | 02 | 03 | | Assemble Jaws - Slit/Collimator A | 19-Jul-06 | 18-Apr-07 | | C | LL_MFAT | Hrs | 240 | | | 35,481 | | 35,481 |
| 1 | 05 | 04 | 02 | 03 | | Assemble Jaws - Slit/Collimator A | 19-Jul-06 | 18-Apr-07 | | C | LL_ME | Hrs | 80 | | | 15,220 | | 15,220 |
| 1 | 05 | 04 | 02 | 03 | | Specification - Slit/Collimator B | 2-Oct-06 | 27-Oct-06 | | C | LL_PRE | Hrs | 8 | | | 1,533 | | 1,533 |
| 1 | 05 | 04 | 02 | 03 | | Specification - Slit/Collimator B | 2-Oct-06 | 27-Oct-06 | | C | LL_PHSS | Hrs | 40 | | | 9,046 | | 9,046 |
| 1 | 05 | 04 | 02 | 03 | | Design - Slit/Collimator B | 30-Oct-06 | 6-Apr-07 | | C | LL_MVE | Hrs | 40 | | | 7,666 | | 7,666 |
| 1 | 05 | 04 | 02 | 03 | | Design - Slit/Collimator B | 30-Oct-06 | 6-Apr-07 | | C | LL_MDD | Hrs | 136 | | | 23,913 | | 23,913 |
| 1 | 05 | 04 | 02 | 03 | | Design - Slit/Collimator B | 30-Oct-06 | 6-Apr-07 | | C | LL_CT | Hrs | 40 | | | 5,957 | | 5,957 |
| 1 | 05 | 04 | 02 | 03 | | Prepare Bid Pkg Jaws - Slit/Collimator B | 7-May-07 | 11-May-07 | | C | LL_PCCA | Hrs | 20 | | | 3,437 | | 3,437 |
| 1 | 05 | 04 | 02 | 03 | | Vendor Fab Jaws - Slit/Collimator B | 19-Jun-07 | 17-Jul-07 | | C | LA_MSEQ | \$\$ | | 130,000 | | | 167,700 | 167,700 |
| 1 | 05 | 04 | 02 | 03 | | Vendor Fab Tank - Slit/Collimator B | 19-Jun-07 | 17-Jul-07 | | C | LA_MSEQ | \$\$ | | 75,000 | | | 96,750 | 96,750 |
| 1 | 05 | 04 | 02 | 03 | | Vendor Fab Vacuum System - Slit/Collimator B | 19-Jun-07 | 17-Jul-07 | | C | LA_MSEQ | \$\$ | | 63,620 | | | 82,070 | 82,070 |
| 1 | 05 | 04 | 02 | 03 | | Vendor Fab Precision Hardware - Slit/Col B | 19-Jun-07 | 17-Jul-07 | | C | LA_MSEQ | \$\$ | | 212,380 | | | 273,970 | 273,970 |
| 1 | 05 | 04 | 02 | 03 | | Engineering - Slit/Collimator B | 30-Oct-06 | 18-Jun-07 | | C | LL_PRE | Hrs | 80 | | | 15,333 | | 15,333 |
| 1 | 05 | 04 | 02 | 03 | | Engineering - Slit/Collimator B | 30-Oct-06 | 18-Jun-07 | | C | LL_ME | Hrs | 16 | | | 3,067 | | 3,067 |
| 1 | 05 | 04 | 02 | 03 | | Engineering - Slit/Collimator B | 30-Oct-06 | 18-Jun-07 | | C | LL_CE | Hrs | 40 | | | 7,666 | | 7,666 |
| 1 | 05 | 04 | 02 | 04 | | Slit/Collimator B | | | | | | | 2,344 | 481,000 | 424,574 | 620,490 | 1,045,064 | |
| 1 | 05 | 04 | 02 | 04 | | Specification - Flipper Mirror | 3-Oct-05 | 28-Oct-05 | | C | LL_PRE | Hrs | 8 | | | 1,494 | | 1,494 |
| 1 | 05 | 04 | 02 | 04 | | Specification - Flipper Mirror | 3-Oct-05 | 28-Oct-05 | | C | LL_PHSS | Hrs | 40 | | | 8,817 | | 8,817 |
| 1 | 05 | 04 | 02 | 04 | | Design - Flipper Mirror | 31-Oct-05 | 7-Apr-06 | | C | LL_MVE | Hrs | 40 | | | 7,472 | | 7,472 |
| 1 | 05 | 04 | 02 | 04 | | Design - Flipper Mirror | 31-Oct-05 | 7-Apr-06 | | C | LL_MDD | Hrs | 136 | | | 23,308 | | 23,308 |
| 1 | 05 | 04 | 02 | 04 | | Design - Flipper Mirror | 31-Oct-05 | 7-Apr-06 | | C | LL_CT | Hrs | 40 | | | 5,806 | | 5,806 |
| 1 | 05 | 04 | 02 | 04 | | Engineering - Flipper Mirror | 31-Oct-05 | 19-Jun-06 | | C | LL_PRE | Hrs | 80 | | | 14,944 | | 14,944 |
| 1 | 05 | 04 | 02 | 04 | | Engineering - Flipper Mirror | 31-Oct-05 | 19-Jun-06 | | C | LL_ME | Hrs | 16 | | | 2,989 | | 2,989 |
| 1 | 05 | 04 | 02 | 04 | | Engineering - Flipper Mirror | 31-Oct-05 | 19-Jun-06 | | C | LL_CE | Hrs | 40 | | | 7,472 | | 7,472 |
| 1 | 05 | 04 | 02 | 04 | | Design - Flipper Mirror | 31-Oct-05 | 7-Apr-06 | | C | LL_PHS | Hrs | 80 | | | 15,968 | | 15,968 |
| 1 | 05 | 04 | 02 | 04 | | Design - Flipper Mirror | 31-Oct-05 | 7-Apr-06 | | C | LL_PCCA | Hrs | 24 | | | 4,020 | | 4,020 |
| 1 | 05 | 04 | 02 | 04 | | Design - Flipper Mirror | 31-Oct-05 | 7-Apr-06 | | C | LL_MVE | Hrs | 80 | | | 14,944 | | 14,944 |
| 1 | 05 | 04 | 02 | 04 | | Design - Flipper Mirror | 31-Oct-05 | 7-Apr-06 | | C | LL_ME | Hrs | 800 | | | 149,440 | | 149,440 |
| 1 | 05 | 04 | 02 | 04 | | Design - Flipper Mirror | 31-Oct-05 | 7-Apr-06 | | C | LL_MDD | Hrs | 500 | | | 85,690 | | 85,690 |
| 1 | 05 | 04 | 02 | 04 | | Design - Flipper Mirror | 31-Oct-05 | 7-Apr-06 | | C | LL_CT | Hrs | 80 | | | 11,612 | | 11,612 |
| 1 | 05 | 04 | 02 | 04 | | Engineering - Flipper Mirror | 31-Oct-05 | 19-Jun-06 | | C | LL_PRE | Hrs | 200 | | | 37,360 | | 37,360 |
| 1 | 05 | 04 | 02 | 04 | | Engineering - Flipper Mirror | 31-Oct-05 | 19-Jun-06 | | C | LL_ME | Hrs | 40 | | | 7,472 | | 7,472 |
| 1 | 05 | 04 | 02 | 04 | | Engineering - Flipper Mirror | 31-Oct-05 | 19-Jun-06 | | C | LL_CE | Hrs | 120 | | | 22,416 | | 22,416 |

LCLS TPC Detailed Cost Estimate (FY05FY09)

5/5/2005

| WBS Level | | | | | | LCLA DCE March-2005 | Early | Early | OBS | Fund | Res | Units | Budgeted Quantity | | Fully Burdened and Escalated Cost | | | |
|-------------------------|-----------|-----------|-----------|-----------|--|---------------------------------------|-----------|-----------|-----|---------|---------|-------|-------------------|----------------|-----------------------------------|------------------|--------------------|-------|
| Run Time: 4/2205 8:43am | | | | | | Description | Start | Finish | | Type | Code | | Hours | \$\$ | Labor | M&S | Total (No Conting) | |
| 1 | 2 | 3 | 4 | 5 | 6 | Prepare Bid Pkg Jaws - Flipper Mirror | 8-May-06 | 12-May-06 | | C | LL_PCCA | Hrs | | 20 | | 3,350 | | 3,350 |
| 1 | 05 | 04 | 02 | 04 | Vendor Fab Vacuum System - Flipper Mirror | 9-Oct-06 | 3-Nov-06 | | C | LA_MSEQ | \$\$ | | | 63,620 | | 82,070 | 82,070 | |
| 1 | 05 | 04 | 02 | 04 | Vendor Fab Jaws - Flipper Mirror | 9-Oct-06 | 3-Nov-06 | | C | LA_MSEQ | \$\$ | | | 130,000 | | 167,700 | 167,700 | |
| 1 | 05 | 04 | 02 | 04 | Vendor Fab Precision Hardware - Flipper Mirror | 9-Oct-06 | 3-Nov-06 | | C | LA_MSEQ | \$\$ | | | 212,380 | | 273,970 | 273,970 | |
| 1 | 05 | 04 | 02 | 04 | Vendor Fab Tank - Flipper Mirror | 9-Oct-06 | 3-Nov-06 | | C | LA_MSEQ | \$\$ | | | 75,000 | | 96,750 | 96,750 | |
| 1 | 05 | 04 | 02 | 05 | Gas Attenuator | | | | | | | | 6,660 | 906,820 | 1,190,454 | 1,163,858 | 2,354,312 | |
| 1 | 05 | 04 | 02 | 05 | Chamber Engineering - Gas Attenuator | 19-Jul-06 | 13-Sep-06 | | C | LL_MVE | Hrs | | 160 | | 29,888 | | 29,888 | |
| 1 | 05 | 04 | 02 | 05 | Chamber Engineering - Gas Attenuator | 19-Jul-06 | 13-Sep-06 | | C | LL_MDD | Hrs | | 160 | | 27,421 | | 27,421 | |
| 1 | 05 | 04 | 02 | 05 | Venture Engineering - Gas Attenuator | 19-Jul-06 | 13-Sep-06 | | C | LL_MVE | Hrs | | 80 | | 14,944 | | 14,944 | |
| 1 | 05 | 04 | 02 | 05 | Venture Engineering - Gas Attenuator | 19-Jul-06 | 13-Sep-06 | | C | LL_MDD | Hrs | | 100 | | 17,138 | | 17,138 | |
| 1 | 05 | 04 | 02 | 05 | Turbo Pump Engineering - Gas Attenuator | 19-Jul-06 | 13-Sep-06 | | C | LL_MVE | Hrs | | 80 | | 14,944 | | 14,944 | |
| 1 | 05 | 04 | 02 | 05 | Turbo Pump Engineering - Gas Attenuator | 19-Jul-06 | 13-Sep-06 | | C | LL_MDD | Hrs | | 80 | | 13,710 | | 13,710 | |
| 1 | 05 | 04 | 02 | 05 | Theory - Gas Attenuator | 1-Feb-05 | 24-May-05 | | P | LL_PHS | Hrs | | 900 | | 174,744 | | 174,744 | |
| 1 | 05 | 04 | 02 | 05 | Vendor Fab Hardware - Gas Attenuator | 27-Oct-06 | 9-Jan-07 | | C | LA_MSEQ | \$\$ | | | 18,040 | | 23,272 | 23,272 | |
| 1 | 05 | 04 | 02 | 05 | Assemble Controls - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MFAT | Hrs | | 200 | | 29,786 | | 29,786 | |
| 1 | 05 | 04 | 02 | 05 | Vendor Fab Venture - Gas Attenuator | 27-Oct-06 | 9-Jan-07 | | C | LA_MSEQ | \$\$ | | | 22,000 | | 28,380 | 28,380 | |
| 1 | 05 | 04 | 02 | 05 | Vendor Fab Turbo Pumps - Gas Attenuator | 27-Oct-06 | 9-Jan-07 | | C | LA_MSEQ | \$\$ | | | 228,880 | | 295,255 | 295,255 | |
| 1 | 05 | 04 | 02 | 05 | Vendor Fab Tanks - Gas Attenuator | 27-Oct-06 | 9-Jan-07 | | C | LA_MSEQ | \$\$ | | | 6,920 | | 8,927 | 8,927 | |
| 1 | 05 | 04 | 02 | 05 | Vendor Fab Dry Pumps - Gas Attenuator | 27-Oct-06 | 9-Jan-07 | | C | LA_MSEQ | \$\$ | | | 164,330 | | 211,986 | 211,986 | |
| 1 | 05 | 04 | 02 | 05 | Vendor Fab Gast Pumps - Gas Attenuator | 27-Oct-06 | 9-Jan-07 | | C | LA_MSEQ | \$\$ | | | 10,800 | | 13,932 | 13,932 | |
| 1 | 05 | 04 | 02 | 05 | Assemble Turbo Pumps - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MFAT | Hrs | | 120 | | 17,872 | | 17,872 | |
| 1 | 05 | 04 | 02 | 05 | Vendor Fab Chamber - Gas Attenuator | 27-Oct-06 | 9-Jan-07 | | C | LA_MSEQ | \$\$ | | | 91,180 | | 117,622 | 117,622 | |
| 1 | 05 | 04 | 02 | 05 | Assemble Chamber - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MFAT | Hrs | | 160 | | 23,829 | | 23,829 | |
| 1 | 05 | 04 | 02 | 05 | Vendor Fab Controls - Gas Attenuator | 27-Oct-06 | 9-Jan-07 | | C | LA_MSEQ | \$\$ | | | 152,660 | | 196,931 | 196,931 | |
| 1 | 05 | 04 | 02 | 05 | Assemble Tanks - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MFAT | Hrs | | 80 | | 11,914 | | 11,914 | |
| 1 | 05 | 04 | 02 | 05 | Assemble Hardware - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MVE | Hrs | | 80 | | 15,333 | | 15,333 | |
| 1 | 05 | 04 | 02 | 05 | Assemble Hardware - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MFAT | Hrs | | 120 | | 17,872 | | 17,872 | |
| 1 | 05 | 04 | 02 | 05 | Assemble Venture - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MFAT | Hrs | | 80 | | 11,914 | | 11,914 | |
| 1 | 05 | 04 | 02 | 05 | Assemble Dry Pumps - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MFAT | Hrs | | 60 | | 8,936 | | 8,936 | |
| 1 | 05 | 04 | 02 | 05 | Storage Tank Engineering - Gas Attenuator | 19-Jul-06 | 13-Sep-06 | | C | LL_MVE | Hrs | | 40 | | 7,472 | | 7,472 | |
| 1 | 05 | 04 | 02 | 05 | Storage Tank Engineering - Gas Attenuator | 19-Jul-06 | 13-Sep-06 | | C | LL_MDD | Hrs | | 40 | | 6,855 | | 6,855 | |
| 1 | 05 | 04 | 02 | 05 | Gast Pump Engineering - Gas Attenuator | 19-Jul-06 | 13-Sep-06 | | C | LL_MVE | Hrs | | 40 | | 7,472 | | 7,472 | |
| 1 | 05 | 04 | 02 | 05 | Gast Pump Engineering - Gas Attenuator | 19-Jul-06 | 13-Sep-06 | | C | LL_MDD | Hrs | | 40 | | 6,855 | | 6,855 | |
| 1 | 05 | 04 | 02 | 05 | Assemble Gast Pumps - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MFAT | Hrs | | 60 | | 8,936 | | 8,936 | |
| 1 | 05 | 04 | 02 | 05 | Controls Engineering - Gas Attenuator | 19-Jul-06 | 13-Sep-06 | | C | LL_PHS | Hrs | | 80 | | 15,968 | | 15,968 | |
| 1 | 05 | 04 | 02 | 05 | Controls Engineering - Gas Attenuator | 19-Jul-06 | 13-Sep-06 | | C | LL_MVE | Hrs | | 80 | | 14,944 | | 14,944 | |
| 1 | 05 | 04 | 02 | 05 | Controls Engineering - Gas Attenuator | 19-Jul-06 | 13-Sep-06 | | C | LL_MDD | Hrs | | 80 | | 13,710 | | 13,710 | |
| 1 | 05 | 04 | 02 | 05 | Assemble Greenfield Comp - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MFAT | Hrs | | 120 | | 17,872 | | 17,872 | |
| 1 | 05 | 04 | 02 | 05 | Greenfield Comp Engineering - Gas Attenuator | 19-Jul-06 | 13-Sep-06 | | C | LL_MVE | Hrs | | 80 | | 14,944 | | 14,944 | |
| 1 | 05 | 04 | 02 | 05 | Greenfield Comp Engineering - Gas Attenuator | 19-Jul-06 | 13-Sep-06 | | C | LL_MDD | Hrs | | 80 | | 13,710 | | 13,710 | |
| 1 | 05 | 04 | 02 | 05 | Assemble Transfer Manifold - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MVE | Hrs | | - | | - | | - | |
| 1 | 05 | 04 | 02 | 05 | Assemble Transfer Manifold - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MFAT | Hrs | | 120 | | 17,872 | | 17,872 | |
| 1 | 05 | 04 | 02 | 05 | Assemble Transfer Manifold - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MDD | Hrs | | 80 | | 14,066 | | 14,066 | |
| 1 | 05 | 04 | 02 | 05 | Assemble Gas Purifier - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MVE | Hrs | | 40 | | 7,666 | | 7,666 | |
| 1 | 05 | 04 | 02 | 05 | Assemble Gas Purifier - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MFAT | Hrs | | 150 | | 22,340 | | 22,340 | |
| 1 | 05 | 04 | 02 | 05 | Assemble Gas Purifier - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MDD | Hrs | | 150 | | 26,375 | | 26,375 | |
| 1 | 05 | 04 | 02 | 05 | Assemble Blower - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MVE | Hrs | | 140 | | 26,832 | | 26,832 | |
| 1 | 05 | 04 | 02 | 05 | Assemble Blower - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MFAT | Hrs | | 180 | | 26,807 | | 26,807 | |
| 1 | 05 | 04 | 02 | 05 | Assemble Blower - Gas Attenuator | 10-Jan-07 | 5-Apr-07 | | C | LL_MDD | Hrs | | 140 | | 24,616 | | 24,616 | |
| 1 | 05 | 04 | 02 | 05 | Vendor Fab Greenfield Comp - Gas Attenuator | 27-Oct-06 | 9-Jan-07 | | C | LA_MSEQ | \$\$ | | | 95,000 | | 122,550 | 122,550 | |
| 1 | 05 | 04 | 02 | 05 | Vendor Fab Transfer Manifold - Gas Attenuator | 27-Oct-06 | 9-Jan-07 | | C | LA_MSEQ | \$\$ | | | 9,810 | | 12,655 | 12,655 | |
| 1 | 05 | 04 | 02 | 05 | Vendor Fab Gas Purifier - Gas Attenuator | 27-Oct-06 | 9-Jan-07 | | C | LA_MSEQ | \$\$ | | | 12,200 | | 15,738 | 15,738 | |
| 1 | 05 | 04 | 02 | 05 | Vendor Fab Blower - Gas Attenuator | 27-Oct-06 | 9-Jan-07 | | C | LA_MSEQ | \$\$ | | | 5,000 | | 6,450 | 6,450 | |
| 1 | 05 | 04 | 02 | 05 | Specification - Gas Attenuator | 25-May-05 | 11-Nov-05 | | P | LL_PHS | Hrs | | 900 | | 175,968 | | 175,968 | |
| 1 | 05 | 04 | 02 | 05 | Design - Gas Attenuator | 14-Nov-05 | 19-May-06 | | C | LL_PHS | Hrs | | 240 | | 47,904 | | 47,904 | |
| 1 | 05 | 04 | 02 | 05 | Design - Gas Attenuator | 14-Nov-05 | 19-May-06 | | C | LL_MVE | Hrs | | 240 | | 44,832 | | 44,832 | |
| 1 | 05 | 04 | 02 | 05 | Design - Gas Attenuator | 14-Nov-05 | 19-May-06 | | C | LL_ME | Hrs | | 240 | | 44,832 | | 44,832 | |
| 1 | 05 | 04 | 02 | 05 | Design - Gas Attenuator | 14-Nov-05 | 19-May-06 | | C | LL_MDD | Hrs | | 240 | | 41,131 | | 41,131 | |
| 1 | 05 | 04 | 02 | 05 | Design - Gas Attenuator | 14-Nov-05 | 19-May-06 | | C | LL_EE | Hrs | | 240 | | 44,832 | | 44,832 | |
| 1 | 05 | 04 | 02 | 05 | Second Design - Gas Attenuator | 20-Jun-06 | 18-Jul-06 | | C | LL_MVE | Hrs | | 120 | | 22,416 | | 22,416 | |
| 1 | 05 | 04 | 02 | 05 | Second Design - Gas Attenuator | 20-Jun-06 | 18-Jul-06 | | C | LL_MDD | Hrs | | 120 | | 20,566 | | 20,566 | |
| 1 | 05 | 04 | 02 | 05 | Second Design - Gas Attenuator | 20-Jun-06 | 18-Jul-06 | | C | LL_EE | Hrs | | 120 | | 22,416 | | 22,416 | |
| 1 | 05 | 04 | 02 | 05 | Prototype - Gas Attenuator | 25-May-05 | 14-Oct-05 | | P | LL_MSEG | \$\$ | | | 90,000 | | 110,160 | 110,160 | |
| 1 | 05 | 04 | 02 | 06 | TTF Damage Experiment | | | | | | | | 1,500 | - | 283,770 | - | 283,770 | |

LCLS TPC Detailed Cost Estimate (FY05FY09)

5/5/2005

| WBS Level | | | | | | LCLA DCE March-2005 Description | Early Start | Early Finish | OBS | Fund Type | Res Code | Units | Budgeted Quantity | | Fully Burdened and Escalated Cost | | | | |
|--------------------------|----|----|----|----|---|--|----------------|-----------------|-----|--------------|-------------|-------|-------------------|------------------|-----------------------------------|------------------|------------------|--------------------|--------|
| Run Time: 4/22/05 8:43am | 1 | 2 | 3 | 4 | 5 | | | | | | | | 6 | Hours | \$ | Labor | M&S | Total (No Conting) | |
| 1 | 05 | 05 | 02 | 01 | | Design - Wave Model | 31-Oct-05 | 8-Nov-06 | | C | LL_PHS | Hrs | 2,000 | | | 400,363 | | 400,363 | |
| 1 | 05 | 05 | 02 | 01 | | Vendor Ship Computer System - Wave Model | 3-Jan-07 | 26-Apr-07 | | C | LA_MSEQ | \$\$ | | 14,000 | | | | 18,060 | 18,060 |
| 1 | 05 | 05 | 02 | 02 | | Monte Carlo Model | | | | | | | 2,000 | - | | 400,363 | - | 400,363 | |
| 1 | 05 | 05 | 02 | 02 | | Design - Monte Carlo Model | 31-Oct-05 | 8-Nov-06 | | C | LL_PHS | Hrs | 2,000 | | | 400,363 | | 400,363 | |
| 1 | 05 | 05 | 02 | 03 | | Beam Simulation | | | | | | | 2,210 | - | | 431,318 | - | 431,318 | |
| 1 | 05 | 05 | 02 | 03 | | Beam Simulation - FY-05 | 2-Mar-05 | 28-Oct-05 | | P | LL_PHS | Hrs | 1,360 | | | 264,928 | | 264,928 | |
| 1 | 05 | 05 | 02 | 03 | | Beam Simulation - FY-05 | 2-Mar-05 | 28-Oct-05 | | P | LL_CP | Hrs | 850 | | | 166,390 | | 166,390 | |
| 1 | 05 | 05 | 03 | | | Facility Diagnostics | | | | | | | 6,136 | 1,574,200 | | 1,172,121 | 2,035,715 | 3,207,836 | |
| 1 | 05 | 05 | 03 | 01 | | Direct Imager | | | | | | | 1,250 | 547,300 | | 229,398 | 701,466 | 930,864 | |
| 1 | 05 | 05 | 03 | 01 | | Vendor Fab/Ship Prototype Hrdware- Direct Imager | 3-Oct-06 | 26-Feb-07 | | C | LA_MSEQ | \$\$ | | | | 73,380 | | 94,660 | |
| 1 | 05 | 05 | 03 | 01 | | Vendor Fab/Ship Production Units - Direct Imager | 3-Oct-06 | 26-Feb-07 | | C | LA_MSEQ | \$\$ | | | | 369,860 | | 477,119 | |
| 1 | 05 | 05 | 03 | 01 | | Specification - Direct Imager | 2-Feb-05 | 25-May-05 | | P | LL_EE | Hrs | 450 | | | 81,770 | | 81,770 | |
| 1 | 05 | 05 | 03 | 01 | | Design (5) - Direct Imager | 26-May-05 | 27-Mar-06 | | P | LL_ME | Hrs | 800 | | | 147,628 | | 147,628 | |
| 1 | 05 | 05 | 03 | 01 | | Camera - Direct Imager | 9-Feb-05 | 4-May-05 | | P | LL_MSEQ | \$\$ | | | | 65,000 | | 79,300 | |
| 1 | 05 | 05 | 03 | 01 | | Vendor Fab/Ship Data Acquisiton - Direct Imager | 3-Oct-06 | 26-Feb-07 | | C | LA_MSEQ | \$\$ | | | | 39,060 | | 50,387 | |
| 1 | 05 | 05 | 03 | 02 | | Indirect Imager | | | | | | | 2,000 | 450,400 | | 393,151 | 567,504 | 960,655 | |
| 1 | 05 | 05 | 03 | 02 | | Vendor Fab/Ship Prototype Hrdware-Indirect Image | 8-Jun-06 | 31-Aug-06 | | C | LA_MSEQ | \$\$ | | | | 114,520 | | 144,295 | |
| 1 | 05 | 05 | 03 | 02 | | Vendor Fab/Ship Production Units - Indirect Imag | 8-Jun-06 | 31-Aug-06 | | C | LA_MSEQ | \$\$ | | | | 335,880 | | 423,209 | |
| 1 | 05 | 05 | 03 | 02 | | Specification - Indirect Imager | 2-Feb-05 | 25-May-05 | | P | LL_PHS | Hrs | 400 | | | 77,664 | | 77,664 | |
| 1 | 05 | 05 | 03 | 02 | | Design - Indirect Imager | 26-May-05 | 27-Mar-06 | | P | LL_PHS | Hrs | 1,600 | | | 315,487 | | 315,487 | |
| 1 | 05 | 05 | 03 | 03 | | Pulsed Ion Chamber | | | | | | | | | | | | | |
| 1 | 05 | 05 | 03 | 04 | | Gas Mixing System | | | | | | | | | | | | | |
| 1 | 05 | 05 | 03 | 05 | | FEE Diagnostic Tanks | | | | | | | 1,326 | 262,500 | | 240,486 | 349,125 | 589,611 | |
| 1 | 05 | 05 | 03 | 05 | | Vendor Fab/Ship Tank - FEE Diagnostic Tank | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | | | 50,000 | | 66,500 | |
| 1 | 05 | 05 | 03 | 05 | | Vendor Fab/Ship Turbo System - FEE Diagnostic Ta | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | | | 35,000 | | 46,550 | |
| 1 | 05 | 05 | 03 | 05 | | Vendor Ship Scroll Dry Pump-FEE Diagnostic Tank | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | | | 13,000 | | 17,290 | |
| 1 | 05 | 05 | 03 | 05 | | Vendor Fab/Ship Imager Stages - FEE Diagnostic T | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | | | 60,000 | | 79,800 | |
| 1 | 05 | 05 | 03 | 05 | | Vendor Fab/Ship Stand - FEE Diagnostic Tank | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | | | 17,000 | | 22,610 | |
| 1 | 05 | 05 | 03 | 05 | | Vendor Fab/Ship Motor Driver -FEE Diagnostic Tnk | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | | | 15,000 | | 19,950 | |
| 1 | 05 | 05 | 03 | 05 | | Vendor Fab/Ship EPICS IF - FEE Diagnostic Tank | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | | | 17,000 | | 22,610 | |
| 1 | 05 | 05 | 03 | 05 | | Vendor Fab/Ship Misc Racks/Chases-FEE Diagnostic | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | | | 45,500 | | 60,515 | |
| 1 | 05 | 05 | 03 | 05 | | Design - FEE Diagnostic Tank | 3-Jul-07 | 15-Jan-08 | | C | LL_PHS | Hrs | 80 | | | 16,598 | | 16,598 | |
| 1 | 05 | 05 | 03 | 05 | | Design - FEE Diagnostic Tank | 3-Jul-07 | 15-Jan-08 | | C | LL_ME | Hrs | 280 | | | 54,368 | | 54,368 | |
| 1 | 05 | 05 | 03 | 05 | | Design - FEE Diagnostic Tank | 3-Jul-07 | 15-Jan-08 | | C | LL_MDD | Hrs | 400 | | | 71,253 | | 71,253 | |
| 1 | 05 | 05 | 03 | 05 | | Design - FEE Diagnostic Tank | 3-Jul-07 | 15-Jan-08 | | C | LL_EE | Hrs | 160 | | | 31,067 | | 31,067 | |
| 1 | 05 | 05 | 03 | 05 | | Procure Computer - FEE Diagnostic Tank | 16-Jan-08 | 10-Apr-08 | | C | LL_MSEQ | \$\$ | | | | 10,000 | | 13,300 | |
| 1 | 05 | 05 | 03 | 05 | | Assemble - FEE Diagnostic Tank | 19-May-08 | 8-Oct-08 | | C | LL_TMUP | Hrs | 40 | | | 6,122 | | 6,122 | |
| 1 | 05 | 05 | 03 | 05 | | Assemble - FEE Diagnostic Tank | 19-May-08 | 8-Oct-08 | | C | LL_TMUO | Hrs | 16 | | | 2,449 | | 2,449 | |
| 1 | 05 | 05 | 03 | 05 | | Assemble - FEE Diagnostic Tank | 19-May-08 | 8-Oct-08 | | C | LL_PHS | Hrs | 50 | | | 10,522 | | 10,522 | |
| 1 | 05 | 05 | 03 | 05 | | Assemble - FEE Diagnostic Tank | 19-May-08 | 8-Oct-08 | | C | LL_PCEF | Hrs | 50 | | | 7,652 | | 7,652 | |
| 1 | 05 | 05 | 03 | 05 | | Assemble - FEE Diagnostic Tank | 19-May-08 | 8-Oct-08 | | C | LL_MVE | Hrs | 50 | | | 9,847 | | 9,847 | |
| 1 | 05 | 05 | 03 | 05 | | Assemble - FEE Diagnostic Tank | 19-May-08 | 8-Oct-08 | | C | LL_MFAT | Hrs | 200 | | | 30,608 | | 30,608 | |
| 1 | 05 | 05 | 03 | 06 | | Ion Pumped Diagnostic Tanks | | | | | | | 1,560 | 314,000 | | 309,086 | 417,620 | 726,706 | |
| 1 | 05 | 05 | 03 | 06 | | Design - Ion Pumped Tank | 3-Jul-07 | 1-May-08 | | C | LL_PHS | Hrs | 80 | | | 16,677 | | 16,677 | |
| 1 | 05 | 05 | 03 | 06 | | Design - Ion Pumped Tank | 3-Jul-07 | 1-May-08 | | C | LL_ME | Hrs | 200 | | | 39,019 | | 39,019 | |
| 1 | 05 | 05 | 03 | 06 | | Design - Ion Pumped Tank | 3-Jul-07 | 1-May-08 | | C | LL_MDD | Hrs | 200 | | | 35,797 | | 35,797 | |
| 1 | 05 | 05 | 03 | 06 | | Design - Ion Pumped Tank | 3-Jul-07 | 1-May-08 | | C | LL_EE | Hrs | 80 | | | 15,608 | | 15,608 | |
| 1 | 05 | 05 | 03 | 06 | | Procure Computer - Ion Pumped Tank | 2-May-08 | 28-Jul-08 | | C | LL_MSEQ | \$\$ | | | | 20,000 | | 26,600 | |
| 1 | 05 | 05 | 03 | 06 | | Assemble - Ion Pumped Tank | 29-Jul-08 | 21-Oct-08 | | C | LL_PHS | Hrs | 300 | | | 63,443 | | 63,443 | |
| 1 | 05 | 05 | 03 | 06 | | Assemble - Ion Pumped Tank | 29-Jul-08 | 21-Oct-08 | | C | LL_ME | Hrs | 400 | | | 79,167 | | 79,167 | |
| 1 | 05 | 05 | 03 | 06 | | Assemble - Ion Pumped Tank | 29-Jul-08 | 21-Oct-08 | | C | LL_EE | Hrs | 300 | | | 59,375 | | 59,375 | |
| 1 | 05 | 05 | 03 | 06 | | Vendor Fab/Ship Tank - Ion Pumped Tank | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | | | 60,000 | | 79,800 | |
| 1 | 05 | 05 | 03 | 06 | | Vendor Fab/Ship Ion Pump - Ion Pumped Tank | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | | | 22,000 | | 29,260 | |
| 1 | 05 | 05 | 03 | 06 | | Vendor Ship Misc - Ion Pumped Tank | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | | | 37,000 | | 49,210 | |
| 1 | 05 | 05 | 03 | 06 | | Vendor Fab/Ship Imager Stages - Ion Pumped Tank | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | | | 80,000 | | 106,400 | |
| 1 | 05 | 05 | 03 | 06 | | Vendor Fab/Ship Stand - Ion Pumped Tank | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | | | 20,000 | | 26,600 | |
| 1 | 05 | 05 | 03 | 06 | | Vendor Fab/Ship Motor Driver -Ion Pumped Tank | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | | | 26,000 | | 34,580 | |
| 1 | 05 | 05 | 03 | 06 | | Vendor Fab/Ship EPICS IF - Ion Pumped Tank | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | | | 34,000 | | 45,220 | |
| 1 | 05 | 05 | 03 | 06 | | Vendor Fab/Ship Misc Racks/Chases-Ion Pumped Tan | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | | | 15,000 | | 19,950 | |
| 1 | 05 | 05 | 04 | | | Commissioning Diagnostics | | | | | | | 9,524 | 825,740 | | 1,775,655 | 1,081,254 | 2,856,909 | |
| 1 | 05 | 05 | 04 | 01 | | Commission Diagnostic Tank | | | | | | | 875 | 403,740 | | 167,551 | 536,974 | 704,525 | |
| 1 | 05 | 05 | 04 | 01 | | Design - Comm Diagnostic Tank | 3-Jul-07 | 15-Jan-08 | | C | LL_PHS | Hrs | 125 | | | 25,934 | | 25,934 | |
| 1 | 05 | 05 | 04 | 01 | | Design - Comm Diagnostic Tank | 3-Jul-07 | 15-Jan-08 | | C | LL_ME | Hrs | 250 | | | 48,542 | | 48,542 | |
| 1 | 05 | 05 | 04 | 01 | | Design - Comm Diagnostic Tank | 3-Jul-07 | 15-Jan-08 | | C | LL_MDD | Hrs | 250 | | | 44,533 | | 44,533 | |

LCLS TPC Detailed Cost Estimate (FY05FY09)

5/5/2005

| WBS Level | | | | | | LCLA DCE March-2005 Description | Early Start | Early Finish | OBS | Fund Type | Res Code | Units | Budgeted Quantity | | Fully Burdened and Escalated Cost | | | |
|--------------------------|----|----|----|----|---|--|-------------|--------------|-----|-----------|----------|-------|-------------------|----------------|-----------------------------------|----------------|--------------------|---------|
| Run Time: 4/22/05 8:43am | | | | | | | | | | | | | Hours | \$ | Labor | M&S | Total (No Conting) | |
| 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | | | | | | |
| 1 | 05 | 05 | 04 | 01 | | Design - Comm Diagnostic Tank | 3-Jul-07 | 15-Jan-08 | | C | LL_EE | Hrs | 250 | | | 48,542 | | 48,542 |
| 1 | 05 | 05 | 04 | 01 | | Vendor Fab/Ship Tank - Comm Diagnostic Tank | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | 403,740 | | | 536,974 | 536,974 |
| 1 | 05 | 05 | 04 | 02 | | Total Energy Measurement | | | | | | | 3,442 | 167,000 | 625,009 | 213,330 | 838,339 | |
| 1 | 05 | 05 | 04 | 02 | | Specification - Total Energy Measurement | 3-Feb-05 | 28-Apr-05 | | P | LL_PHS | Hrs | 200 | | | 38,832 | | 38,832 |
| 1 | 05 | 05 | 04 | 02 | | Specification - Total Energy Measurement | 3-Feb-05 | 28-Apr-05 | | P | LL_EE | Hrs | 250 | | | 45,428 | | 45,428 |
| 1 | 05 | 05 | 04 | 02 | | Design - Total Energy Measurement | 29-Apr-05 | 9-May-06 | | P | LL_PHS | Hrs | 400 | | | 78,900 | | 78,900 |
| 1 | 05 | 05 | 04 | 02 | | Design - Total Energy Measurement | 29-Apr-05 | 9-May-06 | | P | LL_EE | Hrs | 200 | | | 36,920 | | 36,920 |
| 1 | 05 | 05 | 04 | 02 | | Design - Total Energy Measurement | 29-Apr-05 | 9-May-06 | | P | LL_CP | Hrs | 900 | | | 178,390 | | 178,390 |
| 1 | 05 | 05 | 04 | 02 | | Assemble - Total Energy Measurement | 12-Jan-07 | 20-Sep-07 | | C | LL_PM | Hrs | 120 | | | 24,575 | | 24,575 |
| 1 | 05 | 05 | 04 | 02 | | Assemble - Total Energy Measurement | 12-Jan-07 | 20-Sep-07 | | C | LL_PHS | Hrs | 128 | | | 26,213 | | 26,213 |
| 1 | 05 | 05 | 04 | 02 | | Assemble - Total Energy Measurement | 12-Jan-07 | 20-Sep-07 | | C | LL_PCEF | Hrs | 400 | | | 59,572 | | 59,572 |
| 1 | 05 | 05 | 04 | 02 | | Assemble - Total Energy Measurement | 12-Jan-07 | 20-Sep-07 | | C | LL_MFMS | Hrs | 440 | | | 65,529 | | 65,529 |
| 1 | 05 | 05 | 04 | 02 | | Assemble - Total Energy Measurement | 12-Jan-07 | 20-Sep-07 | | C | LL_MFAT | Hrs | 160 | | | 23,829 | | 23,829 |
| 1 | 05 | 05 | 04 | 02 | | Assemble - Total Energy Measurement | 12-Jan-07 | 20-Sep-07 | | C | LL_EE | Hrs | 240 | | | 45,998 | | 45,998 |
| 1 | 05 | 05 | 04 | 02 | | Assemble - Total Energy Measurement | 12-Jan-07 | 20-Sep-07 | | C | LL_CP | Hrs | 4 | | | 823 | | 823 |
| 1 | 05 | 05 | 04 | 02 | | Vendor Fab Data Acquisit - Total Energy Measure | 3-Oct-06 | 11-Jan-07 | | C | LA_MSEQ | \$\$ | | 39,000 | | | 50,310 | 50,310 |
| 1 | 05 | 05 | 04 | 02 | | Prototype - Total Energy Measurement | 29-Apr-05 | 25-Jul-05 | | P | LL_MSEQ | \$\$ | | 30,000 | | | 36,600 | 36,600 |
| 1 | 05 | 05 | 04 | 02 | | Procure Production Unit-Total Energy Measurement | 3-Oct-06 | 11-Jan-07 | | C | LL_MSEQ | \$\$ | | 98,000 | | | 126,420 | 126,420 |
| 1 | 05 | 05 | 04 | 03 | | Pulse Length Measurement | | | | | | | | | | | | |
| 1 | 05 | 05 | 04 | 04 | | Spectral Measurement | | | | | | | 3,040 | 205,000 | 559,793 | 264,450 | 824,243 | |
| 1 | 05 | 05 | 04 | 04 | | Specification - Spectral Measurement | 3-Jan-05 | 30-Sep-05 | | P | LL_PHS | Hrs | 450 | | | 87,372 | | 87,372 |
| 1 | 05 | 05 | 04 | 04 | | Design - Spectral Measurement | 3-Oct-05 | 7-Apr-06 | | C | LL_PHS | Hrs | 500 | | | 99,800 | | 99,800 |
| 1 | 05 | 05 | 04 | 04 | | Design - Spectral Measurement | 3-Oct-05 | 7-Apr-06 | | C | LL_ME | Hrs | 500 | | | 93,400 | | 93,400 |
| 1 | 05 | 05 | 04 | 04 | | Design - Spectral Measurement | 3-Oct-05 | 7-Apr-06 | | C | LL_MDD | Hrs | 250 | | | 42,845 | | 42,845 |
| 1 | 05 | 05 | 04 | 04 | | Design - Spectral Measurement | 3-Oct-05 | 7-Apr-06 | | C | LL_EE | Hrs | 500 | | | 93,400 | | 93,400 |
| 1 | 05 | 05 | 04 | 04 | | Assemble at LLNL - Spectral Measurement | 20-Feb-07 | 16-Apr-07 | | C | LL_PHS | Hrs | 320 | | | 65,533 | | 65,533 |
| 1 | 05 | 05 | 04 | 04 | | Assemble at LLNL - Spectral Measurement | 20-Feb-07 | 16-Apr-07 | | C | LL_PCT | Hrs | 40 | | | 5,957 | | 5,957 |
| 1 | 05 | 05 | 04 | 04 | | Assemble at LLNL - Spectral Measurement | 20-Feb-07 | 16-Apr-07 | | C | LL_PCEF | Hrs | 80 | | | 11,914 | | 11,914 |
| 1 | 05 | 05 | 04 | 04 | | Assemble at LLNL - Spectral Measurement | 20-Feb-07 | 16-Apr-07 | | C | LL_MFMS | Hrs | 320 | | | 47,658 | | 47,658 |
| 1 | 05 | 05 | 04 | 04 | | Assemble at LLNL - Spectral Measurement | 20-Feb-07 | 16-Apr-07 | | C | LL_MFAT | Hrs | 80 | | | 11,914 | | 11,914 |
| 1 | 05 | 05 | 04 | 04 | | Vendor Fab Data Acquisition-Spectral Measurement | 7-Nov-06 | 19-Jan-07 | | C | LA_MSEQ | \$\$ | | 39,000 | | | 50,310 | 50,310 |
| 1 | 05 | 05 | 04 | 04 | | Vendor Fab Grating - Spectral Measurement | 7-Nov-06 | 19-Jan-07 | | C | LA_MSEQ | \$\$ | | 39,000 | | | 50,310 | 50,310 |
| 1 | 05 | 05 | 04 | 04 | | Vendor Fab Rails & Stages - Spectral Measurement | 7-Nov-06 | 19-Jan-07 | | C | LA_MSEQ | \$\$ | | 26,000 | | | 33,540 | 33,540 |
| 1 | 05 | 05 | 04 | 04 | | Vendor Fab High Energy - Spectral Measurement | 7-Nov-06 | 16-Feb-07 | | C | LA_MSEQ | \$\$ | | 49,000 | | | 63,210 | 63,210 |
| 1 | 05 | 05 | 04 | 04 | | Vendor Fab Low Energy - Spectral Measurement | 7-Nov-06 | 19-Jan-07 | | C | LA_MSEQ | \$\$ | | 52,000 | | | 67,080 | 67,080 |
| 1 | 05 | 05 | 04 | 05 | | Spatial Coherence | | | | | | | 1,714 | 50,000 | 328,116 | 66,500 | 394,616 | |
| 1 | 05 | 05 | 04 | 05 | | Vendor Fab High Energy Slit - Spatial Coherence | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | 15,000 | | | 19,950 | 19,950 |
| 1 | 05 | 05 | 04 | 05 | | Design - Spatial Coherence | 3-Jul-07 | 8-Jan-08 | | C | LL_PHS | Hrs | 125 | | | 25,920 | | 25,920 |
| 1 | 05 | 05 | 04 | 05 | | Design - Spatial Coherence | 3-Jul-07 | 8-Jan-08 | | C | LL_ME | Hrs | 63 | | | 12,226 | | 12,226 |
| 1 | 05 | 05 | 04 | 05 | | Design - Spatial Coherence | 3-Jul-07 | 8-Jan-08 | | C | LL_MDD | Hrs | 63 | | | 11,216 | | 11,216 |
| 1 | 05 | 05 | 04 | 05 | | Design - Spatial Coherence | 3-Jul-07 | 8-Jan-08 | | C | LL_EE | Hrs | 63 | | | 12,226 | | 12,226 |
| 1 | 05 | 05 | 04 | 05 | | Assemble - Spatial Coherence | 19-May-08 | 12-Aug-08 | | C | LL_MFPC | Hrs | 200 | | | 30,560 | | 30,560 |
| 1 | 05 | 05 | 04 | 05 | | Assemble - Spatial Coherence | 19-May-08 | 12-Aug-08 | | C | LL_ME | Hrs | 400 | | | 78,656 | | 78,656 |
| 1 | 05 | 05 | 04 | 05 | | Assemble - Spatial Coherence | 19-May-08 | 12-Aug-08 | | C | LL_EE | Hrs | 800 | | | 157,312 | | 157,312 |
| 1 | 05 | 05 | 04 | 05 | | Vendor Fab Low Energy Slit - Spatial Coherence | 25-Feb-08 | 16-May-08 | | C | LA_MSEQ | \$\$ | | 35,000 | | | 46,550 | 46,550 |
| 1 | 05 | 05 | 04 | 06 | | Spatial Shape & Centroid Measurement | | | | | | | 223 | - | 46,563 | - | 46,563 | |
| 1 | 05 | 05 | 04 | 06 | | Design - Spatial Shape & Centroid Measure | 24-Jan-07 | 5-Nov-07 | | C | LL_PHS | Hrs | 63 | | | 12,945 | | 12,945 |
| 1 | 05 | 05 | 04 | 06 | | Assemble -Spatial Shape & Centroid Measure | 27-Mar-08 | 18-Jul-08 | | C | LL_PHS | Hrs | 160 | | | 33,618 | | 33,618 |
| 1 | 05 | 05 | 04 | 07 | | Divergence Measurement | | | | | | | 230 | - | 48,623 | - | 48,623 | |
| 1 | 05 | 05 | 04 | 07 | | Design - Divergence Measurement | 3-Jul-07 | 1-May-08 | | C | LL_PHS | Hrs | 80 | | | 16,677 | | 16,677 |
| 1 | 05 | 05 | 04 | 07 | | Assemble - Divergence Measurement | 4-Sep-08 | 29-Oct-08 | | C | LL_PHS | Hrs | 150 | | | 31,946 | | 31,946 |
| 1 | 05 | 06 | 01 | | | X-Ray Transport System Installation & Alignment | | | | | | | 18,345 | - | 1,979,054 | - | 1,979,054 | |
| 1 | 05 | 06 | 01 | | | Front End Enclosure Install | | | | | | | 6,078 | - | 672,976 | - | 672,976 | |
| 1 | 05 | 06 | 01 | | | Test FEE - Slow Controls | 31-Oct-07 | 29-Nov-07 | | C | SL_PHS | Hrs | 5 | | | 394 | | 394 |
| 1 | 05 | 06 | 01 | | | Test FEE - Slow Controls | 31-Oct-07 | 29-Nov-07 | | C | SL_CE | Hrs | 10 | | | 1,218 | | 1,218 |
| 1 | 05 | 06 | 01 | | | Install FEE - Slow Controls | 10-Jul-07 | 4-Sep-07 | | C | SL_CT | Hrs | 40 | | | 2,600 | | 2,600 |
| 1 | 05 | 06 | 01 | | | Integrate FEE - Slow Controls | 5-Sep-07 | 30-Oct-07 | | C | SL_PHS | Hrs | 16 | | | 1,246 | | 1,246 |
| 1 | 05 | 06 | 01 | | | Integrate FEE - Slow Controls | 5-Sep-07 | 30-Oct-07 | | C | SL_CT | Hrs | 46 | | | 3,032 | | 3,032 |
| 1 | 05 | 06 | 01 | | | Test FEE - Fast Controls | 8-Jan-08 | 5-Mar-08 | | C | SL_PHS | Hrs | 320 | | | 25,213 | | 25,213 |
| 1 | 05 | 06 | 01 | | | Install FEE - Femto Controls | 28-Aug-07 | 23-Oct-07 | | C | SL_CT | Hrs | 40 | | | 2,628 | | 2,628 |
| 1 | 05 | 06 | 01 | | | Integrate FEE - Femto Controls | 24-Oct-07 | 7-Jan-08 | | C | SL_PHS | Hrs | 16 | | | 1,261 | | 1,261 |
| 1 | 05 | 06 | 01 | | | Integrate FEE - Femto Controls | 24-Oct-07 | 7-Jan-08 | | C | SL_CT | Hrs | 46 | | | 3,067 | | 3,067 |
| 1 | 05 | 06 | 01 | | | Test FEE - Femto Controls | 8-Jan-08 | 5-Mar-08 | | C | SL_PHS | Hrs | 320 | | | 25,213 | | 25,213 |
| 1 | 05 | 06 | 01 | | | Install - Ion Pumped Tank | 22-Oct-08 | 28-Jan-09 | | C | LL_ME | Hrs | 292 | | | 58,911 | | 58,911 |

LCLS TPC Detailed Cost Estimate (FY05FY09)

5/5/2005

| WBS Level | | | | | | LCLA DCE March-2005 Description | Early Start | Early Finish | OBS | Fund Type | Res Code | Units | Budgeted Quantity | | Fully Burdened and Escalated Cost | | | |
|--------------------------|----|----|----|---|---|---|-------------|--------------|-----|-----------|----------|-------|-------------------|------|-----------------------------------|--------|--------------------|--------|
| Run Time: 4/22/05 8:43am | | | | | | | | | | | | | Hours | \$\$ | Labor | M&S | Total (No Conting) | |
| 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | | | | | | |
| 1 | 05 | 06 | 01 | | | Install Ion Gauges - Electron Dump Mech/Vac | 31-Mar-08 | 4-Apr-08 | | C | SL_PCCA | Hrs | 6 | | | 425 | | 425 |
| 1 | 05 | 06 | 01 | | | Install Ion Gauges - Electron Dump Mech/Vac | 31-Mar-08 | 4-Apr-08 | | C | SL_MFAT | Hrs | 12 | | | 1,063 | | 1,063 |
| 1 | 05 | 06 | 01 | | | Install Ion Gauges - Electron Dump Mech/Vac | 31-Mar-08 | 4-Apr-08 | | C | SL_CT | Hrs | 6 | | | 400 | | 400 |
| 1 | 05 | 06 | 01 | | | Test - Beamline - Fixed Mask 1 | 12-Jun-08 | 10-Jul-08 | | C | SL_PHS | Hrs | 40 | | | 3,152 | | 3,152 |
| 1 | 05 | 06 | 01 | | | Test - Fixed Mask 1 | 19-Mar-08 | 11-Jun-08 | | C | SL_PHS | Hrs | 8 | | | 630 | | 630 |
| 1 | 05 | 06 | 01 | | | Test - Fixed Mask 1 | 19-Mar-08 | 11-Jun-08 | | C | SL_ME | Hrs | 40 | | | 4,576 | | 4,576 |
| 1 | 05 | 06 | 01 | | | Install - Fixed Mask 1 | 20-Feb-08 | 18-Mar-08 | | C | SL_MFAT | Hrs | 40 | | | 3,544 | | 3,544 |
| 1 | 05 | 06 | 01 | | | Test - Fixed Mask 2 | 19-Mar-08 | 11-Jun-08 | | C | SL_PHS | Hrs | 8 | | | 630 | | 630 |
| 1 | 05 | 06 | 01 | | | Test - Fixed Mask 2 | 19-Mar-08 | 11-Jun-08 | | C | SL_MVE | Hrs | 40 | | | 4,576 | | 4,576 |
| 1 | 05 | 06 | 01 | | | Test - Beamline - Fixed Mask 2 | 12-Jun-08 | 10-Jul-08 | | C | SL_PHS | Hrs | 40 | | | 3,152 | | 3,152 |
| 1 | 05 | 06 | 01 | | | Install - Fixed Mask 2 | 20-Feb-08 | 18-Mar-08 | | C | SL_MFAT | Hrs | 40 | | | 3,544 | | 3,544 |
| 1 | 05 | 06 | 01 | | | Install Stands - Electron Dump Mech/Vac | 31-Mar-08 | 4-Apr-08 | | C | SL_MFAT | Hrs | 80 | | | 7,087 | | 7,087 |
| 1 | 05 | 06 | 01 | | | Test - Fixed Mask 3 | 19-Mar-08 | 11-Jun-08 | | C | SL_PHS | Hrs | 15 | | | 1,182 | | 1,182 |
| 1 | 05 | 06 | 01 | | | Test - Fixed Mask 3 | 19-Mar-08 | 11-Jun-08 | | C | SL_MVE | Hrs | 30 | | | 3,432 | | 3,432 |
| 1 | 05 | 06 | 01 | | | Test - Beamline - Fixed Mask 3 | 12-Jun-08 | 10-Jul-08 | | C | SL_PHS | Hrs | 40 | | | 3,152 | | 3,152 |
| 1 | 05 | 06 | 01 | | | Install - Fixed Mask 3 | 20-Feb-08 | 18-Mar-08 | | C | SL_MFAT | Hrs | 40 | | | 3,544 | | 3,544 |
| 1 | 05 | 06 | 01 | | | Install Ion Pumps - Electron Dump Mech/Vac | 31-Mar-08 | 4-Apr-08 | | C | SL_PCCA | Hrs | 12 | | | 851 | | 851 |
| 1 | 05 | 06 | 01 | | | Install Ion Pumps - Electron Dump Mech/Vac | 31-Mar-08 | 4-Apr-08 | | C | SL_MFAT | Hrs | 24 | | | 2,126 | | 2,126 |
| 1 | 05 | 06 | 01 | | | Install Ion Pumps - Electron Dump Mech/Vac | 31-Mar-08 | 4-Apr-08 | | C | SL_CT | Hrs | 12 | | | 800 | | 800 |
| 1 | 05 | 06 | 01 | | | Shipping / Install - Gas Attenuator | 10-Jul-07 | 4-Sep-07 | | C | LL_TMUO | Hrs | 150 | | | 22,340 | | 22,340 |
| 1 | 05 | 06 | 01 | | | Shipping / Install - Gas Attenuator | 10-Jul-07 | 4-Sep-07 | | C | LL_TMUE | Hrs | 50 | | | 7,447 | | 7,447 |
| 1 | 05 | 06 | 01 | | | Shipping / Install - Gas Attenuator | 10-Jul-07 | 4-Sep-07 | | C | LL_SEPM | Hrs | 50 | | | 9,583 | | 9,583 |
| 1 | 05 | 06 | 01 | | | Acceptance Test - Gas Attenuator | 5-Sep-07 | 2-Oct-07 | | C | SL_PHS | Hrs | 80 | | | 6,160 | | 6,160 |
| 1 | 05 | 06 | 01 | | | Acceptance Test - Gas Attenuator | 5-Sep-07 | 2-Oct-07 | | C | SL_MVE | Hrs | 80 | | | 8,942 | | 8,942 |
| 1 | 05 | 06 | 01 | | | Acceptance Test - Gas Attenuator | 5-Sep-07 | 2-Oct-07 | | C | SL_EE | Hrs | 80 | | | 9,518 | | 9,518 |
| 1 | 05 | 06 | 01 | | | Acceptance Test - Gas Attenuator | 5-Sep-07 | 2-Oct-07 | | C | LL_PRE | Hrs | 80 | | | 15,373 | | 15,373 |
| 1 | 05 | 06 | 01 | | | Acceptance Test - Gas Attenuator | 5-Sep-07 | 2-Oct-07 | | C | LL_PHS | Hrs | 80 | | | 16,426 | | 16,426 |
| 1 | 05 | 06 | 01 | | | Acceptance Test - Gas Attenuator | 5-Sep-07 | 2-Oct-07 | | C | LL_ME | Hrs | 80 | | | 15,373 | | 15,373 |
| 1 | 05 | 06 | 01 | | | Assemble - Beamline Test - Gas Attenuator | 5-Sep-07 | 2-Oct-07 | | C | SL_PHS | Hrs | 20 | | | 1,540 | | 1,540 |
| 1 | 05 | 06 | 01 | | | Assemble - Beamline Test - Gas Attenuator | 5-Sep-07 | 2-Oct-07 | | C | SL_MVE | Hrs | 5 | | | 559 | | 559 |
| 1 | 05 | 06 | 01 | | | Assemble - Beamline Test - Gas Attenuator | 5-Sep-07 | 2-Oct-07 | | C | SL_MFAT | Hrs | 5 | | | 433 | | 433 |
| 1 | 05 | 06 | 01 | | | Assemble - Beamline Test - Gas Attenuator | 5-Sep-07 | 2-Oct-07 | | C | SL_ME | Hrs | 5 | | | 559 | | 559 |
| 1 | 05 | 06 | 01 | | | Assemble - Beamline Test - Gas Attenuator | 5-Sep-07 | 2-Oct-07 | | C | SL_CT | Hrs | 5 | | | 326 | | 326 |
| 1 | 05 | 06 | 01 | | | Assemble - Beamline Test - Gas Attenuator | 5-Sep-07 | 2-Oct-07 | | C | LL_PRE | Hrs | 5 | | | 961 | | 961 |
| 1 | 05 | 06 | 01 | | | Assemble - Beamline Test - Gas Attenuator | 5-Sep-07 | 2-Oct-07 | | C | LL_PRC | Hrs | 5 | | | 881 | | 881 |
| 1 | 05 | 06 | 01 | | | Install Berilium Valves - FEE Mech/Vac | 17-Sep-07 | 21-Sep-07 | | C | SL_MFAT | Hrs | 32 | | | 2,763 | | 2,763 |
| 1 | 05 | 06 | 01 | | | Install Berilium Valves - FEE Mech/Vac | 17-Sep-07 | 21-Sep-07 | | C | SL_CT | Hrs | 16 | | | 1,040 | | 1,040 |
| 1 | 05 | 06 | 01 | | | Install Isolation Valve - FEE Mech/Vac | 17-Sep-07 | 21-Sep-07 | | C | SL_MFAT | Hrs | 24 | | | 2,072 | | 2,072 |
| 1 | 05 | 06 | 01 | | | Install Ion Pumps - FEE Mech/Vac | 17-Sep-07 | 21-Sep-07 | | C | SL_MFAT | Hrs | 20 | | | 1,727 | | 1,727 |
| 1 | 05 | 06 | 01 | | | Install Ion Pumps - FEE Mech/Vac | 17-Sep-07 | 21-Sep-07 | | C | SL_CT | Hrs | 10 | | | 650 | | 650 |
| 1 | 05 | 06 | 01 | | | Install Ion Pumps - FEE Mech/Vac | 17-Sep-07 | 21-Sep-07 | | C | LL_PCCA | Hrs | 10 | | | 1,718 | | 1,718 |
| 1 | 05 | 06 | 01 | | | Install Ion Gauges - FEE Mech/Vac | 17-Sep-07 | 21-Sep-07 | | C | SL_PCCA | Hrs | 6 | | | 415 | | 415 |
| 1 | 05 | 06 | 01 | | | Install Ion Gauges - FEE Mech/Vac | 17-Sep-07 | 21-Sep-07 | | C | SL_MFAT | Hrs | 12 | | | 1,036 | | 1,036 |
| 1 | 05 | 06 | 01 | | | Install Ion Gauges - FEE Mech/Vac | 17-Sep-07 | 21-Sep-07 | | C | SL_CT | Hrs | 6 | | | 390 | | 390 |
| 1 | 05 | 06 | 01 | | | Install Spools - FEE Mech/Vac | 17-Sep-07 | 21-Sep-07 | | C | SL_PCCA | Hrs | 4 | | | 276 | | 276 |
| 1 | 05 | 06 | 01 | | | Install Spools - FEE Mech/Vac | 17-Sep-07 | 21-Sep-07 | | C | SL_MFAT | Hrs | 8 | | | 691 | | 691 |
| 1 | 05 | 06 | 01 | | | Install Stands - FEE Mech/Vac | 17-Sep-07 | 21-Sep-07 | | C | SL_MFAT | Hrs | 80 | | | 6,908 | | 6,908 |
| 1 | 05 | 06 | 01 | | | Install - Wave Model | 28-Feb-08 | 23-Apr-08 | | C | SL_PHS | Hrs | 40 | | | 3,152 | | 3,152 |
| 1 | 05 | 06 | 01 | | | Install - Wave Model | 28-Feb-08 | 23-Apr-08 | | C | SL_PCT | Hrs | 40 | | | 2,667 | | 2,667 |
| 1 | 05 | 06 | 01 | | | Leak Check - Slit/Collimator A | 15-Jun-07 | 27-Jul-07 | | C | SL_MVE | Hrs | 40 | | | 4,460 | | 4,460 |
| 1 | 05 | 06 | 01 | | | Leak Check - Slit/Collimator A | 15-Jun-07 | 27-Jul-07 | | C | SL_MFAT | Hrs | 16 | | | 1,382 | | 1,382 |
| 1 | 05 | 06 | 01 | | | Install Isolation Valve - FEE Mech/Vac | 17-Sep-07 | 21-Sep-07 | | C | SL_PCCA | Hrs | 16 | | | 1,106 | | 1,106 |
| 1 | 05 | 06 | 01 | | | Install Isolation Valve - FEE Mech/Vac | 17-Sep-07 | 21-Sep-07 | | C | SL_MFAT | Hrs | 16 | | | 1,382 | | 1,382 |
| 1 | 05 | 06 | 01 | | | Install Isolation Valve - FEE Mech/Vac | 17-Sep-07 | 21-Sep-07 | | C | SL_CT | Hrs | 16 | | | 1,040 | | 1,040 |
| 1 | 05 | 06 | 01 | | | Install FEE - Fast Controls | 28-Aug-07 | 23-Oct-07 | | C | SL_CT | Hrs | 40 | | | 2,628 | | 2,628 |
| 1 | 05 | 06 | 01 | | | Integrate FEE - Fast Controls | 24-Oct-07 | 7-Jan-08 | | C | SL_PHS | Hrs | 16 | | | 1,261 | | 1,261 |
| 1 | 05 | 06 | 01 | | | Integrate FEE - Fast Controls | 24-Oct-07 | 7-Jan-08 | | C | SL_CT | Hrs | 46 | | | 3,067 | | 3,067 |
| 1 | 05 | 06 | 01 | | | Fab/Assemble/Test - Const \$ - Slit/Col | 10-Sep-08 | 11-Feb-09 | | C | SL_MFAT | Hrs | 200 | | | 18,109 | | 18,109 |
| 1 | 05 | 06 | 01 | | | Fab/Assemble/Test - Const \$ - Flipper Mirror | 6-Sep-07 | 13-Feb-08 | | C | SL_PHS | Hrs | 480 | | | 37,657 | | 37,657 |
| 1 | 05 | 06 | 01 | | | Fab/Assemble/Test - Const \$ - Flipper Mirror | 6-Sep-07 | 13-Feb-08 | | C | SL_MFAT | Hrs | 360 | | | 31,755 | | 31,755 |
| 1 | 05 | 06 | 01 | | | Fab/Assemble/Test - Const \$ - Flipper Mirror | 6-Sep-07 | 13-Feb-08 | | C | SL_CT | Hrs | 120 | | | 7,967 | | 7,967 |
| 1 | 05 | 06 | 01 | | | Fab/Assemble/Test - Const \$ - Flipper Mirror | 6-Sep-07 | 13-Feb-08 | | C | LL_PRE | Hrs | 200 | | | 39,159 | | 39,159 |
| 1 | 05 | 06 | 01 | | | Fab/Assemble/Test - Const \$ - Flipper Mirror | 6-Sep-07 | 13-Feb-08 | | C | LL_PRC | Hrs | 200 | | | 35,925 | | 35,925 |
| 1 | 05 | 06 | 01 | | | Test Beam Line - Slit/Collimator A | 30-Jul-07 | 10-Sep-07 | | C | SL_PHS | Hrs | 60 | | | 4,608 | | 4,608 |

LCLS TPC Detailed Cost Estimate (FY05FY09)

5/5/2005

| WBS Level | | | | | | LCLA DCE March-2005 Description | Early Start | Early Finish | OBS | Fund Type | Res Code | Units | Budgeted Quantity | | Fully Burdened and Escalated Cost | | | |
|--------------------------|----|----|----|---|---|--|----------------|-----------------|-----|--------------|-------------|-------|-------------------|----------|-----------------------------------|----------------|--------------------|----------------|
| Run Time: 4/22/05 8:43am | | | | | | | | | | | | | Hours | \$\$ | Labor | M&S | Total (No Conting) | |
| 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | | | | | | |
| 1 | 05 | 06 | 01 | | | Install - Slit/Collimator A | 19-Apr-07 | 14-Jun-07 | | C | SL_PHS | Hrs | 10 | | | 768 | | 768 |
| 1 | 05 | 06 | 01 | | | Install - Slit/Collimator A | 19-Apr-07 | 14-Jun-07 | | C | SL_MVE | Hrs | 40 | | | 4,460 | | 4,460 |
| 1 | 05 | 06 | 01 | | | Install - Slit/Collimator A | 19-Apr-07 | 14-Jun-07 | | C | SL_MFAT | Hrs | 40 | | | 3,454 | | 3,454 |
| 1 | 05 | 06 | 01 | | | Install - Slit/Collimator A | 19-Apr-07 | 14-Jun-07 | | C | SL_EE | Hrs | 10 | | | 1,187 | | 1,187 |
| 1 | 05 | 06 | 01 | | | Install - Slit/Collimator A | 19-Apr-07 | 14-Jun-07 | | C | LL_PRE | Hrs | 10 | | | 1,917 | | 1,917 |
| 1 | 05 | 06 | 01 | | | Fab/Assemble/Test - Const \$ - Slit/Col | 10-Jul-07 | 29-Nov-07 | | C | SL_PHS | Hrs | 400 | | | 31,054 | | 31,054 |
| 1 | 05 | 06 | 01 | | | Fab/Assemble/Test - Const \$ - Slit/Col | 10-Jul-07 | 29-Nov-07 | | C | SL_MFAT | Hrs | 400 | | | 34,916 | | 34,916 |
| 1 | 05 | 06 | 01 | | | Fab/Assemble/Test - Const \$ - Slit/Col | 10-Jul-07 | 29-Nov-07 | | C | SL_CT | Hrs | 100 | | | 6,570 | | 6,570 |
| 1 | 05 | 06 | 01 | | | Fab/Assemble/Test - Const \$ - Slit/Col | 10-Jul-07 | 29-Nov-07 | | C | LL_PRE | Hrs | 200 | | | 38,750 | | 38,750 |
| 1 | 05 | 06 | 01 | | | Fab/Assemble/Test - Const \$ - Slit/Col | 10-Jul-07 | 29-Nov-07 | | C | LL_PRC | Hrs | 200 | | | 35,550 | | 35,550 |
| 1 | 05 | 06 | 01 | | | Install Vacuum Pipe - Electron Dump Mech/Vac | 31-Mar-08 | 4-Apr-08 | | C | LL_PCCA | Hrs | 6 | | | 1,058 | | 1,058 |
| 1 | 05 | 06 | 01 | | | Install Vacuum Pipe - Electron Dump Mech/Vac | 31-Mar-08 | 4-Apr-08 | | C | LL_MFAT | Hrs | 24 | | | 3,667 | | 3,667 |
| 1 | 05 | 06 | 01 | | | Test Pipe - Electron Dump Mech/Vac | 7-Apr-08 | 18-Apr-08 | | C | SL_MFAT | Hrs | 40 | | | 3,544 | | 3,544 |
| 1 | 05 | 06 | 02 | | | Near Hall Install | | | | | | | 4,482 | - | | 489,180 | - | 489,180 |
| 1 | 05 | 06 | 02 | | | Install Near Hall - Slow Controls | 8-May-07 | 3-Jul-07 | | C | SL_CT | Hrs | 46 | | | 2,990 | | 2,990 |
| 1 | 05 | 06 | 02 | | | Integrate Near Hall - Slow Controls | 5-Jul-07 | 29-Aug-07 | | C | SL_PHS | Hrs | 16 | | | 1,229 | | 1,229 |
| 1 | 05 | 06 | 02 | | | Integrate Near Hall - Slow Controls | 5-Jul-07 | 29-Aug-07 | | C | SL_CT | Hrs | 46 | | | 2,990 | | 2,990 |
| 1 | 05 | 06 | 02 | | | Test Near Hall - Slow Controls | 30-Aug-07 | 27-Sep-07 | | C | SL_PHS | Hrs | 5 | | | 384 | | 384 |
| 1 | 05 | 06 | 02 | | | Test Near Hall - Slow Controls | 30-Aug-07 | 27-Sep-07 | | C | SL_CE | Hrs | 10 | | | 1,187 | | 1,187 |
| 1 | 05 | 06 | 02 | | | Install Ion Gauges - NH Mech/Vac - H1 | 22-Jan-08 | 28-Jan-08 | | C | SL_MFAT | Hrs | 12 | | | 1,063 | | 1,063 |
| 1 | 05 | 06 | 02 | | | Install Ion Gauges - NH Mech/Vac - H1 | 22-Jan-08 | 28-Jan-08 | | C | SL_CT | Hrs | 5 | | | 333 | | 333 |
| 1 | 05 | 06 | 02 | | | Install Ion Gauges - NH Mech/Vac - H1 | 22-Jan-08 | 28-Jan-08 | | C | LL_PCCA | Hrs | 5 | | | 882 | | 882 |
| 1 | 05 | 06 | 02 | | | Install Spools - NH Mech/Vac - H1 | 22-Jan-08 | 28-Jan-08 | | C | SL_MFAT | Hrs | 32 | | | 2,835 | | 2,835 |
| 1 | 05 | 06 | 02 | | | Install Spools - NH Mech/Vac - H1 | 22-Jan-08 | 28-Jan-08 | | C | LL_PCCA | Hrs | 8 | | | 1,410 | | 1,410 |
| 1 | 05 | 06 | 02 | | | Install Stands - NH Mech/Vac - H1 | 22-Jan-08 | 28-Jan-08 | | C | SL_MFAT | Hrs | 160 | | | 14,174 | | 14,174 |
| 1 | 05 | 06 | 02 | | | Install Stands - NH Mech/Vac - H1 | 22-Jan-08 | 28-Jan-08 | | C | LL_PCCA | Hrs | 40 | | | 7,052 | | 7,052 |
| 1 | 05 | 06 | 02 | | | Install Isolation Valves - NH Mech/Vac - H1 | 22-Jan-08 | 28-Jan-08 | | C | SL_MFAT | Hrs | 8 | | | 709 | | 709 |
| 1 | 05 | 06 | 02 | | | Install Isolation Valves - NH Mech/Vac - H1 | 22-Jan-08 | 28-Jan-08 | | C | SL_CT | Hrs | 8 | | | 533 | | 533 |
| 1 | 05 | 06 | 02 | | | Install Isolation Valves - NH Mech/Vac - H1 | 22-Jan-08 | 28-Jan-08 | | C | LL_PCCA | Hrs | 8 | | | 1,410 | | 1,410 |
| 1 | 05 | 06 | 02 | | | Install Berilium Valves - NH Mech/Vac - H1 | 22-Jan-08 | 28-Jan-08 | | C | SL_MFAT | Hrs | 16 | | | 1,417 | | 1,417 |
| 1 | 05 | 06 | 02 | | | Install Berilium Valves - NH Mech/Vac - H1 | 22-Jan-08 | 28-Jan-08 | | C | SL_CT | Hrs | 8 | | | 533 | | 533 |
| 1 | 05 | 06 | 02 | | | Install Berilium Valves - NH Mech/Vac - H1 | 22-Jan-08 | 28-Jan-08 | | C | LL_PCCA | Hrs | 8 | | | 1,410 | | 1,410 |
| 1 | 05 | 06 | 02 | | | Install Vacuum Piping - NH Mech/Vac - H1 | 22-Jan-08 | 28-Jan-08 | | C | SL_MFAT | Hrs | 24 | | | 2,126 | | 2,126 |
| 1 | 05 | 06 | 02 | | | Install Vacuum Piping - NH Mech/Vac - H1 | 22-Jan-08 | 28-Jan-08 | | C | LL_PCCA | Hrs | 6 | | | 1,058 | | 1,058 |
| 1 | 05 | 06 | 02 | | | Install Ion Pumps - NH Mech/Vac - H1 | 22-Jan-08 | 28-Jan-08 | | C | SL_MFAT | Hrs | 24 | | | 2,126 | | 2,126 |
| 1 | 05 | 06 | 02 | | | Install Ion Pumps - NH Mech/Vac - H1 | 22-Jan-08 | 28-Jan-08 | | C | SL_CT | Hrs | 12 | | | 800 | | 800 |
| 1 | 05 | 06 | 02 | | | Install Ion Pumps - NH Mech/Vac - H1 | 22-Jan-08 | 28-Jan-08 | | C | LL_PCCA | Hrs | 12 | | | 2,116 | | 2,116 |
| 1 | 05 | 06 | 02 | | | Install Ion Gauges - NH Mech/Vac - H2 | 22-Jan-08 | 28-Jan-08 | | C | SL_MFAT | Hrs | 12 | | | 1,063 | | 1,063 |
| 1 | 05 | 06 | 02 | | | Install Ion Gauges - NH Mech/Vac - H2 | 22-Jan-08 | 28-Jan-08 | | C | SL_CT | Hrs | 6 | | | 400 | | 400 |
| 1 | 05 | 06 | 02 | | | Install Ion Gauges - NH Mech/Vac - H2 | 22-Jan-08 | 28-Jan-08 | | C | LL_PCCA | Hrs | 6 | | | 1,058 | | 1,058 |
| 1 | 05 | 06 | 02 | | | Install Stands - NH Mech/Vac - H2 | 22-Jan-08 | 28-Jan-08 | | C | SL_MFAT | Hrs | 80 | | | 7,087 | | 7,087 |
| 1 | 05 | 06 | 02 | | | Install Isolation Valves - NH Mech/Vac - H2 | 22-Jan-08 | 28-Jan-08 | | C | SL_MFAT | Hrs | 4 | | | 354 | | 354 |
| 1 | 05 | 06 | 02 | | | Install Isolation Valves - NH Mech/Vac - H2 | 22-Jan-08 | 28-Jan-08 | | C | SL_CT | Hrs | 4 | | | 267 | | 267 |
| 1 | 05 | 06 | 02 | | | Install Isolation Valves - NH Mech/Vac - H2 | 22-Jan-08 | 28-Jan-08 | | C | LL_PCCA | Hrs | 4 | | | 705 | | 705 |
| 1 | 05 | 06 | 02 | | | Install Berilium Valves - NH Mech/Vac - H2 | 22-Jan-08 | 28-Jan-08 | | C | SL_MFAT | Hrs | 24 | | | 2,126 | | 2,126 |
| 1 | 05 | 06 | 02 | | | Install Berilium Valves - NH Mech/Vac - H2 | 22-Jan-08 | 28-Jan-08 | | C | SL_CT | Hrs | 12 | | | 800 | | 800 |
| 1 | 05 | 06 | 02 | | | Install Berilium Valves - NH Mech/Vac - H2 | 22-Jan-08 | 28-Jan-08 | | C | LL_PCCA | Hrs | 12 | | | 2,116 | | 2,116 |
| 1 | 05 | 06 | 02 | | | Install Vacuum Piping - NH Mech/Vac - H2 | 22-Jan-08 | 28-Jan-08 | | C | SL_MFAT | Hrs | 24 | | | 2,126 | | 2,126 |
| 1 | 05 | 06 | 02 | | | Install Vacuum Piping - NH Mech/Vac - H2 | 22-Jan-08 | 28-Jan-08 | | C | LL_PCCA | Hrs | 6 | | | 1,058 | | 1,058 |
| 1 | 05 | 06 | 02 | | | Install Ion Pumps - NH Mech/Vac - H2 | 22-Jan-08 | 28-Jan-08 | | C | SL_MFAT | Hrs | 24 | | | 2,126 | | 2,126 |
| 1 | 05 | 06 | 02 | | | Install Ion Pumps - NH Mech/Vac - H2 | 22-Jan-08 | 28-Jan-08 | | C | SL_CT | Hrs | 12 | | | 800 | | 800 |
| 1 | 05 | 06 | 02 | | | Install Ion Pumps - NH Mech/Vac - H2 | 22-Jan-08 | 28-Jan-08 | | C | LL_PCCA | Hrs | 12 | | | 2,116 | | 2,116 |
| 1 | 05 | 06 | 02 | | | Install - Comm Diagnostic Tank | 19-May-08 | 15-Jul-08 | | C | SL_MFAT | Hrs | 320 | | | 28,349 | | 28,349 |
| 1 | 05 | 06 | 02 | | | Test - Comm Diagnostic Tank | 16-Jul-08 | 12-Aug-08 | | C | SL_PHS | Hrs | 40 | | | 3,152 | | 3,152 |
| 1 | 05 | 06 | 02 | | | Test - Comm Diagnostic Tank | 16-Jul-08 | 12-Aug-08 | | C | SL_MFAT | Hrs | 80 | | | 7,087 | | 7,087 |
| 1 | 05 | 06 | 02 | | | Test - Comm Diagnostic Tank | 16-Jul-08 | 12-Aug-08 | | C | SL_ME | Hrs | 40 | | | 4,576 | | 4,576 |
| 1 | 05 | 06 | 02 | | | Visible Calibration - Direct Imager | 3-Oct-07 | 9-Oct-07 | | C | SL_MFAT | Hrs | 5 | | | 443 | | 443 |
| 1 | 05 | 06 | 02 | | | Visible Calibration - Direct Imager | 3-Oct-07 | 9-Oct-07 | | C | LL_PHS | Hrs | 10 | | | 2,101 | | 2,101 |
| 1 | 05 | 06 | 02 | | | Visible Calibration - Direct Imager | 3-Oct-07 | 9-Oct-07 | | C | LL_MFAT | Hrs | 10 | | | 1,528 | | 1,528 |
| 1 | 05 | 06 | 02 | | | X-Ray Calibration - Direct Imager | 10-Oct-07 | 23-Oct-07 | | C | SL_MFAT | Hrs | 10 | | | 886 | | 886 |
| 1 | 05 | 06 | 02 | | | X-Ray Calibration - Direct Imager | 10-Oct-07 | 23-Oct-07 | | C | LL_PHS | Hrs | 80 | | | 16,809 | | 16,809 |
| 1 | 05 | 06 | 02 | | | X-Ray Calibration - Direct Imager | 10-Oct-07 | 23-Oct-07 | | C | LL_MFAT | Hrs | 80 | | | 12,224 | | 12,224 |
| 1 | 05 | 06 | 02 | | | Install - Spatial Coherence | 2-Oct-08 | 26-Nov-08 | | C | SL_PHS | Hrs | 120 | | | 9,701 | | 9,701 |
| 1 | 05 | 06 | 02 | | | Test - Spatial Coherence | 1-Dec-08 | 8-Jan-09 | | C | SL_PHS | Hrs | 160 | | | 12,934 | | 12,934 |

LCLS TPC Detailed Cost Estimate (FY05FY09)

5/5/2005

| WBS Level | | | | | | LCLA DCE March-2005 Description | Early Start | Early Finish | OBS | Fund Type | Res Code | Units | Budgeted Quantity | | Fully Burdened and Escalated Cost | | | |
|--------------------------|----|----|----|---|---|--|-------------|--------------|-----|-----------|----------|-------|-------------------|----|-----------------------------------|--------|--------------------|--------|
| Run Time: 4/22/05 8:43am | | | | | | | | | | | | | Hours | \$ | Labor | M&S | Total (No Conting) | |
| 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | | | | | | |
| 1 | 05 | 06 | 04 | | | Install Ion Gauges - Far Hall Mech/Vac - H2 | 3-Mar-08 | 7-Mar-08 | | C | LL_PCCA | Hrs | 6 | | | 1,058 | | 1,058 |
| 1 | 05 | 06 | 04 | | | Install Stands - Far Hall Mech/Vac - H2 | 3-Mar-08 | 7-Mar-08 | | C | SL_MFAT | Hrs | 80 | | | 7,087 | | 7,087 |
| 1 | 05 | 06 | 04 | | | Install Vacuum Piping - Far Hall Mech/Vac - H3 | 14-Apr-08 | 18-Apr-08 | | C | SL_MFAT | Hrs | 24 | | | 2,126 | | 2,126 |
| 1 | 05 | 06 | 04 | | | Install Ion Gauges - Far Hall Mech/Vac - H3 | 8-Feb-08 | 14-Feb-08 | | C | SL_MFAT | Hrs | 12 | | | 1,063 | | 1,063 |
| 1 | 05 | 06 | 04 | | | Install Ion Gauges - Far Hall Mech/Vac - H3 | 8-Feb-08 | 14-Feb-08 | | C | SL_CT | Hrs | 6 | | | 400 | | 400 |
| 1 | 05 | 06 | 04 | | | Install Ion Gauges - Far Hall Mech/Vac - H3 | 8-Feb-08 | 14-Feb-08 | | C | LL_PCCA | Hrs | 6 | | | 1,058 | | 1,058 |
| 1 | 05 | 06 | 04 | | | Install Stands - Far Hall Mech/Vac - H3 | 8-Feb-08 | 14-Feb-08 | | C | SL_MFAT | Hrs | 80 | | | 7,087 | | 7,087 |
| 1 | 05 | 06 | 04 | | | Install Vacuum Piping - Far Hall Mech/Vac - H2 | 3-Mar-08 | 7-Mar-08 | | C | SL_PCCA | Hrs | 6 | | | 425 | | 425 |
| 1 | 05 | 06 | 04 | | | Install Vacuum Piping - Far Hall Mech/Vac - H2 | 3-Mar-08 | 7-Mar-08 | | C | SL_MFAT | Hrs | 24 | | | 2,126 | | 2,126 |
| 1 | 05 | 06 | 04 | | | Install Vacuum Piping - Far Hall Mech/Vac | 3-Mar-08 | 7-Mar-08 | | C | SL_PCCA | Hrs | 6 | | | 425 | | 425 |
| 1 | 05 | 06 | 04 | | | Install Vacuum Piping - Far Hall Mech/Vac | 3-Mar-08 | 7-Mar-08 | | C | SL_MFAT | Hrs | 12 | | | 1,063 | | 1,063 |
| 1 | 05 | 06 | 04 | | | Install - Pulse Split & Delay | 6-Feb-08 | 25-Jul-08 | | C | SL_TMUW | Hrs | 24 | | | 1,976 | | 1,976 |
| 1 | 05 | 06 | 04 | | | Install - Pulse Split & Delay | 6-Feb-08 | 25-Jul-08 | | C | SL_MFAT | Hrs | 720 | | | 63,785 | | 63,785 |
| 1 | 05 | 06 | 04 | | | Test - Pulse Split & Delay | 28-Jul-08 | 22-Aug-08 | | C | SL_PHS | Hrs | 40 | | | 3,152 | | 3,152 |
| 1 | 05 | 06 | 04 | | | Test - Pulse Split & Delay | 28-Jul-08 | 22-Aug-08 | | C | SL_ME | Hrs | 40 | | | 4,576 | | 4,576 |
| 1 | 05 | 06 | 04 | | | Install - System Monochrometer | 14-Dec-07 | 27-Feb-08 | | C | SL_TMUW | Hrs | 80 | | | 6,587 | | 6,587 |
| 1 | 05 | 06 | 04 | | | Install - System Monochrometer | 14-Dec-07 | 27-Feb-08 | | C | SL_PHS | Hrs | 40 | | | 3,152 | | 3,152 |
| 1 | 05 | 06 | 04 | | | Install - System Monochrometer | 14-Dec-07 | 27-Feb-08 | | C | SL_PCEF | Hrs | 40 | | | 2,667 | | 2,667 |
| 1 | 05 | 06 | 04 | | | Install - System Monochrometer | 14-Dec-07 | 27-Feb-08 | | C | SL_MFMS | Hrs | 80 | | | 8,691 | | 8,691 |
| 1 | 05 | 06 | 04 | | | Install - System Monochrometer | 14-Dec-07 | 27-Feb-08 | | C | SL_MFAT | Hrs | 320 | | | 28,349 | | 28,349 |
| 1 | 05 | 06 | 04 | | | Install - System Monochrometer | 14-Dec-07 | 27-Feb-08 | | C | LL_PCE | Hrs | 10 | | | 1,966 | | 1,966 |
| 1 | 05 | 06 | 04 | | | Install - System Monochrometer | 14-Dec-07 | 27-Feb-08 | | C | LL_MFPC | Hrs | 80 | | | 12,224 | | 12,224 |
| 1 | 05 | 06 | 04 | | | Test - Pulse System Monochrometer | 28-Feb-08 | 26-Mar-08 | | C | SL_PHS | Hrs | 40 | | | 3,152 | | 3,152 |
| 1 | 05 | 06 | 04 | | | Install Ion Pumps - Far Hall Mech/Vac | 3-Mar-08 | 7-Mar-08 | | C | SL_MFAT | Hrs | 24 | | | 2,126 | | 2,126 |
| 1 | 05 | 06 | 04 | | | Install Ion Pumps - Far Hall Mech/Vac | 3-Mar-08 | 7-Mar-08 | | C | SL_CT | Hrs | 12 | | | 800 | | 800 |
| 1 | 05 | 06 | 04 | | | Install Ion Pumps - Far Hall Mech/Vac | 3-Mar-08 | 7-Mar-08 | | C | LL_PCCA | Hrs | 12 | | | 2,116 | | 2,116 |
| 1 | 05 | 06 | 04 | | | Install Ion Gauges - Far Hall Mech/Vac | 3-Mar-08 | 7-Mar-08 | | C | SL_MFAT | Hrs | 12 | | | 1,063 | | 1,063 |
| 1 | 05 | 06 | 04 | | | Install Ion Gauges - Far Hall Mech/Vac | 3-Mar-08 | 7-Mar-08 | | C | SL_CT | Hrs | 6 | | | 400 | | 400 |
| 1 | 05 | 06 | 04 | | | Install Ion Gauges - Far Hall Mech/Vac | 3-Mar-08 | 7-Mar-08 | | C | LL_PCCA | Hrs | 6 | | | 1,058 | | 1,058 |
| 1 | 05 | 06 | 04 | | | Install Spools - Far Hall Mech/Vac | 3-Mar-08 | 7-Mar-08 | | C | SL_MFAT | Hrs | 32 | | | 2,835 | | 2,835 |
| 1 | 05 | 06 | 04 | | | Install Spools - Far Hall Mech/Vac | 3-Mar-08 | 7-Mar-08 | | C | LL_PCCA | Hrs | 8 | | | 1,410 | | 1,410 |
| 1 | 05 | 06 | 04 | | | Install Stands - Far Hall Mech/Vac | 3-Mar-08 | 7-Mar-08 | | C | SL_MFAT | Hrs | 160 | | | 14,174 | | 14,174 |
| 1 | 05 | 06 | 04 | | | Install Stands - Far Hall Mech/Vac | 3-Mar-08 | 7-Mar-08 | | C | LL_PCCA | Hrs | 40 | | | 7,052 | | 7,052 |
| 1 | 05 | 06 | 04 | | | Test - Total Energy Measurement | 3-Mar-08 | 28-Mar-08 | | C | SL_PHS | Hrs | 40 | | | 3,152 | | 3,152 |
| 1 | 05 | 06 | 04 | | | Install - Total Energy Measurement | 21-Sep-07 | 29-Feb-08 | | C | SL_PHS | Hrs | 40 | | | 3,147 | | 3,147 |
| 1 | 05 | 06 | 04 | | | Install - Spectral Measurement | 30-May-07 | 25-Jul-07 | | C | SL_PHS | Hrs | 360 | | | 27,648 | | 27,648 |
| 1 | 05 | 06 | 04 | | | Test - Spectral Measurement | 26-Jul-07 | 22-Aug-07 | | C | SL_PHS | Hrs | 40 | | | 3,072 | | 3,072 |
| 1 | 05 | 06 | 04 | | | Install - Direct Imager | 19-Jul-07 | 10-Dec-07 | | C | SL_PHS | Hrs | 456 | | | 35,465 | | 35,465 |
| 1 | 05 | 06 | 04 | | | Install - Direct Imager | 19-Jul-07 | 10-Dec-07 | | C | SL_MFMS | Hrs | 104 | | | 11,152 | | 11,152 |
| 1 | 05 | 06 | 04 | | | Install - Direct Imager | 19-Jul-07 | 10-Dec-07 | | C | SL_MFAT | Hrs | 152 | | | 13,292 | | 13,292 |
| 1 | 05 | 06 | 04 | | | Install - Direct Imager | 19-Jul-07 | 10-Dec-07 | | C | SL_ME | Hrs | 53 | | | 5,984 | | 5,984 |
| 1 | 05 | 06 | 04 | | | Install - Direct Imager | 19-Jul-07 | 10-Dec-07 | | C | LL_PCT | Hrs | 40 | | | 6,033 | | 6,033 |
| 1 | 05 | 06 | 04 | | | Install - Direct Imager | 19-Jul-07 | 10-Dec-07 | | C | LL_PCEF | Hrs | 104 | | | 15,686 | | 15,686 |
| 1 | 05 | 06 | 04 | | | Install - Direct Imager | 19-Jul-07 | 10-Dec-07 | | C | LL_EE | Hrs | 26 | | | 5,047 | | 5,047 |
| 1 | 05 | 06 | 04 | | | Install - Direct Imager | 19-Jul-07 | 10-Dec-07 | | C | LL_CP | Hrs | 26 | | | 5,419 | | 5,419 |
| 1 | 05 | 06 | 04 | | | Test - Direct Imager | 10-Jan-08 | 7-Feb-08 | | C | SL_PHS | Hrs | 40 | | | 3,152 | | 3,152 |
| 1 | 05 | 06 | 04 | | | Test - Direct Imager | 10-Jan-08 | 7-Feb-08 | | C | SL_ME | Hrs | 40 | | | 4,576 | | 4,576 |
| 1 | 05 | 06 | 04 | | | Visible Calibration - Direct Imager | 11-Dec-07 | 2-Jan-08 | | C | LL_PHS | Hrs | 40 | | | 8,404 | | 8,404 |
| 1 | 05 | 06 | 04 | | | Visible Calibration - Direct Imager | 11-Dec-07 | 2-Jan-08 | | C | LL_MFAT | Hrs | 40 | | | 6,112 | | 6,112 |
| 1 | 05 | 06 | 04 | | | X-Ray Calibration - Direct Imager | 3-Jan-08 | 9-Jan-08 | | C | LL_PHS | Hrs | 40 | | | 8,404 | | 8,404 |
| 1 | 05 | 06 | 04 | | | X-Ray Calibration - Direct Imager | 3-Jan-08 | 9-Jan-08 | | C | LL_MFAT | Hrs | 40 | | | 6,112 | | 6,112 |
| 1 | 05 | 06 | 04 | | | Install Isolation Valve - Far Hall Mech/Vac | 3-Mar-08 | 7-Mar-08 | | C | SL_MFAT | Hrs | 16 | | | 1,417 | | 1,417 |
| 1 | 05 | 06 | 04 | | | Install Isolation Valve - Far Hall Mech/Vac | 3-Mar-08 | 7-Mar-08 | | C | SL_CT | Hrs | 16 | | | 1,067 | | 1,067 |
| 1 | 05 | 06 | 04 | | | Install Isolation Valve - Far Hall Mech/Vac | 3-Mar-08 | 7-Mar-08 | | C | LL_PCCA | Hrs | 16 | | | 2,821 | | 2,821 |
| 1 | 05 | 06 | 04 | | | Test - Far Hall Mech/Vac - H1 | 10-Mar-08 | 21-Mar-08 | | C | SL_MFAT | Hrs | 40 | | | 3,544 | | 3,544 |
| 1 | 05 | 06 | 04 | | | Install Ion Pumps - Far Hall Mech/Vac - H2 | 3-Mar-08 | 7-Mar-08 | | C | SL_MFAT | Hrs | 24 | | | 2,126 | | 2,126 |
| 1 | 05 | 06 | 04 | | | Install Ion Pumps - Far Hall Mech/Vac - H2 | 3-Mar-08 | 7-Mar-08 | | C | SL_CT | Hrs | 12 | | | 800 | | 800 |
| 1 | 05 | 06 | 04 | | | Install Ion Pumps - Far Hall Mech/Vac - H2 | 3-Mar-08 | 7-Mar-08 | | C | LL_PCCA | Hrs | 12 | | | 2,116 | | 2,116 |
| 1 | 05 | 06 | 04 | | | Test - Far Hall Mech/Vac - H2 | 10-Mar-08 | 21-Mar-08 | | C | SL_MFAT | Hrs | 40 | | | 3,544 | | 3,544 |
| 1 | 05 | 06 | 04 | | | Install - Flipper Mirror | 6-Sep-07 | 31-Oct-07 | | C | SL_PHS | Hrs | 40 | | | 3,118 | | 3,118 |
| 1 | 05 | 06 | 04 | | | Leak Check - Flipper Mirror | 1-Nov-07 | 30-Nov-07 | | C | SL_MFAT | Hrs | 8 | | | 709 | | 709 |
| 1 | 05 | 06 | 04 | | | Test Beam Line - Flipper Mirror | 3-Dec-07 | 15-Jan-08 | | C | SL_PHS | Hrs | 16 | | | 1,261 | | 1,261 |
| 1 | 05 | 06 | 04 | | | Install Ion Pumps - Far Hall Mech/Vac - H3 | 8-Feb-08 | 14-Feb-08 | | C | SL_MFAT | Hrs | 24 | | | 2,126 | | 2,126 |
| 1 | 05 | 06 | 04 | | | Install Ion Pumps - Far Hall Mech/Vac - H3 | 8-Feb-08 | 14-Feb-08 | | C | SL_CT | Hrs | 12 | | | 800 | | 800 |

LCLS TPC Detailed Cost Estimate (FY05FY09)

5/5/2005

| WBS Level | | | | | | LCLA DCE March-2005 Description | Early Start | Early Finish | OBS | Fund Type | Res Code | Units | Budgeted Quantity | | Fully Burdened and Escalated Cost | | | |
|--------------------------|----|----|----|---|---|---|-------------|--------------|-----|-----------|----------|-------|-------------------|---------------|-----------------------------------|---------------|--------------------|---------|
| Run Time: 4/22/05 8:43am | | | | | | | | | | | | | Hours | \$\$ | Labor | M&S | Total (No Conting) | |
| 1 | 2 | 3 | 4 | 5 | 6 | Install Ion Pumps - Far Hall Mech/Vac - H3 | 8-Feb-08 | 14-Feb-08 | | C | LL_PCCA | Hrs | 12 | | | 2,116 | | 2,116 |
| 1 | 05 | 06 | 04 | | | Test - Far Hall Mech/Vac - H3 | 21-Apr-08 | 2-May-08 | | C | SL_PHS | Hrs | 40 | | | 3,152 | | 3,152 |
| 1 | 05 | 06 | 04 | | | Test - Far Hall Mech/Vac - H3 | 21-Apr-08 | 2-May-08 | | C | SL_MFAT | Hrs | 40 | | | 3,544 | | 3,544 |
| 2 | 05 | | | | | X-RAY TRANSPORT & DIAGNOSTICS SYSTEMS (OPC) | | | | | | | 22,493 | 50,000 | 4,079,773 | 64,500 | 4,144,273 | |
| 2 | 05 | 01 | | | | System Management & Integration | | | | | | | 21,606 | - | 3,905,431 | - | 3,905,431 | |
| 2 | 05 | 01 | 01 | | | Management | | | | | | | 21,606 | - | 3,905,431 | - | 3,905,431 | |
| 2 | 05 | 01 | 01 | | | XTOD Pre-Operations | 4-Apr-08 | 31-Mar-09 | | X | SL_PHS | Hrs | 1,708 | | | 154,452 | | 154,452 |
| 2 | 05 | 01 | 01 | | | XTOD Pre-Operations | 4-Apr-08 | 31-Mar-09 | | X | SL_ME | Hrs | 854 | | | 112,116 | | 112,116 |
| 2 | 05 | 01 | 01 | | | XTOD Pre-Operations | 4-Apr-08 | 31-Mar-09 | | X | SL_EE | Hrs | 854 | | | 119,334 | | 119,334 |
| 2 | 05 | 01 | 01 | | | R&D - Conceptual Design | 4-Oct-04 | 30-Sep-05 | | R | LL_PHSS | Hrs | 426 | | | 91,339 | | 91,339 |
| 2 | 05 | 01 | 01 | | | R&D - Conceptual Design | 4-Oct-04 | 30-Sep-05 | | R | LL_CP | Hrs | 429 | | | 83,702 | | 83,702 |
| 2 | 05 | 01 | 01 | | | R&D - Component Physics Design | 1-Mar-05 | 25-Jul-05 | | R | LL_PHSS | Hrs | 328 | | | 70,326 | | 70,326 |
| 2 | 05 | 01 | 01 | | | R&D - Component Physics Design | 1-Mar-05 | 25-Jul-05 | | R | LL_ME | Hrs | 433 | | | 78,680 | | 78,680 |
| 2 | 05 | 01 | 01 | | | R&D - Beamline Mechanical Layout | 1-Mar-05 | 25-Jul-05 | | R | LL_ME | Hrs | 327 | | | 59,419 | | 59,419 |
| 2 | 05 | 01 | 01 | | | LLNL - Commissioning Team | 8-Jun-07 | 5-Jan-09 | | X | LL_PHS | Hrs | 3,200 | | | 671,480 | | 671,480 |
| 2 | 05 | 01 | 01 | | | LLNL - Commissioning Team | 8-Jun-07 | 5-Jan-09 | | X | LL_MFAT | Hrs | 3,200 | | | 488,324 | | 488,324 |
| 2 | 05 | 01 | 01 | | | LLNL - Commissioning Team | 8-Jun-07 | 5-Jan-09 | | X | LL_ME | Hrs | 3,200 | | | 628,431 | | 628,431 |
| 2 | 05 | 01 | 01 | | | LLNL - Commissioning Team | 8-Jun-07 | 5-Jan-09 | | X | LL_EE | Hrs | 3,200 | | | 628,431 | | 628,431 |
| 2 | 05 | 01 | 01 | | | LLNL - Commissioning Team | 8-Jun-07 | 5-Jan-09 | | X | LL_CP | Hrs | 3,200 | | | 674,770 | | 674,770 |
| 2 | 05 | 01 | 01 | | | R&D - Beamline Electronics & Controls | 1-Mar-05 | 25-Jul-05 | | R | LL_EE | Hrs | 200 | | | 36,342 | | 36,342 |
| 2 | 05 | 01 | 01 | | | R&D - Beamline Electronics | 1-Dec-04 | 14-Dec-04 | | R | LL_ME | Hrs | 30 | | | 5,451 | | 5,451 |
| 2 | 05 | 01 | 01 | | | R&D - Beamline Electronics | 1-Dec-04 | 14-Dec-04 | | R | LL_MDD | Hrs | 17 | | | 2,834 | | 2,834 |
| 2 | 05 | 02 | | | | Controls | | | | | | | | | | | | |
| 2 | 05 | 02 | 01 | | | Controls Engineering | | | | | | | | | | | | |
| 2 | 05 | 02 | 02 | | | Slow Controls | | | | | | | | | | | | |
| 2 | 05 | 02 | 03 | | | Fast Controls | | | | | | | | | | | | |
| 2 | 05 | 02 | 04 | | | Femto Controls | | | | | | | | | | | | |
| 2 | 05 | 03 | | | | Mechanical & Vacuum Subsystem | | | | | | | | | | | | |
| 2 | 05 | 03 | 01 | | | Vacuum Systems Engineering | | | | | | | | | | | | |
| 2 | 05 | 03 | 02 | | | Mech/Vac Front End | | | | | | | | | | | | |
| 2 | 05 | 03 | 03 | | | Mech/Vac Near Hall | | | | | | | | | | | | |
| 2 | 05 | 03 | 04 | | | Mech/Vac Tunnel | | | | | | | | | | | | |
| 2 | 05 | 03 | 05 | | | Mech/Vac Far Hall | | | | | | | | | | | | |
| 2 | 05 | 04 | | | | Optical Subsystem | | | | | | | | | | | | |
| 2 | 05 | 04 | 01 | | | Optical Systems Engineering | | | | | | | | | | | | |
| 2 | 05 | 04 | 02 | | | Facility Optics | | | | | | | | | | | | |
| 2 | 05 | 04 | 03 | | | End Station Optics | | | | | | | | | | | | |
| 2 | 05 | 04 | 04 | | | Crystals & Gratings | | | | | | | | | | | | |
| 2 | 05 | 05 | | | | Diagnostics Subsystem | | | | | | | 887 | 50,000 | 174,342 | 64,500 | 238,842 | |
| 2 | 05 | 05 | 01 | | | Diagnostic Systems Engineering | | | | | | | 887 | - | 174,342 | - | 174,342 | |
| 2 | 05 | 05 | 02 | | | Modeling & Simulation | | | | | | | 887 | - | 174,342 | - | 174,342 | |
| 2 | 05 | 05 | 02 | | | R&D - Beamline Simulation | 2-Mar-05 | 3-Oct-05 | | R | LL_PHS | Hrs | 302 | | | 58,647 | | 58,647 |
| 2 | 05 | 05 | 02 | | | R&D - Beamline Simulation | 2-Mar-05 | 3-Oct-05 | | R | LL_CP | Hrs | 302 | | | 58,934 | | 58,934 |
| 2 | 05 | 05 | 02 | | | R&D - FEL Monte Carlo | 3-Oct-05 | 23-Feb-06 | | R | LL_CP | Hrs | 283 | | | 56,761 | | 56,761 |
| 2 | 05 | 05 | 03 | | | Facility Diagnostics | | | | | | | - | 50,000 | - | 64,500 | 64,500 | |
| 2 | 05 | 05 | 03 | | | Procure Spares - Direct Imager | 3-Oct-06 | 11-Jan-07 | | S | LL_MSCS | \$\$ | | | | 50,000 | | 64,500 |
| 2 | 05 | 05 | 04 | | | Commissioning Diagnostics | | | | | | | | | | | | |
| 2 | 05 | 06 | | | | X-Ray Transport & Diag. System Commissioning | | | | | | | | | | | | |
| 2 | 05 | 06 | 01 | | | X-Ray Transport & Diag. System Commissioning | | | | | | | | | | | | |