| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1 | 1.0 | LCLS Project |  |  | 0 | 25,550.77 wks | \$29,688,941.14 | \$82,730,227.00 | \$23,466,677.92 | \$135,885,846.06 | \$23,096,408.72 | \$37,521,300.40 | \$196,503,555.19 |
| 2 | 1.1 | Project Planning, Management and Administration |  |  | 0 | 1,441 wks | \$3,886,920.00 | \$4,012,000.00 | \$2,972,640.00 | \$10,871,560.00 | \$1,311,352.00 | \$189,210.00 | \$12,372,122.00 |
| 3 | 1.1.1 | Environment, Satety \& Health |  |  | 0 | 407 wks | \$579,560.00 | \$146,000.00 | \$892,320.00 | \$1,617,880.00 | \$289,696.00 | \$38,478.00 | \$1,946,054.00 |
| 4 | 1.1.1.1 | PED |  |  | 0 | 143 wks | \$579,560.00 | \$0.00 | \$0.00 | \$579,560.00 | \$102,472.00 | \$15,264.00 | \$697,296.00 |
| 5 | 1.1.1.1.1 | ES\&H PED |  |  | 0 | 143 wks | \$579,560.00 | \$0.00 | \$0.00 | \$579,560.00 | \$102,472.00 | \$15,264.00 | \$697,296.00 |
| 6 | 1.1.1.1.1 | Radiation Physics | SLAC | ED\& | 0 | 77 wks | \$261,800.00 | \$0.00 | \$0.00 | \$261,800.00 | \$52,360.00 | \$0.00 | \$314,160.00 |
|  |  | SLAC Physicist -Scientist |  | ED\&1 | 0 | 77 wks | \$0.00 | \$0.00 | \$0.00 | \$261,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 7 | 1.1.1.1.1 | ES\&H Coordination | SLAC | ED\& | 0 | 66 wks | \$221,760.00 | \$0.00 | \$0.00 | \$221,760.00 | \$44,352.00 | \$0.00 | \$266,112.00 |
|  |  | SLAC Mechanical Engineer |  | ED\&1 | 0 | 66 wks | \$0.00 | \$0.00 | \$0.00 | \$221,760.00 | \$0.00 | \$0.00 | \$0.00 |
| 8 | 1.1.1.1.1 | Subcontracts | SLAC | M\&S | 1 | 0 wks | \$60,000.00 | \$0.00 | \$0.00 | \$60,000.00 | \$3,600.00 | \$9,540.00 | \$73,140.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 60,000 | \$0.00 | \$0.00 | \$0.00 | \$60,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 9 | 1.1.1.1.1 | M\&S | SLAC | M\&S | 1 | 0 wks | \$32,000.00 | \$0.00 | \$0.00 | \$32,000.00 | \$1,920.00 | \$5,088.00 | \$39,008.00 |
|  |  | SLAC M\&S Iotal |  | M LS $^{\text {S }}$ | 0 | 32,000 | \$0.00 | \$0.00 | \$0.00 | \$32,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 10 | 1.1.1.1.1 | Iravel | SLAC | M\&S | 1 | 0 wks | \$4,000.00 | \$0.00 | \$0.00 | \$4,000.00 | \$240.00 | \$636.00 | \$4,876.00 |
|  |  | SLAC M2S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 11 | 1.1.1.2 | ES\&H Project |  |  | 0 | 264 wks | \$0.00 | \$146,000.00 | \$892,320.00 | \$1,038,320.00 | \$187,224.00 | \$23,214.00 | \$1,248,758.00 |
| 12 | 1.1.1.2.1 | Radiation Physics | SLAC | ED\& | 0 | 132 wks | \$0.00 | \$0.00 | \$448,800.00 | \$448,800.00 | \$89,760.00 | \$0.00 | \$538,560.00 |
|  |  | SLAC Physicist -Scientist |  | ED\&1 | 0 | 132 wks | \$0.00 | \$0.00 | \$0.00 | \$448,800.00 | \$0.00 | \$0.00 | \$0.00 |
| ${ }^{13}$ | 1.1.1.2.1 | ES\&H Cooordination | SLAC | ED\& | 0 | 132 wks | \$0.00 | \$0.00 | \$443,520.00 | \$443,520.00 | \$88,704.00 | \$0.00 | \$532,224.00 |
|  |  | SLAC Mechanical Engineer |  | ED\&1 | 0 | 132 wks | \$0.00 | \$0.00 | \$0.00 | \$443,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 14 | 1.1.1.2.1 | subcontracts | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$90,000.00 | \$0.00 | \$90,000.00 | \$5,400.00 | \$14,310.00 | \$109,710.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 90,000 | \$0.00 | \$0.00 | \$0.00 | \$90,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 15 | 1.1.1.2.1 | M\&S | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$50,000.00 | \$0.00 | \$50,000.00 | \$3,000.00 | \$7,950.00 | \$60,950.00 |
|  |  | SLAC MKS Iotal |  | M 2 S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 16 | 1.1.1.1.2.1 | Travel | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$954.00 | \$7,314.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 17 | 1.1 .2 | Construction Project Management |  |  | 0 | 1,034 wks | \$3,307,360.00 | \$3,866,000.00 | \$2,080,320.00 | \$9,253,680.00 | \$1,021,656.00 | \$150,732.00 | \$10,426,068.00 |
| 18 | 1.1.2.1 | PED |  |  | 0 | 374 wks | \$3,307,360.00 | \$0.00 | \$0.00 | \$3,307,360.00 | \$373,632.00 | \$87,768.00 | \$3,768,760.00 |
| 19 | 1.1.2.1.1 | Supervis/Coord PED |  |  | 0 | 374 wks | \$3,307,360.00 | \$0.00 | \$0.00 | \$3,307,360.00 | \$373,632.00 | \$87,768.00 | \$3,768,760.00 |
| 20 | 1.1.2.1.1 | Project Director | SLAC | ED\& | 0 | 88 wks | \$422,400.00 | \$0.00 | \$0.00 | \$422,400.00 | \$84,480.00 | \$0.00 | \$506,880.00 |
|  |  | SLAC Project Management |  | ED\& | 0 | 88 wks | \$0.00 | \$0.00 | \$0.00 | \$422,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 21 | 1.1.1.2.1.1 | Chiet Engineer | SLAC | ED\& | 0 | 88 wks | \$422,400.00 | \$0.00 | \$0.00 | \$422,400.00 | \$84,480.00 | \$0.00 | \$506,880.00 |
|  |  | SLAC Project Management |  | ED\&1 | 0 | 88 wks | \$0.00 | \$0.00 | \$0.00 | \$422,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 22 | 1.1.2.1.1 | Quality Assurance | SLAC | ED\& | 0 | 66 wks | \$221,760.00 | \$0.00 | \$0.00 | \$221,760.00 | \$44,352.00 | \$0.00 | \$266,112.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 66 wks | \$0.00 | \$0.00 | \$0.00 | \$221,760.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  | Page 1 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ${ }^{\text {ID }}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.1.2.2.1 | Admin | SLAC | ED\& | 0 | 132 wks | \$184,800.00 | \$0.00 | \$0.00 | \$184,800.00 | \$36,960.00 | \$0.00 | \$221,760.00 |
|  |  | SLAC Administration |  | ED\& | 0 | 132 wks | \$0.00 | \$0.00 | \$0.00 | \$184,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 24 | 1.1.2.1.1 | PMCS Support | SLAC | M\&S | 0 | 0 wks | \$1,504,000.00 | \$0.00 | \$0.00 | \$1,504,000.00 | \$90,240.00 | \$0.00 | \$1,594,240.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 1,504,000 | \$0.00 | \$0.00 | \$0.00 | \$1,504,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 25 | 1.1.2.1.1 | Subcontracts | SLAC | M 2 S | 1 | 0 wks | \$400,000.00 | \$0.00 | \$0.00 | \$400,000.00 | \$24,000.00 | \$63,600.00 | \$487,600.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 400,000 | \$0.00 | \$0.00 | \$0.00 | \$400,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 26 | 1.1.2.1.1 | M\&S | SLAC | M 2 S | 1 | 0 wks | \$140,000.00 | \$0.00 | \$0.00 | \$140,000.00 | \$8,400.00 | \$22,260.00 | \$170,660.00 |
|  |  | SLAC M\&S Iotal |  | M dS $^{\text {S }}$ | 0 | 140,000 | \$0.00 | \$0.00 | \$0.00 | \$140,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 27 | 1.1.2.1.1 | Iravel | SLAC | M\&S | 1 | 0 wks | \$12,000.00 | \$0.00 | \$0.00 | \$12,000.00 | \$720.00 | \$1,908.00 | \$14,628.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 28 | 1.1.2.2 | Construction |  |  | 0 | 660 wks | \$0.00 | \$3,866,000.00 | \$2,080,320.00 | \$5,946,320.00 | \$648,024.00 | \$62,964.00 | \$6,657,308.00 |
| 29 | 1.1.2.2. 1 | Supervis/Coord Proj |  |  | 0 | 660 wks | \$0.00 | \$3,866,000.00 | \$2,080,320.00 | \$5,946,320.00 | \$648,024.00 | \$62,964.00 | \$6,657,308.00 |
| 30 | 1.1.2.1.1 | Project Director | SLAC | ED\& | 0 | 132 wks | \$0.00 | \$0.00 | \$633,600.00 | \$633,600.00 | \$126,720.00 | \$0.00 | \$760,320.00 |
|  |  | SLAC Project Management |  | ED\&I | 0 | 132 wks | \$0.00 | \$0.00 | \$0.00 | \$633,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 31 | 1.1.2.1.1 | Chief Engineer | SLAC | ED\& | 0 | 132 wks | \$0.00 | \$0.00 | \$633,600.00 | \$633,600.00 | \$126,720.00 | \$0.00 | \$760,320.00 |
|  |  | SLAC Project Management |  | ED\& | 0 | 132 wks | \$0.00 | \$0.00 | \$0.00 | \$633,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 32 | 1.1.2.1.1 | Quality Assurance | SLAC | ED\& | 0 | 132 wks | \$0.00 | \$0.00 | \$443,520.00 | \$443,520.00 | \$88,704.00 | \$0.00 | \$532,224.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 132 wks | \$0.00 | \$0.00 | \$0.00 | \$443,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 33 | 1.1.2.2.1 | Admin | SLAC | ED\& | 0 | 264 wks | \$0.00 | \$0.00 | \$369,600.00 | \$369,600.00 | \$73,920.00 | \$0.00 | \$443,520.00 |
|  |  | SLAC Administration |  | ED\& | 0 | 264 wks | \$0.00 | \$0.00 | \$0.00 | \$369,600.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 34 | 1.1.2.1.1 | PMCS Support | SLAC | M 2 S | 0 | 0 wks | \$0.00 | \$2,820,000.00 | \$0.00 | \$2,820,000.00 | \$169,200.00 | \$0.00 | \$2,989,200.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,820,000 | \$0.00 | \$0.00 | \$0.00 | \$2,820,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 35 | 1.1.2.1.1 | Subcontracts | SLAC | M 2 S | 0 | 0 wks | \$0.00 | \$650,000.00 | \$0.00 | \$650,000.00 | \$39,000.00 | \$0.00 | \$689,000.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 650,000 | \$0.00 | \$0.00 | \$0.00 | \$650,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 36 | 1.1.2.1.1 | M\&S | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$360,000.00 | \$0.00 | \$360,000.00 | \$21,600.00 | \$57,240.00 | \$438,840.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 360,000 | \$0.00 | \$0.00 | \$0.00 | \$360,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 37 | 1.1.2.1.1 | Travel | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$36,000.00 | \$0.00 | \$36,000.00 | \$2,160.00 | \$5,724.00 | \$43,884.00 |
|  |  | SLAC M\&S Iotal |  | M M $^{\text {S }}$ | 0 | 36,000 | \$0.00 | \$0.00 | \$0.00 | \$36,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 38 | 1.1.3 | Reserved |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 39 | 1.2 | Electronic Beam Handling Systems |  |  | 0 | 11,380.63 wks | \$15,010,759.58 | \$37,939,724.00 | \$15,890,182.12 | \$68,840,665.70 | \$10,674,991.08 | \$22,149,893.97 | \$101,665,550.75 |
| 40 | 1.2 .1 | Injector |  |  | 0 | 3,150.98 wks | \$4,134,868.00 | \$5,238,124.00 | \$4,528,725.76 | \$13,901,717.76 | \$2,010,746.19 | \$4,498,164.26 | \$20,410,628.21 |
| 41 | 1.2.1.1 | PED |  |  | 0 | 1,407.42 wks | \$4,134,868.00 | \$0.00 | \$0.00 | \$4,134,868.00 | \$790,713.60 | \$1,579,444.84 | \$6,505,026.44 |
| 42 | 1.2.1.1.1 | System Integration | SLAC |  | 0 | 47 wks | \$239,000.00 | \$0.00 | \$0.00 | \$239,000.00 | \$35,200.00 | \$68,550.00 | \$342,750.00 |
| 43 | 1.2.1.1.1.1 | Computer Equipment | SLAC | M 8 S | 2 | 0 wks | \$50,000.00 | \$0.00 | \$0.00 | \$50,000.00 | \$3,000.00 | \$13,250.00 | \$66,250.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| Page 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 4 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 44 | 1.2.1.1.1.2 | Travel | SLAC | M\&S | 2 | 0 wks | \$40,000.00 | \$0.00 | \$0.00 | \$40,000.00 | \$2,400.00 | \$10,600.00 | \$53,000.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 40,000 | \$0.00 | \$0.00 | \$0.00 | \$40,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 45 | 1.2.1.1.1.3 | Physics | SLAC | ED\&1 | 2 | 30 wks | \$102,000.00 | \$0.00 | \$0.00 | \$102,000.00 | \$20,400.00 | \$30,600.00 | \$153,000.00 |
|  |  | SLAC Physicist-Scientist |  | ED\&1 | 0 | 30 wks | \$0.00 | \$0.00 | \$0.00 | \$102,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 46 | 1.2.1.1.1.4 | Engineering | SLAC | ED\& | 2 | 13 wks | \$39,000.00 | \$0.00 | \$0.00 | \$39,000.00 | \$7,800.00 | \$11,700.00 | \$58,500.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 13 wks | \$0.00 | \$0.00 | \$0.00 | \$39,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 47 | 1.2.1.1.1.5 | Dratting | SLAC | ED\& 1 | 2 | 4 wks | \$8,000.00 | \$0.00 | \$0.00 | \$8,000.00 | \$1,600.00 | \$2,400.00 | \$12,000.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 48 | 1.2.1.1.2 | Injector Control System |  |  | 0 | 206.4 wks | \$538,688.00 | \$0.00 | \$0.00 | \$538,688.00 | \$107,737.60 | \$323,212.80 | \$969,638.40 |
| 49 | 1.2.1.1.2.1 | Hardware Engineer / System Integration | SLAC | ED\& | 4 | 36.4 wks | \$109,200.00 | \$0.00 | \$0.00 | \$109,200.00 | \$21,840.00 | \$65,520.00 | \$196,560.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 36.4 wks | \$0.00 | \$0.00 | \$0.00 | \$109,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 50 | 1.2.1.1.2.2 | Sottware Engineer - Feedbacks | SLAC | ED\& | 4 | 52.8 wks | \$133,393.92 | \$0.00 | \$0.00 | \$133,393.92 | \$26,678.78 | \$80,036.35 | \$240,109.06 |
|  |  | SLAC Controls: Programmer |  | ED\& | 4 | 52.8 wks | \$0.00 | \$0.00 | \$0.00 | \$133,393.92 | \$0.00 | \$0.00 | \$0.00 |
| 51 | 1.2.1.1.2.3 | Sotware Engineer - Networks | SLAC | ED\&I | 4 | 30 wks | \$75,792.00 | \$0.00 | \$0.00 | \$75,792.00 | \$15,158.40 | \$45,475.20 | \$136,425.60 |
|  |  | SLAC Controls: Programmer |  | ED\& | 0 | 30 wks | \$0.00 | \$0.00 | \$0.00 | \$75,792.00 | \$0.00 | \$0.00 | \$0.00 |
| 52 | 1.2.1.1.2.4 | Software Engineer - Interfaces | SLAC | ED\& | 4 | 52.2 wks | \$131,878.08 | \$0.00 | \$0.00 | \$131,878.08 | \$26,375.62 | \$79,126.85 | \$237,380.54 |
|  |  | SLAC Controls: Programmer |  | ED\& | 0 | 52.2 wks | \$0.00 | \$0.00 | \$0.00 | \$131,878.08 | \$0.00 | \$0.00 | \$0.00 |
| 53 | 1.2.1.1.2.5 | Programmer - Database comp. \& Comm. | SLAC | ED\&I | 4 | 35 wks | \$88,424.00 | \$0.00 | \$0.00 | \$88,424.00 | \$17,684.80 | \$53,054.40 | \$159,163.20 |
|  |  | SLAC Controls: Programmer |  | ED\& | 0 | 35 wks | \$0.00 | \$0.00 | \$0.00 | \$88,424.00 | \$0.00 | \$0.00 | \$0.00 |
| 54 | 1.2.1.1.3 | Vacuum System PED |  |  | 0 | 170.4 wks | \$451,824.00 | \$0.00 | \$0.00 | \$451,824.00 | \$90,364.80 | \$170,026.08 | \$712,214.88 |
| 55 | 1.2.1.1.3.1 | Vacuum System Engineering | SLAC | ED\& | 3 | 53.4 wks | \$179,424.00 | \$0.00 | \$0.00 | \$179,424.00 | \$35,884.80 | \$75,358.08 | \$290,666.88 |
|  |  | SLAC Mechanical Engineer |  | ED\&1 | 0 | 53.4 wks | \$0.00 | \$0.00 | \$0.00 | \$179,424.00 | \$0.00 | \$0.00 | \$0.00 |
| 56 | 1.2.1.1.3.2 | vacuum System Design | SLAC | ED\& 1 | 3 | 40 wks | \$92,000.00 | \$0.00 | \$0.00 | \$92,000.00 | \$18,400.00 | \$38,640.00 | \$149,040.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 40 wks | \$0.00 | \$0.00 | \$0.00 | \$92,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 57 | 1.2.1.1.3.3 | Component layouts,details,assemblies | SLAC | ED\& | 3 | 10 wks | \$23,000.00 | \$0.00 | \$0.00 | \$23,000.00 | \$4,600.00 | \$9,660.00 | \$37,260.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$23,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 58 | 1.2.1.1.3.4 | Support layouts,details, assemblies | SLAC | ED\& | 3 | 48 wks | \$110,400.00 | \$0.00 | \$0.00 | \$110,400.00 | \$22,080.00 | \$46,368.00 | \$178,848.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 48 wks | \$0.00 | \$0.00 | \$0.00 | \$110,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 59 | 1.2.1.1.3.5 | Hardware Engineering | SLAC | ED\& | 0 | 9 wks | \$27,000.00 | \$0.00 | \$0.00 | \$27,000.00 | \$5,400.00 | \$0.00 | \$32,400.00 |
|  |  | SLAC Electrical Engineer |  | ED\& | 0 | 9 wks | \$0.00 | \$0.00 | \$0.00 | \$27,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 60 | 1.2.1.1.3.6 | Coordination \& Layout | SLAC | ED\& | 0 | 10 wks | \$20,000.00 | \$0.00 | \$0.00 | \$20,000.00 | \$4,000.00 | \$0.00 | \$24,000.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 61 | 1.2.1.1.4 | Reserved |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 62 | 1.2.1.1.4.1 | Area layouts/raceways/supports | SLAC | ED\&I | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC PCD:Engineer |  | ED\&I | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  | Page 3 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 63 | 1.2.1.1.4.2 | System dwg (EI,WD,Profile,CC\&contrac.) | SLAC | ED\& | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 64 | 1.2.1.1.5 | PPS PED |  |  | 0 | 15.97 wks | \$39,440.00 | \$0.00 | \$0.00 | \$39,440.00 | \$7,888.00 | \$11,832.00 | \$59,160.00 |
| 65 | 1.2.1.1.5.1 | PPS Design Engineering | SLAC | ED\& | 2 | 7.5 wks | \$22,500.00 | \$0.00 | \$0.00 | \$22,500.00 | \$4,500.00 | \$6,750.00 | \$33,750.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 7.5 wks | \$0.00 | \$0.00 | \$0.00 | \$22,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 66 | 1.2.1.1.5.2 | PPS Design Dratting | SLAC | ED\& | 2 | 5.22 wks | \$10,440.00 | \$0.00 | \$0.00 | \$10,440.00 | \$2,088.00 | \$3,132.00 | \$15,660.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 5.22 wks | \$0.00 | \$0.00 | \$0.00 | \$10,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 67 | 1.2.1.1.5.3 | Beam stopper dratting | SLAC | ED\& | 2 | 1.5 wks | \$3,000.00 | \$0.00 | \$0.00 | \$3,000.00 | \$600.00 | \$900.00 | \$4,500.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&1 | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 68 | 1.2.1.1.5.4 | Beam stopper design | SLAC | ED\& | 2 | 1.75 wks | \$3,500.00 | \$0.00 | \$0.00 | \$3,500.00 | \$700.00 | \$1,050.00 | \$5,250.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 1.75 wks | \$0.00 | \$0.00 | \$0.00 | \$3,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 69 | 1.2.1.1.6 | Gun Load Lock |  |  | 0 | 103 wks | \$294,080.00 | \$0.00 | \$0.00 | \$294,080.00 | \$58,816.00 | \$98,304.00 | \$451,200.00 |
| 70 | 1.2.1.1.1.6. | Physics | SLAC | ED\& | 2 | 25 wks | \$85,000.00 | \$0.00 | \$0.00 | \$85,000.00 | \$17,000.00 | \$25,500.00 | \$127,500.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$85,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 71 | 1.2.1.1.6.2 | Load Lock Design | SLAC | ED\& | 3 | 25 wks | \$84,000.00 | \$0.00 | \$0.00 | \$84,000.00 | \$16,800.00 | \$35,280.00 | \$136,080.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$84,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 72 | 1.2.1.1.6.3 | Load Lock Dratting | SLAC | ED\& | 2 | 50 wks | \$115,000.00 | \$0.00 | \$0.00 | \$115,000.00 | \$23,000.00 | \$34,500.00 | \$172,500.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 50 wks | \$0.00 | \$0.00 | \$0.00 | \$115,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 73 | 1.2.1.1.6.4 | Load Lock Support Design | SLAC | ED\& | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 74 | 1.2.1.1.6.5 | Load Lock Support Dratting | SLAC | ED\& | 2 | 1 wk | \$3,360.00 | \$0.00 | \$0.00 | \$3,360.00 | \$672.00 | \$1,008.00 | \$5,040.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 75 | 1.2.1.1.7 | Bend Magnets - 5D7. 1 |  |  | 0 | 17 wks | \$44,400.00 | \$0.00 | \$0.00 | \$44,400.00 | \$8,880.00 | \$13,320.00 | \$66,600.00 |
| 76 | 1.2.1.1.7.1 | Magnetic Modeling | SLAC | ED\& | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 77 | 1.2.1.1.7.2 | Magnet Design | SLAC | ED\& | 2 | 3 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$2,016.00 | \$3,024.00 | \$15,120.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 78 | 1.2.1.1.7.3 | Magnet Dratting | SLAC | ED\& | 2 | 8 wks | \$18,400.00 | \$0.00 | \$0.00 | \$18,400.00 | \$3,680.00 | \$5,520.00 | \$27,600.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$18,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 79 | 1.2.1.1.7.4 | Magnet Support Design | SLAC | ED\& | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 80 | 1.2.1.1.7.5 | Magnet Support Dratting | SLAC | ED\& | 2 | 4 wks | \$9,200.00 | \$0.00 | \$0.00 | \$9,200.00 | \$1,840.00 | \$2,760.00 | \$13,800.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 81 | 1.2.1.1.8 | Quadrupoles - 105.6 |  |  | 0 | 16 wks | \$43,160.00 | \$0.00 | \$0.00 | \$43,160.00 | \$8,632.00 | \$12,948.00 | \$64,740.00 |
| 82 | 1.2.1.1.8.1 | Magnetic Modeling | SLAC | ED\& | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 83 | 1.2.1.1.8.2 | Magnet Design | SLAC | ED\& | 2 | 3 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$2,016.00 | \$3,024.00 | \$15,120.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 84 | 1.2.1.1.8.3 | Magnet Dratting | SLAC | ED\& | 2 | 8 wks | \$18,400.00 | \$0.00 | \$0.00 | \$18,400.00 | \$3,680.00 | \$5,520.00 | \$27,600.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$18,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 85 | 1.2.1.1.8.4 | Magnet Support Design | SLAC | ED\& | 2 | 1 wk | \$3,360.00 | \$0.00 | \$0.00 | \$3,360.00 | \$672.00 | \$1,008.00 | \$5,040.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 86 | 1.2.1.1.8.5 | Magnet Support Dratting | SLAC | ED\& | 2 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$1,380.00 | \$6,900.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | $2 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 87 | 1.2.1.1.9 | Gun Solenoid |  |  | 0 | 46 wks | \$125,080.00 | \$0.00 | \$0.00 | \$125,080.00 | \$25,016.00 | \$22,514.40 | \$172,610.40 |
| 88 | 1.2.1.1.9.1 | Physics | SLAC | ED\& | 1 | 5 wks | \$17,000.00 | \$0.00 | \$0.00 | \$17,000.00 | \$3,400.00 | \$3,060.00 | \$23,460.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 89 | 1.2.1.1.9.2 | Magnet Design | SLAC | ED\&I | 1 | 8 wks | \$26,880.00 | \$0.00 | \$0.00 | \$26,880.00 | \$5,376.00 | \$4,838.40 | \$37,094.40 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | $8 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$26,880.00 | \$0.00 | \$0.00 | \$0.00 |
| 90 | 1.2.1.1.9.3 | Magnet Dratting | SLAC | ED\& | 1 | 18 wks | \$41,400.00 | \$0.00 | \$0.00 | \$41,400.00 | \$8,280.00 | \$7,452.00 | \$57,132.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 18 wks | \$0.00 | \$0.00 | \$0.00 | \$41,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 91 | 1.2.1.1.9.4 | Magnet Support Design | SLAC | ED\& | 1 | 5 wks | \$16,800.00 | \$0.00 | \$0.00 | \$16,800.00 | \$3,360.00 | \$3,024.00 | \$23,184.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$16,800.00 | $\$ 0.00$ | \$0.00 | $\$ 0.00$ |
| 92 | 1.2.1.1.9.5 | Magnet Support Dratting | SLAC | ED\& | 1 | 10 wks | \$23,000.00 | \$0.00 | \$0.00 | \$23,000.00 | \$4,600.00 | \$4,140.00 | \$31,740.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$23,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 93 | 1.2.1.1.10 | Linac Solenoid |  |  | 0 | 65 wks | \$181,500.00 | \$0.00 | \$0.00 | \$181,500.00 | \$36,300.00 | \$54,450.00 | \$272,250.00 |
| 94 | 1.2.1.1.10.1 | Physics | SLAC | ED\& | 2 | 5 wks | \$17,000.00 | \$0.00 | \$0.00 | \$17,000.00 | \$3,400.00 | \$5,100.00 | \$25,500.00 |
|  |  | SLAC Physicist-Scientist |  | ED\&1 | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 95 | 1.2.1.1.10.2 | Magnet Design | SLAC | ED\&1 | 2 | 12.5 wks | \$42,000.00 | \$0.00 | \$0.00 | \$42,000.00 | \$8,400.00 | \$12,600.00 | \$63,000.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 12.5 wks | \$0.00 | \$0.00 | \$0.00 | \$42,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 96 | 1.2.1.1.10.3 | Magnet Dratting | SLAC | ED\& | 2 | 25 wks | \$57,500.00 | \$0.00 | \$0.00 | \$57,500.00 | \$11,500.00 | \$17,250.00 | \$86,250.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$57,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 97 | 1.2.1.1.10.4 | Magnet Support Design | SLAC | ED\&1 | 2 | 12.5 wks | \$42,000.00 | \$0.00 | \$0.00 | \$42,000.00 | \$8,400.00 | \$12,600.00 | \$63,000.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&I | 0 | 12.5 wks | \$0.00 | \$0.00 | \$0.00 | \$42,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 98 | 1.2.1.1.10.5 | Magnet Support Dratting | SLAC | ED\& | 2 | 10 wks | \$23,000.00 | \$0.00 | \$0.00 | \$23,000.00 | \$4,600.00 | \$6,900.00 | \$34,500.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$23,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 99 | 1.2.1.1.11 | Correctors |  |  | 0 | 23 wks | \$60,320.00 | \$0.00 | \$0.00 | \$60,320.00 | \$12,064.00 | \$18,096.00 | \$90,480.00 |
| 100 | 1.2.1.1.11.1 | Magnetic Modeling | SLAC | ED\& | 2 | 1 wk | \$3,360.00 | \$0.00 | \$0.00 | \$3,360.00 | \$672.00 | \$1,008.00 | \$5,040.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,360.00 | \$0.00 | $\$ 0.00$ | $\$ 0.00$ |
| 101 | 1.2.1.1.11.2 | Magnet Design | SLAC | ED\& | 2 | 4 wks | \$13,440.00 | \$0.00 | \$0.00 | \$13,440.00 | \$2,688.00 | \$4,032.00 | \$20,160.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 4 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | EDQ1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 102 | 1.2.1.1.11.3 | Magnet Dratting | SLAC | ED\& 1 | 2 | 8 wks | \$18,400.00 | \$0.00 | \$0.00 | \$18,400.00 | \$3,680.00 | \$5,520.00 | \$27,600.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$18,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 103 | 1.2.1.1.11.4 | Magnet Support Design | SLAC | ED\& 1 | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& 1 | 0 | $2 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 104 | 1.2.1.1.11.5 | Magnet Support Dratting | SLAC | ED\& | 2 | 8 wks | \$18,400.00 | \$0.00 | \$0.00 | \$18,400.00 | \$3,680.00 | \$5,520.00 | \$27,600.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&I | 0 | $8 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$18,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 105 | 1.2.1.1.12 | Gun E Spectrometer |  |  | 0 | 17 wks | \$44,400.00 | \$0.00 | \$0.00 | \$44,400.00 | \$8,880.00 | \$13,320.00 | \$66,600.00 |
| 106 | 1.2.1.1.12.1 | Magnet Design | SLAC | ED\& | 2 | 3 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$2,016.00 | \$3,024.00 | \$15,120.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& 1 | 0 | $3 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 107 | 1.2.1.1.12.2 | Magnet Dratting | SLAC | ED\& | 2 | 8 wks | \$18,400.00 | \$0.00 | \$0.00 | \$18,400.00 | \$3,680.00 | \$5,520.00 | \$27,600.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | $8 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$18,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 108 | 1.2.1.1.12.3 | Magnet Support Design | SLAC | ED\&1 | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&I | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 109 | 1.2.1.1.12.4 | Magnet Support Dratting | SLAC | ED\& | 2 | 4 wks | \$9,200.00 | \$0.00 | \$0.00 | \$9,200.00 | \$1,840.00 | \$2,760.00 | \$13,800.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&I | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 110 | 1.2.1.1.13 | Straight Ahead E Spectrometer |  |  | 0 | 17 wks | \$44,400.00 | \$0.00 | \$0.00 | \$44,400.00 | \$8,880.00 | \$13,320.00 | \$66,600.00 |
| 111 | 1.2.1.1.13.1 | Magnet Design | SLAC | ED\& | 2 | 3 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$2,016.00 | \$3,024.00 | \$15,120.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | EDEI | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 112 | 1.2.1.1.13.2 | Magnet Dratting | SLAC | ED\& | 2 | 8 wks | \$18,400.00 | \$0.00 | \$0.00 | \$18,400.00 | \$3,680.00 | \$5,520.00 | \$27,600.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&I | 0 | $8 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$18,400.00 | \$0.00 | \$0.00 | \$0.00 |
| ${ }^{113}$ | 1.2.1.1.13.3 | Magnet Support Design | SLAC | ED\& 1 | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&I | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 114 | 1.2.1.1.13.4 | Magnet Support Dratting | SLAC | ED\&1 | 2 | 4 wks | \$9,200.00 | \$0.00 | \$0.00 | \$9,200.00 | \$1,840.00 | \$2,760.00 | \$13,800.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& 1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,200.00 | \$0.00 | \$0.00 | \$0.00 |
| ${ }^{115}$ | 1.2.1.1.14 | Gun |  |  | 0 | 100 wks | \$293,540.00 | \$0.00 | \$0.00 | \$293,540.00 | \$58,708.00 | \$115,242.00 | \$467,490.00 |
| 116 | 1.2.1.1.14.1 | Physics | SLAC | ED\& | 3 | 25 wks | \$85,000.00 | \$0.00 | \$0.00 | \$85,000.00 | \$17,000.00 | \$35,700.00 | \$137,700.00 |
|  |  | SLAC Physicist-Scientist |  | ED\&I | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$85,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 117 | 1.2.1.1.14.2 | Gun Design | SLAC | ED\& | 3 | 25 wks | \$84,000.00 | \$0.00 | \$0.00 | \$84,000.00 | \$16,800.00 | \$35,280.00 | \$136,080.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& 1 | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$84,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 118 | 1.2.1.1.14.3 | Gun Dratting | SLAC | ED\& | 3 | 25 wks | \$57,500.00 | \$0.00 | \$0.00 | \$57,500.00 | \$11,500.00 | \$24,150.00 | \$93,150.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&I | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$57,500.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 119 | 1.2.1.1.14.4 | Gun Support Design | SLAC | ED\& | 2 | 6 wks | \$20,160.00 | \$0.00 | \$0.00 | \$20,160.00 | \$4,032.00 | \$6,048.00 | \$30,240.00 |
|  |  | SLAC Mechanical Engineer |  | ED\&I | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$20,160.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 120 | 1.2.1.1.14.5 | Gun Support Dratting | SLAC | ED\& | 2 | 10 wks | \$23,000.00 | \$0.00 | \$0.00 | \$23,000.00 | \$4,600.00 | \$6,900.00 | \$34,500.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$23,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 121 | 1.2.1.1.14.6 | Gun Waveguide Design | SLAC | ED\& | 2 | 3 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$2,016.00 | \$3,024.00 | \$15,120.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 122 | 1.2.1.1.14.7 | Gun Waveguide Dratting | SLAC | ED\& | 2 | 6 wks | \$13,800.00 | \$0.00 | \$0.00 | \$13,800.00 | \$2,760.00 | \$4,140.00 | \$20,700.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$13,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 123 | 1.2.1.1.15 | Accelerator Structures |  |  | 0 | 19 wks | \$60,240.00 | \$0.00 | \$0.00 | \$60,240.00 | \$12,048.00 | \$18,072.00 | \$90,360.00 |
| 124 | 1.2.1.1.15.1 | Structure Support Design (all injector) | SLAC |  | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 125 | 1.2.1.1.15.2 | Structure Support Dratting (all injector) | SLAC |  | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 126 | 1.2.1.1.15.3 | Modulator Returbish PED (all stations) | SLAC |  | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 127 | 1.2.1.1.15.4 | Solid State Subbooster PED (all stations) | SLAC |  | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 128 | 1.2.1.1.15.5 | Controls Interface PED (all stations) | SLAC | ED\& | 2 | 10 wks | \$30,000.00 | \$0.00 | \$0.00 | \$30,000.00 | \$6,000.00 | \$9,000.00 | \$45,000.00 |
|  |  | SLAC Electrical Engineer |  | ED\&1 | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 129 | 1.2.1.1.15.6 | Structure Waveguide Design | SLAC | ED\& | 2 | 3 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$2,016.00 | \$3,024.00 | \$15,120.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 130 | 1.2.1.1.15.7 | Structure Waveguide Dratting | SLAC | ED\& | 2 | 6 wks | \$20,160.00 | \$0.00 | \$0.00 | \$20,160.00 | \$4,032.00 | \$6,048.00 | \$30,240.00 |
|  |  | SLAC Mechanical Engineer |  | ED\&1 | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$20,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 131 | 1.2.1.1.16 | Transvserse RF Structure |  |  | 0 | 9 wks | \$23,880.00 | \$0.00 | \$0.00 | \$23,880.00 | \$4,776.00 | \$7,164.00 | \$35,820.00 |
| 132 | 1.2.1.1.16.1 | Structure Waveguide Design | SLAC | ED\& | 2 | 3 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$2,016.00 | \$3,024.00 | \$15,120.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| ${ }^{133}$ | 1.2.1.1.16.2 | Structure Waveguide Dratting | SLAC | ED\& | 2 | 6 wks | \$13,800.00 | \$0.00 | \$0.00 | \$13,800.00 | \$2,760.00 | \$4,140.00 | \$20,700.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$13,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 134 | 1.2.1.1.17 | RF Distribution System |  |  | 0 | 263.6 wks | \$909,482.00 | \$0.00 | \$0.00 | \$909,482.00 | \$158,236.40 | \$347,656.48 | \$1,415,374.88 |
| 135 | 1.2.1.1.17.1 | System RF Design | SLAC |  | 0 | 228 wks | \$810,060.40 | \$0.00 | \$0.00 | \$810,060.40 | \$138,352.08 | \$317,830.00 | \$1,266,242.48 |
| ${ }^{136}$ | 1.2.1.1.17.1 | System Drawings | SLAC | ED\& | 2 | 50 wks | \$115,000.00 | \$0.00 | \$0.00 | \$115,000.00 | \$23,000.00 | \$34,500.00 | \$172,500.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 50 wks | \$0.00 | \$0.00 | \$0.00 | \$115,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 137 | 1.2.1.1.17.1 | System Drawings | SLAC | ED\& | 2 | 10 wks | \$28,932.00 | \$0.00 | \$0.00 | \$28,932.00 | \$5,786.40 | \$8,679.60 | \$43,398.00 |
|  |  | SLAC Klystron: Engineer |  | ED\&1 | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$28,932.00 | \$0.00 | \$0.00 | \$0.00 |
| 138 | 1.2.1.1.17.1 | LCLS Oscillator | SLAC | ED\& | 3 | 24 wks | \$69,436.80 | \$0.00 | \$0.00 | \$69,436.80 | \$13,887.36 | \$29,163.46 | \$112,487.62 |
|  |  | SLAC KIystron: Engineer |  | ED\& | 0 | 24 wks | $\$ 0.00$ | \$0.00 | \$0.00 | \$69,436.80 | \$0.00 | \$0.00 | \$0.00 |
| 139 | 1.2.1.1.17.1 | LCLS Oscilllator | SLAC | M\&S | 3 | 0 wks | \$20,000.00 | \$0.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$7,420.00 | \$28,620.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 140 | 1.2.1.1.17.1 | 2.8MHz Fiducial Design | SLAC | ED\& | 3 | 4 wks | \$11,788.80 | \$0.00 | \$0.00 | \$11,788.80 | \$2,357.76 | \$4,951.30 | \$19,097.86 |
|  |  | SLAC Controls: Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,788.80 | \$0.00 | \$0.00 | \$0.00 |
| 141 | 1.2.1.1.17.1 | SLD Countdown | SLAC | ED\& | 2 | 4 wks | \$11,572.80 | \$0.00 | \$0.00 | \$11,572.80 | \$2,314.56 | \$3,471.84 | \$17,359.20 |
|  |  | SLAC Klystron: Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,572.80 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | Page 7 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| $142$ | 1.2.1.1.17.1 | MTG Modifications | SLAC | ED\& | 3 | 12 wks | \$35,366.40 | \$0.00 | \$0.00 | \$35,366.40 | \$7,073.28 | \$14,853.89 | \$57,293.57 |
|  |  | SLAC Controls: Engineer |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$35,366.40 | \$0.00 | \$0.00 | \$0.00 |
| 143 | 1.2.1.1.17.1 | RF Distribution L0, L1 | SLAC | ED\& | 2 | 2 wks | \$5,786.40 | \$0.00 | \$0.00 | \$5,786.40 | \$1,157.28 | \$1,735.92 | \$8,679.60 |
|  |  | SLAC KIystron: Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,786.40 | \$0.00 | \$0.00 | \$0.00 |
| 144 | 1.2.1.1.17.1 | Laser Phase Locking Chassis | SLAC | ED\& | 2 | 16 wks | \$46,291.20 | \$0.00 | \$0.00 | \$46,291.20 | \$9,258.24 | \$13,887.36 | \$69,436.80 |
|  |  | SLAC Klystron: Engineer |  | ED\& | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$46,291.20 | \$0.00 | \$0.00 | \$0.00 |
| 145 | 1.2.1.1.17.1 | Laser Phase Locking Chassis | SLAC | M 2 S | 2 | 0 wks | \$20,000.00 | \$0.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$5,300.00 | \$26,500.00 |
|  |  | SLAC MXS Iotal |  | M dS $^{\text {S }}$ | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 146 | 1.2.1.1.17.1 | Optical Detectors | SLAC | ED\& | 2 | 4 wks | \$11,572.80 | \$0.00 | \$0.00 | \$11,572.80 | \$2,314.56 | \$3,471.84 | \$17,359.20 |
|  |  | SLAC Klystron: Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,572.80 | \$0.00 | \$0.00 | \$0.00 |
| 147 | 1.2.1.1.17.1 | Optical Detectors | SLAC | M 2 S | 2 | 0 wks | \$10,000.00 | \$0.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 148 | 1.2.1.1.17.1 | Beam Phase / Length Detector | SLAC | ED\& | 4 | 20 wks | \$68,000.00 | \$0.00 | \$0.00 | \$68,000.00 | \$13,600.00 | \$40,800.00 | \$122,400.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$68,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 149 | 1.2.1.1.17.1 | Beam Phase / Length Detector | SLAC | M 2 S | 4 | 0 wks | \$80,000.00 | \$0.00 | \$0.00 | \$80,000.00 | \$4,800.00 | \$42,400.00 | \$127,200.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 80,000 | \$0.00 | \$0.00 | \$0.00 | \$80,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 150 | 1.2.1.1.17.1 | Distribution Amplifier | SLAC | ED\& | 2 | 5 wks | \$14,466.00 | \$0.00 | \$0.00 | \$14,466.00 | \$2,893.20 | \$4,339.80 | \$21,699.00 |
|  |  | SLAC KIystron: Engineer |  | ED\& | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$14,466.00 | \$0.00 | \$0.00 | \$0.00 |
| 151 | 1.2.1.1.17.1 | S-Band Phase Measurement | SLAC | ED\& | 2 | 12 wks | \$34,718.40 | \$0.00 | \$0.00 | \$34,718.40 | \$6,943.68 | \$10,415.52 | \$52,077.60 |
|  |  | SLAC KIystron: Engineer |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$34,718.40 | \$0.00 | \$0.00 | \$0.00 |
| 152 | 1.2.1.1.17.1 | S-Band Phase Measurement | SLAC | M 2 S | 2 | 0 wks | \$15,000.00 | \$0.00 | \$0.00 | \$15,000.00 | \$900.00 | \$3,975.00 | \$19,875.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 153 | 1.2.1.1.17.1 | DAC, SAM Breakout | SLAC | ED\& | 2 | 4 wks | \$11,572.80 | \$0.00 | \$0.00 | \$11,572.80 | \$2,314.56 | \$3,471.84 | \$17,359.20 |
|  |  | SLAC KIystron: Engineer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,572.80 | \$0.00 | \$0.00 | \$0.00 |
| 154 | 1.2.1.1.17.1 | DAC, SAM Breakout | SLAC | M 2 S | 2 | 0 wks | \$4,000.00 | \$0.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC MES Total |  | M 2 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 155 | 1.2.1.1.17.1 | Sec. 20 Enclosure | SLAC | ED\& | 2 | 1 wk | \$2,424.00 | \$0.00 | \$0.00 | \$2,424.00 | \$484.80 | \$727.20 | \$3,636.00 |
|  |  | SLAC Site Engineering: Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,424.00 | \$0.00 | \$0.00 | \$0.00 |
| 156 | 1.2.1.1.17.1 | Solid State Subbooster | SLAC | ED\& | 3 | 50 wks | \$144,660.00 | \$0.00 | \$0.00 | \$144,660.00 | \$28,932.00 | \$60,757.20 | \$234,349.20 |
|  |  | SLAC KIystron: Engineer |  | ED\&1 | 0 | 50 wks | \$0.00 | \$0.00 | \$0.00 | \$144,660.00 | \$0.00 | \$0.00 | \$0.00 |
| 157 | 1.2.1.1.17.1 | Solid State Subbooster | SLAC | M 2 S | 3 | 0 wks | \$20,000.00 | \$0.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$7,420.00 | \$28,620.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 158 | 1.2.1.1.17.1 | Modulator | SLAC | ED\& | 3 | 10 wks | \$29,472.00 | \$0.00 | \$0.00 | \$29,472.00 | \$5,894.40 | \$12,378.24 | \$47,744.64 |
|  |  | SLAC Controls: Engineer |  | ED\& | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$29,472.00 | \$0.00 | \$0.00 | \$0.00 |
| 159 | 1.2.1.1.17.2 | Controls Design | SLAC | ED\& | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | $\frac{\text { Risk }}{}$ | Units | PED (Direct) | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct) | $\begin{array}{r} \text { Direct Cost } \\ \$ 0.00 \end{array}$ | Overhead Cost$\$ 0.00$ | Contingency Cost 80.00 <br> $\$ 0.00$ | $\begin{aligned} & \text { Total Cost } \\ & \$ 0.00 \end{aligned}$ |
|  |  | Task Name SLAC Controls: Engineer |  | ED\& |  | Units ${ }_{\text {O }}$ wks | PED (Direct) $\$ 0.00$ |  |  |  |  |  |  |
| 160 | 1.2.1.1.17.3 | Dratting |  | ED\& | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 161 | 1.2.1.1.17.4 | Sector 20 RF Hut design | SLAC |  | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 162 | 1.2.1.1.17.5 | RF Controls Design Engineering | SLAC | ED\& | 2 | 10.1 wks | \$30,300.00 | \$0.00 | \$0.00 | \$30,300.00 | \$6,060.00 | \$9,090.00 | \$45,450.00 |
|  |  | S LAC Electrical Engineer |  | ED\&1 | 0 | 10.1 wks | \$0.00 | \$0.00 | \$0.00 | \$30,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 163 | 1.2.1.1.17.6 | RF Controls Hardware Engineering | SLAC | ED\& | 2 | 14.7 wks | \$44,100.00 | \$0.00 | \$0.00 | \$44,100.00 | \$8,820.00 | \$13,230.00 | \$66,150.00 |
|  |  | S LAC Electrical Engineer |  | ED\&1 | 0 | 14.7 wks | \$0.00 | \$0.00 | \$0.00 | \$44,100.00 | \$0.00 | \$0.00 | \$0.00 |
| 164 | 1.2.1.1.17.6 | RF Controls Sottware Engineering | SLAC | ED\& | 2 | 6.5 wks | \$16,421.60 | \$0.00 | \$0.00 | \$16,421.60 | \$3,284.32 | \$4,926.48 | \$24,632.40 |
|  |  | SLAC Controls: Programmer |  | ED\& | 0 | 6.5 wks | \$0.00 | \$0.00 | \$0.00 | \$16,421.60 | \$0.00 | \$0.00 | \$0.00 |
| 165 | 1.2.1.1.17.8 | RF Controls Coordintaion \& Doc. | SLAC | ED\& | 2 | 4.3 wks | \$8,600.00 | \$0.00 | \$0.00 | \$8,600.00 | \$1,720.00 | \$2,580.00 | \$12,900.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 4.3 wks | \$0.00 | \$0.00 | \$0.00 | \$8,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 166 | 1.2.1.1.26 | Alignment Laser |  |  | 0 | 11.5 wks | \$31,800.00 | \$0.00 | \$0.00 | \$31,800.00 | \$6,360.00 | \$10,260.00 | \$48,420.00 |
| 167 | 1.2.1.1.26.1 | Aligment Laser Design | SLAC | ED\& | 2 | 4 wks | \$13,600.00 | \$0.00 | \$0.00 | \$13,600.00 | \$2,720.00 | \$4,080.00 | \$20,400.00 |
|  |  | SLAC Physicist -Scientist |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 168 | 1.2.1.1.26.2 | Aligment Laser Drafting | SLAC | ED\& | 2 | 4 wks | \$9,200.00 | \$0.00 | \$0.00 | \$9,200.00 | \$1,840.00 | \$2,760.00 | \$13,800.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 169 | 1.2.1.1.26.3 | Hardware Engineering | SLAC | ED\& | 3 | 2 wks | \$6,000.00 | \$0.00 | \$0.00 | \$6,000.00 | \$1,200.00 | \$2,520.00 | \$9,720.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 170 | 1.2.1.1.26.4 | Coordination \& Layout | SLAC | ED\& | 2 | 1.5 wks | \$3,000.00 | \$0.00 | \$0.00 | \$3,000.00 | \$600.00 | \$900.00 | \$4,500.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 171 | 1.2.1.1.18 | Wire Scanners |  |  | 0 | 23.9 wks | \$62,340.00 | \$0.00 | \$0.00 | \$62,340.00 | \$12,468.00 | \$18,702.00 | \$93,510.00 |
| 172 | 1.2.1.1.18.1 | WS Design | SLAC | ED\& | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 173 | 1.2.1.1.18.2 | WS Dratting | SLAC | ED\& | 2 | 6 wks | \$13,800.00 | \$0.00 | \$0.00 | \$13,800.00 | \$2,760.00 | \$4,140.00 | \$20,700.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$13,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 174 | 1.2.1.1.18.3 | WS Support Design | SLAC | ED\& | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 175 | 1.2.1.1.18.4 | WS Support Dratting | SLAC | ED\& | 2 | 4 wks | \$9,200.00 | \$0.00 | \$0.00 | \$9,200.00 | \$1,840.00 | \$2,760.00 | \$13,800.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 176 | 1.2.1.1.18.5 | Controls W. S. Hardware Engineering | SLAC | ED\& | 2 | 6.1 wks | \$18,300.00 | \$0.00 | \$0.00 | \$18,300.00 | \$3,660.00 | \$5,490.00 | \$27,450.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 6.1 wks | \$0.00 | \$0.00 | \$0.00 | \$18,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 177 | 1.2.1.1.18.6 | Coordintaion \& Doc. | SLAC | ED\& | 2 | 3.8 wks | \$7,600.00 | \$0.00 | \$0.00 | \$7,600.00 | \$1,520.00 | \$2,280.00 | \$11,400.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 3.8 wks | \$0.00 | \$0.00 | \$0.00 | \$7,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 178 | 1.2.1.1.19 | BPM PED |  |  | 0 | 26 wks | \$68,940.00 | \$0.00 | \$0.00 | \$68,940.00 | \$13,788.00 | \$20,682.00 | \$103,410.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{gathered} \text { ID } \\ \hline 179 \end{gathered}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.2.1.1.19.1 | Controls Hardware Engineering | SLAC | ED\& | 2 | 8.5 wks | \$25,500.00 | \$0.00 | \$0.00 | \$25,500.00 | \$5,100.00 | \$7,650.00 | \$38,250.00 |
|  |  | S LAC Electrical Engineer |  | ED\&1 | 0 | 8.5 wks | \$0.00 | \$0.00 | \$0.00 | \$25,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 180 | 1.2.1.1.19.1 | Controls Hardware Engineering | SLAC | ED\&1 | 2 | 3.5 wks | \$7,000.00 | \$0.00 | \$0.00 | \$7,000.00 | \$1,400.00 | \$2,100.00 | \$10,500.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 3.5 wks | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 181 | 1.2.1.1.19.2 | Controls Coordination and Documentation | SLAC | ED\& | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&1 | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 182 | 1.2.1.1.19.2 | Controls Coordination and Documentation | SLAC | B\&H | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 183 | 1.2.1.1.19.3 | Design | SLAC | ED\& | 2 | 4 wks | \$13,440.00 | \$0.00 | \$0.00 | \$13,440.00 | \$2,688.00 | \$4,032.00 | \$20,160.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 184 | 1.2.1.1.19.4 | Drafting | SLAC | ED\& | 2 | 10 wks | \$23,000.00 | \$0.00 | \$0.00 | \$23,000.00 | \$4,600.00 | \$6,900.00 | \$34,500.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$23,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 185 | 1.2.1.1.19.5 | BPM support design | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 186 | 1.2.1.1.19.6 | BPM support dratting | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 187 | 1.2.1.1.20 | Toroids |  |  | 0 | 12 wks | \$30,920.00 | \$0.00 | \$0.00 | \$30,920.00 | \$6,184.00 | \$9,276.00 | \$46,380.00 |
| 188 | 1.2.1.1.20.1 | Toroid Design | SLAC | ED\& | 2 | 1 wk | \$3,360.00 | \$0.00 | \$0.00 | \$3,360.00 | \$672.00 | \$1,008.00 | \$5,040.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 189 | 1.2.1.1.20.2 | Ioroid Dratting | SLAC | ED\&1 | 2 | 1 wk | \$2,300.00 | \$0.00 | \$0.00 | \$2,300.00 | \$460.00 | \$690.00 | \$3,450.00 |
|  |  | SLAC Mech Dratting/Vesign |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 190 | 1.2.1.1.20.3 | Toroid Support Design | SLAC | ED\& | 2 | 1 wk | \$3,360.00 | \$0.00 | \$0.00 | \$3,360.00 | \$672.00 | \$1,008.00 | \$5,040.00 |
|  |  | SLAC Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 191 | 1.2.1.1.20.4 | Toroid Support Dratting | SLAC | ED\& 1 | 2 | 3 wks | \$6,900.00 | \$0.00 | \$0.00 | \$6,900.00 | \$1,380.00 | \$2,070.00 | \$10,350.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,900.00 | \$0.00 | \$0.00 | \$0.00 |
| 192 | 1.2.1.1.20.5 | Controls Hardware Engineering | SLAC | ED\& | 2 | 3 wks | \$9,000.00 | \$0.00 | \$0.00 | \$9,000.00 | \$1,800.00 | \$2,700.00 | \$13,500.00 |
|  |  | S LAC Electrical Engineer |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 193 | 1.2.1.1.20.6 | Controls Coordintaion \& Doc. | SLAC | ED\& | 2 | 3 wks | \$6,000.00 | \$0.00 | \$0.00 | \$6,000.00 | \$1,200.00 | \$1,800.00 | \$9,000.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 194 | 1.2.1.1.21 | Faraday Cup |  |  | 0 | 26.5 wks | \$72,380.00 | \$0.00 | \$0.00 | \$72,380.00 | \$14,476.00 | \$30,399.60 | \$117,255.60 |
| 195 | 1.2.1.1.21.1 | Parameter Detinition | SLAC | ED\& 1 | 3 | 1 wk | \$3,400.00 | \$0.00 | \$0.00 | \$3,400.00 | \$680.00 | \$1,428.00 | \$5,508.00 |
|  |  | SLAC Physicist-Scientist |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 196 | 1.2.1.1.21.2 | Faraday Cup Design | SLAC | ED\& 1 | 3 | 6 wks | \$20,160.00 | \$0.00 | \$0.00 | \$20,160.00 | \$4,032.00 | \$8,467.20 | \$32,659.20 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$20,160.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 197 | 1.2.1.1.21.3 | Faraday Cup Dratting | SLAC | ED\&1 | 3 | 8 wks | \$18,400.00 | \$0.00 | \$0.00 | \$18,400.00 | \$3,680.00 | \$7,728.00 | \$29,808.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&I | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$18,400.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 198 | 1.2.1.1.21.4 | Faraday Cup Support Design | SLAC | ED\& | 3 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,822.40 | \$10,886.40 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC Mechanical Engineer |  | ED\&I | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 199 | 1.2.1.1.21.5 | Faraday Cup Support Dratting | SLAC | ED\& | 3 | 4 wks | \$9,200.00 | \$0.00 | \$0.00 | \$9,200.00 | \$1,840.00 | \$3,864.00 | \$14,904.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 200 | 1.2.1.1.21.6 | Controls Hardware Engineering | SLAC | ED\& | 3 | 3.5 wks | \$10,500.00 | \$0.00 | \$0.00 | \$10,500.00 | \$2,100.00 | \$4,410.00 | \$17,010.00 |
|  |  | S LAC Electrical Engineer |  | ED\& 1 | 0 | 3.5 wks | \$0.00 | \$0.00 | \$0.00 | \$10,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 201 | 1.2.1.1.21.7 | Controls Coordintaion \& Doc. | SLAC | ED\& | 3 | 2 wks | \$4,000.00 | \$0.00 | \$0.00 | \$4,000.00 | \$800.00 | \$1,680.00 | \$6,480.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&I | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 202 | 1.2.1.1.22 | Tune-up Dump |  |  | 0 | 24.65 wks | \$66,930.00 | \$0.00 | \$0.00 | \$66,930.00 | \$13,386.00 | \$27,576.60 | \$107,892.60 |
| 203 | 1.2.1.1.22.1 | Parameter Detinition | SLAC | ED\& | 3 | 1 wk | \$3,400.00 | \$0.00 | \$0.00 | \$3,400.00 | \$680.00 | \$1,428.00 | \$5,508.00 |
|  |  | SLAC Physicist-Scientist |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 204 | 1.2.1.1.22.2 | TD Design | SLAC | ED\& | 3 | 6 wks | \$20,160.00 | \$0.00 | \$0.00 | \$20,160.00 | \$4,032.00 | \$8,467.20 | \$32,659.20 |
|  |  | SLAC Mechanical Engineer |  | ED\&1 | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$20,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 205 | 1.2.1.1.22.3 | ID Dratting | SLAC | ED\&1 | 3 | 8 wks | \$18,400.00 | \$0.00 | \$0.00 | \$18,400.00 | \$3,680.00 | \$7,728.00 | \$29,808.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&I | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$18,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 206 | 1.2.1.1.22.4 | TD Support Design | SLAC | ED\& | 3 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,822.40 | \$10,886.40 |
|  |  | SLAC Mechanical Engineer |  | ED\& 1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 207 | 1.2.1.1.22.5 | TD Support Dratting | SLAC | ED\& | 3 | 6 wks | \$13,800.00 | \$0.00 | \$0.00 | \$13,800.00 | \$2,760.00 | \$5,796.00 | \$22,356.00 |
|  |  | SLAC Mech Dratting/Design |  | EDEI | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$13,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 208 | 1.2.1.1.22.6 | Controls Hardware Engineering | SLAC | ED\&1 | 2 | 1.15 wks | \$3,450.00 | \$0.00 | \$0.00 | \$3,450.00 | \$690.00 | \$1,035.00 | \$5,175.00 |
|  |  | SLAC Electrical Engineer |  | ED\& 1 | 0 | 1.15 wks | \$0.00 | \$0.00 | \$0.00 | \$3,450.00 | \$0.00 | \$0.00 | \$0.00 |
| 209 | 1.2.1.1.22.7 | Controls Coordintaion \& Doc. | SLAC | ED\& | 2 | 0.5 wks | \$1,000.00 | \$0.00 | \$0.00 | \$1,000.00 | \$200.00 | \$300.00 | \$1,500.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& 1 | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 210 | 1.2.1.1.23 | Protile Monitor |  |  | 0 | 49.5 wks | \$137,100.00 | \$0.00 | \$0.00 | \$137,100.00 | \$27,420.00 | \$57,582.00 | \$222,102.00 |
| 211 | 1.2.1.1.23.1 | Parameter Definition | SLAC | ED\& 1 | 3 | 2 wks | \$6,800.00 | \$0.00 | \$0.00 | \$6,800.00 | \$1,360.00 | \$2,856.00 | \$11,016.00 |
|  |  | SLAC Physicist -Scientist |  | ED\& 1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 212 | 1.2.1.1.23.2 | Profile Monitor Design | SLAC | ED\& | 3 | 8 wks | \$26,880.00 | \$0.00 | \$0.00 | \$26,880.00 | \$5,376.00 | \$11,289.60 | \$43,545.60 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$26,880.00 | \$0.00 | \$0.00 | \$0.00 |
| 213 | 1.2.1.1.23.3 | Protile Monitor Dratting | SLAC | ED\& | 3 | 10 wks | \$23,000.00 | \$0.00 | \$0.00 | \$23,000.00 | \$4,600.00 | \$9,660.00 | \$37,260.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&I | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$23,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 214 | 1.2.1.1.23.4 | Profile Monitor Support Design | SLAC | ED\& | 3 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,822.40 | \$10,886.40 |
|  |  | SLAC Mechanical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 215 | 1.2.1.1.23.5 | Protile Monitor Support Dratting | SLAC | ED\& | 3 | 4 wks | \$9,200.00 | \$0.00 | \$0.00 | \$9,200.00 | \$1,840.00 | \$3,864.00 | \$14,904.00 |
|  |  | SLAC Mech Dratting/Design |  | EDEI | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 216 | 1.2.1.1.23.6 | Prot. Mon Engineer | SLAC | ED\&1 | 3 | 8 wks | \$24,000.00 | \$0.00 | \$0.00 | \$24,000.00 | \$4,800.00 | \$10,080.00 | \$38,880.00 |
|  |  | SLAC Electrical Engineer |  | ED\& 1 | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$24,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 217 | 1.2.1.1.23.7 | Prof. Mon Coordination \& Doc. | SLAC | ED\& | 3 | 3 wks | \$6,000.00 | \$0.00 | \$0.00 | \$6,000.00 | \$1,200.00 | \$2,520.00 | \$9,720.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 218 | 1.2.1.1.23.8 | Controls Hardware Engineering | SLAC | ED\& | 3 | 9.5 wks | \$28,500.00 | \$0.00 | \$0.00 | \$28,500.00 | \$5,700.00 | \$11,970.00 | \$46,170.00 |
|  |  | SLAC Electrical Engineer |  | ED\& | 0 | 9.5 wks | \$0.00 | \$0.00 | \$0.00 | \$28,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 219 | 1.2.1.1.23.9 | Controls Coordintaion \& Doc. | SLAC | ED\& | 3 | 3 wks | \$6,000.00 | \$0.00 | \$0.00 | \$6,000.00 | \$1,200.00 | \$2,520.00 | \$9,720.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 220 | 1.2.1.1.24 | Gun E-O Diagnostic |  |  | 0 | 31.5 wks | \$90,984.00 | \$0.00 | \$0.00 | \$90,984.00 | \$18,196.80 | \$43,646.88 | \$152,827.68 |
| 221 | 1.2.1.1.24.1 | E-O Physics | SLAC | ED\& | 4 | 12 wks | \$40,800.00 | \$0.00 | \$0.00 | \$40,800.00 | \$8,160.00 | \$24,480.00 | \$73,440.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$40,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 222 | 1.2.1.1.24.2 | E-O Design | SLAC | ED\& | 2 | 1 wk | \$3,360.00 | \$0.00 | \$0.00 | \$3,360.00 | \$672.00 | \$1,008.00 | \$5,040.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 223 | 1.2.1.1.24.3 | E-O Dratting | SLAC | ED\& | 2 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$1,380.00 | \$6,900.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 224 | 1.2.1.1.24.4 | E-O Support Design | SLAC | ED\& 1 | 2 | 1 wk | \$3,360.00 | \$0.00 | \$0.00 | \$3,360.00 | \$672.00 | \$1,008.00 | \$5,040.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 225 | 1.2.1.1.24.5 | E-O Support Dratting | SLAC | ED\& | 2 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$1,380.00 | \$6,900.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 226 | 1.2.1.1.24.6 | Hardware Engineering | SLAC | ED\& | 3 | 2 wks | \$6,000.00 | \$0.00 | \$0.00 | \$6,000.00 | \$1,200.00 | \$2,520.00 | \$9,720.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 227 | 1.2.1.1.24.7 | CCD Software Interface | SLAC | ED\& | 3 | 10 wks | \$25,264.00 | \$0.00 | \$0.00 | \$25,264.00 | \$5,052.80 | \$10,610.88 | \$40,927.68 |
|  |  | SLAC Controls: Programmer |  | ED\& | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$25,264.00 | \$0.00 | \$0.00 | \$0.00 |
| 228 | 1.2.1.1.24.8 | Controls Coordintaion \& Doc. | SLAC | ED\& | 3 | 1.5 wks | \$3,000.00 | \$0.00 | \$0.00 | \$3,000.00 | \$600.00 | \$1,260.00 | \$4,860.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&1 | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 229 | 1.2.1.1.25 | Gun Laser |  |  | 0 | 6 wks | \$15,000.00 | \$0.00 | \$0.00 | \$15,000.00 | \$3,000.00 | \$2,700.00 | \$20,700.00 |
| 230 | 1.2.1.1.25.1 | Senior Physicist and Physicist | SLAC | ED\& | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 231 | 1.2.1.1.25.2 | Oscillator and diagnostics | SLAC | ED\& | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 232 | 1.2.1.1.25.3 | Iemporal conditiong (stretchers, compressors, shapes) | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 233 | 1.2.1.1.25.4 | Spatial conditioning (spatial filters, flatteners) | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 234 | 1.2.1.1.25.5 | Amplifier system and diagnostics (pumps, pockels cells, layout) | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 235 | 1.2.1.1.25.6 | UV conversion and optical transort to cathode | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 236 | 1.2.1.1.25.7 | Timing stabilization | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 237 | 1.2.1.1.25.8 | Hot Spares program | SLAC |  | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 238 | 1.2.1.1.25.9 | Hardware Engineering | SLAC | ED\& | 2 | 3 wks | \$9,000.00 | \$0.00 | \$0.00 | \$9,000.00 | \$1,800.00 | \$2,700.00 | \$13,500.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS |  | OBS | PHASE | $\begin{array}{\|l\|} \hline \text { Risk } \\ \hline \end{array}$ | Units 3 wks | PED (Direct) $\$ 0.00$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct) | $\begin{aligned} & \text { Direct Cost } \\ & \$ 9,000.00 \end{aligned}$ | Overhead Cost $\$ 0.00$ | Contingency Cost $\$ 0.00$ | Total Cost$\$ 0.00$ |
|  |  | SLAC Electrical Engineer |  |  |  |  |  |  |  |  |  |  |  |
| 239 | 1.2.1.1.25.10 | Coordintaion \& Layout | SLAC | ED\& | 0 | 3 wks | \$6,000.00 | \$0.00 | \$0.00 | \$6,000.00 | \$1,200.00 | \$0.00 | \$7,200.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 240 | 1.2.1.1.27 | Beam Stopper PED |  |  | 0 | 15.5 wks | \$40,840.00 | \$0.00 | \$0.00 | \$40,840.00 | \$8,168.00 | \$13,332.00 | \$62,340.00 |
| 241 | 1.2.1.1.27.1 | Engineering | SLAC | ED\& | 2 | 4 wks | \$13,440.00 | \$0.00 | \$0.00 | \$13,440.00 | \$2,688.00 | \$4,032.00 | \$20,160.00 |
|  |  | SLAC Mechanical Engineer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 242 | 1.2.1.1.27.2 | Design/Dratting | SLAC | ED\& | 2 | 8 wks | \$18,400.00 | \$0.00 | \$0.00 | \$18,400.00 | \$3,680.00 | \$5,520.00 | \$27,600.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$18,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 243 | 1.2.1.1.27.3 | Controls Hardware Engineering | SLAC | ED\& | 3 | 2 wks | \$6,000.00 | \$0.00 | \$0.00 | \$6,000.00 | \$1,200.00 | \$2,520.00 | \$9,720.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 244 | 1.2.1.1.27.4 | Controls Coordintaion \& Doc. | SLAC | ED\& | 3 | 1.5 wks | \$3,000.00 | \$0.00 | \$0.00 | \$3,000.00 | \$600.00 | \$1,260.00 | \$4,860.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&1 | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 245 | 1.2.1.1.28 | New Power Supplies |  |  | 0 | 45 wks | \$124,200.00 | \$0.00 | \$0.00 | \$124,200.00 | \$24,840.00 | \$37,260.00 | \$186,300.00 |
| 246 | 1.2.1.1.28.1 | Planning (PS and Cable Plant) | SLAC | ED\& | 2 | 35 wks | \$105,000.00 | \$0.00 | \$0.00 | \$105,000.00 | \$21,000.00 | \$31,500.00 | \$157,500.00 |
|  |  | SLAC PCD:Engineer |  | ED\& | 0 | 35 wks | \$0.00 | \$0.00 | \$0.00 | \$105,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 247 | 1.2.1.1.28.3 | System Dwgs (EI, WD, Profile for Cable Plant) | SLAC | ED\& | 2 | 10 wks | \$19,200.00 | \$0.00 | \$0.00 | \$19,200.00 | \$3,840.00 | \$5,760.00 | \$28,800.00 |
|  |  | SLAC PCD:Coordinator Associate |  | ED\&1 | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$19,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 248 | 1.2.1.2 | Mechanical |  |  | 0 | 162.1 wks | \$0.00 | \$182,000.00 | \$403,159.40 | \$585,159.40 | \$91,551.88 | \$184,989.56 | \$861,700.84 |
| 249 | 1.2.1.2.1 | Gun Load Lock |  |  | 0 | 40.5 wks | \$0.00 | \$70,000.00 | \$117,342.60 | \$187,342.60 | \$27,668.52 | \$56,750.98 | \$271,762.10 |
| 250 | 1.2.1.2.1.1 | Physics | SLAC | ED\& | 2 | 25 wks | \$0.00 | \$0.00 | \$85,000.00 | \$85,000.00 | \$17,000.00 | \$25,500.00 | \$127,500.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$85,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 251 | 1.2.1.2.1.2 | Gun Load Lock Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$65,000.00 | \$0.00 | \$65,000.00 | \$3,900.00 | \$17,225.00 | \$86,125.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 65,000 | \$0.00 | \$0.00 | \$0.00 | \$65,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 252 | 1.2.1.2.1.3 | Gun Load Lock Assembly | SLAC | B\&H | 3 | 12.5 wks | \$0.00 | \$0.00 | \$24,985.00 | \$24,985.00 | \$4,997.00 | \$10,493.70 | \$40,475.70 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 12.5 wks | \$0.00 | \$0.00 | \$0.00 | \$24,985.00 | \$0.00 | \$0.00 | \$0.00 |
| 253 | 1.2.1.2.1.4 | Gun Load Lock Support Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 254 | 1.2.1.2.1.5 | Gun Load Lock Support Assembly | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,199.28 | \$5,996.40 |
|  |  | SLAC Mech. Fab: Assembly lech |  | BKH | 0 | 2 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 255 | 1.2.1.2.1.6 | Proc. Man. \& Assembly Supervision | SLAC | ED\& | 2 | 1 wk | \$0.00 | \$0.00 | \$3,360.00 | \$3,360.00 | \$672.00 | \$1,008.00 | \$5,040.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | $\$ 0.00$ | \$3,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 256 | 1.2.1.2.2 | Bend Magnets - 5 D7.1 |  |  | 0 | 1.6 wks | \$0.00 | \$1,000.00 | \$4,639.52 | \$5,639.52 | \$987.90 | \$1,656.86 | \$8,284.28 |
| 257 | 1.2.1.2.2.1 | Support Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC MES Iotal |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 258 | 1.2.1.2.2.2 | Support Machining | SLAC | B\&H | 2 | 1.2 wks | \$0.00 | \$0.00 | \$3,840.00 | \$3,840.00 | \$768.00 | \$1,152.00 | \$5,760.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,840.00 | \$0.00 | \$0.00 | \$0.00 |
| 259 | 1.2.1.2.2.3 | Magnet Support Assembly | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$799.52 | \$799.52 | \$159.90 | \$239.86 | \$1,199.28 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$799.52 | \$0.00 | \$0.00 | \$0.00 |
| 260 | 1.2.1.2.3 | Quadrupoles - 105.6 |  |  | 0 | 14.4 wks | \$0.00 | \$5,000.00 | \$41,755.68 | \$46,755.68 | \$8,651.14 | \$13,851.70 | \$69,258.52 |
| 261 | 1.2.1.2.3.1 | Support Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 262 | 1.2.1.2.3.2 | Support Machining | SLAC | B\&H | 2 | 10.8 wks | \$0.00 | \$0.00 | \$34,560.00 | \$34,560.00 | \$6,912.00 | \$10,368.00 | \$51,840.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 10.8 wks | \$0.00 | \$0.00 | \$0.00 | \$34,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 263 | 1.2.1.2.3.3 | Magnet Support Assembly | SLAC | B\&H | 2 | 3.6 wks | \$0.00 | \$0.00 | \$7,195.68 | \$7,195.68 | \$1,439.14 | \$2,158.70 | \$10,793.52 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 3.6 wks | \$0.00 | \$0.00 | \$0.00 | \$7,195.68 | \$0.00 | \$0.00 | \$0.00 |
| 264 | 1.2.1.2.4 | Gun Solenoid |  |  | 0 | 4 wks | \$0.00 | \$4,000.00 | \$7,995.20 | \$11,995.20 | \$1,839.04 | \$636.00 | \$14,470.24 |
| 265 | 1.2.1.2.4.1 | Gun Sol Support Materials | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$636.00 | \$4,876.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 266 | 1.2.1.2.4.2 | Gun Sol Support Assembly | SLAC | B\&H | 6 | 4 wks | \$0.00 | \$0.00 | \$7,995.20 | \$7,995.20 | \$1,599.04 | \$0.00 | \$9,594.24 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,995.20 | \$0.00 | \$0.00 | \$0.00 |
| 267 | 1.2.1.2.5 | Linac Solenoid |  |  | 0 | 8 wks | \$0.00 | \$10,000.00 | \$15,990.40 | \$25,990.40 | \$3,798.08 | \$7,447.12 | \$37,235.60 |
| 268 | 1.2.1.2.5.1 | Support materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }^{\text {S }}$ | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 269 | 1.2.1.2.5.2 | Supports assembly | SLAC | B\&H | 2 | 8 wks | \$0.00 | \$0.00 | \$15,990.40 | \$15,990.40 | \$3,198.08 | \$4,797.12 | \$23,985.60 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$15,990.40 | \$0.00 | \$0.00 | \$0.00 |
| 270 | 1.2.1.2.6 | Correctors |  |  | 0 | 6.6 wks | \$0.00 | \$6,000.00 | \$18,477.36 | \$24,477.36 | \$4,055.47 | \$7,133.21 | \$35,666.04 |
| 271 | 1.2.1.2.6.1 | Support Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC M ${ }^{\text {S }}$ S Iotal |  | M 2 S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 272 | 1.2.1.2.6.2 | Support Machining | SLAC | B\&H | 2 | 4.4 wks | \$0.00 | \$0.00 | \$14,080.00 | \$14,080.00 | \$2,816.00 | \$4,224.00 | \$21,120.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 4.4 wks | \$0.00 | \$0.00 | \$0.00 | \$14,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 273 | 1.2.1.2.6.3 | Magnet Support Assembly | SLAC | B\&H | 2 | 2.2 wks | \$0.00 | \$0.00 | \$4,397.36 | \$4,397.36 | \$879.47 | \$1,319.21 | \$6,596.04 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2.2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,397.36 | \$0.00 | \$0.00 | \$0.00 |
| 274 | 1.2.1.2.7 | Gun E Spectrometer |  |  | 0 | 12 wks | \$0.00 | \$12,000.00 | \$23,985.60 | \$35,985.60 | \$5,517.12 | \$16,299.36 | \$57,802.08 |
| 275 | 1.2.1.2.7.1 | Support Materials | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$720.00 | \$1,908.00 | \$14,628.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 276 | 1.2.1.2.7.2 | Assembly/Mig | SLAC | B\&H | 4 | 12 wks | \$0.00 | \$0.00 | \$23,985.60 | \$23,985.60 | \$4,797.12 | \$14,391.36 | \$43,174.08 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 12 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$23,985.60 | \$0.00 | \$0.00 | \$0.00 |
| 277 | 1.2.1.2.8 | Straight Ahead E Spectrometer |  |  | 0 | 1.6 wks | \$0.00 | \$1,000.00 | \$4,639.52 | \$5,639.52 | \$987.90 | \$1,790.71 | \$8,418.14 |
| 278 | 1.2.1.2.8.1 | Support Materials | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | MLS | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 279 | 1.2.1.2.8.2 | Support Machining | SLAC | B\&H | 2 | 1.2 wks | \$0.00 | \$0.00 | \$3,840.00 | \$3,840.00 | \$768.00 | \$1,152.00 | \$5,760.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,840.00 | \$0.00 | \$0.00 | \$0.00 |
| 280 | 1.2.1.2.8.3 | Magnet Support Assembly | SLAC | B\&H | 4 | 0.4 wks | \$0.00 | \$0.00 | \$799.52 | \$799.52 | \$159.90 | \$479.71 | \$1,439.14 |
|  |  | SLAC Mech. rab: Assembly lech |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$799.52 | \$0.00 | \$0.00 | \$0.00 |
| 281 | 1.2.1.2.9 | Accelerator Structures |  |  | 0 | 18.5 wks | \$0.00 | \$34,000.00 | \$36,977.80 | \$70,977.80 | \$9,435.56 | \$22,555.70 | \$102,969.06 |
| 282 | 1.2.1.2.9.1 | Accelerator Base Support Materials | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$23,000.00 | \$0.00 | \$23,000.00 | \$1,380.00 | \$3,657.00 | \$28,037.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 23,000 | \$0.00 | \$0.00 | \$0.00 | \$23,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 283 | 1.2.1.2.9.2 | Accelerator Base Support Assembly | SLAC | B\&H | 4 | 12.5 wks | \$0.00 | \$0.00 | \$24,985.00 | \$24,985.00 | \$4,997.00 | \$14,991.00 | \$44,973.00 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 12.5 wks | \$0.00 | \$0.00 | \$0.00 | \$24,985.00 | \$0.00 | \$0.00 | \$0.00 |
| 284 |  | Accelerator Materials |  | M 2 S | 1 | 0 wks | \$0.00 | \$11,000.00 | \$0.00 | \$11,000.00 | \$660.00 | \$1,749.00 | \$13,409.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 11,000 | \$0.00 | \$0.00 | \$0.00 | \$11,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 285 |  | Accelerator Assembly |  | B\&H | 1 | 6 wks | \$0.00 | \$0.00 | \$11,992.80 | \$11,992.80 | \$2,398.56 | \$2,158.70 | \$16,550.06 |
|  |  | SLAC Mech. rab: Assembly lech |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$11,992.80 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 286 | 1.2.1.2.10 | Gun |  |  | 0 | 6 wks | \$0.00 | \$5,000.00 | \$11,992.80 | \$16,992.80 | \$2,698.56 | \$7,990.68 | \$27,682.04 |
| 287 | 1.2.1.2.10.1 | Support Materials | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$795.00 | \$6,095.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 288 | 1.2.1.2.10.2 | Support Assembly | SLAC | B\&H | 4 | 6 wks | \$0.00 | \$0.00 | \$11,992.80 | \$11,992.80 | \$2,398.56 | \$7,195.68 | \$21,587.04 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$11,992.80 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 289 | 1.2.1.2.11 | Transverse RF Structure |  |  | 0 | 4 wks | \$0.00 | \$4,000.00 | \$7,995.20 | \$11,995.20 | \$1,839.04 | \$5,433.12 | \$19,267.36 |
| 290 | 1.2.1.2.11.1 | Transverse RF Support Materials | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$636.00 | \$4,876.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 291 | 1.2.1.2.11.2 | Transverse RF Support Assembly | SLAC | B\&H | 4 | 4 wks | \$0.00 | \$0.00 | \$7,995.20 | \$7,995.20 | \$1,599.04 | \$4,797.12 | \$14,391.36 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,995.20 | \$0.00 | \$0.00 | \$0.00 |
| 292 | 1.2.1.2.12 | Wire Scanners |  |  | 0 | 6 wks | \$0.00 | \$3,000.00 | \$17,998.80 | \$20,998.80 | \$3,779.76 | \$6,194.64 | \$30,973.20 |
| 293 | 1.2.1.2.12.1 | Support Materials | SLAC | M2S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 294 | 1.2.1.2.12.2 | Support Machining | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$12,800.00 | \$12,800.00 | \$2,560.00 | \$3,840.00 | \$19,200.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$12,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 295 | 1.2.1.2.12.3 | Support Welding | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$3,200.00 | \$3,200.00 | \$640.00 | \$960.00 | \$4,800.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 296 | 1.2.1.2.12.4 | WS Support Assembly | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$599.64 | \$2,998.20 |
|  |  | SLAC Mech. rab: Assembly lech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | $\$ 0.00$ | $\$ 0.00$ | \$0.00 |
| 297 | 1.2.1.2.13 | BPMs |  |  | 0 | 13.5 wks | \$0.00 | \$16,000.00 | \$26,983.80 | \$42,983.80 | \$6,356.76 | \$12,335.14 | \$61,675.70 |
| 298 | 1.2.1.2.13.1 | BPM Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$16,000.00 | \$0.00 | \$16,000.00 | \$960.00 | \$4,240.00 | \$21,200.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 16,000 | \$0.00 | \$0.00 | \$0.00 | \$16,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | Page 15 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 299 | 1.2.1.2.13.2 | BPM Assembly | SLAC | B\&H | 2 | 13.5 wks | \$0.00 | \$0.00 | \$26,983,80 | \$26,983.80 | \$5,396.76 | \$8,095.14 | \$40,475.70 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 13.5 wks | \$0.00 | \$0.00 | \$0.00 | \$26,983.80 | \$0.00 | \$0.00 | \$0.00 |
| 300 | 1.2.1.2.14 | Toroids |  |  | 0 | 4 wks | \$0.00 | \$1,000.00 | \$11,598.80 | \$12,598.80 | \$2,379.76 | \$3,744.64 | \$18,723.20 |
| 301 | 1.2.1.2.14.1 | Support Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 302 | 1.2.1.2.14.2 | Support Machining |  | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$9,600.00 | \$9,600.00 | \$1,920.00 | \$2,880.00 | \$14,400.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$9,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 303 | 1.2.1.2.14.3 | Ioro Support Assembly | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$599.64 | \$2,998.20 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 304 | 1.2.1.2.15 | Faraday Cup |  |  | 0 | 3.6 wks | \$0.00 | \$1,000.00 | \$10,318.80 | \$11,318.80 | \$2,123.76 | \$4,704.90 | \$18,147.46 |
| 305 | 1.2.1.2.15.1 | Support Materials | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$371.00 | \$1,431.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 306 | 1.2.1.2.15.2 | Support Machining | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$6,400.00 | \$6,400.00 | \$1,280.00 | \$2,688.00 | \$10,368.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,400.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 307 | 1.2.1.2.15.3 | Support Welding | SLAC | B\&H | 3 | 0.6 wks | \$0.00 | \$0.00 | \$1,920.00 | \$1,920.00 | \$384.00 | \$806.40 | \$3,110.40 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,920.00 | \$0.00 | \$0.00 | \$0.00 |
| 308 | 1.2.1.2.15.4 | FC Support Assembly | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$839.50 | \$3,238.06 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 309 | 1.2.1.2.16 | Tune-up Dump |  |  | 0 | 1.8 wks | \$0.00 | \$1,000.00 | \$5,279.52 | \$6,279.52 | \$1,115.90 | \$2,588.40 | \$9,983.82 |
| 310 | 1.2.1.2.16.1 | Support Materials | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$371.00 | \$1,431.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 311 | 1.2.1.2.16.2 | Support Machining | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$3,200.00 | \$3,200.00 | \$640.00 | \$1,344.00 | \$5,184.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 312 | 1.2.1.2.16.3 | Support Welding | SLAC | B\&H | 3 | 0.4 wks | \$0.00 | \$0.00 | \$1,280.00 | \$1,280.00 | \$256.00 | \$537.60 | \$2,073.60 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 313 | 1.2.1.2.16.4 | TD Support Assembly | SLAC | B\&H | 3 | 0.4 wks | \$0.00 | \$0.00 | \$799.52 | \$799.52 | \$159.90 | \$335.80 | \$1,295.22 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$799.52 | \$0.00 | \$0.00 | \$0.00 |
| 314 | 1.2.1.2.17 | Protile Monitor |  |  | 0 | 10 wks | \$0.00 | \$5,000.00 | \$27,195.20 | \$32,195.20 | \$5,739.04 | \$9,483.56 | \$47,417.80 |
| 315 | 1.2.1.2.17.1 | Support Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 316 | 1.2.1.2.17.2 | Support Machining | SLAC | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$19,200.00 | \$19,200.00 | \$3,840.00 | \$5,760.00 | \$28,800.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$19,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 317 | 1.2.1.2.17.3 | Prot Support Assembly | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$7,995.20 | \$7,995.20 | \$1,599.04 | \$2,398.56 | \$11,992.80 |
|  |  | SLAC Mech. rab: Assembly lech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,995.20 | \$0.00 | \$0.00 | \$0.00 |
| 318 | 1.2.1.2.18 | Beam Stopper |  |  | 0 | 6 wks | \$0.00 | \$3,000.00 | \$11,992.80 | \$14,992.80 | \$2,578.56 | \$4,392.84 | \$21,964.20 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| $319$ | 1.2.1.2.18.1 | Beam Stopper Support Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 320 | 1.2.1.2.18.2 | Beam Stopper Support Assembly | SLAC | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$11,992.80 | \$11,992.80 | \$2,398.56 | \$3,597.84 | \$17,989.20 |
|  |  | SLAC Mech. Fab: Assembly lech |  | BKH | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$11,992.80 | \$0.00 | \$0.00 | \$0.00 |
| 321 | 1.2.1.2.19 | Reserved |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 322 | 1.2.1.2.19.1 | E-O Support Materials | SLAC |  | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 323 | 1.2.1.2.19.2 | E-O Support Assembly | SLAC | $\mathrm{B} \& \mathrm{H}$ | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Mech. rab: Assembly lech |  | B\&H | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 324 | 1.2.1.3 | vaccum |  |  | 0 | 116.2 wks | \$0.00 | \$550,000.00 | \$244,180.04 | \$794,180.04 | \$81,836.01 | \$306,605.62 | \$1,182,621.66 |
| 325 | 1.2.1.3.1 | Beamline Vacuum System |  |  | 0 | 70.9 wks | \$0.00 | \$250,000.00 | \$150,150.92 | \$400,150.92 | \$45,030.18 | \$155,813.39 | \$600,994.49 |
| 326 | 1.2.1.3.1.1 | Ion Pumps | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$839.50 | \$3,238.06 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 327 | 1.2.1.3.1.2 | Combination lon Pumps | SLAC | B\&H | 3 | 1.2 wks | \$0.00 | \$0.00 | \$2,398.56 | \$2,398.56 | \$479.71 | \$1,007.40 | \$3,885.67 |
|  |  | SLAC Mech. Fab: Assembly lech |  | BRH | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,398.56 | \$0.00 | \$0.00 | \$0.00 |
| 328 | 1.2.1.3.1.3 | Pump PS | SLAC | B\&H | 3 | 0.9 wks | \$0.00 | \$0.00 | \$1,798.92 | \$1,798.92 | \$359.78 | \$755.55 | \$2,914.25 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 0.9 wks | \$0.00 | \$0.00 | \$0.00 | \$1,798.92 | \$0.00 | \$0.00 | \$0.00 |
| 329 | 1.2.1.3.1.4 | Cold cath \& pirani gauges | SLAC | B\&H | 3 | 0.8 wks | \$0.00 | \$0.00 | \$1,599.04 | \$1,599.04 | \$319.81 | \$671.60 | \$2,590.44 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 0.8 wks | \$0.00 | \$0.00 | \$0.00 | \$1,599.04 | \$0.00 | \$0.00 | \$0.00 |
| 330 | 1.2.1.3.1.5 | Hot filament gauges | SLAC | B\&H | 3 | 0.3 wks | \$0.00 | \$0.00 | \$599.64 | \$599.64 | \$119.93 | \$251.85 | \$971.42 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$599.64 | \$0.00 | \$0.00 | \$0.00 |
| 331 | 1.2.1.3.1.6 | Gauge controller | SLAC | $\mathrm{B} \& \mathrm{H}$ | 3 | 0.4 wks | \$0.00 | \$0.00 | \$799.52 | \$799.52 | \$159.90 | \$335.80 | \$1,295.22 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$799.52 | \$0.00 | \$0.00 | \$0.00 |
| 332 | 1.2.1.3.1.7 | Dritt sections | SLAC | B\&H | 3 | 1.75 wks | \$0.00 | \$0.00 | \$3,497.90 | \$3,497.90 | \$699.58 | \$1,469.12 | \$5,666.60 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 1.75 wks | \$0.00 | \$0.00 | \$0.00 | \$3,497.90 | \$0.00 | \$0.00 | \$0.00 |
| 333 | 1.2.1.3.1.8 | Bellows/manifold | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$5,996.40 | \$5,996.40 | \$1,199.28 | \$2,518.49 | \$9,714.17 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$5,996.40 | \$0.00 | \$0.00 | \$0.00 |
| 334 | 1.2.1.3.1.9 | Vac tees/hdw | SLAC | B\&H | 3 | 1.25 wks | \$0.00 | \$0.00 | \$2,498.50 | \$2,498.50 | \$499.70 | \$1,049.37 | \$4,047.57 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 1.25 wks | \$0.00 | \$0.00 | \$0.00 | \$2,498.50 | \$0.00 | \$0.00 | \$0.00 |
| 335 | 1.2.1.3.1.10 | valve | SLAC | B\&H | 3 | 0.8 wks | \$0.00 | \$0.00 | \$1,599.04 | \$1,599.04 | \$319.81 | \$671.60 | \$2,590.44 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.8 wks | \$0.00 | \$0.00 | \$0.00 | \$1,599.04 | \$0.00 | \$0.00 | \$0.00 |
| 336 | 1.2.1.3.1.11 | Fast valve | SLAC | B\&H | 3 | 0.4 wks | \$0.00 | \$0.00 | \$799.52 | \$799.52 | \$159.90 | \$335.80 | \$1,295.22 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$799.52 | \$0.00 | \$0.00 | \$0.00 |
| 337 | 1.2.1.3.1.12 | Fast valve controller/sensor | SLAC | B\&H | 3 | 0.3 wks | \$0.00 | \$0.00 | \$599.64 | \$599.64 | \$119.93 | \$251.85 | \$971.42 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$599.64 | \$0.00 | \$0.00 | \$0.00 |
| 338 | 1.2.1.3.1.13 | Supports | SLAC | B\&H | 3 | 12.8 wks | \$0.00 | \$0.00 | \$25,584.64 | \$25,584.64 | \$5,116.93 | \$10,745.55 | \$41,447.12 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name SLAC Mech. Fab: Assembly Tech | OBS | PHASE | $\frac{\text { Risk }}{0}$ | Units 12.8 wks | $\frac{\text { PED (Direct) }}{\$ 0.00}$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | $\frac{\text { Labor (Direct) }}{\$ 0.00}$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 25,584.64 \end{aligned}$ | $\begin{array}{r} \text { Overhead Cost } \\ \$ 0.00 \end{array}$ | Contingency Cost$\$ 0.00$ | $\begin{gathered} \text { Total cost } \\ \$ 0.00 \end{gathered}$ |
|  |  |  |  | BRH |  |  |  |  |  |  |  |  |  |
| 339 | 1.2.1.3.1.14 | QC/alignment |  | B\&H | 3 | 30 wks | \$0.00 | \$0.00 | \$68,400.00 | \$68,400.00 | \$13,680.00 | \$28,728.00 | \$110,808.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 30 wks | \$0.00 | \$0.00 | \$0.00 | \$68,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 340 | 1.2.1.3.1.15 | Assembly | SLAC | B\&H | 3 | 16 wks | \$0.00 | \$0.00 | \$31,980.80 | \$31,980.80 | \$6,396.16 | \$13,431.94 | \$51,808.90 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$31,980.80 | \$0.00 | \$0.00 | \$0.00 |
| 341 | 1.2.1.3.1.1 | Ion Pumps | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$720.00 | \$4,452.00 | \$17,172.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 342 | 1.2.1.3.1.2 | Combination Ion Pumps | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$23,000.00 | \$0.00 | \$23,000.00 | \$1,380.00 | \$8,533.00 | \$32,913.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 23,000 | $\$ 0.00$ | \$0.00 | \$0.00 | \$23,000.00 | $\$ 0.00$ | $\$ 0.00$ | \$0.00 |
| 343 | 1.2.1.3.1.3 | Pump PS | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$83,000.00 | \$0.00 | \$83,000.00 | \$4,980.00 | \$30,793.00 | \$118,773.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 83,000 | \$0.00 | \$0.00 | \$0.00 | \$83,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 344 | 1.2.1.3.1.4 | Cold cath \& pirani gauges | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,113.00 | \$4,293.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 345 | 1.2.1.3.1.5 | Hot tilament gauges | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$371.00 | \$1,431.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 346 | 1.2.1.3.1.6 | Gauge controller | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$2,968.00 | \$11,448.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 347 | 1.2.1.3.1.7 | Dritt sections | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,484.00 | \$5,724.00 |
|  |  | SLAC MXS Iotal |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 348 | 1.2.1.3.1.8 | Bellows/manifold | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$11,000.00 | \$0.00 | \$11,000.00 | \$660.00 | \$4,081.00 | \$15,741.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 11,000 | \$0.00 | \$0.00 | \$0.00 | \$11,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 349 | 1.2.1.3.1.9 | Vac tees/hdw | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$742.00 | \$2,862.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 350 | 1.2.1.3.1.10 | valve | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$53,000.00 | \$0.00 | \$53,000.00 | \$3,180.00 | \$19,663.00 | \$75,843.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 53,000 | \$0.00 | \$0.00 | \$0.00 | \$53,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 351 | 1.2.1.3.1.11 | Fast valve | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$2,968.00 | \$11,448.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 352 | 1.2.1.3.1.12 | rast valve controller/sensor | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$3,710.00 | \$14,310.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 353 | 1.2.1.3.1.13 | Supports | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$32,000.00 | \$0.00 | \$32,000.00 | \$1,920.00 | \$11,872.00 | \$45,792.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 32,000 | \$0.00 | \$0.00 | \$0.00 | \$32,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 354 | 1.2.1.3.2 | RF |  |  | 0 | 45.3 wks | \$0.00 | \$300,000.00 | \$94,029.12 | \$394,029.12 | \$36,805.82 | \$150,792.23 | \$581,627.17 |
| 355 | 1.2.1.3.2.1 | Waveguide lon Pumps | SLAC | B\&H | 3 | 2.9 wks | \$0.00 | \$0.00 | \$9,280.00 | \$9,280.00 | \$1,856.00 | \$3,897.60 | \$15,033.60 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 2.9 wks | \$0.00 | \$0.00 | \$0.00 | \$9,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 356 | 1.2.1.3.2.1 | Waveguide lon Pumps | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$35,000.00 | \$0.00 | \$35,000.00 | \$2,100.00 | \$12,985.00 | \$50,085.00 |



| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 376 | 1.2.1.4.2.2 | WS Part Machining | SLAC | B\&H | 2 | 16 wks | \$0.00 | \$0.00 | \$51,200.00 | \$51,200.00 | \$10,240.00 | \$15,360.00 | \$76,800.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$51,200.00 | \$0.00 | \$0.00 | \$0.00 |
| ${ }^{377}$ | 1.2.1.4.2.3 | WS Parts QA | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$912.00 | \$1,368.00 | \$6,840.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 378 | 1.2.1.4.2.4 | WS Plating Cleaning | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$10,000.00 | \$10,000.00 | \$2,000.00 | \$3,000.00 | \$15,000.00 |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| ${ }^{379}$ | 1.2.1.4.2.5 | WS Brazing/Welding | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$7,995.20 | \$7,995.20 | \$1,599.04 | \$2,398.56 | \$11,992.80 |
|  |  | SLAC Mech. rab: Assembly lech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,995.20 | \$0.00 | \$0.00 | \$0.00 |
| 380 | 1.2.1.4.2.6 | WS Coating | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,548.80 | \$3,548.80 | \$709.76 | \$1,064.64 | \$5,323.20 |
|  |  | SLAC Klystron: Technician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,548.80 | \$0.00 | \$0.00 | \$0.00 |
| 381 | 1.2.1.4.2.7 | WS Assembly | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$7,995.20 | \$7,995.20 | \$1,599.04 | \$2,398.56 | \$11,992.80 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,995.20 | \$0.00 | \$0.00 | \$0.00 |
| 382 | 1.2.1.4.2.8 | WS Fiducialize | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$456.00 | \$684.00 | \$3,420.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 383 | 1.2.1.4.2.9 | WS Vac Process | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,199.28 | \$5,996.40 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 384 | 1.2.1.4.3 | BPMs |  |  | 0 | 45 wks | \$0.00 | \$38,000.00 | \$89,946.00 | \$127,946.00 | \$20,269.20 | \$35,572.88 | \$183,788.08 |
| 385 | 1.2.1.4.3.1 | BPMs | SLAC |  | 0 | 30 wks | \$0.00 | \$28,000.00 | \$59,964.00 | \$87,964.00 | \$13,672.80 | \$35,572.88 | \$137,209.68 |
| 386 | 1.2.1.4.3.1 | Materials | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$28,000.00 | \$0.00 | \$28,000.00 | \$1,680.00 | \$10,388.00 | \$40,068.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 28,000 | \$0.00 | \$0.00 | \$0.00 | \$28,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 387 | 1.2.1.4.3.1 | Assembly/Mig | SLAC | B\&H | 3 | 30 wks | \$0.00 | \$0.00 | \$59,964.00 | \$59,964.00 | \$11,992.80 | \$25,184.88 | \$97,141.68 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 30 wks | \$0.00 | \$0.00 | \$0.00 | \$59,964.00 | \$0.00 | \$0.00 | \$0.00 |
| 388 | 1.2.1.4.3.2 | SPECIAL PBM | SLAC |  | 0 | 15 wks | \$0.00 | \$10,000.00 | \$29,982.00 | \$39,982.00 | \$6,596.40 | \$0.00 | \$46,578.40 |
| 389 | 1.2.1.4.3.2 | Materials | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$0.00 | \$10,600.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 390 | 1.2.1.4.3.2 | Assembly/Mig | SLAC | B\&H | 0 | 15 wks | \$0.00 | \$0.00 | \$29,982.00 | \$29,982.00 | \$5,996.40 | \$0.00 | \$35,978.40 |
|  |  | SLAC Mech. rab: Assembly lech |  | B\&H | 0 | 15 wks | \$0.00 | \$0.00 | \$0.00 | \$29,982.00 | \$0.00 | \$0.00 | \$0.00 |
| 391 | 1.2.1.4.4 | Toroids |  |  | 0 | 16 wks | \$0.00 | \$18,000.00 | \$39,676.00 | \$57,676.00 | \$9,015.20 | \$16,672.80 | \$83,364.00 |
| 392 | 1.2.1.4.4.1 | Toro Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$18,000.00 | \$0.00 | \$18,000.00 | \$1,080.00 | \$4,770.00 | \$23,850.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 18,000 | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 393 | 1.2.1.4.4.2 | Ioro Part Machining | SLAC | B\&H | ${ }^{2}$ | 4 wks | \$0.00 | \$0.00 | \$12,800.00 | \$12,800.00 | \$2,560.00 | \$3,840.00 | \$19,200.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$12,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 394 | 1.2.1.4.4.3 | 1 oro Parts QA | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$912.00 | \$1,368.00 | \$6,840.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | Page 20 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{395}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.2.1.4.4.4 | Toro Plating Cleaning | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$5,000.00 | \$5,000.00 | \$1,000.00 | \$1,500.00 | \$7,500.00 |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 396 | 1.2.1.4.4.5 | Ioro Brazing/Welding | SLAC | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$5,996.40 | \$5,996.40 | \$1,199.28 | \$1,798.92 | \$8,994.60 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$5,996.40 | \$0.00 | \$0.00 | \$0.00 |
| 397 | 1.2.1.4.4.6 | Toro Assembly | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$599.64 | \$2,998.20 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 398 | 1.2.1.4.4.7 | Toro Coating | SLAC | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$5,323.20 | \$5,323.20 | \$1,064.64 | \$1,596.96 | \$7,984.80 |
|  |  | SLAC KIystron: Iechnician |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$5,323.20 | \$0.00 | \$0.00 | \$0.00 |
| 399 | 1.2.1.4.4.8 | Ioro Vac Process | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,199.28 | \$5,996.40 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 400 | 1.2.1.4.5 | Faraday Cup |  |  | 0 | 19.6 wks | \$0.00 | \$16,000.00 | \$53,117.20 | \$69,117.20 | \$11,583.44 | \$28,245.22 | \$108,945.86 |
| 401 | 1.2.1.4.5.1 | FC Materials | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$16,000.00 | \$0.00 | \$16,000.00 | \$960.00 | \$5,936.00 | \$22,896.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 16,000 | \$0.00 | \$0.00 | \$0.00 | \$16,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 402 | 1.2.1.4.5.2 | FC Part Machining | SLAC | B\&H | 3 | 6 wks | \$0.00 | \$0.00 | \$19,200.00 | \$19,200.00 | \$3,840.00 | \$8,064.00 | \$31,104.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$19,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 403 | 1.2.1.4.5.3 | FC Parts QA | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$912.00 | \$1,915.20 | \$7,387.20 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 404 | 1.2.1.4.5.4 | FC Plating Cleaning | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$10,000.00 | \$10,000.00 | \$2,000.00 | \$4,200.00 | \$16,200.00 |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 405 | 1.2.1.4.5.5 | FC Brazing/Welding | SLAC | B\&H | 3 | 4 wks | \$0.00 | \$0.00 | \$7,995.20 | \$7,995.20 | \$1,599.04 | \$3,357.98 | \$12,952.22 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,995.20 | \$0.00 | \$0.00 | \$0.00 |
| 406 | 1.2.1.4.5.6 | FC Assembly | SLAC | B\&H | 3 | 4 wks | \$0.00 | \$0.00 | \$7,995.20 | \$7,995.20 | \$1,599.04 | \$3,357.98 | \$12,952.22 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,995.20 | \$0.00 | \$0.00 | \$0.00 |
| 407 | 1.2.1.4.5.7 | FC Fiducialize | SLAC | B\&H | 3 | 0.6 wks | \$0.00 | \$0.00 | \$1,368.00 | \$1,368.00 | \$273.60 | \$574.56 | \$2,216.16 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 408 | 1.2.1.4.5.8 | FC Vac Process | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$839.50 | \$3,238.06 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 409 | 1.2.1.4.6 | Protile Monitor |  |  | 0 | 36 wks | \$0.00 | \$66,000.00 | \$110,877.60 | \$176,877.60 | \$26,135.52 | \$71,054.59 | \$274,067.71 |
| 410 | 1.2.1.4.6.1 | Prot Materials | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$66,000.00 | \$0.00 | \$66,000.00 | \$3,960.00 | \$24,486.00 | \$94,446.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 66,000 | \$0.00 | \$0.00 | \$0.00 | \$66,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 411 | 1.2.1.4.6.2 | Prof Part Machining | SLAC | B\&H | 3 | 16 wks | \$0.00 | \$0.00 | \$51,200.00 | \$51,200.00 | \$10,240.00 | \$21,504.00 | \$82,944.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$51,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 412 | 1.2.1.4.6.3 | Prot Parts QA | SLAC | B\&H | 3 | 4 wks | \$0.00 | \$0.00 | \$9,120.00 | \$9,120.00 | \$1,824.00 | \$3,830.40 | \$14,774.40 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 413 | 1.2.1.4.6.4 | Prof Plating Cleaning | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$10,000.00 | \$10,000.00 | \$2,000.00 | \$4,200.00 | \$16,200.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | BRH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 414 | 1.2.1.4.6.5 | Prof Brazing/Welding | SLAC | B\&H | 3 | 6 wks | \$0.00 | \$0.00 | \$19,200.00 | \$19,200.00 | \$3,840.00 | \$8,064.00 | \$31,104.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$19,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 415 | 1.2.1.4.6.6 | Prot Assembly | SLAC | B\&H | ${ }^{3}$ | 4 wks | \$0.00 | \$0.00 | \$12,800.00 | \$12,800.00 | \$2,560.00 | \$5,376.00 | \$20,736.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$12,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 416 | 1.2.1.4.6.7 | Prof Fiducialize | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$912.00 | \$1,915.20 | \$7,387.20 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 417 | 1.2.1.4.6.8 | Prot Vac Process | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,678.99 | \$6,476.11 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 418 | 1.2.1.4.7 | E-O Diagnostic |  |  | 0 | 30 wks | \$0.00 | \$363,000.00 | \$97,716.40 | \$460,716.40 | \$41,323.28 | \$152,535.89 | \$654,575.57 |
| 419 | 1.2.1.4.7.1 | E-0 Physics | SLAC | ED\& | 4 | 25 wks | \$0.00 | \$0.00 | \$85,000.00 | \$85,000.00 | \$17,000.00 | \$51,000.00 | \$153,000.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$85,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 420 | 1.2.1.4.7.2 | E-O Optics | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$87,000.00 | \$0.00 | \$87,000.00 | \$5,220.00 | \$23,055.00 | \$115,275.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 87,000 | \$0.00 | \$0.00 | \$0.00 | \$87,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 421 | 1.2.1.4.7.3 | E-O Instruments | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$180,000.00 | \$0.00 | \$180,000.00 | \$10,800.00 | \$47,700.00 | \$238,500.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 180,000 | \$0.00 | \$0.00 | \$0.00 | \$180,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 422 | 1.2.1.4.7.4 | E-O Vacuum | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$96,000.00 | \$0.00 | \$96,000.00 | \$5,760.00 | \$25,440.00 | \$127,200.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 96,000 | \$0.00 | \$0.00 | \$0.00 | \$96,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 423 | 1.2.1.4.7.5 | E-O Assembly | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$5,996.40 | \$5,996.40 | \$1,199.28 | \$2,518.49 | \$9,714.17 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$5,996.40 | \$0.00 | \$0.00 | \$0.00 |
| 424 | 1.2.1.4.7.6 | Proc., Man. \& Assembly Supervision | SLAC | ED\& | 3 | 2 wks | \$0.00 | \$0.00 | \$6,720.00 | \$6,720.00 | \$1,344.00 | \$2,822.40 | \$10,886.40 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 425 | 1.2.1.4.8 | Miscellaneous Dignostic Equip |  |  | 0 | 0 wks | \$0.00 | \$140,000.00 | \$0.00 | \$140,000.00 | \$8,400.00 | \$22,260.00 | \$170,660.00 |
| 426 | 1.2.1.4.8.1 | Gating \& liming system gate generator | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$900.00 | \$2,385.00 | \$18,285.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 427 | 1.2.1.4.8.2 | Gating \& Timing video synch unit | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$1,590.00 | \$12,190.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 428 | 1.2.1.4.8.3 | Video System video switcher | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$795.00 | \$6,095.00 |
|  |  | SLAC MAS Iotal |  | M 4 S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 429 | 1.2.1.4.8.4 | Video System frame grabber | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$795.00 | \$6,095.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 430 | 1.2.1.4.8.5 | Video System sottware | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$795.00 | \$6,095.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 431 | 1.2.1.4.8.6 | Gated Intensitied cameras | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$100,000.00 | \$0.00 | \$100,000.00 | \$6,000.00 | \$15,900.00 | \$121,900.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 100,000 | \$0.00 | \$0.00 | \$0.00 | \$100,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | Page 22 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 432 | 1.2.1.5 | Power Conversion |  |  | 0 | 179.8 wks | \$0.00 | \$311,600.00 | \$405,776.00 | \$717,376.00 | \$99,851.20 | \$204,306.80 | \$1,021,534.00 |
| 433 | 1.2.1.5.1 | New Power Supplies |  |  | 0 | 102 wks | \$0.00 | \$122,900.00 | \$215,280.00 | \$338,180.00 | \$50,430.00 | \$97,152.50 | \$485,762.50 |
| 434 | 1.2.1.5.1.1 | Solenoid Soll 15kW | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$6,500.00 | \$0.00 | \$6,500.00 | \$390.00 | \$1,722.50 | \$8,612.50 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 6,500 | \$0.00 | \$0.00 | \$0.00 | \$6,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 435 | 1.2.1.5.1.2 | Solenoid Sol2 30KW | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$13,000.00 | \$0.00 | \$13,000.00 | \$780.00 | \$3,445.00 | \$17,225.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 13,000 | \$0.00 | \$0.00 | \$0.00 | \$13,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 436 | 1.2.1.5.1.3 | B0.5 Spect 2KW | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Iotal |  | M $\downarrow$ S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 437 | 1.2.1.5.1.4 | B1-2 15KW | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$6,500.00 | \$0.00 | \$6,500.00 | \$390.00 | \$1,722.50 | \$8,612.50 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 6,500 | \$0.00 | \$0.00 | \$0.00 | \$6,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 438 | 1.2.1.5.1.5 | B3 Spect.15KW | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$6,500.00 | \$0.00 | \$6,500.00 | \$390.00 | \$1,722.50 | \$8,612.50 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 6,500 | \$0.00 | \$0.00 | \$0.00 | \$6,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 439 | 1.2.1.5.1.6 | MCOR Bulk 10kW | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$32,500.00 | \$0.00 | \$32,500.00 | \$1,950.00 | \$8,612.50 | \$43,062.50 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 32,500 | \$0.00 | \$0.00 | \$0.00 | \$32,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 440 | 1.2.1.5.1.7 | XCS1, 40V/12A MCOR | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,300.00 | \$0.00 | \$1,300.00 | \$78.00 | \$344.50 | \$1,722.50 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,300 | \$0.00 | \$0.00 | \$0.00 | \$1,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 441 | 1.2.1.5.1.8 | YCS1, 40V/12A MCOR | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,300.00 | \$0.00 | \$1,300.00 | \$78.00 | \$344.50 | \$1,722.50 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,300 | \$0.00 | \$0.00 | \$0.00 | \$1,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 442 | 1.2.1.5.1.9 | XCS2, 40V/12A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,300.00 | \$0.00 | \$1,300.00 | \$78.00 | \$344.50 | \$1,722.50 |
|  |  | SLAC M2S Total |  | M\&S | 0 | 1,300 | \$0.00 | \$0.00 | \$0.00 | \$1,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 443 | 1.2.1.5.1.10 | YCS2, 40V/12A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,300.00 | \$0.00 | \$1,300.00 | \$78.00 | \$344.50 | \$1,722.50 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,300 | \$0.00 | \$0.00 | \$0.00 | \$1,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 444 | 1.2.1.5.1.11 | XCS3, 50V/30A MCOR | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 445 | 1.2.1.1.1.12 | YCS3, 50V/30A MCOR | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 446 | 1.2.1.5.1.13 | XCS4, 50V/30A MCOR | SLAC | M2S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC MXS Iotal |  | M LS $^{\text {S }}$ | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 447 | 1.2.1.5.1.14 | YCS4, 50V/30A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 448 | 1.2.1.5.1.15 | XCS5, 50V/30A MCOR | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 449 | 1.2.1.1.5.1.16 | YCS5, 50V/30A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC MXS Iotal |  | M\&S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 450 | 1.2.1.5.1.17 | QE01, 40V/12A MCOR | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,300.00 | \$0.00 | \$1,300.00 | \$78.00 | \$344.50 | \$1,722.50 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M ${ }^{\text {S }}$ ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,300 | \$0.00 | \$0.00 | \$0.00 | \$7,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 451 | 1.2.1.5.1.18 | QE02, 40V/12AMCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,300.00 | \$0.00 | \$1,300.00 | \$78.00 | \$344.50 | \$1,722.50 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,300 | \$0.00 | \$0.00 | \$0.00 | \$1,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 452 | 1.2.1.5.1.19 | XCS6, 50V/30A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 453 | 1.2.1.5.1.20 | QE03, 40V/12AMCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,300.00 | \$0.00 | \$1,300.00 | \$78.00 | \$344.50 | \$1,722.50 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,300 | \$0.00 | \$0.00 | \$0.00 | \$1,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 454 | 1.2.1.5.1.21 | YCS6, 50V/30A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 455 | 1.2.1.5.1.22 | QE04, 40V/12A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,300.00 | \$0.00 | \$1,300.00 | \$78.00 | \$344.50 | \$1,722.50 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,300 | \$0.00 | \$0.00 | \$0.00 | \$1,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 456 | 1.2.1.5.1.23 | XCS7, 50V/30A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$7,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 457 | 1.2.1.5.1.24 | YCST, 50V/30A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 458 | 1.2.1.5.1.25 | XCS8, 50V/30A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 459 | 1.2.1.5.1.26 | YCS8, 50V/30A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 460 | 1.2.1.5.1.27 | QM01, 40V/12A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,300.00 | \$0.00 | \$1,300.00 | \$78.00 | \$344.50 | \$1,722.50 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,300 | \$0.00 | \$0.00 | \$0.00 | \$1,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 461 | 1.2.1.5.1.28 | QM02, 40V/12AMCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,300.00 | \$0.00 | \$1,300.00 | \$78.00 | \$344.50 | \$1,722.50 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,300 | \$0.00 | \$0.00 | \$0.00 | \$1,300.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 462 | 1.2.1.5.1.29 | B011, 50V/30A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 463 | 1.2.1.5.1.30 | B02T, 50V/30A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 464 | 1.2.1.5.1.31 | QB, 40V/12A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,300.00 | \$0.00 | \$1,300.00 | \$78.00 | \$344.50 | \$1,722.50 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,300 | \$0.00 | \$0.00 | \$0.00 | \$1,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 465 | 1.2.1.5.1.32 | QM03, 40V/12A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,300.00 | \$0.00 | \$1,300.00 | \$78.00 | \$344.50 | \$1,722.50 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,300 | \$0.00 | \$0.00 | \$0.00 | \$1,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 466 | 1.2.1.5.1.33 | YCS9V, 50V/30A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 467 | 1.2.1.5.1.34 | QM04, 40V/12A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,300.00 | \$0.00 | \$1,300.00 | \$78.00 | \$344.50 | \$1,722.50 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,300 | \$0.00 | \$0.00 | \$0.00 | \$1,300.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 468 | 1.2.1.5.1.35 | HCS9H, 50V/30A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 469 | 1.2.1.5.1.36 | XCS10, 50V/30A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 470 | 1.2.1.5.1.37 | YCS10, 50V/30A MCOR | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 471 | 1.2.1.5.1.38 | XCS11, 50V/30A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC MAS Iotal |  | M\&S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 472 | 1.2.1.5.1.39 | YCS11, 50V/30A MCOR | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 473 | 1.2.1.5.1.40 | Planning (PS and Cable Plant) | SLAC | ED\& | 2 | 20 wks | \$0.00 | \$0.00 | \$60,000.00 | \$60,000.00 | \$12,000.00 | \$18,000.00 | \$90,000.00 |
|  |  | SLAC PCD:Engineer |  | ED\& | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$60,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 474 | 1.2.1.5.1.40 | Planning (PS and Cable Plant) | SLAC | B\&H | 2 | 25 wks | \$0.00 | \$0.00 | \$43,840.00 | \$43,840.00 | \$8,768.00 | \$13,152.00 | \$65,760.00 |
|  |  | SLAC PCD:Iechnician |  | B\&H | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$43,840.00 | \$0.00 | \$0.00 | \$0.00 |
| 475 | 1.2.1.5.1.41 | System Dwgs (EI, WD, Profile for Cable Plant) | SLAC | ED\& | 2 | 32 wks | \$0.00 | \$0.00 | \$61,440.00 | \$61,440.00 | \$12,288.00 | \$18,432.00 | \$92,160.00 |
|  |  | SLAC PCD:Coordinator Associate |  | ED\&1 | 0 | 32 wks | \$0.00 | \$0.00 | \$0.00 | \$61,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 476 | 1.2.1.5.1.41 | System Dwgs (EI, WD, Profile for Cable Plant) | SLAC | B\&H | 2 | 25 wks | \$0.00 | \$0.00 | \$50,000.00 | \$50,000.00 | \$10,000.00 | \$15,000.00 | \$75,000.00 |
|  |  | SLACL PCD:IInst-Cabling-Elec Fab |  | B\&H | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 477 | 1.2.1.5.2 | Cntris/Transductors/Switches |  |  | 0 | 0 wks | \$0.00 | \$32,100.00 | \$0.00 | \$32,100.00 | \$1,926.00 | \$8,506.50 | \$42,532.50 |
| 478 | 1.2.1.5.2.1 | MCOR Chassis | SLAC | B\&H | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC PCD:Technician |  | BRH | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 479 | 1.2.1.5.2.1 | MCOR Chassis | SLAC | ED\& | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC PCD:Engineer |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 480 | 1.2.1.5.2.1 | MCOR Chassis | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 481 | 1.2.1.5.2.2 | Bitbus Controller | SLAC | B\&H | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC PCD:Technician |  | B\&H | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 482 | 1.2.1.5.2.2 | Bitbus Controller | SLAC | ED\& | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC PCD:Engineer |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 483 | 1.2.1.5.2.2 | Bitbus Controller | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$540.00 | \$2,385.00 | \$11,925.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 484 | 1.2.1.5.2.3 | Klixon/Run Sate Box | SLAC | B\&H | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC PCD:Iechnician |  | B\&H | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 485 | 1.2.1.5.2.3 | Klixon/Run Sate Box | SLAC | ED\& | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC PCD:Engineer |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 486 | 1.2.1.5.2.3 | Klixon/Run Safe Box | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$7,500.00 | \$0.00 | \$7,500.00 | \$450.00 | \$1,987.50 | \$9,937.50 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 7,500 | \$0.00 | \$0.00 | \$0.00 | \$7,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 487 | 1.2.1.5.2.4 | 150 A ransductor | SLAC | B\&H | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC PCD:Iechnician |  | B\&H | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | $\$ 0.00$ | \$0.00 | $\$ 0.00$ |
| 488 | 1.2.1.5.2.4 | 150 A Transductor | SLAC | ED\& | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC PCD:Engineer |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 489 | 1.2.1.5.2.4 | 150 A Transductor | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,400.00 | \$0.00 | \$1,400.00 | \$84.00 | \$371.00 | \$1,855.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 1,400 | \$0.00 | \$0.00 | \$0.00 | \$1,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 490 | 1.2.1.5.2.5 | 300 A Iransductor | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,400.00 | \$0.00 | \$1,400.00 | \$84.00 | \$371.00 | \$1,855.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,400 | \$0.00 | \$0.00 | \$0.00 | \$1,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 491 | 1.2.1.5.2.6 | 600 A Transductor | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,800.00 | \$0.00 | \$2,800.00 | \$168.00 | \$742.00 | \$3,710.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,800 | \$0.00 | $\$ 0.00$ | \$0.00 | \$2,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 492 | 1.2.1.5.3 | Racks, Cables, Trays |  |  | 0 | 77.8 wks | \$0.00 | \$156,600.00 | \$190,496.00 | \$347,096.00 | \$47,495.20 | \$98,647.80 | \$493,239.00 |
| 493 | 1.2.1.5.3.1 | Rack, Single Bay (DC and I\&C) | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,720.00 | \$2,720.00 | \$544.00 | \$816.00 | \$4,080.00 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 494 | 1.2.1.5.3.1 | Rack, Single Bay ( DC and I\&C) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$25,200.00 | \$0.00 | \$25,200.00 | \$1,512.00 | \$6,678.00 | \$33,390.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 25,200 | \$0.00 | \$0.00 | \$0.00 | \$25,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 495 | 1.2.1.5.3.2 | Rack, Double bay | SLAC | B\&H | 2 | 2.13 wks | \$0.00 | \$0.00 | \$5,793.60 | \$5,793.60 | \$1,158.72 | \$1,738.08 | \$8,690.40 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 2.13 wks | \$0.00 | \$0.00 | \$0.00 | \$5,793.60 | \$0.00 | \$0.00 | \$0.00 |
| 496 | 1.2.1.5.3.2 | Rack, Double bay | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$22,500.00 | \$0.00 | \$22,500.00 | \$1,350.00 | \$5,962.50 | \$29,812.50 |
|  |  | SLAC MES Total |  | M $\mathrm{L}^{\text {S }}$ | 0 | 22,500 | \$0.00 | \$0.00 | \$0.00 | \$22,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 497 | 1.2.1.5.3.3 | AC Pwr to rack( DC and 18 C$)$ | SLAC | B\&H | 2 | 3.13 wks | \$0.00 | \$0.00 | \$8,513.60 | \$8,513.60 | \$1,702.72 | \$2,554.08 | \$12,770.40 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 3.13 wks | \$0.00 | \$0.00 | \$0.00 | \$8,513.60 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 498 | 1.2.1.5.3.3 | AC Pwr to rack( $(\mathrm{DC}$ and ILC$)$ | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$25,000.00 | \$0.00 | \$25,000.00 | \$1,500.00 | \$6,625.00 | \$33,125.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 25,000 | \$0.00 | \$0.00 | \$0.00 | \$25,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 499 | 1.2.1.5.3.4 | Earthquake racks( DC and L C) | SLAC | B\&H | 2 | 0.67 wks | \$0.00 | \$0.00 | \$1,822.40 | \$1,822.40 | \$364.48 | \$546.72 | \$2,733.60 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 0.67 wks | \$0.00 | \$0.00 | \$0.00 | \$1,822.40 | \$0.00 | \$0.00 | \$0.00 |
| 500 | 1.2.1.5.3.4 | Earthquake racks(DC and $1 \& \mathrm{C}$ ) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 501 | 1.2.1.5.3.5 | 20A 2P Latching NR Contactor(DC andi\&C) | SLAC | B\&H | 2 | 0.5 wks | \$0.00 | \$0.00 | \$1,360.00 | \$1,360.00 | \$272.00 | \$408.00 | \$2,040.00 |
|  |  | SLAC T\&M Crafts - Union Electrician |  | BRH | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 502 | 1.2.1.5.3.5 | 20A 2P Latching NR Contactor(DC andi\&C) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 503 | 1.2.1.5.3.6 | 200 A 2 P Latching NR Contactor (DC and I\&C) | SLAC | B\&H | 2 | 1.13 wks | \$0.00 | \$0.00 | \$3,073.60 | \$3,073.60 | \$614.72 | \$922.08 | \$4,610.40 |
|  |  | SLAC T\&M Crafts - Union Electrician |  | B\&H | 0 | 1.13 wks | \$0.00 | \$0.00 | \$0.00 | \$3,073.60 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  | Page 26 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cwbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| $504$ | 1.2.1.5.3.6 | 200A 2P Latching NR Contactor (DC and \& 2 C) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$21,000.00 | \$0.00 | \$21,000.00 | \$1,260.00 | \$5,565.00 | \$27,825.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 21,000 | \$0.00 | \$0.00 | \$0.00 | \$21,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 505 | 1.2.1.5.3.7 | 20-200A Contactor Control (DC and I\&C) | SLAC | B\&H | 2 | 0.83 wks | \$0.00 | \$0.00 | \$2,257.60 | \$2,257.60 | \$451.52 | \$677.28 | \$3,386.40 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 0.83 wks | \$0.00 | \$0.00 | \$0.00 | \$2,257.60 | \$0.00 | \$0.00 | \$0.00 |
| 506 | 1.2.1.5.3.7 | 20-200A Contactor Control (DC and I\&C) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 507 | 1.2.1.5.3.8 | Corr, Low Power Trims, Bipolar | SLAC | $\mathrm{B} \& \mathrm{H}$ | 2 | 0.83 wks | \$0.00 | \$0.00 | \$2,257.60 | \$2,257.60 | \$451.52 | \$677.28 | \$3,386.40 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 0.83 wks | \$0.00 | \$0.00 | \$0.00 | \$2,257.60 | \$0.00 | \$0.00 | \$0.00 |
| 508 | 1.2.1.5.3.8 | Corr, Low Power Irims, Bipolar | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,500.00 | \$0.00 | \$1,500.00 | \$90.00 | \$397.50 | \$1,987.50 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,500 | \$0.00 | \$0.00 | \$0.00 | \$1,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 509 | 1.2.1.5.3.9 | 2/C\#18AWG Interlock | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$1,088.00 | \$1,088.00 | \$217.60 | \$326.40 | \$1,632.00 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,088.00 | \$0.00 | \$0.00 | \$0.00 |
| 510 | 1.2.1.5.3.9 | 2/C\#18AWG Interlock | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$400.00 | \$0.00 | \$400.00 | \$24.00 | \$106.00 | \$530.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 400 | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 511 | 1.2.1.5.3.10 | 1-2/C\#8 AWG | SLAC | B\&H | 2 | 3.33 wks | \$0.00 | \$0.00 | \$9,057.60 | \$9,057.60 | \$1,811.52 | \$2,717.28 | \$13,586.40 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 3.33 wks | \$0.00 | \$0.00 | \$0.00 | \$9,057.60 | \$0.00 | \$0.00 | \$0.00 |
| 512 | 1.2.1.5.3.10 | 1-2/C\#8 AWG | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$8,200.00 | \$0.00 | \$8,200.00 | \$492.00 | \$2,173.00 | \$10,865.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d S }}$ | 0 | 8,200 | \$0.00 | \$0.00 | \$0.00 | \$8,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 513 | 1.2.1.5.3.11 | 1/C\#600kcmil | SLAC | B\&H | 2 | 3.63 wks | \$0.00 | \$0.00 | \$9,873.60 | \$9,873.60 | \$1,974.72 | \$2,962.08 | \$14,810.40 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | BRH | 0 | 3.63 wks | \$0.00 | \$0.00 | \$0.00 | \$9,873.60 | \$0.00 | \$0.00 | \$0.00 |
| 514 | 1.2.1.5.3.12 | Cable lugs, Splices, Etc | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$500.00 | \$0.00 | \$500.00 | \$30.00 | \$132.50 | \$662.50 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 500 | \$0.00 | \$0.00 | \$0.00 | \$500.00 | \$0.00 | \$0.00 | \$0.00 |
| 515 | 1.2.1.5.3.13 | $18^{\prime \prime} \mathrm{W} 4^{\prime \prime} \mathrm{D} \mathrm{G} \mathrm{StICable} \mathrm{Iray} \mathrm{(DC} \mathrm{and} \mathrm{I} \mathrm{\& C)}$ | SLAC | B\&H | 2 | 3.71 wks | \$0.00 | \$0.00 | \$10,091.20 | \$10,091.20 | \$2,018.24 | \$3,027.36 | \$15,136.80 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 3.71 wks | \$0.00 | \$0.00 | \$0.00 | \$10,091.20 | \$0.00 | \$0.00 | \$0.00 |
| 516 | 1.2.1.5.3.13 | $18^{\prime \prime} \mathrm{W} 4$ "D G Stl Cable Tray (DC and I\&C) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$19,000.00 | \$0.00 | \$19,000.00 | \$1,140.00 | \$5,035.00 | \$25,175.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 19,000 | \$0.00 | \$0.00 | \$0.00 | \$19,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 517 | 1.2.1.5.3.14 | Cable Tray Fittings (DC and I\&C) | SLAC | B \& H | 2 | 0.83 wks | \$0.00 | \$0.00 | \$2,257.60 | \$2,257.60 | \$451.52 | \$677.28 | \$3,386.40 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 0.83 wks | \$0.00 | \$0.00 | \$0.00 | \$2,257.60 | \$0.00 | \$0.00 | \$0.00 |
| 518 | 1.2.1.5.3.14 | Cable Iray Fittings ( DC and IEC ) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC MES Total |  | M 2 S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 519 | 1.2.1.5.3.15 | Trapeze Cable Tray Supports (DC and I\&C) | SLAC | B\&H | 2 | 3.75 wks | \$0.00 | \$0.00 | \$10,200.00 | \$10,200.00 | \$2,040.00 | \$3,060.00 | \$15,300.00 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 3.75 wks | \$0.00 | \$0.00 | \$0.00 | \$10,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 520 | 1.2.1.5.3.15 | Irapeze Cable Iray Supports (DC and I\&C) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC M\&S Iotal |  | M d $^{\text {S }}$ | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 521 | 1.2.1.5.3.16 | Cable Tray Grounding ( DC and $\mathrm{I} \mathrm{C}, \mathbf{\$ 1 . 8 / t )}$ ) | SLAC | B\&H | 2 | 1.33 wks | \$0.00 | \$0.00 | \$3,617.60 | \$3,617.60 | \$723.52 | \$1,085.28 | \$5,426.40 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC T\&M Cratts - Union Electrician |  | BRH | 0 | 1.33 wks | \$0.00 | \$0.00 | \$0.00 | \$3,617.60 | \$0.00 | \$0.00 | \$0.00 |
| 522 | 1.2.1.5.3.16 | Cable Tray Grounding (DC and I\&C, \$1.8/tt) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,600.00 | \$0.00 | \$3,600.00 | \$216.00 | \$954.00 | \$4,770.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 3,600 | \$0.00 | \$0.00 | \$0.00 | \$3,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 523 | 1.2.1.5.3.17 | Gind Jumpers (DC and I\&C) | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,720.00 | \$2,720.00 | \$544.00 | \$816.00 | \$4,080.00 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 524 | 1.2.1.5.3.17 | Gnd Jumpers ( DC and $\mathrm{\& C}$ ) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,500.00 | \$0.00 | \$1,500.00 | \$90.00 | \$397.50 | \$1,987.50 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 1,500 | \$0.00 | \$0.00 | \$0.00 | \$1,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 525 | 1.2.1.5.3.18 | Conduits for Linac penetrations, 4"ID | SLAC | B\&H | 2 | 1.6 wks | \$0.00 | \$0.00 | \$4,352.00 | \$4,352.00 | \$870.40 | \$1,305.60 | \$6,528.00 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 1.6 wks | \$0.00 | \$0.00 | \$0.00 | \$4,352.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 526 | 1.2.1.5.3.18 | Conduits for Linac penetrations, 4"ID | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,200.00 | \$0.00 | \$1,200.00 | \$72.00 | \$318.00 | \$1,590.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,200 | \$0.00 | \$0.00 | \$0.00 | \$1,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 527 | 1.2.1.5.3.19 | Area Layouts/Raceways/Supports (DC and I\&C) | SLAC | ED\& | 2 | 16 wks | \$0.00 | \$0.00 | \$48,000.00 | \$48,000.00 | \$9,600.00 | \$14,400.00 | \$72,000.00 |
|  |  | SLAC PCD:Engineer |  | ED\& | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$48,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 528 | 1.2.1.5.3.20 | Corordination/UIR\&Engr(C. Plant Group, DC and I\&C) | SLAC | ED\& | 2 | 24 wks | \$0.00 | \$0.00 | \$46,080.00 | \$46,080.00 | \$9,216.00 | \$13,824.00 | \$69,120.00 |
|  |  | SLAC PCD:Coordinator Associate |  | ED\& | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$46,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 529 | 1.2.1.5.3.21 | Captar Documentation (DC and I\&C) | SLAC | ED\& | 2 | 8 wks | \$0.00 | \$0.00 | \$15,360.00 | \$15,360.00 | \$3,072.00 | \$4,608.00 | \$23,040.00 |
|  |  | SLAC PCD:Coordinator Associate |  | ED\& | 0 | $8 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$15,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 530 | 1.2.1.6 | Magnets |  |  | 0 | 150.9 wks | \$0.00 | \$92,001.00 | \$372,047.36 | \$464,048.36 | \$79,929.53 | \$158,758.44 | \$702,736.33 |
| 531 | 1.2.1.6.1 | Bend Magnets - 5 D7.1 |  |  | 0 | 12 wks | \$0.00 | \$15,000.00 | \$33,820.16 | \$48,820.16 | \$7,664.03 | \$14,121.05 | \$70,605.24 |
| 532 | 1.2.1.6.1.1 | Magnet Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$900.00 | \$3,975.00 | \$19,875.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 533 | 1.2.1.6.1.2 | Magnet Machining | SLAC | B\&H | 2 | 8 wks | \$0.00 | \$0.00 | \$25,600.00 | \$25,600.00 | \$5,120.00 | \$7,680.00 | \$38,400.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\& ${ }^{\text {H }}$ | 0 | $8 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$25,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 534 | 1.2.1.6.1.3 | Mag Coil Winding | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,199.28 | \$5,996.40 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 535 | 1.2.1.6.1.4 | Magnet Assembly | SLAC | B\&H | 2 | 1.2 wks | \$0.00 | \$0.00 | \$2,398.56 | \$2,398.56 | \$479.71 | \$719.57 | \$3,597.84 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,398.56 | \$0.00 | \$0.00 | \$0.00 |
| 536 | 1.2.1.6.1.5 | Fiducialization | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$912.00 | \$912.00 | \$182.40 | \$273.60 | \$1,368.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | BKH | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$912.00 | \$0.00 | \$0.00 | \$0.00 |
| 537 | 1.2.1.6.1.6 | Mag Measure | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$912.00 | \$912.00 | \$182.40 | \$273.60 | \$1,368.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$912.00 | \$0.00 | \$0.00 | \$0.00 |
| 538 | 1.2.1.6.2 | Quadrupoles - 105.6 |  |  | 0 | 45 wks | \$0.00 | \$45,000.00 | \$123,390.72 | \$168,390.72 | \$27,378.14 | \$48,942.22 | \$244,711.08 |
| 539 | 1.2.1.6.2.1 | Magnet Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$45,000.00 | \$0.00 | \$45,000.00 | \$2,700.00 | \$11,925.00 | \$59,625.00 |
|  |  | SLAC MXS Iotal |  | M\&S | 0 | 45,000 | \$0.00 | \$0.00 | \$0.00 | \$45,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 540 | 1.2.1.6.2.2 | Magnet Machining | SLAC | B\&H | 2 | 27 wks | \$0.00 | \$0.00 | \$86,400.00 | \$86,400.00 | \$17,280.00 | \$25,920.00 | \$129,600.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 27 wks | \$0.00 | \$0.00 | \$0.00 | \$86,400.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 541 | 1.2.1.6.2.3 | Mag Coil Winding | SLAC | B\&H | 2 | 9 wks | \$0.00 | \$0.00 | \$17,989.20 | \$17,989.20 | \$3,597.84 | \$5,396.76 | \$26,983.80 |
|  |  | SLAC Mech. rab: Assembly lech |  | B\&H | 0 | 9 wks | \$0.00 | \$0.00 | \$0.00 | \$17,989.20 | \$0.00 | \$0.00 | \$0.00 |
| 542 | 1.2.1.6.2.4 | Magnet Assembly | SLAC | B\&H | 2 | 5.4 wks | \$0.00 | \$0.00 | \$10,793.52 | \$10,793.52 | \$2,158.70 | \$3,238.06 | \$16,190.28 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 5.4 wks | \$0.00 | \$0.00 | \$0.00 | \$10,793.52 | \$0.00 | \$0.00 | \$0.00 |
| 543 | 1.2.1.6.2.5 | Fiducialization | SLAC | B\&H | 2 | 1.8 wks | \$0.00 | \$0.00 | \$4,104.00 | \$4,104.00 | \$820.80 | \$1,231.20 | \$6,156.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1.8 wks | \$0.00 | \$0.00 | \$0.00 | \$4,104.00 | \$0.00 | \$0.00 | \$0.00 |
| 544 | 1.2.1.6.2.6 | Mag Measure | SLAC | B\&H | 2 | 1.8 wks | \$0.00 | \$0.00 | \$4,104.00 | \$4,104.00 | \$820.80 | \$1,231.20 | \$6,156.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1.8 wks | \$0.00 | \$0.00 | \$0.00 | \$4,104.00 | \$0.00 | \$0.00 | \$0.00 |
| 545 | 1.2.1.6.3 | Gun Solenoid |  |  | 0 | 54.5 wks | \$0.00 | \$5,000.00 | \$113,698.80 | \$118,698.80 | \$23,039.76 | \$58,198.61 | \$199,937.17 |
| 546 | 1.2.1.6.3.1 | Magnet Materials | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$795.00 | \$6,095.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 547 | 1.2.1.6.3.2 | Magnet Assembly | SLAC | B\&H | 4 | 44 wks | \$0.00 | \$0.00 | \$87,947.20 | \$87,947.20 | \$17,589.44 | \$52,768.32 | \$158,304.96 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 44 wks | \$0.00 | \$0.00 | \$0.00 | \$87,947.20 | \$0.00 | \$0.00 | \$0.00 |
| 548 | 1.2.1.6.3.3 | Proc., Man. \& Assembly Supervision | SLAC | ED\& | 1 | 3.5 wks | \$0.00 | \$0.00 | \$11,760.00 | \$11,760.00 | \$2,352.00 | \$2,116.80 | \$16,228.80 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | 3.5 wks | \$0.00 | \$0.00 | \$0.00 | \$11,760.00 | \$0.00 | \$0.00 | \$0.00 |
| 549 | 1.2.1.6.3.4 | Magnet Tests in Lab | SLAC | B\&H | 1 | 7 wks | \$0.00 | \$0.00 | \$13,991.60 | \$13,991.60 | \$2,798.32 | \$2,518.49 | \$19,308.41 |
|  |  | SLAC Mech. Fab: Assembly lech |  | BKH | 0 | 7 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$13,991.60 | \$0.00 | \$0.00 | \$0.00 |
| 550 | 1.2.1.6.4 | Linac Solenoid |  |  | 0 | 12 wks | \$0.00 | \$1.00 | \$25,346.80 | \$25,347.80 | \$5,069.42 | \$7,604.31 | \$38,021.53 |
| 551 | 1.2.1.6.4.1 | Magnet materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.27 | \$1.33 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 552 | 1.2.1.6.4.2 | Magnet assembly | SLAC | B\&H | 2 | 10 wks | \$0.00 | \$0.00 | \$19,988.00 | \$19,988.00 | \$3,997.60 | \$5,996.40 | \$29,982.00 |
|  |  | SLAC Mech. Fab: Assembly lech |  | BKH | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$19,988.00 | \$0.00 | \$0.00 | \$0.00 |
| 553 | 1.2.1.6.4.3 | Supervision | SLAC | ED\& | 2 | 1 wk | \$0.00 | \$0.00 | \$3,360.00 | \$3,360.00 | \$672.00 | \$1,008.00 | \$5,040.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 554 | 1.2.1.6.4.4 | Lab Testing | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$599.64 | \$2,998.20 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 555 | 1.2.1.6.5 | Correctors |  |  | 0 | 15.4 wks | \$0.00 | \$11,000.00 | \$41,970.72 | \$52,970.72 | \$9,054.14 | \$15,506.22 | \$77,531.08 |
| 556 | 1.2.1.6.5.1 | Magnet Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$11,000.00 | \$0.00 | \$11,000.00 | \$660.00 | \$2,915.00 | \$14,575.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 11,000 | \$0.00 | \$0.00 | \$0.00 | \$11,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 557 | 1.2.1.6.5.2 | Magnet Machining | SLAC | B\&H | 2 | 8.8 wks | \$0.00 | \$0.00 | \$28,160.00 | \$28,160.00 | \$5,632.00 | \$8,448.00 | \$42,240.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 8.8 wks | \$0.00 | \$0.00 | \$0.00 | \$28,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 558 | 1.2.1.6.5.3 | Mag Coil Winding | SLAC | B\&H | 2 | 2.2 wks | \$0.00 | \$0.00 | \$4,397.36 | \$4,397.36 | \$879.47 | \$1,319.21 | \$6,596.04 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 2.2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,397.36 | \$0.00 | \$0.00 | \$0.00 |
| 559 | 1.2.1.6.5.4 | Magnet Assembly | SLAC | B\&H | 2 | 2.2 wks | \$0.00 | \$0.00 | \$4,397.36 | \$4,397.36 | \$879.47 | \$1,319.21 | \$6,596.04 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 2.2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,397.36 | \$0.00 | \$0.00 | \$0.00 |
| 560 | 1.2.1.6.5.5 | Mag Measure | SLAC | B\&H | 2 | 2.2 wks | \$0.00 | \$0.00 | \$5,016.00 | \$5,016.00 | \$1,003.20 | \$1,504.80 | \$7,524.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 2.2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,016.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 561 | 1.2.1.6.6 | Gun E Spectrometer |  |  | 0 | 6 wks | \$0.00 | \$8,000.00 | \$16,910.08 | \$24,910.08 | \$3,862.02 | \$7,193.02 | \$35,965.12 |
| 562 | 1.2.1.6.6.1 | Magnet Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$2,120.00 | \$10,600.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 563 | 1.2.1.6.6.2 | Magnet Machining | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$12,800.00 | \$12,800.00 | \$2,560.00 | \$3,840.00 | \$19,200.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$12,800.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 564 | 1.2.1.6.6.2 | Magnet Coil Winding | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$599.64 | \$2,998.20 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 565 | 1.2.1.6.6.3 | Magnet Assembly | SLAC | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,199.28 | \$1,199.28 | \$239.86 | \$359.78 | \$1,798.92 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,199.28 | \$0.00 | \$0.00 | \$0.00 |
| 566 | 1.2.1.6.6.3 | Fiducialization | SLAC | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$456.00 | \$456.00 | \$91.20 | \$136.80 | \$684.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$456.00 | \$0.00 | \$0.00 | \$0.00 |
| 567 | 1.2.1.6.6.4 | Mag Measure | SLAC | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$456.00 | \$456.00 | \$91.20 | \$136.80 | \$684.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$456.00 | \$0.00 | \$0.00 | \$0.00 |
| 568 | 1.2.1.6.7 | Straight Ahead E Spectrometer |  |  | 0 | 6 wks | \$0.00 | \$8,000.00 | \$16,910.08 | \$24,910.08 | \$3,862.02 | \$7,193.02 | \$35,965.12 |
| 569 | 1.2.1.6.7.1 | Magnet Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$2,120.00 | \$10,600.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 570 | 1.2.1.6.7.2 | Magnet Machining | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$12,800.00 | \$12,800.00 | \$2,560.00 | \$3,840.00 | \$19,200.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$12,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 571 | 1.2.1.6.7.3 | Magnet Coil Winding | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$599.64 | \$2,998.20 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 572 | 1.2.1.6.7.4 | Magnet Assembly | SLAC | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,199.28 | \$1,199.28 | \$239.86 | \$359.78 | \$1,798.92 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,199.28 | \$0.00 | \$0.00 | \$0.00 |
| 573 | 1.2.1.6.7.5 | Fiducialization | SLAC | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$456.00 | \$456.00 | \$91.20 | \$136.80 | \$684.00 |
|  |  | SLAC Metrology:Eng. \& Surveyors |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$456.00 | \$0.00 | \$0.00 | \$0.00 |
| 574 | 1.2.1.6.7.6 | Mag Measure | SLAC | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$456.00 | \$456.00 | \$91.20 | \$136.80 | \$684.00 |
|  |  | SLAC Metrology:Eng. \& Surveyors |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$456.00 | \$0.00 | \$0.00 | \$0.00 |
| 575 | 1.2.1.7 | Controls |  |  | 0 | 227.1 wks | \$0.00 | \$696,000.00 | \$556,024.42 | \$1,252,024.42 | \$152,964.88 | \$441,338.93 | \$1,846,328.23 |
| 576 | 1.2.1.7.1 | Computers \& Crates |  |  | 0 | 56.3 wks | \$0.00 | \$116,400.00 | \$138,962.56 | \$255,362.56 | \$34,776.51 | \$82,626.15 | \$372,765.22 |
| 577 | 1.2.1.7.1.1 | VME Crates, IOC's \& Intertace Chassis (3) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$11,000.00 | \$0.00 | \$11,000.00 | \$660.00 | \$2,915.00 | \$14,575.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 11,000 | \$0.00 | \$0.00 | \$0.00 | \$11,000.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 578 | 1.2.1.7.1.1 | Install VME Crates, IOC's \& Intertace Chassis | SLAC | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,052.16 | \$1,052.16 | \$210.43 | \$315.65 | \$1,578.24 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,052.16 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | Page 30 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| $579$ | 1.2.1.7.1.1 | Cableplant | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$53.00 | \$265.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 580 | 1.2.1.7.1.1 | Multibus Crate w/ CPU \& cards | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$45,000.00 | \$0.00 | \$45,000.00 | \$2,700.00 | \$0.00 | \$47,700.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 45,000 | \$0.00 | \$0.00 | \$0.00 | \$45,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 581 | 1.2.1.7.1.1 | Assemble \& Test Multibus Crate w/ CPU \& cards | SLAC | B\&H | 3 | 1.5 wks | \$0.00 | \$0.00 | \$2,630.40 | \$2,630.40 | \$526.08 | \$1,104.77 | \$4,261.25 |
|  |  | SLAC Controls: Technician |  | BRH | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$2,630.40 | \$0.00 | \$0.00 | \$0.00 |
| 582 | 1.2.1.7.1.1 | Cable Fab | SLAC | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$400.00 | \$400.00 | \$80.00 | \$120.00 | \$600.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 583 | 1.2.1.7.1.1 | Mutibus Cableplant | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$600.00 | \$0.00 | \$600.00 | \$36.00 | \$159.00 | \$795.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 600 | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | \$0.00 | \$0.00 |
| 584 | 1.2.1.7.1.1 | CAMAC Crates, Control \& Support Modules | SLAC | ED\& | 3 | 52 wks | \$0.00 | \$0.00 | \$131,372.80 | \$131,372.80 | \$26,274.56 | \$55,176.58 | \$212,823.94 |
|  |  | SLAC Controls: Programmer |  | ED\&1 | 0 | 52 wks | \$0.00 | \$0.00 | \$0.00 | \$131,372.80 | \$0.00 | \$0.00 | \$0.00 |
| 585 | 1.2.1.7.1.1 | CAMAC Crates, Control \& Support Modules | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$56,000.00 | \$0.00 | \$56,000.00 | \$3,360.00 | \$20,776.00 | \$80,136.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 56,000 | \$0.00 | \$0.00 | \$0.00 | \$56,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 586 | 1.2.1.7.1.1 | Install CAMAC Crates, CTL \& Support Modules | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,507.20 | \$3,507.20 | \$701.44 | \$1,052.16 | \$5,260.80 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,507.20 | \$0.00 | \$0.00 | \$0.00 |
| 587 | 1.2.1.7.1.1 | CAMAC System Cableplant | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$3,600.00 | \$0.00 | \$3,600.00 | \$216.00 | \$954.00 | \$4,770.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 3,600 | \$0.00 | \$0.00 | \$0.00 | \$3,600.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 588 | 1.2.1.7.2 | TIMING DISTRIBUTION SYSTEM-CAMAC |  |  | 0 | 100.5 wks | \$0.00 | \$45,000.00 | \$253,516.80 | \$298,516.80 | \$53,403.36 | \$171,722.04 | \$523,642.20 |
| 589 | 1.2.1.7.2.1 | Master \& Distributed Timing Hardware | SLAC | M 2 S | 4 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$1,800.00 | \$15,900.00 | \$47,700.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 590 | 1.2.1.7.2.1 | Software \& Timing Interface | SLAC | ED\& | 4 | 100 wks | \$0.00 | \$0.00 | \$252,640.00 | \$252,640.00 | \$50,528.00 | \$151,584.00 | \$454,752.00 |
|  |  | SLAC Controls: Programmer |  | ED\& | 0 | 100 wks | \$0.00 | \$0.00 | \$0.00 | \$252,640.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 591 | 1.2.1.7.2.1 | Install M\&D IIming System Hardware | SLAC | B\&H | 2 | 0.5 wks | \$0.00 | \$0.00 | \$876.80 | \$876.80 | \$175.36 | \$263.04 | \$1,315.20 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$876.80 | \$0.00 | \$0.00 | \$0.00 |
| 592 | 1.2.1.7.2.1 | Timing System Heliax Cableplant | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$900.00 | \$3,975.00 | \$19,875.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 593 | 1.2.1.7.3 | LCLS VACUUM SYSTEM (11) |  |  | 0 | 0.97 wks | \$0.00 | \$135,400.00 | \$1,723.17 | \$137,123.17 | \$8,468.63 | \$26,544.86 | \$172,136.66 |
| 594 | 1.2.1.7.3.1 | Programmed Multi Valve Controller Ch. 6 Chnl. (2) | SLAC | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$350.72 | \$350.72 | \$70.14 | \$105.22 | \$526.08 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$350.72 | \$0.00 | \$0.00 | \$0.00 |
| 595 | 1.2.1.7.3.1 | Programmed Multi Valve Controller Ch. 6 Chnl. (2) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$5,300.00 | \$26,500.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 596 | 1.2.1.7.3.2 | Valve Controller J-Box (11) | SLAC | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$350.72 | \$350.72 | \$70.14 | \$63.13 | \$483.99 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$350.72 | \$0.00 | \$0.00 | \$0.00 |
| 597 | 1.2.1.7.3.2 | Valve Controller J-Box (11) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 598 | 1.2.1.7.3.3 | Fast Valve Controller (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 599 | 1.2.1.7.3.3 | Fast Valve Controller (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$795.00 | \$6,095.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 600 | 1.2.1.7.3.4 | Vacuum Guage Controller Chassis (10) | SLAC | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$350.72 | \$350.72 | \$70.14 | \$63.13 | \$483.99 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$350.72 | \$0.00 | \$0.00 | \$0.00 |
| 601 | 1.2.1.7.3.4 | Vacuum Guage Controller Chassis (10) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$1,800.00 | \$4,770.00 | \$36,570.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 602 | 1.2.1.7.3.5 | Vacuum Pump Power Supplies (10) | SLAC | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$350.72 | \$350.72 | \$70.14 | \$63.13 | \$483.99 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$350.72 | \$0.00 | \$0.00 | \$0.00 |
| 603 | 1.2.1.7.3.5 | Vacuum Pump Power Supplies (10) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$35,000.00 | \$0.00 | \$35,000.00 | \$2,100.00 | \$5,565.00 | \$42,665.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 35,000 | \$0.00 | \$0.00 | \$0.00 | \$35,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 604 | 1.2.1.7.3.6 | CAMAC Module, SAM (2) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 605 | 1.2.1.7.3.6 | CAMAC Module, SAM (2) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$720.00 | \$1,908.00 | \$14,628.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 606 | 1.2.1.7.3.7 | CAMAC MOdule, IDOM (6) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: lechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 607 | 1.2.1.7.3.7 | CAMAC Module, IDOM (6) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$1,272.00 | \$9,752.00 |
|  |  | SLAC M\&S Total |  | M $\mathrm{L}^{\text {S }}$ | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 608 | 1.2.1.7.3.8 | CAMAC Module, IDIM (6) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 609 | 1.2.1.7.3.8 | CAMAC Module, IDIM (6) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$540.00 | \$1,431.00 | \$10,971.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 610 | 1.2.1.7.3.9 | Delete 2-ch Valve Controller | SLAC |  | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 611 | 1.2.1.7.3.10 | Valve Control Cable (250') | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$2,226.00 | \$8,586.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 612 | 1.2.1.7.3.11 | Vacuum Guage Cable (coax) (250) | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,113.00 | \$4,293.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 613 | 1.2.1.7.3.12 | Valve Controller J-Box Cable (20) | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,113.00 | \$4,293.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 614 | 1.2.1.7.3.13 | CAMAC cable SAM (3) | SLAC | B\&H | 1 | 0.03 wks | \$0.00 | \$0.00 | \$60.00 | \$60.00 | \$12.00 | \$10.80 | \$82.80 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.03 wks | \$0.00 | \$0.00 | \$0.00 | \$60.00 | \$0.00 | \$0.00 | \$0.00 |
| 615 | 1.2.1.7.3.13 | CAMAC cable SAM (3) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 616 | 1.2.1.7.3.14 | CAMAC cable IDOM (2) | SLAC | B\&H | 1 | 0.03 wks | \$0.00 | \$0.00 | \$60.00 | \$60.00 | \$12.00 | \$10.80 | \$82.80 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.03 wks | \$0.00 | \$0.00 | \$0.00 | \$60.00 | \$0.00 | \$0.00 | \$0.00 |
| 617 | 1.2.1.7.3.14 | CAMAC cable IDOM (2) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$400.00 | \$0.00 | \$400.00 | \$24.00 | \$63.60 | \$487.60 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 400 | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 618 | 1.2.1.7.3.15 | CAMAC cable IDIM | SLAC | B\&H | 1 | 0.03 wks | \$0.00 | \$0.00 | \$60.00 | \$60.00 | \$12.00 | \$10.80 | \$82.80 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.03 wks | \$0.00 | \$0.00 | \$0.00 | \$60.00 | \$0.00 | \$0.00 | \$0.00 |
| 619 | 1.2.1.7.3.15 | CAMAC cable IDIM | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 620 | 1.2.1.7.4 | TUNE-UP DUMPS (1) |  |  | 0 | 0.15 wks | \$0.00 | \$8,500.00 | \$285.22 | \$8,785.22 | \$567.04 | \$1,402.84 | \$10,755.10 |
| 621 | 1.2.1.7.4.1 | IDIM Module 2) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 622 | 1.2.1.7.4.1 | IDIM Module 2) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 623 | 1.2.1.7.4.2 | IDOM Module (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 624 | 1.2.1.7.4.2 | IDOM Module (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 625 | 1.2.1.7.4.3 | Protile Monitor Chassis (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 626 | 1.2.1.7.4.3 | Profile Monitor Chassis (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$636.00 | \$4,876.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 627 | 1.2.1.7.4.4 | Muti-conductor (21C/16GA-CONI\&STAI) (2) | SLAC |  | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 628 | 1.2.1.7.4.5 | CAMAC cable IDIM (2) | SLAC | B\&H | 1 | 0.03 wks | \$0.00 | \$0.00 | \$60.00 | \$60.00 | \$12.00 | \$10.80 | \$82.80 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.03 wks | \$0.00 | \$0.00 | \$0.00 | \$60.00 | \$0.00 | \$0.00 | \$0.00 |
| 629 | 1.2.1.7.4.5 | CAMAC cable IDIM (2) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$31.80 | \$243.80 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 630 | 1.2.1.7.4.6 | CAMAC Cable IDOM (1) | SLAC | B\&H | 1 | 0.03 wks | \$0.00 | \$0.00 | \$60.00 | \$60.00 | \$12.00 | \$10.80 | \$82.80 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.03 wks | \$0.00 | \$0.00 | \$0.00 | \$60.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 631 | 1.2.1.7.4.6 | CAMAC cable IDOM (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$31.80 | \$243.80 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 632 | 1.2.1.7.4.7 | WIRING OF ID ASSEMBLY IN LAB (1) | SLAC | B\&H | 1 | 0.03 wks | \$0.00 | \$0.00 | \$60.00 | \$60.00 | \$12.00 | \$10.80 | \$82.80 |
|  |  | SLACL PCD:Inst-Cabing-Elec Fab |  | B\&H | 0 | 0.03 wks | \$0.00 | \$0.00 | \$0.00 | \$60.00 | \$0.00 | \$0.00 | \$0.00 |
| 633 | 1.2.1.7.4.7 | WIRING OF ID ASSEMBLY INLAB (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$100.00 | \$0.00 | \$100.00 | \$6.00 | \$15.90 | \$121.90 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 100 | \$0.00 | \$0.00 | \$0.00 | \$100.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | Page 33 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 634 | 1.2.1.7.5 | WIRE SCANNERS (4) |  |  | Rus | 1.24 wks | \$0.00 | \$38,000.00 | \$2,194.18 | \$40,194.18 | \$2,718.84 | \$10,493.02 | \$53,406.03 |
| 635 | 1.2.1.7.5.1 | Power Supply EMI 20v@50A (1) | SLAC | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$350.72 | \$350.72 | \$70.14 | \$63.13 | \$483.99 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$350.72 | \$0.00 | \$0.00 | \$0.00 |
| 636 | 1.2.1.7.5.1 | Power Supply EMI 20v@50A (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,200.00 | \$0.00 | \$1,200.00 | \$72.00 | \$190.80 | \$1,462.80 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 1,200 | \$0.00 | \$0.00 | \$0.00 | \$1,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 637 | 1.2.1.7.5.2 | DATRONICS Controller (MN 10k-1) (1) | SLAC | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$350.72 | \$350.72 | \$70.14 | \$63.13 | \$483.99 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$350.72 | \$0.00 | \$0.00 | \$0.00 |
| 638 | 1.2.1.7.5.2 | DAIRONICS Controller (MN 10k-1) (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$3,500.00 | \$0.00 | \$3,500.00 | \$210.00 | \$556.50 | \$4,266.50 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 3,500 | \$0.00 | \$0.00 | \$0.00 | \$3,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 639 | 1.2.1.7.5.3 | LVDT PCB (2) | SLAC | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$350.72 | \$350.72 | \$70.14 | \$105.22 | \$526.08 |
|  |  | SLAC Controls: Technician |  | BRH | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$350.72 | \$0.00 | \$0.00 | \$0.00 |
| 640 | 1.2.1.7.5.3 | LVDT PCB (2) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,200.00 | \$0.00 | \$1,200.00 | \$72.00 | \$318.00 | \$1,590.00 |
|  |  | SLAC M\&S Iotal |  | M LS $^{\text {S }}$ | 0 | 1,200 | \$0.00 | \$0.00 | \$0.00 | \$1,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 641 | 1.2.1.7.5.4 | LVDI Unit (4) | SLAC | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$350.72 | \$350.72 | \$70.14 | \$105.22 | \$526.08 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$350.72 | \$0.00 | \$0.00 | \$0.00 |
| 642 | 1.2.1.7.5.4 | LVDT Unit (4) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,400.00 | \$0.00 | \$2,400.00 | \$144.00 | \$636.00 | \$3,180.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 2,400 | \$0.00 | \$0.00 | \$0.00 | \$2,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 643 | 1.2.1.7.5.5 | 10 Channel Resistor Intertace Chassis (1) | SLAC | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$350.72 | \$350.72 | \$70.14 | \$105.22 | \$526.08 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$350.72 | \$0.00 | \$0.00 | \$0.00 |
| 644 | 1.2.1.7.5.5 | 10 Channel Resistor Interface Chassis (1) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,700.00 | \$0.00 | \$1,700.00 | \$102.00 | \$450.50 | \$2,252.50 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,700 | \$0.00 | \$0.00 | \$0.00 | \$1,700.00 | \$0.00 | \$0.00 | \$0.00 |
| 645 | 1.2.1.7.5.6 | CAMAC Module, SAM (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Iechnician |  | B\& H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 646 | 1.2.1.7.5.6 | CAMAC Module, SAM (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,900.00 | \$0.00 | \$1,900.00 | \$114.00 | \$302.10 | \$2,316.10 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,900 | \$0.00 | \$0.00 | \$0.00 | \$1,900.00 | \$0.00 | \$0.00 | \$0.00 |
| 647 | 1.2.1.7.5.7 | CAMAC Module, GADC (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 648 | 1.2.1.7.5.7 | CAMAC Module, GADC (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,800.00 | \$0.00 | \$2,800.00 | \$168.00 | \$445.20 | \$3,413.20 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 2,800 | \$0.00 | \$0.00 | $\$ 0.00$ | \$2,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 649 | 1.2.1.7.5.8 | CAMAC Module, PDGG (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 650 | 1.2.1.7.5.8 | CAMAC Module, PDGG (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,500.00 | \$0.00 | \$1,500.00 | \$90.00 | \$238.50 | \$1,828.50 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 1,500 | \$0.00 | \$0.00 | \$0.00 | \$1,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 651 | 1.2.1.7.5.9 | CAMAC Module, DAC (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  | Page 34 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | cWbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| $652$ | 1.2.1.7.5.9 | CAMAC Module, DAC (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,200.00 | \$0.00 | \$2,200.00 | \$132.00 | \$349.80 | \$2,681.80 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,200 | \$0.00 | \$0.00 | \$0.00 | \$2,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 653 | 1.2.1.7.5.10 | CAMAC Module,Stepper Motor Controller, SMC-24BP (4) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 654 | 1.2.1.7.5.10 | CAMAC Module,Stepper Motor Controller, SMC-24BP (4) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$954.00 | \$7,314.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 655 | 1.2.1.7.5.11 | 16 Channel Interface Chassis (1) | SLAC | $\mathrm{B} \& \mathrm{H}$ | 2 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$10.52 | \$52.61 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 656 | 1.2.1.7.5.11 | 16 Channel Intertace Chassis (1) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC MES Total |  | M ${ }_{\text {d }}$ S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 657 | 1.2.1.7.5.12 | HV P.S., 8 CH. BEAMSTRAHLUNG CH. (1) | SLAC | $\mathrm{B} \& \mathrm{H}$ | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 658 | 1.2.1.7.5.12 | HV P.S., 8 CH. BEAMSTRAHLUNG CH. (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 659 | 1.2.1.7.5.13 | Photo-multiplier Tube Electronics Assem., Phillips (4) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 660 | 1.2.1.7.5.13 | Photo-multiplier Tube Electronics Assem., Phillips (4) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 661 | 1.2.1.7.5.14 | RG58 to PMI 250' | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$1,200.00 | \$0.00 | \$1,200.00 | \$72.00 | \$636.00 | \$1,908.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,200 | \$0.00 | \$0.00 | \$0.00 | \$1,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 662 | 1.2.1.7.5.15 | MULTI-COND (4PR) DATRONIC TO LVDT 250' | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$1,060.00 | \$3,180.00 |
|  |  | SLAC MES Total |  | M ${ }_{\text {d }}$ S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 663 | 1.2.1.7.5.16 | MULII-COND (12/C) REST. CH. IO SMC MODULE | SLAC | B\&H | 4 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$24.00 | \$72.00 |
|  |  | SLACL PCD:IInst-Cabling-Elec Fab |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 664 | 1.2.1.7.5.16 | MULTI-COND (12/C) REST. CH. TO SMC MODULE | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$800.00 | \$0.00 | \$800.00 | \$48.00 | \$424.00 | \$1,272.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 800 | \$0.00 | \$0.00 | \$0.00 | \$800.00 | \$0.00 | \$0.00 | \$0.00 |
| 665 | 1.2.1.7.5.17 | MULTI-COND (12/C) REST. CH. TO WIRE SCANNER | SLAC | B\&H | 4 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$24.00 | \$72.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 666 | 1.2.1.7.5.17 | MULII-COND (12/C) RESI. CH. IO WIRE SCANNER | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$1,600.00 | \$0.00 | \$1,600.00 | \$96.00 | \$848.00 | \$2,544.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,600 | \$0.00 | \$0.00 | \$0.00 | \$1,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 667 | 1.2.1.7.5.18 | CAMAC CABLE (36/C) 16 CHNL DIST. TO SAM | SLAC | B\&H | 4 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$24.00 | \$72.00 |
|  |  | SLACL PCD:IInst-Cabling-Elec Fab |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 668 | 1.2.1.7.5.18 | CAMAC CABLE (36/C) 16 CHNL DIST. 10 SAM | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$600.00 | \$0.00 | \$600.00 | \$36.00 | \$318.00 | \$954.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 600 | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | \$0.00 | \$0.00 |
| 669 | 1.2.1.7.5.19 | SINGLE-COND P.S. TO REST. CH. | SLAC | B\&H | 4 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$24.00 | \$72.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 670 | 1.2.1.7.5.20 | SINGLE-COND P.S. TO REST. CH. | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$400.00 | \$0.00 | \$400.00 | \$24.00 | \$212.00 | \$636.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }^{\text {S }}$ S | 0 | 400 | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 671 | 1.2.1.7.5.21 | WIRING OF WIRE SCANNER ASSEMBLY INLAB (4) | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$1,060.00 | \$3,180.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 672 | 1.2.1.7.6 | BEAM POSITION MONITORS (13) |  |  | 0 | 4.2 wks | \$0.00 | \$87,000.00 | \$8,400.00 | \$95,400.00 | \$6,900.00 | \$26,902.00 | \$129,202.00 |
| 673 | 1.2.1.7.6.1 | BPM Processor Modules | SLAC | ED\& | 2 | 0.2 wks | \$0.00 | \$0.00 | \$400.00 | \$400.00 | \$80.00 | \$120.00 | \$600.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 674 | 1.2.1.7.6.1 | BPM Processor Modules | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$28,000.00 | \$0.00 | \$28,000.00 | \$1,680.00 | \$7,420.00 | \$37,100.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 28,000 | \$0.00 | \$0.00 | \$0.00 | \$28,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 675 | 1.2.1.7.6.2 | Head Amplifier Chassis | SLAC | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$300.00 | \$300.00 | \$60.00 | \$54.00 | \$414.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&/ | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$300.00 | \$0.00 | \$0.00 | \$0.00 |
| 676 | 1.2.1.7.6.2 | Head Amplitier Chassis | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }_{\text {d }}$ S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 677 | 1.2.1.7.6.3 | Head Amplifier Modules | SLAC | ED\& | 2 | 0.15 wks | \$0.00 | \$0.00 | \$300.00 | \$300.00 | \$60.00 | \$90.00 | \$450.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$300.00 | \$0.00 | \$0.00 | \$0.00 |
| 678 | 1.2.1.7.6.3 | Head Amplifier Modules | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$28,000.00 | \$0.00 | \$28,000.00 | \$1,680.00 | \$7,420.00 | \$37,100.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 28,000 | \$0.00 | \$0.00 | \$0.00 | \$28,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 679 | 1.2.1.7.6.4 | Iest Pulse Generator Modules | SLAC | ED\& | 1 | 0.2 wks | \$0.00 | \$0.00 | \$400.00 | \$400.00 | \$80.00 | \$72.00 | \$552.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 680 | 1.2.1.7.6.4 | Test Pulse Generator Modules | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$21,000.00 | \$0.00 | \$21,000.00 | \$1,260.00 | \$3,339.00 | \$25,599.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 21,000 | \$0.00 | \$0.00 | \$0.00 | \$21,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 681 | 1.2.1.7.6.5 | Controls lechnician | SLAC | ED\&I | 4 | 2 wks | \$0.00 | \$0.00 | \$4,000.00 | \$4,000.00 | \$800.00 | \$2,400.00 | \$7,200.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 682 | 1.2.1.7.6.6 | RG233 (4 ea BPM, timed\&matched, 200') | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$2,120.00 | \$6,360.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 683 | 1.2.1.7.6.7 | RG233 pigtails (8 ea BPM , timed\&matched, 10) | SLAC | B\&H | 4 | 0.2 wks | \$0.00 | \$0.00 | \$400.00 | \$400.00 | \$80.00 | \$240.00 | \$720.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 684 | 1.2.1.7.6.7 | RG233 pigtails (8 ea BPM, timed\&matched, 10) | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,590.00 | \$4,770.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 685 | 1.2.1.7.6.8 | Technician BPM initial calibration | SLAC | ED\& | 4 | 1.3 wks | \$0.00 | \$0.00 | \$2,600.00 | \$2,600.00 | \$520.00 | \$1,560.00 | \$4,680.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 1.3 wks | \$0.00 | \$0.00 | \$0.00 | \$2,600.00 | $\$ 0.00$ | $\$ 0.00$ | \$0.00 |
| 686 | 1.2.1.7.7 | TOROIDS (6) |  |  | 0 | 3.6 wks | \$0.00 | \$41,000.00 | \$6,744.16 | \$47,744.16 | \$3,808.83 | \$7,732.95 | \$59,285.94 |
| 687 | 1.2.1.7.7.1 | CAMAC Module, ICM (6) | SLAC | ED\& | 1 | 0.5 wks | \$0.00 | \$0.00 | \$1,000.00 | \$1,000.00 | \$200.00 | \$180.00 | \$1,380.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | Page 36 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | cWbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 688 | 1.2.1.7.7.1 | CAMAC Module, TCM (6) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$13,000.00 | \$0.00 | \$13,000.00 | \$780.00 | \$2,067.00 | \$15,847.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 13,000 | \$0.00 | \$0.00 | \$0.00 | \$13,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 689 | 1.2.1.7.7.2 | ICM PreAmps (6) | SLAC | ED\& | 1 | 0.25 wks | \$0.00 | \$0.00 | \$500.00 | \$500.00 | \$100.00 | \$90.00 | \$690.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&1 | 0 | 0.25 wks | \$0.00 | \$0.00 | \$0.00 | \$500.00 | \$0.00 | \$0.00 | \$0.00 |
| 690 | 1.2.1.7.7.2 | TCM PreAmps (6) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$18,000.00 | \$0.00 | \$18,000.00 | \$1,080.00 | \$2,862.00 | \$21,942.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 18,000 | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 691 | 1.2.1.7.7.3 | Lead Shielding (12 Bricks/Unit) (6) | SLAC | B\&H | 1 | 1 wk | \$0.00 | \$0.00 | \$2,000.00 | \$2,000.00 | \$400.00 | \$360.00 | \$2,760.00 |
|  |  | SLACL PCD:IInst-Cabling-Elec Fab |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 692 | 1.2.1.7.7.3 | Lead Shielding (12 Bricks/Unit) (6) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 693 | 1.2.1.7.7.4 | Steel Covers (6) | SLAC | B\&H | 1 | 1.05 wks | \$0.00 | \$0.00 | \$1,841.28 | \$1,841.28 | \$368.26 | \$331.43 | \$2,540.97 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 1.05 wks | \$0.00 | \$0.00 | \$0.00 | \$1,841.28 | \$0.00 | \$0.00 | \$0.00 |
| 694 | 1.2.1.7.7.4 | Steel Covers (6) | SLAC | M $\mathrm{S}^{\text {S }}$ | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 695 | 1.2.1.7.7.5 | Plattorms (6) | SLAC | B\&H | 1 | 0.74 wks | \$0.00 | \$0.00 | \$1,297.66 | \$1,297.66 | \$259.53 | \$233.58 | \$1,790.78 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.74 wks | \$0.00 | \$0.00 | \$0.00 | \$1,297.66 | \$0.00 | \$0.00 | \$0.00 |
| 696 | 1.2.1.7.7.5 | Platforms (6) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$600.00 | \$0.00 | \$600.00 | \$36.00 | \$95.40 | \$731.40 |
|  |  | SLAC M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 600 | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | \$0.00 | \$0.00 |
| 697 | 1.2.1.7.7.6 | Adapter Box, RG22 to I winax (2 each toroid) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 698 | 1.2.1.7.7.6 | Adapter Box, RG22 to Twinax (2 each toroid) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,200.00 | \$0.00 | \$1,200.00 | \$72.00 | \$190.80 | \$1,462.80 |
|  |  | SLAC M2S Total |  | M2S | 0 | 1,200 | \$0.00 | \$0.00 | \$0.00 | \$1,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 699 | 1.2.1.7.7.7 | RG22, ICM PreAmp to Ioroid (1 each toroid)) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: lechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 700 | 1.2.1.7.7.7 | RG22, TCM PreAmp to Toroid (1 each toroid)) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$600.00 | \$0.00 | \$600.00 | \$36.00 | \$95.40 | \$731.40 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 600 | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | \$0.00 | \$0.00 |
| 701 | 1.2.1.7.7.8 | RG214, TCM PreAmp to Toroid (1) | SLAC | $\mathrm{B} \& \mathrm{H}$ | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 702 | 1.2.1.7.7.8 | RG214, ICM PreAmp to loroid (1) | SLAC | M 8 S | 1 | 0 wks | \$0.00 | \$600.00 | \$0.00 | \$600.00 | \$36.00 | \$95.40 | \$731.40 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 600 | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | \$0.00 | \$0.00 |
| 703 | 1.2.1.7.7.9 | RG22, TCM to TCM PreAmp (2) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 704 | 1.2.1.7.7.10 | 2/C power, ICM to ICM PreAmp (1 each toroid) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 705 | 1.2.1.7.7.11 | RG58, TCM to TCM PreAmp (1 each toroid) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 706 | 1.2.1.7.8 | FARADAY CUP (3) |  |  | 0 | 1.12 wks | \$0.00 | \$36,500.00 | \$2,161.15 | \$38,661.15 | \$2,622.23 | \$8,975.01 | \$50,258.39 |
| 707 | 1.2.1.7.8.1 | CAMAC Module, DAC (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 708 | 1.2.1.7.8.1 | CAMAC Module, DAC (1) | SLAC | M2S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 709 | 1.2.1.7.8.2 | IDIM Module (2) | SLAC | B\&H | 1 | 0.04 wks | \$0.00 | \$0.00 | \$70.14 | \$70.14 | \$14.03 | \$12.63 | \$96.80 |
|  |  | SLAC Controls: Iechnician |  | B\& ${ }^{\text {H }}$ | 0 | 0.04 wks | \$0.00 | \$0.00 | \$0.00 | \$70.14 | \$0.00 | \$0.00 | \$0.00 |
| 710 | 1.2.1.7.8.2 | IDIM Module (2) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 711 | 1.2.1.7.8.3 | IDOM Module (2) | SLAC | B\&H | 1 | 0.04 wks | \$0.00 | \$0.00 | \$70.14 | \$70.14 | \$14.03 | \$12.63 | \$96.80 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.04 wks | \$0.00 | \$0.00 | \$0.00 | \$70.14 | \$0.00 | \$0.00 | \$0.00 |
| 712 | 1.2.1.7.8.3 | IDOM Module (2) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 713 | 1.2.1.7.8.4 | Profile monitor chassis (2) | SLAC | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$350.72 | \$350.72 | \$70.14 | \$63.13 | \$483.99 |
|  |  | SLAC Controls: Technician |  | BRH | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$350.72 | \$0.00 | \$0.00 | \$0.00 |
| 714 | 1.2.1.7.8.4 | Profile monitor chassis (2) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,113.00 | \$8,533.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 715 | 1.2.1.7.8.5 | Protile Monitor Camera/Electronics (3) | SLAC | ED\& | 1 | 0.6 wks | \$0.00 | \$0.00 | \$1,200.00 | \$1,200.00 | \$240.00 | \$216.00 | \$1,656.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 716 | 1.2.1.7.8.5 | Profile Monitor Camera/Electronics (3) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$540.00 | \$1,431.00 | \$10,971.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 717 | 1.2.1.7.8.6 | Protile Monitor Lamp Units (3) | SLAC | ED\&I | 1 | 0.2 wks | \$0.00 | \$0.00 | \$400.00 | \$400.00 | \$80.00 | \$72.00 | \$552.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 718 | 1.2.1.7.8.6 | Profile Monitor Lamp Units (3) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 719 | 1.2.1.7.8.7 | GADC, LeCroy | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 720 | 1.2.1.7.8.7 | GADC, LeCroy | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 721 | 1.2.1.7.8.8 | RG214, coax (3ea) Chassis to Faraday Cup | SLAC | M 2 S | 4 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$530.00 | \$1,590.00 |
|  |  | SLAC MES Iotal |  | MぬS | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 722 | 1.2.1.7.8.9 | RG214, coax (3ea) Chassis to Faraday Cup | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$530.00 | \$1,590.00 |
|  |  | SLAC M\&S Iotal |  | M d S $^{\text {S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 723 | 1.2.1.7.8.10 | Muti-conductor (8/C) Chassis to Faraday Cup | SLAC | M 2 S | 4 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$1,060.00 | \$3,180.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 724 | 1.2.1.7.8.11 | Mutti-conductor (8/C) Chassis to Faraday Cup | SLAC | M 2 S | 4 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$1,060.00 | \$3,180.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 725 | 1.2.1.7.8.12 | CAMAC cable IDIM (3ea) Chassis to Crate | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$530.00 | \$1,590.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 726 | 1.2.1.7.8.13 | CAMAC cable IDOM (2ea) Chassis to Crate | SLAC | M 2 S | 4 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$106.00 | \$318.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 727 | 1.2.1.7.8.14 | Wiring of Faraday Cup units in lab (3) | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$300.00 | \$0.00 | \$300.00 | \$18.00 | \$159.00 | \$477.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 300 | \$0.00 | \$0.00 | \$0.00 | \$300.00 | \$0.00 | \$0.00 | \$0.00 |
| 728 | 1.2.1.7.9 | PROFILE MONITORS (7) / COLLIMATOR (1) |  |  | 0 | 10.64 wks | \$0.00 | \$95,500.00 | \$20,974.46 | \$116,474.46 | \$9,924.89 | \$23,301.12 | \$149,700.48 |
| 729 | 1.2.1.7.9.1 | CAMAC Module, DAC (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 730 | 1.2.1.7.9.1 | CAMAC Module, DAC (1) | SLAC | M ${ }_{\text {d }}$ S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 731 | 1.2.1.7.9.2 | CAMAC Module, IDIM (4) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 732 | 1.2.1.7.9.2 | CAMAC Module, IDIM (4) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$954.00 | \$7,314.00 |
|  |  | SLAC M\&S Iotal |  | M dS $^{\text {S }}$ | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| ${ }^{733}$ | 1.2.1.7.9.3 | CAMAC Module, IDOM (4) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | BRH | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 734 | 1.2.1.7.9.3 | CAMAC Module,IDOM (4) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$795.00 | \$6,095.00 |
|  |  | SLAC M\&S Total |  | M 4 S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 735 | 1.2.1.7.9.4 | Video Modulator Chassis (7) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 736 | 1.2.1.7.9.4 | Video Modulator Chassis (7) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,113.00 | \$8,533.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 737 | 1.2.1.7.9.5 | 16 Channel Interface Chassis (1) | SLAC | B\&H | 2 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$10.52 | \$52.61 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 738 | 1.2.1.7.9.5 | 16 Channel Intertace Chassis (1) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 739 | 1.2.1.7.9.6 | Profile Monitor Lamp Units (7) | SLAC | B\&H | 1 | 0.5 wks | \$0.00 | \$0.00 | \$876.80 | \$876.80 | \$175.36 | \$157.82 | \$1,209.98 |
|  |  | SLAC Controls: Iechnician |  | B\& ${ }^{\text {H }}$ | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$876.80 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 740 | 1.2.1.7.9.6 | Protile Monitor Lamp Units (7) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC MES Iotal |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 741 | 1.2.1.7.9.7 | Profile Monitor Chassis (4) | SLAC | B\&H | 1 | 0.5 wks | \$0.00 | \$0.00 | \$876.80 | \$876.80 | \$175.36 | \$157.82 | \$1,209.98 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$876.80 | \$0.00 | \$0.00 | \$0.00 |
| 742 | 1.2.1.7.9.7 | Profile Monitor Chassis (4) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$18,000.00 | \$0.00 | \$18,000.00 | \$1,080.00 | \$2,862.00 | \$21,942.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 18,000 | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 743 | 1.2.1.7.9.8 | Protile Monitor Camera/Electronics (7) | SLAC | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$8,000.00 | \$8,000.00 | \$1,600.00 | \$2,400.00 | \$12,000.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 744 | 1.2.1.7.9.8 | Profile Monitor Camera/Electronics (7) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$21,000.00 | \$0.00 | \$21,000.00 | \$1,260.00 | \$5,565.00 | \$27,825.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 21,000 | \$0.00 | \$0.00 | \$0.00 | \$21,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 745 | 1.2.1.7.9.9 | RG59, coax-video (7) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 746 | 1.2.1.7.9.10 | Multi-conductor (21C/16GA-CONT\&STAT) (7) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$795.00 | \$6,095.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 747 | 1.2.1.7.9.11 | Multi-conductor (3C/16GA-AC POWER) (7) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 748 | 1.2.1.7.9.12 | CAMAC cable IDIM (8) | SLAC | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$400.00 | \$400.00 | \$80.00 | \$72.00 | \$552.00 |
|  |  | SLACL PCD:IIst-Cabling-Elec Fab |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 749 | 1.2.1.7.9.12 | CAMAC cable IDIM (8) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 750 | 1.2.1.7.9.13 | CAMAC cable IDOM (8) | SLAC | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$400.00 | \$400.00 | \$80.00 | \$72.00 | \$552.00 |
|  |  | SLACL PCD:IIst-Cabling-Elec Fab |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 751 | 1.2.1.7.9.13 | CAMAC cable IDOM (8) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 752 | 1.2.1.7.9.14 | CAMAC cable DAC (1) | SLAC | ED\& | 1 | 4 wks | \$0.00 | \$0.00 | \$8,000.00 | \$8,000.00 | \$1,600.00 | \$1,440.00 | \$11,040.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 753 | 1.2.1.7.9.14 | CAMAC cable DAC (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$31.80 | \$243.80 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 754 | 1.2.1.7.9.15 | WIRING OF PROFILE MONT. ASSEMBLY INLAB (7) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 755 | 1.2.1.7.9.16 | Collimator (1) | SLAC |  | 0 | 1.14 wks | \$0.00 | \$20,300.00 | \$2,245.50 | \$22,545.50 | \$1,667.10 | \$4,676.90 | \$28,889.50 |
| 756 | 1.2.1.7.9.16. 1 | DAIRONICS Controller (MN 10k-1, 7 slots) (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 757 | 1.2.1.7.9.16.1 | DATRONICS Controller (MN 10k-1, 7 slots) (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$636.00 | \$4,876.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 758 | 1.2.1.7.9.16.2 | 10 Channel Resistor Intertace Chassis (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Iechnician |  | B\& ${ }^{\text {H }}$ | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 759 | 1.2.1.7.9.16.2 | 10 Channel Resistor Interface Chassis (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | MES | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 760 | 1.2.1.7.9.16.3 | 16 Channel Stepper Motor Controller Ch. (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 761 | 1.2.1.7.9.16.3 | 16 Channel Stepper Motor Controller Ch. (1) | SLAC | M $\mathrm{S}^{\text {S }}$ | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 762 | 1.2.1.7.9.16.4 | 16 Channel Interface Chassis (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 763 | 1.2.1.7.9.16.4 | 16 Channel Intertace Chassis (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M2S Iotal |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 764 | 1.2.1.7.9.16.5 | CAMAC Module,MMC (1) | SLAC | B\&H | 2 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$10.52 | \$52.61 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 765 | 1.2.1.7.9.16.5 | CAMAC Module,MMC (1) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 766 | 1.2.1.7.9.16.6 | CAMAC MOdule, IDIM (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 767 | 1.2.1.7.9.16.6 | CAMAC Module, IDIM (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 768 | 1.2.1.7.9.16.7 | CAMAC Module, SAM (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$35.07 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 769 | 1.2.1.7.9.16.7 | CAMAC Module, SAM (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 770 | 1.2.1.7.9.16.8 | LVDT PCB -2 CHNLS (1) | SLAC | ED\& | 1 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$7.20 | \$55.20 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 771 | 1.2.1.7.9.16.8 | LVDI PCB -2 CHNLS (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 772 | 1.2.1.7.9.16.9 | LVDT UNIT (2) | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$371.00 | \$1,431.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 773 | -2.1.7.9.16.10 | Power supply 30V@100A (1) | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$300.00 | \$0.00 | \$300.00 | \$18.00 | \$111.30 | \$429.30 |
|  |  | SLAC M\&S Iotal |  | M M $^{\text {S }}$ | 0 | 300 | \$0.00 | \$0.00 | $\$ 0.00$ | \$300.00 | \$0.00 | \$0.00 | \$0.00 |
| 774 | 2.1.7.9.16.11 | MULTI-COND (4PR) DATRONIC TO LVDT | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$371.00 | \$1,431.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 775 | 2.1.7.9.16.12 | MULII-COND (2/C) DAIRONIC 1016 CHNL DIST. | SLAC | B\&H | 2 | 0.03 wks | \$0.00 | \$0.00 | \$60.00 | \$60.00 | \$12.00 | \$18.00 | \$90.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.03 wks | \$0.00 | \$0.00 | \$0.00 | \$60.00 | \$0.00 | \$0.00 | \$0.00 |
| 776 | \|-2.1.7.9.16.12 | MULII-COND (2/C) DAIRONIC 1016 CHNL DIST. | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$53.00 | \$265.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M \& S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 777 | 2.1.7.9.16.13 | MULTI-COND (12/C) REST. CH. TO 16 Ch. Stpr. Ch. | SLAC | B\&H | 2 | 0.03 wks | \$0.00 | \$0.00 | \$60.00 | \$60.00 | \$12.00 | \$18.00 | \$90.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.03 wks | \$0.00 | \$0.00 | \$0.00 | \$60.00 | \$0.00 | \$0.00 | \$0.00 |
| 778 | 2.1.7.9.16.13 | MULII-COND (12/C) REST. CH. 1016 Ch. Stpr. Ch. | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$53.00 | \$265.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 779 | 2.1.7.9.16.14 | MULTI-COND (12/C) REST. CH. TO COLLIMATOR | SLAC | ED\& | 2 | 0.32 wks | \$0.00 | \$0.00 | \$640.00 | \$640.00 | \$128.00 | \$192.00 | \$960.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 0.32 wks | \$0.00 | \$0.00 | \$0.00 | \$640.00 | \$0.00 | \$0.00 | \$0.00 |
| 780 | 2.1.7.9.16.14 | MULTI-COND (12/C) REST. CH. TO COLLIMATOR | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$400.00 | \$0.00 | \$400.00 | \$24.00 | \$106.00 | \$530.00 |
|  |  | SLAC M\&S Iotal |  | M dS $^{\text {S }}$ | 0 | 400 | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 781 | 2.1.7.9.16.15 | CAMAC CABLE (36/C)16 CHNL DIST. IO IDIM | SLAC | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$400.00 | \$400.00 | \$80.00 | \$120.00 | \$600.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 782 | 2.1.7.9.16.15 | CAMAC CABLE (36/C)16 CHNL DIST. TO IDIM | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$53.00 | \$265.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 783 | 2.1.7.9.16.16 | CAMAC CABLE (36/C) 16 CHNL STPR Ch. 10 MMC | SLAC | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$400.00 | \$400.00 | \$80.00 | \$120.00 | \$600.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 784 | 2.1.7.9.16.16 | CAMAC CABLE (36/C) 16 CHNL STPR Ch. TO MMC | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$53.00 | \$265.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 785 | 2.1.7.9.16.17 | CAMAC CABLE (36/C) 16 CHNL DIST Ch. TO SAM | SLAC | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$400.00 | \$400.00 | \$80.00 | \$120.00 | \$600.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | BKH | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 786 | 2.1.7.9.16.17 | CAMAC CABLE (36/C)16 CHNL DISI Ch. IO SAM | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$53.00 | \$265.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 787 | 2.1.7.9.16.18 | WIRING OF COLLIMATOR ASSEMBLY IN LAB (7) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$600.00 | \$0.00 | \$600.00 | \$36.00 | \$159.00 | \$795.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 600 | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | \$0.00 | \$0.00 |
| 788 | 1.2.1.7.10 | E-O Diagnostic |  |  | 0 | 41.06 wks | \$0.00 | \$5,200.00 | \$103,047.87 | \$108,247.87 | \$20,921.57 | \$43,628.86 | \$172,798.30 |
| 789 | 1.2.1.7.10.1 | Protile Monitor Camera/Electronics | SLAC | ED\& | 1 | 0.5 wks | \$0.00 | \$0.00 | \$1,000.00 | \$1,000.00 | \$200.00 | \$180.00 | \$1,380.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&1 | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 790 | 1.2.1.7.10.1 | Profile Monitor Camera/Electronics | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 791 | 1.2.1.7.10.2 | Laser / CCD DiagnosticSottware | SLAC | ED\& | 3 | 40 wks | \$0.00 | \$0.00 | \$101,056.00 | \$101,056.00 | \$20,211.20 | \$42,443.52 | \$163,710.72 |
|  |  | SLAC Controls: Programmer |  | ED\&1 | 0 | 40 wks | \$0.00 | \$0.00 | \$0.00 | \$101,056.00 | \$0.00 | \$0.00 | \$0.00 |
| 792 | 1.2.1.7.10.3 | CAMAC Module,IDOM (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | BRH | 0 | 0.02 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 793 | 1.2.1.7.10.3 | CAMAC MOdule,IDOM (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,200.00 | \$0.00 | \$1,200.00 | \$72.00 | \$190.80 | \$1,462.80 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,200 | \$0.00 | \$0.00 | \$0.00 | \$1,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 794 | 1.2.1.7.10.4 | CAMAC cable IDOM (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$7.20 | \$55.20 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  | Page 42 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | cWbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| $795$ | 1.2.1.7.10.4 | CAMAC cable IDOM (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$31.80 | \$243.80 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 796 | 1.2.1.7.10.4 | CAMAC cable IDOM (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$7.20 | \$55.20 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 797 | 1.2.1.7.10.4 | CAMAC cable IDOM (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$31.80 | \$243.80 |
|  |  | SLAC MES Total |  | M 2 S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 798 | 1.2.1.7.10.5 | Actuator/Attenuator Interface panel | SLAC | $\mathrm{B} \& \mathrm{H}$ | 1 | 0.5 wks | \$0.00 | \$0.00 | \$876.80 | \$876.80 | \$175.36 | \$157.82 | \$1,209.98 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$876.80 | \$0.00 | \$0.00 | \$0.00 |
| 799 | 1.2.1.7.10.6 | Mutil-Cond. cable (4PR) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$600.00 | \$0.00 | \$600.00 | \$36.00 | \$95.40 | \$731.40 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 600 | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | \$0.00 | \$0.00 |
| 800 | 1.2.1.7.11 | Gun \& Injector System |  |  | 0 | 2.08 wks | \$0.00 | \$35,700.00 | \$3,903.74 | \$39,603.74 | \$2,922.75 | \$6,378.97 | \$48,905.47 |
| 801 | 1.2.1.7.11.1 | Laser Control \& Interlock Chassis (2) | SLAC | ED\& | 1 | 0.5 wks | \$0.00 | \$0.00 | \$1,000.00 | \$1,000.00 | \$200.00 | \$180.00 | \$1,380.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 802 | 1.2.1.7.11.1 | Laser Control \& Interlock Chassis (2) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$3,180.00 | \$24,380.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 803 | 1.2.1.7.11.2 | Stepper Motor Controller Chassis (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 804 | 1.2.1.7.11.2 | Stepper Motor Controller Chassis (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$795.00 | \$6,095.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }_{\text {d }}$ S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 805 | 1.2.1.7.11.3 | DC Power Supply, Stepper Motor System (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$7.20 | \$55.20 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | BRH | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 806 | 1.2.1.7.11.3 | DC Power Supply, Stepper Motor System (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 807 | 1.2.1.7.11.4 | CAMAC Module, MMC (1) | SLAC | B\&H | 1 | 0.5 wks | \$0.00 | \$0.00 | \$876.80 | \$876.80 | \$175.36 | \$157.82 | \$1,209.98 |
|  |  | SLAC Controls: Technician |  | BRH | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$876.80 | \$0.00 | \$0.00 | \$0.00 |
| 808 | 1.2.1.7.11.4 | CAMAC Module, MMC (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 809 | 1.2.1.7.11.5 | CAMAC Module, SAM (1) | SLAC |  | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 810 | 1.2.1.7.11.5 | CAMAC Module, SAM (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 811 | 1.2.1.7.11.6 | CAMAC Module, IDOM (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,200.00 | \$0.00 | \$1,200.00 | \$72.00 | \$190.80 | \$1,462.80 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,200 | \$0.00 | \$0.00 | \$0.00 | \$1,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 812 | 1.2.1.7.11.7 | CAMAC Module, IDIM (1) | SLAC | ED\& | 1 | 0.5 wks | \$0.00 | \$0.00 | \$1,000.00 | \$1,000.00 | \$200.00 | \$180.00 | \$1,380.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&1 | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 813 | 1.2.1.7.11.7 | CAMAC Module, IDIM (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,500.00 | \$0.00 | \$1,500.00 | \$90.00 | \$238.50 | \$1,828.50 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,500 | \$0.00 | \$0.00 | \$0.00 | \$1,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 814 | 1.2.1.7.11.8 | Gun Control Chassis CableS (6) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 815 | 1.2.1.7.11.8 | Gun Control Chassis CableS (6) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,200.00 | \$0.00 | \$1,200.00 | \$72.00 | \$190.80 | \$1,462.80 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,200 | \$0.00 | \$0.00 | \$0.00 | \$1,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 816 | 1.2.1.7.11.9 | CAMAC cable MMC (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$7.20 | \$55.20 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 817 | 1.2.1.7.11.9 | CAMAC cable MMC (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$31.80 | \$243.80 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 818 | 1.2.1.7.11.10 | CAMAC cable SAM (1) | SLAC | B\&H | 1 | 0.5 wks | \$0.00 | \$0.00 | \$876.80 | \$876.80 | \$175.36 | \$157.82 | \$1,209.98 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$876.80 | \$0.00 | \$0.00 | \$0.00 |
| 819 | 1.2.1.7.11.10 | CAMAC cable SAM (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$31.80 | \$243.80 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 820 | 1.2.1.7.11.11 | CAMAC cable IDOM (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$31.80 | \$243.80 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 821 | 1.2.1.7.11.12 | CAMAC cable IDIM (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$31.80 | \$243.80 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 822 | 1.2.1.7.12 | Alignment Laser Systems |  |  | 0 | 1.04 wks | \$0.00 | \$5,000.00 | \$1,951.87 | \$6,951.87 | \$690.37 | \$1,794.77 | \$9,437.02 |
| 823 | 1.2.1.7.12.1 | Actuator/AAtenuator Intertace panel | SLAC | B\&H | 3 | 0.5 wks | \$0.00 | \$0.00 | \$876.80 | \$876.80 | \$175.36 | \$368.26 | \$1,420.42 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$876.80 | \$0.00 | \$0.00 | \$0.00 |
| 824 | 1.2.1.7.12.2 | Profile Monitor Camera/Electronics | SLAC | ED\& | 2 | 0.5 wks | \$0.00 | \$0.00 | \$1,000.00 | \$1,000.00 | \$200.00 | \$300.00 | \$1,500.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 825 | 1.2.1.7.12.2 | Protile Monitor Camera/Electronics | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 826 | 1.2.1.7.12.3 | CAMAC Module,IDOM (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 827 | 1.2.1.7.12.3 | CAMAC Module,IDOM (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,200.00 | \$0.00 | \$1,200.00 | \$72.00 | \$190.80 | \$1,462.80 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,200 | \$0.00 | \$0.00 | \$0.00 | \$1,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 828 | 1.2.1.7.12.4 | CAMAC cable IDOM (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$7.20 | \$55.20 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 829 | 1.2.1.7.12.4 | CAMAC cable IDOM (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$31.80 | \$243.80 |
|  |  | SLAC MeS Iotal |  | M M $^{\text {S }}$ | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 830 | 1.2.1.7.12.5 | MULI-COND (4PR) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$600.00 | \$0.00 | \$600.00 | \$36.00 | \$95.40 | \$731.40 |
|  |  | SLAC MKS Iotal |  | M 4 S | 0 | 600 | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | $\$ 0.00$ | $\$ 0.00$ |
| 831 | 1.2.1.7.13 | RF Controls |  |  | 0 | 4.2 wks | \$0.00 | \$46,800.00 | \$12,159.23 | \$58,959.23 | \$5,239.85 | \$29,836.35 | \$94,035.43 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 832 | 1.2.1.7.13.1 | Sector 20 | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 833 | 1.2.1.7.13.2 | RF Phase \& Amplitude, BLM, Temp. Controls Hdw. | SLAC | ED\& | 4 | 4 wks | \$0.00 | \$0.00 | \$11,788.80 | \$11,788.80 | \$2,357.76 | \$7,073.28 | \$21,219.84 |
|  |  | SLAC Controls: Engineer |  | ED\&I | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,788.80 | \$0.00 | \$0.00 | \$0.00 |
| 834 | 1.2.1.7.13.2 | RF Phase \& Amplitude, BLM, Iemp. Controls Hdw. | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$1,800.00 | \$15,900.00 | \$47,700.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 835 | 1.2.1.7.13.3 | CAMAC Module, GADC (1) | SLAC | B\&H | 4 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$21.04 | \$63.13 |
|  |  | SLAC Controls: Technician |  | BRH | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 836 | 1.2.1.7.13.3 | CAMAC Module, GADC (1) | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$3,180.00 | \$9,540.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 837 | 1.2.1.7.13.4 | CAMAC Module, DAC (1) | SLAC | B\&H | 4 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$21.04 | \$63.13 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 838 | 1.2.1.7.13.4 | CAMAC Module, DAC (1) | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$1,060.00 | \$3,180.00 |
|  |  | SLAC M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 839 | 1.2.1.7.13.5 | CAMAC Module, SAM (1) | SLAC | B\&H | 4 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$21.04 | \$63.13 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 840 | 1.2.1.7.13.5 | CAMAC Module, SAM (1) | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$1,060.00 | \$3,180.00 |
|  |  | SLAC M\&S Total |  | MLS | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| ${ }^{841}$ | 1.2.1.7.13.6 | CAMAC Module PAU (2) | SLAC | B\&H | 1 | 0.06 wks | \$0.00 | \$0.00 | \$105.22 | \$105.22 | \$21.04 | \$18.94 | \$145.20 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.06 wks | \$0.00 | \$0.00 | \$0.00 | \$105.22 | \$0.00 | \$0.00 | \$0.00 |
| 842 | 1.2.1.7.13.6 | CAMAC Module PAU (2) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$795.00 | \$6,095.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 843 | 1.2.1.7.13.7 | CAMAC cable GADC (2) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$7.20 | \$55.20 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 844 | 1.2.1.7.13.7 | CAMAC cable GADC (2) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$31.80 | \$243.80 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 845 | 1.2.1.7.13.8 | CAMAC cable DAC (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$7.20 | \$55.20 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 846 | 1.2.1.7.13.8 | CAMAC cable DAC (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$31.80 | \$243.80 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 847 | 1.2.1.7.13.9 | CAMAC cable SAM (2) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$7.20 | \$55.20 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 848 | 1.2.1.7.13.9 | CAMAC cable SAM (2) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$31.80 | \$243.80 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 849 | 1.2.1.7.13.10 | CAMAC cable PaU | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$7.20 | \$55.20 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | Page 45 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | cwbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 850 | 1.2.1.7.13.10 | CAMAC cable PAU | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$31.80 | \$243.80 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 851 | 1.2.1.7.13.11 | Cableplant Phase \& Amp., BLM, Temp. | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$530.00 | \$1,590.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 852 | 1.2.1.7.14 | Reserved |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 853 | 1.2.1.7.14.1 | Beam Stopper Controls | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 854 | 1.2.1.8 | PPS |  |  | 0 | 63.21 wks | \$0.00 | \$75,019.00 | \$130,995.42 | \$206,014.42 | \$30,700.22 | \$58,780.89 | \$295,495.54 |
| 855 | 1.2.1.8.1 | Injector PPS |  |  | 0 | 39.21 wks | \$0.00 | \$37,017.00 | \$83,024.22 | \$120,041.22 | \$18,825.86 | \$42,876.62 | \$181,743.71 |
| 856 | 1.2.1.8.1.1 | Injector PPS | SLAC |  | 4 | 39.21 wks | \$0.00 | \$37,017.00 | \$83,024.22 | \$120,041.22 | \$18,825.86 | \$42,876.62 | \$181,743.71 |
| 857 | 1.2.1.8.1.1 | Limit Switches (6) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 858 | 1.2.1.8.1.1 | Door (1) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC MES Iotal |  | M M S $^{\text {S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 859 | 1.2.1.8.1.1 | Emergency Entry Key Box (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 860 | 1.2.1.8.1.1 | Annunciator Sign (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 861 | 1.2.1.8.1.1 | Search Preset Box (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.16 | \$1.22 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 862 | 1.2.1.8.1.1 | Search Reset (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.16 | \$1.22 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 863 | 1.2.1.8.1.1 | PLC Controllers (2) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$636.00 | \$4,876.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 864 | 1.2.1.8.1.1 | Gate (1) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | $\$ 0.00$ | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 865 | 1.2.1.8.1.1 | Rask Beacon (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 866 | 1.2.1.8.1.1 | Audio Annunciator (1) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 867 | 1.2.1.8.1.1 | Audio Amplifier (1) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 868 | 1.2.1.8.1.1 | Speakers (5) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| ${ }^{869}$ | 1.2.1.8.1.1 | Audio Mixer (1) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.27 | \$1.33 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | Page 46 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 870 | 1.2.1.8.1.1 | EO Buttons (5) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.16 | \$1.22 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 871 | 1.2.1.8.1.1 | EE Buttons (5) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.16 | \$1.22 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 872 | 1.2.1.8.1.1 | Y/M Lights | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.16 | \$1.22 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 873 | 1.2.1.8.1.1 | Hazard Interface Chassis | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.37 | \$1.43 |
|  |  | SLAC MRS Iotal |  | M ${ }^{\text {d S }}$ | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 874 | 1.2.1.8.1.1 | LASER Satety Intertace Chassis Intertace Chassis | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,855.00 | \$7,155.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 875 | 1.2.1.8.1.1 | Control/Logic Panels (S20) | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.37 | \$1.43 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 876 | 1.2.1.8.1.1 | Logic Array Package (S20) | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.37 | \$1.43 |
|  |  | SLAC M\&S Iotal |  | M LS $^{\text {S }}$ | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$7.00 | \$0.00 | \$0.00 | \$0.00 |
| 877 | 1.2.1.8.1.1 | CAMAC Module, IDOM | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 878 | 1.2.1.8.1.1 | CAMAC Module, LDIM | SLAC | M2S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }_{\text {d }}$ S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 879 | 1.2.1.8.1.1 | CAMAC Module, SAM | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC MES Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 880 | 1.2.1.8.1.1 | CAMAC cable, Panel to IDOM | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.16 | \$1.22 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 881 | 1.2.1.8.1.1 | CAMAC cable, Panel to LDIM | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.16 | \$1.22 |
|  |  | SLAC M\&S Iotal |  | M M $^{\text {S }}$ | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 882 | 1.2.1.8.1.1 | CAMAC cable, Panel to LDIM | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.16 | \$1.22 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 883 | 1.2.1.8.1.1 | CAMAC cable, Panel to SAM (BSOIC R/O) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.16 | \$1.22 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 884 | 1.2.1.8.1.1 | Cable, 36 PR Arm, Logic Panel to Control Console (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 885 | 1.2.1.8.1.1 | Cable, Multi-conductor, PA System to X-connects (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.16 | \$1.22 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 886 | 1.2.1.8.1.1 | 12 pr Cable (1000tt) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M d S $^{\text {S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 887 | 1.2.1.8.1.1 | $50 \mathrm{pr} \mathrm{cable} \mathrm{(250ft)}$ | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.16 | \$1.22 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 4 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | MRS | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 888 | 1.2.1.8.1.1 | 4 pr (1500tt) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }^{\text {S }}$ S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 889 | 1.2.1.8.1.1 | Cable, IBD Hazards Intt. | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC MRS Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 890 | 1.2.1.8.1.1 | Cable, TBD LASER Safety lnt . | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 891 | 1.2.1.8.1.1 | CAMAC cable, Panel to LDIM | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 892 | 1.2.1.8.1.1 | CAMAC cable, Panel to SAM (BSOIC R/O) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 893 | 1.2.1.8.1.1 | Cable, 36 PR Arm, Logic Panel to Control Console (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.16 | \$1.22 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$7.00 | \$0.00 | \$0.00 | \$0.00 |
| 894 | 1.2.1.8.1.1 | Cable, Multi-conductor, PA System to X-connects (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.16 | \$1.22 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 895 | 1.2.1.8.1.1 | PPS Systems Checkout \& Certification- Engineering | SLAC | ED\& | 3 | 9 wks | \$0.00 | \$0.00 | \$27,000.00 | \$27,000.00 | \$5,400.00 | \$11,340.00 | \$43,740.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 9 wks | \$0.00 | \$0.00 | \$0.00 | \$27,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 896 | 1.2.1.8.1.1 | PPS Systems Checkout \& Certitication- Coordination | SLAC | ED\&I | 3 | 12.37 wks | \$0.00 | \$0.00 | \$24,740.00 | \$24,740.00 | \$4,948.00 | \$10,390.80 | \$40,078.80 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 12.37 wks | \$0.00 | \$0.00 | \$0.00 | \$24,740.00 | $\$ 0.00$ | \$0.00 | $\$ 0.00$ |
| 897 | 1.2.1.8.1.1 | PPS Systems Checkout \& Certification- Technician | SLAC | B\&H | 3 | 17.84 wks | \$0.00 | \$0.00 | \$31,284.22 | \$31,284.22 | \$6,256.84 | \$13,139.37 | \$50,680.44 |
|  |  | SLAC Controls: Technician |  | BRH | 0 | 17.84 wks | \$0.00 | \$0.00 | \$0.00 | \$31,284.22 | \$0.00 | \$0.00 | \$0.00 |
| 898 | 1.2.1.8.2 | Injector BCS |  |  | 0 | 0 wks | \$0.00 | \$14,002.00 | \$0.00 | \$14,002.00 | \$840.12 | \$2,650.32 | \$17,492.44 |
| 899 | 1.2.1.8.2.1 | Machine Protection PIC Module (2) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 900 | 1.2.1.8.2. 1 | Cable, Coax, PIC Module to PIC Detector (6) | SLAC | M2S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 901 | 1.2.1.8.2. 1 | Cable, Coax, HV P.S. to PIC Detector (6) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 902 | 1.2.1.8.2.1 | Cable, 1553, PIC Module Chain to VME A.P. Crate | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 903 | 1.2.1.8.2.1 | Cable, 8/C, HV P.S. to X-connects (P.S. Status) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.16 | \$1.22 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 904 | 1.2.1.8.2.1 | Cable, 4/C, HV P.S. to X-connects (HV Enable) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.16 | \$1.22 |
|  |  | SLAC MXS Iotal |  | M d S $^{\text {S }}$ | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | $\$ 1.00$ | \$0.00 | \$0.00 | \$0.00 |
| 905 | 1.2.1.8.2. 1 | Interrack X-connects | SLAC | M2S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$636.00 | \$4,876.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 906 | 1.2.1.8.2.1 | Summary \& Interlock Chassis | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 907 | 1.2.1.8.2.1 | CAMAC MOdule, LDIM | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 908 | 1.2.1.8.2.1 | Cable, LDIM to X-connects | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 909 | 1.2.1.8.3 | Beam Stopper |  |  | 0 | 12 wks | \$0.00 | \$12,000.00 | \$23,985.60 | \$35,985.60 | \$5,517.12 | \$13,253.95 | \$54,756.67 |
| 910 | 1.2.1.8.3.1 | Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$720.00 | \$3,180.00 | \$15,900.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 911 | 1.2.1.8.3.2 | Assembly Mig | SLAC | B\&H | 3 | 12 wks | \$0.00 | \$0.00 | \$23,985.60 | \$23,985.60 | \$4,797.12 | \$10,073.95 | \$38,856.67 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$23,985,60 | \$0.00 | \$0.00 | \$0.00 |
| 912 | 1.2.1.8.4 | Beam Spectrometer |  |  | 0 | 12 wks | \$0.00 | \$12,000.00 | \$23,985.60 | \$35,985.60 | \$5,517.12 | \$0.00 | \$41,502.72 |
| 913 | 1.2.1.8.4.1 | Materials | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$720.00 | \$0.00 | \$12,720.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 914 | 1.2.1.8.4.2 | Assembly/Mfg | SLAC | B\&H | 0 | 12 wks | \$0.00 | \$0.00 | \$23,985.60 | \$23,985.60 | \$4,797.12 | \$0.00 | \$28,782.72 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$23,985.60 | \$0.00 | \$0.00 | \$0.00 |
| 915 | 1.2.1.9 | RF |  |  | 0 | 399 wks | \$0.00 | \$795,000.00 | \$1,047,889.20 | \$1,842,889.20 | \$257,277.84 | \$578,204.82 | \$2,678,371.86 |
| 916 | 1.2.1.9.1 | Gun |  |  | 0 | 110 wks | \$0.00 | \$150,000.00 | \$294,934.00 | \$444,934.00 | \$67,986.80 | \$185,290.20 | \$698,211.00 |
| 917 | 1.2.1.9.1.1 | Gun Materials | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$1,800.00 | \$11,130.00 | \$42,930.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 918 | 1.2.1.9.1.2 | Gun Fabrication | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$1,800.00 | \$11,130.00 | \$42,930.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 919 | 1.2.1.9.1.3 | Gun Assembly | SLAC | B\&H | 4 | 25 wks | \$0.00 | \$0.00 | \$49,970.00 | \$49,970.00 | \$9,994.00 | \$29,982.00 | \$89,946.00 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$49,970.00 | \$0.00 | \$0.00 | \$0.00 |
| 920 | 1.2.1.9.1.4 | Proc., Man. \& Assembly Supervision | SLAC | ED\& | 4 | 25 wks | \$0.00 | \$0.00 | \$84,000.00 | \$84,000.00 | \$16,800.00 | \$50,400.00 | \$151,200.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$84,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 921 | 1.2.1.9.1.5 | Gun lests in Lab | SLAC | B\&H | 0 | 25 wks | \$0.00 | \$0.00 | \$49,970.00 | \$49,970.00 | \$9,994.00 | \$0.00 | \$59,964.00 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$49,970.00 | \$0.00 | \$0.00 | \$0.00 |
| 922 | 1.2.1.9.1.5 | Gun Tests in Lab | SLAC | ED\& | 4 | 25 wks | \$0.00 | \$0.00 | \$85,000.00 | \$85,000.00 | \$17,000.00 | \$51,000.00 | \$153,000.00 |
|  |  | SLAC Physicist-Scientist |  | ED\&1 | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$85,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 923 | 1.2.1.9.1.6 | High Power Waveguides | SLAC | B\&H | ${ }^{2}$ | 5 wks | \$0.00 | \$0.00 | \$9,994.00 | \$9,994.00 | \$1,998.80 | \$2,998.20 | \$14,991.00 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$9,994.00 | \$0.00 | \$0.00 | \$0.00 |
| 924 | 1.2.1.9.1.6 | High Power Waveguides | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$77,000.00 | \$0.00 | \$77,000.00 | \$4,620.00 | \$20,405.00 | \$102,025.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 77,000 | \$0.00 | \$0.00 | \$0.00 | \$77,000.00 | \$0.00 | \$0.00 | \$0.00 |
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|  |  |  |  |  |  | Page 49 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cwbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 925 | 1.2.1.9.1.7 | Couplers | SLAC | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$9,600.00 | \$9,600.00 | \$1,920.00 | \$2,880.00 | \$14,400.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$9,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 926 | 1.2.1.9.1.7 | Couplers | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 927 | 1.2.1.9.1.8 | Loads | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$6,400.00 | \$6,400.00 | \$1,280.00 | \$1,920.00 | \$9,600.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 928 | 1.2.1.9.1.8 | Loads | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  |  | SLAC MAS Iotal |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 929 | 1.2.1.9.2 | Accelerator Structures |  |  | 0 | 37 wks | \$0.00 | \$185,000.00 | \$87,756.40 | \$272,756.40 | \$28,651.28 | \$75,351.92 | \$376,759.60 |
| 930 | 1.2.1.9.2.1 | Structure Refurbish | SLAC | $\mathrm{B} \& \mathrm{H}$ | 2 | 13 wks | \$0.00 | \$0.00 | \$25,984.40 | \$25,984.40 | \$5,196.88 | \$7,795.32 | \$38,976.60 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 13 wks | \$0.00 | \$0.00 | \$0.00 | \$25,984.40 | \$0.00 | \$0.00 | \$0.00 |
| 931 | 1.2.1.9.2.1 | Structure Refurbish | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 932 | 1.2.1.9.2.2 | Structure lesting | SLAC | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$5,786.40 | \$5,786.40 | \$1,157.28 | \$1,735.92 | \$8,679.60 |
|  |  | SLAC Klystron: Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,786.40 | \$0.00 | \$0.00 | \$0.00 |
| 933 | 1.2.1.9.2.3 | Proc., Man. \& Assembly Supervision | SLAC | B\&H | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 934 | 1.2.1.9.2.3 | Proc., Man. \& Assembly Supervision | SLAC | ED\& | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | EDEI | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 935 | 1.2.1.9.2.4 | High Power Waveguide | SLAC | B\&H | 2 | 10 wks | \$0.00 | \$0.00 | \$19,988.00 | \$19,988.00 | \$3,997.60 | \$5,996.40 | \$29,982.00 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$19,988.00 | \$0.00 | \$0.00 | \$0.00 |
| 936 | 1.2.1.9.2.4 | High Power Waveguide | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$154,000.00 | \$0.00 | \$154,000.00 | \$9,240.00 | \$40,810.00 | \$204,050.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 154,000 | \$0.00 | \$0.00 | \$0.00 | \$154,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 937 | 1.2.1.9.2.5 | Couplers | SLAC | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$19,200.00 | \$19,200.00 | \$3,840.00 | \$5,760.00 | \$28,800.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$19,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 938 | 1.2.1.9.2.5 | Couplers | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 939 | 1.2.1.9.2.6 | Loads | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$12,800.00 | \$12,800.00 | \$2,560.00 | \$3,840.00 | \$19,200.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$12,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 940 | 1.2.1.9.2.6 | Loads | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$5,300.00 | \$26,500.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 941 | 1.2.1.9.2.7 | Returbish Modulator | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 942 | 1.2.1.9.2.8 | Solid State Subbooster | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 943 | 1.2.1.9.2.9 | IPA Mods | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 944 | 1.2.1.9.2.10 | Controls Interface | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 945 | 1.2.1.9.2.11 | Installation | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,199.28 | \$5,996.40 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 946 | 1.2.1.9.3 | Transverse RF Cavity |  |  | 0 | 20 wks | \$0.00 | \$93,000.00 | \$49,278.80 | \$142,278.80 | \$15,435.76 | \$39,428.64 | \$197,143.20 |
| 947 | 1.2.1.9.3.1 | Structure Returbish | SLAC | B\&H | 2 | 7 wks | \$0.00 | \$0.00 | \$13,991.60 | \$13,991.60 | \$2,798.32 | \$4,197.48 | \$20,987.40 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 7 wks | \$0.00 | \$0.00 | \$0.00 | \$13,991.60 | \$0.00 | \$0.00 | \$0.00 |
| 948 | 1.2.1.9.3.1 | Structure Refurbish | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 949 | 1.2.1.9.3.2 | Structure lesting | SLAC | ED\& | 2 | 1 wk | \$0.00 | \$0.00 | \$2,893.20 | \$2,893.20 | \$578.64 | \$867.96 | \$4,339.80 |
|  |  | SLAC KIystron: Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,893.20 | \$0.00 | \$0.00 | \$0.00 |
| 950 | 1.2.1.9.3.3 | Proc., Man. \& Assembly Supervision | SLAC | B\&H | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 951 | 1.2.1.9.3.3 | Proc., Man. \& Assembly Supervision | SLAC | ED\& | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 952 | 1.2.1.9.3.4 | High Power Waveguide | SLAC | B\&H | 2 | 5 wks | \$0.00 | \$0.00 | \$9,994.00 | \$9,994.00 | \$1,998.80 | \$2,998.20 | \$14,991.00 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$9,994.00 | \$0.00 | \$0.00 | \$0.00 |
| 953 | 1.2.1.9.3.4 | High Power Waveguide | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$77,000.00 | \$0.00 | \$77,000.00 | \$4,620.00 | \$20,405.00 | \$102,025.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 77,000 | \$0.00 | \$0.00 | \$0.00 | \$77,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 954 | 1.2.1.9.3.5 | Couplers | SLAC | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$9,600.00 | \$9,600.00 | \$1,920.00 | \$2,880.00 | \$14,400.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$9,600.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 955 | 1.2.1.9.3.5 | Couplers | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 956 | 1.2.1.9.3.6 | Loads | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$12,800.00 | \$12,800.00 | \$2,560.00 | \$3,840.00 | \$19,200.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$12,800.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 957 | 1.2.1.9.3.6 | Loads | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 958 | 1.2.1.9.3.7 | Refurbish Modulator | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 959 | 1.2.1.9.3.8 | Solid State Subbooster | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 960 | 1.2.1.9.3.9 | IPA Mods | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 961 | 1.2.1.9.3.10 | Controls Intertace | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 962 | 1.2.1.9.4 | RF Distribution System |  |  | 0 | 232 wks | \$0.00 | \$367,000.00 | \$615,920.00 | \$982,920.00 | \$145,204.00 | \$278,134.06 | \$1,406,258.06 |
| 963 | 1.2.1.9.4.1 | Master Ocillator | SLAC |  | 1 | 2 wks | \$0.00 | \$55,000.00 | \$5,786.40 | \$60,786.40 | \$4,457.28 | \$9,786.55 | \$75,030.23 |
| 964 | 1.2.1.9.4.1 | Master Oscillator [3] | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$55,000.00 | \$0.00 | \$55,000.00 | \$3,300.00 | \$8,745.00 | \$67,045.00 |
|  |  | SLAC MKS Iotal |  | M\&S | 0 | 55,000 | \$0.00 | \$0.00 | \$0.00 | \$55,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 965 | 1.2.1.9.4.1 | Testing | SLAC | ED\&I | 1 | 2 wks | \$0.00 | \$0.00 | \$5,786.40 | \$5,786.40 | \$1,157.28 | \$1,041.55 | \$7,985.23 |
|  |  | SLAC KIystron: Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,786.40 | $\$ 0.00$ | \$0.00 | \$0.00 |
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|  |  |  |  |  |  | Page 51 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 966 | 1.2.1.9.4.2 | LCLS Oscillator | SLAC |  | 1 | 6 wks | \$0.00 | \$30,000.00 | \$10,646.40 | \$40,646.40 | \$3,929.28 | \$7,963.92 | \$52,539.60 |
| 967 | 1.2.1.9.4.2 | LCLS Master Osc. [3] | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$1,800.00 | \$4,770.00 | \$36,570.00 |
|  |  | SLAC M\&S Iotal |  | M d S $^{\text {S }}$ | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 968 | 1.2.1.9.4.2 | Integration / lesting | SLAC | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$10,646.40 | \$10,646.40 | \$2,129.28 | \$3,193.92 | \$15,969.60 |
|  |  | SLAC Klystron: Technician |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$10,646.40 | \$0.00 | \$0.00 | \$0.00 |
| 969 | 1.2.1.9.4.3 | Sector 0 \& MDL Mods | SLAC |  | 1 | 17 wks | \$0.00 | \$23,000.00 | \$32,302.40 | \$55,302.40 | \$7,840.48 | \$17,359.11 | \$80,501.99 |
| 970 | 1.2.1.9.4.3 | SLD Countdown Chassis | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$7,097.60 | \$7,097.60 | \$1,419.52 | \$2,129.28 | \$10,646.40 |
|  |  | SLAC KIystron: Iechnician |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,097.60 | \$0.00 | \$0.00 | \$0.00 |
| 971 | 1.2.1.9.4.3 | SLD Countdown Chassis | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$5,300.00 | \$26,500.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 972 | 1.2.1.9.4.3 | MTG Modifications Test | SLAC | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$5,894.40 | \$5,894.40 | \$1,178.88 | \$1,768.32 | \$8,841.60 |
|  |  | SLAC Controls: Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,894.40 | \$0.00 | \$0.00 | \$0.00 |
| 973 | 1.2.1.9.4.3 | Sector 20 MDL Mods | SLAC | B\&H | 1 | 1 wk | \$0.00 | \$0.00 | \$1,774.40 | \$1,774.40 | \$354.88 | \$319.39 | \$2,448.67 |
|  |  | SLAC Klystron: Iechnician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,774.40 | \$0.00 | \$0.00 | \$0.00 |
| 974 | 1.2.1.9.4.3 | Sector 20 MDL Mods | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 975 | 1.2.1.9.4.3 | System Tests | SLAC | B\&H | 3 | 10 wks | \$0.00 | \$0.00 | \$17,536.00 | \$17,536.00 | \$3,507.20 | \$7,365.12 | \$28,408.32 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$17,536.00 | \$0.00 | \$0.00 | \$0.00 |
| 976 | 1.2.1.9.4.4 | RF Distribution L0, L1 | SLAC |  | 2 | 10 wks | \$0.00 | \$43,000.00 | \$19,097.60 | \$62,097.60 | \$6,399.52 | \$12,186.28 | \$80,683.40 |
| 977 | 1.2.1.9.4.4 | S-Band RF Cables 31 | SLAC | B \& H | 1 | 4 wks | \$0.00 | \$0.00 | \$8,000.00 | \$8,000.00 | \$1,600.00 | \$1,440.00 | \$11,040.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | BRH | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 978 | 1.2.1.9.4.4 | S-Band RF Cables 31 | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$31,000.00 | \$0.00 | \$31,000.00 | \$1,860.00 | \$4,929.00 | \$37,789.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 31,000 | \$0.00 | \$0.00 | \$0.00 | \$31,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 979 | 1.2.1.9.4.4 | Dist. Amp Chassis | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$7,097.60 | \$7,097.60 | \$1,419.52 | \$2,129.28 | \$10,646.40 |
|  |  | SLAC Klystron: Technician |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,097.60 | \$0.00 | \$0.00 | \$0.00 |
| 980 | 1.2.1.9.4.4 | Dist. Amp Chassis | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 981 | 1.2.1.9.4.4 | Cable Guides | SLAC | B\&H | 1 | 2 wks | \$0.00 | \$0.00 | \$4,000.00 | \$4,000.00 | \$800.00 | \$720.00 | \$5,520.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 982 | 1.2.1.9.4.4 | Cable Guides | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 983 | 1.2.1.9.4.5 | RF Distribution L0,L1 Electronics | SLAC |  | 0 | 2 wks | \$0.00 | \$10,000.00 | \$3,548.80 | \$13,548.80 | \$1,309.76 | \$5,200.50 | \$20,059.06 |
| 984 | 1.2.1.9.4.5 | Laser Phase Locking Chassis | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,548.80 | \$3,548.80 | \$709.76 | \$1,490.50 | \$5,749.06 |
|  |  | SLAC KIystron: Iechnician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,548.80 | \$0.00 | \$0.00 | \$0.00 |
| 985 | 1.2.1.9.4.5 | Laser Phase Locking Chassis | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$3,710.00 | \$14,310.00 |



| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC MES Total |  | M\&S | 0 | 48,000 | \$0.00 | \$0.00 | \$0.00 | \$48,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1006 | 1.2.1.9.4.11 | Solid State Subbooster | SLAC |  | 0 | 10 wks | \$0.00 | \$60,000.00 | \$17,744.00 | \$77,744.00 | \$7,148.80 | \$21,223.20 | \$106,116.00 |
| 1007 | 1.2.1.9.4.11 | Amplitier | SLAC | B\&H | 2 | 5 wks | \$0.00 | \$0.00 | \$8,872.00 | \$8,872.00 | \$1,774.40 | \$2,661.60 | \$13,308.00 |
|  |  | SLAC KIystron: Iechnician |  | B\&H | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$8,872.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 1008 | 1.2.1.9.4.11 | Amplifier | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$50,000.00 | \$0.00 | \$50,000.00 | \$3,000.00 | \$13,250.00 | \$66,250.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1009 | 1.2.1.9.4.11 | Phase Control | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC MRS Iotal |  | M 2 S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1010 | 1.2.1.9.4.11 | Amplitude Control | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1011 | 1.2.1.9.4.11 | Integration | SLAC | B\&H | 2 | 5 wks | \$0.00 | \$0.00 | \$8,872.00 | \$8,872.00 | \$1,774.40 | \$2,661.60 | \$13,308.00 |
|  |  | SLAC Klystron: Technician |  | BRH | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$8,872.00 | \$0.00 | \$0.00 | \$0.00 |
| 1012 | 1.2.1.9.4.12 | IPA Modifications | SLAC |  | 0 | 2 wks | \$0.00 | \$2,000.00 | \$3,548.80 | \$5,548.80 | \$829.76 | \$956.78 | \$7,335.34 |
| 1013 | 1.2.1.9.4.12 | Modity IPA Chassis | SLAC | B\&H | 1 | 1 wk | \$0.00 | \$0.00 | \$1,774.40 | \$1,774.40 | \$354.88 | \$319.39 | \$2,448.67 |
|  |  | SLAC KIystron: Technician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,774.40 | \$0.00 | \$0.00 | \$0.00 |
| 1014 | 1.2.1.9.4.12 | Modify IPA Chassis | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1015 | 1.2.1.9.4.12 | Recable Station | SLAC | B\&H | 1 | 1 wk | \$0.00 | \$0.00 | \$1,774.40 | \$1,774.40 | \$354.88 | \$319.39 | \$2,448.67 |
|  |  | SLAC Klystron: Iechnician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,774.40 | \$0.00 | \$0.00 | \$0.00 |
| 1016 | 1.2.1.9.4.12 | Recable Station | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1017 | 1.2.1.9.4.13 | Modulator Control Interface (4) | SLAC |  | 0 | 3 wks | \$0.00 | \$5,000.00 | \$5,774.40 | \$10,774.40 | \$1,454.88 | \$1,834.39 | \$14,063.67 |
| 1018 | 1.2.1.9.4.13 | Cables | SLAC | B\&H | 1 | 1 wk | \$0.00 | \$0.00 | \$1,774.40 | \$1,774.40 | \$354.88 | \$319.39 | \$2,448.67 |
|  |  | SLAC KIystron: Iechnician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,774.40 | \$0.00 | \$0.00 | \$0.00 |
| 1019 | 1.2.1.9.4.13 | Installation | SLAC | B\&H | 1 | 2 wks | \$0.00 | \$0.00 | \$4,000.00 | \$4,000.00 | \$800.00 | \$720.00 | \$5,520.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1020 | 1.2.1.9.4.13 | Installation | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$795.00 | \$6,095.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1021 | 1.2.1.9.4.14 | RF Stability Setup | SLAC |  | 0 | 150 wks | \$0.00 | \$0.00 | \$462,020.00 | \$462,020.00 | \$92,404.00 | \$138,606.00 | \$693,030.00 |
| 1022 | 1.2.1.9.4.14 | RF feedback measurements | SLAC | ED\& | 2 | 50 wks | \$0.00 | \$0.00 | \$144,660.00 | \$144,660.00 | \$28,932.00 | \$43,398.00 | \$216,990.00 |
|  |  | SLAC Klystron: Engineer |  | ED\& | 0 | 50 wks | \$0.00 | \$0.00 | \$0.00 | \$144,660.00 | \$0.00 | \$0.00 | \$0.00 |
| 1023 | 1.2.1.9.4.14 | RF Feeaback Setup | SLAC | ED\& | 2 | 50 wks | \$0.00 | \$0.00 | \$170,000.00 | \$170,000.00 | \$34,000.00 | \$51,000.00 | \$255,000.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\&1 | 0 | 50 wks | \$0.00 | \$0.00 | \$0.00 | \$170,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1024 | 1.2.1.9.4.14 | RF Feedback Algorithm Adjustments | SLAC | ED\& | 2 | 50 wks | \$0.00 | \$0.00 | \$147,360.00 | \$147,360.00 | \$29,472.00 | \$44,208.00 | \$221,040.00 |
|  |  | SLAC Controls: Engineer |  | ED\& | 0 | 50 wks | \$0.00 | \$0.00 | \$0.00 | \$147,360.00 | \$0.00 | \$0.00 | \$0.00 |
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|  |  |  |  |  |  | Page 54 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Lasers | OBS | PHASE | $\begin{aligned} & \text { Risk } \\ & \hline 0 \end{aligned}$ | $\begin{aligned} & \text { Units } \\ & \hline 257.45 \mathrm{wks} \end{aligned}$ | PED (Direct) $\$ 0.00$ | $\frac{\text { M\&S (Direct) }}{\$ \$ 1,860,504.00}$ | Labor (Direct) $\$ 863,123.52$ | $\begin{aligned} & \text { Direct Cost } \\ & \hline \$ 2,723,627.52 \end{aligned}$ | Overhead Cost \$284,254.94 | Contingency Cost \$612,614.37 | Total Cost <br> \$3,620,496.84 |
| 1025 | 1.2.1.10 |  |  |  |  |  |  |  |  |  |  |  |  |
| 1026 | 1.2.1.10.1 | Gun Laser |  |  | 0 | 228.45 wks | \$0.00 | \$1,795,504.00 | \$771,128.32 | \$2,566,632.32 | \$261,955.90 | \$612,614.37 | \$3,441,202.60 |
| 1027 | 1.2.1.10.1.1 | Oscillator Laser \& Pump | SLAC |  | 1 | 8 wks | \$0.00 | \$141,000.00 | \$27,200.00 | \$168,200.00 | \$13,900.00 | \$30,579.00 | \$212,679.00 |
| 1028 | 1.2.1.10.1.1.1 | Scientist | SLAC | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$13,600.00 | \$13,600.00 | \$2,720.00 | \$4,080.00 | \$20,400.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1029 | 1.2.1.10.1.1.1 | Scientist | SLAC | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$13,600.00 | \$13,600.00 | \$2,720.00 | \$4,080.00 | \$20,400.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1030 | 1.2.1.10.1.1.1 | CW diode-pumped doubled Na:YvO4 (eg. Model Millennia Xs-P) | SLAC | M\&S | 1 | 0 wks | \$0.00 | (\$1,000.00) | \$0.00 | (\$1,000.00) | (\$60.00) | (\$159.00) | (\$1,219.00) |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 104,000 | \$0.00 | \$0.00 | \$0.00 | \$104,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1031 | 1.2.1.10.1.1.2 | Na:YVO4 Service Contract | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$13,000.00 | \$0.00 | \$13,000.00 | \$780.00 | \$2,067.00 | \$15,847.00 |
|  |  | SLAC M2S Total |  | M\&S | 0 | 13,000 | \$0.00 | \$0.00 | \$0.00 | \$13,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1032 | 1.2.1.10.1.1.3 | CW mode locked Ti:S Oscillator, 1.4W (eg. Model 3960-X1M) | SLAC | M2S | 1 | 0 wks | \$0.00 | \$98,000.00 | \$0.00 | \$98,000.00 | \$5,880.00 | \$15,582.00 | \$119,462.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 98,000 | \$0.00 | \$0.00 | \$0.00 | \$98,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1033 | 1.2.1.10.1.1.4 | II:S Oscillator Service Contract | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1034 | 1.2.1.10.1.1.5 | Oscillator synchronization option (eg. C-Option) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$29,000.00 | \$0.00 | \$29,000.00 | \$1,740.00 | \$4,611.00 | \$35,351.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 29,000 | \$0.00 | \$0.00 | \$0.00 | \$29,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1035 | 1.2.1.10.1.2 | Oscillator Diagnostics | SLAC |  | 0 | 8 wks | \$0.00 | \$229,000.00 | \$27,200.00 | \$256,200.00 | \$19,180.00 | \$45,843.00 | \$321,223.00 |
| 1036 | 1.2.1.10.1.2.1 | Scientist | SLAC | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$13,600.00 | \$13,600.00 | \$2,720.00 | \$4,080.00 | \$20,400.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1037 | 1.2.1.10.1.2.1 | Scientist | SLAC | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$13,600.00 | \$13,600.00 | \$2,720.00 | \$4,080.00 | \$20,400.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\&I | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1038 | 1.2.1.10.1.2.1 | Autocorrelators (scanning) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$19,000.00 | \$0.00 | \$19,000.00 | \$1,140.00 | \$3,021.00 | \$23,161.00 |
|  |  | SLAC MES Iotal |  | M 2 S | 0 | 19,000 | \$0.00 | \$0.00 | \$0.00 | \$19,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1039 | 1.2.1.10.1.2.2 | IR wavelength monitors (spectrometers) | SLAC | M2S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC MRS Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1040 | 1.2.1.10.1.2.3 | CCD camera | SLAC | M2S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d S }}$ | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1041 | 1.2.1.10.1.2.4 | Power/energy meter (2 channel) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$1,272.00 | \$9,752.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1042 | 1.2.1.10.1.2.5 | Power /energy sensor, 10W | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M MS $^{\text {S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1043 | 1.2.1.10.1.2.6 | Power /energy sensor, 2 W | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1044 | 1.2.1.10.1.2.7 | >12 GHz photodiodes | SLAC | M2S | 1 | 0 wks | \$0.00 | \$14,000.00 | \$0.00 | \$14,000.00 | \$840.00 | \$2,226.00 | \$17,066.00 |




| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1081 | 1.2.1.10.1.4.7 | Translation stages with micrometer | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1082 | 1.2.1.10.1.4.8 | beam covers | SLAC | B\&H | 1 | 0.4 wks | \$0.00 | \$0.00 | \$799.52 | \$799.52 | \$159.90 | \$143.91 | \$1,103.34 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$799.52 | \$0.00 | \$0.00 | \$0.00 |
| 1083 | 1.2.1.10.1.5 | Pockels Cells and Drivers (ir) |  |  | 0 | 15.65 wks | \$0.00 | \$27,002.00 | \$52,649.52 | \$79,651.52 | \$12,150.02 | \$20,300.17 | \$112,101.72 |
| 1084 | 1.2.1.10.1.5.1 | Senior Physicist | SLAC | ED\& | 2 | 7 wks | \$0.00 | \$0.00 | \$23,800.00 | \$23,800.00 | \$4,760.00 | \$7,140.00 | \$35,700.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& | 0 | 7 wks | \$0.00 | \$0.00 | \$0.00 | \$23,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1085 | 1.2.1.10.1.5.1 | Physicist | SLAC | ED\& | 2 | 8.25 wks | \$0.00 | \$0.00 | \$28,050.00 | \$28,050.00 | \$5,610.00 | \$8,415.00 | \$42,075.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 8.25 wks | \$0.00 | \$0.00 | \$0.00 | \$28,050.00 | \$0.00 | \$0.00 | \$0.00 |
| 1086 | 1.2.1.10.1.5.1 | Pockels cells, 8 mm , sol-gel@780nm | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1087 | 1.2.1.10.1.5.2 | Ilit mounts for pockels cells | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1088 | 1.2.1.10.1.5.3 | V-block clamps for pockels cells | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1089 | 1.2.1.10.1.5.4 | 6.5 kV pulsers, full off-on-off in < 12 ns | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$3,180.00 | \$24,380.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1090 | 1.2.1.10.1.5.5 | Polarizers, coated tor 780 nm (cubes) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1091 | 1.2.1.10.1.5.6 | Polarizer mounts | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1092 | 1.2.1.10.1.5.7 | post collars | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M2S Iotal |  | M 4 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1093 | 1.2.1.10.1.5.8 | posts | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.16 | \$1.22 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 1094 | 1.2.1.10.1.5.9 | post holders | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.16 | \$1.22 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 1095 | 2.1.10.1.5.10 | post holder bases | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1096 | 2.1.10.1.5.11 | beam covers | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$799.52 | \$799.52 | \$159.90 | \$239.86 | \$1,199.28 |
|  |  | SLAC Mech. rab: Assembly lech |  | BKH | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$799.52 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 1097 | 1.2.1.10.1.6 | Pump Laser System | SLAC |  | 0 | 22.8 wks | \$0.00 | \$358,000.00 | \$77,360.00 | \$435,360.00 | \$36,952.00 | \$87,126.00 | \$559,438.00 |
| 1098 | 1.2.1.10.1.6.1 | Pump Laser System | SLAC | ED\& 1 | 2 | 11 wks | \$0.00 | \$0.00 | \$37,400.00 | \$37,400.00 | \$7,480.00 | \$11,220.00 | \$56,100.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& | 0 | 11 wks | \$0.00 | \$0.00 | \$0.00 | \$37,400.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  | Page 58 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cwbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1099 | 1.2.1.10.1.6.1 | Pump Laser System | SLAC | ED\& | 2 | 11 wks | \$0.00 | \$0.00 | \$37,400.00 | \$37,400.00 | \$7,480.00 | \$11,220.00 | \$56,100.00 |
|  | 1.2.1.10.1.6.1 | SLAC Physicist-Scientist |  | ED\& | 0 | 11 wks | \$0.00 | \$0.00 | \$0.00 | \$37,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 1100 |  | Q-switched Nd:YAG, $532 \mathrm{~nm}, 60 \mathrm{HL}$, 200mJ | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$238,000.00 | \$0.00 | \$238,000.00 | \$14,280.00 | \$37,842.00 | \$290,122.00 |
|  | 1.2.1.10.1.6.2 | SLAC M\&S Iotal |  | M dS $^{\text {S }}$ | 0 | 238,000 | \$0.00 | \$0.00 | \$0.00 | \$238,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 1101 |  | Nd:YAG Service Contract | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$16,000.00 | \$0.00 | \$16,000.00 | \$960.00 | \$2,544.00 | \$19,504.00 |
| 1102 | 1.2.1.10.1.6.3 | SLAC M\&S Total |  | M\&S | 0 | 16,000 | \$0.00 | \$0.00 | \$0.00 | \$16,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | Pockels cells(19mm) sol-gel @ ${ }^{\text {a }}$ ( ${ }^{\text {nm }}$ | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
| 1103 | 1.2.1.10.1.6.4 | SLAC M\&S Iotal |  | M dS $^{\text {S }}$ | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | tilt mounts for pockels cells | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
| 1104 | 1.2.1.10.1.6.5 | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | V-block clamps for pockels cells | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
| 1105 | 1.2.1.10.1.6.6 | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | 6.5 KV pulser | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$5,300.00 | \$26,500.00 |
| 1106 | 1.2.1.10.1.6.7 | SLAC M\&S Iotal |  | M 4 S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | Pockels cell HV feedforward drivers | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  | 1.2.1.10.1.6.8 | SLAC M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1107 |  | PDU unit (80ns risetime, SCP interface | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
| 1108 | 1.2.1.10.1.6.9 | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
|  |  | CAMAC controller | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
| 1109 | .2.1.10.1.6.10 | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | Digital delay generators | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
| 1110 | 2.1.10.1.6.11 | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | Polarizers, coated tor 532 nm (cubes) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
| 1111 | 2.1.10.1.6.12 | SLAC M\&S Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | Polarizer mounts | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
| 1112 | 2.1.10.1.6.13 | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | Waveplates | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
| 1113 | .2.1.10.1.6.14 | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | Waveplate mounts | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  | 2.1.10.1.6.15 | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1114 |  | irises | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  | 2.1.10.1.6.16 | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 1115 |  | post collars | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  | 2.1.10.1.6.17 | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1116 |  | posts | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | cWBS | Task Name | OBS | PHASE <br> M\&S | $\begin{array}{\|l\|} \hline \text { Risk } \\ \hline \end{array}$ | Units <br> 1,000 | PED (Direct) $\$ 0.00$ | $\begin{gathered} \text { M\&S (Direct) } \\ \$ 0.00 \end{gathered}$ | Labor (Direct) | $\begin{aligned} & \text { Direct Cost } \\ & \$ 1,000.00 \end{aligned}$ | Overhead Cost $\$ 0.00$ | $\begin{array}{r} \text { Contingency Cost } \\ \$ 0.00 \end{array}$ |  |
|  |  | Task Name SLAC M\&S Total | SLAC |  |  |  |  |  |  |  |  |  | $\$ 0.00$ |
| 1117 | 2.1.10.1.6.18 | post holders |  | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1118 | .2.1.10.1.6.19 | post holder bases | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1119 | .2.1.10.1.6.20 | CCD camera | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1120 | -2.1.10.1.6.21 | planar mirrors/spiliters | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC MES Iotal |  | M ds $^{\text {S }}$ | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1121 | 2.1.10.1.6.22 | mirror mounts | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1122 | 2.1.10.1.6.23 | diodes (I nsec) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1123 | .2.1.10.1.6.24 | 6 GHz photodiodes | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$1,590.00 | \$12,190.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1124 | 2.1.10.1.6.25 | powerlenergy sensors | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$795.00 | \$6,095.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1125 | -2.1.10.1.6.26 | power/energy meters | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$1,590.00 | \$12,190.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | $\$ 0.00$ | \$10,000.00 | $\$ 0.00$ | $\$ 0.00$ | \$0.00 |
| 1126 | 2.1.10.1.6.27 | Faraday isolator | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,113.00 | \$8,533.00 |
|  |  | SLAC M\&S Total |  | M $\mathrm{L}^{\text {S }}$ | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1127 | 2.2.10.1.6.28 | isolator mount | SLAC | $\mathrm{B} \& \mathrm{H}$ | 2 | 0.4 wks | \$0.00 | \$0.00 | \$1,280.00 | \$1,280.00 | \$256.00 | \$384.00 | \$1,920.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 1128 | 2.1.10.1.6.29 | Sphericallenses | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1129 | 2.1.10.1.6.30 | lens mounts | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1130 | -2.1.10.1.6.31 | beam dumps | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1131 | 2.1.10.1.6.32 | Integrate\&hold mods (peak detector) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1132 | 2.1.10.1.6.33 | beam covers | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$1,280.00 | \$1,280.00 | \$256.00 | \$384.00 | \$1,920.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 0.4 Wks | \$0.00 | \$0.00 | \$0.00 | \$1,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 1133 | 1.2.1.10.1.7 | Low Power Pulse Compressor | SLAC |  | 0 | 4.9 wks | \$0.00 | \$13,000.00 | \$16,580.00 | \$29,580.00 | \$4,096.00 | \$8,419.00 | \$42,095.00 |
| 1134 | 1.2.1.10.1.7.1 | Scientist | SLAC | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$6,800.00 | \$6,800.00 | \$1,360.00 | \$2,040.00 | \$10,200.00 |



| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units 4,000 | PED (Direct) $\$ 0.00$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct)$\qquad$ | Direct Cost $\$ 4,000.00$ | $\begin{array}{r} \text { Overhead Cost } \\ \$ 0.00 \end{array}$ | Contingency Cost $\$ 0.00$ | $\begin{gathered} \text { Total cost } \\ \$ 0.00 \end{gathered}$ |
|  |  | Task Name SLAC M\&S Total |  | MKS |  |  |  |  |  |  |  |  |  |
| 1153 | 1.2.1.10.1.8.8 | DC amp, 200 V |  | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }^{\text {S }}$ S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1154 | 1.2.1.10.1.8.9 | DC amp, 10 V | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1155 | 2.1.10.1.8.10 | 20 GHz sampling scope | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$44,000.00 | \$0.00 | \$44,000.00 | \$2,640.00 | \$6,996.00 | \$53,636.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 44,000 | \$0.00 | \$0.00 | \$0.00 | \$44,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1156 | -2.1.10.1.8.11 | DC-3GHz spectrum analyzer | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$50,000.00 | \$0.00 | \$50,000.00 | \$3,000.00 | \$13,250.00 | \$66,250.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }^{\text {d }}$ S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1157 | 2.1.10.1.8.12 | Computer interface | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1158 | \|2.1.10.1.8.13 | Prism on computer controlled stage | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1159 | 2.1.10.1.8.14 | Integrated elecro-optic module | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1160 | .2.1.10.1.8.15 | Planar mirrors / splitters | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1161 | -2.1.10.1.8.16 | BPM or res. Cavity | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }_{\text {d }}$ S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1162 | 2.1.10.1.8.17 | S/H meas. Module | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$5,300.00 | \$26,500.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1163 | 1.2.1.10.1.9 | Laser Amplifiers | SLAC |  | 0 | 51.9 wks | \$0.00 | \$78,000.00 | \$174,730.00 | \$252,730.00 | \$39,626.00 | \$70,333.00 | \$362,689.00 |
| 1164 | 1.2.1.10.1.9.1 | Scientist | SLAC | ED\& | 2 | 28 wks | \$0.00 | \$0.00 | \$95,200.00 | \$95,200.00 | \$19,040.00 | \$28,560.00 | \$142,800.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\&1 | 0 | 28 wks | \$0.00 | \$0.00 | \$0.00 | \$95,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 1165 | 1.2.1.10.1.9.1 | Scientist | SLAC | ED\& | 2 | 22 wks | \$0.00 | \$0.00 | \$74,800.00 | \$74,800.00 | \$14,960.00 | \$22,440.00 | \$112,200.00 |
|  |  | SLAC Physicist-Scientist |  | ED\&1 | 0 | 22 wks | \$0.00 | \$0.00 | \$0.00 | \$74,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1166 | 1.2.1.10.1.9.1 | Ti-Sapphire crystals | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$2,120.00 | \$10,600.00 |
|  |  | SLAC MES Iotal |  | MES | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1167 | 1.2.1.10.1.9.2 | Hor crystal mounts with water cooling | SLAC | ED\& 1 | 2 | 1.5 wks | \$0.00 | \$0.00 | \$3,450.00 | \$3,450.00 | \$690.00 | \$1,035.00 | \$5,175.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& 1 | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$3,450.00 | \$0.00 | \$0.00 | \$0.00 |
| 1168 | 1.2.1.10.1.9.3 | Planar mirrors/splitters | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1169 | 1.2.1.10.1.9.4 | Mirror mounts | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1170 | 1.2.1.10.1.9.5 | Spherical lenses, $\mathrm{f}=1 \mathrm{~m}$, coated | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$23,000.00 | \$0.00 | \$23,000.00 | \$1,380.00 | \$6,095.00 | \$30,475.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 23,000 | \$0.00 | \$0.00 | \$0.00 | \$23,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1171 | 1.2.1.10.1.9.6 | Lens mounts | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1172 | 1.2.1.10.1.9.7 | Pinholes | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1173 | 1.2.1.10.1.9.8 | Pinhole mounts (with xy translation) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1174 | 1.2.1.10.1.9.9 | Alignment irises (on posts) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1175 | 2.1.10.1.9.10 | post collars | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1176 | 2.1.10.1.9.11 | Posts | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1177 | 2.1.10.1.9.12 | Post Holders | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1178 | 2.1.10.1.9.13 | Post Holder Bases | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1179 | 2.1.10.1.9.14 | CCD cameras | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | $\$ 0.00$ | \$5,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 1180 | 2.1.10.1.9.15 | Power/energy sensors | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$954.00 | \$7,314.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1181 | 2.1.10.1.9.16 | Power/energy meters | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$13,000.00 | \$0.00 | \$13,000.00 | \$780.00 | \$2,067.00 | \$15,847.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 13,000 | \$0.00 | \$0.00 | \$0.00 | \$13,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1182 | 2.1.10.1.9.17 | Halt waveplates | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC MES Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1183 | 2.1.10.1.9.18 | waveplate mounts | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1184 | 2.2.10.1.9.19 | Polarizing cube | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1185 | 2.1.10.1.9.20 | polarizer cube mount | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1186 | 2.1.10.1.9.21 | beam dumps | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1187 | 2.1.10.1.9.22 | beam covers | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$1,280.00 | \$1,280.00 | \$256.00 | \$384.00 | \$1,920.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,280.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1188 | 1.2.1.10.1.10 | Amplifier Diagnostics | SLAC |  | 0 | 15.25 wks | \$0.00 | \$89,000.00 | \$51,850.00 | \$140,850.00 | \$15,710.00 | \$35,006.00 | \$191,566.00 |
| 1189 | 2.1.10.1.10.1 | Scientist | SLAC | ED\% | 2 | 8.25 wks | \$0.00 | \$0.00 | \$28,050.00 | \$28,050.00 | \$5,610.00 | \$8,415.00 | \$42,075.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& | 0 | 8.25 wks | \$0.00 | \$0.00 | \$0.00 | \$28,050.00 | \$0.00 | \$0.00 | \$0.00 |
| 1190 | .2.1.10.1.10.1 | Scientist | SLAC | ED\& | 2 | 7 wks | \$0.00 | \$0.00 | \$23,800.00 | \$23,800.00 | \$4,760.00 | \$7,140.00 | \$35,700.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 7 wks | \$0.00 | \$0.00 | \$0.00 | \$23,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1191 | .2.1.10.1.10.1 | Power/energy meters (2 channel) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$13,000.00 | \$0.00 | \$13,000.00 | \$780.00 | \$2,067.00 | \$15,847.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 13,000 | \$0.00 | \$0.00 | \$0.00 | \$13,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1192 | 2.1.10.1.10.2 | Powerlenergy sensors | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$954.00 | \$7,314.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1193 | .2.1.10.1.10.3 | ND Filter set | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1194 | 2.1.10.1.10.4 | 532 nm filter | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1195 | .2.1.10.1.10.5 | 780 nm filter | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1196 | .2.1.10.1.10.6 | Filter/attenuator holders | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | MLS | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1197 | .2.1.10.1.10.7 | photodiodes (nsec) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }^{\text {S }}$ | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1198 | .2.1.10.1.10.8 | 12 GHz photodiode | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$14,000.00 | \$0.00 | \$14,000.00 | \$840.00 | \$2,226.00 | \$17,066.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 14,000 | \$0.00 | \$0.00 | \$0.00 | \$14,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1199 | .2.1.10.1.10.9 | CCD cameras | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 1200 | [1.10.1.10.10 | Frame grabber card tor PC | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1201 | !.1.10.1.10.11 | Labview software | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1202 | [1.10.1.10.12 | Beam analysis sottware | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M ${ }^{\text {a }}$ S Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1203 | [.1.10.1.10.13 | planar mirrors/splitters | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1204 | [1.10.1.10.14 | mirror mounts | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }^{\text {S }}$ | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 1205 | [1.10.1.10.15 | FROG (ir) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$21,000.00 | \$0.00 | \$21,000.00 | \$1,260.00 | \$5,565.00 | \$27,825.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 21,000 | \$0.00 | \$0.00 | \$0.00 | \$21,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
|  |  |  |  |  |  | Page 64 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{gathered} \text { ID } \\ \hline 1206 \end{gathered}$ | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | [.1.10.1.10.16 | PC (FROG analyses) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1207 | [.1.10.1.10.17 | alignment irises | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M\$S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1208 | [.1.10.1.10.18 | post collars | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1209 | [.1.10.1.10.19 | posts | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M dS $^{\text {S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1210 | [.1.10.1.10.20 | post holders | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1211 | !.1.10.1.10.21 | post holder bases | SLAC | M2S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1212 | 1.2.1.10.1.11 | Vacuum Spatial Filters | SLAC |  | 0 | 4.9 wks | \$0.00 | \$0.00 | \$16,580.00 | \$16,580.00 | \$3,316.00 | \$4,974.00 | \$24,870.00 |
| 1213 | 2.2.10.1.11.1 | Scientist | SLAC | ED\& 1 | 2 | 2 wks | \$0.00 | \$0.00 | \$6,800.00 | \$6,800.00 | \$1,360.00 | \$2,040.00 | \$10,200.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1214 | 2.1.10.1.11.1 | Scientist | SLAC | ED\& | 2 | 2.5 wks | \$0.00 | \$0.00 | \$8,500.00 | \$8,500.00 | \$1,700.00 | \$2,550.00 | \$12,750.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$8,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 1215 | 2.1.10.1.11.1 | Lenses, $\mathrm{t} \sim 0.5 \mathrm{~m}, \mathrm{AR}$ coated | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }_{\text {d }}$ | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1216 | 2.1.10.1.11.2 | Vacuum tubing, 1.5 " dia, 16 ", flanged (includes pinhole viewport) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1217 | 2.1.10.1.11.3 | Vacuum welded bellows | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1218 | \|.2.1.10.1.11.4 | Diamond pinholes, mounted | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1219 | 2.1.10.1.11.5 | xyz mounts, 1 in travel | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1220 | 2.1.10.1.11.6 | Diode vacuum pumps $81 / \mathrm{s}$ | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1221 | 2.1.10.1.11.7 | Ion-pump controller and cable | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1222 | \|2.1.10.1.11.8 | Rack-mount, setpoint display, pumps | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1223 | .2.1.10.1.11.9 | Iurbo roughing and support pump | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{array}{\|c\|} \hline \text { ID } \\ \hline 1222 \end{array}$ | cwbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | !.1.10.1.11.10 | Misc vacuum hardware | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1225 | [.1.10.1.11.11 | vacuum windows (AR coated tor 780 nm ) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }^{\text {S }}$ | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1226 | [.1.10.1.11.12 | lens mounts | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1227 | [1.10.1.11.13 | beam covers | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$1,280.00 | \$1,280.00 | \$256.00 | \$384.00 | \$1,920.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$1,280.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1228 | 1.2.1.10.1.12 | Transverse Mode Flattener | SLAC |  | 0 | 3 wks | \$0.00 | \$5,000.00 | \$10,200.00 | \$15,200.00 | \$2,340.00 | \$4,385.00 | \$21,925.00 |
| 1229 | .2.1.10.1.12.1 | Scientist | SLAC | ED\& | 2 | 1.5 wks | \$0.00 | \$0.00 | \$5,100.00 | \$5,100.00 | \$1,020.00 | \$1,530.00 | \$7,650.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& 1 | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$5,100.00 | \$0.00 | \$0.00 | \$0.00 |
| 1230 | .2.1.10.1.12.1 | Scientist | SLAC | ED\& | 2 | 1.5 wks | \$0.00 | \$0.00 | \$5,100.00 | \$5,100.00 | \$1,020.00 | \$1,530.00 | \$7,650.00 |
|  |  | SLAC Physicist-Scientist |  | ED\&1 | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$5,100.00 | \$0.00 | \$0.00 | \$0.00 |
| 1231 | .2.1.10.1.12.1 | Lenses | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1232 | .2.1.10.1.12.2 | Lens mounts | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1233 | 2.1.10.1.12.3 | protile flattener | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1234 | 2.1.10.1.12.4 | Flattener mount | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1235 | 2.1.10.1.12.5 | alignment irises | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1236 | .2.1.10.1.12.6 | post collars | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1237 | 2.1.10.1.12.7 | Posts | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1238 | \|2.1.10.1.12.8 | Post Holders | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1239 | 2.1.10.1.12.9 | Post Holder Bases | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1240 | 1.2.1.10.1.13 | High Power Pulse Compressor | SLAC |  | 0 | 6.4 wks | \$0.00 | \$0.00 | \$20,400.00 | \$20,400.00 | \$4,080.00 | \$6,120.00 | \$30,600.00 |
| 1241 | 2.1.10.1.13.1 | Scientist | SLAC | ED\& | 2 | 3 wks | \$0.00 | \$0.00 | \$10,200.00 | \$10,200.00 | \$2,040.00 | \$3,060.00 | \$15,300.00 |
|  |  | SLAC Physicist - Senior Scientist |  | EDEI | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,200.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1242 | 2.1.10.1.13.1 | Scientist | SLAC | ED\& | 2 | 3 wks | \$0.00 | \$0.00 | \$10,200.00 | \$10,200.00 | \$2,040.00 | \$3,060.00 | \$15,300.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,200.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1243 | 2.1.10.1.13.1 | Gratings, $2 \times 4$ in, $17001 / \mathrm{mm}, 780 \mathrm{~nm}$ | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1244 | 2.2.10.1.13.2 | Grating mounts with tip/tit/azim knobs | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1245 | 2.2.10.1.13.3 | Prisms, $3 \times 3$ in, coated 780 nm | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1246 | .2.1.10.1.13.4 | Prism mounts with tip/tilt | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1247 | .2.1.10.1.13.5 | Translation stages with micrometer | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1248 | 2.2.10.1.13.6 | Optical rail (24 inch) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M2S Iotal |  | M M S $^{\text {S }}$ | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1249 | 2.2.10.1.13.7 | planar mirrors/sp/itters | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1250 | .2.1.10.1.13.8 | mirror mounts | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1251 | .2.1.10.1.13.9 | alignment irises | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1252 | [.1.10.1.13.10 | post collars | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1253 | [.1.10.1.13.11 | Posts | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1254 | '.1.10.1.13.12 | Post Holders | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1255 | '.1.10.1.13.13 | Post Holder Bases | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1256 | [.1.10.1.13.14 | beam covers | SLAC |  | 2 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1257 | 1.2.1.10.1.14 | Frequency Conversion | SLAC |  | 0 | 31.15 wks | \$0.00 | \$115,300.00 | \$105,680.00 | \$220,980.00 | \$28,054.00 | \$58,770.50 | \$307,804.50 |
| 1258 | 2.1.10.1.14.1 | Scientist | SLAC | ED\& | 2 | 18 wks | \$0.00 | \$0.00 | \$61,200.00 | \$61,200.00 | \$12,240.00 | \$18,360.00 | \$91,800.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\&1 | 0 | 18 wks | \$0.00 | \$0.00 | \$0.00 | \$61,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 1259 | 2.1.10.1.14.1 | Scientist | SLAC | ED\&1 | 2 | 12 wks | \$0.00 | \$0.00 | \$40,800.00 | \$40,800.00 | \$8,160.00 | \$12,240.00 | \$61,200.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$40,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1260 | 2.2.10.1.14.1 | Frequency doubling crystal | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cWbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1261 | 2.1.10.1.14.2 | Frequency tripling crystal | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  | .2.1.10.1.14.3 | SLAC M\&S Total |  | M2S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1262 |  | Crystal Mounts (tip/tiltrotation) | SLAC | B\&H | 2 | 0.5 wks | \$0.00 | \$0.00 | \$1,600.00 | \$1,600.00 | \$320.00 | \$480.00 | \$2,400.00 |
| 1263 | 2.1.10.1.14.4 | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,600.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | crystal shroud \& temp control | SLAC | B\&H | 1 | 0.25 wks | \$0.00 | \$0.00 | \$800.00 | \$800.00 | \$160.00 | \$144.00 | \$1,104.00 |
| 1264 | 2.1.10.1.14.5 | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 0.25 wks | \$0.00 | \$0.00 | \$0.00 | \$800.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | power/energy sensor | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,113.00 | \$8,533.00 |
| 1265 | 2.1.10.1.14.6 | SLAC MES Iotal |  | M 2 S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | power/energy meter (2 channel) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$17,000.00 | \$0.00 | \$17,000.00 | \$1,020.00 | \$2,703.00 | \$20,723.00 |
| 1266 | 2.1.10.1.14.7 | SLAC M\&S Total |  | M 2 S | 0 | 17,000 | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | pinhole | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  | 2.1.10.1.14.8 | SLAC M\&S Total |  | M2S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1267 |  | dichroic splitters | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
| 1268 | 2.1.10.1.14.9 | SLAC M\&S Iotal |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | Color filters - 780nm,390nm,260nm | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1269 | -1.10.1.14.10 | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | Filter holders | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
| 1270 | -1.10.1.14.11 | SLAC MES Iotal |  | M ${ }_{\text {M S }}$ | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | Streak camera (uv) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$300.00 | \$0.00 | \$300.00 | \$18.00 | \$79.50 | \$397.50 |
| 1271 | -.1.10.1.14.12 | SLAC M\&S Total | SLAC | M\&S | 0 | 300 | \$0.00 | \$0.00 | \$0.00 | \$300.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | UV FROG |  | M\&S | 2 | 0 wks | \$0.00 | \$42,000.00 | \$0.00 | \$42,000.00 | \$2,520.00 | \$11,130.00 | \$55,650.00 |
| 1272 | -.1.10.1.14.13 | SLAC M\&S Total |  | M 2 S | 0 | 42,000 | \$0.00 | \$0.00 | \$0.00 | \$42,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | Reducer lenses | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
| 1273 | .1.10.1.14.14 | SLAC M\&S Iotal | SLAC | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
|  |  | Reducer rail |  | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1274 | -1.10.1.14.15 | SLAC M\&S Total | SLAC | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | Reducer lens mounts |  | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  | -1.10.1.14.16 | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1275 |  | Planar mirrors/splitters | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
| 1276 | -1.10.1.14.17 | SLAC M\&S Total | SLAC | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | Mirror mounts |  | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  | [1.10.1.14.18 | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1277 |  | Half waveplate (uv) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Iotal |  | M $\downarrow$ S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1278 | '.1.10.1.14.19 | Half waveplate mount | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |



| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1297 | .2.1.10.1.15.5 | Photodiode array, electronics board \& P | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1298 | .2.1.10.1.15.6 | 100 MHz oscilloscope | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1299 | .2.1.10.1.15.7 | Translation stage with micrometer | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1300 | .2.1.10.1.15.8 | Planar mirrors/splitters | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC MXS Iotal |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1301 | 2.1.10.1.15.9 | Mirror mounts | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1302 | [1.10.1.15.10 | Half waveplate | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC MXS Iotal |  | M MS | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1303 | [.1.10.1.15.11 | Waveplate mount | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1304 | -1.10.1.15.12 | Alignment irises on posts | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1305 | [1.10.1.15.13 | Cylindricallenses | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC MXS Iotal |  | M $\mathrm{S}_{\text {S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1306 | ․1.10.1.15.14 | Cylindrical lens mounts | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1307 | [.1.10.1.15.15 | Spherical lenses | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1308 | -1.10.1.15.16 | Sphericallens mounts | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1309 | !.1.10.1.15.17 | post collars | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1310 | [1.10.1.15.18 | Posts | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1311 | ‥1.10.1.15.19 | Post Holders | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1312 | [1.10.1.15.20 | Post Holder Bases | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1313 | !.1.10.1.15.21 | diodes (nsec) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |



| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1332 | [.1.10.1.16.16 | Post Holders | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1333 | [1.10.1.16.17 | Post Holder Bases | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1334 | [.1.10.1.16.18 | alignment irises | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1335 | [.1.10.1.16.19 | post collars | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC MES Iotal |  | M 2 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1336 |  |  | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.00 | \$1.06 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 1337 |  |  | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.00 | \$1.06 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 1338 | 1.2.1.10.1.17 | Imaging onto Photocathode | SLAC |  | 0 | 9.2 wks | \$0.00 | \$51,000.00 | \$30,999.76 | \$81,999.76 | \$9,259.95 | \$21,648.93 | \$112,908.64 |
| 1339 | 2.1.10.1.17.1 | Scientist | SLAC | ED\& | 2 | 5 wks | \$0.00 | \$0.00 | \$17,000.00 | \$17,000.00 | \$3,400.00 | \$5,100.00 | \$25,500.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1340 | 2.1.10.1.17.1 | Scientist | SLAC | ED\% | 2 | 4 wks | \$0.00 | \$0.00 | \$13,600.00 | \$13,600.00 | \$2,720.00 | \$4,080.00 | \$20,400.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1341 | 2.1.10.1.17.1 | Grating, 260 nm | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1342 | 2.1.10.1.17.2 | grating mount | SLAC | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$399.76 | \$399.76 | \$79.95 | \$19.93 | \$599.64 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$399.76 | \$0.00 | \$0.00 | \$0.00 |
| 1343 | 2.1.10.1.17.2 | grating mount | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1344 | 2.2.10.1.17.3 | Spherical Lenses | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1345 | 2.1.10.1.17.4 | spherical lens mount | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1346 | 2.1.10.1.17.5 | Planars mirrors/splitters | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1347 | 2.1.10.1.17.6 | Trimming aperture | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1348 | 2.1.10.1.17.7 | Mirror mounts | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1349 | 2.1.10.1.17.8 | Alignment irises on posts | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  | Page 72 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1350 | 2.1.10.1.17.9 | Cylindricallens | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1351 | [.1.10.1.17.10 | Cylindricallens mount | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1352 | [.1.10.1.17.11 | CCD camera (uv) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1353 | -.1.10.1.17.12 | power/energy sensor | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC MKS Iotal |  | MKS | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1354 | -1.10.1.17.13 | powerlenergy meter (2 ch) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$636.00 | \$4,876.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1355 | [.1.10.1.17.14 | Posts | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1356 | [.1.10.1.17.15 | Post Holders | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1357 | -.1.10.1.17.16 | Post Holder Bases | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC MES Total |  | M 2 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1358 | [.1.10.1.17.17 | uv FROG | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$21,000.00 | \$0.00 | \$21,000.00 | \$1,260.00 | \$5,565.00 | \$27,825.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 21,000 | \$0.00 | \$0.00 | \$0.00 | \$21,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1359 | [.1.10.1.17.18 | post collars | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1360 | [.1.10.1.17.19 | beam dumps | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1361 | 1.2.1.10.1.18 | Laser Support Systems \& Miscellaneous Items |  |  | 0 | 0 wks | \$0.00 | \$154,000.00 | \$0.00 | \$154,000.00 | \$9,240.00 | \$40,386.00 | \$203,626.00 |
| 1362 | 2.1.10.1.18.1 | Scientist | SLAC |  | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1363 | 2.1.10.1.18.1 | Scientist | SLAC |  | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1364 | 2.1.10.1.18.1 | Optical tables for clean room | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$42,000.00 | \$0.00 | \$42,000.00 | \$2,520.00 | \$11,130.00 | \$55,650.00 |
|  |  | SLAC M\&S Total |  | MRS | 0 | 42,000 | \$0.00 | \$0.00 | \$0.00 | \$42,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1365 | 2.1.10.1.18.2 | Table enclosures | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1366 | 2.1.10.1.18.3 | Optical table next to the RF gun | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1367 | 2.1.10.1.18.4 | Support and enclosure for breadboard | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1368 | 2.1.10.1.18.5 | Racks and other furniture | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | cwbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1369 | .2.1.10.1.18.6 | Elevated instrumentation shelves (on optical tables) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$2,120.00 | \$10,600.00 |
| 1370 | .2.1.10.1.18.7 | SLAC M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | Vidmar cabinets (Stanley) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$720.00 | \$3,180.00 | \$15,900.00 |
| 1371 | .2.1.10.1.18.8 | SLAC M\&S Iotal |  | M 2 S | 0 | 12,000 | \$0.00 | $\$ 0.00$ | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | 90.00 |
|  |  | tool set and box | SLAC | M2S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  | 2.1.10.1.18.9 | SLAC M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1372 |  | ir viewers | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$636.00 | \$4,876.00 |
|  | -1.10.1.18.10 | SLAC M\&S Iotal |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1373 |  | microscope (stereo) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$38,000.00 | \$0.00 | \$38,000.00 | \$2,280.00 | \$10,070.00 | \$50,350.00 |
| 1374 | -1.10.1.18.11 | SLAC M\&S Total |  | M 2 S | 0 | 38,000 | \$0.00 | \$0.00 | \$0.00 | \$38,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | ir sensor cards | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
| 1375 | .1.10.1.18.12 | SLAC M\&S Total |  | M 2 S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | latex gloves \& finger cots | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
| 1376 | .1.10.1.18.13 | SLAC M\&S Iotal |  | M LS $^{\text {S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | microdusters | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
| 1377 | -1.10.1.18.14 | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | solvents | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$720.00 | \$3,180.00 | \$15,900.00 |
| 1378 | -1.10.1.18.15 | SLAC M\&S Iotal |  | M 4 S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | clean room attire (hats, smocks, bootles) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
| 1379 | .-1.10.1.18.16 | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | uv diagnostic paper \& lens tissue | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1380 | -1.10.1.18.17 | SLAC M\&S Total |  | M 2 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | burn paper | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  | 1.2.1.10.2 | SLAC M\&S Iotal |  | MぬS | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1381 |  | Alignment Laser |  |  | 0 | 29 wks | \$0.00 | \$65,000.00 | \$91,995.20 | \$156,995.20 | \$22,299.04 | \$0.00 | \$179,294.24 |
| 1382 | 1.2.1.10.2. 1 | Alignment laser parts | SLAC | ED\& | 0 | 25 wks | \$0.00 | \$0.00 | \$84,000.00 | \$84,000.00 | \$16,800.00 | \$0.00 | \$100,800.00 |
|  | 1.2.1.10.2.2 | SLAC Mechanical Engineer |  | ED\& | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$84,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1383 |  | Alignment laser assembly | SLAC | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$7,995.20 | \$7,995.20 | \$1,599.04 | \$0.00 | \$9,594.24 |
|  | 1.2.1.10.2.2 | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,995.20 | \$0.00 | \$0.00 | \$0.00 |
| 1384 |  | Alignment laser assembly | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$65,000.00 | \$0.00 | \$65,000.00 | \$3,900.00 | \$0.00 | \$68,900.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 65,000 | \$0.00 | \$0.00 | \$0.00 | \$65,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1385 | 1.2.2 | ACCELERATOR |  |  | 0 | 3,735.96 wks | \$5,248,493.58 | \$5,266,600.00 | \$5,272,272.68 | \$15,787,366.26 | \$2,390,659.94 | \$4,874,082.82 | \$23,052,109.02 |
| 1386 | 1.2.2.1 | PED |  |  | 0 | 1,738.3 wks | \$5,248,493.58 | \$0.00 | \$0.00 | \$5,248,493.58 | \$1,020,158.16 | \$1,953,582.01 | \$8,222,233.74 |
| 1387 | 1.2.2.1.1 | System Integration |  |  | 0 | 588 wks | \$2,064,680.00 | \$0.00 | \$0.00 | \$2,064,680.00 | \$395,436.00 | \$723,523.60 | \$3,183,639.60 |
| 1388 | 1.2.2.1.1.4 | Computer Equipment | SLAC | M 2 S | 4 | 0 wks | \$25,000.00 | \$0.00 | \$0.00 | \$25,000.00 | \$1,500.00 | \$13,250.00 | \$39,750.00 |



| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| $\begin{array}{\|l\|} \hline 1407 \\ \hline \end{array}$ | 1.2.2.1.4.1 | Articulation Vac Engineering | SLAC | ED\& | 3 | 10 wks | \$33,600.00 | \$0.00 | \$0.00 | \$33,600.00 | \$6,720.00 | \$14,112.00 | \$54,432.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$33,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1408 | 1.2.2.1.4.2 | Articulation vac Design | SLAC | ED\& | 3 | 7.5 wks | \$17,250.00 | \$0.00 | \$0.00 | \$17,250.00 | \$3,450.00 | \$7,245.00 | \$27,945.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 7.5 wks | \$0.00 | \$0.00 | \$0.00 | \$17,250.00 | \$0.00 | \$0.00 | \$0.00 |
| 1409 | 1.2.2.1.4.3 | Articulation Vac Drafting | SLAC | ED\& | 3 | 12.5 wks | \$28,750.00 | \$0.00 | \$0.00 | \$28,750.00 | \$5,750.00 | \$12,075.00 | \$46,575.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 12.5 wks | \$0.00 | \$0.00 | \$0.00 | \$28,750.00 | \$0.00 | \$0.00 | \$0.00 |
| 1410 | 1.2.2.1.5 | BC2 Articulation Vacuum |  |  | 0 | 30 wks | \$79,600.00 | \$0.00 | \$0.00 | \$79,600.00 | \$15,920.00 | \$33,432.00 | \$128,952.00 |
| 1411 | 1.2.2.1.5.1 | Articulation Vac Engineering | SLAC | ED\& | 3 | 10 wks | \$33,600.00 | \$0.00 | \$0.00 | \$33,600.00 | \$6,720.00 | \$14,112.00 | \$54,432.00 |
|  |  | SLAC Mechanical Engineer |  | ED\&1 | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$33,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1412 | 1.2.2.1.5.2 | Articulation Vac Design | SLAC | ED\& | 3 | 7.5 wks | \$17,250.00 | \$0.00 | \$0.00 | \$17,250.00 | \$3,450.00 | \$7,245.00 | \$27,945.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 7.5 wks | \$0.00 | \$0.00 | \$0.00 | \$17,250.00 | \$0.00 | \$0.00 | \$0.00 |
| 1413 | 1.2.2.1.5.3 | Articulation Vac Drafting | SLAC | ED\& | 3 | 12.5 wks | \$28,750.00 | \$0.00 | \$0.00 | \$28,750.00 | \$5,750.00 | \$12,075.00 | \$46,575.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 12.5 wks | \$0.00 | \$0.00 | \$0.00 | \$28,750.00 | \$0.00 | \$0.00 | \$0.00 |
| 1414 | 1.2.2.1.6 | Dumpline vacuum |  |  | 0 | 80 wks | \$226,400.00 | \$0.00 | \$0.00 | \$226,400.00 | \$45,280.00 | \$95,088.00 | \$366,768.00 |
| 1415 | 1.2.2.1.6. 1 | Dumpline Vac Engineering | SLAC | ED\& | 3 | 40 wks | \$134,400.00 | \$0.00 | \$0.00 | \$134,400.00 | \$26,880.00 | \$56,448.00 | \$217,728.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 40 wks | \$0.00 | \$0.00 | \$0.00 | \$134,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 1416 | 1.2.2.1.6.2 | Dumpline Vac Design | SLAC | ED\& | 3 | 20 wks | \$46,000.00 | \$0.00 | \$0.00 | \$46,000.00 | \$9,200.00 | \$19,320.00 | \$74,520.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$46,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1417 | 1.2.2.1.6.3 | Dumpline Vac Dratting | SLAC | ED\& | 3 | 20 wks | \$46,000.00 | \$0.00 | \$0.00 | \$46,000.00 | \$9,200.00 | \$19,320.00 | \$74,520.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$46,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1418 | 1.2.2.1.7 | Reserved |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1419 | 1.2.2.1.7.1 | Area layouts/raceways/supports | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1420 | 1.2.2.1.7.2 | System dwg (EI,WD,Protile,CC\&contrac.) | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1421 | 1.2.2.1.8 | PPS PED |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1422 | 1.2.2.1.8.1 | PPS Design Engineering | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1423 | 1.2.2.1.8.2 | PPS Design Drafting | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1424 | 1.2.2.1.9 | BC1 Articulation Mechanical |  |  | 0 | 62 wks | \$159,560.00 | \$0.00 | \$0.00 | \$159,560.00 | \$31,912.00 | \$67,015.20 | \$258,487.20 |
| 1425 | 1.2.2.1.9.1 | Articulation Engineering | SLAC | ED\& | 3 | 16 wks | \$53,760.00 | \$0.00 | \$0.00 | \$53,760.00 | \$10,752.00 | \$22,579.20 | \$87,091.20 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$53,760.00 | \$0.00 | \$0.00 | \$0.00 |
| 1426 | 1.2.2.1.9.2 | Articulation Design | SLAC | ED\& | 3 | 20 wks | \$46,000.00 | \$0.00 | \$0.00 | \$46,000.00 | \$9,200.00 | \$19,320.00 | \$74,520.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$46,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1427 | 1.2.2.1.9.3 | Articulation Dratting | SLAC | ED\& | 3 | 26 wks | \$59,800.00 | \$0.00 | \$0.00 | \$59,800.00 | \$11,960.00 | \$25,116.00 | \$96,876.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 26 wks | \$0.00 | \$0.00 | \$0.00 | \$59,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1428 | 1.2.2.1.10 | BC2 Articulation Mechanical |  |  | 0 | 62 wks | \$159,560.00 | \$0.00 | \$0.00 | \$159,560.00 | \$31,912.00 | \$67,015.20 | \$258,487.20 |
| 1429 | 1.2.2.1.10.1 | Articulation Engineering | SLAC | ED\& | 3 | 16 wks | \$53,760.00 | \$0.00 | \$0.00 | \$53,760.00 | \$10,752.00 | \$22,579.20 | \$87,091.20 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$53,760.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1430 | 1.2.2.1.10.2 | Articulation Design | SLAC | ED\& | 3 | 20 wks | \$46,000.00 | \$0.00 | \$0.00 | \$46,000.00 | \$9,200.00 | \$19,320.00 | \$74,520.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$46,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1431 | 1.2.2.1.10.3 | Articulation Dratting | SLAC | ED\& | 3 | 26 wks | \$59,800.00 | \$0.00 | \$0.00 | \$59,800.00 | \$11,960.00 | \$25,116.00 | \$96,876.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 26 wks | \$0.00 | \$0.00 | \$0.00 | \$59,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1432 | 1.2.2.1.11 | Bend Magnets - 5D7.1 (BC1 magnets) |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1433 | 1.2.2.1.11.1 | Magnet Design | SLAC |  | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1434 | 1.2.2.1.11.2 | Magnet Dratting | SLAC |  | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1435 | 1.2.2.1.11.3 | Magnet Support Design | SLAC |  | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1436 | 1.2.2.1.11.4 | Magnet Support Dratting | SLAC |  | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1437 | 1.2.2.1.12 | Bend Magnet 1D30.5 |  |  | 0 | 19 wks | \$51,120.00 | \$0.00 | \$0.00 | \$51,120.00 | \$10,224.00 | \$15,336.00 | \$76,680.00 |
| 1438 | 1.2.2.1.12.1 | Magnetic Modeling | SLAC | ED\& | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 1439 | 1.2.2.1.12.2 | Magnet Design | SLAC | ED\& | 2 | 3 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$2,016.00 | \$3,024.00 | \$15,120.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 1440 | 1.2.2.1.12.3 | Magnet Dratting | SLAC | ED\& | 2 | 8 wks | \$18,400.00 | \$0.00 | \$0.00 | \$18,400.00 | \$3,680.00 | \$5,520.00 | \$27,600.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | $8 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$18,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 1441 | 1.2.2.1.12.4 | Magnet Support Design | SLAC | ED\&I | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC Mechanical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 1442 | 1.2.2.1.12.5 | Magnet Support Dratting | SLAC | ED\& | 2 | 4 wks | \$9,200.00 | \$0.00 | \$0.00 | \$9,200.00 | \$1,840.00 | \$2,760.00 | \$13,800.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 1443 | 1.2.2.1.13 | Bend Magnet 4D102.36T |  |  | 2 | 5 wks | \$12,560.00 | \$0.00 | \$0.00 | \$12,560.00 | \$2,512.00 | \$3,768.00 | \$18,840.00 |
| 1444 | 1.2.2.1.13.1 | Magnetic Modeling | SLAC | ED\&1 | 2 | 0.2 wks | \$672.00 | \$0.00 | \$0.00 | \$672.00 | \$134.40 | \$201.60 | \$1,008.00 |
|  |  | SLAC Mechanical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$672.00 | \$0.00 | \$0.00 | \$0.00 |
| 1445 | 1.2.2.1.13.2 | Magnet Design | SLAC | ED\& | 2 | 0.4 wks | \$1,344.00 | \$0.00 | \$0.00 | \$1,344.00 | \$268.80 | \$403.20 | \$2,016.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,344.00 | \$0.00 | \$0.00 | \$0.00 |
| 1446 | 1.2.2.1.13.3 | Magnet Dratting | SLAC | ED\& | 2 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$1,380.00 | \$6,900.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&I | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1447 | 1.2.2.1.13.4 | Magnet Support Design | SLAC | ED\& | 2 | 0.4 wks | \$1,344.00 | \$0.00 | \$0.00 | \$1,344.00 | \$268.80 | \$403.20 | \$2,016.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,344.00 | \$0.00 | \$0.00 | \$0.00 |
| 1448 | 1.2.2.1.13.5 | Magnet Support Dratting | SLAC | ED\& | 2 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$1,380.00 | \$6,900.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1449 | 1.2.2.1.14 | Bend Magnet (VB) |  |  | 0 | 19 wks | \$51,120.00 | \$0.00 | \$0.00 | \$51,120.00 | \$10,224.00 | \$15,336.00 | \$76,680.00 |
| 1450 | 1.2.2.1.14.1 | Magnetic Modeling | SLAC | ED\& | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | $2 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 1 D | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1451 | 1.2.2.1.14.2 | Magnet Design | SLAC | ED\&1 | 2 | 3 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$2,016.00 | \$3,024.00 | \$15,120.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 1452 | 1.2.2.1.14.3 | Magnet Dratting | SLAC | ED\& | 2 | 8 wks | \$18,400.00 | \$0.00 | \$0.00 | \$18,400.00 | \$3,680.00 | \$5,520.00 | \$27,600.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$18,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 1453 | 1.2.2.1.14.4 | Magnet Support Design | SLAC | ED\& | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 1454 | 1.2.2.1.14.5 | Magnet Support Dratting | SLAC | ED\& | 2 | 4 wks | \$9,200.00 | \$0.00 | \$0.00 | \$9,200.00 | \$1,840.00 | \$2,760.00 | \$13,800.00 |
|  |  | SLAC Mech Dratting/Design |  | EDQ1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 1455 | 1.2.2.1.15 | Dumpline Bend Magnet |  |  | 0 | 19 wks | \$51,120.00 | \$0.00 | \$0.00 | \$51,120.00 | \$10,224.00 | \$15,336.00 | \$76,680.00 |
| 1456 | 1.2.2.1.15.1 | Magnetic Modeling | SLAC | ED\& | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC Mechanical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 1457 | 1.2.2.1.15.2 | Magnet Design | SLAC | ED\& | 2 | 3 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$2,016.00 | \$3,024.00 | \$15,120.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 1458 | 1.2.2.1.15.3 | Magnet Dratting | SLAC | ED\& | 2 | 8 wks | \$18,400.00 | \$0.00 | \$0.00 | \$18,400.00 | \$3,680.00 | \$5,520.00 | \$27,600.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | $8 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$18,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 1459 | 1.2.2.1.15.4 | Magnet Support Design | SLAC | ED\& | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC Mechanical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 1460 | 1.2.2.1.15.5 | Magnet Support Dratting | SLAC | ED\& | 2 | 4 wks | \$9,200.00 | \$0.00 | \$0.00 | \$9,200.00 | \$1,840.00 | \$2,760.00 | \$13,800.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 1461 | 1.2.2.1.16 | Quadrupoles - QE |  |  | 0 | 16 wks | \$43,160.00 | \$0.00 | \$0.00 | \$43,160.00 | \$8,632.00 | \$12,948.00 | \$64,740.00 |
| 1462 | 1.2.2.1.16.1 | Magnetic Modeling | SLAC | ED\& | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 1463 | 1.2.2.1.16.2 | Magnet Design | SLAC | ED\& | 2 | 3 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$2,016.00 | \$3,024.00 | \$15,120.00 |
|  |  | SLAC AD: Mech Vacuum Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 1464 | 1.2.2.1.16.3 | Magnet Dratting | SLAC | ED\& | 2 | 8 wks | \$18,400.00 | \$0.00 | \$0.00 | \$18,400.00 | \$3,680.00 | \$5,520.00 | \$27,600.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$18,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 1465 | 1.2.2.1.16.4 | Magnet Support Design | SLAC | ED\& | 2 | 1 wk | \$3,360.00 | \$0.00 | \$0.00 | \$3,360.00 | \$672.00 | \$1,008.00 | \$5,040.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 1466 | 1.2.2.1.16.5 | Magnet Support Dratting | SLAC | ED\& | 2 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$1,380.00 | \$6,900.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1467 | 1.2.2.1.17 | Quad Magnet 0.91017.72 |  |  | 0 | 16 wks | \$43,160.00 | \$0.00 | \$0.00 | \$43,160.00 | \$8,632.00 | \$12,948.00 | \$64,740.00 |
| 1468 | 1.2.2.1.17.1 | Magnetic Modeliing | SLAC | ED\& | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC Mechanical Engineer |  | EDQ1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 1469 | 1.2.2.1.17.2 | Magnet Design | SLAC | ED\& | 2 | 3 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$2,016.00 | \$3,024.00 | \$15,120.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1470 | 1.2.2.1.17.3 | Magnet Drafting | SLAC | ED\&1 | 2 | 8 wks | \$18,400.00 | \$0.00 | \$0.00 | \$18,400.00 | \$3,680.00 | \$5,520.00 | \$27,600.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | $8 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$18,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 1471 | 1.2.2.1.17.4 | Magnet Support Design | SLAC | ED\& | 2 | 1 wk | \$3,360.00 | \$0.00 | \$0.00 | \$3,360.00 | \$672.00 | \$1,008.00 | \$5,040.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 1472 | 1.2.2.1.17.5 | Magnet Support Dratting | SLAC | ED\& | 2 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$1,380.00 | \$6,900.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1473 | 1.2.2.1.18 | Superconducting Wiggler |  |  | 2 | 15 wks | \$44,200.00 | \$0.00 | \$0.00 | \$44,200.00 | \$8,840.00 | \$7,956.00 | \$60,996.00 |
| 1474 | 1.2.2.1.18.1 | Magnet Modelling | SLAC | ED\& | 1 | 4 wks | \$13,600.00 | \$0.00 | \$0.00 | \$13,600.00 | \$2,720.00 | \$2,448.00 | \$18,768.00 |
|  |  | SLAC Physicist -Scientist |  | EDQ1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1475 | 1.2.2.1.18.2 | Magnet Design(bid pkg) | SLAC | ED\& | 1 | 3 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$2,016.00 | \$1,814.40 | \$13,910.40 |
|  |  | SLAC Mechanical Engineer |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 1476 | 1.2.2.1.18.3 | Magnet dratting(bid pkg) | SLAC | ED\& | 1 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$828.00 | \$6,348.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1477 | 1.2.2.1.18.4 | Magnet support design | SLAC | ED\& | 1 | 1 wk | \$3,360.00 | \$0.00 | \$0.00 | \$3,360.00 | \$672.00 | \$604.80 | \$4,636.80 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 1478 | 1.2.2.1.18.5 | Magnet support dratting | SLAC | ED\& | 1 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$828.00 | \$6,348.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1479 | 1.2.2.1.18.6 | Cryo Design | SLAC | ED\& | 1 | 1 wk | \$3,360.00 | \$0.00 | \$0.00 | \$3,360.00 | \$672.00 | \$604.80 | \$4,636.80 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 1480 | 1.2.2.1.18.7 | Cryo dratting | SLAC | ED\& | 1 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$828.00 | \$6,348.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1481 | 1.2.2.1.19 | Accelerator Structures - L1 |  |  | 0 | 6 wks | \$20,160.00 | \$0.00 | \$0.00 | \$20,160.00 | \$4,032.00 | \$6,048.00 | \$30,240.00 |
| 1482 | 1.2.2.1.19.1 | Structure Design (cutting structure) | SLAC | ED\& | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 1483 | 1.2.2.1.19.2 | Structure Dratting | SLAC | ED\& | 2 | 4 wks | \$13,440.00 | \$0.00 | \$0.00 | \$13,440.00 | \$2,688.00 | \$4,032.00 | \$20,160.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 1484 | 1.2.2.1.20 | X -Band Design |  |  | 0 | 52.75 wks | \$155,037.90 | \$0.00 | \$0.00 | \$155,037.90 | \$31,007.58 | \$64,204.56 | \$250,250.04 |
| 1485 | 1.2.2.1.20.1 | Klystron Design | SLAC | ED\& | 3 | 20 wks | \$57,864.00 | \$0.00 | \$0.00 | \$57,864.00 | \$11,572.80 | \$24,302.88 | \$93,739.68 |
|  |  | SLAC KIystron: Engineer |  | ED\& | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$57,864.00 | \$0.00 | \$0.00 | \$0.00 |
| 1486 | 1.2.2.1.20.1 | Kly Mount Desgn | SLAC | ED\& | 3 | 5 wks | \$14,466.00 | \$0.00 | \$0.00 | \$14,466.00 | \$2,893.20 | \$6,075.72 | \$23,434.92 |
|  |  | SLAC Klystron: Engineer |  | ED\& | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$14,466.00 | \$0.00 | \$0.00 | \$0.00 |
| 1487 | 1.2.2.1.20.2 | Modulator Design | SLAC | ED\& | 3 | 2 wks | \$5,786.40 | \$0.00 | \$0.00 | \$5,786.40 | \$1,157.28 | \$2,430.29 | \$9,373.97 |
|  |  | SLAC Klystron: Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,786.40 | \$0.00 | \$0.00 | \$0.00 |
| 1488 | 1.2.2.1.20.2 | Modulator Documentation | SLAC | ED\& | 3 | 3 wks | \$6,900.00 | \$0.00 | \$0.00 | \$6,900.00 | \$1,380.00 | \$2,898.00 | \$11,178.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,900.00 | \$0.00 | \$0.00 | \$0.00 |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{array}{\|c\|} \hline \text { ID } \\ \hline 1489 \end{array}$ | cWbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.2.2.1.20.2 | Tank Design | SLAC | ED\& | 0 | 0.75 wks | \$2,169.90 | \$0.00 | \$0.00 | \$2,169.90 | \$433.98 | \$0.00 | \$2,603.88 |
|  |  | SLAC Klystron: Engineer |  | ED\& | 0 | 0.75 wks | \$0.00 | \$0.00 | \$0.00 | \$2,169.90 | \$0.00 | \$0.00 | \$0.00 |
| 1490 | 1.2.2.1.20.3 | LLRF Design | SLAC | ED\& | 3 | 4 wks | \$11,572.80 | \$0.00 | \$0.00 | \$11,572.80 | \$2,314.56 | \$4,860.58 | \$18,747.94 |
|  |  | SLAC KIystron: Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,572.80 | $\$ 0.00$ | \$0.00 | $\$ 0.00$ |
| 1491 | 1.2.2.1.20.4 | Waveguide System Design | SLAC | ED\& | 3 | 4 wks | \$11,572.80 | \$0.00 | \$0.00 | \$11,572.80 | \$2,314.56 | \$4,860.58 | \$18,747.94 |
|  |  | SLAC KIystron: Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,572.80 | \$0.00 | \$0.00 | \$0.00 |
| 1492 | 1.2.2.1.20.4 | Waveguide Support Design | SLAC | ED\& | 3 | 3 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$2,016.00 | \$4,233.60 | \$16,329.60 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 1493 | 1.2.2.1.20.5 | Structure Design | SLAC | ED\& | 3 | 5 wks | \$14,466.00 | \$0.00 | \$0.00 | \$14,466.00 | \$2,893.20 | \$6,075.72 | \$23,434.92 |
|  |  | SLAC Klystron: Engineer |  | ED\& | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$14,466.00 | \$0.00 | \$0.00 | \$0.00 |
| 1494 | 1.2.2.1.20.5 | Structure Support Design | SLAC | ED\& | 3 | 6 wks | \$20,160.00 | \$0.00 | \$0.00 | \$20,160.00 | \$4,032.00 | \$8,467.20 | \$32,659.20 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&/ | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$20,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 1495 | 1.2.2.1.21 | Accelerator Structures - Transverse |  |  | 0 | 12 wks | \$40,320.00 | \$0.00 | \$0.00 | \$40,320.00 | \$8,064.00 | \$12,096.00 | \$60,480.00 |
| 1496 | 1.2.2.1.21.1 | Structure Design | SLAC | ED\& | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 1497 | 1.2.2.1.21.2 | Structure Dratting | SLAC | ED\& | 2 | 4 wks | \$13,440.00 | \$0.00 | \$0.00 | \$13,440.00 | \$2,688.00 | \$4,032.00 | \$20,160.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 1498 | 1.2.2.1.21.3 | Structure Support Design | SLAC | ED\& | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 1499 | 1.2.2.1.21.4 | Structure Support Dratting | SLAC | ED\& | 2 | 4 wks | \$13,440.00 | \$0.00 | \$0.00 | \$13,440.00 | \$2,688.00 | \$4,032.00 | \$20,160.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,440.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1500 | 1.2.2.1.22 | RF Distribution System |  |  | 0 | 120 wks | \$329,288.48 | \$0.00 | \$0.00 | \$329,288.48 | \$65,857.14 | \$108,507.77 | \$503,653.38 |
| 1501 | 1.2.2.1.22.1 | System RF Design | SLAC |  | 4 | 88 wks | \$242,419.20 | \$0.00 | \$0.00 | \$242,419.20 | \$48,483.28 | \$82,446.98 | \$373,349.46 |
| 1502 | 1.2.2.1.22.1 | Dratting | SLAC | ED\& | 2 | 20 wks | \$46,000.00 | \$0.00 | \$0.00 | \$46,000.00 | \$9,200.00 | \$13,800.00 | \$69,000.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$46,000.00 | \$0.00 | \$0.00 | $\begin{array}{r} \$ 0.00 \\ \$ 43,398.00 \end{array}$ |
| 1503 | 1.2.2.1.22.1 | Documentation | SLAC | ED\& | 2 | 10 wks | \$28,932.00 | \$0.00 | \$0.00 | \$28,932.00 | \$5,786.40 | \$8,679.60 |  |
|  |  | SLAC Klystron: Engineer |  | ED\&1 | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$28,932.00 | \$0.00 | \$0.00 | \$0.00 |
| 1504 | 1.2.2.1.22.1 | $x$-Band Phase Chassis | SLAC | ED\&1 | 3 | 12 wks | \$34,718.40 | \$0.00 | \$0.00 | \$34,718.40 | \$6,943.68 | \$14,581.73 | \$56,243.81 |
|  |  | SLAC KIystron: Engineer |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$34,718.40 | \$0.00 | \$0.00 | \$0.00 |
| 1505 | 1.2.2.1.22.1 | X-Band Phase Chassis | SLAC | M\&S | 3 | 0 wks | \$1.00 | \$0.00 | \$0.00 | \$1.00 | \$0.06 | \$0.37 | \$1.43 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1 | \$10,000.00 | \$0.00 | \$0.00 | $\$ 1.00$ | \$0.00 | \$0.00 | \$0.00 |
| 1506 | 1.2.2.1.22.1 | X -Band PAD Mods | SLAC | ED\& | 3 | 16 wks | \$46,291.20 | \$0.00 | \$0.00 | \$46,291.20 | \$9,258.24 | \$19,442.30 | $\begin{array}{r}\text { \$74,991.74 } \\ \hline \$ 0.00\end{array}$ |
|  |  | SLAC KIystron: Engineer |  | ED\& | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 |  | \$0.00 | \$0.00 |  |
| 1507 | 1.2.2.1.22.1 | $x$-Band PAD Mods | SLAC | M\&S | 3 | 0 wks | $\begin{array}{r} \$ 1.00 \\ \$ 10,000.00 \end{array}$ | $\begin{aligned} & \$ 0.00 \\ & \$ 0.00 \end{aligned}$ | \$0.00 | \$1.00 | \$0.06 | \$0.37 | \$1.43 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1 |  |  | \$0.00 | $\$ 1.00$ | \$0.00 | \$0.00 | \$0.00 |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1508 | 1.2.2.1.22.1 | RF Dist. PRL Coaxal Water | SLAC | ED\& | 2 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$1,380.00 | \$6,900.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1509 | 1.2.2.1.22.1 | 2 Watt Distribution Amp [10] | SLAC | ED\& | 2 | 12 wks | \$34,718.40 | \$0.00 | \$0.00 | \$34,718.40 | \$6,943.68 | \$10,415.52 | \$52,077.60 |
|  |  | SLAC KIystron: Engineer |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$34,718.40 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 1510 | 1.2.2.1.22.1 | 2 Watt Distribution Amp [10] | SLAC | M 2 S | 2 | 0 wks | \$1.00 | \$0.00 | \$0.00 | \$1.00 | \$0.06 | \$0.27 | \$1.33 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1 | \$4,000.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 1511 | 1.2.2.1.22.1 | Exp. F.O. RF Ref. Electronics | SLAC | ED\& | 2 | 16 wks | \$47,155.20 | \$0.00 | \$0.00 | \$47,155.20 | \$9,431.04 | \$14,146.56 | \$70,732.80 |
|  |  | SLAC Controls: Engineer |  | ED\& | 0 | 16 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$47,155.20 | \$0.00 | \$0.00 | \$0.00 |
| 1512 | 1.2.2.1.22.1 | Exp. F.O. RF Ret. Electronics | SLAC | M 2 S | 2 | 0 wks | \$1.00 | \$0.00 | \$0.00 | \$1.00 | \$0.06 | \$0.27 | \$1.33 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1 | \$12,000.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 1513 | 1.2.2.1.22.2 | Controls Design | SLAC |  | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1514 | 1.2.2.1.22.3 | Dratting | SLAC |  | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1515 | 1.2.2.1.22.4 | RF Controls Hardware Engineering | SLAC | ED\& | 2 | 17.5 wks | \$52,500.00 | \$0.00 | \$0.00 | \$52,500.00 | \$10,500.00 | \$15,750.00 | \$78,750.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 17.5 wks | \$0.00 | \$0.00 | \$0.00 | \$52,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 1516 | 1.2.2.1.22.5 | RF Controls Software Engineering | SLAC | ED\& | 2 | 10.2 wks | \$25,769.28 | \$0.00 | \$0.00 | \$25,769.28 | \$5,153.86 | \$7,730.78 | \$38,653.92 |
|  |  | SLAC Controls: Programmer |  | ED\& | 0 | 10.2 wks | \$0.00 | \$0.00 | \$0.00 | \$25,769.28 | \$0.00 | \$0.00 | \$0.00 |
| 1517 | 1.2.2.1.22.6 | RF Controls Coordintaion \& Doc. | SLAC | ED\& | 2 | 4.3 wks | \$8,600.00 | \$0.00 | \$0.00 | \$8,600.00 | \$1,720.00 | \$2,580.00 | \$12,900.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 4.3 wks | \$0.00 | \$0.00 | \$0.00 | \$8,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1518 | 1.2.2.1.23 | Systems RF Design | SLAC |  | 0 | 93.25 wks | \$292,415.20 | \$0.00 | \$0.00 | \$292,415.20 | \$53,443.04 | \$86,464.56 | \$432,322.80 |
| 1519 | 1.2.2.1.23.1 | Dratting | SLAC | ED\& | 2 | 20 wks | \$46,000.00 | \$0.00 | \$0.00 | \$46,000.00 | \$9,200.00 | \$13,800.00 | \$69,000.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$46,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1520 | 1.2.2.1.23.1 | Documentation | SLAC | ED\& | 2 | 10 wks | \$28,932.00 | \$0.00 | \$0.00 | \$28,932.00 | \$5,786.40 | \$8,679.60 | \$43,398.00 |
|  |  | SLAC KIystron: Engineer |  | ED\& | 0 | 10 wks | \$0.00 | $\$ 0.00$ | \$0.00 | \$28,932.00 | \$0.00 | \$0.00 | \$0.00 |
| 1521 | 1.2.2.1.23.1 | $x$-band Phase Chassis | SLAC | ED\& | 2 | 12 wks | \$34,718.40 | \$0.00 | \$0.00 | \$34,718.40 | \$6,943.68 | \$10,415.52 | \$52,077.60 |
|  |  | SLAC Klystron: Engineer |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$34,718.40 | \$0.00 | \$0.00 | \$0.00 |
| 1522 | 1.2.2.1.23.1 | X-Band Phase Chassis | SLAC | M 2 S | 2 | 0 wks | \$10,000.00 | \$0.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1523 | 1.2.2.1.23.1 | $x$-Band PAD Mods | SLAC | ED\& | 2 | 16 wks | \$46,291.20 | \$0.00 | \$0.00 | \$46,291.20 | \$9,258.24 | \$13,887.36 | \$69,436.80 |
|  |  | SLAC KIystron: Engineer |  | ED\&I | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$46,291.20 | \$0.00 | \$0.00 | \$0.00 |
| 1524 | 1.2.2.1.23.1 | X-Band PAD Mods | SLAC | M\&S | 2 | 0 wks | \$10,000.00 | \$0.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1525 | 1.2.2.1.23.1 | RF Dist. PRL Coaxal water | SLAC | ED\& | 2 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$1,380.00 | \$6,900.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1526 | 1.2.2.1.23.1 | 2 Watt Distribution Amp [10] | SLAC | ED\& | 2 | 12 wks | \$34,718.40 | \$0.00 | \$0.00 | \$34,718.40 | \$6,943.68 | \$10,415.52 | \$52,077.60 |
|  |  | SLAC KIystron: Engineer |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$34,718.40 | \$0.00 | \$0.00 | \$0.00 |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1527 | 1.2.2.1.23.1 | 2 Watt Distribution Amp [10] | SLAC | M\&S | 2 | 0 wks | \$4,000.00 | \$0.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1528 | 1.2.2.1.23.1 | Exp. F.O. RF Ret. Electronics | SLAC | ED\& 1 | 2 | 16 wks | \$47,155.20 | \$0.00 | \$0.00 | \$47,155.20 | \$9,431.04 | \$14,146.56 | \$70,732.80 |
|  |  | SLAC Controls: Engineer |  | ED\&1 | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$47,155.20 | \$0.00 | \$0.00 | \$0.00 |
| 1529 | 1.2.2.1.23.1 | Exp. F.O. RF Ref. Electronics | SLAC | M 2 S | 2 | 0 wks | \$12,000.00 | \$0.00 | \$0.00 | \$12,000.00 | \$720.00 | \$3,180.00 | \$15,900.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1530 | 1.2.2.1.23.1 | Controls Hardware Engineering | SLAC | ED\& | 2 | 3.5 wks | \$10,500.00 | \$0.00 | \$0.00 | \$10,500.00 | \$2,100.00 | \$3,150.00 | \$15,750.00 |
|  |  | S LAC Electrical Engineer |  | EDEI | 0 | 3.5 wks | \$0.00 | \$0.00 | \$0.00 | \$10,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 1531 | 1.2.2.1.23.1 | Controls Coordintaion \& Doc.'n | SLAC | ED\&1 | 2 | 1.75 wks | \$3,500.00 | \$0.00 | \$0.00 | \$3,500.00 | \$700.00 | \$1,050.00 | \$5,250.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& 1 | 0 | 1.75 wks | \$0.00 | \$0.00 | \$0.00 | \$3,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 1532 | 1.2.2.1.24 | Bunch Length Monitor |  |  | 0 | 30 wks | \$144,880.00 | \$0.00 | \$0.00 | \$144,880.00 | \$21,976.00 | \$58,399.60 | \$225,255.60 |
| 1533 | 1.2.2.1.24.1 | Bunch Length Monitor Physics | SLAC |  | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1534 | 1.2.2.1.24.2 | Bunch Length Monitor Design | SLAC | M 2 S | 3 | 0 wks | \$50,000.00 | \$0.00 | \$0.00 | \$50,000.00 | \$3,000.00 | \$18,550.00 | \$71,550.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1535 | 1.2.2.1.24.2 | Bunch Length Monitor Design | SLAC | ED\& 1 | 3 | 10 wks | \$33,600.00 | \$0.00 | \$0.00 | \$33,600.00 | \$6,720.00 | \$14,112.00 | \$54,432.00 |
|  |  | SLAC Mechanical Engineer |  | ED\& 1 | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$33,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1536 | 1.2.2.1.24.3 | Bunch Length Monitor Dratting | SLAC | ED\& | 3 | 10 wks | \$33,600.00 | \$0.00 | \$0.00 | \$33,600.00 | \$6,720.00 | \$14,112.00 | \$54,432.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$33,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1537 | 1.2.2.1.24.4 | Bunch Length Monitor Support Design | SLAC | ED\& | 3 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$1,932.00 | \$7,452.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&I | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1538 | 1.2.2.1.24.5 | Bunch Length Monitor Support Drafting | SLAC | ED\& | 3 | 3 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$2,016.00 | \$4,233.60 | \$16,329.60 |
|  |  | SLAC Mechanical Engineer |  | ED\& 1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 1539 | 1.2.2.1.24.6 | Controls Hardware Engineering | SLAC | ED\&1 | 3 | 3 wks | \$9,000.00 | \$0.00 | \$0.00 | \$9,000.00 | \$1,800.00 | \$3,780.00 | \$14,580.00 |
|  |  | S LAC Electrical Engineer |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1540 | 1.2.2.1.24.7 | Controls Coordination and Documentation | SLAC | ED\& 1 | 3 | 2 wks | \$4,000.00 | \$0.00 | \$0.00 | \$4,000.00 | \$800.00 | \$1,680.00 | \$6,480.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1541 | 1.2.2.1.25 | Collimators |  |  | 0 | 16 wks | \$47,840.00 | \$0.00 | \$0.00 | \$47,840.00 | \$9,568.00 | \$17,292.00 | \$74,700.00 |
| 1542 | 1.2.2.1.25.1 | Collimator Design | SLAC | ED\& 1 | 2 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC Mechanical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 1543 | 1.2.2.1.25.2 | Collimator Dratting | SLAC | ED\& | 2 | 4 wks | \$13,440.00 | \$0.00 | \$0.00 | \$13,440.00 | \$2,688.00 | \$4,032.00 | \$20,160.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 1544 | 1.2.2.1.25.3 | Collimator Support Design | SLAC | ED\&I | 4 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$2,760.00 | \$8,280.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 1545 | 1.2.2.1.25.4 | Collimator Support Dratting | SLAC | ED\&1 | 2 | 3 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$2,016.00 | \$3,024.00 | \$15,120.00 |
|  |  | SLAC Mechanical Engineer |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  | Page 82 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{array}{\|c\|} \hline \text { ID } \\ \hline 1546 \end{array}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.2.2.1.25.5 | Hardware Engineering | SLAC | ED\& | 3 | 3 wks | \$9,000.00 | \$0.00 | \$0.00 | \$9,000.00 | \$1,800.00 | \$3,780.00 | \$14,580.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1547 | 1.2.2.1.25.6 | Coordination and Documentation | SLAC | ED\& | 3 | 2 wks | \$4,000.00 | \$0.00 | \$0.00 | \$4,000.00 | \$800.00 | \$1,680.00 | \$6,480.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | $\$ 0.00$ | \$0.00 | $\$ 0.00$ |
| 1548 | 1.2.2.1.26 | E-O Diagnostic |  |  | 0 | 21.5 wks | \$59,080.00 | \$0.00 | \$0.00 | \$59,080.00 | \$11,816.00 | \$23,973.60 | \$94,869.60 |
| 1549 | 1.2.2.1.26.1 | E-O Physics | SLAC | ED\& | 3 | 2 wks | \$6,800.00 | \$0.00 | \$0.00 | \$6,800.00 | \$1,360.00 | \$2,856.00 | \$11,016.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1550 | 1.2.2.1.26.2 | E-O Design | SLAC | ED\& | 3 | 4 wks | \$13,440.00 | \$0.00 | \$0.00 | \$13,440.00 | \$2,688.00 | \$5,644.80 | \$21,772.80 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&I | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 1551 | 1.2.2.1.26.3 | E-O Dratting | SLAC | ED\& | 3 | 4 wks | \$9,200.00 | \$0.00 | \$0.00 | \$9,200.00 | \$1,840.00 | \$3,864.00 | \$14,904.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 1552 | 1.2.2.1.26.4 | E-O Support Design | SLAC | ED\& | 3 | 4 wks | \$13,440.00 | \$0.00 | \$0.00 | \$13,440.00 | \$2,688.00 | \$5,644.80 | \$21,772.80 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 1553 | 1.2.2.1.26.5 | E-O Support Dratting | SLAC | ED\& | 3 | 4 wks | \$9,200.00 | \$0.00 | \$0.00 | \$9,200.00 | \$1,840.00 | \$3,864.00 | \$14,904.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 1554 | 1.2.2.1.26.6 | Hardware Engineering | SLAC | ED\& | 2 | 2 wks | \$4,000.00 | \$0.00 | \$0.00 | \$4,000.00 | \$800.00 | \$1,200.00 | \$6,000.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 2 wks | $\$ 0.00$ | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1555 | 1.2.2.1.26.7 | Coordination \& Layout | SLAC | ED\& | 2 | 1.5 wks | \$3,000.00 | \$0.00 | \$0.00 | \$3,000.00 | \$600.00 | \$900.00 | \$4,500.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&1 | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 1556 | 1.2.2.1.27 | New Power Supplies |  |  | 0 | 42 wks | \$93,513.60 | \$0.00 | \$0.00 | \$93,513.60 | \$18,702.72 | \$28,054.08 | \$140,270.40 |
| 1557 | 1.2.2.1.27.1 | New Power Supplies | SLAC | ED\& | 2 | 12 wks | \$36,000.00 | \$0.00 | \$0.00 | \$36,000.00 | \$7,200.00 | \$10,800.00 | \$54,000.00 |
|  |  | SLAC PCD:Engineer |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$36,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1558 | 1.2.2.1.27.2 | New Power Supplies | SLAC | B\&H | 2 | 1 wk | \$1,753.60 | \$0.00 | \$0.00 | \$1,753.60 | \$350.72 | \$526.08 | \$2,630.40 |
|  |  | SLAC PCD:Iechnician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,753.60 | \$0.00 | \$0.00 | \$0.00 |
| 1559 | 1.2.2.1.27.3 | New Power Supplies | SLAC | B\&H | 2 | 1 wk | \$2,000.00 | \$0.00 | \$0.00 | \$2,000.00 | \$400.00 | \$600.00 | \$3,000.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1560 | 1.2.2.1.27.4 | System Dwgs (EI, WD, Profile, | SLAC | ED\& | 2 | 28 wks | \$53,760.00 | \$0.00 | \$0.00 | \$53,760.00 | \$10,752.00 | \$16,128.00 | \$80,640.00 |
|  |  | SLAC PCD:Coordinator Associate |  | ED\& | 0 | 28 wks | \$0.00 | \$0.00 | \$0.00 | \$53,760.00 | \$0.00 | \$0.00 | \$0.00 |
| 1561 | 1.2.2.1.28 | Main Dump | SLAC |  | 0 | 34 wks | \$93,120.00 | \$0.00 | \$0.00 | \$93,120.00 | \$18,624.00 | \$39,110.40 | \$150,854.40 |
| 1562 | 1.2.2.1.28.1 | Dump Physics | SLAC | ED\& | 3 | 2 wks | \$6,800.00 | \$0.00 | \$0.00 | \$6,800.00 | \$1,360.00 | \$2,856.00 | \$11,016.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1563 | 1.2.2.1.28.2 | Dump Design | SLAC | ED\& | 3 | 8 wks | \$26,880.00 | \$0.00 | \$0.00 | \$26,880.00 | \$5,376.00 | \$11,289.60 | \$43,545.60 |
|  |  | SLAC Mechanical Engineer |  | ED\&1 | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$26,880.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 1564 | 1.2.2.1.28.3 | Dump Dratting | SLAC | ED\& | 3 | 12 wks | \$27,600.00 | \$0.00 | \$0.00 | \$27,600.00 | \$5,520.00 | \$11,592.00 | \$44,712.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$27,600.00 | \$0.00 | \$0.00 | \$0.00 |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{1565}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 4 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.2.2.1.28.4 | Dump Support Design | SLAC | ED\& | 3 | 4 wks | \$13,440.00 | \$0.00 | \$0.00 | \$13,440.00 | \$2,688.00 | \$5,644.80 | \$21,772.80 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 1566 | 1.2.2.1.28.5 | Dump Support Dratting | SLAC | ED\& | 3 | 8 wks | \$18,400.00 | \$0.00 | \$0.00 | \$18,400.00 | \$3,680.00 | \$7,728.00 | \$29,808.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$18,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 1567 | 1.2.2.1.29 | Linac Smoothing PED | SLAC |  | 0 | 69.2 wks | \$164,488.00 | \$0.00 | \$0.00 | \$164,488.00 | \$32,897.60 | \$49,346.40 | \$246,732.00 |
| 1568 | 1.2.2.1.29.1 | Alignment Project Engineer | SLAC | B\&H | 2 | 26 wks | \$59,280.00 | \$0.00 | \$0.00 | \$59,280.00 | \$11,856.00 | \$17,784.00 | \$88,920.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 26 wks | \$0.00 | \$0.00 | \$0.00 | \$59,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 1569 | 1.2.2.1.29.2 | Mechanical Designer | SLAC | ED\& | 2 | 26 wks | \$59,800.00 | \$0.00 | \$0.00 | \$59,800.00 | \$11,960.00 | \$17,940.00 | \$89,700.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&I | 0 | 26 wks | \$0.00 | \$0.00 | \$0.00 | \$59,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1570 | 1.2.2.1.29.3 | Electrical Engineer | SLAC | ED\& | 2 | 8.6 wks | \$25,800.00 | \$0.00 | \$0.00 | \$25,800.00 | \$5,160.00 | \$7,740.00 | \$38,700.00 |
|  |  | SLAC Electrical Engineer |  | ED\& | 0 | 8.6 wks | \$0.00 | \$0.00 | \$0.00 | \$25,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1571 | 1.2.2.1.29.4 | Software Engineer and Coding | SLAC | B\&H | 2 | 8.6 wks | \$19,608.00 | \$0.00 | \$0.00 | \$19,608.00 | \$3,921.60 | \$5,882.40 | \$29,412.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 8.6 wks | \$0.00 | \$0.00 | \$0.00 | \$19,608.00 | \$0.00 | \$0.00 | \$0.00 |
| 1572 | 1.2.2.1.30 | Tune Up Dump | SLAC |  | 3 | 22 wks | \$59,080.00 | \$0.00 | \$0.00 | \$59,080.00 | \$11,816.00 | \$24,813.60 | \$95,709.60 |
| 1573 | 1.2.2.1.30.1 | TD Design | SLAC | ED\& | 3 | 6 wks | \$20,160.00 | \$0.00 | \$0.00 | \$20,160.00 | \$4,032.00 | \$8,467.20 | \$32,659.20 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$20,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 1574 | 1.2.2.1.30.2 | TD Dratting | SLAC | ED\& | 3 | 8 wks | \$18,400.00 | \$0.00 | \$0.00 | \$18,400.00 | \$3,680.00 | \$7,728.00 | \$29,808.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$18,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 1575 | 1.2.2.1.30.3 | ID Support Design | SLAC | ED\& | 3 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,822.40 | \$10,886.40 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 1576 | 1.2.2.1.30.4 | TD Support Drafting | SLAC | ED\& | 3 | 6 wks | \$13,800.00 | \$0.00 | \$0.00 | \$13,800.00 | \$2,760.00 | \$5,796.00 | \$22,356.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&I | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$13,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1577 | 1.2.2.2 | Mechanical |  |  | 0 | 302.85 wks | \$0.00 | \$187,000.00 | \$866,399.14 | \$1,053,399.14 | \$184,499.83 | \$360,184.11 | \$1,598,083.08 |
| 1578 | 1.2.2.2. 1 | General Vacuum Supports |  |  | 0 | 63.95 wks | \$0.00 | \$28,000.00 | \$178,393.78 | \$206,393.78 | \$37,358.76 | \$60,938.13 | \$304,690.67 |
| 1579 | 1.2.2.2.1.1 | Support Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$28,000.00 | \$0.00 | \$28,000.00 | \$1,680.00 | \$7,420.00 | \$37,100.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 28,000 | \$0.00 | \$0.00 | \$0.00 | \$28,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1580 | 1.2.2.2.1.2 | Support Machining | SLAC | B\&H | 2 | 42.1 wks | \$0.00 | \$0.00 | \$134,720.00 | \$134,720.00 | \$26,944.00 | \$40,416.00 | \$202,080.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 42.1 wks | \$0.00 | \$0.00 | \$0.00 | \$134,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 1581 | 1.2.2.2.1.3 | Support Assembly | SLAC | B\&H | 2 | 21.85 wks | \$0.00 | \$0.00 | \$43,673.78 | \$43,673.78 | \$8,734.76 | \$13,102.13 | \$65,510.67 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 21.85 wks | \$0.00 | \$0.00 | \$0.00 | \$43,673.78 | \$0.00 | \$0.00 | \$0.00 |
| 1582 | 1.2.2.2.2 | BC1 Chicane Articulation |  |  | 0 | 32.3 wks | \$0.00 | \$15,000.00 | \$94,584.76 | \$109,584.76 | \$19,816.95 | \$45,290.60 | \$174,692.31 |
| 1583 | 1.2.2.2.2. | Articulation Materials | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$900.00 | \$5,565.00 | \$21,465.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1584 | 1.2.2.2.2.2 | Articulation Machining | SLAC | B\&H | 3 | 16 wks | \$0.00 | \$0.00 | \$51,200.00 | \$51,200.00 | \$10,240.00 | \$21,504.00 | \$82,944.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$51,200.00 | \$0.00 | \$0.00 | \$0.00 |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1585 | 1.2.2.2.2.3 | Articulation Cleaning/Plating | SLAC | B\&H | ${ }^{3}$ | 3.6 wks | \$0.00 | \$0.00 | \$18,000.00 | \$18,000.00 | \$3,600.00 | \$7,560.00 | \$29,160.00 |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 3.6 wks | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1586 | 1.2.2.2.2.4 | Articulation Welding | SLAC | B\&H | 3 | 6.5 wks | \$0.00 | \$0.00 | \$12,992.20 | \$12,992.20 | \$2,598.44 | \$5,456.72 | \$21,047.36 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 6.5 wks | \$0.00 | \$0.00 | \$0.00 | \$12,992.20 | \$0.00 | \$0.00 | \$0.00 |
| 1587 | 1.2.2.2.2.5 | Articulation Assembly | SLAC | B\&H | 3 | 4.2 wks | \$0.00 | \$0.00 | \$8,394.96 | \$8,394.96 | \$1,678.99 | \$3,525.88 | \$13,599.84 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 4.2 wks | \$0.00 | \$0.00 | \$0.00 | \$8,394.96 | \$0.00 | \$0.00 | \$0.00 |
| 1588 | 1.2.2.2.2.6 | Articulation Motion Testing | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,678.99 | \$6,476.11 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 1589 | 1.2.2.2.3 | BC2 Chicane Articulation |  |  | 0 | 35 wks | \$0.00 | \$17,000.00 | \$99,981.52 | \$116,981.52 | \$21,016.30 | \$48,299.24 | \$186,297.06 |
| 1590 | 1.2.2.2.3.1 | Articulation Materials | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$17,000.00 | \$0.00 | \$17,000.00 | \$1,020.00 | \$6,307.00 | \$24,327.00 |
|  |  | SLAC MES Total |  | M 2 S | 0 | 17,000 | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1591 | 1.2.2.2.3.2 | Articulation Machining | SLAC | B\&H | 3 | 16 wks | \$0.00 | \$0.00 | \$51,200.00 | \$51,200.00 | \$10,240.00 | \$21,504.00 | \$82,944.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$51,200.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 1592 | 1.2.2.2.3.3 | Articulation Cleaning/Plating | SLAC | B\&H | 3 | 3.6 wks | \$0.00 | \$0.00 | \$18,000.00 | \$18,000.00 | \$3,600.00 | \$7,560.00 | \$29,160.00 |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 3.6 wks | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1593 | 1.2.2.2.3.4 | Articulation Welding | SLAC | B\&H | 3 | 8 wks | \$0.00 | \$0.00 | \$15,990.40 | \$15,990.40 | \$3,198.08 | \$6,715.97 | \$25,904.45 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$15,990.40 | \$0.00 | \$0.00 | \$0.00 |
| 1594 | 1.2.2.2.3.5 | Articulation Assembly | SLAC | B\&H | 3 | 5 wks | \$0.00 | \$0.00 | \$9,994.00 | \$9,994.00 | \$1,998.80 | \$4,197.48 | \$16,190.28 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$9,994.00 | \$0.00 | \$0.00 | \$0.00 |
| 1595 | 1.2.2.2.3.6 | Articulation Motion Testing | SLAC | B\&H | 3 | 2.4 wks | \$0.00 | \$0.00 | \$4,797.12 | \$4,797.12 | \$959.42 | \$2,014.79 | \$7,771.33 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2.4 wks | \$0.00 | \$0.00 | \$0.00 | \$4,797.12 | \$0.00 | \$0.00 | \$0.00 |
| 1596 | 1.2.2.2.4 | Dumpline Vacuum Supports |  |  | 0 | 40 wks | \$0.00 | \$50,000.00 | \$113,280.00 | \$163,280.00 | \$25,656.00 | \$66,127.60 | \$255,063.60 |
| 1597 | 1.2.2.2.4.1 | Support Materials | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$50,000.00 | \$0.00 | \$50,000.00 | \$3,000.00 | \$18,550.00 | \$71,550.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1598 | 1.2.2.2.4.2 | Support Machining | SLAC | B\&H | 3 | 24 wks | \$0.00 | \$0.00 | \$76,800.00 | \$76,800.00 | \$15,360.00 | \$32,256.00 | \$124,416.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$76,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1599 | 1.2.2.2.4.3 | Support Assembly | SLAC | B\&H | 3 | 16 wks | \$0.00 | \$0.00 | \$36,480.00 | \$36,480.00 | \$7,296.00 | \$15,321.60 | \$59,097.60 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$36,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 1600 | 1.2.2.2.5 | Bend Magnet 507. 1 |  |  | 0 | 9.6 wks | \$0.00 | \$3,000.00 | \$27,837.12 | \$30,837.12 | \$5,747.42 | \$9,146.14 | \$45,730.68 |
| 1601 | 1.2.2.2.5.1 | Support Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1602 | 1.2.2.2.5.2 | Support Machining | SLAC | B\&H | 2 | 7.2 wks | \$0.00 | \$0.00 | \$23,040.00 | \$23,040.00 | \$4,608.00 | \$6,912.00 | \$34,560.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 7.2 wks | \$0.00 | \$0.00 | \$0.00 | \$23,040.00 | $\$ 0.00$ | $\$ 0.00$ | \$0.00 |
| 1603 | 1.2.2.2.5.3 | Magnet Support Assembly | SLAC | B\&H | 2 | 2.4 wks | \$0.00 | \$0.00 | \$4,797.12 | \$4,797.12 | \$959.42 | \$1,439.14 | \$7,195.68 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2.4 wks | \$0.00 | \$0.00 | \$0.00 | \$4,797.12 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  | Page 85 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWbs | Task Name | obs | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1604 | 1.2.2.2.6 | Bend Magnet 1D30.5 |  |  | 0 | 9.6 wks | \$0.00 | \$3,000.00 | \$27,837.12 | \$30,837.12 | \$5,747.42 | \$9,146.14 | \$45,730.68 |
| 1605 | 1.2.2.2.6. 1 | Support Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 3,000 | $\$ 0.00$ | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1606 | 1.2.2.2.6.2 | Support Machining | SLAC | B\&H | 2 | 7.2 wks | \$0.00 | \$0.00 | \$23,040.00 | \$23,040.00 | \$4,608.00 | \$6,912.00 | \$34,560.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 7.2 wks | \$0.00 | \$0.00 | \$0.00 | \$23,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 1607 | 1.2.2.2.6.3 | Magnet Support Assembly | SLAC | B\&H | 2 | 2.4 wks | \$0.00 | \$0.00 | \$4,797.12 | \$4,797.12 | \$959.42 | \$1,439.14 | \$7,195.68 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2.4 wks | \$0.00 | \$0.00 | \$0.00 | \$4,797.12 | \$0.00 | \$0.00 | \$0.00 |
| 1608 | 1.2.2.2.7 | Bend Magnet 4D102.36T |  |  | 0 | 1.2 wks | \$0.00 | \$1,000.00 | \$2,879.04 | \$3,879.04 | \$635.81 | \$1,128.71 | \$5,643.56 |
| 1609 | 1.2.2.2.7.1 | Support Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1610 | 1.2.2.2.7.3 | Support Machining | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$1,280.00 | \$1,280.00 | \$256.00 | \$384.00 | \$1,920.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 1611 | 1.2.2.2.7.2 | Magnet Support Assembly | SLAC | B\&H | 2 | 0.8 wks | \$0.00 | \$0.00 | \$1,599.04 | \$1,599.04 | \$319.81 | \$479.71 | \$2,398.56 |
|  |  | SLAC Mech. Fab: Assembly lech |  | BRH | 0 | 0.8 wks | \$0.00 | \$0.00 | \$0.00 | \$1,599.04 | \$0.00 | $\$ 0.00$ | $\$ 0.00$ |
| 1612 | 1.2.2.2.8 | Bend Magnet (VB) |  |  | 0 | 4.4 wks | \$0.00 | \$1,000.00 | \$11,677.60 | \$12,677.60 | \$2,395.52 | \$3,768.28 | \$18,841.40 |
| 1613 | 1.2.2.2.8.1 | Support Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1614 | 1.2.2.2.8.2 | Support Machining | SLAC | B\&H | 2 | 2.4 wks | \$0.00 | \$0.00 | \$7,680.00 | \$7,680.00 | \$1,536.00 | \$2,304.00 | \$11,520.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 2.4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 1615 | 1.2.2.2.8.3 | Magnet Support Assembly | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,199.28 | \$5,996.40 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 1616 | 1.2.2.2.9 | Quadrupoles - 105.6 |  |  | 0 | 4.8 wks | \$0.00 | \$2,000.00 | \$13,918.56 | \$15,918.56 | \$2,903.71 | \$4,705.57 | \$23,527.84 |
| 1617 | 1.2.2.2.9.1 | Support Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }^{\text {S }}$ | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1618 | 1.2.2.2.9.2 | Support Machining | SLAC | B\&H | 2 | 3.6 wks | \$0.00 | \$0.00 | \$11,520.00 | \$11,520.00 | \$2,304.00 | \$3,456.00 | \$17,280.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 3.6 wks | \$0.00 | \$0.00 | \$0.00 | \$11,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 1619 | 1.2.2.2.9.3 | Magnet Support Assembly | SLAC | B\&H | 2 | 1.2 wks | \$0.00 | \$0.00 | \$2,398.56 | \$2,398.56 | \$479.71 | \$719.57 | \$3,597.84 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,398.56 | \$0.00 | \$0.00 | \$0.00 |
| 1620 | 1.2.2.2.10 | Quadrupoles - QA |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1621 | 1.2.2.2.10.1 | Support Materials | SLAC | ED\& | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1622 | 1.2.2.2.10.2 | Support Machining | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1623 | 1.2.2.2.10.3 | Magnet Support Assembly | SLAC | ED\& 1 | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1624 | 1.2.2.2.10.3 | Magnet Support Assembly | SLAC | B\&H | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1625 | 1.2.2.2.10.3 | Magnet Support Assembly | SLAC | ED\& | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&I | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1626 | 1.2.2.2.11 | Quad Magnet QE |  |  | 0 | 9.6 wks | \$0.00 | \$3,000.00 | \$27,837.12 | \$30,837.12 | \$5,747.42 | \$9,146.14 | \$45,730.68 |
| 1627 | 1.2.2.2.11.1 | Support Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1628 | 1.2.2.2.11.2 | Support Machining | SLAC | B\&H | 2 | 7.2 wks | \$0.00 | \$0.00 | \$23,040.00 | \$23,040.00 | \$4,608.00 | \$6,912.00 | \$34,560.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 7.2 wks | \$0.00 | \$0.00 | \$0.00 | \$23,040.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1629 | 1.2.2.2.11.3 | Magnet Support Assembly | SLAC | B\&H | 2 | 2.4 wks | \$0.00 | \$0.00 | \$4,797.12 | \$4,797.12 | \$959.42 | \$1,439.14 | \$7,195.68 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2.4 wks | \$0.00 | \$0.00 | \$0.00 | \$4,797.12 | \$0.00 | \$0.00 | \$0.00 |
| 1630 | 1.2.2.2.12 | Quad Magnet 0.91Q17.72 |  |  | 0 | 6.4 wks | \$0.00 | \$4,000.00 | \$18,558.08 | \$22,558.08 | \$3,951.62 | \$6,627.42 | \$33,137.12 |
| 1631 | 1.2.2.2.12.1 | Support Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {S }}$ | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1632 | 1.2.2.2.12.2 | Support Machining | SLAC | B\&H | 2 | 4.8 wks | \$0.00 | \$0.00 | \$15,360.00 | \$15,360.00 | \$3,072.00 | \$4,608.00 | \$23,040.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 4.8 wks | \$0.00 | \$0.00 | \$0.00 | \$15,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 1633 | 1.2.2.2.12.3 | Magnet Support Assembly | SLAC | B\&H | 2 | 1.6 wks | \$0.00 | \$0.00 | \$3,198.08 | \$3,198.08 | \$639.62 | \$959.42 | \$4,797.12 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 1.6 wks | \$0.00 | \$0.00 | \$0.00 | \$3,198.08 | \$0.00 | \$0.00 | \$0.00 |
| 1634 | 1.2.2.2.13 | Correctors |  |  | 0 | 12 wks | \$0.00 | \$10,000.00 | \$33,595.20 | \$43,595.20 | \$7,319.04 | \$12,728.56 | \$63,642.80 |
| 1635 | 1.2.2.2.13.1 | Support Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1636 | 1.2.2.2.13.2 | Support Machining | SLAC | B\&H | 2 | 8 wks | \$0.00 | \$0.00 | \$25,600.00 | \$25,600.00 | \$5,120.00 | \$7,680.00 | \$38,400.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$25,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1637 | 1.2.2.2.13.3 | Magnet Support Assembly | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$7,995.20 | \$7,995.20 | \$1,599.04 | \$2,398.56 | \$11,992.80 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,995.20 | \$0.00 | \$0.00 | \$0.00 |
| 1638 | 1.2.2.2.14 | Reserved | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1639 | 1.2.2.2.15 | Accelerator Structures - X-band |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1640 | 1.2.2.2.15.1 | Support Materials | SLAC | ED\& | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&1 | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1641 | 1.2.2.2.15.2 | Support Machining | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1642 | 1.2.2.2.15.3 | Structure Support Assembly | SLAC | ED\& | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1643 | 1.2.2.2.15.3 | Structure Support Assembly | SLAC | B\&H | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1644 | 1.2.2.2.15.3 | Structure Support Assembly | SLAC | ED\& | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1645 | 1.2.2.2.16 | Accelerator Structures - Transverse |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1646 | 1.2.2.2.16.1 | Support Materials | SLAC | ED\& | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1647 | 1.2.2.2.16.2 | Support Machining | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1648 | 1.2.2.2.16.3 | Structure Support Assembly | SLAC | B\&H | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1649 | 1.2.2.2.16.3 | Structure Support Assembly | SLAC | ED\& | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&1 | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1650 | 1.2.2.2.16.3 | Structure Support Assembly | SLAC | ED\&1 | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1651 | 1.2.2.2.16.3 | Structure Support Assembly | SLAC | B\&H | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1652 | 1.2.2.2.16.3 | Structure Support Assembly | SLAC | ED\&1 | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1653 | 1.2.2.2.17 | Tune-up Dumps |  |  | 0 | 5.4 wks | \$0.00 | \$2,000.00 | \$15,838.56 | \$17,838.56 | \$3,287.71 | \$7,394.20 | \$28,520.47 |
| 1654 | 1.2.2.2.17.1 | Support Materials | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$742.00 | \$2,862.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1655 | 1.2.2.2.17.2 | Support Machining | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$9,600.00 | \$9,600.00 | \$1,920.00 | \$4,032.00 | \$15,552.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$9,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1656 | 1.2.2.2.17.3 | Support Welding | SLAC | B\&H | 3 | 1.2 wks | \$0.00 | \$0.00 | \$3,840.00 | \$3,840.00 | \$768.00 | \$1,612.80 | \$6,220.80 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,840.00 | \$0.00 | \$0.00 | \$0.00 |
| 1657 | 1.2.2.2.17.4 | TD Support Assembly | SLAC | B\&H | 3 | 1.2 wks | \$0.00 | \$0.00 | \$2,398.56 | \$2,398.56 | \$479.71 | \$1,007.40 | \$3,885.67 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,398.56 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 1658 | 1.2.2.2.18 | Wire Scanners |  |  | 0 | 21 wks | \$0.00 | \$11,000.00 | \$62,995.80 | \$73,995.80 | \$13,259.16 | \$21,813.74 | \$109,068.70 |
| 1659 | 1.2.2.2.18.1 | Support Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$11,000.00 | \$0.00 | \$11,000.00 | \$660.00 | \$2,915.00 | \$14,575.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 11,000 | \$0.00 | \$0.00 | \$0.00 | \$11,000.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 1660 | 1.2.2.2.18.2 | Support Machining | SLAC | B\&H | 2 | 14 wks | \$0.00 | \$0.00 | \$44,800.00 | \$44,800.00 | \$8,960.00 | \$13,440.00 | \$67,200.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 14 wks | \$0.00 | \$0.00 | \$0.00 | \$44,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1661 | 1.2.2.2.18.3 | Support Welding | SLAC | B\&H | 2 | 3.5 wks | \$0.00 | \$0.00 | \$11,200.00 | \$11,200.00 | \$2,240.00 | \$3,360.00 | \$16,800.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 3.5 wks | \$0.00 | \$0.00 | \$0.00 | \$11,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 1662 | 1.2.2.2.18.4 | WS Support Assembly | SLAC | B\&H | 2 | 3.5 wks | \$0.00 | \$0.00 | \$6,995.80 | \$6,995.80 | \$1,399.16 | \$2,098.74 | \$10,493.70 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 3.5 wks | \$0.00 | \$0.00 | \$0.00 | \$6,995.80 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 1663 | 1.2.2.2.19 | BPMs |  |  | 0 | 3.6 wks | \$0.00 | \$1,000.00 | \$11,520.00 | \$12,520.00 | \$2,364.00 | \$1,311.00 | \$16,195.00 |
| 1664 | 1.2.2.2.19.1 | BPM Support Materials | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  | Page 88 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1665 | 1.2.2.2.19.2 | Support Machining | SLAC | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$9,600.00 | \$9,600.00 | \$1,920.00 | \$0.00 | \$11,520.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$9,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1666 | 1.2.2.2.19.3 | BPM Support Assembly | SLAC | B\&H | 4 | 0.6 wks | \$0.00 | \$0.00 | \$1,920.00 | \$1,920.00 | \$384.00 | \$1,152.00 | \$3,456.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,920.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1667 | 1.2.2.2.20 | Toroids |  |  | 0 | 5.6 wks | \$0.00 | \$2,000.00 | \$16,238.32 | \$18,238.32 | \$3,367.66 | \$5,401.50 | \$27,007.48 |
| 1668 | 1.2.2.2.20.1 | Support Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1669 | 1.2.2.2.20.2 | Support Machining | SLAC | B\&H | 2 | 4.2 wks | \$0.00 | \$0.00 | \$13,440.00 | \$13,440.00 | \$2,688.00 | \$4,032.00 | \$20,160.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 4.2 wks | \$0.00 | \$0.00 | \$0.00 | \$13,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 1670 | 1.2.2.2.20.3 | Toro Support Assembly | SLAC | B\&H | 2 | 1.4 wks | \$0.00 | \$0.00 | \$2,798.32 | \$2,798.32 | \$559.66 | \$839.50 | \$4,197.48 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 1.4 wks | \$0.00 | \$0.00 | \$0.00 | \$2,798.32 | \$0.00 | \$0.00 | \$0.00 |
| 1671 | 1.2.2.2.21 | Profile Monitor |  |  | 0 | 4 wks | \$0.00 | \$2,000.00 | \$12,800.00 | \$14,800.00 | \$2,680.00 | \$4,370.00 | \$21,850.00 |
| 1672 | 1.2.2.2.21.1 | Protile Monitor Support Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1673 | 1.2.2.2.21.2 | Support Machining | SLAC | B\&H | 2 | 2.4 wks | \$0.00 | \$0.00 | \$7,680.00 | \$7,680.00 | \$1,536.00 | \$2,304.00 | \$11,520.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 2.4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 1674 | 1.2.2.2.21.3 | Profile Monitor Support Assembly | SLAC | B\&H | 2 | 1.6 wks | \$0.00 | \$0.00 | \$5,120.00 | \$5,120.00 | \$1,024.00 | \$1,536.00 | \$7,680.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 1.6 wks | \$0.00 | \$0.00 | \$0.00 | \$5,120.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1675 | 1.2.2.2.22 | Collimators |  |  | 0 | 8 wks | \$0.00 | \$4,000.00 | \$25,600.00 | \$29,600.00 | \$5,360.00 | \$4,476.00 | \$39,436.00 |
| 1676 | 1.2.2.2.22.1 | Collimator Support Materials | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$636.00 | \$4,876.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1677 | 1.2.2.2.22.2 | Support Machining | SLAC | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$19,200.00 | \$19,200.00 | \$3,840.00 | \$0.00 | \$23,040.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$19,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 1678 | 1.2.2.2.22.3 | Collimator Support Assembly | SLAC | B\&H | 4 | 2 wks | \$0.00 | \$0.00 | \$6,400.00 | \$6,400.00 | \$1,280.00 | \$3,840.00 | \$11,520.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 1679 | 1.2.2.2.23 | DL2 E-O Diagnostic |  |  | 0 | 5.6 wks | \$0.00 | \$10,000.00 | \$14,556.64 | \$24,556.64 | \$3,511.33 | \$9,823.79 | \$37,891.76 |
| 1680 | 1.2.2.2.23.1 | E-O Support Materials | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$3,710.00 | \$14,310.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1681 | 1.2.2.2.23.2 | Support Machining | SLAC | B\&H | 3 | 2.8 wks | \$0.00 | \$0.00 | \$8,960.00 | \$8,960.00 | \$1,792.00 | \$3,763.20 | \$14,515.20 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 2.8 wks | \$0.00 | \$0.00 | \$0.00 | \$8,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 1682 | 1.2.2.2.23.3 | E-O Support Assembly | SLAC | B\&H | 3 | 2.8 wks | \$0.00 | \$0.00 | \$5,596.64 | \$5,596.64 | \$1,119.33 | \$2,350.59 | \$9,066.56 |
|  |  | SLAC Mech. rab: Assembly lech |  | B\&H | 0 | 2.8 wks | \$0.00 | \$0.00 | \$0.00 | \$5,596.64 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 1683 | 1.2.2.2.24 | Bunch Length |  |  | 0 | 4 wks | \$0.00 | \$3,000.00 | \$12,800.00 | \$15,800.00 | \$2,740.00 | \$4,635.00 | \$23,175.00 |
| 1684 | 1.2.2.2.24.1 | BL Support Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1685 | 1.2.2.2.24.2 | Support Machining | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$6,400.00 | \$6,400.00 | \$1,280.00 | \$1,920.00 | \$9,600.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 1686 | 1.2.2.2.24.3 | BL Support Assembly | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$6,400.00 | \$6,400.00 | \$1,280.00 | \$1,920.00 | \$9,600.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,400.00 | \$0.00 | $\$ 0.00$ | $\$ 0.00$ |
| 1687 | 1.2.2.2.25 | Dumpline Bend Magnets |  |  | 0 | 16.8 wks | \$0.00 | \$15,000.00 | \$43,669.92 | \$58,669.92 | \$9,633.98 | \$23,906.37 | \$92,210.27 |
| 1688 | 1.2.2.2.25.1 | Support Materials | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$900.00 | \$5,565.00 | \$21,465.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1689 | 1.2.2.2.25.2 | Support Machining | SLAC | B\&H | 3 | 8.4 wks | \$0.00 | \$0.00 | \$26,880.00 | \$26,880.00 | \$5,376.00 | \$11,289.60 | \$43,545.60 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 8.4 wks | \$0.00 | \$0.00 | \$0.00 | \$26,880.00 | \$0.00 | \$0.00 | \$0.00 |
| 1690 | 1.2.2.2.25.3 | Magnet Support Assembly | SLAC | B\&H | 3 | 8.4 wks | \$0.00 | \$0.00 | \$16,789.92 | \$16,789.92 | \$3,357.98 | \$7,051.77 | \$27,199.67 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 8.4 wks | \$0.00 | \$0.00 | \$0.00 | \$16,789.92 | \$0.00 | \$0.00 | \$0.00 |
| 1691 | 1.2.2.3 | Vacuum |  |  | 0 | 210.03 wks | \$0.00 | \$371,000.00 | \$571,750.66 | \$942,750.66 | \$136,610.13 | \$360,473.35 | \$1,439,834.14 |
| 1692 | 1.2.2.3.1 | BC1 vacuum |  |  | 0 | 34.8 wks | \$0.00 | \$94,000.00 | \$108,442.60 | \$202,442.60 | \$27,328.52 | \$79,652.35 | \$309,423.47 |
| 1693 | 1.2.2.3.1.1 | Chamber Materials | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$94,000.00 | \$0.00 | \$94,000.00 | \$5,640.00 | \$34,874.00 | \$134,514.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 94,000 | \$0.00 | \$0.00 | \$0.00 | \$94,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1694 | 1.2.2.3.1.2 | Chamber Machining | SLAC | B\&H | 3 | 26.5 wks | \$0.00 | \$0.00 | \$84,800.00 | \$84,800.00 | \$16,960.00 | \$35,616.00 | \$137,376.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 26.5 wks | \$0.00 | \$0.00 | \$0.00 | \$84,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1695 | 1.2.2.3.1.3 | Chamber QA | SLAC | B\&H | 3 | 1.6 wks | \$0.00 | \$0.00 | \$3,648.00 | \$3,648.00 | \$729.60 | \$1,532.16 | \$5,909.76 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1.6 wks | \$0.00 | \$0.00 | \$0.00 | \$3,648.00 | \$0.00 | \$0.00 | \$0.00 |
| 1696 | 1.2.2.3.1.4 | Chamber Plating Cleaning | SLAC | B\&H | 3 | 2.2 wks | \$0.00 | \$0.00 | \$11,000.00 | \$11,000.00 | \$2,200.00 | \$4,620.00 | \$17,820.00 |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 3 | 2.2 wks | \$0.00 | \$0.00 | \$0.00 | \$11,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1697 | 1.2.2.3.1.5 | Chamber Welding | SLAC | B\&H | 2 | 3.2 wks | \$0.00 | \$0.00 | \$6,396.16 | \$6,396.16 | \$1,279.23 | \$1,918.85 | \$9,594.24 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 3.2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,396.16 | \$0.00 | \$0.00 | \$0.00 |
| 1698 | 1.2.2.3.1.6 | Chamber vac Process | SLAC | B\&H | 3 | 1.3 wks | \$0.00 | \$0.00 | \$2,598.44 | \$2,598.44 | \$519.69 | \$1,091.34 | \$4,209.47 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 1.3 wks | \$0.00 | \$0.00 | \$0.00 | \$2,598.44 | \$0.00 | \$0.00 | \$0.00 |
| 1699 | 1.2.2.3.2 | BC2 Vacuum |  |  | 0 | 34.8 wks | \$0.00 | \$94,000.00 | \$108,442.60 | \$202,442.60 | \$27,328.52 | \$80,419.89 | \$310,191.01 |
| 1700 | 1.2.2.3.2.1 | Chamber Materials | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$94,000.00 | \$0.00 | \$94,000.00 | \$5,640.00 | \$34,874.00 | \$134,514.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 94,000 | \$0.00 | \$0.00 | \$0.00 | \$94,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1701 | 1.2.2.3.2.2 | Chamber Machining | SLAC | B\&H | 3 | 26.5 wks | \$0.00 | \$0.00 | \$84,800.00 | \$84,800.00 | \$16,960.00 | \$35,616.00 | \$137,376.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 26.5 wks | \$0.00 | \$0.00 | \$0.00 | \$84,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1702 | 1.2.2.3.2.3 | Chamber QA | SLAC | B\&H | 3 | 1.6 wks | \$0.00 | \$0.00 | \$3,648.00 | \$3,648.00 | \$729.60 | \$1,532.16 | \$5,909.76 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1.6 wks | \$0.00 | \$0.00 | \$0.00 | \$3,648.00 | \$0.00 | \$0.00 | \$0.00 |
| 1703 | 1.2.2.3.2.4 | Chamber Plating Cleaning | SLAC | B\&H | 3 | 2.2 wks | \$0.00 | \$0.00 | \$11,000.00 | \$11,000.00 | \$2,200.00 | \$4,620.00 | \$17,820.00 |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 2.2 wks | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1704 | 1.2.2.3.2.5 | Chamber Welding | SLAC | B\&H | 3 | 3.2 wks | \$0.00 | \$0.00 | \$6,396.16 | \$6,396.16 | \$1,279.23 | \$2,686.39 | \$10,361.78 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name SLAC Mech. Fab: Assembly Tech | OBS | PHASE | Risk | Units 3.2 wks | PED (Direct) $\$ 0.00$ | $\begin{aligned} & \text { M\&S (Direct) } \\ & \$ 0.00 \end{aligned}$ | Labor (Direct) <br> $\$ 0.00$ | $\frac{\text { Direct Cost }}{\$ 6,396.16}$ | Overhead Cost <br> $\$ 0.00$ | Contingency Cost | Total Cost |
|  |  |  | SLAC |  |  |  |  |  |  |  |  | \$0.00 | \$0.00 |
| 1705 | 1.2.2.3.2.6 | Chamber Vac Process |  | B\&H | 3 | 1.3 wks | \$0.00 | \$0.00 | \$2,598.44 | \$2,598.44 | \$519.69 | \$1,091.34 | \$4,209.47 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 1.3 wks | \$0.00 | \$0.00 | \$0.00 | \$2,598.44 | \$0.00 | \$0.00 | \$0.00 |
| 1706 | 1.2.2.3.3 | Accelerator vacuum Chambers |  |  | 0 | 34.73 wks | \$0.00 | \$12,000.00 | \$100,929.02 | \$112,929.02 | \$20,905.80 | \$33,458.71 | \$167,293.53 |
| 1707 | 1.2.2.3.3.1 | Chamber Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$720.00 | \$3,180.00 | \$15,900.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1708 | 1.2.2.3.3.2 | Chamber Machining | SLAC | B\&H | 2 | 16.4 wks | \$0.00 | \$0.00 | \$52,480.00 | \$52,480.00 | \$10,496.00 | \$15,744.00 | \$78,720.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 16.4 wks | \$0.00 | \$0.00 | \$0.00 | \$52,480.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1709 | 1.2.2.3.3.3 | Chamber QA | SLAC | B\&H | 2 | 3.58 wks | \$0.00 | \$0.00 | \$8,162.40 | \$8,162.40 | \$1,632.48 | \$2,448.72 | \$12,243.60 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 3.58 wks | \$0.00 | \$0.00 | \$0.00 | \$8,162.40 | \$0.00 | \$0.00 | \$0.00 |
| 1710 | 1.2.2.3.3.4 | Chamber Plating Cleaning | SLAC | B\&H | 2 | 3.6 wks | \$0.00 | \$0.00 | \$18,000.00 | \$18,000.00 | \$3,600.00 | \$5,400.00 | \$27,000.00 |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 3.6 wks | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1711 | 1.2.2.3.3.5 | Chamber Welding | SLAC | B\&H | 2 | 4.75 wks | \$0.00 | \$0.00 | \$9,494.30 | \$9,494.30 | \$1,898.86 | \$2,848.29 | \$14,241.45 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 4.75 wks | \$0.00 | \$0.00 | \$0.00 | \$9,494.30 | \$0.00 | \$0.00 | \$0.00 |
| 1712 | 1.2.2.3.3.6 | Chamber Vac Process | SLAC | B\&H | 2 | 6.4 wks | \$0.00 | \$0.00 | \$12,792.32 | \$12,792.32 | \$2,558.46 | \$3,837.70 | \$19,188.48 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 6.4 wks | \$0.00 | \$0.00 | \$0.00 | \$12,792.32 | \$0.00 | \$0.00 | \$0.00 |
| 1713 | 1.2.2.3.4 | Accelerator Vacuum Bellows |  |  | 0 | 5.7 wks | \$0.00 | \$11,000.00 | \$16,549.24 | \$27,549.24 | \$3,969.85 | \$7,879.77 | \$39,398.86 |
| 1714 | 1.2.2.3.4.1 | Bellows Modules, Purchased | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$2,120.00 | \$10,600.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }_{\text {d }}$ S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1715 | 1.2.2.3.4.2 | Bellows Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1716 | 1.2.2.3.4.3 | Bellows Machining | SLAC | B\&H | 2 | 2.2 wks | \$0.00 | \$0.00 | \$7,040.00 | \$7,040.00 | \$1,408.00 | \$2,112.00 | \$10,560.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 2.2 wks | \$0.00 | \$0.00 | \$0.00 | \$7,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 1717 | 1.2.2.3.4.4 | Bellows QA | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$912.00 | \$912.00 | \$182.40 | \$273.60 | \$1,368.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | BRH | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$912.00 | \$0.00 | \$0.00 | \$0.00 |
| 1718 | 1.2.2.3.4.5 | Bellows Plating Cleaning | SLAC | B\&H | 2 | 0.8 wks | \$0.00 | \$0.00 | \$4,000.00 | \$4,000.00 | \$800.00 | \$1,200.00 | \$6,000.00 |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 0.8 wks | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1719 | 1.2.2.3.4.6 | Bellows Welding | SLAC | B\&H | 2 | 0.8 wks | \$0.00 | \$0.00 | \$1,599.04 | \$1,599.04 | \$319.81 | \$479.71 | \$2,398.56 |
|  |  | SLAC Mech. Fab: Assembly lech |  | BKH | 0 | 0.8 wks | \$0.00 | \$0.00 | \$0.00 | \$1,599.04 | \$0.00 | \$0.00 | \$0.00 |
| 1720 | 1.2.2.3.4.7 | Bellows Vac Process | SLAC | B\&H | 2 | 1.5 wks | \$0.00 | \$0.00 | \$2,998.20 | \$2,998.20 | \$599.64 | \$899.46 | \$4,497.30 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$2,998.20 | \$0.00 | \$0.00 | \$0.00 |
| 1721 | 1.2.2.3.5 | Dumpline Vacuum |  |  | 0 | 100 wks | \$0.00 | \$160,000.00 | \$237,387.20 | \$397,387.20 | \$57,077.44 | \$159,062.62 | \$613,527.26 |
| 1722 | 1.2.2.3.5.1 | Bellows Modules, Purchased | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$3,710.00 | \$14,310.00 |
|  |  | SLAC MRS Iotal |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | $\$ 0.00$ | $\$ 0.00$ |
| 1723 | 1.2.2.3.5.2 | Chamber Materials | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$150,000.00 | \$0.00 | \$150,000.00 | \$9,000.00 | \$55,650.00 | \$214,650.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units 150,000 | PED (Direct) $\$ 0.00$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct) <br> $\$ 0.00$ | $\begin{aligned} & \text { Direct Cost } \\ & \hline \$ 150,000.00 \end{aligned}$ | Overhead Cost $\$ 0.00$ | Contingency Cost $\$ 0.00$ | Total Cost <br> $\$ 0.00$ |
|  |  | Task Name SLAC M\&S Total |  |  |  |  |  |  |  |  |  |  |  |
| 1724 | 1.2.2.3.5.3 | Chamber Machining |  | B\&H | 3 | 48 wks | \$0.00 | \$0.00 | \$109,440.00 | \$109,440.00 | \$21,888.00 | \$45,964.80 | \$177,292.80 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 48 wks | $\$ 0.00$ | \$0.00 | \$0.00 | \$109,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 1725 | 1.2.2.3.5.4 | Chamber QA | SLAC | B\&H | 3 | 8 wks | \$0.00 | \$0.00 | \$40,000.00 | \$40,000.00 | \$8,000.00 | \$16,800.00 | \$64,800.00 |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | $8 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$40,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1726 | 1.2.2.3.5.5 | Chamber Plating Cleaning | SLAC | B\&H | 3 | 12 wks | \$0.00 | \$0.00 | \$23,985.60 | \$23,985.60 | \$4,797.12 | \$10,073.95 | \$38,856.67 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$23,985.60 | \$0.00 | \$0.00 | \$0.00 |
| 1727 | 1.2.2.3.5.6 | Chamber Welding | SLAC | B\&H | 3 | 16 wks | \$0.00 | \$0.00 | \$31,980.80 | \$31,980.80 | \$6,396.16 | \$13,431.94 | \$51,808.90 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$31,980.80 | \$0.00 | \$0.00 | \$0.00 |
| 1728 | 1.2.2.3.5.7 | Chamber Vac Process | SLAC | B\&H | 3 | 16 wks | \$0.00 | \$0.00 | \$31,980.80 | \$31,980.80 | \$6,396.16 | \$13,431.94 | \$51,808.90 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$31,980.80 | \$0.00 | \$0.00 | \$0.00 |
| 1729 | 1.2.2.4 | Diagnostics |  |  | 0 | 244 wks | \$0.00 | \$271,000.00 | \$652,573.28 | \$923,573.28 | \$146,774.66 | \$261,214.62 | \$1,331,562.56 |
| 1730 | 1.2.2.4.1 | Tune-up Dumps |  |  | 0 | 24.6 wks | \$0.00 | \$15,000.00 | \$67,861.20 | \$82,861.20 | \$14,472.24 | \$11,931.70 | \$109,265.14 |
| 1731 | 1.2.2.4.1.1 | ID Materials | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$900.00 | \$2,385.00 | \$18,285.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1732 | 1.2.2.4.1.2 | TD Part Machining | SLAC | B\&H | 0 | 12 wks | \$0.00 | \$0.00 | \$38,400.00 | \$38,400.00 | \$7,680.00 | \$0.00 | \$46,080.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$38,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 1733 | 1.2.2.4.1.3 | ID Parts QA | SLAC | B\&H | 4 | 1.8 wks | \$0.00 | \$0.00 | \$4,104.00 | \$4,104.00 | \$820.80 | \$2,462.40 | \$7,387.20 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1.8 wks | \$0.00 | \$0.00 | \$0.00 | \$4,104.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1734 | 1.2.2.4.1.4 | TD Plating Cleaning | SLAC | B\&H | 4 | 1.2 wks | \$0.00 | \$0.00 | \$6,000.00 | \$6,000.00 | \$1,200.00 | \$3,600.00 | \$10,800.00 |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1735 | 1.2.2.4.1.5 | TD Brazing/Welding | SLAC | B\&H | 1 | 6 wks | \$0.00 | \$0.00 | \$11,992.80 | \$11,992.80 | \$2,398.56 | \$2,158.70 | \$16,550.06 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$11,992.80 | \$0.00 | \$0.00 | \$0.00 |
| 1736 | 1.2.2.4.1.6 | ID Assembly | SLAC | B\&H | 1 | 3 wks | \$0.00 | \$0.00 | \$5,996.40 | \$5,996.40 | \$1,199.28 | \$1,079.35 | \$8,275.03 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$5,996.40 | \$0.00 | \$0.00 | \$0.00 |
| 1737 | 1.2.2.4.1.7 | TD Fiducialize | SLAC | B\&H | 1 | 0.6 wks | \$0.00 | \$0.00 | \$1,368.00 | \$1,368.00 | \$273.60 | \$246.24 | \$1,887.84 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 1738 | 1.2.2.4.2 | Wire Scanners |  |  | 0 | 115.5 wks | \$0.00 | \$8,000.00 | \$320,518.80 | \$328,518.80 | \$64,583.76 | \$98,275.64 | \$491,378.20 |
| 1739 | 1.2.2.4.2.1 | WS Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$2,120.00 | \$10,600.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1740 | 1.2.2.4.2. | WS Part Machining | SLAC | B\&H | 2 | 56 wks | \$0.00 | \$0.00 | \$179,200.00 | \$179,200.00 | \$35,840.00 | \$53,760.00 | \$268,800.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 56 wks | \$0.00 | \$0.00 | \$0.00 | \$179,200.00 | $\$ 0.00$ | \$0.00 | $\$ 0.00$ |
| 1741 | 1.2.2.4.2.3 | WS Parts QA | SLAC | B\&H | 2 | 7 wks | \$0.00 | \$0.00 | \$15,960.00 | \$15,960.00 | \$3,192.00 | \$4,788.00 | \$23,940.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 7 wks | \$0.00 | \$0.00 | \$0.00 | \$15,960.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1742 | 1.2.2.4.2.4 | WS Plating Cleaning | SLAC | B\&H | 2 | 7 wks | \$0.00 | \$0.00 | \$35,000.00 | \$35,000.00 | \$7,000.00 | \$10,500.00 | \$52,500.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBs | Task Name | OBS | PHASE | $\frac{\text { Risk }}{}$ | Units <br> 7 wks | PED (Direct) $\$ 0.00$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct) | $\begin{aligned} & \text { Direct Cost } \\ & \hline \$ 35,000.00 \end{aligned}$ | $\begin{array}{r} \text { Overhead Cost } \\ \$ 0.00 \end{array}$ | Contingency Cost $\$ 0.00$ | $\begin{aligned} & \text { Total Cost } \\ & \$ 0.00 \end{aligned}$ |
|  |  | TLask Name SLAC Mech. Fab: Plating \& Cleaning |  | B\&H |  |  |  |  |  |  |  |  |  |
| 1743 | 1.2.2.4.2.5 | WS Brazing/Welding | SLAC | B\&H | 2 | 14 wks | \$0.00 | \$0.00 | \$27,983.20 | \$27,983.20 | \$5,596.64 | \$8,394.96 | \$41,974.80 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 14 wks | \$0.00 | \$0.00 | \$0.00 | \$27,983.20 | \$0.00 | \$0.00 | \$0.00 |
| 1744 | 1.2.2.4.2.6 | WS Coating | SLAC | B\&H | 2 | 7 wks | \$0.00 | \$0.00 | \$12,420.80 | \$12,420.80 | \$2,484.16 | \$3,726.24 | \$18,631.20 |
|  |  | SLAC Klystron: Technician |  | B\&H | 0 | 7 wks | \$0.00 | \$0.00 | \$0.00 | \$12,420.80 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1745 | 1.2.2.4.2.7 | WS Assembly | SLAC | B\&H | 2 | 14 wks | \$0.00 | \$0.00 | \$27,983.20 | \$27,983.20 | \$5,596.64 | \$8,394.96 | \$41,974.80 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 14 wks | \$0.00 | \$0.00 | \$0.00 | \$27,983.20 | \$0.00 | \$0.00 | \$0.00 |
| 1746 | 1.2.2.4.2.8 | wS Fiducialize | SLAC | B\&H | 2 | 3.5 wks | \$0.00 | \$0.00 | \$7,980.00 | \$7,980.00 | \$1,596.00 | \$2,394.00 | \$11,970.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 3.5 wks | \$0.00 | \$0.00 | \$0.00 | \$7,980.00 | \$0.00 | \$0.00 | \$0.00 |
| 1747 | 1.2.2.4.2.9 | WS Vac Process | SLAC | B\&H | 2 | 7 wks | \$0.00 | \$0.00 | \$13,991.60 | \$13,991.60 | \$2,798.32 | \$4,197.48 | \$20,987.40 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 7 wks | \$0.00 | \$0.00 | \$0.00 | \$13,991.60 | \$0.00 | \$0.00 | \$0.00 |
| 1748 | 1.2.2.4.3 | BPMs |  |  | 0 | 17.7 wks | \$0.00 | \$15,000.00 | \$52,692.00 | \$67,692.00 | \$11,438.40 | \$10,960.20 | \$90,090.60 |
| 1749 | 1.2.2.4.3.1 | BPM Materials | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$900.00 | \$2,385.00 | \$18,285.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1750 | 1.2.2.4.3.2 | Machining | SLAC | B\&H | 0 | 12 wks | \$0.00 | \$0.00 | \$38,400.00 | \$38,400.00 | \$7,680.00 | \$0.00 | \$46,080.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$38,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 1751 | 1.2.2.4.3.3 | BPM Assembly | SLAC | B\&H | 4 | 4.5 wks | \$0.00 | \$0.00 | \$10,260.00 | \$10,260.00 | \$2,052.00 | \$6,156.00 | \$18,468.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 4.5 wks | \$0.00 | \$0.00 | \$0.00 | \$10,260.00 | \$0.00 | \$0.00 | \$0.00 |
| 1752 | 1.2.2.4.3.4 | Procurement, manutacture and assembly supervision | SLAC | ED\& | 4 | 1.2 wks | \$0.00 | \$0.00 | \$4,032.00 | \$4,032.00 | \$806.40 | \$2,419.20 | \$7,257.60 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,032.00 | \$0.00 | \$0.00 | \$0.00 |
| 1753 | 1.2.2.4.4 | Toroids |  |  | 0 | 22.4 wks | \$0.00 | \$25,000.00 | \$55,546.40 | \$80,546.40 | \$12,609.28 | \$23,288.92 | \$116,444.60 |
| 1754 | 1.2.2.4.4.1 | Toro Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$25,000.00 | \$0.00 | \$25,000.00 | \$1,500.00 | \$6,625.00 | \$33,125.00 |
|  |  | SLAC M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 25,000 | \$0.00 | \$0.00 | \$0.00 | \$25,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1755 | 1.2.2.4.4.2 | Ioro Part Machining | SLAC | B\&H | 2 | 5.6 wks | \$0.00 | \$0.00 | \$17,920.00 | \$17,920.00 | \$3,584.00 | \$5,376.00 | \$26,880.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 5.6 wks | \$0.00 | \$0.00 | \$0.00 | \$17,920.00 | \$0.00 | \$0.00 | \$0.00 |
| 1756 | 1.2.2.4.4.3 | Toro Parts QA | SLAC | B\&H | 2 | 2.8 wks | \$0.00 | \$0.00 | \$6,384.00 | \$6,384.00 | \$1,276.80 | \$1,915.20 | \$9,576.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 2.8 wks | \$0.00 | \$0.00 | \$0.00 | \$6,384.00 | \$0.00 | \$0.00 | \$0.00 |
| 1757 | 1.2.2.4.4.4 | Ioro Plating Cleaning | SLAC | B\&H | 2 | 1.4 wks | \$0.00 | \$0.00 | \$7,000.00 | \$7,000.00 | \$1,400.00 | \$2,100.00 | \$10,500.00 |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 1.4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1758 | 1.2.2.4.4.5 | Toro Brazing/Welding | SLAC | B\&H | 2 | 4.2 wks | \$0.00 | \$0.00 | \$8,394.96 | \$8,394.96 | \$1,678.99 | \$2,518.49 | \$12,592.44 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 4.2 wks | \$0.00 | \$0.00 | \$0.00 | \$8,394.96 | \$0.00 | \$0.00 | \$0.00 |
| 1759 | 1.2.2.4.4.6 | Ioro Assembly | SLAC | B\&H | 2 | 1.4 Wks | \$0.00 | \$0.00 | \$2,798.32 | \$2,798.32 | \$559.66 | \$839.50 | \$4,197.48 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 1.4 Wks | \$0.00 | \$0.00 | \$0.00 | \$2,798.32 | \$0.00 | \$0.00 | \$0.00 |
| 1760 | 1.2.2.4.4.7 | Ioro Coating | SLAC | B\&H | 2 | 4.2 wks | \$0.00 | \$0.00 | \$7,452.48 | \$7,452.48 | \$1,490.50 | \$2,235.74 | \$11,178.72 |
|  |  | SLAC Klystron: Technician |  | B\&H | 0 | 4.2 wks | \$0.00 | \$0.00 | \$0.00 | \$7,452.48 | \$0.00 | \$0.00 | \$0.00 |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 4 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| $\begin{gathered} \text { ID } \\ \hline 1761 \end{gathered}$ | 1.2.2.4.4.8 | Toro Vac Process | SLAC | B\&H | 2 | 2.8 wks | \$0.00 | \$0.00 | \$5,596.64 | \$5,596.64 | \$1,119.33 | \$1,678.99 | \$8,394.96 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2.8 wks | \$0.00 | \$0.00 | \$0.00 | \$5,596.64 | \$0.00 | \$0.00 | \$0.00 |
| 1762 | 1.2.2.4.5 | Protile Monitor |  |  | 0 | 14.4 wks | \$0.00 | \$24,000.00 | \$44,351.04 | \$68,351.04 | \$10,310.21 | \$27,531.44 | \$106,192.68 |
| 1763 | 1.2.2.4.5.1 | Prot Materials | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$24,000.00 | \$0.00 | \$24,000.00 | \$1,440.00 | \$8,904.00 | \$34,344.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 24,000 | \$0.00 | \$0.00 | \$0.00 | \$24,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1764 | 1.2.2.4.5.2 | Prof Part Machining | SLAC | B\&H | 3 | 6.4 wks | \$0.00 | \$0.00 | \$20,480.00 | \$20,480.00 | \$4,096.00 | \$8,601.60 | \$33,177.60 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 6.4 wks | \$0.00 | \$0.00 | \$0.00 | \$20,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 1765 | 1.2.2.4.5.3 | Prot Parts QA | SLAC | B\&H | 3 | 1.6 wks | \$0.00 | \$0.00 | \$3,648.00 | \$3,648.00 | \$729.60 | \$1,532.16 | \$5,909.76 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1.6 wks | \$0.00 | \$0.00 | \$0.00 | \$3,648.00 | \$0.00 | \$0.00 | \$0.00 |
| 1766 | 1.2.2.4.5.4 | Prof Plating Cleaning | SLAC | B\&H | 3 | 0.8 wks | \$0.00 | \$0.00 | \$4,000.00 | \$4,000.00 | \$800.00 | \$1,680.00 | \$6,480.00 |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 0.8 wks | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1767 | 1.2.2.4.5.5 | Prof Brazing/Welding | SLAC | B\&H | 3 | 2.4 wks | \$0.00 | \$0.00 | \$7,680.00 | \$7,680.00 | \$1,536.00 | \$3,225.60 | \$12,441.60 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 2.4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 1768 | 1.2.2.4.5.6 | Prot Assembly | SLAC | B\&H | 3 | 1.6 wks | \$0.00 | \$0.00 | \$5,120.00 | \$5,120.00 | \$1,024.00 | \$2,150.40 | \$8,294.40 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 1.6 wks | \$0.00 | \$0.00 | \$0.00 | \$5,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 1769 | 1.2.2.4.5.7 | WS Fiducialize | SLAC | B\&H | 3 | 0.8 wks | \$0.00 | \$0.00 | \$1,824.00 | \$1,824.00 | \$364.80 | \$766.08 | \$2,954.88 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.8 wks | \$0.00 | \$0.00 | \$0.00 | \$1,824.00 | \$0.00 | \$0.00 | \$0.00 |
| 1770 | 1.2.2.4.5.8 | Prot vac Process | SLAC | B\&H | 3 | 0.8 wks | \$0.00 | \$0.00 | \$1,599.04 | \$1,599.04 | \$319.81 | \$671.60 | \$2,590.44 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 0.8 wks | \$0.00 | \$0.00 | \$0.00 | \$1,599.04 | \$0.00 | \$0.00 | \$0.00 |
| 1771 | 1.2.2.4.6 | E-O Diagnostics |  |  | 0 | 28.4 wks | \$0.00 | \$154,000.00 | \$65,013.12 | \$219,013.12 | \$22,242.62 | \$67,299.51 | \$308,555.25 |
| 1772 | 1.2.2.4.6. | E-0 Physics | SLAC | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$6,800.00 | \$6,800.00 | \$1,360.00 | \$2,040.00 | \$10,200.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1773 | 1.2.2.4.6.2 | E-O Optics | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$47,000.00 | \$0.00 | \$47,000.00 | \$2,820.00 | \$12,455.00 | \$62,275.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 47,000 | \$0.00 | \$0.00 | \$0.00 | \$47,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1774 | 1.2.2.4.6.3 | $\mathrm{E}-\mathrm{O}$ Instruments | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$76,000.00 | \$0.00 | \$76,000.00 | \$4,560.00 | \$20,140.00 | \$100,700.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 76,000 | \$0.00 | \$0.00 | \$0.00 | \$76,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1775 | 1.2.2.4.6.4 | E-O Vacuum | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$31,000.00 | \$0.00 | \$31,000.00 | \$1,860.00 | \$8,215.00 | \$41,075.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 31,000 | \$0.00 | \$0.00 | \$0.00 | \$31,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1776 | 1.2.2.4.6.5 | E-O Assembly | SLAC | B\&H | 3 | 22.4 wks | \$0.00 | \$0.00 | \$44,773.12 | \$44,773.12 | \$8,954.62 | \$18,804.71 | \$72,532.45 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 22.4 wks | \$0.00 | \$0.00 | \$0.00 | \$44,773.12 | \$0.00 | \$0.00 | \$0.00 |
| 1777 | 1.2.2.4.6.6 | Proc., Man. \& Assembly Supervision | SLAC | ED\& | 3 | 4 wks | \$0.00 | \$0.00 | \$13,440.00 | \$13,440.00 | \$2,688.00 | \$5,644.80 | \$21,772.80 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 1778 | 1.2.2.4.7 | Bunch Length Mon |  |  | 0 | 21 wks | \$0.00 | \$30,000.00 | \$46,590.72 | \$76,590.72 | \$11,118.14 | \$21,927.22 | \$109,636.08 |
| 1779 | 1.2.2.4.7.1 | BL Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$1,800.00 | \$7,950.00 | \$39,750.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cwbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1780 | 1.2.2.4.7.2 | BL Part Marching | SLAC | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$9,600.00 | \$9,600.00 | \$1,920.00 | \$2,880.00 | \$14,400.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$9,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1781 | 1.2.2.4.7.3 | BL Parts QA | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$912.00 | \$1,368.00 | \$6,840.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 1782 | 1.2.2.4.7.4 | BL Assembly | SLAC | B\&H | 2 | 12 wks | \$0.00 | \$0.00 | \$23,985.60 | \$23,985.60 | \$4,797.12 | \$7,195.68 | \$35,978.40 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$23,985.60 | \$0.00 | \$0.00 | \$0.00 |
| 1783 | 1.2.2.4.7.5 | BL Fiducialize | SLAC | B\&H | 2 | 1.6 wks | \$0.00 | \$0.00 | \$3,648.00 | \$3,648.00 | \$729.60 | \$1,094.40 | \$5,472.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1.6 wks | \$0.00 | \$0.00 | \$0.00 | \$3,648.00 | \$0.00 | \$0.00 | \$0.00 |
| 1784 | 1.2.2.4.7.6 | BL vac Process | SLAC | B\&H | 2 | 2.4 wks | \$0.00 | \$0.00 | \$4,797.12 | \$4,797.12 | \$959.42 | \$1,439.14 | \$7,195.68 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2.4 wks | \$0.00 | \$0.00 | \$0.00 | \$4,797.12 | \$0.00 | \$0.00 | \$0.00 |
| 1785 | 1.2.2.5 | Power Conversion |  |  | 0 | 462.6 wks | \$0.00 | \$1,361,100.00 | \$1,068,056.00 | \$2,429,156.00 | \$295,277.20 | \$369,522.20 | \$3,093,955.40 |
| 1786 | 1.2.2.5.1 | New Power Supplies |  |  | 0 | 199 wks | \$0.00 | \$729,000.00 | \$416,424.00 | \$1,145,424.00 | \$127,024.80 | \$318,112.20 | \$1,590,561.00 |
| 1787 | 1.2.2.5.1.1 | B11-14 (30 KW) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$13,000.00 | \$0.00 | \$13,000.00 | \$780.00 | \$3,445.00 | \$17,225.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 13,000 | \$0.00 | \$0.00 | \$0.00 | \$13,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1788 | 1.2.2.5.1.2 | QM14 (1 kW) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1789 | 1.2.2.5.1.3 | QM15 (1 KW) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {M S }}$ | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1790 | 1.2.2.5.1.4 | Sec-23 (2KW) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1791 | 1.2.2.5.1.5 | Sec-24 (2 KW) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1792 | 1.2.2.5.1.6 | Q24701 (10KW) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$33,000.00 | \$0.00 | \$33,000.00 | \$1,980.00 | \$8,745.00 | \$43,725.00 |
|  |  | SLAC MES Iotal |  | M d S $^{\text {S }}$ | 0 | 33,000 | \$0.00 | \$0.00 | \$0.00 | \$33,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1793 | 1.2.2.5.1.7 | Wiggler (50KW) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$25,000.00 | \$0.00 | \$25,000.00 | \$1,500.00 | \$6,625.00 | \$33,125.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 25,000 | \$0.00 | \$0.00 | \$0.00 | \$25,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1794 | 1.2.2.5.1.8 | QM21 (10 KW) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1795 | 1.2.2.5.1.9 | B21-26 (90 KW) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$45,000.00 | \$0.00 | \$45,000.00 | \$2,700.00 | \$11,925.00 | \$59,625.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 45,000 | \$0.00 | \$0.00 | \$0.00 | \$45,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1796 | 1.2.2.5.1.10 | QM22 (10 KW) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1797 | 1.2.2.5.1.11 | Q24901 (10 KW) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1798 | 1.2.2.5.1.12 | Sec-25 (2 KW) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1799 | 1.2.2.5.1.13 | Sec-26 (2 KW) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1800 | 1.2.2.5.1.14 | Sec-27 (2 KW) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1801 | 1.2.2.5.1.15 | Sec-28 (2 KW) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1802 | 1.2.2.5.1.16 | Sec-29 (2 KW) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1803 | 1.2.2.5.1.17 | B31-34 (78 KW) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$60,000.00 | \$0.00 | \$60,000.00 | \$3,600.00 | \$15,900.00 | \$79,500.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 60,000 | \$0.00 | \$0.00 | \$0.00 | \$60,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1804 | 1.2.2.5.1.18 | QL31,3,7,9 (90 KW) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$75,000.00 | \$0.00 | \$75,000.00 | \$4,500.00 | \$19,875.00 | \$99,375.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 75,000 | \$0.00 | \$0.00 | \$0.00 | \$75,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 1805 | 1.2.2.5.1.19 | QL32,8 (45 KW) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$22,000.00 | \$0.00 | \$22,000.00 | \$1,320.00 | \$5,830.00 | \$29,150.00 |
|  |  | SLAC M\&S Total |  | MLS | 0 | 22,000 | \$0.00 | \$0.00 | \$0.00 | \$22,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1806 | 1.2.2.5.1.20 | QL34,6 (45 KW) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$22,000.00 | \$0.00 | \$22,000.00 | \$1,320.00 | \$5,830.00 | \$29,150.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 22,000 | \$0.00 | \$0.00 | \$0.00 | \$22,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1807 | 1.2.2.5.1.21 | QL35 (10 KW) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1808 | 1.2.2.5.1.22 | QM31 (10 KW) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1809 | 1.2.2.5.1.23 | QM32 (10 KW) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC Mes Iotal |  | M ${ }^{\text {d }}$ S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1810 | 1.2.2.5.1.24 | VB1/2 (90 KW) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$75,000.00 | \$0.00 | \$75,000.00 | \$4,500.00 | \$19,875.00 | \$99,375.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 75,000 | \$0.00 | \$0.00 | \$0.00 | \$75,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1811 | 1.2.2.5.1.25 | QVB1, 2,3,4 (90 kW) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$75,000.00 | \$0.00 | \$75,000.00 | \$4,500.00 | \$19,875.00 | \$99,375.00 |
|  |  | SLAC M\&S Total |  | MRS | 0 | 75,000 | \$0.00 | \$0.00 | \$0.00 | \$75,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1812 | 1.2.2.5.1.26 | QM33 (10 KW) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC MXS Iotal |  | M 2 S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1813 | 1.2.2.5.1.27 | QM34 (10 KW) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1814 | 1.2.2.5.1.28 | QE31-6 ( 15 kW ) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 1815 | 1.2.2.5.1.29 | QM35 (10 KW) | SLAC | M 8 S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1816 | 1.2.2.5.1.30 | QM36 (10 KW) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1817 | 1.2.2.5.1.31 | QM37 (10 KW) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1818 | 1.2.2.5.1.32 | QM38 (10 KW) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1819 | 1.2.2.5.1.33 | QA11 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$18,000.00 | \$0.00 | \$18,000.00 | \$1,080.00 | \$4,770.00 | \$23,850.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1820 | 1.2.2.5.1.34 | HA11 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1821 | 1.2.2.5.1.35 | VA11 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1822 | 1.2.2.5.1.36 | QA12 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1823 | 1.2.2.5.1.37 | HA12 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1824 | 1.2.2.5.1.38 | VA12 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | MKS | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 1825 | 1.2.2.5.1.39 | V21201 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1826 | 1.2.2.5.1.40 | QM11 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1827 | 1.2.2.5.1.41 | HM11 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1828 | 1.2.2.5.1.42 | CQ11 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1829 | 1.2.2.5.1.43 | HS11 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1830 | 1.2.2.5.1.44 | vS11 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1831 | 1.2.2.5.1.45 | CQ12 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1832 | 1.2.2.5.1.46 | QM12 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1833 | 1.2.2.5.1.47 | VM12 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) $\$ 0.00$ | $\begin{aligned} & \text { M\&S (Direct) } \\ & \$ 0.00 \end{aligned}$ | Labor (Direct)$\qquad$ | $\frac{\text { Direct Cost }}{\$ 2,000.00}$ | Overhead Cost | Contingency Cost | Total Cost |
|  |  | Task Name SLAC M\&S Total | SLAC | M\&S |  |  |  |  |  |  | $\$ 0.00$ | \$0.00 |  |
| 1834 | 1.2.2.5.1.48 | QM13 |  | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC MAS Iotal |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1835 | 1.2.2.5.1.49 | HM13 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1836 | 1.2.2.5.1.50 | HM14 | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1837 | 1.2.2.5.1.51 | VM15 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1838 | 1.2.2.5.1.52 | CQ21 | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1839 | 1.2.2.5.1.53 | HS21 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M M S $^{\text {S }}$ | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1840 | 1.2.2.5.1.54 | vS11 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1841 | 1.2.2.5.1.55 | CQ22 | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1842 | 1.2.2.5.1.56 | V5 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1843 | 1.2.2.5.1.57 | H5 | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1844 | 1.2.2.5.1.58 | H0 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 2,000 | \$0.00 | \$0.00 | $\$ 0.00$ | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1845 | 1.2.2.5.1.59 | VDL2 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1846 | 1.2.2.5.1.60 | HDL2 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1847 | 1.2.2.5.1.61 | VL31 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1848 | 1.2.2.5.1.62 | HL32 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1849 | 1.2.2.5.1.63 | VL33 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1850 | 1.2.2.5.1.64 | HL34 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1851 | 1.2.2.5.1.65 | VL35 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1852 | 1.2.2.5.1.66 | HL36 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1853 | 1.2.2.5.1.67 | VL37 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1854 | 1.2.2.5.1.68 | HL38 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC MAS Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1855 | 1.2.2.5.1.69 | VL39 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1856 | 1.2.2.5.1.70 | HM31 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1857 | 1.2.2.5.1.71 | vM32 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1858 | 1.2.2.5.1.72 | HVB1 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1859 | 1.2.2.5.1.73 | VVB | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | MKS | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 1860 | 1.2.2.5.1.74 | HVB2 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1861 | 1.2.2.5.1.75 | VM33 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1862 | 1.2.2.5.1.76 | HM34 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1863 | 1.2.2.5.1.77 | VE31 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1864 | 1.2.2.5.1.78 | HE32 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1865 | 1.2.2.5.1.79 | VE33 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1866 | 1.2.2.5.1.80 | HE34 | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1867 | 1.2.2.5.1.81 | VE35 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1868 | 1.2.2.5.1.82 | HE36 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | cWBs | Task Name | OBS | PHASEM\&S | $\begin{array}{\|c} \text { Risk } \\ \hline 0 \end{array}$ | Units2,000 | PED (Direct)$\$ 0.00$ | $\begin{array}{r} \text { M\&S (Direct) } \\ \$ 0.00 \end{array}$ | Labor (Direct)$\$ 0.00$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 2,000.00 \end{aligned}$ | Overhead Cost$\$ 0.00$ | Contingency Cost $\$ 0.00$ | $\begin{aligned} & \text { Total Cost } \\ & \$ 0.00 \end{aligned}$ |
|  |  | SLAC M\&S Total |  |  |  |  |  |  |  |  |  |  |  |
| 1869 | 1.2.2.5.1.83 | HM35 |  | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 2,000 | \$0.00 | \$0.00 | $\$ 0.00$ | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1870 | 1.2.2.5.1.84 | vM36 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1871 | 1.2.2.5.1.85 | HM37 | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1872 | 1.2.2.5.1.86 | HM38 | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1873 | 1.2.2.5.1.87 | VM38 | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1874 | 1.2.2.5.1.88 | MCOR Bukk | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$28,000.00 | \$0.00 | \$28,000.00 | \$1,680.00 | \$7,420.00 | \$37,100.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 28,000 | \$0.00 | \$0.00 | \$0.00 | \$28,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 1875 | 1.2.2.5.1.89 | New Power Supplies |  |  | 0 | 199 wks | \$0.00 | \$0.00 | \$416,424.00 | \$416,424.00 | \$83,284.80 | \$124,927.20 | \$624,636.00 |
| 1876 | 1.2.2.5.1.89 | New Power Supplies | SLAC | ED\& | 2 | 35 wks | \$0.00 | \$0.00 | \$105,000.00 | \$105,000.00 | \$21,000.00 | \$31,500.00 | \$157,500.00 |
|  |  | SLAC PCD:Engineer |  | ED\& | 0 | 35 wks | \$0.00 | \$0.00 | \$0.00 | \$105,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1877 | 1.2.2.5.1.89 | New Power Supplies | SLAC | B\&H | 2 | 40 wks | \$0.00 | \$0.00 | \$70,144.00 | \$70,144.00 | \$14,028.80 | \$21,043.20 | \$105,216.00 |
|  |  | SLAC PCD:Iechnician |  | B\&H | 0 | 40 wks | \$0.00 | \$0.00 | \$0.00 | \$70,144.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 1878 | 1.2.2.5.1.89 | New Power Supplies | SLAC | B\&H | 2 | 40 wks | \$0.00 | \$0.00 | \$80,000.00 | \$80,000.00 | \$16,000.00 | \$24,000.00 | \$120,000.00 |
|  |  | SLACL PCD:IInst-Cabling-Elec Fab |  | B\&H | 0 | 40 wks | \$0.00 | \$0.00 | \$0.00 | \$80,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1879 | 1.2.2.5.1.89 | System Dwgs (EI, WD, Profile, | SLAC | ED\& | 2 | 84 wks | \$0.00 | \$0.00 | \$161,280.00 | \$161,280.00 | \$32,256.00 | \$48,384.00 | \$241,920.00 |
|  |  | SLAC PCD:Coordinator Associate |  | ED\&1 | 0 | 84 wks | \$0.00 | \$0.00 | \$0.00 | \$161,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 1880 | 1.2.2.5.2 | Cntris/Transductors/Switches |  |  | 0 | 0 wks | \$0.00 | \$194,000.00 | \$0.00 | \$194,000.00 | \$11,640.00 | \$51,410.00 | \$257,050.00 |
| 1881 | 1.2.2.5.2.1 | MCOR Chassis | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$28,000.00 | \$0.00 | \$28,000.00 | \$1,680.00 | \$7,420.00 | \$37,100.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 28,000 | \$0.00 | \$0.00 | \$0.00 | \$28,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1882 | 1.2.2.5.2.2 | Large PS Controller | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$56,000.00 | \$0.00 | \$56,000.00 | \$3,360.00 | \$14,840.00 | \$74,200.00 |
|  |  | SLAC M\&S Total |  | MRS | 0 | 56,000 | \$0.00 | \$0.00 | \$0.00 | \$56,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1883 | 1.2.2.5.2.3 | Klixon/Run Sate Box | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$47,000.00 | \$0.00 | \$47,000.00 | \$2,820.00 | \$12,455.00 | \$62,275.00 |
|  |  | SLAC MAS Iotal |  | M\&S | 0 | 47,000 | \$0.00 | \$0.00 | \$0.00 | \$47,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1884 | 1.2.2.5.2.4 | 300 A Transductor | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$35,000.00 | \$0.00 | \$35,000.00 | \$2,100.00 | \$9,275.00 | \$46,375.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 35,000 | \$0.00 | \$0.00 | \$0.00 | \$35,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1885 | 1.2.2.5.2.5 | 600 A Iransductor | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1886 | 1.2.2.5.2.6 | 1000 A Iransductor | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$24,000.00 | \$0.00 | \$24,000.00 | \$1,440.00 | \$6,360.00 | \$31,800.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 24,000 | \$0.00 | \$0.00 | \$0.00 | \$24,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cwbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1887 | 1.2.2.5.3 | Racks, cables, trays |  |  | 0 | 263.6 wks | \$0.00 | \$438,100.00 | \$657,632.00 | \$1,089,732.00 | \$156,612.40 | \$0.00 | \$1,246,344.40 |
| 1888 | 1.2.2.5.3.1 | Rack, Single Bay (DC and I\&C) | SLAC | M 2 S | 0 | 0 wks | \$0.00 | \$42,000.00 | \$0.00 | \$42,000.00 | \$2,520.00 | \$0.00 | \$44,520.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 42,000 | \$0.00 | \$0.00 | \$0.00 | \$42,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1889 | 1.2.2.5.3.2 | Rack, Double bay | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$45,000.00 | \$0.00 | \$45,000.00 | \$2,700.00 | \$0.00 | \$47,700.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 45,000 | \$0.00 | \$0.00 | \$0.00 | \$45,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1890 | 1.2.2.5.3.3 | AC Pwr to rack, AC Distr Pnl, Safety Cover, CBs (DC and I\&C) | SLAC | M2S | 0 | 0 wks | \$0.00 | \$55,000.00 | \$0.00 | \$55,000.00 | \$3,300.00 | \$0.00 | \$58,300.00 |
|  |  | SLAC M\&S Total |  | MKS | 0 | 55,000 | \$0.00 | \$0.00 | \$0.00 | \$55,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1891 | 1.2.2.5.3.4 | Earthquake racks ( DC and $1 \& \mathrm{C}$ ) | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$2,200.00 | \$0.00 | \$2,200.00 | \$132.00 | \$0.00 | \$2,332.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 2,200 | \$0.00 | \$0.00 | \$0.00 | \$2,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 1892 | 1.2.2.5.3.5 | 20A 2P Latching NR Contactor (DC and I\&C) | SLAC | M 2 S | 0 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$0.00 | \$6,360.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1893 | 1.2.2.5.3.6 | 200A 2P Latching NR Contactor (DC and I\&C) | SLAC | M 2 S | 0 | 0 wks | \$0.00 | \$42,000.00 | \$0.00 | \$42,000.00 | \$2,520.00 | \$0.00 | \$44,520.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 42,000 | \$0.00 | \$0.00 | \$0.00 | \$42,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1894 | 1.2.2.5.3.7 | 20-200A Contactor Control (DC and I\&C) | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$18,000.00 | \$0.00 | \$18,000.00 | \$1,080.00 | \$0.00 | \$19,080.00 |
|  |  | SLAC M\&S Total |  | MLS | 0 | 18,000 | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1895 | 1.2.2.5.3.7 | Corr, Low power Trims, Bipolar | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$4,500.00 | \$0.00 | \$4,500.00 | \$270.00 | \$0.00 | \$4,770.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,500 | \$0.00 | \$0.00 | \$0.00 | \$4,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 1896 | 1.2.2.5.3.8 | 2/C\#18AWG Interlock | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$0.00 | \$1,908.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }^{\text {S }}$ | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 1897 | 1.2.2.5.3.9 | 2/C\#10AWG | SLAC | M 2 S | 0 | 0 wks | \$0.00 | \$600.00 | \$0.00 | \$600.00 | \$36.00 | \$0.00 | \$636.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 600 | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1898 | 1.2.2.5.3.10 | 1-2/C\#8 AWG | SLAC | M2S | 0 | 0 wks | \$0.00 | \$10,400.00 | \$0.00 | \$10,400.00 | \$624.00 | \$0.00 | \$11,024.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 10,400 | \$0.00 | \$0.00 | \$0.00 | \$10,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 1899 | 1.2.2.5.3.11 | 1/C\#2/0 AWG | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$3,900.00 | \$0.00 | \$3,900.00 | \$234.00 | \$0.00 | \$4,134.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,900 | \$0.00 | \$0.00 | \$0.00 | \$3,900.00 | \$0.00 | \$0.00 | \$0.00 |
| 1900 | 1.2.2.5.3.12 | 1/C\#4/OAWG | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$11,900.00 | \$0.00 | \$11,900.00 | \$714.00 | \$0.00 | \$12,614.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 11,900 | \$0.00 | \$0.00 | \$0.00 | \$11,900.00 | \$0.00 | \$0.00 | \$0.00 |
| 1901 | 1.2.2.5.3.13 | 1/C\#300kcmil | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$21,000.00 | \$0.00 | \$21,000.00 | \$1,260.00 | \$0.00 | \$22,260.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 21,000 | \$0.00 | \$0.00 | \$0.00 | \$21,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1902 | 1.2.2.5.3.14 | 1/C\#500kcmil | SLAC | M 2 S | 0 | 0 wks | \$0.00 | \$2,700.00 | \$0.00 | \$2,700.00 | \$162.00 | \$0.00 | \$2,862.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,700 | \$0.00 | \$0.00 | \$0.00 | \$2,700.00 | \$0.00 | \$0.00 | \$0.00 |
| 1903 | 1.2.2.5.3.15 | 1/C\#600kcmil | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$21,100.00 | \$0.00 | \$21,100.00 | \$1,266.00 | \$0.00 | \$22,366.00 |
|  |  | SLAC MRS Iotal |  | M\&S | 0 | 21,100 | \$0.00 | \$0.00 | \$0.00 | \$21,100.00 | \$0.00 | \$0.00 | \$0.00 |
| 1904 | 1.2.2.5.3.16 | Cable lugs, Splices, Etc | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$0.00 | \$4,240.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 1905 | 1.2.2.5.3.17 | 18"W 4"D G Stl Cable Tray (DC and I\&C) | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$45,600.00 | \$0.00 | \$45,600.00 | \$2,736.00 | \$0.00 | \$48,336.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 45,600 | \$0.00 | \$0.00 | \$0.00 | \$45,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1906 | 1.2.2.5.3.18 | Cable Iray Fittings (DC and I\&C) | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$48,000.00 | \$0.00 | \$48,000.00 | \$2,880.00 | \$0.00 | \$50,880.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 48,000 | \$0.00 | \$0.00 | \$0.00 | \$48,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1907 | 1.2.2.5.3.19 | Trapeze Cable Tray Supports (DC and I\&C) | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$35,000.00 | \$0.00 | \$35,000.00 | \$2,100.00 | \$0.00 | \$37,100.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 35,000 | \$0.00 | \$0.00 | \$0.00 | \$35,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1908 | 1.2.2.5.3.20 | Cable Tray Grounding (DC and l\&C, \$1.8/tt) | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$8,600.00 | \$0.00 | \$8,600.00 | \$516.00 | \$0.00 | \$9,116.00 |
|  |  | SLAC MXS Iotal |  | M dS $^{\text {S }}$ | 0 | 8,600 | \$0.00 | \$0.00 | \$0.00 | \$8,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1909 | 1.2.2.5.3.21 | Gind Jumpers (DC and I\&C) | SLAC | M 2 S | 0 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$0.00 | \$6,360.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1910 | 1.2.2.5.3.22 | Conduits for Linac penetrations, 4"ID | SLAC | M 2 S | 0 | 0 wks | \$0.00 | \$2,800.00 | \$0.00 | \$2,800.00 | \$168.00 | \$0.00 | \$2,968.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,800 | \$0.00 | \$0.00 | \$0.00 | \$2,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1911 | 1.2.2.5.3.1 | Rack, Single Bay (DC and I\&C) | SLAC | B\&H | 0 | 2.5 wks | \$0.00 | \$0.00 | \$6,800.00 | \$6,800.00 | \$1,360.00 | \$0.00 | \$8,160.00 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | BRH | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$6,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1912 | 1.2.2.5.3.2 | Rack, Double bay | SLAC | B\&H | 0 | 4.3 wks | \$0.00 | \$0.00 | \$11,696.00 | \$11,696.00 | \$2,339.20 | \$0.00 | \$14,035.20 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | BRH | 0 | 4.3 wks | \$0.00 | \$0.00 | \$0.00 | \$11,696.00 | \$0.00 | \$0.00 | \$0.00 |
| 1913 | 1.2.2.5.3.3 | AC Pwr to rack, AC Distr Pnl, Safety Cover, CBs (DC and \&C) | SLAC | B\&H | 0 | 6.9 wks | \$0.00 | \$0.00 | \$18,768.00 | \$18,768.00 | \$3,753.60 | \$0.00 | \$22,521.60 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 6.9 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$18,768.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 1914 | 1.2.2.5.3.4 | Earthquake racks (DC and I\&C) | SLAC | B\&H | 0 | 1.5 wks | \$0.00 | \$0.00 | \$4,080.00 | \$4,080.00 | \$816.00 | \$0.00 | \$4,896.00 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | BRH | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$4,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 1915 | 1.2.2.5.3.5 | 20 A 2 P Latching NR Contactor (DC and I\&C) | SLAC | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$2,720.00 | \$2,720.00 | \$544.00 | \$0.00 | \$3,264.00 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 1916 | 1.2.2.5.3.6 | 200A 2P Latching NR Contactor ( DC and ILC ) | SLAC | B\&H | 0 | 2.3 wks | \$0.00 | \$0.00 | \$6,256.00 | \$6,256.00 | \$1,251.20 | \$0.00 | \$7,507.20 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | BRH | 0 | 2.3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,256.00 | \$0.00 | \$0.00 | \$0.00 |
| 1917 | 1.2.2.5.3.7 | 20-200A Contactor Control (DC and I\&C) | SLAC | B\&H | 0 | 1.5 wks | \$0.00 | \$0.00 | \$4,080.00 | \$4,080.00 | \$816.00 | \$0.00 | \$4,896.00 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$4,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 1918 | 1.2.2.5.3.7 | Corr, Low power Trims, Bipolar | SLAC | B\&H | 0 | 1.5 wks | \$0.00 | \$0.00 | \$4,080.00 | \$4,080.00 | \$816.00 | \$0.00 | \$4,896.00 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$4,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 1919 | 1.2.2.5.3.8 | 2/C\#18AWG Interlock | SLAC | B\&H | 0 | 2.5 wks | \$0.00 | \$0.00 | \$6,800.00 | \$6,800.00 | \$1,360.00 | \$0.00 | \$8,160.00 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$6,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1920 | 1.2.2.5.3.9 | 2/C\#10AWG | SLAC | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$5,440.00 | \$5,440.00 | \$1,088.00 | \$0.00 | \$6,528.00 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 1921 | 1.2.2.5.3.10 | 1-2/C\#8 AWG | SLAC | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$1,632.00 | \$1,632.00 | \$326.40 | \$0.00 | \$1,958.40 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,632.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1922 | 1.2.2.5.3.11 | 1/C\#2/0 AWG | SLAC | B\&H | 0 | 11.6 wks | \$0.00 | \$0.00 | \$31,552.00 | \$31,552.00 | \$6,310.40 | \$0.00 | \$37,862.40 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC T\&M Crafts - Union Electrician |  | B\&H | 0 | 11.6 wks | \$0.00 | \$0.00 | \$0.00 | \$31,552.00 | \$0.00 | \$0.00 | \$0.00 |
| 1923 | 1.2.2.5.3.12 | 1/C\#4/OAWG | SLAC | B\&H | 0 | 2.8 wks | \$0.00 | \$0.00 | \$7,616.00 | \$7,616.00 | \$1,523.20 | \$0.00 | \$9,139.20 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 2.8 wks | \$0.00 | \$0.00 | \$0.00 | \$7,616.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1924 | 1.2.2.5.3.13 | 1/C\#300kcmil | SLAC | B\&H | 0 | 5.6 wks | \$0.00 | \$0.00 | \$15,232.00 | \$15,232.00 | \$3,046.40 | \$0.00 | \$18,278.40 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 5.6 wks | \$0.00 | \$0.00 | \$0.00 | \$15,232.00 | \$0.00 | \$0.00 | \$0.00 |
| 1925 | 1.2.2.5.3.14 | 1/C\#500kcmil | SLAC | B\&H | 0 | 6.7 wks | \$0.00 | \$0.00 | \$18,224.00 | \$18,224.00 | \$3,644.80 | \$0.00 | \$21,868.80 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 6.7 wks | \$0.00 | \$0.00 | \$0.00 | \$18,224.00 | \$0.00 | \$0.00 | \$0.00 |
| 1926 | 1.2.2.5.3.15 | 1/C\#600kcmil | SLAC | B\&H | 0 | 0.9 wks | \$0.00 | \$0.00 | \$2,448.00 | \$2,448.00 | \$489.60 | \$0.00 | \$2,937.60 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 0.9 wks | \$0.00 | \$0.00 | \$0.00 | \$2,448.00 | \$0.00 | \$0.00 | \$0.00 |
| 1927 | 1.2.2.5.3.16 | Cable lugs, Splices, Etc | SLAC | B\&H | 0 | 7.3 wks | \$0.00 | \$0.00 | \$19,856.00 | \$19,856.00 | \$3,971.20 | \$0.00 | \$23,827.20 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 7.3 wks | \$0.00 | \$0.00 | \$0.00 | \$19,856.00 | \$0.00 | \$0.00 | \$0.00 |
| 1928 | 1.2.2.5.3.17 | 18"W 4"D G StI Cable Tray (DC and I\&C) | SLAC | B\&H | 0 | 3.5 wks | \$0.00 | \$0.00 | \$9,520.00 | \$9,520.00 | \$1,904.00 | \$0.00 | \$11,424.00 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 3.5 wks | \$0.00 | \$0.00 | \$0.00 | \$9,520.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 1929 | 1.2.2.5.3.18 | Cable Iray Fittings (DC and I\&C) | SLAC | B\&H | 0 | 8.9 wks | \$0.00 | \$0.00 | \$24,208.00 | \$24,208.00 | \$4,841.60 | \$0.00 | \$29,049.60 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 8.9 wks | \$0.00 | \$0.00 | \$0.00 | \$24,208.00 | \$0.00 | \$0.00 | \$0.00 |
| 1930 | 1.2.2.5.3.19 | Trapeze Cable Tray Supports (DC and I\&C) | SLAC | B\&H | 0 | 18.8 wks | \$0.00 | \$0.00 | \$51,136.00 | \$51,136.00 | \$10,227.20 | \$0.00 | \$61,363.20 |
|  |  | SLAC T\&M Crafts - Union Electrician |  | B\&H | 0 | 18.8 wks | \$0.00 | \$0.00 | \$0.00 | \$51,136.00 | \$0.00 | \$0.00 | \$0.00 |
| 1931 | 1.2.2.5.3.20 | Cable Iray Grounding (DC and $18 \mathrm{C}, \$ 1.8 / \mathrm{tt}$ ) | SLAC | B\&H | 0 | 3.2 wks | \$0.00 | \$0.00 | \$8,704.00 | \$8,704.00 | \$1,740.80 | \$0.00 | \$10,444.80 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 3.2 wks | \$0.00 | \$0.00 | \$0.00 | \$8,704.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 1932 | 1.2.2.5.3.21 | Gnd Jumpers ( DC and 18 C ) | SLAC | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$10,880.00 | \$10,880.00 | \$2,176.00 | \$0.00 | \$13,056.00 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$10,880.00 | \$0.00 | \$0.00 | \$0.00 |
| 1933 | 1.2.2.5.3.22 | Conduits for Linac penetrations, 4"ID | SLAC | B\&H | 0 | 3.7 wks | \$0.00 | \$0.00 | \$10,064.00 | \$10,064.00 | \$2,012.80 | \$0.00 | \$12,076.80 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 3.7 wks | \$0.00 | \$0.00 | \$0.00 | \$10,064.00 | \$0.00 | \$0.00 | \$0.00 |
| 1934 | 1.2.2.5.3.23 | Area Layouts/Raceways/Supports (Cable Plant, DC and l\&C) | SLAC | ED\& | 0 | 58 wks | \$0.00 | \$0.00 | \$174,000.00 | \$174,000.00 | \$34,800.00 | \$0.00 | \$208,800.00 |
|  |  | SLAC PCD:Engineer |  | ED\&1 | 0 | 58 wks | \$0.00 | \$0.00 | \$0.00 | \$174,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1935 | 1.2.2.5.3.24 | Corordination/UTR\&Engr(C. Plant Group, DC and I\&C) | SLAC | ED\& | 0 | 82 wks | \$0.00 | \$0.00 | \$157,440.00 | \$157,440.00 | \$31,488.00 | \$0.00 | \$188,928.00 |
|  |  | SLAC PCD:Coordinator Associate |  | ED\&1 | 0 | 82 wks | \$0.00 | \$0.00 | \$0.00 | \$157,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 1936 | 1.2.2.5.3.25 | CAPIAR Documentation ( DC and $\mathrm{\& C}$ ) | SLAC | ED\&I | 0 | 20 wks | \$0.00 | \$0.00 | \$38,400.00 | \$38,400.00 | \$7,680.00 | \$0.00 | \$46,080.00 |
|  |  | SLAC PCD:Coordinator Associate |  | ED\& | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$38,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 1937 | 1.2.2.6 | Magnets |  |  | 0 | 208.8 wks | \$0.00 | \$960,000.00 | \$585,436.80 | \$1,545,436.80 | \$174,687.36 | \$430,031.04 | \$2,150,155.20 |
| 1938 | 1.2.2.6.1 | Bend Magnet 5D7.1 |  |  | 0 | 36 wks | \$0.00 | \$45,000.00 | \$101,460.48 | \$146,460.48 | \$22,992.10 | \$42,363.14 | \$211,815.72 |
| 1939 | 1.2.2.6.1.1 | Magnet Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$45,000.00 | \$0.00 | \$45,000.00 | \$2,700.00 | \$11,925.00 | \$59,625.00 |
|  |  | SLAC MRS Iotal |  | M\&S | 0 | 45,000 | \$0.00 | \$0.00 | \$0.00 | \$45,000.00 | $\$ 0.00$ | \$0.00 | $\$ 0.00$ |
| 1940 | 1.2.2.6.1.2 | Magnet Machining | SLAC | B\&H | 2 | 24 wks | \$0.00 | \$0.00 | \$76,800.00 | \$76,800.00 | \$15,360.00 | \$23,040.00 | \$115,200.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$76,800.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{array}{\|c\|} \hline \text { ID } \\ \hline 1941 \\ \hline \end{array}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.2.2.6.1.3 | Mag Coil Winding | SLAC | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$11,992.80 | \$11,992.80 | \$2,398.56 | \$3,597.84 | \$17,989.20 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$11,992.80 | \$0.00 | \$0.00 | \$0.00 |
| 1942 | 1.2.2.6.1.4 | Magnet Assembly | SLAC | B\&H | 2 | 3.6 wks | \$0.00 | \$0.00 | \$7,195.68 | \$7,195.68 | \$1,439.14 | \$2,158.70 | \$10,793.52 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 3.6 wks | \$0.00 | \$0.00 | \$0.00 | \$7,195.68 | \$0.00 | \$0.00 | \$0.00 |
| 1943 | 1.2.2.6.1.5 | Fiducialization | SLAC | B\&H | 2 | 1.2 wks | \$0.00 | \$0.00 | \$2,736.00 | \$2,736.00 | \$547.20 | \$820.80 | \$4,104.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,736.00 | \$0.00 | \$0.00 | \$0.00 |
| 1944 | 1.2.2.6.1.6 | Mag Measure | SLAC | B\&H | 2 | 1.2 wks | \$0.00 | \$0.00 | \$2,736.00 | \$2,736.00 | \$547.20 | \$820.80 | \$4,104.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,736.00 | \$0.00 | \$0.00 | \$0.00 |
| 1945 | 1.2.2.6. 2 | Bend Magnet 1030.5 |  |  | 0 | 44.7 wks | \$0.00 | \$48,000.00 | \$126,057.24 | \$174,057.24 | \$28,091.45 | \$50,537.17 | \$252,685.86 |
| 1946 | 1.2.2.6.2.1 | Magnet Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$48,000.00 | \$0.00 | \$48,000.00 | \$2,880.00 | \$12,720.00 | \$63,600.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 48,000 | \$0.00 | \$0.00 | \$0.00 | \$48,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1947 | 1.2.2.6.2.2 | Magnet Machining | SLAC | B\&H | 2 | 30 wks | \$0.00 | \$0.00 | \$96,000.00 | \$96,000.00 | \$19,200.00 | \$28,800.00 | \$144,000.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 30 wks | \$0.00 | \$0.00 | \$0.00 | \$96,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1948 | 1.2.2.6.2.3 | Mag Coil Winding | SLAC | B\&H | 2 | 7.5 wks | \$0.00 | \$0.00 | \$14,991.00 | \$14,991.00 | \$2,998.20 | \$4,497.30 | \$22,486.50 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 7.5 wks | \$0.00 | \$0.00 | \$0.00 | \$14,991.00 | \$0.00 | \$0.00 | \$0.00 |
| 1949 | 1.2.2.6.2.4 | Magnet Assembly | SLAC | B\&H | 2 | 4.8 wks | \$0.00 | \$0.00 | \$9,594.24 | \$9,594.24 | \$1,918.85 | \$2,878.27 | \$14,391.36 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 4.8 wks | \$0.00 | \$0.00 | \$0.00 | \$9,594.24 | \$0.00 | \$0.00 | \$0.00 |
| 1950 | 1.2.2.6.2.5 | Fiducialization | SLAC | B\&H | 2 | 1.2 wks | \$0.00 | \$0.00 | \$2,736.00 | \$2,736.00 | \$547.20 | \$820.80 | \$4,104.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,736.00 | \$0.00 | \$0.00 | \$0.00 |
| 1951 | 1.2.2.6.2.6 | Mag Measure | SLAC | B\&H | 2 | 1.2 wks | \$0.00 | \$0.00 | \$2,736.00 | \$2,736.00 | \$547.20 | \$820.80 | \$4,104.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | BRH | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,736.00 | \$0.00 | \$0.00 | \$0.00 |
| 1952 | 1.2.2.6.3 | Bend Magnet 4D102.36T |  |  | 0 | 3 wks | \$0.00 | \$1,000.00 | \$7,197.60 | \$8,197.60 | \$1,499.52 | \$2,424.28 | \$12,121.40 |
| 1953 | 1.2.2.6.3.1 | Magnet Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1954 | 1.2.2.6.3.2 | Magnet Machining | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$3,200.00 | \$3,200.00 | \$640.00 | \$960.00 | \$4,800.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 1955 | 1.2.2.6.3.3 | Mag Coil Winding | SLAC | B\&H | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1956 | 1.2.2.6.3.4 | Magnet Assembly | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,199.28 | \$5,996.40 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 1957 | 1.2.2.6.3.5 | Fiducialization | SLAC | B\&H | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1958 | 1.2.2.6.3.6 | Mag Measure | SLAC | B\&H | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1959 | 1.2.2.6.4 | Bend Magnet VB |  |  | 0 | 12 wks | \$0.00 | \$15,000.00 | \$33,820.16 | \$48,820.16 | \$7,664.03 | \$14,121.05 | \$70,605.24 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{gathered} \text { ID } \\ \hline 1960 \end{gathered}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M $\mathrm{S}_{\text {S }}$ (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.2.2.6.4.1 | Magnet Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$900.00 | \$3,975.00 | \$19,875.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1961 | 1.2.2.6.4.2 | Magnet Machining | SLAC | B\&H | 2 | 8 wks | \$0.00 | \$0.00 | \$25,600.00 | \$25,600.00 | \$5,120.00 | \$7,680.00 | \$38,400.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$25,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1962 | 1.2.2.6.4.3 | Mag Coil Winding | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,199.28 | \$5,996.40 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 1963 | 1.2.2.6.4.4 | Magnet Assembly | SLAC | B\&H | 2 | 1.2 wks | \$0.00 | \$0.00 | \$2,398.56 | \$2,398.56 | \$479.71 | \$719.57 | \$3,597.84 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,398.56 | \$0.00 | \$0.00 | \$0.00 |
| 1964 | 1.2.2.6.4.5 | Fiducialization | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$912.00 | \$912.00 | \$182.40 | \$273.60 | \$1,368.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$912.00 | \$0.00 | \$0.00 | \$0.00 |
| 1965 | 1.2.2.6.4.6 | Mag Measure | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$912.00 | \$912.00 | \$182.40 | \$273.60 | \$1,368.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | BRH | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$912.00 | \$0.00 | \$0.00 | \$0.00 |
| 1966 | 1.2.2.6.5 | Quad Magnet 105.6 |  |  | 0 | 15 wks | \$0.00 | \$15,000.00 | \$41,130.24 | \$56,130.24 | \$9,126.05 | \$16,314.07 | \$81,570.36 |
| 1967 | 1.2.2.6.5.1 | Magnet Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$900.00 | \$3,975.00 | \$19,875.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1968 | 1.2.2.6.5.2 | Magnet Machining | SLAC | B\&H | 2 | 9 wks | \$0.00 | \$0.00 | \$28,800.00 | \$28,800.00 | \$5,760.00 | \$8,640.00 | \$43,200.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | BRH | 0 | 9 wks | \$0.00 | \$0.00 | \$0.00 | \$28,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1969 | 1.2.2.6.5.3 | Mag Coil Winding | SLAC | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$5,996.40 | \$5,996.40 | \$1,199.28 | \$1,798.92 | \$8,994.60 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$5,996.40 | \$0.00 | \$0.00 | \$0.00 |
| 1970 | 1.2.2.6.5.4 | Magnet Assembly | SLAC | B\&H | 2 | 1.8 wks | \$0.00 | \$0.00 | \$3,597.84 | \$3,597.84 | \$719.57 | \$1,079.35 | \$5,396.76 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 1.8 wks | \$0.00 | \$0.00 | \$0.00 | \$3,597.84 | \$0.00 | \$0.00 | \$0.00 |
| 1971 | 1.2.2.6.5.5 | Fiducialization | SLAC | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,368.00 | \$1,368.00 | \$273.60 | \$410.40 | \$2,052.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 1972 | 1.2.2.6.5.6 | Mag Measure | SLAC | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,368.00 | \$1,368.00 | \$273.60 | \$410.40 | \$2,052.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 1973 | 1.2.2.6.6 | Quadrupole - QA |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1974 | 1.2.2.6.6. 1 | Magnet Materials | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1975 | 1.2.2.6.6.2 | Magnet Machining | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1976 | 1.2.2.6.6.3 | Mag Coil Winding | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1977 | 1.2.2.6.6.4 | Magnet Assembly | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1978 | 1.2.2.6.6.5 | Fiducialization | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1979 | 1.2.2.6.6.6 | Mag Measure | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 1980 | 1.2.2.6.7 | Quad Magnet QE |  |  | 0 | 30 wks | \$0.00 | \$30,000.00 | \$82,260.48 | \$112,260.48 | \$18,252.10 | \$32,628.14 | \$163,140.72 |
| 1981 | 1.2.2.6.7.1 | Magnet Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$1,800.00 | \$7,950.00 | \$39,750.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{array}{\|c\|} \hline \text { ID } \\ \hline 1982 \end{array}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.2.2.6.7.2 | Magnet Machining | SLAC | B\&H | 2 | 18 wks | \$0.00 | \$0.00 | \$57,600.00 | \$57,600.00 | \$11,520.00 | \$17,280.00 | \$86,400.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 18 wks | \$0.00 | \$0.00 | \$0.00 | \$57,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 1983 | 1.2.2.6.7.3 | Mag Coil Winding | SLAC | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$11,992.80 | \$11,992.80 | \$2,398.56 | \$3,597.84 | \$17,989.20 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$11,992.80 | \$0.00 | \$0.00 | \$0.00 |
| 1984 | 1.2.2.6.7.4 | Magnet Assembly | SLAC | B\&H | 2 | 3.6 wks | \$0.00 | \$0.00 | \$7,195.68 | \$7,195.68 | \$1,439.14 | \$2,158.70 | \$10,793.52 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 3.6 wks | \$0.00 | \$0.00 | \$0.00 | \$7,195.68 | \$0.00 | \$0.00 | \$0.00 |
| 1985 | 1.2.2.6.7.5 | Fiducialization | SLAC | B\&H | 2 | 1.2 wks | \$0.00 | \$0.00 | \$2,736.00 | \$2,736.00 | \$547.20 | \$820.80 | \$4,104.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,736.00 | \$0.00 | \$0.00 | \$0.00 |
| 1986 | 1.2.2.6.7.6 | Mag Measure | SLAC | B\&H | 2 | 1.2 wks | \$0.00 | \$0.00 | \$2,736.00 | \$2,736.00 | \$547.20 | \$820.80 | \$4,104.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,736.00 | \$0.00 | \$0.00 | \$0.00 |
| 1987 | 1.2.2.6.8 | Quad Magnet 0.91Q17.72 |  |  | 0 | 20 wks | \$0.00 | \$20,000.00 | \$54,840.32 | \$74,840.32 | \$12,168.06 | \$21,752.10 | \$108,760.48 |
| 1988 | 1.2.2.6.8.1 | Magnet Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$5,300.00 | \$26,500.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1989 | 1.2.2.6.8.2 | Magnet Machining | SLAC | B\&H | 2 | 12 wks | \$0.00 | \$0.00 | \$38,400.00 | \$38,400.00 | \$7,680.00 | \$11,520.00 | \$57,600.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$38,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 1990 | 1.2.2.6.8.3 | Mag Coil Winding | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$7,995.20 | \$7,995.20 | \$1,599.04 | \$2,398.56 | \$11,992.80 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,995.20 | \$0.00 | \$0.00 | \$0.00 |
| 1991 | 1.2.2.6.8.4 | Magnet Assembly | SLAC | B\&H | 2 | 2.4 wks | \$0.00 | \$0.00 | \$4,797.12 | \$4,797.12 | \$959.42 | \$1,439.14 | \$7,195.68 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 2.4 wks | \$0.00 | \$0.00 | \$0.00 | \$4,797.12 | \$0.00 | \$0.00 | \$0.00 |
| 1992 | 1.2.2.6.8.5 | Fiducialization | SLAC | B\&H | 2 | 0.8 wks | \$0.00 | \$0.00 | \$1,824.00 | \$1,824.00 | \$364.80 | \$547.20 | \$2,736.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.8 wks | \$0.00 | \$0.00 | \$0.00 | \$1,824.00 | \$0.00 | \$0.00 | \$0.00 |
| 1993 | 1.2.2.6.8.6 | Mag Measure | SLAC | B\&H | 2 | 0.8 wks | \$0.00 | \$0.00 | \$1,824.00 | \$1,824.00 | \$364.80 | \$547.20 | \$2,736.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.8 wks | \$0.00 | \$0.00 | \$0.00 | \$1,824.00 | \$0.00 | \$0.00 | \$0.00 |
| 1994 | 1.2.2.6.9 | Correctors |  |  | 0 | 28 wks | \$0.00 | \$20,000.00 | \$85,920.00 | \$105,920.00 | \$18,384.00 | \$31,076.00 | \$155,380.00 |
| 1995 | 1.2.2.6.9.1 | Magnet Materials | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$5,300.00 | \$26,500.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 1996 | 1.2.2.6.9.2 | Magnet Machining | SLAC | B\&H | 2 | 16 wks | \$0.00 | \$0.00 | \$51,200.00 | \$51,200.00 | \$10,240.00 | \$15,360.00 | \$76,800.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$51,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 1997 | 1.2.2.6.9.3 | Mag Coil Winding | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$12,800.00 | \$12,800.00 | \$2,560.00 | \$3,840.00 | \$19,200.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$12,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1998 | 1.2.2.6.9.4 | Magnet Assembly | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$12,800.00 | \$12,800.00 | \$2,560.00 | \$3,840.00 | \$19,200.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$12,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 1999 | 1.2.2.6.9.6 | Mag Measure | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$9,120.00 | \$9,120.00 | \$1,824.00 | \$2,736.00 | \$13,680.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 2000 | 1.2.2.6.10 | Dumpline Bend Magnets |  |  | 0 | 14.9 wks | \$0.00 | \$16,000.00 | \$42,019.08 | \$58,019.08 | \$9,363.82 | \$16,845.72 | \$84,228.62 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 2001 | 1.2.2.6.10.1 | Magnet Materials | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$16,000.00 | \$0.00 | \$16,000.00 | \$960.00 | \$4,240.00 | \$21,200.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 16,000 | \$0.00 | \$0.00 | \$0.00 | \$16,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2002 | 1.2.2.6.10.2 | Magnet Machining | SLAC | B\&H | 2 | 10 wks | \$0.00 | \$0.00 | \$32,000.00 | \$32,000.00 | \$6,400.00 | \$9,600.00 | \$48,000.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$32,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2003 | 1.2.2.6.10.3 | Mag Coil Winding | SLAC | B\&H | 2 | 2.5 wks | \$0.00 | \$0.00 | \$4,997.00 | \$4,997.00 | \$999.40 | \$1,499.10 | \$7,495.50 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$4,997.00 | \$0.00 | \$0.00 | \$0.00 |
| 2004 | 1.2.2.6.10.4 | Magnet Assembly | SLAC | $\mathrm{B} \& \mathrm{H}$ | 2 | 1.6 wks | \$0.00 | \$0.00 | \$3,198.08 | \$3,198.08 | \$639.62 | \$959.42 | \$4,797.12 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 1.6 wks | \$0.00 | \$0.00 | \$0.00 | \$3,198.08 | \$0.00 | \$0.00 | \$0.00 |
| 2005 | 1.2.2.6.10.5 | Fiducialization | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$912.00 | \$912.00 | \$182.40 | \$273.60 | \$1,368.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$912.00 | \$0.00 | \$0.00 | \$0.00 |
| 2006 | 1.2.2.6.10.6 | Mag Measure | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$912.00 | \$912.00 | \$182.40 | \$273.60 | \$1,368.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$912.00 | \$0.00 | \$0.00 | \$0.00 |
| 2007 | 1.2.2.6.11 | Superconducting wiggler procurement |  |  | 0 | 5.2 wks | \$0.00 | \$750,000.00 | \$10,731.20 | \$760,731.20 | \$47,146.24 | \$201,969.36 | \$1,009,846.80 |
| 2008 | 1.2.2.6.11.1 | Magnet |  |  | 0 | 0 wks | \$0.00 | \$750,000.00 | \$0.00 | \$750,000.00 | \$45,000.00 | \$198,750.00 | \$993,750.00 |
| 2009 | 1.2.2.6.11.1 | Procurement | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$750,000.00 | \$0.00 | \$750,000.00 | \$45,000.00 | \$198,750.00 | \$993,750.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 750,000 | \$0.00 | \$0.00 | \$0.00 | \$750,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2010 | 1.2.2.6.11.2 | Mag Meas |  |  | 0 | 2.6 wks | \$0.00 | \$0.00 | \$5,365.60 | \$5,365.60 | \$1,073.12 | \$1,609.68 | \$8,048.40 |
| 2011 | 1.2.2.6.11.2 | Surveryor | SLAC | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,368.00 | \$1,368.00 | \$273.60 | \$410.40 | \$2,052.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 2012 | 1.2.2.6.11.2 | Tech | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,199.28 | \$5,996.40 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 2013 | 1.2.2.6.11.3 | Fiducialize |  |  | 0 | 2.6 wks | \$0.00 | \$0.00 | \$5,365.60 | \$5,365.60 | \$1,073.12 | \$1,609.68 | \$8,048.40 |
| 2014 | 1.2.2.6.11.3 | Surveryor | SLAC | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,368.00 | \$1,368.00 | \$273.60 | \$410.40 | \$2,052.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | BRH | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 2015 | 1.2.2.6.11.3 | Tech | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,199.28 | \$5,996.40 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 2016 | 1.2.2.7 | Controls |  |  | 0 | 157.18 wks | \$0.00 | \$1,351,500.00 | \$369,252.00 | \$1,720,752.00 | \$154,991.65 | \$480,340.09 | \$2,356,083.74 |
| 2017 | 1.2.2.7.1 | Computers and Crates (6) |  |  | 0 | 28 wks | \$0.00 | \$58,000.00 | \$69,331.20 | \$127,331.20 | \$17,346.24 | \$49,583.38 | \$194,260.82 |
| 2018 | 1.2.2.7.1 | CAMAC Crates, Control \& Support Modules | SLAC | ED\&1 | 3 | 20 wks | \$0.00 | \$0.00 | \$50,528.00 | \$50,528.00 | \$10,105.60 | \$21,221.76 | \$81,855.36 |
|  |  | SLAC Controls: Programmer |  | ED\&1 | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$50,528.00 | \$0.00 | \$0.00 | \$0.00 |
| 2019 | 1.2.2.7.1 | CAMAC Crates, Control \& Support Modules | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$56,000.00 | \$0.00 | \$56,000.00 | \$3,360.00 | \$20,776.00 | \$80,136.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 56,000 | \$0.00 | \$0.00 | \$0.00 | \$56,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2020 | 1.2.2.7.7 | CAMAC Crates, Control \& Support Modules | SLAC | ED\& | 3 | 4 wks | \$0.00 | \$0.00 | \$11,788.80 | \$11,788.80 | \$2,357.76 | \$4,951.30 | \$19,097.86 |
|  |  | SLAC Controls: Engineer |  | ED\&I | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,788.80 | \$0.00 | \$0.00 | \$0.00 |
| 2021 | 1.2.2.7.1 | Install CAMAC Crates, CTL \& Support Modules | SLAC | $\mathrm{B} \& \mathrm{H}$ | 2 | 4 wks | \$0.00 | \$0.00 | \$7,014.40 | \$7,014.40 | \$1,402.88 | \$2,104.32 | \$10,521.60 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,014.40 | \$0.00 | \$0.00 | \$0.00 |
| 2022 | 1.2.2.7.1 | CAMAC System Cableplant | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2023 | 1.2.2.7.2 | TIIING DISTRIBUTION SYSTEM-CAMAC |  |  | 0 | 29.5 wks | \$0.00 | \$45,000.00 | \$75,825.60 | \$120,825.60 | \$17,865.12 | \$39,267.34 | \$177,958.06 |
| 2024 | 1.2.2.7.2 | Distributed Timing Hardware | SLAC | ED\& | 3 | 4 wks | \$0.00 | \$0.00 | \$11,788.80 | \$11,788.80 | \$2,357.76 | \$4,951.30 | \$19,097.86 |
|  |  | SLAC Controls: Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,788.80 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2025 | 1.2.2.7.2 | Distributed Timing Hardware | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$1,800.00 | \$11,130.00 | \$42,930.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2026 | 1.2.2.7.2 | Install M\&D liming System Hardware | SLAC | B\&H | 2 | 0.5 wks | \$0.00 | \$0.00 | \$876.80 | \$876.80 | \$175.36 | \$263.04 | \$1,315.20 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$876.80 | \$0.00 | \$0.00 | \$0.00 |
| 2027 | 1.2.2.7.2 | Timing System Heliax Cableplant | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$900.00 | \$3,975.00 | \$19,875.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2028 | 1.2.2.7.2 | liming Sottware support | SLAC | ED\& | 2 | 25 wks | \$0.00 | \$0.00 | \$63,160.00 | \$63,160.00 | \$12,632.00 | \$18,948.00 | \$94,740.00 |
|  |  | SLAC Controls: Programmer |  | ED\&1 | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$63,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 2029 | 1.2.2.7.3 | LCLS VACUUM SYSTEM (3) |  |  | 0 | 8.5 wks | \$0.00 | \$5,000.00 | \$17,000.00 | \$22,000.00 | \$3,700.00 | \$8,995.00 | \$34,695.00 |
| 2030 | 1.2.2.7.3.1 | Refurb and Reinstall Dump Vacuum System | SLAC | ED\& | 3 | 6 wks | \$0.00 | \$0.00 | \$12,000.00 | \$12,000.00 | \$2,400.00 | \$5,040.00 | \$19,440.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&1 | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2031 | 1.2.2.7.3.2 | Replace Linac/ Dump Ion Pump Cables (250') | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,484.00 | \$5,724.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2032 | 1.2.2.7.3.3 | Replace Vacuum Valve Cables (250') | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$371.00 | \$1,431.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2033 | 1.2.2.7.3.4 | Coordination Linac Vacuum Reuse | SLAC | ED\& | 3 | 2.5 wks | \$0.00 | \$0.00 | \$5,000.00 | \$5,000.00 | \$1,000.00 | \$2,100.00 | \$8,100.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2034 | 1.2.2.7.4 | TUNE-UP DUMPS (3) |  |  | 0 | 4.6 wks | \$0.00 | \$20,500.00 | \$11,815.36 | \$32,315.36 | \$3,644.32 | \$5,393.95 | \$41,353.63 |
| 2035 | 1.2.2.7.4.1 | IDIM Module 2) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$636.00 | \$4,876.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2036 | 1.2.2.7.4.2 | IDOM Module (1) | SLAC | B\&H | 1 | 1 wk | \$0.00 | \$0.00 | \$1,753.60 | \$1,753.60 | \$350.72 | \$315.65 | \$2,419.97 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,753.60 | \$0.00 | \$0.00 | \$0.00 |
| 2037 | 1.2.2.7.4.3 | Protile Monitor Chassis (1) | SLAC | ED\& | 1 | 3 wks | \$0.00 | \$0.00 | \$8,841.60 | \$8,841.60 | \$1,768.32 | \$1,591.49 | \$12,201.41 |
|  |  | SLAC Controls: Engineer |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$8,841.60 | \$0.00 | \$0.00 | \$0.00 |
| 2038 | 1.2.2.7.4.3 | Profile Monitor Chassis (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$13,000.00 | \$0.00 | \$13,000.00 | \$780.00 | \$2,067.00 | \$15,847.00 |
|  |  | SLAC M\&S Iotal |  | M\$S | 0 | 13,000 | \$0.00 | \$0.00 | \$0.00 | \$13,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2039 | 1.2.2.7.4.4 | Mult-conductor (21C/16GA-CONI\&SIAI) (2) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC MES Iotal |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2040 | 1.2.2.7.4.5 | CAMAC cable IDIM (2) | SLAC | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$406.72 | \$406.72 | \$98.43 | \$75.77 | \$580.92 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | obs | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | ANL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$406.72 | \$0.00 | \$0.00 | \$0.00 |
| 2041 | 1.2.2.7.4.5 | CAMAC cable IDIM (2) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$600.00 | \$0.00 | \$600.00 | \$36.00 | \$95.40 | \$731.40 |
|  |  | SLAC M\&S Iotal |  | MKS | 0 | 600 | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 2042 | 1.2.2.7.4.6 | CAMAC cable IDOM (1) | SLAC | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$406.72 | \$406.72 | \$98.43 | \$75.77 | \$580.92 |
|  |  | ANL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$406.72 | \$0.00 | \$0.00 | \$0.00 |
| 2043 | 1.2.2.7.4.6 | CAMAC cable IDOM (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$600.00 | \$0.00 | \$600.00 | \$36.00 | \$95.40 | \$731.40 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 600 | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | \$0.00 | \$0.00 |
| 2044 | 1.2.2.7.4.7 | WIRING OF ID ASSEMBLY INLAB (1) | SLAC | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$406.72 | \$406.72 | \$98.43 | \$75.77 | \$580.92 |
|  |  | ANL PCD:IInst-Cabling-Elec Fab |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$406.72 | \$0.00 | \$0.00 | \$0.00 |
| 2045 | 1.2.2.7.4.7 | WIRING OF TD ASSEMBLY IN LAB (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$300.00 | \$0.00 | \$300.00 | \$18.00 | \$47.70 | \$365.70 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 300 | \$0.00 | \$0.00 | \$0.00 | \$300.00 | \$0.00 | \$0.00 | \$0.00 |
| 2046 | 1.2.2.7.5 | WIRE SCANNERS (14) |  |  | 0 | 14.48 wks | \$0.00 | \$143,300.00 | \$33,105.66 | \$176,405.66 | \$15,219.13 | \$32,660.45 | \$224,285.24 |
| 2047 | 1.2.2.7.5.1 | Power Supply EMI 20v@50A (1) | SLAC | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$350.72 | \$350.72 | \$70.14 | \$63.13 | \$483.99 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$350.72 | \$0.00 | \$0.00 | \$0.00 |
| 2048 | 1.2.2.7.5.1 | Power Supply EMI 20v@50A (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$636.00 | \$4,876.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2049 | 1.2.2.7.5.2 | DATRONICS Controler (MN 10k-1) (1) | SLAC | ED\& | 1 | 6 wks | \$0.00 | \$0.00 | \$17,683.20 | \$17,683.20 | \$3,536.64 | \$3,182.98 | \$24,402.82 |
|  |  | SLAC Controls: Engineer |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$17,683.20 | \$0.00 | \$0.00 | \$0.00 |
| 2050 | 1.2.2.7.5.2 | DAIRONICS Controller (MN 10k-1) (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$11,000.00 | \$0.00 | \$11,000.00 | \$660.00 | \$1,749.00 | \$13,409.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 11,000 | \$0.00 | \$0.00 | \$0.00 | \$11,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2051 | 1.2.2.7.5.3 | LVDT PCB (8) | SLAC | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,052.16 | \$1,052.16 | \$210.43 | \$315.65 | \$1,578.24 |
|  |  | SLAC Controls: Technician |  | BRH | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,052.16 | \$0.00 | \$0.00 | \$0.00 |
| 2052 | 1.2.2.7.5.3 | LVDI PCB (8) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2053 | 1.2.2.7.5.4 | LVDT Unit (30) | SLAC | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,052.16 | \$1,052.16 | \$210.43 | \$315.65 | \$1,578.24 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,052.16 | \$0.00 | \$0.00 | \$0.00 |
| 2054 | 1.2.2.7.5.4 | LVDT Unit (30) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$18,000.00 | \$0.00 | \$18,000.00 | \$1,080.00 | \$4,770.00 | \$23,850.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 18,000 | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2055 | 1.2.2.7.5.5 | 10 Channel Resistor Intertace Chassis (1) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2056 | 1.2.2.7.5.5 | 10 Channel Resistor Interface Chassis (1) | SLAC | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$4,000.00 | \$4,000.00 | \$800.00 | \$1,200.00 | \$6,000.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 2057 | 1.2.2.7.5.6 | CAMAC Module, SAM (1) | SLAC | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$350.72 | \$350.72 | \$70.14 | \$63.13 | \$483.99 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$350.72 | \$0.00 | \$0.00 | \$0.00 |
| 2058 | 1.2.2.7.5.6 | CAMAC Module, SAM (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$954.00 | \$7,314.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 4 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2059 | 1.2.2.7.5.7 | CAMAC Module, GADC (1) | SLAC | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$350.72 | \$350.72 | \$70.14 | \$63.13 | \$483.99 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$350.72 | \$0.00 | \$0.00 | \$0.00 |
| 2060 | 1.2.2.7.5.7 | CAMAC Module, GADC (1) | SLAC | M 8 S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$1,272.00 | \$9,752.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2061 | 1.2.2.7.5.8 | CAMAC Module, PDGG (1) | SLAC | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$350.72 | \$350.72 | \$70.14 | \$63.13 | \$483.99 |
|  |  | SLAC Controls: Technician |  | BRH | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$350.72 | \$0.00 | \$0.00 | \$0.00 |
| 2062 | 1.2.2.7.5.8 | CAMAC Module, PDGG (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$795.00 | \$6,095.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2063 | 1.2.2.7.5.9 | CAMAC Module,DAC (1) | SLAC | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$350.72 | \$350.72 | \$70.14 | \$63.13 | \$483.99 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$350.72 | \$0.00 | \$0.00 | \$0.00 |
| 2064 | 1.2.2.7.5.9 | CAMAC Module,DAC (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,113.00 | \$8,533.00 |
|  |  | SLAC M\&S Iotal |  | M LS $^{\text {S }}$ | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2065 | 1.2.2.7.5.10 | CAMAC Module,Stepper Motor Controller, SMC-24BP (4) | SLAC | B\&H | 1 | 2 wks | \$0.00 | \$0.00 | \$3,507.20 | \$3,507.20 | \$701.44 | \$631.30 | \$4,839.94 |
|  |  | SLAC Controls: Technician |  | BRH | 0 | $2 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$3,507.20 | \$0.00 | \$0.00 | \$0.00 |
| 2066 | 1.2.2.7.5.10 | CAMAC Module,Stepper Motor Controller, SMC-24BP (4) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$22,000.00 | \$0.00 | \$22,000.00 | \$1,320.00 | \$3,498.00 | \$26,818.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 22,000 | \$0.00 | \$0.00 | \$0.00 | \$22,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2067 | 1.2.2.7.7.11 | 16 Channel Intertace Chassis (1) | SLAC | B\&H | 2 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$10.52 | \$52.61 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 2068 | 1.2.2.7.5.11 | 16 Channel Interface Chassis (1) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC MES Total |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2069 | 1.2.2.7.5.12 | HVP.S., 8 CH. BEAMSTRAHLUNG CH. (1) | SLAC | $\mathrm{B} \& \mathrm{H}$ | 1 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 2070 | 1.2.2.7.5.12 | HV P.S., 8 CH. BEAMS TRAHLUNG CH. (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$540.00 | \$1,431.00 | \$10,971.00 |
|  |  | SLAC MES Total |  | M 2 S | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2071 | 1.2.2.7.5.13 | Photo-multiplier Tube Electronics Assem., Phillips (4) | SLAC | B\&H | 1 | 2 wks | \$0.00 | \$0.00 | \$3,507.20 | \$3,507.20 | \$701.44 | \$631.30 | \$4,839.94 |
|  |  | SLAC Controls: Technician |  | BRH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,507.20 | \$0.00 | \$0.00 | \$0.00 |
| 2072 | 1.2.2.7.7.13 | Photo-multiplier lube Electronics Assem., Phillips (4) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$14,000.00 | \$0.00 | \$14,000.00 | \$840.00 | \$2,226.00 | \$17,066.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 14,000 | \$0.00 | \$0.00 | \$0.00 | \$14,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2073 | 1.2.2.7.5.14 | RG58 to PMT 250' | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$636.00 | \$4,876.00 |
|  |  | SLAC M\&S Total |  | MLS | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2074 | 1.2.2.7.5.15 | MULII-COND (4PR) DAIRONIC IOLVDI 250 | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$1,272.00 | \$9,752.00 |
|  |  | SLAC MRS Iotal |  | M ${ }^{\text {d S }}$ | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2075 | 1.2.2.7.5.16 | MULII-COND (12/C) REST. CH. IO SMC MODULE | SLAC | B\&H | 1 | 0.06 wks | \$0.00 | \$0.00 | \$120.00 | \$120.00 | \$24.00 | \$21.60 | \$165.60 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.06 wks | \$0.00 | \$0.00 | \$0.00 | \$120.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 2076 | 1.2.2.7.5.16 | MULTI-COND (12/C) REST. CH. TO SMC MODULE | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2077 | 1.2.2.7.5.17 | MULIT-COND (12/C) REST. CH. TO WIRE SCANNER | SLAC | B\&H | 1 | 0.06 wks | \$0.00 | \$0.00 | \$120.00 | \$120.00 | \$24.00 | \$21.60 | \$165.60 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.06 wks | \$0.00 | \$0.00 | \$0.00 | \$120.00 | \$0.00 | \$0.00 | \$0.00 |
| 2078 | 1.2.2.7.5.17 | MULTI-COND (12/C) REST. CH. TO WIRE SCANNER | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$954.00 | \$7,314.00 |
|  |  | SLAC MES Total |  | M 2 S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2079 | 1.2.2.7.5.18 | CAMAC CABLE (36/C) 16 CHNL DIST. TO SAM | SLAC | B\&H | 1 | 0.06 wks | \$0.00 | \$0.00 | \$120.00 | \$120.00 | \$24.00 | \$21.60 | \$165.60 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.06 wks | \$0.00 | \$0.00 | \$0.00 | \$120.00 | \$0.00 | \$0.00 | \$0.00 |
| 2080 | 1.2.2.7.5.18 | CAMAC CABLE (36/C) 16 CHNL DISI. IO SAM | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2081 | 1.2.2.7.5.19 | SINGLE-COND P.S. TO REST. CH. | SLAC | B\&H | 1 | 0.06 wks | \$0.00 | \$0.00 | \$120.00 | \$120.00 | \$24.00 | \$21.60 | \$165.60 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.06 wks | \$0.00 | \$0.00 | \$0.00 | \$120.00 | \$0.00 | \$0.00 | \$0.00 |
| 2082 | 1.2.2.7.5.19 | SINGLE-COND P.S. 10 RESI. CH. | SLAC | M $\mathrm{S}^{\text {S }}$ | 1 | 0 wks | \$0.00 | \$300.00 | \$0.00 | \$300.00 | \$18.00 | \$47.70 | \$365.70 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 300 | \$0.00 | \$0.00 | \$0.00 | \$300.00 | \$0.00 | \$0.00 | \$0.00 |
| 2083 | 1.2.2.7.5.20 | WIRING OF WIRE SCANNER ASSEMBLY INLAB (4) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$954.00 | \$7,314.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2084 | 1.2.2.7.6 | BPM's (136)w/ 6 Linac / 2 Special / 2 Dump |  |  | 0 | 45.2 wks | \$0.00 | \$916,000.00 | \$96,272.64 | \$1,012,272.64 | \$74,214.53 | \$278,090.79 | \$1,364,577.96 |
| 2085 | 1.2.2.7.6.1 | BPM Processormodules (136, 1 SPARES) | SLAC | ED\& | 2 | 6.2 wks | \$0.00 | \$0.00 | \$18,272.64 | \$18,272.64 | \$3,654.53 | \$5,481.79 | \$27,408.96 |
|  |  | SLAC Controls: Engineer |  | ED\&1 | 0 | 6.2 wks | \$0.00 | \$0.00 | \$0.00 | \$18,272.64 | \$0.00 | \$0.00 | \$0.00 |
| 2086 | 1.2.2.7.6.1 | BPM ProcessorModules (136, 1 SPARES) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$272,000.00 | \$0.00 | \$272,000.00 | \$16,320.00 | \$72,080.00 | \$360,400.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 272,000 | \$0.00 | \$0.00 | \$0.00 | \$272,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2087 | 1.2.2.7.6.2 | Head Amplifier Chassis (1) | SLAC | ED\& | 1 | 1.5 wks | \$0.00 | \$0.00 | \$3,000.00 | \$3,000.00 | \$600.00 | \$540.00 | \$4,140.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&I | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2088 | 1.2.2.7.6.2 | Head Amplitier Chassis (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$42,000.00 | \$0.00 | \$42,000.00 | \$2,520.00 | \$6,678.00 | \$51,198.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 42,000 | \$0.00 | \$0.00 | \$0.00 | \$42,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2089 | 1.2.2.7.6.3 | Head Amp. Modules ( 136,1 SPARES) | SLAC | ED\& | 2 | 1.5 wks | \$0.00 | \$0.00 | \$3,000.00 | \$3,000.00 | \$600.00 | \$900.00 | \$4,500.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2090 | 1.2.2.7.6.3 | Head Amp. Modules (136, 1 SPARES) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$272,000.00 | \$0.00 | \$272,000.00 | \$16,320.00 | \$72,080.00 | \$360,400.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 272,000 | \$0.00 | \$0.00 | \$0.00 | \$272,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2091 | 1.2.2.7.6.4 | Test Pulse Generator Modules (6) | SLAC | ED\& | 1 | 2 wks | \$0.00 | \$0.00 | \$4,000.00 | \$4,000.00 | \$800.00 | \$720.00 | \$5,520.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2092 | 1.2.2.7.6.4 | Iest Pulse Generator Modules (6) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$259,000.00 | \$0.00 | \$259,000.00 | \$15,540.00 | \$41,181.00 | \$315,721.00 |
|  |  | SLAC M\&S Iotal |  | M $\downarrow \mathrm{S}$ | 0 | 259,000 | \$0.00 | \$0.00 | \$0.00 | \$259,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2093 | 1.2.2.7.6.5 | Controls lechnician | SLAC | ED\& | 4 | 20 wks | \$0.00 | \$0.00 | \$40,000.00 | \$40,000.00 | \$8,000.00 | \$24,000.00 | \$72,000.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$40,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cWbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| $2094$ | 1.2.2.7.6.6 | RG223 (4 ea BPM, timed and matched, 200) | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$43,000.00 | \$0.00 | \$43,000.00 | \$2,580.00 | \$22,790.00 | \$68,370.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 43,000 | \$0.00 | \$0.00 | \$0.00 | \$43,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2095 | 1.2.2.7.6.7 | RG223 Pigtails (8 ea BPM, timed and matched, 10) | SLAC | B\&H | 4 | 2 wks | \$0.00 | \$0.00 | \$4,000.00 | \$4,000.00 | \$800.00 | \$2,400.00 | \$7,200.00 |
|  |  | SLACL PCD:IInst-Cabling-Elec Fab |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2096 | 1.2.2.7.6.7 | RG223 Pigtails (8 ea BPM, timed and matched, 10') | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$28,000.00 | \$0.00 | \$28,000.00 | \$1,680.00 | \$14,840.00 | \$44,520.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 28,000 | \$0.00 | \$0.00 | \$0.00 | \$28,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2097 | 1.2.2.7.6.8 | Technician BPM Initial Calibration ( $136 \times 4 \mathrm{mh}=12 \mathrm{wks}$ ) | SLAC | ED\& | 4 | 12 wks | \$0.00 | \$0.00 | \$24,000.00 | \$24,000.00 | \$4,800.00 | \$14,400.00 | \$43,200.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&1 | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$24,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2098 | 1.2.2.7.7 | TOROIDS (7) w/ BC's and Dump |  |  | 0 | 8.3 wks | \$0.00 | \$46,700.00 | \$18,253.44 | \$64,953.44 | \$6,452.69 | \$10,710.92 | \$82,117.05 |
| 2099 | 1.2.2.7.7.1 | CAMAC Module, TCM (7) | SLAC | ED\& | 1 | 2.5 wks | \$0.00 | \$0.00 | \$7,368.00 | \$7,368.00 | \$1,473.60 | \$1,326.24 | \$10,167.84 |
|  |  | SLAC Controls: Engineer |  | ED\& | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$7,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 2100 | 1.2.2.7.7.1 | CAMAC Module, TCM (7) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$900.00 | \$2,385.00 | \$18,285.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2101 | 1.2.2.7.7.2 | ICM PreAmps (7) | SLAC | ED\& | 1 | 1.4 wks | \$0.00 | \$0.00 | \$2,800.00 | \$2,800.00 | \$560.00 | \$504.00 | \$3,864.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 1.4 wks | \$0.00 | \$0.00 | \$0.00 | \$2,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 2102 | 1.2.2.7.7.2 | TCM PreAmps (7) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$21,000.00 | \$0.00 | \$21,000.00 | \$1,260.00 | \$3,339.00 | \$25,599.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 21,000 | \$0.00 | \$0.00 | \$0.00 | \$21,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2103 | 1.2.2.7.7.3 | Lead Shielding (12 Bricks/Unit) (7) | SLAC | B\&H | 1 | 1.5 wks | \$0.00 | \$0.00 | \$3,000.00 | \$3,000.00 | \$600.00 | \$540.00 | \$4,140.00 |
|  |  | SLACL PCD:IIst-Cabling-Elec Fab |  | B\&H | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2104 | 1.2.2.7.7.3 | Lead Shielding (12 Bricks/Unit) (7) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2105 | 1.2.2.7.7.4 | Steel Covers (7) | SLAC | B\&H | 1 | 1.3 wks | \$0.00 | \$0.00 | \$2,279.68 | \$2,279.68 | \$455.94 | \$410.34 | \$3,145.96 |
|  |  | SLAC PCD:Iechnician |  | B\&H | 0 | 1.3 wks | \$0.00 | \$0.00 | \$0.00 | \$2,279.68 | \$0.00 | \$0.00 | \$0.00 |
| 2106 | 1.2.2.7.7.4 | Steel Covers (7) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2107 | 1.2.2.7.7. | Platorms (7) | SLAC | B\&H | 1 | 1.3 wks | \$0.00 | \$0.00 | \$2,279.68 | \$2,279.68 | \$455.94 | \$410.34 | \$3,145.96 |
|  |  | SLAC PCD:Technician |  | B\&H | 0 | 1.3 wks | \$0.00 | \$0.00 | \$0.00 | \$2,279.68 | \$0.00 | \$0.00 | \$0.00 |
| 2108 | 1.2.2.7.7.5 | Plattorms (7) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$700.00 | \$0.00 | \$700.00 | \$42.00 | \$111.30 | \$853.30 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 700 | \$0.00 | \$0.00 | \$0.00 | \$700.00 | \$0.00 | \$0.00 | \$0.00 |
| 2109 | 1.2.2.7.7.6 | Adapter Box, RG22 to Twinax (2 each toroid) | SLAC | B\&H | 1 | 0.1 wks | \$0.00 | \$0.00 | \$175.36 | \$175.36 | \$35.07 | \$31.56 | \$242.00 |
|  |  | SLAC PCD:Technician |  | B\&H | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$175.36 | \$0.00 | \$0.00 | \$0.00 |
| 2110 | 1.2.2.7.7.6 | Adapter Box, RG22 to I winax (2 each toroid) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | $\$ 0.00$ | \$0.00 | $\$ 0.00$ |
| 2111 | 1.2.2.7.7.7 | RG22, ICM PreAmp to Ioroid (1 each toroid) | SLAC | B\&H | 1 | 0.1 wks | \$0.00 | \$0.00 | \$175.36 | \$175.36 | \$35.07 | \$31.56 | \$242.00 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$175.36 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{array}{\|l\|} \hline \text { ID } \\ \hline 2112 \end{array}$ | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M \& S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.2.2.7.7.7 | RG22, TCM PreAmp to Toroid (1 each toroid)) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2113 | 1.2.2.7.7.8 | RG214, ICM PreAmp to loroid (1) | SLAC | B\&H | 1 | 0.1 wks | \$0.00 | \$0.00 | \$175.36 | \$175.36 | \$35.07 | \$31.56 | \$242.00 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$175.36 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2114 | 1.2.2.7.7.8 | RG214, TCM PreAmp to Toroid (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2115 | 1.2.2.7.7.9 | RG22, TCM to TCM PreAmp (2) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2116 | 1.2.2.7.7.10 | 2/C power, ICM to ICM PreAmp (1 each toroid) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M2S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2117 | 1.2.2.7.7.11 | RG58, TCM to TCM PreAmp (1 each toroid) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2118 | 1.2.2.7.8 | PROFILE MONITORS (4) W/ 1 Dump |  |  | 0 | 7.4 wks | \$0.00 | \$53,000.00 | \$16,468.96 | \$69,468.96 | \$6,473.79 | \$15,761.05 | \$91,703.81 |
| 2119 | 1.2.2.7.8.1 | CAMAC Module, DAC (4) | SLAC | B\&H | 1 | 0.03 wks | \$0.00 | \$0.00 | \$52.61 | \$52.61 | \$10.52 | \$9.47 | \$72.60 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.03 wks | \$0.00 | \$0.00 | \$0.00 | \$52.61 | \$0.00 | \$0.00 | \$0.00 |
| 2120 | 1.2.2.7.8.1 | CAMAC Module, DAC (4) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,113.00 | \$8,533.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2121 | 1.2.2.7.8.2 | CAMAC Module, IDIM (4) | SLAC | B\&H | 1 | 0.03 wks | \$0.00 | \$0.00 | \$52.61 | \$52.61 | \$10.52 | \$9.47 | \$72.60 |
|  |  | SLAC Controls: lechnician |  | B\&H | 0 | 0.03 wks | \$0.00 | \$0.00 | \$0.00 | \$52.61 | \$0.00 | \$0.00 | \$0.00 |
| 2122 | 1.2.2.7.8.2 | CAMAC Module, IDIM (4) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$636.00 | \$4,876.00 |
|  |  | SLAC M\&S Total |  | M $\mathrm{L}^{\text {S }}$ | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2123 | 1.2.2.7.8.3 | CAMAC Module,IDOM (4) | SLAC | B\&H | 1 | 0.03 wks | \$0.00 | \$0.00 | \$52.61 | \$52.61 | \$10.52 | \$9.47 | \$72.60 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.03 wks | \$0.00 | \$0.00 | \$0.00 | \$52.61 | \$0.00 | \$0.00 | \$0.00 |
| 2124 | 1.2.2.7.8.3 | CAMAC MOdule,IDOM (4) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$636.00 | \$4,876.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2125 | 1.2.2.7.8.4 | Video Modulator Chassis (4) | SLAC | B\&H | 1 | 0.03 wks | \$0.00 | \$0.00 | \$52.61 | \$52.61 | \$10.52 | \$9.47 | \$72.60 |
|  |  | SLAC Controls: Technician |  | BRH | 0 | 0.03 wks | \$0.00 | \$0.00 | \$0.00 | \$52.61 | \$0.00 | \$0.00 | \$0.00 |
| 2126 | 1.2.2.7.8.4 | Video Modulator Chassis (4) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2127 | 1.2.2.7.8.5 | 16 Channel Interface Chassis (1) | SLAC | B\&H | 2 | 0.03 wks | \$0.00 | \$0.00 | \$52.61 | \$52.61 | \$10.52 | \$15.78 | \$78.91 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.03 wks | \$0.00 | \$0.00 | \$0.00 | \$52.61 | \$0.00 | \$0.00 | \$0.00 |
| 2128 | 1.2.2.7.8.5 | 16 Channel Interface Chassis (1) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC MAS Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2129 | 1.2.2.7.8.6 | Protile Monitor Lamp Units (4) | SLAC | B\&H | 1 | 0.7 wks | \$0.00 | \$0.00 | \$1,227.52 | \$1,227.52 | \$245.50 | \$220.95 | \$1,693.98 |
|  |  | SLAC Controls: Technician |  | BRH | 0 | 0.7 wks | \$0.00 | \$0.00 | \$0.00 | \$1,227.52 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{2130}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.2.2.7.8.6 | Profile Monitor Lamp Units (4) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2131 | 1.2.2.7.8.7 | Protile Monitor Chassis (4) | SLAC | ED\&1 | 2 | 2 wks | \$0.00 | \$0.00 | \$5,894.40 | \$5,894.40 | \$1,178.88 | \$1,768.32 | \$8,841.60 |
|  |  | SLAC Controls: Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,894.40 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2132 | 1.2.2.7.8.7 | Profile Monitor Chassis (4) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$14,000.00 | \$0.00 | \$14,000.00 | \$840.00 | \$3,710.00 | \$18,550.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 14,000 | \$0.00 | \$0.00 | \$0.00 | \$14,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2133 | 1.2.2.7.8.8 | Profile Monitor Camera/Electronics (4) | SLAC | ED\&1 | 2 | 3.75 wks | \$0.00 | \$0.00 | \$7,500.00 | \$7,500.00 | \$1,500.00 | \$2,250.00 | \$11,250.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 3.75 wks | \$0.00 | \$0.00 | \$0.00 | \$7,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 2134 | 1.2.2.7.8.8 | Protile Monitor Camera/Electronics (4) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$540.00 | \$2,385.00 | \$11,925.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2135 | 1.2.2.7.8.9 | RG59, coax-video (4) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2136 | 1.2.2.7.8.10 | Mult-conductor (21C/16GA-CONI\&STAI) (4) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2137 | 1.2.2.7.8.11 | Multi-conductor (3C/16GA-AC POWER) (4) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2138 | 1.2.2.7.8.12 | CAMAC cable IDIM (4) | SLAC | B\&H | 1 | 0.3 wks | \$0.00 | \$0.00 | \$600.00 | \$600.00 | \$120.00 | \$108.00 | \$828.00 |
|  |  | SLACL PCD:IIst-Cabling-Elec Fab |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | \$0.00 | \$0.00 |
| 2139 | 1.2.2.7.8.12 | CAMAC cable IDIM (4) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2140 | 1.2.2.7.8.13 | CAMAC cable IDOM (4) | SLAC | B\&H | 1 | 0.3 wks | \$0.00 | \$0.00 | \$600.00 | \$600.00 | \$120.00 | \$108.00 | \$828.00 |
|  |  | SLACL PCD:IInst-Cabling-Elec Fab |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | \$0.00 | \$0.00 |
| 2141 | 1.2.2.7.8.13 | CAMAC cable IDOM (4) | SLAC | M 8 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2142 | 1.2.2.7.8.14 | CAMAC cable DAC (4) | SLAC | ED\& | 1 | 0.2 wks | \$0.00 | \$0.00 | \$384.00 | \$384.00 | \$76.80 | \$69.12 | \$529.92 |
|  |  | SLAC PCD:Coordinator Associate |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$384.00 | \$0.00 | \$0.00 | \$0.00 |
| 2143 | 1.2.2.7.8.14 | CAMAC cable DAC (4) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M LS $^{\text {S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2144 | 1.2.2.7.8.15 | WIRING OF PROFILE MONI. ASSEMBLY IN LAB (4) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2145 | 1.2.2.7.9 | E-O Diagnostic |  |  | 0 | 2.04 wks | \$0.00 | \$5,200.00 | \$5,372.67 | \$10,572.67 | \$1,386.53 | \$1,793.88 | \$13,753.09 |
| 2146 | 1.2.2.7.9.1 | Protile Monitor Camera/Electronics | SLAC | ED\& | 1 | 1.5 wks | \$0.00 | \$0.00 | \$4,420.80 | \$4,420.80 | \$884.16 | \$795.74 | \$6,100.70 |
|  |  | SLAC Controls: Engineer |  | ED\&I | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$4,420.80 | \$0.00 | \$0.00 | \$0.00 |
| 2147 | 1.2.2.7.9.1 | Protile Monitor Camera/Electronics | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{2148}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M \& S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.2.2.7.9.1 | CAMAC Module,IDOM (1) | SLAC | B\&H | ${ }^{1}$ | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$6.31 | \$48.40 |
|  |  | SLAC Controls: Technician |  | B2H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 2149 | 1.2.2.7.9.1 | CAMAC Module,IDOM (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2150 | 1.2.2.7.9.1 | CAMAC cable IDOM (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$7.20 | \$55.20 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | BRH | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 2151 | 1.2.2.7.9.1 | CAMAC cable IDOM (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$31.80 | \$243.80 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 2152 | 1.2.2.7.9.1 | Actuator/Attenuator Interrace panel | SLAC | B\&H | 1 | 0.5 wks | \$0.00 | \$0.00 | \$876.80 | \$876.80 | \$175.36 | \$157.82 | \$1,209.98 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$876.80 | \$0.00 | \$0.00 | \$0.00 |
| 2153 | 1.2.2.7.9.1 | Multi-Cond. cable (4PR) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2154 | 1.2.2.7.10 | RF Controls |  |  | 0 | 9.16 wks | \$0.00 | \$58,800.00 | \$25,806.46 | \$84,606.46 | \$8,689.29 | \$38,083.34 | \$131,379.09 |
| 2155 | 1.2.2.7.10.2 | RF Sector 24 Controls | SLAC |  | 0 | 4.58 wks | \$0.00 | \$29,400.00 | \$12,887.23 | \$42,287.23 | \$4,341.45 | \$19,038.79 | \$65,667.47 |
| 2156 | 1.2.2.7.10.2 | RF Phase \& Amplitude, BLM, Temp. Controls Hdw. | SLAC | ED\& | 4 | 4 wks | \$0.00 | \$0.00 | \$11,788.80 | \$11,788.80 | \$2,357.76 | \$7,073.28 | \$21,219.84 |
|  |  | SLAC Controls: Engineer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,788.80 | \$0.00 | \$0.00 | \$0.00 |
| 2157 | 1.2.2.7.10.2 | RF Phase \& Amplitude, BLM, Temp. Controls Hdw. | SLAC | M 2 S | 4 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,590.00 | \$4,770.00 |
|  |  | SLAC M\&S Iotal |  | M MS $^{\text {S }}$ | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2158 | 1.2.2.7.10.2 | CAMAC Module, GADC (1) | SLAC | B\&H | 4 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$21.04 | \$63.13 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 2159 | 1.2.2.7.10.2 | CAMAC Module, GADC (1) | SLAC | M 2 S | 4 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$4,240.00 | \$12,720.00 |
|  |  | SLAC M\&S Total |  | M 4 S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2160 | 1.2.2.7.10.2 | CAMAC Module, DAC (1) | SLAC | B\&H | 4 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$21.04 | \$63.13 |
|  |  | SLAC Controls: Iechnician |  | BRH | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 2161 | 1.2.2.7.10.2 | CAMAC Module, DAC (1) | SLAC | M 2 S | 4 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$2,120.00 | \$6,360.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | $\$ 0.00$ | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2162 | 1.2.2.7.10.2 | CAMAC Module, SAM (1) | SLAC | $\mathrm{B} \& \mathrm{H}$ | 4 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$21.04 | \$63.13 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 2163 | 1.2.2.7.10.2 | CAMAC Module, SAM (1) | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,590.00 | \$4,770.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2164 | 1.2.2.7.10.2 | CAMAC Module PAU (2) | SLAC | B \& H | 1 | 0.06 wks | \$0.00 | \$0.00 | \$105.22 | \$105.22 | \$21.04 | \$18.94 | \$145.20 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.06 wks | \$0.00 | \$0.00 | \$0.00 | \$105.22 | \$0.00 | \$0.00 | \$0.00 |
| 2165 | 1.2.2.7.10.2 | CAMAC Module PaU (2) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$795.00 | \$6,095.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2166 | 1.2.2.7.10.2 | CAMAC cable GADC (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$7.20 | \$55.20 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 2167 | 1.2.2.7.10.2 | CAMAC cable GADC (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }^{\text {S }}$ S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2168 | 1.2.2.7.10.2 | CAMAC cable DAC (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$7.20 | \$55.20 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | BRH | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 2169 | 1.2.2.7.10.2 | CAMAC cable DAC (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$400.00 | \$0.00 | \$400.00 | \$24.00 | \$63.60 | \$487.60 |
|  |  | SLAC MES Total |  | M\&S | 0 | 400 | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 2170 | 1.2.2.7.10.2 | CAMAC cable SAM (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$7.20 | \$55.20 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 2171 | 1.2.2.7.10.2 | CAMAC cable SAM (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2172 | 1.2.2.7.10.2 | Cblpint Phase \& Amp., BLM, TC's.(Gun \& L0+L1+X-Band) | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$530.00 | \$1,590.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2173 | 1.2.2.7.10.2 | Microprocessor Upgrade | SLAC | ED\&1 | 1 | 0.4 wks | \$0.00 | \$0.00 | \$768.00 | \$768.00 | \$153.60 | \$138.24 | \$1,059.84 |
|  |  | SLAC PCD:Coordinator Associate |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$768.00 | \$0.00 | \$0.00 | \$0.00 |
| 2174 | 1.2.2.7.10.2 | Microprocessor Upgrade | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2175 | 1.2.2.7.10.3 | RF Sector 30 Controls | SLAC |  | 0 | 4.58 wks | \$0.00 | \$29,400.00 | \$12,919.23 | \$42,319.23 | \$4,347.85 | \$19,044.55 | \$65,711.63 |
| 2176 | 1.2.2.7.10.3 | RF Phase \& Amplitude, BLM, Iemp. Controls Hdw. | SLAC | ED\& | 4 | 4 wks | \$0.00 | \$0.00 | \$11,788.80 | \$11,788.80 | \$2,357.76 | \$7,073.28 | \$21,219.84 |
|  |  | SLAC Controls: Engineer |  | EDQ1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,788.80 | \$0.00 | \$0.00 | \$0.00 |
| 2177 | 1.2.2.7.10.3 | RF Phase \& Amplitude, BLM, Temp. Controls Hdw. | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,590.00 | \$4,770.00 |
|  |  | SLAC M\&S Total |  | M 4 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2178 | 1.2.2.7.10.3 | CAMAC Module, GADC (1) | SLAC | B\&H | 4 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$21.04 | \$63.13 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 2179 | 1.2.2.7.10.3 | CAMAC Module, GADC (1) | SLAC | M 2 S | 4 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$4,240.00 | \$12,720.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | $\$ 0.00$ | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2180 | 1.2.2.7.10.3 | CAMAC Module, DAC (1) | SLAC | B\&H | 4 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$21.04 | \$63.13 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 2181 | 1.2.2.7.10.3 | CAMAC Module, DAC (1) | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$2,120.00 | \$6,360.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2182 | 1.2.2.7.10.3 | CAMAC Module, SAM (1) | SLAC | B\&H | 4 | 0.02 wks | \$0.00 | \$0.00 | \$35.07 | \$35.07 | \$7.01 | \$21.04 | \$63.13 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$35.07 | \$0.00 | \$0.00 | \$0.00 |
| 2183 | 1.2.2.7.10.3 | CAMAC Module, SAM (1) | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,590.00 | \$4,770.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2184 | 1.2.2.7.10.3 | CAMAC Module PAU (2) | SLAC | B\&H | 1 | 0.06 wks | \$0.00 | \$0.00 | \$105.22 | \$105.22 | \$21.04 | \$18.94 | \$145.20 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | cWBS | Task Name | obs | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0.06 wks | \$0.00 | \$0.00 | \$0.00 | \$105.22 | \$0.00 | \$0.00 | \$0.00 |
| 2185 | 1.2.2.7.10.3 | CAMAC Module PAU (2) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$795.00 | \$6,095.00 |
|  |  | SLAC MES Iotal |  | MKS | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2186 | 1.2.2.7.10.3 | CAMAC cable GADC (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$7.20 | \$55.20 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 2187 | 1.2.2.7.10.3 | CAMAC cable GADC (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2188 | 1.2.2.7.10.3 | CAMAC cable DAC (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$7.20 | \$55.20 |
|  |  | SLACL PCD:IIst-Cabling-Elec Fab |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 2189 | 1.2.2.7.10.3 | CAMAC cable DAC (1) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$400.00 | \$0.00 | \$400.00 | \$24.00 | \$63.60 | \$487.60 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 400 | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 2190 | 1.2.2.7.10.3 | CAMAC cable SAM (1) | SLAC | B\&H | 1 | 0.02 wks | \$0.00 | \$0.00 | \$40.00 | \$40.00 | \$8.00 | \$7.20 | \$55.20 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$40.00 | \$0.00 | \$0.00 | \$0.00 |
| 2191 | 1.2.2.7.10.3 | CAMAC cable SAM (1) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2192 | 1.2.2.7.10.3 | Cblpint Phase \& Amp., BLM, TC's.(Gun \& L0+L1+X-Band) | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$530.00 | \$1,590.00 |
|  |  | SLAC M\&S Total |  | MLS | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2193 | 1.2.2.7.10.3 | Microprocessor Upgrade | SLAC | ED\& | 1 | 0.4 wks | \$0.00 | \$0.00 | \$800.00 | \$800.00 | \$160.00 | \$144.00 | \$1,104.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$800.00 | \$0.00 | \$0.00 | \$0.00 |
| 2194 | 1.2.2.7.10.3 | Microprocessor Upgrade | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2195 | 1.2.2.8 | PPS |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2196 | 1.2.2.8.1 | Accelerator PPS | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2197 | 1.2.2.9 | RF |  |  | 0 | 412.2 wks | \$0.00 | \$765,000.00 | \$1,158,804.80 | \$1,923,804.80 | \$277,660.96 | \$658,735.40 | \$2,860,201.16 |
| 2198 | 1.2.2.8.1 | Accelerator PPS | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2199 | 1.2.2.9.1 | L1 Accelerator Structures |  |  | 0 | 412.2 wks | \$0.00 | \$765,000.00 | \$1,158,804.80 | \$1,923,804.80 | \$277,660.96 | \$658,735.40 | \$2,860,201.16 |
| 2200 | 1.2.2.9.1. | Structure Chopping \& Refurbish | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2201 | 1.2.2.9.1.1 | Structure Chopping \& Returbish | SLAC | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$19,200.00 | \$19,200.00 | \$3,840.00 | \$5,760.00 | \$28,800.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$19,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 2202 | 1.2.2.9.1.2 | Structure Testing | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,548.80 | \$3,548.80 | \$709.76 | \$1,064.64 | \$5,323.20 |
|  |  | SLAC Klystron: Iechnician |  | B\&H | 0 | 2 wks | $\$ 0.00$ | \$0.00 | \$0.00 | \$3,548.80 | $\$ 0.00$ | \$0.00 | $\$ 0.00$ |
| 2203 | 1.2.2.9.1.3 | Proc., Man. \& Assembly Supervision | SLAC | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$6,720.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 2204 | 1.2.2.9.1.4 | High Power Waveguide | SLAC | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$19,200.00 | \$19,200.00 | \$3,840.00 | \$5,760.00 | \$28,800.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | Task Name | OBS | PHASE | $\frac{\text { Risk }}{}$ | $\frac{\text { Units }}{} 6 \mathrm{wks}$ | PED (Direct)$\$ 0.00$ | $\begin{array}{r} \text { M\&S (Direct) } \\ \$ 0.00 \end{array}$ | $\begin{aligned} & \text { Labor (Direct) } \\ & \$ 0.00 \end{aligned}$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 19,200.00 \end{aligned}$ | Overhead Cost $\$ 0.00$ | Contingency Cost | Total Cost |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H |  |  |  |  |  |  |  | \$0.00 |  |
| 2205 | 1.2.2.9.1.5 | Couplers |  | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M ${ }^{\text {S }}$ Iotal |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2206 | 1.2.2.9.9.5 | Couplers | SLAC | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$9,600.00 | \$9,600.00 | \$1,920.00 | \$2,880.00 | \$14,400.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | $3 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$9,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 2207 | 1.2.2.9.1.6 | Loads | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$599.64 | \$2,998.20 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 2208 | 1.2.2.9.3 | Accelerator Structures - Transverse |  |  | 0 | 15 wks | \$0.00 | \$9,000.00 | \$44,492.00 | \$53,492.00 | \$9,438.40 | \$11,892.60 | \$74,823.00 |
| 2209 | 1.2.2.9.3.1 | Structure Returbish | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2210 | 1.2.2.9.3.1 | Structure Refurbish | SLAC | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$12,800.00 | \$12,800.00 | \$2,560.00 | \$0.00 | \$15,360.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$12,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 2211 | 1.2.2.9.3.2 | Structure Iesting | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,774.40 | \$1,774.40 | \$354.88 | \$532.32 | \$2,661.60 |
|  |  | SLAC KIystron: Iechnician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,774.40 | \$0.00 | \$0.00 | \$0.00 |
| 2212 | 1.2.2.9.3.3 | Proc., Man. \& Assembly Supervision | SLAC | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$6,720.00 | \$6,720.00 | \$1,344.00 | \$2,016.00 | \$10,080.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 2213 | 1.2.2.9.3.4 | High Power Waveguide | SLAC | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$19,200.00 | \$19,200.00 | \$3,840.00 | \$5,760.00 | \$28,800.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$19,200.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2214 | 1.2.2.9.3.4 | High Power Waveguide | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$2,120.00 | \$10,600.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2215 | 1.2.2.9.3.5 | Couplers | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$599.64 | \$2,998.20 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 2216 | 1.2.2.9.3.6 | Loads | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$599.64 | \$2,998.20 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | $\$ 0.00$ | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 2217 | 1.2.2.9.2 | Accelerator Structures - X-band |  |  | 0 | 156.2 wks | \$0.00 | \$426,000.00 | \$456,226.80 | \$882,226.80 | \$116,805.36 | \$349,661.26 | \$1,348,693.42 |
| 2218 | 1.2.2.9.2.1 | X -Band Klystrons | SLAC |  | 0 | 39 wks | \$0.00 | \$179,000.00 | \$142,282.40 | \$321,282.40 | \$39,196.48 | \$126,167.61 | \$486,646.49 |
| 2219 | 1.2.2.9.2.1 | X-Band Klystron | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$175,000.00 | \$0.00 | \$175,000.00 | \$10,500.00 | \$64,925.00 | \$250,425.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 175,000 | \$0.00 | \$0.00 | \$0.00 | \$175,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2220 | 1.2.2.9.2.1 | X-Band Klystron | SLAC | B\&H | 3 | 20 wks | \$0.00 | \$0.00 | \$100,000.00 | \$100,000.00 | \$20,000.00 | \$42,000.00 | \$162,000.00 |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$100,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2221 | 1.2.2.9.2.1 | Coordinate | SLAC | ED\& | 3 | 5 wks | \$0.00 | \$0.00 | \$10,728.00 | \$10,728.00 | \$2,145.60 | \$4,505.76 | \$17,379.36 |
|  |  | SLAC KIystron: Coordinator Assoc. |  | ED\& | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$10,728.00 | \$0.00 | \$0.00 | \$0.00 |
| 2222 | 1.2.2.9.2.1 | Assemble | SLAC | ED\& | 3 | 4 wks | \$0.00 | \$0.00 | \$11,572.80 | \$11,572.80 | \$2,314.56 | \$4,860.58 | \$18,747.94 |
|  |  | SLAC KIystron: Engineer |  | ED\&I | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$17,572.80 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2223 | 1.2.2.9.2.1 | Assemble | SLAC | B\&H | 3 | 5 wks | \$0.00 | \$0.00 | \$8,872.00 | \$8,872.00 | \$1,774.40 | \$3,726.24 | \$14,372.64 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | SLAC Klystron: Technician | OBS | PHASE | $\frac{\text { Risk }}{}$ | $\begin{aligned} & \text { Units } \\ & 5 \mathrm{wks} \end{aligned}$ | $\frac{\text { PED (Direct) }}{\$ 0.00}$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct) <br> $\$ 0.00$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 8,872.00 \end{aligned}$ | Overhead Cost <br> $\$ 0.00$ | Contingency Cost 80.00 <br> $\$ 0.00$ | $\begin{aligned} & \text { Total Cost } \\ & \$ 0.00 \end{aligned}$ |
|  |  |  |  | B\&H |  |  |  |  |  |  |  |  |  |
| 2224 | 1.2.2.9.2.1 | Test |  | ED\& | 3 | 2 wks | \$0.00 | \$0.00 | \$5,786.40 | \$5,786.40 | \$1,157.28 | \$2,430.29 | \$9,373.97 |
|  |  | SLAC KIystron: Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,786.40 | \$0.00 | \$0.00 | \$0.00 |
| 2225 | 1.2.2.9.2.1 | Iest | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,548.80 | \$3,548.80 | \$709.76 | \$1,490.50 | \$5,749.06 |
|  |  | SLAC Klystron: Technician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,548.80 | \$0.00 | \$0.00 | \$0.00 |
| 2226 | 1.2.2.9.2.1 | Mounting Support | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,484.00 | \$5,724.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2227 | 1.2.2.9.2.1 | Mounting Support | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$1,774.40 | \$1,774.40 | \$354.88 | \$745.25 | \$2,874.53 |
|  |  | SLAC Klystron: Iechnician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,774.40 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2228 | 1.2.2.9.2.2 | Modulator | SLAC |  | 0 | 18 wks | \$0.00 | \$78,000.00 | \$37,682.80 | \$115,682.80 | \$12,216.56 | \$44,764.78 | \$172,664.14 |
| 2229 | 1.2.2.9.2.2 | Tank | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$1,774.40 | \$1,774.40 | \$354.88 | \$745.25 | \$2,874.53 |
|  |  | SLAC Klystron: Technician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,774.40 | \$0.00 | \$0.00 | \$0.00 |
| 2230 | 1.2.2.9.2.2 | Tank | SLAC | M ${ }^{\text {S }}$ S | 3 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$900.00 | \$5,565.00 | \$21,465.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2231 | 1.2.2.9.2.2 | Pulse Transformer | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$18,000.00 | \$0.00 | \$18,000.00 | \$1,080.00 | \$6,678.00 | \$25,758.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 18,000 | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2232 | 1.2.2.9.2.2 | Pulse Cable | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,113.00 | \$4,293.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2233 | 1.2.2.9.2.2 | Cap Divider | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$742.00 | \$2,862.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2234 | 1.2.2.9.2.2 | Heater Isolation | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$742.00 | \$2,862.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2235 | 1.2.2.9.2.2 | Heater Supply | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M $\mathrm{S}_{\text {S }}$ | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2236 | 1.2.2.9.2.2 | Toroid + Misc | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$742.00 | \$2,862.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2237 | 1.2.2.9.2.2 | Interlocks | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,113.00 | \$4,293.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2238 | 1.2.2.9.2.2 | HV Connector | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$742.00 | \$2,862.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2239 | 1.2.2.9.2.2 | Cable Install | SLAC | ED\& | 3 | 2 wks | \$0.00 | \$0.00 | \$4,291.20 | \$4,291.20 | \$858.24 | \$1,802.30 | \$6,951.74 |
|  |  | SLAC KIystron: Coordinator Assoc. |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,291.20 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2240 | 1.2.2.9.2.2 | Cable Install | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$4,000.00 | \$4,000.00 | \$800.00 | \$1,680.00 | \$6,480.00 |
|  |  | SLACL PCD:IInst-Cabling-Elec Fab |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2241 | 1.2.2.9.2.2 | Assemble | SLAC | ED\& | 3 | 1 wk | \$0.00 | \$0.00 | \$2,893.20 | \$2,893.20 | \$578.64 | \$1,215.14 | \$4,686.98 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC Klystron: Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,893.20 | \$0.00 | \$0.00 | \$0.00 |
| 2242 | 1.2.2.9.2.2 | Assemble | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$5,323.20 | \$5,323.20 | \$1,064.64 | \$2,235.74 | \$8,623.58 |
|  |  | SLAC Klystron: Iechnician |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$5,323.20 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2243 | 1.2.2.9.2.2 | Iest | SLAC | ED\& | 3 | 2 wks | \$0.00 | \$0.00 | \$5,786.40 | \$5,786.40 | \$1,157.28 | \$2,430.29 | \$9,373.97 |
|  |  | SLAC Klystron: Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,786.40 | \$0.00 | \$0.00 | \$0.00 |
| 2244 | 1.2.2.9.2.2 | Test | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$5,323.20 | \$5,323.20 | \$1,064.64 | \$2,235.74 | \$8,623.58 |
|  |  | SLAC Klystron: Technician |  | BRH | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$5,323.20 | \$0.00 | \$0.00 | \$0.00 |
| 2245 | 1.2.2.9.2.2 | Magnet Power Supplies | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$25,000.00 | \$0.00 | \$25,000.00 | \$1,500.00 | \$9,275.00 | \$35,775.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 25,000 | \$0.00 | \$0.00 | \$0.00 | \$25,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2246 | 1.2.2.9.2.2 | Power Supply Cabling | SLAC | ED\& | 3 | 2 wks | \$0.00 | \$0.00 | \$4,291.20 | \$4,291.20 | \$858.24 | \$1,802.30 | \$6,951.74 |
|  |  | SLAC KIystron: Coordinator Assoc. |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,291.20 | \$0.00 | \$0.00 | \$0.00 |
| 2247 | 1.2.2.9.2.2 | Power Supply Cabling | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,855.00 | \$7,155.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2248 | 1.2.2.9.2.2 | Power Supply Cabling | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$4,000.00 | \$4,000.00 | \$800.00 | \$1,680.00 | \$6,480.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | BRH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2249 | 1.2.2.9.2.2 | Cathode Ion Pump | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$371.00 | \$1,431.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2250 | 1.2.2.9.2.3 | X-Band LLRF | SLAC |  | 0 | 12 wks | \$0.00 | \$65,000.00 | \$24,724.00 | \$89,724.00 | \$8,844.80 | \$34,499.08 | \$133,067.88 |
| 2251 | 1.2.2.9.2.3 | IWI Driver | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$25,000.00 | \$0.00 | \$25,000.00 | \$1,500.00 | \$9,275.00 | \$35,775.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 25,000 | \$0.00 | \$0.00 | \$0.00 | \$25,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2252 | 1.2.2.9.2.3 | 4 X multiplier | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$742.00 | \$2,862.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2253 | 1.2.2.9.2.3 | Phase\&Amp Det X-Band | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$25,000.00 | \$0.00 | \$25,000.00 | \$1,500.00 | \$9,275.00 | \$35,775.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 25,000 | \$0.00 | \$0.00 | \$0.00 | \$25,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2254 | 1.2.2.9.2.3 | RF Cables | SLAC | ED\& | 3 | 2 wks | \$0.00 | \$0.00 | \$4,291.20 | \$4,291.20 | \$858.24 | \$1,802.30 | \$6,951.74 |
|  |  | SLAC Klystron: Coordinator Assoc. |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,291.20 | \$0.00 | \$0.00 | \$0.00 |
| 2255 | 1.2.2.9.2.3 | RF Cables | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$4,000.00 | \$4,000.00 | \$800.00 | \$1,680.00 | \$6,480.00 |
|  |  | SLACL PCD:IInst-Cabling-Elec Fab |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2256 | 1.2.2.9.2.3 | RF Cables | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$742.00 | \$2,862.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2257 | 1.2.2.9.2.3 | Stripline Couplers | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,484.00 | \$5,724.00 |
|  |  | SLAC MRS Iotal |  | M M $^{\text {S }}$ | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2258 | 1.2.2.9.2.3 | Assemble | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$5,323.20 | \$5,323.20 | \$1,064.64 | \$2,235.74 | \$8,623.58 |
|  |  | SLAC Klystron: Iechnician |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$5,323.20 | \$0.00 | \$0.00 | \$0.00 |
| 2259 | 1.2.2.9.2.3 | Assemble | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$742.00 | \$2,862.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | $\begin{array}{\|l\|l\|} \hline \text { Risk } \\ \hline \end{array}$ | Units2,000 | PED (Direct) $\$ 0.00$ | $\begin{aligned} & \text { M\&S (Direct) } \\ & \$ 0.00 \end{aligned}$ | $\begin{aligned} & \text { Labor (Direct) } \\ & \$ 0.00 \end{aligned}$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 2,000.00 \end{aligned}$ | Overhead Cost $\$ 0.00$ | Contingency Cost | Total Cost |
|  |  | Task Name SLAC M\&S Total |  | M\&S |  |  |  |  |  |  |  | \$0.00 |  |
| 2260 | 1.2.2.9.2.3 | Test |  | ED\& | 3 | 2 wks | \$0.00 | \$0.00 | \$5,786.40 | \$5,786.40 | \$1,157.28 | \$2,430.29 | \$9,373.97 |
|  |  | SLAC KIystron: Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,786.40 | \$0.00 | \$0.00 | \$0.00 |
| 2261 | 1.2.2.9.2.3 | lest | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$5,323.20 | \$5,323.20 | \$1,064.64 | \$2,235.74 | \$8,623.58 |
|  |  | SLAC Klystron: Technician |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$5,323.20 | \$0.00 | \$0.00 | \$0.00 |
| 2262 | 1.2.2.9.2.3 | Drive Monitoring | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,855.00 | \$7,155.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2263 | 1.2.2.9.2.4 | Waveguide System | SLAC |  | 0 | 15.5 wks | \$0.00 | \$39,000.00 | \$41,918.00 | \$80,918.00 | \$10,723.60 | \$32,074.56 | \$123,716.16 |
| 2264 | 1.2.2.9.2.4 | Broadwall Coupler (3ea) | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$6,400.00 | \$6,400.00 | \$1,280.00 | \$2,688.00 | \$10,368.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 2265 | 1.2.2.9.2.4 | Broadwall Coupler (3ea) | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,113.00 | \$4,293.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2266 | 1.2.2.9.2.4 | Mode Conv (3ea) | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$3,200.00 | \$3,200.00 | \$640.00 | \$1,344.00 | \$5,184.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,200.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2267 | 1.2.2.9.2.4 | Mode Conv (3ea) | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$742.00 | \$2,862.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2268 | 1.2.2.9.2.4 | Circular Waveguide (45tt) | SLAC | B\&H | 3 | 2.5 wks | \$0.00 | \$0.00 | \$8,000.00 | \$8,000.00 | \$1,600.00 | \$3,360.00 | \$12,960.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2269 | 1.2.2.9.2.4 | Circular Waveguide (45tt) | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,113.00 | \$4,293.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2270 | 1.2.2.9.2.4 | WR90 Waveguide (20ft) | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$3,200.00 | \$3,200.00 | \$640.00 | \$1,344.00 | \$5,184.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 2271 | 1.2.2.9.2.4 | WR90 waveguide (20tt) | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$371.00 | \$1,431.00 |
|  |  | SLAC MES Iotal |  | M d S $^{\text {S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2272 | 1.2.2.9.2.4 | Ion Pumps (8ea) | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$720.00 | \$4,452.00 | \$17,172.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2273 | 1.2.2.9.2.4 | Ion Pump P.S. (4ea) | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$3,710.00 | \$14,310.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2274 | 1.2.2.9.2.4 | Ion Gauge \& Controller | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,113.00 | \$4,293.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2275 | 1.2.2.9.2.4 | W/G Supports (5ea) | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,113.00 | \$4,293.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2276 | 1.2.2.9.2.4 | Assemble | SLAC | ED\& | 3 | 2 wks | \$0.00 | \$0.00 | \$5,786.40 | \$5,786.40 | \$1,157.28 | \$2,430.29 | \$9,373.97 |
|  |  | SLAC KIystron: Engineer |  | ED\&I | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,786.40 | \$0.00 | \$0.00 | \$0.00 |
| 2277 | 1.2.2.9.2.4 | Assemble | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$5,996.40 | \$5,996.40 | \$1,199.28 | \$2,518.49 | \$9,714.17 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 4 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$5,996.40 | \$0.00 | \$0.00 | \$0.00 |
| 2278 | 1.2.2.9.2.4 | Assemble | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$742.00 | \$2,862.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2279 | 1.2.2.9.9.4 | lest | SLAC | ED\& | 3 | 2 wks | \$0.00 | \$0.00 | \$5,786.40 | \$5,786.40 | \$1,157.28 | \$2,430.29 | \$9,373.97 |
|  |  | SLAC KIystron: Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,786.40 | \$0.00 | \$0.00 | \$0.00 |
| 2280 | 1.2.2.9.2.4 | Test | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,548.80 | \$3,548.80 | \$709.76 | \$1,490.50 | \$5,749.06 |
|  |  | SLAC Klystron: Technician |  | BRH | 0 | 2 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$3,548.80 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2281 | 1.2.2.9.2.5 | X-BAND STRUCTURE | SLAC |  | 0 | 71.7 wks | \$0.00 | \$65,000.00 | \$209,619.60 | \$274,619.60 | \$45,823.92 | \$112,155.23 | \$432,598.75 |
| 2282 | 1.2.2.9.2.5 | Structure Kly Labor | SLAC | B\&H | 3 | 44 wks | \$0.00 | \$0.00 | \$140,800.00 | \$140,800.00 | \$28,160.00 | \$59,136.00 | \$228,096.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 44 wks | \$0.00 | \$0.00 | \$0.00 | \$140,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 2283 | 1.2.2.9.2.5 | Structure Kly Labor | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$50,000.00 | \$0.00 | \$50,000.00 | \$3,000.00 | \$18,550.00 | \$71,550.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2284 | 1.2.2.9.2.5 | Structure Shop Labor | SLAC | B\&H | 3 | 6.7 wks | \$0.00 | \$0.00 | \$21,440.00 | \$21,440.00 | \$4,288.00 | \$9,004.80 | \$34,732.80 |
|  |  | SLAC Mech. rab: Machine Shop |  | B\&H | 0 | 6.7 wks | \$0.00 | \$0.00 | \$0.00 | \$21,440.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2285 | 1.2.2.9.2.5 | WR90 Tee | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$6,400.00 | \$6,400.00 | \$1,280.00 | \$2,688.00 | \$10,368.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 2286 | 1.2.2.9.2.5 | WR90 Tee | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,113.00 | \$4,293.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2287 | 1.2.2.9.2.5 | WR90 Loads | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$3,200.00 | \$3,200.00 | \$640.00 | \$1,344.00 | \$5,184.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | BRH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 2288 | 1.2.2.9.9.5 | WR90 Loads | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$742.00 | \$2,862.00 |
|  |  | SLAC MES Total |  | M 4 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2289 | 1.2.2.9.2.5 | Structure Support | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$3,200.00 | \$3,200.00 | \$640.00 | \$1,344.00 | \$5,184.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,200.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2290 | 1.2.2.9.9.5 | Structure Support | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,484.00 | \$5,724.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2291 | 1.2.2.9.2.5 | Assemble | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$5,996.40 | \$5,996.40 | \$1,199.28 | \$2,518.49 | \$9,714.17 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | ${ }^{3} \mathrm{wks}$ | \$0.00 | \$0.00 | \$0.00 | \$5,996.40 | \$0.00 | \$0.00 | \$0.00 |
| 2292 | 1.2.2.9.2.5 | Assemble | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,113.00 | \$4,293.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2293 | 1.2.2.9.2.5 | Transport | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$1,600.00 | \$1,600.00 | \$320.00 | \$672.00 | \$2,592.00 |
|  |  | SLAC Site Engineering: Plant Maint. |  | B\& ${ }^{\text {H }}$ | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,600.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2294 | 1.2.2.2.9.2.5 | Installation | SLAC | B\&H | 3 | 4 wks | \$0.00 | \$0.00 | \$7,995.20 | \$7,995.20 | \$1,599.04 | \$3,357.98 | \$12,952.22 |
|  |  | SLAC Mech. Fab: Assembly lech |  | BRH | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,995.20 | \$0.00 | \$0.00 | \$0.00 |
| 2295 | 1.2.2.9.2.5 | Installation | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,113.00 | \$4,293.00 |



| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\mathrm{ID}}{2315}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.2.2.9.4.3 | Recable Station | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M2S Total |  | M2S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2316 | 1.2.2.9.4.4 | Control Interface(6) | SLAC |  | 0 | 3 wks | \$0.00 | \$6,000.00 | \$5,774.40 | \$11,774.40 | \$1,514.88 | \$3,322.32 | \$16,611.60 |
| 2317 | 1.2.2.9.4.4 | Cables | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,774.40 | \$1,774.40 | \$354.88 | \$532.32 | \$2,661.60 |
|  |  | SLAC Klystron: Technician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,774.40 | \$0.00 | \$0.00 | \$0.00 |
| 2318 | 1.2.2.9.4.4 | Installation | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,000.00 | \$4,000.00 | \$800.00 | \$1,200.00 | \$6,000.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2319 | 1.2.2.9.4.4 | Installation | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2320 | 1.2.2.9.4.5 | Beam Phase / Length Electronics | SLAC |  | 0 | 3 wks | \$0.00 | \$30,000.00 | \$5,323.20 | \$35,323.20 | \$2,864.64 | \$19,093.92 | \$57,281.76 |
| 2321 | 1.2.2.9.4.5 | Fabrication | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$1,800.00 | \$15,900.00 | \$47,700.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2322 | 1.2.2.9.4.5 | Fabrication | SLAC | B\&H | 4 | 3 wks | \$0.00 | \$0.00 | \$5,323.20 | \$5,323.20 | \$1,064.64 | \$3,193.92 | \$9,581.76 |
|  |  | SLAC Klystron: Iechnician |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$5,323.20 | \$0.00 | \$0.00 | \$0.00 |
| 2323 | 1.2.2.9.4.6 | RF Phase Measurement | SLAC |  | 0 | 3 wks | \$0.00 | \$20,000.00 | \$5,323.20 | \$25,323.20 | \$2,264.64 | \$9,655.74 | \$37,243.58 |
| 2324 | 1.2.2.9.4.6 | X-Band Chassis | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$1,774.40 | \$1,774.40 | \$354.88 | \$745.25 | \$2,874.53 |
|  |  | SLAC Klystron: Technician |  | BRH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,774.40 | \$0.00 | \$0.00 | \$0.00 |
| 2325 | 1.2.2.9.4.6 | $x$-band Chassis | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$3,710.00 | \$14,310.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2326 | 1.2.2.9.4.6 | $X$-Band PAD Mods | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,548.80 | \$3,548.80 | \$709.76 | \$1,490.50 | \$5,749.06 |
|  |  | SLAC Klystron: Technician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,548.80 | \$0.00 | \$0.00 | \$0.00 |
| 2327 | 1.2.2.9.4.6 | $X$-Band PAD Mods | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$3,710.00 | \$14,310.00 |
|  |  | SLAC M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2328 | 1.2.2.9.4.7 | RF Distribution L2, L4 | SLAC |  | 0 | 24 wks | \$0.00 | \$63,000.00 | \$49,281.60 | \$112,281.60 | \$13,636.32 | \$31,479.48 | \$157,397.40 |
| 2329 | 1.2.2.9.4.7 | $1 \mathrm{~km} 1 / 2$ Superflex | SLAC | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,000.00 | \$6,000.00 | \$1,200.00 | \$1,800.00 | \$9,000.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | BRH | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2330 | 1.2.2.9.4.7 | $1 \mathrm{~km} 1 / 2$ Superilex | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$5,300.00 | \$26,500.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2331 | 1.2.2.9.4.7 | Cable Guides | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,000.00 | \$4,000.00 | \$800.00 | \$1,200.00 | \$6,000.00 |
|  |  | SLACL PCD:IInst-Cabling-Elec Fab |  | BRH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2332 | 1.2.2.9.4.7 | Cable Guides | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  |  | SLAC M\&S Iotal |  | M\$S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2333 | 1.2.2.9.4.7 | RF Dist. PRL Coaxal water | SLAC |  | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2334 | 1.2.2.9.4.7 | Coaxil Water Lines Fab | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$6,400.00 | \$6,400.00 | \$1,280.00 | \$1,920.00 | \$9,600.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,400.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{array}{\|c\|} \hline 1 \mathrm{D} \\ \hline 2335 \end{array}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.2.2.9.4.7 | Coaxil Water Lines Fab | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$2,120.00 | \$10,600.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2336 | 1.2.2.9.4.7 | Cable Installation | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$7,097.60 | \$7,097.60 | \$1,419.52 | \$2,129.28 | \$10,646.40 |
|  |  | SLAC Klystron: Iechnician |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,097.60 | \$0.00 | \$0.00 | \$0.00 |
| 2337 | 1.2.2.9.4.7 | Cable Installation | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2338 | 1.2.2.9.4.7 | Plumbing | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,680.00 | \$2,680.00 | \$536.00 | \$804.00 | \$4,020.00 |
|  |  | SLAC I\&M Cratts - Union Pipetitter |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 2339 | 1.2.2.9.4.7 | Plumbing | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2340 | 1.2.2.9.4.7 | 2 Watt Distribution Amp [10] | SLAC |  | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2341 | 1.2.2.9.4.7 | Fab | SLAC | B\&H | 2 | 10 wks | \$0.00 | \$0.00 | \$17,744.00 | \$17,744.00 | \$3,548.80 | \$5,323.20 | \$26,616.00 |
|  |  | SLAC KIystron: lechnician |  | B\&H | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$17,744.00 | \$0.00 | \$0.00 | \$0.00 |
| 2342 | 1.2.2.9.4.7 | Fab | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$5,300.00 | \$26,500.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2343 | 1.2.2.9.4.7 | Installation | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$5,360.00 | \$5,360.00 | \$1,072.00 | \$1,608.00 | \$8,040.00 |
|  |  | SLAC T\&M Cratts - Union Pipefitter |  | BRH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 2344 | 1.2.2.9.4.7 | Installation | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2345 | 1.2.2.9.4.8 | Experimentors F.O.RF Ref. | SLAC |  | 0 | 15 wks | \$0.00 | \$44,000.00 | \$29,430.40 | \$73,430.40 | \$8,526.08 | \$20,489.12 | \$102,445.60 |
| 2346 | 1.2.2.9.4.8 | Exp. F.O. RF Ref. Electronics | SLAC | B\&H | 2 | 12 wks | \$0.00 | \$0.00 | \$21,043.20 | \$21,043.20 | \$4,208.64 | \$6,312.96 | \$31,564.80 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$21,043.20 | \$0.00 | \$0.00 | \$0.00 |
| 2347 | 1.2.2.9.4.8 | Exp. F.O. RF Ret. Electronics | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$1,800.00 | \$7,950.00 | \$39,750.00 |
|  |  | SLAC M\&S Iotal |  | M M $^{\text {S }}$ | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2348 | 1.2.2.9.4.8 | Fiber Optic Installation 2 km | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$5,440.00 | \$5,440.00 | \$1,088.00 | \$1,632.00 | \$8,160.00 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 2349 | 1.2.2.9.4.8 | Fiber Optic Installation 2km | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$14,000.00 | \$0.00 | \$14,000.00 | \$840.00 | \$3,710.00 | \$18,550.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 14,000 | \$0.00 | \$0.00 | \$0.00 | \$14,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2350 | 1.2.2.9.4.8 | 1esting | SLAC | ED\& | 2 | 1 wk | \$0.00 | \$0.00 | \$2,947.20 | \$2,947.20 | \$589.44 | \$884.16 | \$4,420.80 |
|  |  | SLAC Controls: Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,947.20 | \$0.00 | \$0.00 | \$0.00 |
| 2351 | 1.2.2.9.4.9 | RF Stability Testing | SLAC |  | 0 | 150 wks | \$0.00 | \$0.00 | \$462,020.00 | \$462,020.00 | \$92,404.00 | \$138,606.00 | \$693,030.00 |
| 2352 | 1.2.2.9.4.9 | RF teedback measurements | SLAC | ED\& | 2 | 50 wks | \$0.00 | \$0.00 | \$144,660.00 | \$144,660.00 | \$28,932.00 | \$43,398.00 | \$216,990.00 |
|  |  | SLAC Klystron: Engineer |  | ED\&1 | 0 | 50 wks | \$0.00 | \$0.00 | \$0.00 | \$144,660.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 2353 | 1.2.2.9.4.9 | RF Feedback Setup | SLAC | ED\& | 2 | 50 wks | \$0.00 | \$0.00 | \$170,000.00 | \$170,000.00 | \$34,000.00 | \$51,000.00 | \$255,000.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& 1 | 0 | 50 wks | \$0.00 | \$0.00 | \$0.00 | \$170,000.00 | \$0.00 | \$0.00 | \$0.00 |

LCLS_CD1_TEC

| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2354 | 1.2.2.9.4.9 | RF Feedback Algorithm Adjustments | SLAC | ED\& | 2 | 50 wks | \$0.00 | \$0.00 | \$147,360.00 | \$147,360.00 | \$29,472.00 | \$44,208.00 | \$221,040.00 |
|  |  | SLAC Controls: Engineer |  | ED\& | 0 | 50 wks | \$0.00 | \$0.00 | \$0.00 | \$147,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 2355 | 1.2.3 | UNDULATOR |  |  | 0 | 2,684.95 wks | \$5,627,398.00 | \$26,049,000.00 | \$2,057,317.44 | \$33,733,715.44 | \$5,384,051.70 | \$10,830,563.32 | \$49,948,330.47 |
| 2356 | 1.2.3.1 | PED |  |  | 0 | 1,874.5 wks | \$5,627,398.00 | \$0.00 | \$0.00 | \$5,627,398.00 | \$1,496,754.22 | \$2,390,233.12 | \$9,514,385.34 |
| 2357 | 1.2.3.1.1 | Undulators |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2358 | 1.2.3.1.1.1 | Design Engineer | ANL |  | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2359 | 1.2.3.1.1.2 | Dratting | ANL |  | 4 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2360 | 1.2.3.1.2 | Und. mech sys PED |  |  | 0 | 303 wks | \$940,808.40 | \$0.00 | \$0.00 | \$940,808.40 | \$257,131.74 | \$419,279.05 | \$1,617,219.20 |
| 2361 | 1.2.3.1.2.1 | proj management | ANL | ED\&1 | 3 | 48 wks | \$142,675.20 | \$0.00 | \$0.00 | \$142,675.20 | \$42,517.21 | \$64,817.34 | \$250,009.75 |
|  | 1.2.3.1.2.1 | ANL Project Management |  | ED\& | 0 | 48 wks | \$0.00 | \$0.00 | \$0.00 | \$142,675.20 | \$0.00 | \$0.00 | \$0.00 |
| 2362 | 1.2.3.1.2.1 | engineering | ANL | ED\& | 3 | 36 wks | \$107,006.40 | \$0.00 | \$0.00 | \$107,006.40 | \$31,887.91 | \$48,613.01 | \$187,507.31 |
|  | 1.2.3.1.2.1 | ANL Mechanical Engineer |  | ED\& | 0 | 36 wks | \$0.00 | \$0.00 | \$0.00 | \$107,006.40 | \$0.00 | \$0.00 | \$0.00 |
| 2363 | 1.2.3.1.2.1 | engineering | ANL | ED\&I | 3 | 36 wks | \$107,006.40 | \$0.00 | \$0.00 | \$107,006.40 | \$31,887.91 | \$48,613.01 | \$187,507.31 |
|  | 1.2.3.1.2.1 | ANL Physicist - Senior Scientist |  | ED\& | 0 | 36 wks | \$0.00 | \$0.00 | \$0.00 | \$107,006.40 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2364 | 1.2.3.1.2.1 | design | ANL | ED\& | 3 | 52 wks | \$105,747.20 | \$0.00 | \$0.00 | \$105,747.20 | \$31,512.67 | \$48,040.95 | \$185,300.82 |
|  | 1.2.3.1.2.1 | ANL Mech Dratting/Design |  | ED\& | 0 | 52 wks | \$0.00 | \$0.00 | \$0.00 | \$105,747.20 | \$0.00 | \$0.00 | \$0.00 |
| 2365 | 1.2.3.1.2.1 | design | ANL | ED\&1 | 3 | 24 wks | \$71,337.60 | \$0.00 | \$0.00 | \$71,337.60 | \$21,258.60 | \$32,408.67 | \$125,004.88 |
|  | 1.2.3.1.2.1 | ANL Physicist-Scientist |  | ED\& | 0 | 24 wks | $\$ 0.00$ | \$0.00 | \$0.00 | \$71,337.60 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2366 | 1.2.3.1.2.1 | prototype | ANL | ED\&I | 3 | 24 wks | \$71,337.60 | \$0.00 | \$0.00 | \$71,337.60 | \$21,258.60 | \$32,408.67 | \$125,004.88 |
|  | 1.2.3.1.2.1 | ANL Mechanical Engineer |  | ED\& | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$71,337.60 | \$0.00 | \$0.00 | \$0.00 |
| 2367 | 1.2.3.1.2.1 | prototype | ANL | ED\& | 3 | 24 wks | \$71,337.60 | \$0.00 | \$0.00 | \$71,337.60 | \$21,258.60 | \$32,408.67 | \$125,004.88 |
|  | 1.2.3.1.2.1 | ANL Physicist-Scientist |  | ED\&1 | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$71,337.60 | \$0.00 | \$0.00 | \$0.00 |
| 2368 | 1.2.3.1.2.1 | prototype | ANL | B\&H | 3 | 24 wks | \$48,806.40 | \$0.00 | \$0.00 | \$48,806.40 | \$11,811.15 | \$21,216.14 | \$81,833.69 |
|  | 1.2.3.1.2.1 | ANL PCD:Iechnician |  | B\&H | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$48,806.40 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2369 | 1.2.3.1.2.1 | prototype | ANL | M\&S | 3 | 0 wks | \$122,000.00 | \$0.00 | \$0.00 | \$122,000.00 | \$15,860.00 | \$48,251.00 | \$186,111.00 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 122,000 | \$0.00 | \$0.00 | \$0.00 | \$122,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2370 | 1.2.3.1.2.1 | installation procedure | ANL | ED\& 1 | 3 | 8 wks | \$23,779.20 | \$0.00 | \$0.00 | \$23,779.20 | \$7,086.20 | \$10,802.89 | \$41,668.29 |
|  | 1.2.3.1.2.1 | ANL Mechanical Engineer |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$23,779.20 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2371 | 1.2.3.1.2.1 | installation procedure | ANL | ED\&I | 3 | 8 wks | \$13,299.20 | \$0.00 | \$0.00 | \$13,299.20 | \$3,963.16 | \$6,041.83 | \$23,304.19 |
|  | 1.2.3.1.2.1 | ANL Administration |  | ED\&1 | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$13,299.20 | \$0.00 | \$0.00 | \$0.00 |
| 2372 | 1.2.3.1.2.1 | prepare bid package | ANL | ED\&1 | 3 | 3 wks | \$8,917.20 | \$0.00 | \$0.00 | \$8,917.20 | \$2,657.33 | \$4,051.08 | \$15,625.61 |
|  | 1.2.3.1.2.1 | ANL Project Management |  | ED\& | 0 | 3 wks | \$0.00 | $\$ 0.00$ | \$0.00 | \$8,917.20 | \$0.00 | \$0.00 | \$0.00 |
| 2373 | 1.2.3.1.2.1 | prepare bid package | ANL | ED\&1 | 3 | 8 wks | \$23,779.20 | \$0.00 | \$0.00 | \$23,779.20 | \$7,086.20 | \$10,802.89 | \$41,668.29 |
|  | 1.2.3.1.2.1 | ANL Mechanical Engineer |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$23,779.20 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2374 | 1.2.3.1.2.1 | prepare bid package | ANL | ED\& | 3 | 8 wks | \$23,779.20 | \$0.00 | \$0.00 | \$23,779.20 | \$7,086.20 | \$10,802.89 | \$41,668.29 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | Task Name | OBS | PHASE | $\begin{array}{\|c} \hline \text { Risk } \\ \hline 0 \end{array}$ | $\begin{aligned} & \text { Units } \\ & 8 \mathrm{wks} \end{aligned}$ | PED (Direct)$\$ 0.00$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct) | $\begin{aligned} & \text { Direct Cost } \\ & \$ 23,779.20 \end{aligned}$ | $\begin{array}{r} \text { Overhead Cost } \\ \hline \$ 0.00 \end{array}$ | Contingency Cost $\$ 0.00$ | $\begin{aligned} & \text { Total Cost } \\ & \$ 0.00 \end{aligned}$ |
|  | 1.2.3.1.2.1 | ANL Physicist -Scientist |  |  |  |  |  |  |  |  |  |  |  |
| 2375 | 1.2.3.1.3 | Und. vac sys PED |  |  | 0 | 306 wks | \$923,795.60 | \$0.00 | \$0.00 | \$923,795.60 | \$255,757.93 | \$412,843.74 | \$1,592,397.27 |
| 2376 | 1.2.3.1.3.1 | Proj management | ANL | ED\& | 3 | 48 wks | \$142,675.20 | \$0.00 | \$0.00 | \$142,675.20 | \$42,517.21 | \$64,817.34 | \$250,009.75 |
|  |  | ANL Project Management |  | ED\& | 0 | 48 wks | \$0.00 | \$0.00 | \$0.00 | \$142,675.20 | \$0.00 | \$0.00 | \$0.00 |
| 2377 | 1.2.3.1.3.2 | Engineering | ANL | ED\& | 3 | 48 wks | \$142,675.20 | \$0.00 | \$0.00 | \$142,675.20 | \$42,517.21 | \$64,817.34 | \$250,009.75 |
|  |  | ANL Mechanical Engineer |  | ED\&1 | 0 | 48 wks | \$0.00 | \$0.00 | \$0.00 | \$142,675.20 | \$0.00 | \$0.00 | \$0.00 |
| 2378 | 1.2.3.1.3.2 | Engineering | ANL | ED\& | 3 | 24 wks | \$71,337.60 | \$0.00 | \$0.00 | \$71,337.60 | \$21,258.60 | \$32,408.67 | \$125,004.88 |
|  |  | ANL Physicist -Scientist |  | EDQ1 | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$77,337.60 | \$0.00 | \$0.00 | \$0.00 |
| 2379 | 1.2.3.1.3.3 | Design | ANL | ED\& | 3 | 52 wks | \$105,747.20 | \$0.00 | \$0.00 | \$105,747.20 | \$31,512.67 | \$48,040.95 | \$185,300.82 |
|  |  | ANL Mech Dratting/Design |  | ED\& | 0 | 52 wks | \$0.00 | \$0.00 | \$0.00 | \$105,747.20 | \$0.00 | \$0.00 | \$0.00 |
| 2380 | 1.2.3.1.3.3 | Design | ANL | ED\& | 3 | 24 wks | \$77,337.60 | \$0.00 | \$0.00 | \$71,337.60 | \$21,258.60 | \$32,408.67 | \$125,004.88 |
|  |  | ANL Physicist -Scientist |  | ED\& | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$71,337.60 | \$0.00 | \$0.00 | \$0.00 |
| 2381 | 1.2.3.1.3.4 | Prototype | ANL | ED\& | 3 | 24 wks | \$71,337.60 | \$0.00 | \$0.00 | \$71,337.60 | \$21,258.60 | \$32,408.67 | \$125,004.88 |
|  |  | ANL Mechanical Engineer |  | ED\& | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$71,337.60 | \$0.00 | \$0.00 | \$0.00 |
| 2382 | 1.2.3.1.3.4 | Prototype | ANL | ED\& | 3 | 24 wks | \$77,337.60 | \$0.00 | \$0.00 | \$71,337.60 | \$21,258.60 | \$32,408.67 | \$125,004.88 |
|  |  | ANL Physicist -Scientist |  | ED\& | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$71,337.60 | \$0.00 | \$0.00 | \$0.00 |
| 2383 | 1.2.3.1.3.4 | Prototype | ANL | B\&H | 3 | 24 wks | \$48,806.40 | \$0.00 | \$0.00 | \$48,806.40 | \$11,811.15 | \$21,216.14 | \$81,833.69 |
|  |  | ANL PCD:Iechnician |  | B\&H | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$48,806.40 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2384 | 1.2.3.1.3.4 | Prototype | ANL | M\&S | 3 | 0 wks | \$100,000.00 | \$0.00 | \$0.00 | \$100,000.00 | \$13,000.00 | \$39,550.00 | \$152,550.00 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 100,000 | \$0.00 | \$0.00 | \$0.00 | \$100,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2385 | 1.2.3.1.3.5 | Assembly procedure | ANL | ED\& | 3 | 8 wks | \$23,779.20 | \$0.00 | \$0.00 | \$23,779.20 | \$7,086.20 | \$10,802.89 | \$41,668.29 |
|  |  | ANL Mechanical Engineer |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$23,779.20 | \$0.00 | \$0.00 | \$0.00 |
| 2386 | 1.2.3.1.3.5 | Assembly procedure | ANL | ED\& | 3 | 3 wks | \$4,987.20 | \$0.00 | \$0.00 | \$4,987.20 | \$1,486.19 | \$2,265.68 | \$8,739.07 |
|  |  | ANL Administration |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$4,987.20 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2387 | 1.2.3.1.3.6 | Installation procedure | ANL | ED\& | 3 | 8 wks | \$23,779.20 | \$0.00 | \$0.00 | \$23,779.20 | \$7,086.20 | \$10,802.89 | \$41,668.29 |
|  |  | ANL Mechanical Engineer |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$23,779.20 | \$0.00 | \$0.00 | \$0.00 |
| 2388 | 1.2.3.1.3.6 | Installation procedure | ANL | ED\& | 3 | 8 wks | \$13,299.20 | \$0.00 | \$0.00 | \$13,299.20 | \$3,963.16 | \$6,041.83 | \$23,304.19 |
|  |  | ANL Administration |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$13,299.20 | \$0.00 | \$0.00 | \$0.00 |
| 2389 | 1.2.3.1.3.7 | Prepare bid package | ANL | ED\& | 3 | 3 wks | \$8,917.20 | \$0.00 | \$0.00 | \$8,917.20 | \$2,657.33 | \$4,051.08 | \$15,625.61 |
|  |  | ANL Project Management |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$8,917.20 | \$0.00 | \$0.00 | \$0.00 |
| 2390 | 1.2.3.1.3.7 | Prepare bid package | ANL | ED\& | 3 | 8 wks | \$23,779.20 | \$0.00 | \$0.00 | \$23,779.20 | \$7,086.20 | \$10,802.89 | \$41,668.29 |
|  |  | ANL Mechanical Engineer |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$23,779.20 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2391 | 1.2.3.1.4 | Und. diag sys PED |  |  | 0 | 848 wks | \$2,433,410.40 | \$0.00 | \$0.00 | \$2,433,410.40 | \$669,206.30 | \$1,085,915.84 | \$4,188,532.54 |
| 2392 | 1.2.3.1.4.1 | proj management | ANL | ED\& | 3 | 12 wks | \$35,668.80 | \$0.00 | \$0.00 | \$35,668.80 | \$10,629.30 | \$16,204.34 | \$62,502.44 |
|  |  | ANL Project Management |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$35,668.80 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 2393 | 1.2.3.1.4.1 | beam position monitoring | ANL | ED\& | 3 | 24 wks | \$48,806.40 | \$0.00 | \$0.00 | \$48,806.40 | \$14,544.31 | \$22,172.75 | \$85,523.45 |
|  |  | ANL Mech Dratting/Design |  | ED\& | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$48,806.40 | \$0.00 | \$0.00 | \$0.00 |
| 2394 | 1.2.3.1.4.1 | beam position monitoring | ANL | ED\& | 3 | 48 wks | \$142,675.20 | \$0.00 | \$0.00 | \$142,675.20 | \$42,517.21 | \$64,817.34 | \$250,009.75 |
|  |  | ANL Physicist-Scientist |  | ED\&1 | 0 | 48 wks | \$0.00 | \$0.00 | \$0.00 | \$142,675.20 | \$0.00 | \$0.00 | \$0.00 |
| 2395 | 1.2.3.1.4.1 | beam position monitoring | ANL | B\&H | 3 | 48 wks | \$97,612.80 | \$0.00 | \$0.00 | \$97,612.80 | \$23,622.30 | \$42,432.28 | \$163,667.38 |
|  |  | ANL PCD:Technician |  | B\&H | 0 | 48 wks | \$0.00 | \$0.00 | \$0.00 | \$97,612.80 | \$0.00 | \$0.00 | \$0.00 |
| 2396 | 1.2.3.1.4.1 | beam position monitoring | ANL | ED\& | 3 | 48 wks | \$142,675.20 | \$0.00 | \$0.00 | \$142,675.20 | \$42,517.21 | \$64,817.34 | \$250,009.75 |
|  |  | ANL Controls: Programmer |  | ED\&1 | 0 | 48 wks | \$0.00 | \$0.00 | \$0.00 | \$142,675.20 | \$0.00 | \$0.00 | \$0.00 |
| 2397 | 1.2.3.1.4.1 | wire scn/Cherenkov det. | ANL | ED\& | 3 | 24 wks | \$48,806.40 | \$0.00 | \$0.00 | \$48,806.40 | \$14,544.31 | \$22,172.75 | \$85,523.45 |
|  |  | ANL Mech Dratting/Design |  | ED\& | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$48,806.40 | \$0.00 | \$0.00 | \$0.00 |
| 2398 | 1.2.3.1.4.1 | wire scn/Cherenkov det. | ANL | ED\& | 3 | 48 wks | \$142,675.20 | \$0.00 | \$0.00 | \$142,675.20 | \$42,517.21 | \$64,817.34 | \$250,009.75 |
|  |  | ANL Physicist -Scientist |  | ED\& | 0 | 48 wks | \$0.00 | \$0.00 | \$0.00 | \$142,675.20 | \$0.00 | \$0.00 | \$0.00 |
| 2399 | 1.2.3.1.4.1 | wire scn/Cherenkov det. | ANL | B\&H | 3 | 48 wks | \$97,612.80 | \$0.00 | \$0.00 | \$97,612.80 | \$23,622.30 | \$42,432.28 | \$163,667.38 |
|  |  | ANL PCD:Iechnician |  | B\&H | 0 | 48 wks | \$0.00 | \$0.00 | \$0.00 | \$97,612.80 | \$0.00 | \$0.00 | \$0.00 |
| 2400 | 1.2.3.1.4.1 | wire scn/Cherenkov det. | ANL | ED\& | 3 | 48 wks | \$142,675.20 | \$0.00 | \$0.00 | \$142,675.20 | \$42,517.21 | \$64,817.34 | \$250,009.75 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 48 wks | \$0.00 | \$0.00 | \$0.00 | \$142,675.20 | \$0.00 | \$0.00 | \$0.00 |
| 2401 | 1.2.3.1.4.1 | OTR imaging | ANL | ED\& | 3 | 24 wks | \$48,806.40 | \$0.00 | \$0.00 | \$48,806.40 | \$14,544.31 | \$22,172.75 | \$85,523.45 |
|  |  | ANL Mech Dratting/Design |  | ED\& | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$48,806.40 | \$0.00 | \$0.00 | \$0.00 |
| 2402 | 1.2.3.1.4.1 | OTR imaging | ANL | ED\& | 3 | 48 wks | \$142,675.20 | \$0.00 | \$0.00 | \$142,675.20 | \$42,517.21 | \$64,817.34 | \$250,009.75 |
|  |  | ANL Physicist -Scientist |  | ED\& | 0 | 48 wks | \$0.00 | \$0.00 | \$0.00 | \$142,675.20 | \$0.00 | \$0.00 | \$0.00 |
| 2403 | 1.2.3.1.4.1 | OTR imaging | ANL | B\&H | 3 | 48 wks | \$97,612.80 | \$0.00 | \$0.00 | \$97,612.80 | \$23,622.30 | \$42,432.28 | \$163,667.38 |
|  |  | ANL PCD:Technician |  | BRH | 0 | 48 wks | \$0.00 | \$0.00 | \$0.00 | \$97,612.80 | \$0.00 | \$0.00 | \$0.00 |
| 2404 | 1.2.3.1.4.1 | OTR imaging | ANL | ED\& | 3 | 48 wks | \$142,675.20 | \$0.00 | \$0.00 | \$142,675.20 | \$42,517.21 | \$64,817.34 | \$250,009.75 |
|  |  | ANL Controls: Programmer |  | ED\&1 | 0 | 48 wks | \$0.00 | \$0.00 | \$0.00 | \$142,675.20 | \$0.00 | \$0.00 | \$0.00 |
| 2405 | 1.2.3.1.4.1 | current monitoring | ANL | ED\& | 3 | 24 wks | \$48,806.40 | \$0.00 | \$0.00 | \$48,806.40 | \$14,544.31 | \$22,172.75 | \$85,523.45 |
|  |  | ANL Mech Drafting/Design |  | ED\&1 | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$48,806.40 | \$0.00 | \$0.00 | \$0.00 |
| 2406 | 1.2.3.1.4.1 | current monitoring | ANL | ED\& | 3 | 24 wks | \$77,337.60 | \$0.00 | \$0.00 | \$71,337.60 | \$21,258.60 | \$32,408.67 | \$125,004.88 |
|  |  | ANL Physicist -Scientist |  | ED\&I | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$71,337.60 | \$0.00 | \$0.00 | \$0.00 |
| 2407 | 1.2.3.1.4.1 | current monitoring | ANL | B\&H | 3 | 8 wks | \$16,268.80 | \$0.00 | \$0.00 | \$16,268.80 | \$3,937.05 | \$7,072.05 | \$27,277.90 |
|  |  | ANL PCD:Technician |  | B\&H | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$16,268.80 | \$0.00 | \$0.00 | \$0.00 |
| 2408 | 1.2.3.1.4.1 | current monitoring | ANL | ED\& | 3 | 12 wks | \$35,668.80 | \$0.00 | \$0.00 | \$35,668.80 | \$10,629.30 | \$16,204.34 | \$62,502.44 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$35,668.80 | \$0.00 | \$0.00 | \$0.00 |
| 2409 | 1.2.3.1.4.1 | prototype | ANL | M\&S | 3 | 0 wks | \$80,000.00 | \$0.00 | \$0.00 | \$80,000.00 | \$10,400.00 | \$31,640.00 | \$122,040.00 |
|  |  | ANL M\&S Iotal |  | M ${ }^{\text {d }}$ S | 0 | 80,000 | \$0.00 | \$0.00 | \$0.00 | \$80,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2410 | 1.2.3.1.4.1 | assembly procedure | ANL | ED\& | 3 | 8 wks | \$23,779.20 | \$0.00 | \$0.00 | \$23,779.20 | \$7,086.20 | \$10,802.89 | \$41,668.29 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | $\frac{\text { Risk }}{}$ | Units <br> 8 wks | $\frac{\text { PED (Direct) }}{\$ 0.00}$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct)$\qquad$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 23,779.20 \end{aligned}$ | Overhead Cost $\$ 0.00$ | Contingency Cost$\$ 0.00$ | Total Cost |
|  |  | ANL Electrical Engineer |  | ED\&I |  |  |  |  |  |  |  |  |  |
| 2411 | 1.2.3.1.4.1 | assembly procedure |  | ED\&1 | 3 | 8 wks | \$13,299.20 | \$0.00 | \$0.00 | \$13,299.20 | \$3,963.16 | \$6,041.83 | \$23,304.19 |
|  |  | ANL Administration |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$13,299.20 | \$0.00 | \$0.00 | \$0.00 |
| 2412 | 1.2.3.1.4.1 | installation procedure | ANL | ED\& | 3 | 8 wks | \$23,779.20 | \$0.00 | \$0.00 | \$23,779.20 | \$7,086.20 | \$10,802.89 | \$41,668.29 |
|  |  | ANL Electrical Engineer |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$23,779.20 | \$0.00 | \$0.00 | \$0.00 |
| 2413 | 1.2.3.1.4.1 | installation procedure | ANL | ED\& | 3 | 8 wks | \$13,299.20 | \$0.00 | \$0.00 | \$13,299.20 | \$3,963.16 | \$6,041.83 | \$23,304.19 |
|  |  | ANL Administration |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$13,299.20 | \$0.00 | \$0.00 | \$0.00 |
| 2414 | 1.2.3.1.4.1 | prepare bid package | ANL | ED\& | 3 | 3 wks | \$8,917.20 | \$0.00 | \$0.00 | \$8,917.20 | \$2,657.33 | \$4,051.08 | \$15,625.61 |
|  |  | ANL Project Management |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$8,917.20 | \$0.00 | \$0.00 | \$0.00 |
| 2415 | 1.2.3.1.4.1 | prepare bid package | ANL | ED\& | 3 | 8 wks | \$23,779.20 | \$0.00 | \$0.00 | \$23,779.20 | \$7,086.20 | \$10,802.89 | \$41,668.29 |
|  |  | ANL Electrical Engineer |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$23,779.20 | \$0.00 | \$0.00 | \$0.00 |
| 2416 | 1.2.3.1.4.1 | prepare bid package | ANL |  | 3 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2417 | 1.2.3.1.4.2 | X-ray diagnostics PED | ANL |  | 0 | 221 wks | \$743,498.00 | \$0.00 | \$0.00 | \$743,498.00 | \$196,362.40 | \$328,951.14 | \$1,268,811.55 |
| 2418 | 1.2.3.1.4.2 | Proj management | ANL | ED\& | 3 | 15 wks | \$44,586.00 | \$0.00 | \$0.00 | \$44,586.00 | \$13,286.63 | \$20,255.42 | \$78,128.05 |
|  |  | ANL Project Management |  | ED\& | 0 | 15 wks | \$0.00 | \$0.00 | \$0.00 | \$44,586.00 | \$0.00 | \$0.00 | \$0.00 |
| 2419 | 1.2.3.1.4.2 | Design | ANL | ED\& | 3 | 48 wks | \$142,675.20 | \$0.00 | \$0.00 | \$142,675.20 | \$42,517.21 | \$64,817.34 | \$250,009.75 |
|  |  | ANL Physicist -Scientist |  | ED\& | 0 | 48 wks | \$0.00 | \$0.00 | \$0.00 | \$142,675.20 | \$0.00 | \$0.00 | \$0.00 |
| 2420 | 1.2.3.1.4.2 | Design | ANL | ED\& | 3 | 48 wks | \$142,675.20 | \$0.00 | \$0.00 | \$142,675.20 | \$42,517.21 | \$64,817.34 | \$250,009.75 |
|  |  | ANL Mechanical Engineer |  | ED\& | 0 | 48 wks | \$0.00 | \$0.00 | \$0.00 | \$142,675.20 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 2421 | 1.2.3.1.4.2 | Design | ANL | ED\& | 3 | 48 wks | \$97,612.80 | \$0.00 | \$0.00 | \$97,612.80 | \$29,088.61 | \$44,345.50 | \$171,046.91 |
|  |  | ANL Mech Drafting/Design |  | ED\& | 0 | 48 wks | \$0.00 | \$0.00 | \$0.00 | \$97,612.80 | \$0.00 | \$0.00 | \$0.00 |
| 2422 | 1.2.3.1.4.2 | Design | ANL | ED\& | 3 | 24 wks | \$71,337.60 | \$0.00 | \$0.00 | \$71,337.60 | \$21,258.60 | \$32,408.67 | \$125,004.88 |
|  |  | ANL Controls: Programmer |  | ED\&1 | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$71,337.60 | \$0.00 | \$0.00 | \$0.00 |
| 2423 | 1.2.3.1.4.2 | Design | ANL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2424 | 1.2.3.1.4.2 | Prototype | ANL | M 2 S | 3 | 0 wks | \$150,000.00 | \$0.00 | \$0.00 | \$150,000.00 | \$19,500.00 | \$59,325.00 | \$228,825.00 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 150,000 | \$0.00 | \$0.00 | \$0.00 | \$150,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2425 | 1.2.3.1.4.2 | Prototype | ANL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2426 | 1.2.3.1.4.2 | Assembly proc. | ANL | ED\& | 3 | 8 wks | \$23,779.20 | \$0.00 | \$0.00 | \$23,779.20 | \$7,086.20 | \$10,802.89 | \$41,668.29 |
|  |  | ANL Mechanical Engineer |  | ED\&1 | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$23,779.20 | \$0.00 | \$0.00 | \$0.00 |
| 2427 | 1.2.3.1.4.2 | Assembly proc. | ANL | ED\& | 3 | 3 wks | \$4,987.20 | \$0.00 | \$0.00 | \$4,987.20 | \$1,486.19 | \$2,265.68 | \$8,739.07 |
|  |  | ANL Administration |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$4,987.20 | \$0.00 | \$0.00 | \$0.00 |
| 2428 | 1.2.3.1.4.2 | Instll. Proc. | ANL | ED\& | 3 | 8 wks | \$23,779.20 | \$0.00 | \$0.00 | \$23,779.20 | \$7,086.20 | \$10,802.89 | \$41,668.29 |
|  |  | ANL Mechanical Engineer |  | ED\&1 | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$23,779.20 | \$0.00 | \$0.00 | \$0.00 |
| 2429 | 1.2.3.1.4.2 | Instll. Proc. | ANL | ED\& | 3 | 3 wks | \$4,987.20 | \$0.00 | \$0.00 | \$4,987.20 | \$1,486.19 | \$2,265.68 | \$8,739.07 |
|  |  | ANL Administration |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$4,987.20 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{2430}$ | cWbs | Prepare Procurements | OBS | PHASE | $\begin{array}{\|l\|} \hline \text { Risk } \\ \hline \end{array}$ | Units <br> 8 wks | PED (Direct)$\$ 23,779.20$ | $\begin{array}{r} \text { M\&S (Direct) } \\ \$ 0.00 \end{array}$ | Labor (Direct) | $\begin{aligned} & \text { Direct Cost } \\ & \hline \$ 23,779.20 \end{aligned}$ | Overhead Cost <br> $\$ 7,086.20$ | Contingency Cost |  |
|  | 1.2.3.1.4.2 |  | ANL | ED\& |  |  |  |  |  |  |  |  | \$41,668.29 |
|  |  | ANL Mechanical Engineer |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$23,779.20 | \$0.00 | \$0.00 | \$0.00 |
| 2431 | 1.2.3.1.4.2 | Prepare Procurements | ANL | ED\& | 3 | 8 wks | \$13,299.20 | \$0.00 | \$0.00 | \$13,299.20 | \$3,963.16 | \$6,041.83 | \$23,304.19 |
|  |  | ANL Administration |  | ED\&1 | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$13,299.20 | \$0.00 | \$0.00 | \$0.00 |
| 2432 | 1.2.3.1.5 | Und. PS PED |  |  | 0 | 37 wks | \$149,848.40 | \$0.00 | \$0.00 | \$149,848.40 | \$35,343.77 | \$64,817.26 | \$250,009.43 |
| 2433 | 1.2.3.1.5.1 | Proj Management | ANL | ED\& | 3 | 2 wks | \$5,944.80 | \$0.00 | \$0.00 | \$5,944.80 | \$1,771.55 | \$2,700.72 | \$10,417.07 |
|  |  | ANL Project Management |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,944.80 | \$0.00 | \$0.00 | \$0.00 |
| 2434 | 1.2.3.1.5.2 | Engineering | ANL | ED\& | 3 | 12 wks | \$35,668.80 | \$0.00 | \$0.00 | \$35,668.80 | \$10,629.30 | \$16,204.34 | \$62,502.44 |
|  |  | ANL Electrical Engineer |  | EDQ1 | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$35,668.80 | \$0.00 | \$0.00 | \$0.00 |
| 2435 | 1.2.3.1.5.3 | Prototype | ANL | ED\& | 3 | 8 wks | \$23,779.20 | \$0.00 | \$0.00 | \$23,779.20 | \$7,086.20 | \$10,802.89 | \$41,668.29 |
|  |  | ANL Electrical Engineer |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$23,779.20 | \$0.00 | \$0.00 | \$0.00 |
| 2436 | 1.2.3.1.5.4 | Prototype | ANL | B\&H | 3 | 8 wks | \$16,268.80 | \$0.00 | \$0.00 | \$16,268.80 | \$3,937.05 | \$7,072.05 | \$27,277.90 |
|  |  | ANL PCD:Iechnician |  | B\&H | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$16,268.80 | \$0.00 | \$0.00 | \$0.00 |
| 2437 | 1.2.3.1.5.5 | Prototype | ANL | M\&S | 3 | 0 wks | \$50,000.00 | \$0.00 | \$0.00 | \$50,000.00 | \$6,500.00 | \$19,775.00 | \$76,275.00 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2438 | 1.2.3.1.5.6 | Assembly procedure | ANL | ED\& | 3 | 2 wks | \$5,944.80 | \$0.00 | \$0.00 | \$5,944.80 | \$1,771.55 | \$2,700.72 | \$10,417.07 |
|  |  | ANL Electrical Engineer |  | ED\& | 0 | 2 wks | $\$ 0.00$ | \$0.00 | \$0.00 | \$5,944.80 | \$0.00 | \$0.00 | \$0.00 |
| 2439 | 1.2.3.1.5.7 | Assembly procedure | ANL | ED\& | 3 | 1 wk | \$1,662.40 | \$0.00 | \$0.00 | \$1,662.40 | \$495.40 | \$755.23 | \$2,913.02 |
|  |  | ANL Administration |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,662.40 | \$0.00 | \$0.00 | \$0.00 |
| 2440 | 1.2.3.1.5.8 | Installation procedure | ANL | ED\& | 3 | 2 wks | \$5,944.80 | \$0.00 | \$0.00 | \$5,944.80 | \$1,771.55 | \$2,700.72 | \$10,417.07 |
|  |  | ANL Electrical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,944.80 | \$0.00 | \$0.00 | \$0.00 |
| 2441 | 1.2.3.1.5.9 | Installation procedure | ANL | ED\& | 3 | 1 wk | \$1,662.40 | \$0.00 | \$0.00 | \$1,662.40 | \$495.40 | \$755.23 | \$2,913.02 |
|  |  | ANL Administration |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,662.40 | \$0.00 | \$0.00 | \$0.00 |
| 2442 | 1.2.3.1.5.10 | Prepare bid package | ANL | ED\& | 3 | 1 wk | \$2,972.40 | \$0.00 | \$0.00 | \$2,972.40 | \$885.78 | \$1,350.36 | \$5,208.54 |
|  |  | ANL Electrical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,972.40 | \$0.00 | \$0.00 | \$0.00 |
| 2443 | 1.2.3.1.6 | Und. electromagnet sys. |  |  | 0 | 51 wks | \$181,462.00 | \$0.00 | \$0.00 | \$181,462.00 | \$46,444.62 | \$79,767.32 | \$307,673.94 |
| 2444 | 1.2.3.1.6.1 | Proj management | ANL | ED\& | 3 | 2 wks | \$5,944.80 | \$0.00 | \$0.00 | \$5,944.80 | \$1,771.55 | \$2,700.72 | \$10,417.07 |
|  |  | ANL Project Management |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,944.80 | \$0.00 | \$0.00 | \$0.00 |
| 2445 | 1.2.3.1.6.2 | Engineering | ANL | ED\& | 3 | 12 wks | \$35,668.80 | \$0.00 | \$0.00 | \$35,668.80 | \$10,629.30 | \$16,204.34 | \$62,502.44 |
|  |  | ANL Electrical Engineer |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$35,668.80 | \$0.00 | \$0.00 | \$0.00 |
| 2446 | 1.2.3.1.6.3 | Engineering | ANL | ED\& | 3 | 12 wks | \$35,668.80 | \$0.00 | \$0.00 | \$35,668.80 | \$10,629.30 | \$16,204.34 | \$62,502.44 |
|  |  | ANL Mechanical Engineer |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$35,668.80 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2447 | 1.2.3.1.6.4 | Prototype | ANL | ED\& | 3 | 8 wks | \$23,779.20 | \$0.00 | \$0.00 | \$23,779.20 | \$7,086.20 | \$10,802.89 | \$41,668.29 |
|  |  | ANL Mechanical Engineer |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$23,779.20 | \$0.00 | \$0.00 | \$0.00 |
| 2448 | 1.2.3.1.6.5 | Prototype | ANL | B\&H | 3 | 8 wks | \$16,268.80 | \$0.00 | \$0.00 | \$16,268.80 | \$3,937.05 | \$7,072.05 | \$27,277.90 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units <br> 8 wks | PED (Direct)$\$ 0.00$ | $\begin{gathered} \text { M\&S (Direct) } \\ \$ 0.00 \end{gathered}$ | Labor (Direct) <br> $\$ 0.00$ | Direct Cost \$16,268.80 | $\begin{array}{r} \text { Overhead Cost } \\ \hline \$ 0.00 \end{array}$ | Contingency Cost $\$ 0.00$ | Total Cost <br> $\$ 0.00$ |
|  |  | Task Name ANL PCD:Technician |  |  |  |  |  |  |  |  |  |  |  |
| 2449 | 1.2.3.1.6.6 | Prototype | ANL | M 2 S | 3 | 0 wks | \$40,000.00 | \$0.00 | \$0.00 | \$40,000.00 | \$5,200.00 | \$15,820.00 | \$61,020.00 |
|  |  | ANL M\&S Iotal |  | M 2 S | 0 | 40,000 | \$0.00 | \$0.00 | \$0.00 | \$40,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2450 | 1.2.3.1.6.7 | Assembly procedure | ANL | ED\& | 3 | 2 wks | \$5,944.80 | \$0.00 | \$0.00 | \$5,944.80 | \$1,771.55 | \$2,700.72 | \$10,417.07 |
|  |  | ANL Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,944.80 | \$0.00 | \$0.00 | \$0.00 |
| 2451 | 1.2.3.1.6.8 | Assembly procedure | ANL | ED\& | 3 | 1 wk | \$1,662.40 | \$0.00 | \$0.00 | \$1,662.40 | \$495.40 | \$755.23 | \$2,913.02 |
|  |  | ANL Administration |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,662.40 | \$0.00 | \$0.00 | \$0.00 |
| 2452 | 1.2.3.1.6.9 | Installation procedure | ANL | ED\& | 3 | 3 wks | \$8,917.20 | \$0.00 | \$0.00 | \$8,917.20 | \$2,657.33 | \$4,051.08 | \$15,625.61 |
|  |  | ANL Mechanical Engineer |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$8,917.20 | \$0.00 | \$0.00 | \$0.00 |
| 2453 | 1.2.3.1.6.10 | Installation procedure | ANL | ED\& | 3 | 1 wk | \$1,662.40 | \$0.00 | \$0.00 | \$1,662.40 | \$495.40 | \$755.23 | \$2,913.02 |
|  |  | ANL Administration |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,662.40 | \$0.00 | \$0.00 | \$0.00 |
| 2454 | 1.2.3.1.6.11 | Prepare bid package | ANL | ED\& | 3 | 2 wks | \$5,944.80 | \$0.00 | \$0.00 | \$5,944.80 | \$1,771.55 | \$2,700.72 | \$10,417.07 |
|  |  | ANL Mechanical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,944.80 | \$0.00 | \$0.00 | \$0.00 |
| 2455 | 1.2.3.1.7 | Und. Systems controls |  |  | 0 | 143 wks | \$545,053.20 | \$0.00 | \$0.00 | \$545,053.20 | \$142,265.85 | \$192,663.91 | \$879,982.96 |
| 2456 | 1.2.3.1.7.1 | EPICS Hardware | ANL |  | 0 | 6 wks | \$42,834.40 | \$0.00 | \$0.00 | \$42,834.40 | \$8,564.65 | \$11,306.49 | \$62,705.54 |
| 2457 | 1.2.3.1.7.1.1 | VME Crate | ANL | ED\& | 1 | 1 wk | \$2,972.40 | \$0.00 | \$0.00 | \$2,972.40 | \$885.78 | \$578.73 | \$4,436.90 |
|  |  | ANL Controls: Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,972.40 | \$0.00 | \$0.00 | \$0.00 |
| 2458 | 1.2.3.1.7.1.1 | VME Processor | ANL | ED\&I | 1 | 1 wk | \$2,972.40 | \$0.00 | \$0.00 | \$2,972.40 | \$885.78 | \$578.73 | \$4,436.90 |
|  |  | ANL Controls: Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,972.40 | \$0.00 | \$0.00 | \$0.00 |
| 2459 | 1.2.3.1.7.1.1 | VME Transistion $\mathrm{h} / \mathrm{w}$ | ANL | ED\& | 1 | 1 wk | \$2,972.40 | \$0.00 | \$0.00 | \$2,972.40 | \$885.78 | \$578.73 | \$4,436.90 |
|  |  | ANL Controls: Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,972.40 | \$0.00 | \$0.00 | \$0.00 |
| 2460 | 1.2.3.1.7.1.1 | VME Fieldbus intic | ANL | ED\& | 2 | 1 wk | \$2,972.40 | \$0.00 | \$0.00 | \$2,972.40 | \$885.78 | \$964.54 | \$4,822.72 |
|  |  | ANL Controls: Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,972.40 | \$0.00 | \$0.00 | \$0.00 |
| 2461 | 1.2.3.1.7.1.1 | VME IIming module | ANL | ED\& | 2 | 1 wk | \$2,972.40 | \$0.00 | \$0.00 | \$2,972.40 | \$885.78 | \$964.54 | \$4,822.72 |
|  |  | ANL Controls: Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,972.40 | \$0.00 | \$0.00 | \$0.00 |
| 2462 | 1.2.3.1.7.1.1 | Prototype hardware | ANL | M\&S | 2 | 0 wks | \$25,000.00 | \$0.00 | \$0.00 | \$25,000.00 | \$3,250.00 | \$7,062.50 | \$35,312.50 |
|  |  | ANL M\&S Total |  | M 2 S | 0 | 25,000 | \$0.00 | \$0.00 | \$0.00 | \$25,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2463 | 1.2.3.1.7.1.1 | EPICS server | ANL | ED\&I | 1 | 1 wk | \$2,972.40 | \$0.00 | \$0.00 | \$2,972.40 | \$885.78 | \$578.73 | \$4,436.90 |
|  |  | ANL Controls: Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,972.40 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 2464 | 1.2.3.1.7.2 | Vacuum controls | ANL |  | 0 | 14 wks | \$56,613.60 | \$0.00 | \$0.00 | \$56,613.60 | \$14,350.85 | \$18,512.75 | \$89,477.20 |
| 2465 | 1.2.3.1.7.2.2 | Ion pump controller (IPC) | ANL | ED\& 1 | 2 | 1 wk | \$2,972.40 | \$0.00 | \$0.00 | \$2,972.40 | \$885.78 | \$964.54 | \$4,822.72 |
|  |  | ANL Controls: Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,972.40 | \$0.00 | \$0.00 | \$0.00 |
| 2466 | 1.2.3.1.7.2.2 | Sotware design - IPC | ANL | ED\& | 2 | 2 wks | \$5,944.80 | \$0.00 | \$0.00 | \$5,944.80 | \$1,771.55 | \$1,929.09 | \$9,645.44 |
|  |  | ANL Controls: Programmer |  | ED\&I | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,944.80 | \$0.00 | \$0.00 | \$0.00 |
| 2467 | 1.2.3.1.7.2.2 | Vac. Gauge controller (VGC) | ANL | ED\& | 2 | 1 wk | \$2,972.40 | \$0.00 | \$0.00 | \$2,972.40 | \$885.78 | \$964.54 | \$4,822.72 |



| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| $\frac{\text { ID }}{2486}$ | 1.2.3.1.7.4.1 | Software design - cerenkov | ANL | ED\& | 2 | 4 wks | \$11,889.60 | \$0.00 | \$0.00 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Programmer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2487 | 1.2.3.1.7.4.1 | Optical station | ANL | ED\&1 | 3 | 6 wks | \$17,834.40 | \$0.00 | \$0.00 | \$17,834.40 | \$5,314.65 | \$8,102.17 | \$31,251.22 |
|  |  | ANL Controls: Engineer |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$17,834.40 | \$0.00 | \$0.00 | \$0.00 |
| 2488 | 1.2.3.1.7.4.1 | Software design - Optical | ANL | ED\& | 3 | 8 wks | \$23,779.20 | \$0.00 | \$0.00 | \$23,779.20 | \$7,086.20 | \$10,802.89 | \$41,668.29 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$23,779.20 | \$0.00 | \$0.00 | \$0.00 |
| 2489 | 1.2.3.1.7.4.1 | $X$-Ray diagnostics | ANL | ED\&1 | 3 | 6 wks | \$17,834.40 | \$0.00 | \$0.00 | \$17,834.40 | \$5,314.65 | \$8,102.17 | \$31,251.22 |
|  |  | ANL Controls: Engineer |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$17,834.40 | \$0.00 | \$0.00 | \$0.00 |
| 2490 | 1.2.3.1.7.4.1 | Sottware design- Xray | ANL | ED\& 1 | 3 | 8 wks | \$23,779.20 | \$0.00 | \$0.00 | \$23,779.20 | \$7,086.20 | \$10,802.89 | \$41,668.29 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$23,779.20 | \$0.00 | \$0.00 | \$0.00 |
| 2491 | 1.2.3.1.7.4.1 | PC Hardware - image anlys. | ANL | ED\& | 3 | 8 wks | \$23,779.20 | \$0.00 | \$0.00 | \$23,779.20 | \$7,086.20 | \$10,802.89 | \$41,668.29 |
|  |  | ANL Controls: Engineer |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$23,779.20 | \$0.00 | \$0.00 | \$0.00 |
| 2492 | 1.2.3.1.7.4.1 | Sottware design - Image | ANL | ED\&1 | 3 | 16 wks | \$47,558.40 | \$0.00 | \$0.00 | \$47,558.40 | \$14,172.40 | \$21,605.78 | \$83,336.58 |
|  |  | ANL Controls: Programmer |  | ED\&I | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$47,558.40 | \$0.00 | \$0.00 | \$0.00 |
| 2493 | 1.2.3.1.7.4. | Diagnostic laser | ANL | ED\& | 2 | 4 wks | \$11,889.60 | \$0.00 | \$0.00 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Engineer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2494 | 1.2.3.1.7.4.1 | Software design - Laser | ANL | ED\& | 2 | 4 wks | \$11,889.60 | \$0.00 | \$0.00 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Programmer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$17,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2495 | 1.2.3.1.7.4.1 | Wire scanner | ANL | ED\& | 2 | 4 wks | \$11,889.60 | \$0.00 | \$0.00 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Engineer |  | ED\& 1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2496 | 1.2.3.1.7.4.1 | Sottware design - Wire scnr | ANL | ED\& | 2 | 4 wks | \$11,889.60 | \$0.00 | \$0.00 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2497 | 1.2.3.1.7.4.1 | Pulse current monitor | ANL | ED\&1 | 2 | 4 wks | \$11,889.60 | \$0.00 | \$0.00 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Engineer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2498 | 1.2.3.1.7.4.1 | Prototype hardware | ANL | M 2 S | 2 | 0 wks | \$50,000.00 | \$0.00 | \$0.00 | \$50,000.00 | \$6,500.00 | \$14,125.00 | \$70,625.00 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2499 | 1.2.3.1.7.4.1 | Software design - PCM | ANL | ED\& | 2 | 4 wks | \$11,889.60 | \$0.00 | \$0.00 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2500 | 1.2.3.1.7.5 | Power Supply Controls | ANL |  | 0 | 20 wks | \$79,448.00 | \$0.00 | \$0.00 | \$79,448.00 | \$20,315.50 | \$24,940.88 | \$124,704.38 |
| 2501 | 1.2.3.1.7.5.1 | Steering coil ( H ) | ANL | ED\& | 2 | 4 wks | \$11,889.60 | \$0.00 | \$0.00 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 2502 | 1.2.3.1.7.5.1 | Sottware design - PS (H) | ANL | ED\&1 | 2 | 2 wks | \$5,944.80 | \$0.00 | \$0.00 | \$5,944.80 | \$1,771.55 | \$1,929.09 | \$9,645.44 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,944.80 | \$0.00 | \$0.00 | \$0.00 |
| 2503 | 1.2.3.1.7.5.1 | Steering coil (V) | ANL | ED\&: | 2 | 4 wks | \$11,889.60 | \$0.00 | \$0.00 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{gathered} \text { ID } \\ 2504 \end{gathered}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.2.3.1.7.5.1 | Sottware design - PS (V) | ANL | ED\& | 2 | 2 wks | \$5,944.80 | \$0.00 | \$0.00 | \$5,944.80 | \$1,771.55 | \$1,929.09 | \$9,645.44 |
|  |  | ANL Controls: Programmer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,944.80 | \$0.00 | \$0.00 | \$0.00 |
| 2505 | 1.2.3.1.7.5.1 | Phase correctors | ANL | ED\&1 | 2 | 4 wks | \$11,889.60 | \$0.00 | \$0.00 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Engineer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2506 | 1.2.3.1.7.5.1 | Prototype hardware | ANL | M\&S | 2 | 0 wks | \$20,000.00 | \$0.00 | \$0.00 | \$20,000.00 | \$2,600.00 | \$5,650.00 | \$28,250.00 |
|  |  | ANL MRS Total |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2507 | 1.2.3.1.7.5.1 | Sottware design - Phase cor. | ANL | ED\&1 | 2 | 4 wks | \$11,889.60 | \$0.00 | \$0.00 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2508 | 1.2.3.1.8 | Und. Systems PPS |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2509 | 1.2.3.1.9 | Und. Meas. System PED |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2510 | 1.2.3.1.9.1 | Design | ANL | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | ANL Physicist -Scientist |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2511 | 1.2.3.1.9.1 | Engineering | ANL | ED\&1 | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | ANL Mechanical Engineer |  | ED\&I | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2512 | 1.2.3.1.9.1 | Engineering | ANL | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | ANL Electrical Engineer |  | ED\&1 | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2513 | 1.2.3.1.9.1 | Engineering | ANL | ED\& 1 | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | ANL Controls: Programmer |  | ED\&1 | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2514 | 1.2.3.1.9.1 | Engineering | ANL | ED\& 1 | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | ANL Mech Drafting/Design |  | ED\&1 | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2515 | 1.2.3.1.9.1 | Prepare procurements | ANL | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | ANL Project Management |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2516 | 1.2.3.1.9.1 | Superv. procurements | ANL | ED\&1 | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | ANL Project Management |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2517 | 1.2.3.1.10 | Undulator Alignment PED |  |  | 0 | 121.5 wks | \$277,020.00 | \$0.00 | \$0.00 | \$277,020.00 | \$55,404.00 | \$83,106.00 | \$415,530.00 |
| 2518 | 1.2.3.1.10.1 | Alignment Project Engineer | ANL | B\&H | 2 | 52 wks | \$118,560.00 | \$0.00 | \$0.00 | \$118,560.00 | \$23,712.00 | \$35,568.00 | \$177,840.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 52 wks | \$0.00 | \$0.00 | \$0.00 | \$118,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 2519 | 1.2.3.1.10.2 | Network Design | ANL | B\&H | 2 | 1.5 wks | \$3,420.00 | \$0.00 | \$0.00 | \$3,420.00 | \$684.00 | \$1,026.00 | \$5,130.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$3,420.00 | \$0.00 | \$0.00 | \$0.00 |
| 2520 | 1.2.3.1.10.3 | HLS Design | ANL | B\&H | 2 | 26 wks | \$59,280.00 | \$0.00 | \$0.00 | \$59,280.00 | \$11,856.00 | \$17,784.00 | \$88,920.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 26 wks | \$0.00 | \$0.00 | \$0.00 | \$59,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 2521 | 1.2.3.1.10.4 | Stretchwire design | ANL | B\&H | 2 | 16 wks | \$36,480.00 | \$0.00 | \$0.00 | \$36,480.00 | \$7,296.00 | \$10,944.00 | \$54,720.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$36,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 2522 | 1.2.3.1.10.5 | Data analysis sott. Extension | ANL | B\&H | 2 | 26 wks | \$59,280.00 | \$0.00 | \$0.00 | \$59,280.00 | \$11,856.00 | \$17,784.00 | \$88,920.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | BRH | 0 | 26 wks | \$0.00 | \$0.00 | \$0.00 | \$59,280.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 2523 | 1.2.3.1.11 | Undulator Stands |  |  | 0 | 65 wks | \$176,000.00 | \$0.00 | \$0.00 | \$176,000.00 | \$35,200.00 | \$51,840.00 | \$263,040.00 |
| 2524 | 1.2.3.1.11.1 | Engineering | ANL | ED\& | 3 | 25 wks | \$84,000.00 | \$0.00 | \$0.00 | \$84,000.00 | \$16,800.00 | \$35,280.00 | \$136,080.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$84,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2525 | 1.2.3.1.11.2 | Design | ANL | ED\& | 1 | 40 wks | \$92,000.00 | \$0.00 | \$0.00 | \$92,000.00 | \$18,400.00 | \$16,560.00 | \$126,960.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 40 wks | \$0.00 | \$0.00 | \$0.00 | \$92,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2526 | 1.2.3.2 | Mechanical |  |  | 0 | 203 wks | \$0.00 | \$18,446,000.00 | \$535,803.60 | \$18,981,803.60 | \$2,502,690.00 | \$5,429,156.40 | \$26,913,650.00 |
| 2527 | 1.2.3.2.1 | Undulator module |  |  | 0 | 170 wks | \$0.00 | \$16,953,000.00 | \$443,347.20 | \$17,396,347.20 | \$2,328,491.28 | \$4,931,209.62 | \$24,656,048.10 |
| 2528 | 1.2.3.2.1.1 | Undulator | ANL | M\&S | 2 | 0 wks | \$0.00 | \$15,576,000.00 | \$0.00 | \$15,576,000.00 | \$2,024,880.00 | \$4,400,220.00 | \$22,001,100.00 |
|  |  | ANL M\&S Iotal |  | M 2 S | 0 | 15,576,000 | \$0.00 | \$0.00 | \$0.00 | \$15,576,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2529 | 1.2.3.2.1.1 | Remeasure at SLAC | ANL | B\&H | 2 | 33 wks | \$0.00 | \$0.00 | \$67,108.80 | \$67,108.80 | \$16,240.33 | \$20,837.28 | \$104,186.41 |
|  |  | ANL Mech. Fab: Assembly Tech |  | BRH | 0 | 33 wks | \$0.00 | \$0.00 | \$0.00 | \$67,108.80 | \$0.00 | \$0.00 | \$0.00 |
| 2530 | 1.2.3.2.1.1 | Remeasure at SLAC | ANL | B\&H | 2 | 33 wks | \$0.00 | \$0.00 | \$67,108.80 | \$67,108.80 | \$16,240.33 | \$20,837.28 | \$104,186.41 |
|  |  | ANL Mech. Fab: Assembly lech |  | B\& ${ }^{\text {H }}$ | 0 | 33 wks | \$0.00 | \$0.00 | \$0.00 | \$67,108.80 | \$0.00 | \$0.00 | \$0.00 |
| 2531 | 1.2.3.2.1.2 | Measurement assist. | ANL | ED\& | 2 | 12 wks | \$0.00 | \$0.00 | \$35,668.80 | \$35,668.80 | \$10,629.30 | \$11,574.53 | \$57,872.63 |
|  |  | ANL Physicist -Scientist |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$35,668.80 | \$0.00 | \$0.00 | \$0.00 |
| 2532 | 1.2.3.2.1.3 | Measurement train | ANL | ED\& | 2 | 8 wks | \$0.00 | \$0.00 | \$23,779.20 | \$23,779.20 | \$7,086.20 | \$7,716.35 | \$38,581.75 |
|  |  | ANL Physicist -Scientist |  | ED\&1 | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$23,779.20 | \$0.00 | \$0.00 | \$0.00 |
| 2533 | 1.2.3.2.1.4 | Movers | ANL | M\&S | 2 | 0 wks | \$0.00 | \$1,320,000.00 | \$0.00 | \$1,320,000.00 | \$171,600.00 | \$372,900.00 | \$1,864,500.00 |
|  |  | ANL M\&S Iotal |  | M\$S | 0 | 1,320,000 | \$0.00 | \$0.00 | \$0.00 | \$1,320,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2534 | 1.2.3.2.1.5 | Procurement supervision | ANL | ED\& | 2 | 36 wks | \$0.00 | \$0.00 | \$107,006.40 | \$107,006.40 | \$31,887.91 | \$34,723.58 | \$173,617.88 |
|  |  | ANL Mechanical Engineer |  | ED\& | 0 | 36 wks | \$0.00 | \$0.00 | \$0.00 | \$107,006.40 | \$0.00 | \$0.00 | \$0.00 |
| 2535 | 1.2.3.2.1.5 | Procurement supervision | ANL | ED\& | 2 | 36 wks | \$0.00 | \$0.00 | \$107,006.40 | \$107,006.40 | \$31,887.91 | \$34,723.58 | \$173,617.88 |
|  |  | ANL Physicist -Scientist |  | ED\&1 | 0 | 36 wks | \$0.00 | \$0.00 | \$0.00 | \$107,006.40 | \$0.00 | \$0.00 | \$0.00 |
| 2536 | 1.2.3.2.1.6 | Iravel to vendor | ANL | M\&S | 2 | 0 wks | \$0.00 | \$18,000.00 | \$0.00 | \$18,000.00 | \$2,340.00 | \$5,085.00 | \$25,425.00 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 18,000 | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2537 | 1.2.3.2.1.7 | Travel to SLAC | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$39,000.00 | \$0.00 | \$39,000.00 | \$5,070.00 | \$11,017.50 | \$55,087.50 |
|  |  | ANL M\&S Total |  | M 2 S | 0 | 39,000 | \$0.00 | \$0.00 | \$0.00 | \$39,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2538 | 1.2.3.2.1.8 | Installation assist. | ANL | ED\& | 2 | 8 wks | \$0.00 | \$0.00 | \$23,779.20 | \$23,779.20 | \$7,086.20 | \$7,716.35 | \$38,581.75 |
|  |  | ANL Mechanical Engineer |  | ED\&I | 0 | 8 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$23,779.20 | \$0.00 | $\$ 0.00$ | $\$ 0.00$ |
| 2539 | 1.2.3.2.1.8 | Installation assist. | ANL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$11,889.60 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Physicist - Senior Scientist |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2540 | 1.2.3.2.2 | Undulator quadrupole |  |  | 0 | 33 wks | \$0.00 | \$825,000.00 | \$92,456.40 | \$917,456.40 | \$134,118.72 | \$356,118.78 | \$1,407,693.90 |
| 2541 | 1.2.3.2.2.1 | Quadrupole | ANL | M\&S | 3 | 0 wks | \$0.00 | \$330,000.00 | \$0.00 | \$330,000.00 | \$42,900.00 | \$130,515.00 | \$503,415.00 |
|  |  | ANL M\&S Iotal |  | M $\downarrow$ S | 0 | 330,000 | \$0.00 | \$0.00 | \$0.00 | \$330,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2542 | 1.2.3.2.2.2 | Positioners | ANL | M\&S | 3 | 0 wks | \$0.00 | \$429,000.00 | \$0.00 | \$429,000.00 | \$55,770.00 | \$169,669.50 | \$654,439.50 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units 429,000 | PED (Direct) $\$ 0.00$ | $\begin{gathered} \text { M\&S (Direct) } \\ \$ 0.00 \end{gathered}$ | Labor (Direct) <br> $\$ 0.00$ | Direct Cost \$429,000.00 | $\begin{array}{r} \text { Overhead Cost } \\ \hline \$ 0.00 \end{array}$ | Contingency Cost $\$ 0.00$ | Total Cost <br> $\$ 0.00$ |
|  |  | Task Name ANL M\&S Total |  | M\&S |  |  |  |  |  |  |  |  |  |
| 2543 | 1.2.3.2.2.3 | Other components |  | M 2 S | 3 | 0 wks | \$0.00 | \$66,000.00 | \$0.00 | \$66,000.00 | \$8,580.00 | \$26,103.00 | \$100,683.00 |
|  |  | ANL M\&S Iotal |  | M 2 S | 0 | 66,000 | \$0.00 | \$0.00 | \$0.00 | \$66,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2544 | 1.2.3.2.2.4 | Procurement supervision | ANL | ED\& | 2 | 6 wks | \$0.00 | \$0.00 | \$17,834.40 | \$17,834.40 | \$5,314.65 | \$5,787.26 | \$28,936.31 |
|  |  | ANL Mechanical Engineer |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$17,834.40 | \$0.00 | \$0.00 | \$0.00 |
| 2545 | 1.2.3.2.2. | Installation supervision | ANL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$11,889.60 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Mechanical Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2546 | 1.2.3.2.2.6 | Magnetic measurement | ANL | ED\& | 2 | 17 wks | \$0.00 | \$0.00 | \$50,530.80 | \$50,530.80 | \$15,058.18 | \$16,397.24 | \$81,986.22 |
|  |  | ANL Physicist -Scientist |  | ED\&1 | 0 | 17 wks | \$0.00 | \$0.00 | \$0.00 | \$50,530.80 | \$0.00 | \$0.00 | \$0.00 |
| 2547 | 1.2.3.2.2.6 | Magnetic measurement | ANL | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$12,201.60 | \$12,201.60 | \$2,952.79 | \$3,788.60 | \$18,942.98 |
|  |  | ANL Mech. Fab: Assembly Tech |  | BRH | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$12,201.60 | \$0.00 | \$0.00 | \$0.00 |
| 2548 | 1.2.3.2.3 | Undulator Hardware Supports |  |  | 0 | 0 wks | \$0.00 | \$668,000.00 | \$0.00 | \$668,000.00 | \$40,080.00 | \$141,828.00 | \$849,908.00 |
| 2549 | 1.2.3.2.3.1 | Materials | ANL | M 2 S | 3 | 0 wks | \$0.00 | \$168,000.00 | \$0.00 | \$168,000.00 | \$10,080.00 | \$62,328.00 | \$240,408.00 |
|  |  | SLAC MES Iotal |  | M MS | 0 | 168,000 | \$0.00 | \$0.00 | \$0.00 | \$168,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2550 | 1.2.3.2.3.2 | Outside Fabrication | ANL | M 2 S | 1 | 0 wks | \$0.00 | \$500,000.00 | \$0.00 | \$500,000.00 | \$30,000.00 | \$79,500.00 | \$609,500.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 500,000 | \$0.00 | \$0.00 | \$0.00 | \$500,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2551 | 1.2.3.3 | Vacuum |  |  | 0 | 21 wks | \$0.00 | \$1,707,500.00 | \$62,420.40 | \$1,769,920.40 | \$240,576.28 | \$667,604.17 | \$2,678,100.85 |
| 2552 | 1.2.3.3.1 | Undulator vacuum valve |  |  | 0 | 0 wks | \$0.00 | \$50,000.00 | \$0.00 | \$50,000.00 | \$6,500.00 | \$16,159.00 | \$72,659.00 |
| 2553 | 1.2.3.3.1.1 | Undulator vacuum valve |  |  | 0 | 0 wks | \$0.00 | \$50,000.00 | \$0.00 | \$50,000.00 | \$6,500.00 | \$16,159.00 | \$72,659.00 |
| 2554 | 1.2.3.3.1.1 | Gate valve-und. Line entrance | ANL | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$260.00 | \$339.00 | \$2,599.00 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2555 | 1.2.3.3.1.1 | Gate valve at the end of undulator line | ANL | M 2 S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$260.00 | \$339.00 | \$2,599.00 |
|  |  | ANL M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2556 | 1.2.3.3.1.2 | undulator pumpout valve | ANL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2557 | 1.2.3.3.1.2 | valve to isolate roughing system - und. Line entrance | ANL | M\&S | 3 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$130.00 | \$395.50 | \$1,525.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2558 | 1.2.3.3.1.2 | valve for iso. of roughing \& turbo from - und. Line cell | ANL | M\&S | 1 | 0 wks | \$0.00 | \$11,000.00 | \$0.00 | \$11,000.00 | \$1,430.00 | \$1,864.50 | \$14,294.50 |
|  |  | ANL M\&S Iotal |  | M\&S | 0 | 11,000 | \$0.00 | \$0.00 | \$0.00 | \$11,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2559 | 1.2.3.3.1.2 | valve tor iso. of roughing \& turbo trom - und exit section | ANL | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$130.00 | \$169.50 | \$1,299.50 |
|  |  | ANL M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2560 | 1.2.3.3.1.3 | gate valve with RF liner to isolate each undulator line cell | ANL | M 2 S | 3 | 0 wks | \$0.00 | \$33,000.00 | \$0.00 | \$33,000.00 | \$4,290.00 | \$13,051.50 | \$50,341.50 |
|  |  | ANL M\&S Iotal |  | M\&S | 0 | 33,000 | \$0.00 | \$0.00 | \$0.00 | \$33,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2561 | 1.2.3.3.2 | Undulator pump |  |  | 0 | 0 wks | \$0.00 | \$184,000.00 | \$0.00 | \$184,000.00 | \$23,920.00 | \$51,980.00 | \$259,900.00 |
| 2562 | 1.2.3.3.2.1 | Undulator ion pump | ANL |  | 0 | 0 wks | \$0.00 | \$41,000.00 | \$0.00 | \$41,000.00 | \$5,330.00 | \$11,582.50 | \$57,912.50 |
| 2563 | 1.2.3.3.2.1 | Ion pump - und. Line entrance | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$260.00 | \$565.00 | \$2,825.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE <br> M\&S | $\begin{array}{\|l\|} \hline \text { Risk } \\ \hline \end{array}$ | Units 2,000 | PED (Direct) $\$ 0.00$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct) | $\begin{aligned} & \text { Direct Cost } \\ & \$ 2,000.00 \end{aligned}$ | Overhead Cost $\$ 0.00$ | Contingency Cost $\$ 0.00$ | Total Cost <br> $\$ 0.00$ |
|  |  | Task Name ANL M\&S Total |  |  |  |  |  |  |  |  |  |  |  |
| 2564 | 1.2.3.3.2. | Ion pump controller - und. Line entrance | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$130.00 | \$282.50 | \$1,412.50 |
|  |  | ANL M\&S Iotal |  | M 4 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2565 | 1.2.3.3.2.1 | Ion pump cable - und. Line entrance | ANL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$130.00 | \$282.50 | \$1,412.50 |
|  |  | ANL M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2566 | 1.2.3.3.2.1 | Ion pump - und. Line cell | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$11,000.00 | \$0.00 | \$11,000.00 | \$1,430.00 | \$3,107.50 | \$15,537.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 11,000 | \$0.00 | \$0.00 | \$0.00 | \$11,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2567 | 1.2.3.3.2.1 | Ion pump controller - und. Line cell | ANL | M\&S | 2 | 0 wks | \$0.00 | \$11,000.00 | \$0.00 | \$11,000.00 | \$1,430.00 | \$3,107.50 | \$15,537.50 |
|  |  | ANL MES Iotal |  | M ds $^{\text {S }}$ | 0 | 11,000 | \$0.00 | \$0.00 | \$0.00 | \$11,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2568 | 1.2.3.3.2.1 | Ion pump cable - und. Line cell | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$11,000.00 | \$0.00 | \$11,000.00 | \$1,430.00 | \$3,107.50 | \$15,537.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 11,000 | \$0.00 | \$0.00 | \$0.00 | \$11,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2569 | 1.2.3.3.2.1 | Ion pump - exit of und. Line | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$260.00 | \$565.00 | \$2,825.00 |
|  |  | ANL M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2570 | 1.2.3.3.2.1 | Ion pump controller - extt of und. Line | ANL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$130.00 | \$282.50 | \$1,412.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2571 | 1.2.3.3.2.1 | Ion pump cable - exit of und. Line | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$130.00 | \$282.50 | \$1,412.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2572 | 1.2.3.3.2.2 | Undulator turbo pump | ANL |  | 0 | 0 wks | \$0.00 | \$117,000.00 | \$0.00 | \$117,000.00 | \$15,210.00 | \$33,052.50 | \$165,262.50 |
| 2573 | 1.2.3.3.2.2 | Turbo pump - und. Line entrance | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$910.00 | \$1,977.50 | \$9,887.50 |
|  |  | ANL M\&S Total |  | M 2 S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2574 | 1.2.3.3.2.2 | Turbo pump controller - und. Line entrance | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$130.00 | \$282.50 | \$1,412.50 |
|  |  | ANL M\&S Total |  | M 4 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2575 | 1.2.3.3.2.2 | Cables tor turbo pump - und. Line entrance | ANL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$130.00 | \$282.50 | \$1,412.50 |
|  |  | ANL M\&S Iotal |  | M $\downarrow$ S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2576 | 1.2.3.3.2.2 | Turbo pump - und. Line cell | ANL | M\&S | 2 | 0 wks | \$0.00 | \$77,000.00 | \$0.00 | \$77,000.00 | \$10,010.00 | \$21,752.50 | \$108,762.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 77,000 | \$0.00 | \$0.00 | \$0.00 | \$77,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2577 | 1.2.3.3.2.2 | Turbo pump controller - und. Line cell | ANL | M\&S | 2 | 0 wks | \$0.00 | \$11,000.00 | \$0.00 | \$11,000.00 | \$1,430.00 | \$3,107.50 | \$15,537.50 |
|  |  | ANL MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 11,000 | \$0.00 | \$0.00 | \$0.00 | \$11,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2578 | 1.2.3.3.2.2 | Cables tor turbo pump - und. Line cell | ANL | M\&S | 2 | 0 wks | \$0.00 | \$11,000.00 | \$0.00 | \$11,000.00 | \$1,430.00 | \$3,107.50 | \$15,537.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 11,000 | \$0.00 | \$0.00 | \$0.00 | \$11,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2579 | 1.2.3.3.2.2 | Turbo pump - exit of und. Line | ANL | M\&S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$910.00 | \$1,977.50 | \$9,887.50 |
|  |  | ANL M\&S Iotal |  | M 4 S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2580 | 1.2.3.3.2.2 | Turbo pump controller - exit of und. Line | ANL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$130.00 | \$282.50 | \$1,412.50 |
|  |  | ANL M\&S Iotal |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2581 | 1.2.3.3.2.2 | Cables for turbo pump - exit of und. Line | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$130.00 | \$282.50 | \$1,412.50 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | ANL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2582 | 1.2.3.3.2.3 | Undulator roughing pump | ANL |  | 0 | 0 wks | \$0.00 | \$26,000.00 | \$0.00 | \$26,000.00 | \$3,380.00 | \$7,345.00 | \$36,725.00 |
| 2583 | 1.2.3.3.2.3 | Roughing pump - und. Line entrance | ANL | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$260.00 | \$565.00 | \$2,825.00 |
|  |  | ANL M\&S Iotal |  | M 4 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2584 | 1.2.3.3.2.3 | Roughing pump - und. Line cell | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$22,000.00 | \$0.00 | \$22,000.00 | \$2,860.00 | \$6,215.00 | \$31,075.00 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 22,000 | \$0.00 | \$0.00 | \$0.00 | \$22,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2585 | 1.2.3.3.2.3 | Roughing pump - exit of und. Line | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$260.00 | \$565.00 | \$2,825.00 |
|  |  | ANL M\&S Iotal |  | M 4 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 2586 | 1.2.3.3.3 | Undulator vacuum gauge |  |  | 0 | 0 wks | \$0.00 | \$24,500.00 | \$0.00 | \$24,500.00 | \$3,185.00 | \$6,921.25 | \$34,606.25 |
| 2587 | 1.2.3.3.3.1 | Vacuum gauge - roughing line - und. Line entrance | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$26.00 | \$56.50 | \$282.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 2588 | 1.2.3.3.3.1 | Vac. Gauge controller - roughing line - und. Line entrance | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$26.00 | \$56.50 | \$282.50 |
|  |  | ANL MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 2589 | 1.2.3.3.3.1 | Vac. Gauge cables - roughing line - und. Line entrance | ANL | M\&S | 2 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$26.00 | \$56.50 | \$282.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 2590 | 1.2.3.3.3.1 | Vacuum gauge - roughing line - und. Line cell | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$260.00 | \$565.00 | \$2,825.00 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2591 | 1.2.3.3.3.1 | Vac. Gauge controller - roughing line - und. Line cell | ANL | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$260.00 | \$565.00 | \$2,825.00 |
|  |  | ANL MES Iotal |  | M ${ }^{\text {S }}$ S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2592 | 1.2.3.3.3.1 | Vac. Gauge cables - roughing line - und. Line cell | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$260.00 | \$565.00 | \$2,825.00 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2593 | 1.2.3.3.3.1 | Vacuum gauge - electron beampipe - und. Line entrance | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$300.00 | \$0.00 | \$300.00 | \$39.00 | \$84.75 | \$423.75 |
|  |  | ANL M\&S Iotal |  | M 2 S | 0 | 300 | \$0.00 | \$0.00 | \$0.00 | \$300.00 | \$0.00 | \$0.00 | \$0.00 |
| 2594 | 1.2.3.3.3.1 | Gauge controller - und. Line entrance | ANL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$130.00 | \$282.50 | \$1,412.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2595 | 1.2.3.3.3.1 | Cables for vacuum gauge - und. Line entrance | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$300.00 | \$0.00 | \$300.00 | \$39.00 | \$84.75 | \$423.75 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 300 | \$0.00 | \$0.00 | \$0.00 | \$300.00 | \$0.00 | \$0.00 | \$0.00 |
| 2596 | 1.2.3.3.3.1 | Vacuum gauge - electron beampipe - und. Line cell | ANL | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$390.00 | \$847.50 | \$4,237.50 |
|  |  | ANL M\&S Iotal |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2597 | 1.2.3.3.3.1 | Gauge controller - und. Line cell | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$11,000.00 | \$0.00 | \$11,000.00 | \$1,430.00 | \$3,107.50 | \$15,537.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 11,000 | \$0.00 | \$0.00 | \$0.00 | \$11,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2598 | 1.2.3.3.3.1 | Cables tor vacuum gauge - und. Line cell | ANL | M\&S | 2 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$26.00 | \$56.50 | \$282.50 |
|  |  | ANL M\&S Iotal |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 2599 | 1.2.3.3.3.1 | Vacuum gauge - roughing line - exit of und. Line | ANL | M 8 S | 2 | 0 wks | \$0.00 | \$300.00 | \$0.00 | \$300.00 | \$39.00 | \$84.75 | \$423.75 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 300 | \$0.00 | \$0.00 | \$0.00 | \$300.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{2600}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.2.3.3.3.1 | Vac. Gauge controller - roughing line - exit of und. Line | ANL | M\&S | 2 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$26.00 | \$56.50 | \$282.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 2601 | 1.2.3.3.3.1 | vac. Gauge cables - roughing line -extt of und. Line | ANL | M\&S | 2 | 0 wks | \$0.00 | \$400.00 | \$0.00 | \$400.00 | \$52.00 | \$113.00 | \$565.00 |
|  |  | ANL M\&S Iotal |  | M 4 S | 0 | 400 | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 2602 | 1.2.3.3.3.1 | Vacuum gauge - exit of undulator line | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$130.00 | \$282.50 | \$1,412.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2603 | 1.2.3.3.3.1 | Gauge controller - exit of undulator line | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$26.00 | \$56.50 | \$282.50 |
|  |  | ANL M\&S Iotal |  | M ${ }^{\text {S }}$ | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 2604 | 1.2.3.3.3.1 | Cables tor vacuum gauge -exit of undulator line | ANL | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | ANL M\&S Total |  | M 2 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2605 | 1.2.3.3.4 | Undulator vacuum pipe |  |  | 0 | 0 wks | \$0.00 | \$588,000.00 | \$0.00 | \$588,000.00 | \$76,440.00 | \$232,554.00 | \$896,994.00 |
| 2606 | 1.2.3.3.4.1 | Transition cone - Und. Line Entrance | ANL | M 2 S | 3 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,300.00 | \$3,955.00 | \$15,255.00 |
|  |  | ANL MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2607 | 1.2.3.3.4.2 | Vacuum chamber - undulator module | ANL | M\&S | 3 | 0 wks | \$0.00 | \$66,000.00 | \$0.00 | \$66,000.00 | \$8,580.00 | \$26,103.00 | \$100,683.00 |
|  |  | ANL M\&S Total |  | M 2 S | 0 | 66,000 | \$0.00 | \$0.00 | \$0.00 | \$66,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2608 | 1.2.3.3.4.2 | flanges to diagnostic cubes - und mod vac chamber | ANL | M 2 S | 3 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$910.00 | \$2,768.50 | \$10,678.50 |
|  |  | ANL M\&S Total |  | M 2 S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2609 | 1.2.3.3.4.2 | Bellows at one end of chamber - und mod vac chamber | ANL | M\&S | 3 | 0 wks | \$0.00 | \$165,000.00 | \$0.00 | \$165,000.00 | \$21,450.00 | \$65,257.50 | \$251,707.50 |
|  |  | ANL M\&S Iotal |  | M 4 S | 0 | 165,000 | \$0.00 | \$0.00 | \$0.00 | \$165,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2610 | 1.2.3.3.4.2 | Bellows liner - und. Line cell - und mod vac chamber | ANL | M 2 S | 3 | 0 wks | \$0.00 | \$330,000.00 | \$0.00 | \$330,000.00 | \$42,900.00 | \$130,515.00 | \$503,415.00 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 330,000 | \$0.00 | \$0.00 | \$0.00 | \$330,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2611 | 1.2.3.3.4.3 | Transition cone - exit of Und. Line | ANL | M 2 S | 3 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,300.00 | \$3,955.00 | \$15,255.00 |
|  |  | ANL M\&S Iotal |  | M 4 S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2612 | 1.2.3.3.5 | Inter-undulator chamber |  |  | 0 | 21 wks | \$0.00 | \$791,000.00 | \$62,420.40 | \$853,420.40 | \$121,431.28 | \$332,530.92 | \$1,307,382.60 |
| 2613 | 1.2.3.3.5.1 | Electron beam diag. Vacuum chamber - und. Entrance line | ANL | M 2 S | 3 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,040.00 | \$3,164.00 | \$12,204.00 |
|  |  | ANL M\&S Total |  | M 2 S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2614 | 1.2.3.3.5.1 | Quartz window - und. Entrance line | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | ANL M\&S Iotal |  | M 4 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2615 | 1.2.3.3.5.1 | Retractable mirror cmbr. - und. Line entrance | ANL | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$650.00 | \$1,412.50 | \$7,062.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2616 | 1.2.3.3.5.2 | Short break vac block - und. Cell | ANL | M 2 S | 3 | 0 wks | \$0.00 | \$440,000.00 | \$0.00 | \$440,000.00 | \$57,200.00 | \$174,020.00 | \$671,220.00 |
|  |  | ANL M\&S Iotal |  | M M $^{\text {S }}$ | 0 | 440,000 | \$0.00 | \$0.00 | \$0.00 | \$440,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2617 | 1.2.3.3.5.4 | 421 mm separation vacuum block - und. Line Cell | ANL | M\&S | 3 | 0 wks | \$0.00 | \$330,000.00 | \$0.00 | \$330,000.00 | \$42,900.00 | \$130,515.00 | \$503,415.00 |
|  |  | ANL M\&S Iotal |  | M 4 S | 0 | 330,000 | \$0.00 | \$0.00 | \$0.00 | \$330,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2618 | 1.2.3.3.5.5 | Particle beam diag. Vacuum chamber - exit of undulators | ANL | M\&S | 3 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,040.00 | \$3,164.00 | \$12,204.00 |



| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS |  | OBS | PHASE | $\frac{\text { Risk }}{}$ | Units <br> 147 wks | PED (Direct) $\$ 0.00$ | $\begin{aligned} & \text { M\&S (Direct) } \\ & \hline \$ 1,694,000.00 \end{aligned}$ | Labor (Direct) $\$ 367,471.60$ | Direct Cost <br> \$2,061,471.60 | Overhead Cost <br> $\$ 321,299.30$ | Contingency Cost $\$ 833,969.81$ | Total Cost <br> \$3,216,740.71 |
| 2640 | 1.2.3.4.7 | X-ray diagnostics |  |  |  |  |  |  |  |  |  |  |  |
| 2641 | 1.2.3.4.7.1 | Diamond xstal | ANL | M 2 S | 3 | 0 wks | \$0.00 | \$55,000.00 | \$0.00 | \$55,000.00 | \$7,150.00 | \$21,752.50 | \$83,902.50 |
|  |  | ANL M\&S Iotal |  | M ${ }^{\text {S }}$ S | 0 | 55,000 | \$0.00 | \$0.00 | \$0.00 | \$55,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2642 | 1.2.3.4.7.2 | xstal positioner | ANL | M 2 S | 3 | 0 wks | \$0.00 | \$165,000.00 | \$0.00 | \$165,000.00 | \$21,450.00 | \$65,257.50 | \$251,707.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 165,000 | \$0.00 | \$0.00 | \$0.00 | \$165,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2643 | 1.2.3.4.7.3 | PIN diode 1 | ANL | M 2 S | 3 | 0 wks | \$0.00 | \$11,000.00 | \$0.00 | \$11,000.00 | \$1,430.00 | \$4,350.50 | \$16,780.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 11,000 | \$0.00 | \$0.00 | \$0.00 | \$11,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2644 | 1.2.3.4.7.4 | PIN diode 2 | ANL | M\&S | 3 | 0 wks | \$0.00 | \$11,000.00 | \$0.00 | \$11,000.00 | \$1,430.00 | \$4,350.50 | \$16,780.50 |
|  |  | ANL MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 11,000 | \$0.00 | \$0.00 | \$0.00 | \$11,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 2645 | 1.2.3.4.7.5 | PIN diode positioner | ANL | M 2 S | 3 | 0 wks | \$0.00 | \$110,000.00 | \$0.00 | \$110,000.00 | \$14,300.00 | \$43,505.00 | \$167,805.00 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 110,000 | \$0.00 | \$0.00 | \$0.00 | \$110,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2646 | 1.2.3.4.7.6 | CCD 1.5 A | ANL | M 2 S | 3 | 0 wks | \$0.00 | \$264,000.00 | \$0.00 | \$264,000.00 | \$34,320.00 | \$104,412.00 | \$402,732.00 |
|  |  | ANL MKS Iotal |  | M\$S | 0 | 264,000 | \$0.00 | \$0.00 | \$0.00 | \$264,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2647 | 1.2.3.4.7.7 | CCD 2.9 A | ANL | M\&S | 3 | 0 wks | \$0.00 | \$319,000.00 | \$0.00 | \$319,000.00 | \$41,470.00 | \$126,164.50 | \$486,634.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 319,000 | \$0.00 | \$0.00 | \$0.00 | \$319,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2648 | 1.2.3.4.7.8 | Converter optics | ANL | M2S | 3 | 0 wks | \$0.00 | \$88,000.00 | \$0.00 | \$88,000.00 | \$11,440.00 | \$34,804.00 | \$134,244.00 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 88,000 | \$0.00 | \$0.00 | \$0.00 | \$88,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2649 | 1.2.3.4.7.9 | Fabricated components | ANL | M\&S | 3 | 0 wks | \$0.00 | \$660,000.00 | \$0.00 | \$660,000.00 | \$85,800.00 | \$261,030.00 | \$1,006,830.00 |
|  |  | ANL MES Iotal |  | M ${ }^{\text {d S }}$ | 0 | 660,000 | \$0.00 | \$0.00 | \$0.00 | \$660,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 2650 | 1.2.3.4.7.10 | Assembly | ANL | ED\& | 3 | 33 wks | \$0.00 | \$0.00 | \$98,089.20 | \$98,089.20 | \$29,230.58 | \$44,561.92 | \$171,881.71 |
|  |  | ANL Mechanical Engineer |  | ED\& | 0 | 33 wks | \$0.00 | \$0.00 | \$0.00 | \$98,089.20 | \$0.00 | \$0.00 | \$0.00 |
| 2651 | 1.2.3.4.7.10 | Assembly | ANL | ED\& | 3 | 17 wks | \$0.00 | \$0.00 | \$50,530.80 | \$50,530.80 | \$15,058.18 | \$22,956.14 | \$88,545.12 |
|  |  | ANL Physicist-Scientist |  | ED\& | 0 | 17 wks | \$0.00 | \$0.00 | \$0.00 | \$50,530.80 | \$0.00 | \$0.00 | \$0.00 |
| 2652 | 1.2.3.4.7.10 | Assembly | ANL | B\&H | 3 | 74 wks | \$0.00 | \$0.00 | \$150,486.40 | \$150,486.40 | \$36,417.71 | \$65,416.44 | \$252,320.55 |
|  |  | ANL Mech. Fab: Assembly Tech |  | B\&H | 0 | 74 wks | \$0.00 | \$0.00 | \$0.00 | \$150,486.40 | \$0.00 | \$0.00 | \$0.00 |
| 2653 | 1.2.3.4.7.11 | Software config. | ANL | ED\& | 3 | 11 wks | \$0.00 | \$0.00 | \$32,696.40 | \$32,696.40 | \$9,743.53 | \$14,853.97 | \$57,293.90 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 11 wks | \$0.00 | \$0.00 | \$0.00 | \$32,696.40 | \$0.00 | \$0.00 | \$0.00 |
| 2654 | 1.2.3.4.7.12 | Procurement | ANL | ED\& | 3 | 6 wks | \$0.00 | \$0.00 | \$17,834.40 | \$17,834.40 | \$5,314.65 | \$8,102.17 | \$31,251.22 |
|  |  | ANL Mechanical Engineer |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$17,834.40 | \$0.00 | \$0.00 | \$0.00 |
| 2655 | 1.2.3.4.7.13 | Shipping | ANL | M\&S | 3 | 0 wks | \$0.00 | \$11,000.00 | \$0.00 | \$11,000.00 | \$1,430.00 | \$4,350.50 | \$16,780.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 11,000 | \$0.00 | \$0.00 | \$0.00 | \$11,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2656 | 1.2.3.4.7.14 | Install. supervision | ANL | ED\& | 3 | 6 wks | \$0.00 | \$0.00 | \$17,834.40 | \$17,834.40 | \$5,314.65 | \$8,102.17 | \$31,251.22 |
|  |  | ANL Mechanical Engineer |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$17,834.40 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 2657 | 1.2.3.5 | Power Conversion |  |  | 0 | 68 wks | \$0.00 | \$462,000.00 | \$157,060.80 | \$619,060.80 | \$101,397.80 | \$236,866.97 | \$957,325.57 |
| 2658 | 1.2.3.5.1 | Und. power supplies |  |  | 0 | 68 wks | \$0.00 | \$462,000.00 | \$157,060.80 | \$619,060.80 | \$101,397.80 | \$236,866.97 | \$957,325.57 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 2659 | 1.2.3.5.1.1 | Vert./horiz. steering | ANL | M\&S | 3 | 0 wks | \$0.00 | \$462,000.00 | \$0.00 | \$462,000.00 | \$60,060.00 | \$182,721.00 | \$704,781.00 |
|  |  | ANL M2S Total |  | M\&S | 0 | 462,000 | \$0.00 | \$0.00 | \$0.00 | \$462,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2660 | 1.2.3.5.1.2 | Assembly | ANL | ED\& 1 | 3 | 10 wks | \$0.00 | \$0.00 | \$29,724.00 | \$29,724.00 | \$8,857.75 | \$13,503.61 | \$52,085.37 |
|  |  | ANL Mechanical Engineer |  | ED\&I | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$29,724.00 | \$0.00 | \$0.00 | \$0.00 |
| 2661 | 1.2.3.5.1.2 | Assembly | ANL | B\&H | 3 | 33 wks | \$0.00 | \$0.00 | \$67,108.80 | \$67,108.80 | \$16,240.33 | \$29,172.20 | \$112,521.32 |
|  |  | ANL Mech. Fab: Assembly Tech |  | B\&H | 0 | 33 wks | \$0.00 | \$0.00 | \$0.00 | \$67,108.80 | \$0.00 | \$0.00 | \$0.00 |
| 2662 | 1.2.3.5.1.3 | Testing | ANL | ED\& | 1 | 10 wks | \$0.00 | \$0.00 | \$29,724.00 | \$29,724.00 | \$8,857.75 | \$5,787.26 | \$44,369.01 |
|  |  | ANL Mechanical Engineer |  | ED\&\% | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$29,724.00 | \$0.00 | \$0.00 | \$0.00 |
| 2663 | 1.2.3.5.1.3 | Testing | ANL | B\&H | 1 | 15 wks | \$0.00 | \$0.00 | \$30,504.00 | \$30,504.00 | \$7,381.97 | \$5,682.90 | \$43,568.86 |
|  |  | ANL Mech. Fab: Assembly Tech |  | B\&H | 0 | 15 wks | \$0.00 | \$0.00 | \$0.00 | \$30,504.00 | \$0.00 | \$0.00 | \$0.00 |
| 2664 | 1.2.3.6 | Magnets |  |  | 0 | 33 wks | \$0.00 | \$330,000.00 | \$92,456.40 | \$422,456.40 | \$69,768.72 | \$164,134.88 | \$656,359.99 |
| 2665 | 1.2.3.6.1 | Undulator Electromagnets |  |  | 0 | 33 wks | \$0.00 | \$330,000.00 | \$92,456.40 | \$422,456.40 | \$69,768.72 | \$164,134.88 | \$656,359.99 |
| 2666 | 1.2.3.6.1.1 | Correctors | ANL | M\&S | 3 | 0 wks | \$0.00 | \$330,000.00 | \$0.00 | \$330,000.00 | \$42,900.00 | \$130,515.00 | \$503,415.00 |
|  |  | ANL MES Iotal |  | M 2 S | 0 | 330,000 | \$0.00 | \$0.00 | \$0.00 | \$330,000.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 2667 | 1.2.3.6.1.2 | Procurement supervision | ANL | ED\& | 2 | 6 wks | \$0.00 | \$0.00 | \$17,834.40 | \$17,834.40 | \$5,314.65 | \$5,787.26 | \$28,936.31 |
|  |  | ANL Mechanical Engineer |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$17,834.40 | \$0.00 | \$0.00 | \$0.00 |
| 2668 | 1.2.3.6.1.3 | Installation supervision | ANL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$11,889.60 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Mechanical Engineer |  | ED\&I | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2669 | 1.2.3.6.1.4 | Magnetic measurement | ANL | ED\&1 | 2 | 17 wks | \$0.00 | \$0.00 | \$50,530.80 | \$50,530.80 | \$15,058.18 | \$16,397.24 | \$81,986.22 |
|  |  | ANL Physicist -Scientist |  | ED\&1 | 0 | 17 wks | \$0.00 | \$0.00 | \$0.00 | \$50,530.80 | \$0.00 | \$0.00 | \$0.00 |
| 2670 | 1.2.3.6.1.4 | Magnetic measurement | ANL | B\&H | 4 | 6 wks | \$0.00 | \$0.00 | \$12,201.60 | \$12,201.60 | \$2,952.79 | \$7,577.19 | \$22,731.58 |
|  |  | ANL Mech. Fab: Assembly Tech |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$12,201.60 | \$0.00 | \$0.00 | \$0.00 |
| 2671 | 1.2.3.6.2 | Quads |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2672 | 1.2.3.6.2.1 | Permanent magnet quads | ANL |  | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2673 | 1.2.3.6.3 | Corrector |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2674 | 1.2.3.6.3.1 | Correctors | ANL |  | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2675 | 1.2.3.7 | Controls |  |  | 0 | 305.7 wks | \$0.00 | \$1,483,500.00 | \$757,912.96 | \$2,241,412.96 | \$384,347.06 | \$713,374.00 | \$3,339,134.02 |
| 2676 | 1.2.3.7.1 | EPICS Hardware | ANL |  | 0 | 20 wks | \$0.00 | \$299,000.00 | \$50,060.00 | \$349,060.00 | \$52,649.06 | \$76,096.23 | \$477,805.29 |
| 2677 | 1.2.3.7.1.1 | VME Crate | ANL | M\&S | 1 | 0 wks | \$0.00 | \$80,000.00 | \$0.00 | \$80,000.00 | \$10,400.00 | \$13,560.00 | \$103,960.00 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 80,000 | \$0.00 | \$0.00 | \$0.00 | \$80,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2678 | 1.2.3.7.1.1 | VME Crate | ANL | B\&H | 1 | 2 wks | \$0.00 | \$0.00 | \$4,067.20 | \$4,067.20 | \$984.26 | \$757.72 | \$5,809.18 |
|  |  | ANL Controls: Iechnician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,067.20 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2679 | 1.2.3.7.1.1 | VME Processor | ANL | M\&S | 1 | 0 wks | \$0.00 | \$48,000.00 | \$0.00 | \$48,000.00 | \$6,240.00 | \$8,136.00 | \$62,376.00 |
|  |  | ANL M\&S Iotal |  | M\&S | 0 | 48,000 | \$0.00 | \$0.00 | \$0.00 | \$48,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2680 | 1.2.3.7.1.1 | VME Processor | ANL | B\&H | 1 | 2 wks | \$0.00 | \$0.00 | \$4,067.20 | \$4,067.20 | \$984.26 | \$757.72 | \$5,809.18 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | ANL Controls: Technician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,067.20 | \$0.00 | \$0.00 | \$0.00 |
| 2681 | 1.2.3.7.1.1 | VME Transistion $\mathrm{h} / \mathrm{w}$ | ANL | M 2 S | 1 | 0 wks | \$0.00 | \$32,000.00 | \$0.00 | \$32,000.00 | \$4,160.00 | \$5,424.00 | \$41,584.00 |
|  |  | ANL M\&S Iotal |  | M 2 S | 0 | 32,000 | \$0.00 | \$0.00 | \$0.00 | \$32,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2682 | 1.2.3.7.1.1 | VME Iransistion $\mathrm{h} / \mathrm{w}$ | ANL | B\&H | 1 | 1 wk | \$0.00 | \$0.00 | \$2,033.60 | \$2,033.60 | \$492.13 | \$378.86 | \$2,904.59 |
|  |  | ANL Controls: Technician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,033.60 | \$0.00 | \$0.00 | \$0.00 |
| 2683 | 1.2.3.7.1.1 | VME Fieldbus intic | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$90,000.00 | \$0.00 | \$90,000.00 | \$11,700.00 | \$25,425.00 | \$127,125.00 |
|  |  | ANL M\&S Total |  | M ${ }^{\text {S }}$ | 0 | 90,000 | \$0.00 | \$0.00 | \$0.00 | \$90,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2684 | 1.2.3.7.1.1 | VME Fieldbus intic | ANL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,100.80 | \$6,100.80 | \$1,476.39 | \$1,894.30 | \$9,471.49 |
|  |  | ANL Controls: Iechnician |  | BKH | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,100.80 | \$0.00 | \$0.00 | \$0.00 |
| 2685 | 1.2.3.7.1.1 | VME Timing module | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$39,000.00 | \$0.00 | \$39,000.00 | \$5,070.00 | \$11,017.50 | \$55,087.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 39,000 | \$0.00 | \$0.00 | \$0.00 | \$39,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2686 | 1.2.3.7.1.1 | VME Timing module | ANL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,067.20 | \$4,067.20 | \$984.26 | \$1,262.87 | \$6,314.33 |
|  |  | ANL Controls: Iechnician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,067.20 | \$0.00 | \$0.00 | \$0.00 |
| 2687 | 1.2.3.7.1.1 | EPICS server | ANL | M 2 S | 1 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,300.00 | \$1,695.00 | \$12,995.00 |
|  |  | ANL M\&S Total |  | M2S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2688 | 1.2.3.7.1.1 | EPICS server | ANL | ED\& | 1 | 10 wks | \$0.00 | \$0.00 | \$29,724.00 | \$29,724.00 | \$8,857.75 | \$5,787.26 | \$44,369.01 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$29,724.00 | \$0.00 | \$0.00 | \$0.00 |
| 2689 | 1.2.3.7.2 | vacuum controls |  |  | 0 | 48.5 wks | \$0.00 | \$149,000.00 | \$126,793.60 | \$275,793.60 | \$55,047.68 | \$88,014.61 | \$418,855.90 |
| 2690 | 1.2.3.7.2.2 | Ion pump controller (IPC) | ANL | M\&S | 2 | 0 wks | \$0.00 | \$19,000.00 | \$0.00 | \$19,000.00 | \$2,470.00 | \$5,367.50 | \$26,837.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 19,000 | \$0.00 | \$0.00 | \$0.00 | \$19,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2691 | 1.2.3.7.2.2 | Ion pump controller (IPC) | ANL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,067.20 | \$4,067.20 | \$984.26 | \$1,262.87 | \$6,314.33 |
|  |  | ANL Controls: Technician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,067.20 | \$0.00 | \$0.00 | \$0.00 |
| 2692 | 1.2.3.7.2.2 | Sotware - IPC | ANL | ED\&I | 2 | 4 wks | \$0.00 | \$0.00 | \$11,889.60 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Programmer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2693 | 1.2.3.7.2.2 | Vac. Gauge controller (VGC) | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$36,000.00 | \$0.00 | \$36,000.00 | \$4,680.00 | \$10,170.00 | \$50,850.00 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 36,000 | \$0.00 | \$0.00 | \$0.00 | \$36,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2694 | 1.2.3.7.2.2 | Vac. Gauge controller (VGC) | ANL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,067.20 | \$4,067.20 | \$984.26 | \$1,262.87 | \$6,314.33 |
|  |  | ANL Controls: Iechnician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,067.20 | \$0.00 | \$0.00 | \$0.00 |
| 2695 | 1.2.3.7.2.2 | Sottware - VGC | ANL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$5,944.80 | \$5,944.80 | \$1,771.55 | \$1,929.09 | \$9,645.44 |
|  |  | ANL Controls: Programmer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,944.80 | \$0.00 | \$0.00 | \$0.00 |
| 2696 | 1.2.3.7.2. 2 | Software - VGC | ANL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,067.20 | \$4,067.20 | \$984.26 | \$1,262.87 | \$6,314.33 |
|  |  | ANL Controls: Iechnician |  | BKH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,067.20 | \$0.00 | \$0.00 | \$0.00 |
| 2697 | 1.2.3.7.2.2 | Gate valve controller (VVC) | ANL | M\&S | 2 | 0 wks | \$0.00 | \$56,000.00 | \$0.00 | \$56,000.00 | \$7,280.00 | \$15,820.00 | \$79,100.00 |
|  |  | ANL M\&S Iotal |  | M 2 S | 0 | 56,000 | \$0.00 | \$0.00 | \$0.00 | \$56,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2698 | 1.2.3.7.2.2 | Gate valve controller (VVC) | ANL | B\&H | 2 | 8.5 wks | \$0.00 | \$0.00 | \$17,285.60 | \$17,285.60 | \$4,183.12 | \$5,367.18 | \$26,835.89 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units 8.5 wks | PED (Direct) $\$ 0.00$ | $\begin{aligned} & \text { M\&S (Direct) } \\ & \$ 0.00 \end{aligned}$ | Labor (Direct)$\qquad$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 17,285.60 \end{aligned}$ | Overhead Cost $\$ 0.00$ | Contingency Cost | Total Cost |
|  |  | Task Name ANL Controls: Technician |  | B\&H |  |  |  |  |  |  |  | \$0.00 |  |
| 2699 | 1.2.3.7.2.2 | Sottware - VVC |  | ED\& | 2 | 16 wks | \$0.00 | \$0.00 | \$47,558.40 | \$47,558.40 | \$14,172.40 | \$15,432.70 | \$77,163.50 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$47,558.40 | \$0.00 | \$0.00 | \$0.00 |
| 2700 | 1.2.3.7.2.2 | Turbo pump controller (IPC) | ANL | M 8 S | 3 | 0 wks | \$0.00 | \$19,000.00 | \$0.00 | \$19,000.00 | \$2,470.00 | \$7,514.50 | \$28,984.50 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 19,000 | \$0.00 | \$0.00 | \$0.00 | \$19,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2701 | 1.2.3.7.2.2 | Turbo pump controller (TPC) | ANL | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$4,067.20 | \$4,067.20 | \$984.26 | \$1,768.01 | \$6,819.47 |
|  |  | ANL Controls: Technician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,067.20 | \$0.00 | \$0.00 | \$0.00 |
| 2702 | 1.2.3.7.2.2 | Sottware - IPC | ANL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$11,889.60 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Programmer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2703 | 1.2.3.7.2.2 | Roughing pump cntr (RPC) | ANL | M 2 S | 3 | 0 wks | \$0.00 | \$19,000.00 | \$0.00 | \$19,000.00 | \$2,470.00 | \$7,514.50 | \$28,984.50 |
|  |  | ANL M\&S Total |  | M 2 S | 0 | 19,000 | \$0.00 | \$0.00 | \$0.00 | \$19,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2704 | 1.2.3.7.2.2 | Roughing pump cntr (RPC) | ANL | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$4,067.20 | \$4,067.20 | \$984.26 | \$1,768.01 | \$6,819.47 |
|  |  | ANL Controls: Iechnician |  | B\& ${ }^{\text {H }}$ | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,067.20 | \$0.00 | \$0.00 | \$0.00 |
| 2705 | 1.2.3.7.2.2 | Sotware - RPC | ANL | ED\& | ${ }^{2}$ | 4 wks | \$0.00 | \$0.00 | \$11,889.60 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2706 | 1.2.3.7.3 | Motor controls | ANL |  | 0 | 32 wks | \$0.00 | \$470,000.00 | \$80,096.00 | \$550,096.00 | \$83,146.50 | \$158,310.63 | \$791,553.13 |
| 2707 | 1.2.3.7.3.1 | Strongback motors | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$334,000.00 | \$0.00 | \$334,000.00 | \$43,420.00 | \$94,355.00 | \$471,775.00 |
|  |  | ANL M\&S Iotal |  | M\$S | 0 | 334,000 | \$0.00 | \$0.00 | \$0.00 | \$334,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2708 | 1.2.3.7.3.1 | Strongback motors | ANL | B\&H | 2 | 8 wks | \$0.00 | \$0.00 | \$16,268.80 | \$16,268.80 | \$3,937.05 | \$5,051.46 | \$25,257.31 |
|  |  | ANL Controls: Technician |  | B\&H | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$16,268.80 | \$0.00 | \$0.00 | \$0.00 |
| 2709 | 1.2.3.7.3.1 | Software - ID Motor | ANL | ED\& | 2 | 8 wks | \$0.00 | \$0.00 | \$23,779.20 | \$23,779.20 | \$7,086.20 | \$7,716.35 | \$38,581.75 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$23,779.20 | \$0.00 | \$0.00 | \$0.00 |
| 2710 | 1.2.3.7.3.1 | Quadrupole motors | ANL | M\&S | 2 | 0 wks | \$0.00 | \$136,000.00 | \$0.00 | \$136,000.00 | \$17,680.00 | \$38,420.00 | \$192,100.00 |
|  |  | ANL M\&S Iotal |  | M 2 S | 0 | 136,000 | \$0.00 | \$0.00 | \$0.00 | \$136,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2711 | 1.2.3.7.3.1 | Quadrupole motors | ANL | B\&H | 2 | 8 wks | \$0.00 | \$0.00 | \$16,268.80 | \$16,268.80 | \$3,937.05 | \$5,051.46 | \$25,257.31 |
|  |  | ANL Controls: Technician |  | BRH | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$16,268.80 | \$0.00 | \$0.00 | \$0.00 |
| 2712 | 1.2.3.7.3.1 | Software - Quad motor | ANL | ED\& | 2 | 8 wks | \$0.00 | \$0.00 | \$23,779.20 | \$23,779.20 | \$7,086.20 | \$7,716.35 | \$38,581.75 |
|  |  | ANL Controls: Programmer |  | ED\&1 | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$23,779.20 | \$0.00 | \$0.00 | \$0.00 |
| 2713 | 1.2.3.7.4 | Diagnostic controls/DAQ | ANL |  | 0 | 98 wks | \$0.00 | \$510,000.00 | \$240,600.00 | \$750,600.00 | \$131,849.19 | \$286,078.84 | \$1,168,528.04 |
| 2714 | 1.2.3.7.4.1 | RFBPM | ANL | M 2 S | 3 | 0 wks | \$0.00 | \$84,000.00 | \$0.00 | \$84,000.00 | \$10,920.00 | \$33,222.00 | \$128,142.00 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 84,000 | \$0.00 | \$0.00 | \$0.00 | \$84,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2715 | 1.2.3.7.4.1 | RFBPM | ANL | B\&H | 3 | 4 wks | \$0.00 | \$0.00 | \$8,134.40 | \$8,134.40 | \$1,968.52 | \$3,536.02 | \$13,638.95 |
|  |  | ANL Controls: Iechnician |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,134.40 | \$0.00 | \$0.00 | \$0.00 |
| 2716 | 1.2.3.7.4.1 | Sottware-RFBPM | ANL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$11,889.60 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 2717 | 1.2.3.7.4.1 | Cerenkov detector | ANL | M\&S | 2 | 0 wks | \$0.00 | \$68,000.00 | \$0.00 | \$68,000.00 | \$8,840.00 | \$19,210.00 | \$96,050.00 |
|  |  | ANL M\&S Total |  | M2S | 0 | 68,000 | \$0.00 | \$0.00 | \$0.00 | \$68,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2718 | 1.2.3.7.4.1 | Cerenkov detector | ANL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,134.40 | \$8,134.40 | \$1,968.52 | \$2,525.73 | \$12,628.66 |
|  |  | ANL Controls: Iechnician |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,134.40 | \$0.00 | \$0.00 | \$0.00 |
| 2719 | 1.2.3.7.4.1 | Sottware - cerenkov | ANL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$11,889.60 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2720 | 1.2.3.7.4.1 | Optical station | ANL | M 2 S | 3 | 0 wks | \$0.00 | \$120,000.00 | \$0.00 | \$120,000.00 | \$15,600.00 | \$47,460.00 | \$183,060.00 |
|  |  | ANL M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 120,000 | \$0.00 | \$0.00 | \$0.00 | \$120,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2721 | 1.2.3.7.4.1 | Optical station | ANL | B\&H | 3 | 16 wks | \$0.00 | \$0.00 | \$32,537.60 | \$32,537.60 | \$7,874.10 | \$14,144.09 | \$54,555.79 |
|  |  | ANL Controls: Technician |  | B\&H | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$32,537.60 | \$0.00 | \$0.00 | \$0.00 |
| 2722 | 1.2.3.7.4.1 | Software - Optical station | ANL | ED\& | 3 | 4 wks | \$0.00 | \$0.00 | \$11,889.60 | \$11,889.60 | \$3,543.10 | \$5,401.45 | \$20,834.15 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2723 | 1.2.3.7.4.1 | $x$-Ray diagnostics | ANL | M 2 S | 3 | 0 wks | \$0.00 | \$144,000.00 | \$0.00 | \$144,000.00 | \$18,720.00 | \$56,952.00 | \$219,672.00 |
|  |  | ANL MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 144,000 | \$0.00 | \$0.00 | \$0.00 | \$144,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2724 | 1.2.3.7.4.1 | $X$-Ray diagnostics | ANL | B\&H | 3 | 16 wks | \$0.00 | \$0.00 | \$32,537.60 | \$32,537.60 | \$7,874.10 | \$14,144.09 | \$54,555.79 |
|  |  | ANL Controls: Technician |  | B\&H | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$32,537.60 | \$0.00 | \$0.00 | \$0.00 |
| 2725 | 1.2.3.7.4.1 | Software - Xray station | ANL | ED\& | 3 | 4 wks | \$0.00 | \$0.00 | \$11,889.60 | \$11,889.60 | \$3,543.10 | \$5,401.45 | \$20,834.15 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2726 | 1.2.3.7.4.1 | PC Hardware - image anlys. | ANL | M\&S | 3 | 0 wks | \$0.00 | \$60,000.00 | \$0.00 | \$60,000.00 | \$7,800.00 | \$23,730.00 | \$91,530.00 |
|  |  | ANL M\&S Total |  | M 2 S | 0 | 60,000 | \$0.00 | \$0.00 | \$0.00 | \$60,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2727 | 1.2.3.7.4.1 | PC Hardware - image anlys. | ANL | B\&H | 3 | 4 wks | \$0.00 | \$0.00 | \$8,134.40 | \$8,134.40 | \$1,968.52 | \$3,536.02 | \$13,638.95 |
|  |  | ANL Controls: Technician |  | BRH | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,134.40 | \$0.00 | \$0.00 | \$0.00 |
| 2728 | 1.2.3.7.4.1 | Sottware - Image anlys | ANL | ED\& | 3 | 16 wks | \$0.00 | \$0.00 | \$47,558.40 | \$47,558.40 | \$14,172.40 | \$21,605.78 | \$83,336.58 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$47,558.40 | \$0.00 | \$0.00 | \$0.00 |
| 2729 | 1.2.3.7.4.1 | Diagnostic laser | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,040.00 | \$2,260.00 | \$11,300.00 |
|  |  | ANL M\&S Total |  | M 2 S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2730 | 1.2.3.7.4.1 | Diagnostic laser | ANL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,067.20 | \$4,067.20 | \$984.26 | \$1,262.87 | \$6,314.33 |
|  |  | ANL Controls: Iechnician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,067.20 | \$0.00 | \$0.00 | \$0.00 |
| 2731 | 1.2.3.7.4.1 | Sottware - Diag laser | ANL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$11,889.60 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Programmer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2732 | 1.2.3.7.4.1 | Wire scanner | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$2,600.00 | \$5,650.00 | \$28,250.00 |
|  |  | ANL M\&S Iotal |  | M 4 S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2733 | 1.2.3.7.4.1 | Wire scanner | ANL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,134.40 | \$8,134.40 | \$1,968.52 | \$2,525.73 | \$12,628.66 |
|  |  | ANL Controls: Iechnician |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,134.40 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2734 | 1.2.3.7.4.1 | Sottware - Wire scanner | ANL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$11,889.60 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | Task Name | obs | PHASE | $\begin{array}{\|c} \text { Risk } \\ \hline 0 \end{array}$ | Units <br> 4 wks | $\frac{\text { PED (Direct) }}{\$ 0.00}$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct) <br> $\$ 0.00$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 11,889.60 \end{aligned}$ | Overhead Cost <br> $\$ 0.00$ | Contingency Cost | Total Cost |
|  |  | ANL Controls: Programmer |  |  |  |  |  |  |  |  |  | \$0.00 | \$0.00 |
| 2735 | 1.2.3.7.4.1 | Pulse current monitor |  | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$780.00 | \$1,695.00 | \$8,475.00 |
|  |  | ANL MKS Iotal |  | M 4 S | 0 | 6,000 | $\$ 0.00$ | \$0.00 | $\$ 0.00$ | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2736 | 1.2.3.7.4.1 | Pulse current monitor | ANL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,134.40 | \$8,134.40 | \$1,968.52 | \$2,525.73 | \$12,628.66 |
|  |  | ANL Controls: Technician |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,134.40 | \$0.00 | \$0.00 | \$0.00 |
| 2737 | 1.2.3.7.4.1 | Software - PCM | ANL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$11,889.60 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2738 | 1.2.3.7.5 | Power Supply Controls | ANL |  | 0 | 24 wks | \$0.00 | \$36,500.00 | \$56,316.80 | \$92,816.80 | \$19,705.30 | \$28,130.53 | \$140,652.63 |
| 2739 | 1.2.3.7.5.1 | Steering coill ( H ) | ANL | M\&S | 2 | 0 wks | \$0.00 | \$18,000.00 | \$0.00 | \$18,000.00 | \$2,340.00 | \$5,085.00 | \$25,425.00 |
|  |  | ANL M\&S Total |  | M 2 S | 0 | 18,000 | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2740 | 1.2.3.7.5.1 | Steering coil ( H ) | ANL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,067.20 | \$4,067.20 | \$984.26 | \$1,262.87 | \$6,314.33 |
|  |  | ANL Controls: Technician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,067.20 | \$0.00 | \$0.00 | \$0.00 |
| 2741 | 1.2.3.7.5.1 | Sottware - PS (H) | ANL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$11,889.60 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2742 | 1.2.3.7.5.1 | Steering coil (V) | ANL | M\&S | 2 | 0 wks | \$0.00 | \$18,000.00 | \$0.00 | \$18,000.00 | \$2,340.00 | \$5,085.00 | \$25,425.00 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 18,000 | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2743 | 1.2.3.7.5.1 | Steering coil (V) | ANL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,067.20 | \$4,067.20 | \$984.26 | \$1,262.87 | \$6,314.33 |
|  |  | ANL Controls: Iechnician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,067.20 | $\$ 0.00$ | \$0.00 | $\$ 0.00$ |
| 2744 | 1.2.3.7.5.1 | Sottware - PS (V) | ANL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,134.40 | \$8,134.40 | \$1,968.52 | \$2,525.73 | \$12,628.66 |
|  |  | ANL Controls: Technician |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,134.40 | \$0.00 | \$0.00 | \$0.00 |
| 2745 | 1.2.3.7.5.1 | Phase correctors | ANL | M 2 S | 2 | 0 wks | \$0.00 | \$500.00 | \$0.00 | \$500.00 | \$65.00 | \$141.25 | \$706.25 |
|  |  | ANL M\&S Total |  | M\&S | 0 | 500 | \$0.00 | \$0.00 | \$0.00 | \$500.00 | \$0.00 | \$0.00 | \$0.00 |
| 2746 | 1.2.3.7.5.1 | Phase correctors | ANL | B\&H | 2 | 8 wks | \$0.00 | \$0.00 | \$16,268.80 | \$16,268.80 | \$3,937.05 | \$5,051.46 | \$25,257.31 |
|  |  | ANL Controls: Iechnician |  | B\&H | 0 | $8 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$16,268.80 | \$0.00 | \$0.00 | \$0.00 |
| 2747 | 1.2.3.7.5.1 | Software - Phase corrector | ANL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$11,889.60 | \$11,889.60 | \$3,543.10 | \$3,858.18 | \$19,290.88 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$11,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2748 | 1.2.3.7.6 | Computers and Crates (3) |  |  | 0 | 65.2 wks | \$0.00 | \$1,000.00 | \$158,957.76 | \$159,957.76 | \$31,851.55 | \$55,266.53 | \$247,075.84 |
| 2749 | 1.2.3.7.6.1 | Sottware support tor integrating ANL Control Systems | SLAC | ED\& | 3 | 25 wks | \$0.00 | \$0.00 | \$63,160.00 | \$63,160.00 | \$12,632.00 | \$26,527.20 | \$102,319.20 |
|  |  | SLAC Controls: Programmer |  | ED\& | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$63,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 2750 | 1.2.3.7.6.2 | CAMAC Crates (Refurb), Control \& Support Modules | SLAC | ED\& | 2 | 8 wks | \$0.00 | \$0.00 | \$16,000.00 | \$16,000.00 | \$3,200.00 | \$4,800.00 | \$24,000.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$16,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2751 | 1.2.3.7.6.3 | VME Crates, IOC's \& Intertace Chassis (0) | SLAC | ED\& | 2 | 30 wks | \$0.00 | \$0.00 | \$75,792.00 | \$75,792.00 | \$15,158.40 | \$22,737.60 | \$113,688.00 |
|  |  | SLAC Controls: Programmer |  | ED\&1 | 0 | 30 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$75,792.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 2752 | 1.2.3.7.6.4 | Install VME Crates, IOC's \& Intertace Chassis | SLAC | B\&H | 2 | 1.6 wks | \$0.00 | \$0.00 | \$2,805.76 | \$2,805.76 | \$561.15 | \$841.73 | \$4,208.64 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 1.6 wks | \$0.00 | \$0.00 | \$0.00 | \$2,805.76 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{array}{\|c\|c\|} \hline \text { ID } \\ \hline 2753 \end{array}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.2.3.7.6.5 | Cableplant | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$0.00 | \$1,060.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2754 | 1.2.3.7.6.6 | Install Cableplant | SLAC | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,200.00 | \$1,200.00 | \$240.00 | \$360.00 | \$1,800.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,200.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 2755 | 1.2.3.7.7 | TIMING DISTRIBUTION SYSTEM-Undulator |  |  | 0 | 18 wks | \$0.00 | \$18,000.00 | \$45,088.80 | \$63,088.80 | \$10,097.76 | \$21,476.64 | \$94,663.20 |
| 2756 | 1.2.3.7.7.1 | Distributed Timing Hardware | SLAC | M 2 S | 4 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$720.00 | \$6,360.00 | \$19,080.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2757 | 1.2.3.7.7.2 | Install liming System Hardware | SLAC | B\&H | 2 | 0.5 wks | \$0.00 | \$0.00 | \$876.80 | \$876.80 | \$175.36 | \$263.04 | \$1,315.20 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$876.80 | \$0.00 | \$0.00 | \$0.00 |
| 2758 | 1.2.3.7.7.3 | Timing System Heliax Cableplant | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC MRS Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2759 | 1.2.3.7.7.4 | Timing Software support of ANL Systems | SLAC | ED\& | 2 | 17.5 wks | \$0.00 | \$0.00 | \$44,212.00 | \$44,212.00 | \$8,842.40 | \$13,263.60 | \$66,318.00 |
|  |  | SLAC Controls: Programmer |  | ED\& | 0 | 17.5 wks | \$0.00 | \$0.00 | \$0.00 | \$44,212.00 | \$0.00 | \$0.00 | \$0.00 |
| 2760 | 1.2.3.8 | PPS |  |  | 0 | 32.75 wks | \$0.00 | \$0.00 | \$84,191.68 | \$84,191.68 | \$16,838.34 | \$36,109.98 | \$137,139.99 |
| 2761 | 1.2.3.8.1 | PPS | SLAC |  | 0 | 21.75 wks | \$0.00 | \$0.00 | \$55,561.28 | \$55,561.28 | \$11,112.26 | \$21,331.74 | \$88,005.27 |
| 2762 | 1.2.3.8.1.1 | PPS Hardware Engineer | SLAC | ED\& | 3 | 11.9 wks | \$0.00 | \$0.00 | \$35,071.68 | \$35,071.68 | \$7,014.34 | \$14,730.11 | \$56,816.12 |
|  |  | SLAC Controls: Engineer |  | ED\& | 0 | 11.9 wks | \$0.00 | \$0.00 | \$0.00 | \$35,071.68 | \$0.00 | \$0.00 | \$0.00 |
| 2763 | 1.2.3.8.1.1 | PPS Coordination \& Documentation | SLAC | ED\& | 2 | 8.35 wks | \$0.00 | \$0.00 | \$16,700.00 | \$16,700.00 | \$3,340.00 | \$5,010.00 | \$25,050.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | EDQ1 | 0 | 8.35 wks | \$0.00 | \$0.00 | \$0.00 | \$16,700.00 | \$0.00 | \$0.00 | \$0.00 |
| 2764 | 1.2.3.8.1.1 | PPS Software Development | SLAC | ED\& | 3 | 1.5 wks | \$0.00 | \$0.00 | \$3,789.60 | \$3,789.60 | \$757.92 | \$1,591.63 | \$6,139.15 |
|  |  | SLAC Controls: Programmer |  | ED\& | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$3,789.60 | \$0.00 | \$0.00 | \$0.00 |
| 2765 | 1.2.3.8.2 | BCS | SLAC |  | 0 | 5.5 wks | \$0.00 | \$0.00 | \$14,315.20 | \$14,315.20 | \$2,863.04 | \$7,389.12 | \$24,567.36 |
| 2766 | 1.2.3.8.2.1 | BCS Hardware Engineer | SLAC | ED\&I | 4 | 3.5 wks | \$0.00 | \$0.00 | \$10,315.20 | \$10,315.20 | \$2,063.04 | \$6,189.12 | \$18,567.36 |
|  |  | SLAC Controls: Engineer |  | EDQ1 | 0 | 3.5 wks | \$0.00 | \$0.00 | \$0.00 | \$10,315.20 | \$0.00 | \$0.00 | \$0.00 |
| 2767 | 1.2.3.8.2.1 | BCS Coordination \& Documentation | SLAC | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$4,000.00 | \$4,000.00 | \$800.00 | \$1,200.00 | \$6,000.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2768 | 1.2.3.8.3 | MPS | SLAC |  | 0 | 5.5 wks | \$0.00 | \$0.00 | \$14,315.20 | \$14,315.20 | \$2,863.04 | \$7,389.12 | \$24,567.36 |
| 2769 | 1.2.3.8.3.1 | MPS Hardware Engineer | SLAC | ED\& | 4 | 3.5 wks | \$0.00 | \$0.00 | \$10,315.20 | \$10,315.20 | \$2,063.04 | \$6,189.12 | \$18,567.36 |
|  |  | SLAC Controls: Engineer |  | ED\& | 0 | 3.5 wks | \$0.00 | \$0.00 | \$0.00 | \$10,315.20 | \$0.00 | \$0.00 | \$0.00 |
| 2770 | 1.2.3.8.3.1 | MPS Coordination \& Documentation | SLAC | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$4,000.00 | \$4,000.00 | \$800.00 | \$1,200.00 | \$6,000.00 |
|  |  | SLAC Controls: Coordinator Assoc. |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2771 | 1.2.3.9 | Undulator Measurement System |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2772 | 1.2.3.9.1 | Und. Meas. System | ANL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2773 | 1.2.3.9.1.1 | Granite bench | ANL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2774 | 1.2.3.9.1.1 | Slide assembly | ANL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 2775 | 1.2.3.9.1.1 | Trolley assembly | ANL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2776 | 1.2.3.9.1.1 | Rotary coil assembly | ANL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2777 | 1.2.3.9.1.1 | Hall probes | ANL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2778 | 1.2.3.9.1.1 | Integrator | ANL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2779 | 1.2.3.9.1.1 | Motion controls | ANL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2780 | 1.2.3.9.1.1 | Equipment rack | ANL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2781 | 1.2.3.9.1.1 | Moving coils | ANL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2782 | 1.2.3.9.1.1 | Pulsed wire system | ANL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2783 | 1.2.3.9.1.1 | Air system | ANL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2784 | 1.2.3.9.1.1 | Computer | ANL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2785 | 1.2.3.9.1.1 | Cabling | ANL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2786 | 1.2.3.9.1.1 | Assembly | ANL | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | ANL Physicist -Scientist |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2787 | 1.2.3.9.1.1 | Assembly | ANL | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | ANL Electrical Engineer |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2788 | 1.2.3.9.1.1 | Assembly | ANL | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | ANL Mechanical Engineer |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2789 | 1.2.3.9.1.1 | Assembly | ANL | B\&H | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | ANL Mech. Fab: Assembly lech |  | B\&H | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2790 | 1.2.3.9.1.1 | Assembly | ANL | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | ANL Controls: Programmer |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2791 | 1.2.3.9.1.1 | Crating \& shipping | ANL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2792 | 1.2.3.9.1.1 | Install. supervision | ANL | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | ANL Mechanical Engineer |  | ED\&1 | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2793 | 1.2.3.9.1.1 | Install. supervision | ANL | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | ANL Electrical Engineer |  | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2794 | 1.2.3.9.1.1 | Install. supervision | ANL | ED\& | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | ANL Physicist-Scientist |  | ED\&I | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2795 | 1.2.4 | Installation \& Allignment |  |  | 0 | 1,808.74 wks | \$0.00 | \$1,386,000.00 | \$4,031,866.24 | \$5,417,866.24 | \$889,533.25 | \$1,947,083.57 | \$8,254,483.06 |
| 2796 | 1.2.4.1 | Injector Installation |  |  | 0 | 160.3 wks | \$0.00 | \$0.00 | \$363,279.60 | \$363,279.60 | \$72,655.92 | \$143,172.89 | \$579,108.41 |
| 2797 | 1.2.4.1.1 | Reserved |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2798 | 1.2.4.1.2 | Gun \& Load Lock Installation |  |  | 0 | 6 wks | \$0.00 | \$0.00 | \$11,992.80 | \$11,992.80 | \$2,398.56 | \$3,597.84 | \$17,989.20 |
| 2799 | 1.2.4.1.2.1 | Gun | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,199.28 | \$5,996.40 |
|  |  | SLAC Mech. rab: Assembly lech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 2800 | 1.2.4.1.2.1 | Loadlock | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,199.28 | \$5,996.40 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | $\begin{array}{\|c} \hline \text { Risk } \\ \hline 0 \end{array}$ | Units 2 wks | PED (Direct) $\$ 0.00$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | $\begin{aligned} & \text { Labor (Direct) } \\ & \$ 0.00 \end{aligned}$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 3,997.60 \end{aligned}$ | $\begin{array}{r} \text { Overhead Cost } \\ \hline \$ 0.00 \end{array}$ | Contingency Cost $\$ 0.00$ | Total Cost |
|  |  | SLAC Mech. Fab: Assembly Tech |  |  |  |  |  |  |  |  |  |  |  |
| 2801 | 1.2.4.1.2.1 | Diagnostics | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,199.28 | \$5,996.40 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 2802 | 1.2.4.1.3 | Lo Installation |  |  | 0 | 4 wks | \$0.00 | \$0.00 | \$7,995.20 | \$7,995.20 | \$1,599.04 | \$2,398.56 | \$11,992.80 |
| 2803 | 1.2.4.1.3.1 | RF structures | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,199.28 | \$5,996.40 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 2804 | 1.2.4.1.3.1 | Diagnostics | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,199.28 | \$5,996.40 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 2805 | 1.2.4.1.4 | MS Installation |  |  | 0 | 3 wks | \$0.00 | \$0.00 | \$5,996.40 | \$5,996.40 | \$1,199.28 | \$1,798.92 | \$8,994.60 |
| 2806 | 1.2.4.1.4.1 | RF structures | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$599.64 | \$2,998.20 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 2807 | 1.2.4.1.4.1 | Diagnostics | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,199.28 | \$5,996.40 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 2808 | 1.2.4.1.5 | Straightanead Installation |  |  | 0 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$599.64 | \$2,998.20 |
| 2809 | 1.2.4.1.5.1 | Diagnostics | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$599.64 | \$2,998.20 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 2810 | 1.2.4.1.6 | Reserved | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2811 | 1.2.4.1.7 | Reserved | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2812 | 1.2.4.1.8 | Reserved | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2813 | 1.2.4.1.9 | Protection System Installation |  |  | 0 | 146.3 wks | \$0.00 | \$0.00 | \$335,296.40 | \$335,296.40 | \$67,059.28 | \$134,777.93 | \$537,133.61 |
| 2814 | 1.2.4.1.10 | INJECTOR CONTROLS INSTALLATION |  |  | 0 | 19.8 wks | \$0.00 | \$0.00 | \$53,856.00 | \$53,856.00 | \$10,771.20 | \$16,572.96 | \$81,200.16 |
| 2815 | 1.2.4.1.10.1 | Computers and Crates (6) | SLAC |  | 0 | 2.6 wks | \$0.00 | \$0.00 | \$7,072.00 | \$7,072.00 | \$1,414.40 | \$2,121.60 | \$10,608.00 |
| 2816 | 1.2.4.1.10.1 | Install Cableplant | SLAC | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,632.00 | \$1,632.00 | \$326.40 | \$489.60 | \$2,448.00 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,632.00 | \$0.00 | \$0.00 | \$0.00 |
| 2817 | 1.2.4.1.10.1 | Install Multibus Cableplant | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,720.00 | \$2,720.00 | \$544.00 | \$816.00 | \$4,080.00 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | BRH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 2818 | 1.2.4.1.10.1 | Install CAMAC System Cableplant | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,720.00 | \$2,720.00 | \$544.00 | \$816.00 | \$4,080.00 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 2819 | 1.2.4.1.10.2 | TIIING DISTRIBUTION SYSTEM-CAMAC | SLAC |  | 0 | 3 wks | \$0.00 | \$0.00 | \$8,160.00 | \$8,160.00 | \$1,632.00 | \$2,448.00 | \$12,240.00 |
| 2820 | 1.2.4.1.10.2 | Install Timing System Heliax Cableplant | SLAC | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$8,160.00 | \$8,160.00 | \$1,632.00 | \$2,448.00 | \$12,240.00 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | BRH | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$8,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 2821 | 1.2.4.1.10.3 | LCLS VACUUM SYSTEM (11) | SLAC |  | 0 | 0.6 wks | \$0.00 | \$0.00 | \$1,632.00 | \$1,632.00 | \$326.40 | \$685.44 | \$2,643.84 |
| 2822 | 1.2.4.1.10.3 | Valve Control Cable (250) | SLAC | B\&H | 3 | 0.2 wks | \$0.00 | \$0.00 | \$544.00 | \$544.00 | \$108.80 | \$228.48 | \$881.28 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\& ${ }^{\text {H }}$ | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$544.00 | \$0.00 | \$0.00 | \$0.00 |
| 2823 | 1.2.4.1.10.3 | Vacuum Guage Cable (coax) (250') | SLAC | B\&H | 3 | 0.2 wks | \$0.00 | \$0.00 | \$544.00 | \$544.00 | \$108.80 | \$228.48 | \$881.28 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC T\&M Crafts - Union Electrician |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$544.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2824 | 1.2.4.1.10.3 | Valve Controller J-Box Cable (20) | SLAC | B\&H | 3 | 0.2 wks | \$0.00 | \$0.00 | \$544.00 | \$544.00 | \$108.80 | \$228.48 | \$881.28 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$544.00 | \$0.00 | \$0.00 | \$0.00 |
| 2825 | 1.2.4.1.10.4 | TUNE-UP DUMPS (1) | SLAC |  | 0 | 0.2 wks | \$0.00 | \$0.00 | \$544.00 | \$544.00 | \$108.80 | \$97.92 | \$750.72 |
| 2826 | 1.2.4.1.10.4 | Install Tune Dump Cableplant | SLAC | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$544.00 | \$544.00 | \$108.80 | \$97.92 | \$750.72 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$544.00 | \$0.00 | \$0.00 | \$0.00 |
| 2827 | 1.2.4.1.10.5 | WIRE SCANNERS (4) | SLAC |  | 0 | 5.4 wks | \$0.00 | \$0.00 | \$14,688.00 | \$14,688.00 | \$2,937.60 | \$2,643.84 | \$20,269.44 |
| 2828 | 1.2.4.1.10.5 | RG58 to PMI 250' | SLAC | B\&H | 1 | 2.4 wks | \$0.00 | \$0.00 | \$6,528.00 | \$6,528.00 | \$1,305.60 | \$1,175.04 | \$9,008.64 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 2.4 wks | \$0.00 | \$0.00 | \$0.00 | \$6,528.00 | \$0.00 | \$0.00 | \$0.00 |
| 2829 | 1.2.4.1.10.5 | MULTI-COND (4PR) DATRONIC TO LVDT 250' | SLAC | B\&H | 1 | 3 wks | \$0.00 | \$0.00 | \$8,160.00 | \$8,160.00 | \$1,632.00 | \$1,468.80 | \$11,260.80 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$8,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 2830 | 1.2.4.1.10.6 | BEAM POSITION MONITORS (13) | SLAC |  | 0 | 1.43 wks | \$0.00 | \$0.00 | \$3,889.60 | \$3,889.60 | \$777.92 | \$2,333.76 | \$7,001.28 |
| 2831 | 1.2.4.1.10.6.6 | RG223 (4 ea BPM, timed and matched, 200) | SLAC | B\&H | 4 | 1.43 wks | \$0.00 | \$0.00 | \$3,889.60 | \$3,889.60 | \$777.92 | \$2,333.76 | \$7,001.28 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 1.43 wks | \$0.00 | \$0.00 | \$0.00 | \$3,889.60 | \$0.00 | \$0.00 | \$0.00 |
| 2832 | 1.2.4.1.10.7 | TOROIDS (6) | SLAC |  | 0 | 0.48 wks | \$0.00 | \$0.00 | \$1,305.60 | \$1,305.60 | \$261.12 | \$235.01 | \$1,801.73 |
| 2833 | 1.2.4.1.10.7 | RG22, TCM to TCM PreAmp (2) | SLAC | B\&H | 1 | 0.16 wks | \$0.00 | \$0.00 | \$435.20 | \$435.20 | \$87.04 | \$78.34 | \$600.58 |
|  |  | SLAC T\&M Crafts - Union Electrician |  | B\&H | 0 | 0.16 wks | \$0.00 | \$0.00 | \$0.00 | \$435.20 | \$0.00 | \$0.00 | \$0.00 |
| 2834 | 1.2.4.1.10.7 | 2/c power, ICM to ICM PreAmp (1 each toroid) | SLAC | B\&H | 1 | 0.16 wks | \$0.00 | \$0.00 | \$435.20 | \$435.20 | \$87.04 | \$78.34 | \$600.58 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 0.16 wks | \$0.00 | \$0.00 | \$0.00 | \$435.20 | \$0.00 | \$0.00 | \$0.00 |
| 2835 | 1.2.4.1.10.7 | RG58, TCM to TCM PreAmp (1 each toroid) | SLAC | B\&H | 1 | 0.16 wks | \$0.00 | \$0.00 | \$435.20 | \$435.20 | \$87.04 | \$78.34 | \$600.58 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 0.16 wks | \$0.00 | \$0.00 | \$0.00 | \$435.20 | \$0.00 | \$0.00 | \$0.00 |
| 2836 | 1.2.4.1.10.8 | PROFILE MONITORS (7) / COLLIMATOR (1) | SLAC |  | 0 | 2.18 wks | \$0.00 | \$0.00 | \$5,929.60 | \$5,929.60 | \$1,185.92 | \$1,237.06 | \$8,352.58 |
| 2837 | 1.2.4.1.10.8 | RG59, coax-video (7) | SLAC | B\&H | 1 | 0.64 wks | \$0.00 | \$0.00 | \$1,740.80 | \$1,740.80 | \$348.16 | \$313.34 | \$2,402.30 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 0.64 wks | \$0.00 | \$0.00 | \$0.00 | \$1,740.80 | \$0.00 | \$0.00 | \$0.00 |
| 2838 | 1.2.4.1.10.8 | Multi-conductor (21C/16GA-CONT\&STAT) (7) | SLAC | B\&H | 1 | 0.64 wks | \$0.00 | \$0.00 | \$1,740.80 | \$1,740.80 | \$348.16 | \$313.34 | \$2,402.30 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 0.64 wks | \$0.00 | \$0.00 | \$0.00 | \$1,740.80 | \$0.00 | \$0.00 | \$0.00 |
| 2839 | 1.2.4.1.10.8 | Multi-conductor (3C/16GA-AC POWER) (7) | SLAC | B\&H | 1 | 0.64 wks | \$0.00 | \$0.00 | \$1,740.80 | \$1,740.80 | \$348.16 | \$313.34 | \$2,402.30 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 0.64 wks | \$0.00 | \$0.00 | \$0.00 | \$1,740.80 | \$0.00 | \$0.00 | \$0.00 |
| 2840 | 1.2.4.1.10.8.1 | Collimator (1) | SLAC |  | 0 | 0.26 wks | \$0.00 | \$0.00 | \$707.20 | \$707.20 | \$141.44 | \$297.02 | \$1,145.66 |
| 2841 | 1.2.4.1.10.8.1 | LVDT UNIT (2) | SLAC | $\mathrm{B} \& \mathrm{H}$ | 3 | 0.02 wks | \$0.00 | \$0.00 | \$54.40 | \$54.40 | \$10.88 | \$22.85 | \$88.13 |
|  |  | SLAC T\&M Crafts - Union <br> Electrician |  | B\&H | 0 | 0.02 wks | \$0.00 | \$0.00 | \$0.00 | \$54.40 | \$0.00 | \$0.00 | \$0.00 |
| 2842 | 1.2.4.1.10.8.1 | MULII-COND (4PR) DAIRONIC IO LVDI | SLAC | B\&H | 3 | 0.24 wks | \$0.00 | \$0.00 | \$652.80 | \$652.80 | \$130.56 | \$274.18 | \$1,057.54 |
|  |  | SLAC I\&M Cratts - Union <br> Electrician |  | B\&H | 0 | 0.24 wks | \$0.00 | \$0.00 | \$0.00 | \$652.80 | \$0.00 | \$0.00 | \$0.00 |
| 2843 | 1.2.4.1.10.9 | E-O Diagnostic | SLAC |  | 0 | 0.2 wks | \$0.00 | \$0.00 | \$544.00 | \$544.00 | \$108.80 | \$97.92 | \$750.72 |
| 2844 | 1.2.4.1.10.9 | Multi-Cond. cable (4PR) | SLAC | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$544.00 | \$544.00 | \$108.80 | \$97.92 | \$750.72 |



| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{2866}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.2.4.2.2.1 | L1 Installation (MFPAS) | SLAC | B\&H | 2 | 8.48 wks | \$0.00 | \$0.00 | \$16,949.82 | \$16,949.82 | \$3,389.96 | \$5,084.95 | \$25,424.74 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 8.48 wks | \$0.00 | \$0.00 | \$0.00 | \$16,949.82 | \$0.00 | \$0.00 | \$0.00 |
| 2867 | 1.2.4.2.2.1 | L1 Instalation (IMEO) | SLAC | B\&H | 2 | 0.5 wks | \$0.00 | \$0.00 | \$1,180.00 | \$1,180.00 | \$236.00 | \$354.00 | \$1,770.00 |
|  |  | SLAC I\&M Cratts - Union Equip. Op. |  | B\&H | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,180.00 | \$0.00 | \$0.00 | \$0.00 |
| 2868 | 1.2.4.2.2.1 | L1 Installation (TMIW) | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,160.00 | \$2,160.00 | \$432.00 | \$648.00 | \$3,240.00 |
|  |  | SLAC T\&M Cratts - Union Ironwork. |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 2869 | 1.2.4.2.2.1 | $L 1$ Installation (MEVE) | SLAC | ED\& | 2 | 1.5 wks | \$0.00 | \$0.00 | \$5,040.00 | \$5,040.00 | \$1,008.00 | \$1,512.00 | \$7,560.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 2870 | 1.2.4.2.3 | BC1 Instalation |  |  | 0 | 32.68 wks | \$0.00 | \$0.00 | \$72,133.98 | \$72,133.98 | \$14,426.80 | \$30,296.27 | \$116,857.05 |
| 2871 | 1.2.4.2.3.1 | BC1 Installation (MFPAS) | SLAC | B\&H | 3 | 21.68 wks | \$0.00 | \$0.00 | \$43,333.98 | \$43,333.98 | \$8,666.80 | \$18,200.27 | \$70,201.05 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 21.68 wks | \$0.00 | \$0.00 | \$0.00 | \$43,333.98 | \$0.00 | \$0.00 | \$0.00 |
| 2872 | 1.2.4.2.3.1 | BC1 Installation (TMEO) | SLAC | B\&H | 3 | 2.4 wks | \$0.00 | \$0.00 | \$5,664.00 | \$5,664.00 | \$1,132.80 | \$2,378.88 | \$9,175.68 |
|  |  | SLAC I\&M Cratts - Union Equip. Op. |  | B\&H | 0 | 2.4 wks | \$0.00 | \$0.00 | \$0.00 | \$5,664.00 | \$0.00 | \$0.00 | \$0.00 |
| 2873 | 1.2.4.2.3.1 | BC1 Installation (IMIW) | SLAC | B\&H | 3 | 4.8 wks | \$0.00 | \$0.00 | \$10,368.00 | \$10,368.00 | \$2,073.60 | \$4,354.56 | \$16,796.16 |
|  |  | SLAC T\&M Cratts - Union Ironwork. |  | B\&H | 0 | 4.8 wks | \$0.00 | \$0.00 | \$0.00 | \$10,368.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2874 | 1.2.4.2.3.1 | BC1 Installation (MEVE) | SLAC | ED\& | 3 | 3.8 wks | \$0.00 | \$0.00 | \$12,768.00 | \$12,768.00 | \$2,553.60 | \$5,362.56 | \$20,684.16 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 3.8 wks | \$0.00 | \$0.00 | \$0.00 | \$12,768.00 | \$0.00 | \$0.00 | \$0.00 |
| 2875 | 1.2.4.2.4 | L2 Installation |  |  | 0 | 11.13 wks | \$0.00 | \$0.00 | \$24,459.34 | \$24,459.34 | \$4,891.87 | \$7,337.80 | \$36,689.02 |
| 2876 | 1.2.4.2.4.1 | L2 Instalation (MFPAS) | SLAC | B\&H | 2 | 8.88 wks | \$0.00 | \$0.00 | \$17,749.34 | \$17,749.34 | \$3,549.87 | \$5,324.80 | \$26,624.02 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 8.88 wks | \$0.00 | \$0.00 | \$0.00 | \$17,749.34 | \$0.00 | \$0.00 | \$0.00 |
| 2877 | 1.2.4.2.4.1 | L2 Installation (TMEO) | SLAC | B\&H | 2 | 0.25 wks | \$0.00 | \$0.00 | \$590.00 | \$590.00 | \$118.00 | \$177.00 | \$885.00 |
|  |  | SLAC T\&M Cratts - Union Equip. Op. |  | B\&H | 0 | 0.25 wks | \$0.00 | \$0.00 | \$0.00 | \$590.00 | \$0.00 | \$0.00 | \$0.00 |
| 2878 | 1.2.4.2.4.1 | L2 Installation (IMIW) | SLAC | B\&H | 2 | 0.5 wks | \$0.00 | \$0.00 | \$1,080.00 | \$1,080.00 | \$216.00 | \$324.00 | \$1,620.00 |
|  |  | SLAC I\&M Cratts - Union Ironwork. |  | B\&H | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,080.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2879 | 1.2.4.2.4.1 | L2 Installation (MEVE) | SLAC | ED\& | 2 | 1.5 wks | \$0.00 | \$0.00 | \$5,040.00 | \$5,040.00 | \$1,008.00 | \$1,512.00 | \$7,560.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 2880 | 1.2.4.2.5 | BC2 Installation |  |  | 0 | 36.28 wks | \$0.00 | \$0.00 | \$80,826.38 | \$80,826.38 | \$16,165.28 | \$33,947.08 | \$130,938.74 |
| 2881 | 1.2.4.2.5.1 | BC2 Installation (MFPAS) | SLAC | B\&H | 3 | 24.68 wks | \$0.00 | \$0.00 | \$49,330.38 | \$49,330.38 | \$9,866.08 | \$20,718.76 | \$79,915.22 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 24.68 wks | \$0.00 | \$0.00 | \$0.00 | \$49,330.38 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2882 | 1.2.4.2.5.1 | BC2 Installation (TMEO) | SLAC | B\&H | 3 | 2.2 wks | \$0.00 | \$0.00 | \$5,192.00 | \$5,192.00 | \$1,038.40 | \$2,180.64 | \$8,411.04 |
|  |  | SLAC T\&M Cratts - Union Equip. Op. |  | B\&H | 0 | 2.2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,192.00 | \$0.00 | \$0.00 | \$0.00 |
| 2883 | 1.2.4.2.5. 1 | BC2 Installation (IMIW) | SLAC | B\&H | 3 | 4.4 wks | \$0.00 | \$0.00 | \$9,504.00 | \$9,504.00 | \$1,900.80 | \$3,991.68 | \$15,396.48 |
|  |  | SLAC I\&M Cratts - Union Ironwork. |  | B\&H | 0 | 4.4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,504.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2884 | 1.2.4.2.5.1 | BC2 Installation (MEVE) | SLAC | ED\& | 3 | 5 wks | \$0.00 | \$0.00 | \$16,800.00 | \$16,800.00 | \$3,360.00 | \$7,056.00 | \$27,216.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$16,800.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 2885 | 1.2.4.2.6 | L3 Installation |  |  | 0 | 34.05 wks | \$0.00 | \$0.00 | \$76,232.34 | \$76,232.34 | \$15,246.47 | \$22,869.70 | \$114,348.51 |
| 2886 | 1.2.4.2.6. 1 | L3 Installation (MFPAS) | SLAC | B\&H | 2 | 23.05 wks | \$0.00 | \$0.00 | \$46,072.34 | \$46,072.34 | \$9,214.47 | \$13,821.70 | \$69,108.51 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 23.05 wks | $\$ 0.00$ | \$0.00 | $\$ 0.00$ | \$46,072.34 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 2887 | 1.2.4.2.6. 1 | L3 Instalation (IMEO) | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,720.00 | \$4,720.00 | \$944.00 | \$1,416.00 | \$7,080.00 |
|  |  | SLAC T\&M Cratts - Union Equip. Op. |  | B\&H | 0 | $2 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$4,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 2888 | 1.2.4.2.6. ${ }^{\text {r }}$ | L3 Installation (TMIW) | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,640.00 | \$8,640.00 | \$1,728.00 | \$2,592.00 | \$12,960.00 |
|  |  | SLAC T\&M Cratts - Union Ironwork. |  | BRH | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 2889 | 1.2.4.2.6. | L3 Installation (MEVE) | SLAC | ED\& | 2 | 5 wks | \$0.00 | \$0.00 | \$16,800.00 | \$16,800.00 | \$3,360.00 | \$5,040.00 | \$25,200.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$16,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 2890 | 1.2.4.2.7 | DL2 Installation |  |  | 0 | 103.26 wks | \$0.00 | \$0.00 | \$232,970.62 | \$232,970.62 | \$46,594.12 | \$139,782.37 | \$419,347.12 |
| 2891 | 1.2.4.2.7.1 | DL2 Installation (MFPAS) | SLAC | B\&H | 4 | 23.48 wks | \$0.00 | \$0.00 | \$46,931.82 | \$46,931.82 | \$9,386.36 | \$28,159.09 | \$84,477.28 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 23.48 wks | \$0.00 | \$0.00 | \$0.00 | \$46,931.82 | \$0.00 | \$0.00 | \$0.00 |
| 2892 | 1.2.4.2.7.1 | DL2 Installation (IMEO) | SLAC | B\&H | 4 | 16.97 wks | \$0.00 | \$0.00 | \$40,049.20 | \$40,049.20 | \$8,009.84 | \$24,029.52 | \$72,088.56 |
|  |  | SLAC I\&M Cratts - Union Equip. Op. |  | B\&H | 0 | 16.97 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$40,049.20 | \$0.00 | \$0.00 | \$0.00 |
| 2893 | 1.2.4.2.7.1 | DL2 Installation (TMIW) | SLAC | B\&H | 4 | 50.81 wks | \$0.00 | \$0.00 | \$109,749.60 | \$109,749.60 | \$21,949.92 | \$65,849.76 | \$197,549.28 |
|  |  | SLAC T\&M Crafts - Union Ironwork. |  | BRH | 0 | 50.81 wks | \$0.00 | \$0.00 | \$0.00 | \$109,749.60 | \$0.00 | \$0.00 | \$0.00 |
| 2894 | 1.2.4.2.7.1 | DL2 Installation (TMPL) | SLAC | B\&H | 4 | 6 wks | \$0.00 | \$0.00 | \$16,080.00 | \$16,080.00 | \$3,216.00 | \$9,648.00 | \$28,944.00 |
|  |  | SLAC I\&M Cratts - Union Pipetitter |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$16,080.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 2895 | 1.2.4.2.7.1 | DL2 Installation (MEVE) | SLAC | ED\&1 | 4 | 6 wks | \$0.00 | \$0.00 | \$20,160.00 | \$20,160.00 | \$4,032.00 | \$12,096.00 | \$36,288.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$20,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 2896 | 1.2.4.2.8 | Dumpline |  |  | 0 | 48.4 wks | \$0.00 | \$0.00 | \$108,698.24 | \$108,698.24 | \$21,739.65 | \$65,218.94 | \$195,656.83 |
| 2897 | 1.2.4.2.8.1 | Dumpline (MFPAS) | SLAC | B\&H | 4 | 14.8 wks | \$0.00 | \$0.00 | \$29,582.24 | \$29,582.24 | \$5,916.45 | \$17,749.34 | \$53,248.03 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 14.8 wks | \$0.00 | \$0.00 | \$0.00 | \$29,582.24 | \$0.00 | \$0.00 | \$0.00 |
| 2898 | 1.2.4.2.8.1 | Dumpline (IMEO) | SLAC | B\&H | 4 | 6.9 wks | \$0.00 | \$0.00 | \$16,284.00 | \$16,284.00 | \$3,256.80 | \$9,770.40 | \$29,311.20 |
|  |  | SLAC T\&M Cratts - Union Equip. Op. |  | B\&H | 0 | 6.9 wks | \$0.00 | \$0.00 | \$0.00 | \$16,284.00 | \$0.00 | \$0.00 | \$0.00 |
| 2899 | 1.2.4.2.8.1 | DL2 Installation (TMIW) | SLAC | B\&H | 4 | 20.7 wks | \$0.00 | \$0.00 | \$44,712.00 | \$44,712.00 | \$8,942.40 | \$26,827.20 | \$80,481.60 |
|  |  | SLAC T\&M Cratts - Union Ironwork. |  | B\&H | 0 | 20.7 wks | \$0.00 | \$0.00 | \$0.00 | \$44,712.00 | \$0.00 | \$0.00 | \$0.00 |
| 2900 | 1.2.4.2.8.1 | DL2 Installation (IMPL) | SLAC | B\&H | 4 | 3 wks | \$0.00 | \$0.00 | \$8,040.00 | \$8,040.00 | \$1,608.00 | \$4,824.00 | \$14,472.00 |
|  |  | SLAC I\&M Cratts - Union Pipeetitter |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$8,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 2901 | 1.2.4.2.8.1 | Dumpline (MEVE) | SLAC | ED\& | 4 | 3 wks | \$0.00 | \$0.00 | \$10,080.00 | \$10,080.00 | \$2,016.00 | \$6,048.00 | \$18,144.00 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&I | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 2902 | 1.2.4.2.9 | Power Conversion | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2903 | 1.2.4.2.10 | Controls |  |  | 0 | 71.41 wks | \$0.00 | \$0.00 | \$189,395.20 | \$189,395.20 | \$37,879.04 | \$81,651.26 | \$308,925.50 |
| 2904 | 1.2.4.2.10.1 | Computers and Crates (6) | SLAC |  | 0 | 2.5 wks | \$0.00 | \$0.00 | \$6,800.00 | \$6,800.00 | \$1,360.00 | \$2,856.00 | \$11,016.00 |
| 2905 | 1.2.4.2.10.1 | Install CAMAC System Cableplant | SLAC | B\&H | 3 | 2.5 wks | \$0.00 | \$0.00 | \$6,800.00 | \$6,800.00 | \$1,360.00 | \$2,856.00 | \$11,016.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$6,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 2906 | 1.2.4.2.10.2 | TIMING DISTRIBUTION SYSTEM-CAMAC | SLAC |  | 0 | 28 wks | \$0.00 | \$0.00 | \$71,320.00 | \$71,320.00 | \$14,264.00 | \$29,954.40 | \$115,538.40 |
| 2907 | 1.2.4.2.10.2 | Install Timing System Heliax Cableplant | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$8,160.00 | \$8,160.00 | \$1,632.00 | \$3,427.20 | \$13,219.20 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$8,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 2908 | 1.2.4.2.10.2 | Timing Software support | SLAC | ED\& | 3 | 25 wks | \$0.00 | \$0.00 | \$63,160.00 | \$63,160.00 | \$12,632.00 | \$26,527.20 | \$102,319.20 |
|  |  | SLAC Controls: Programmer |  | ED\& | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$63,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 2909 | 1.2.4.2.10.3 | LCLS VACUUM SYSTEM (2) | SLAC |  | 0 | 1.6 wks | \$0.00 | \$0.00 | \$4,352.00 | \$4,352.00 | \$870.40 | \$1,827.84 | \$7,050.24 |
| 2910 | 1.2.4.2.10.3 | Replace Ion Pump Cables (250) | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$2,720.00 | \$2,720.00 | \$544.00 | \$1,142.40 | \$4,406.40 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 2911 | 1.2.4.2.10.3 | Vacuum Valve Cables (coax) (250') | SLAC | B\&H | 3 | 0.6 wks | \$0.00 | \$0.00 | \$1,632.00 | \$1,632.00 | \$326.40 | \$685.44 | \$2,643.84 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,632.00 | \$0.00 | \$0.00 | \$0.00 |
| 2912 | 1.2.4.2.10.4 | TUNE-UP DUMPS (3) | SLAC |  | 0 | 1 wk | \$0.00 | \$0.00 | \$2,720.00 | \$2,720.00 | \$544.00 | \$1,142.40 | \$4,406.40 |
| 2913 | 1.2.4.2.10.2.4 | Multi-conductor (21C/16GA-CONI\&STAI) (2) | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$2,720.00 | \$2,720.00 | \$544.00 | \$1,142.40 | \$4,406.40 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 2914 | 1.2.4.2.10.5 | WIRE SCANNERS (14) | SLAC |  | 0 | 5.4 wks | \$0.00 | \$0.00 | \$14,688.00 | \$14,688.00 | \$2,937.60 | \$6,168.96 | \$23,794.56 |
| 2915 | 1.2.4.2.10.5 | RG58 to PMT 250' | SLAC | B\&H | 3 | 2.4 wks | \$0.00 | \$0.00 | \$6,528.00 | \$6,528.00 | \$1,305.60 | \$2,741.76 | \$10,575.36 |
|  |  | SLAC T\&M Crafts - Union Electrician |  | B\&H | 0 | 2.4 wks | \$0.00 | \$0.00 | \$0.00 | \$6,528.00 | \$0.00 | \$0.00 | \$0.00 |
| 2916 | 1.2.4.2.10.5 | MULII-COND (4PR) DAIRONIC IOLVDI 250 | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$8,160.00 | \$8,160.00 | \$1,632.00 | \$3,427.20 | \$13,219.20 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$8,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 2917 | 1.2.4.2.10.6 | BPM's (136)w/ 6 Linac / 2 Special / 2 Dump | SLAC |  | 0 | 4.3 wks | \$0.00 | \$0.00 | \$11,696.00 | \$11,696.00 | \$2,339.20 | \$7,017.60 | \$21,052.80 |
| 2918 | 1.2.4.2.10.6.6 | RG223 (4 ea BPM, timed and matched, 200) | SLAC | B\&H | 4 | 4.3 wks | \$0.00 | \$0.00 | \$11,696.00 | \$11,696.00 | \$2,339.20 | \$7,017.60 | \$21,052.80 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 4.3 wks | \$0.00 | \$0.00 | \$0.00 | \$11,696.00 | \$0.00 | \$0.00 | \$0.00 |
| 2919 | 1.2.4.2.10.7 | TOROIDS (7) w/ BC's and Dump | SLAC |  | 0 | 0.9 wks | \$0.00 | \$0.00 | \$2,448.00 | \$2,448.00 | \$489.60 | \$1,028.16 | \$3,965.76 |
| 2920 | 1.2.4.2.10.7 | RG22, ICM to ICM PreAmp (2) | SLAC | B\&H | 3 | 0.3 wks | \$0.00 | \$0.00 | \$816.00 | \$816.00 | \$163.20 | \$342.72 | \$1,321.92 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$816.00 | \$0.00 | \$0.00 | \$0.00 |
| 2921 | 1.2.4.2.10.7 | 2/c power, TCM to TCM PreAmp (1 each toroid) | SLAC | B\&H | 3 | 0.3 wks | \$0.00 | \$0.00 | \$816.00 | \$816.00 | \$163.20 | \$342.72 | \$1,321.92 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$816.00 | \$0.00 | \$0.00 | \$0.00 |
| 2922 | 1.2.4.2.10.7 | RG58, ICM to ICM PreAmp (1 each toroid)) | SLAC | B\&H | 3 | 0.3 wks | \$0.00 | \$0.00 | \$816.00 | \$816.00 | \$163.20 | \$342.72 | \$1,321.92 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | BKH | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$816.00 | \$0.00 | \$0.00 | \$0.00 |
| 2923 | 1.2.4.2.10.8 | PROFILE MONITORS (4) w/ 1 Dump | SLAC |  | 0 | 3 wks | \$0.00 | \$0.00 | \$8,160.00 | \$8,160.00 | \$1,632.00 | \$3,427.20 | \$13,219.20 |
| 2924 | 1.2.4.2.10.8 | RG59, coax-video (4) | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$2,720.00 | \$2,720.00 | \$544.00 | \$1,142.40 | \$4,406.40 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,720.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 2925 | 1.2.4.2.10.8 | Multi-conductor (21C/16GA-CONI\&STAI) (4) | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$2,720.00 | \$2,720.00 | \$544.00 | \$1,142.40 | \$4,406.40 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 2926 | 1.2.4.2.10.8 | Muti-conductor (3C/16GA-AC POWER) (4) | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$2,720.00 | \$2,720.00 | \$544.00 | \$1,142.40 | \$4,406.40 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | SLAC T\&M Crafts - Union Electrician | OBS | PHASE | Risk | Units <br> 1 wk | $\frac{\text { PED (Direct) }}{\$ 0.00}$ | M\&S (Direct) $\$ 0.00$ | Labor (Direct) <br> $\$ 0.00$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 2,720.00 \end{aligned}$ | $\begin{array}{r} \text { Overhead Cost } \\ \$ 0.00 \end{array}$ | $\begin{array}{r} \text { Contingency Cost } \\ \$ 0.00 \end{array}$ | Total Cost $\$ 0.00$ |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2927 | 1.2.4.2.10.9 | E-O Diagnostic | SLAC |  | 0 | 0.11 wks | \$0.00 | \$0.00 | \$299.20 | \$299.20 | \$59.84 | \$125.66 | \$484.70 |
| 2928 | 1.2.4.2.10.9 | Multi-Cond. cable (4PR) | SLAC | B\&H | 3 | 0.11 wks | \$0.00 | \$0.00 | \$299.20 | \$299.20 | \$59.84 | \$125.66 | \$484.70 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 0.11 wks | \$0.00 | \$0.00 | \$0.00 | \$299.20 | \$0.00 | \$0.00 | \$0.00 |
| 2929 | 1.2.4.2.10.10 | RF Controls | SLAC |  | 0 | 0.6 wks | \$0.00 | \$0.00 | \$1,632.00 | \$1,632.00 | \$326.40 | \$685.44 | \$2,643.84 |
| 2930 | 2.4.2.10.10.1 | Sector 24 | SLAC |  | 0 | 0.3 wks | \$0.00 | \$0.00 | \$816.00 | \$816.00 | \$163.20 | \$342.72 | \$1,321.92 |
| 2931 | .2.4.2.10.10.1 | Cblplnt Phase \& Amp., BLM, TC's.(Gun \& L0+L1+X-Band) | SLAC | $\mathrm{B} \& \mathrm{H}$ | 3 | 0.3 wks | \$0.00 | \$0.00 | \$816.00 | \$816.00 | \$163.20 | \$342.72 | \$1,321.92 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$816.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2932 | 2.4.2.10.10.2 | Sector 30 | SLAC |  | 0 | 0.3 wks | \$0.00 | \$0.00 | \$816.00 | \$816.00 | \$163.20 | \$342.72 | \$1,321.92 |
| 2933 | .2.4.2.10.10.2 | Cblplnt Phase \& Amp., BLM, TC's. (Gun \& L0+L1+X-Band) | SLAC | B\&H | 3 | 0.3 wks | \$0.00 | \$0.00 | \$816.00 | \$816.00 | \$163.20 | \$342.72 | \$1,321.92 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$816.00 | \$0.00 | \$0.00 | \$0.00 |
| 2934 | 1.2.4.2.10.11 | FFTB Controls Electronic Systems Removal | SLAC |  | 0 | 24 wks | \$0.00 | \$0.00 | \$65,280.00 | \$65,280.00 | \$13,056.00 | \$27,417.60 | \$105,753.60 |
| 2935 | 1.2.4.2.10.11 | Remove abandoned Cableplant (B406 to Housing) | SLAC | B\&H | 3 | 24 wks | \$0.00 | \$0.00 | \$65,280.00 | \$65,280.00 | \$13,056.00 | \$27,417.60 | \$105,753.60 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$65,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 2936 | 1.2.4.2.11 | RF Installation | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2937 | 1.2.4.2.12 | Protection Systems Installation | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2938 | 1.2.4.3 | Undulator Installation |  |  | 0 | 663.75 wks | \$0.00 | \$0.00 | \$1,409,689.50 | \$1,409,689.50 | \$281,937.90 | \$592,069.59 | \$2,283,696.99 |
| 2939 | 1.2.4.3.1 | Undulator Installation | SLAC | B\&H | 3 | 408.75 wks | \$0.00 | \$0.00 | \$817,009.50 | \$817,009.50 | \$163,401.90 | \$343,143.99 | \$1,323,555.39 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 408.75 wks | \$0.00 | \$0.00 | \$0.00 | \$817,009.50 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2940 | 1.2.4.3.2 | Instrumentation Installation | SLAC | B\&H | 3 | 65.4 wks | \$0.00 | \$0.00 | \$154,344.00 | \$154,344.00 | \$30,868.80 | \$64,824.48 | \$250,037.28 |
|  |  | SLAC T\&M Cratts - Union Equip. Op. |  | B\&H | 0 | 65.4 wks | \$0.00 | \$0.00 | \$0.00 | \$154,344.00 | \$0.00 | \$0.00 | \$0.00 |
| 2941 | 1.2.4.3.3 | Power Conversion | SLAC | B\&H | 3 | 165.6 wks | \$0.00 | \$0.00 | \$357,696.00 | \$357,696.00 | \$71,539.20 | \$150,232.32 | \$579,467.52 |
|  |  | SLAC I\&M Cratts - Union Ironwork. |  | B\&H | 0 | 165.6 wks | \$0.00 | \$0.00 | \$0.00 | \$357,696.00 | \$0.00 | \$0.00 | \$0.00 |
| 2942 | 1.2.4.3.4 | Controls | SLAC | ED\& 1 | 3 | 24 wks | \$0.00 | \$0.00 | \$80,640.00 | \$80,640.00 | \$16,128.00 | \$33,868.80 | \$130,636.80 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&I | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$80,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 2943 | 1.2.4.4 | LCLS Inj. \& Linac Align. |  |  | 0 | 157.4 wks | \$0.00 | \$271,000.00 | \$358,872.00 | \$629,872.00 | \$88,034.40 | \$179,476.60 | \$897,383.00 |
| 2944 | 1.2.4.4.1 | M\&S |  |  | 0 | 0 wks | \$0.00 | \$271,000.00 | \$0.00 | \$271,000.00 | \$16,260.00 | \$71,815.00 | \$359,075.00 |
| 2945 | 1.2.4.4.1.1 | Hydrostatic level (inj. tunnel to Linac) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$50,000.00 | \$0.00 | \$50,000.00 | \$3,000.00 | \$13,250.00 | \$66,250.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2946 | 1.2.4.4.1.2 | Laser Tracker | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$180,000.00 | \$0.00 | \$180,000.00 | \$10,800.00 | \$47,700.00 | \$238,500.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 180,000 | \$0.00 | \$0.00 | \$0.00 | \$180,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2947 | 1.2.4.4.1.3 | Floor Monuments | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M8S Iotal |  | M 2 S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2948 | 1.2.4.4.1.4 | Wall Monuments | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | MLS | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cWbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 2949 | 1.2.4.4.1.5 | Fiducial bushings | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2950 | 1.2.4.4.1.6 | Special Fixtures | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$1,800.00 | \$7,950.00 | \$39,750.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2951 | 1.2.4.4.2 | Fiducialization |  |  | 0 | 20.8 wks | \$0.00 | \$0.00 | \$47,424.00 | \$47,424.00 | \$9,484.80 | \$14,227.20 | \$71,136.00 |
| 2952 | 1.2.4.4.2. 1 | Injector quads | SLAC | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,840.00 | \$6,840.00 | \$1,368.00 | \$2,052.00 | \$10,260.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,840.00 | \$0.00 | \$0.00 | \$0.00 |
| 2953 | 1.2.4.4.2.2 | Injector dipoles | SLAC | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,368.00 | \$1,368.00 | \$273.60 | \$410.40 | \$2,052.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 2954 | 1.2.4.4.2.3 | Injector diagnostics | SLAC | B\&H | 2 | 1.6 wks | \$0.00 | \$0.00 | \$3,648.00 | \$3,648.00 | \$729.60 | \$1,094.40 | \$5,472.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1.6 wks | \$0.00 | \$0.00 | \$0.00 | \$3,648.00 | \$0.00 | \$0.00 | \$0.00 |
| 2955 | 1.2.4.4.2.4 | Gun | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$912.00 | \$912.00 | \$182.40 | \$273.60 | \$1,368.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$912.00 | \$0.00 | \$0.00 | \$0.00 |
| 2956 | 1.2.4.4.2.5 | Linac quads | SLAC | B\&H | 2 | 7.2 wks | \$0.00 | \$0.00 | \$16,416.00 | \$16,416.00 | \$3,283.20 | \$4,924.80 | \$24,624.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 7.2 wks | \$0.00 | \$0.00 | \$0.00 | \$16,416.00 | \$0.00 | \$0.00 | \$0.00 |
| 2957 | 1.2.4.4.2.6 | Linac dipoles | SLAC | B\&H | 2 | 3.6 wks | \$0.00 | \$0.00 | \$8,208.00 | \$8,208.00 | \$1,641.60 | \$2,462.40 | \$12,312.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 3.6 wks | \$0.00 | \$0.00 | \$0.00 | \$8,208.00 | \$0.00 | \$0.00 | \$0.00 |
| 2958 | 1.2.4.4.2.7 | Linac diagnostics | SLAC | B\&H | 2 | 4.4 wKs | \$0.00 | \$0.00 | \$10,032.00 | \$10,032.00 | \$2,006.40 | \$3,009.60 | \$15,048.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 4.4 wks | \$0.00 | \$0.00 | \$0.00 | \$10,032.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 2959 | 1.2.4.4.3 | Accelerator Sections |  |  | 0 | 84 wks | \$0.00 | \$0.00 | \$191,520.00 | \$191,520.00 | \$38,304.00 | \$57,456.00 | \$287,280.00 |
| 2960 | 1.2.4.4.3.1 | Straightness | SLAC | B\&H | 2 | 60 wks | \$0.00 | \$0.00 | \$136,800.00 | \$136,800.00 | \$27,360.00 | \$41,040.00 | \$205,200.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B2H | 0 | 60 wks | \$0.00 | \$0.00 | \$0.00 | \$136,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 2961 | 1.2.4.4.3.2 | Alignment | SLAC | B\&H | 2 | 24 wks | \$0.00 | \$0.00 | \$54,720.00 | \$54,720.00 | \$10,944.00 | \$16,416.00 | \$82,080.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$54,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 2962 | 1.2.4.4.4 | Injector Tunnel Sector 20 |  |  | 0 | 12.6 wks | \$0.00 | \$0.00 | \$28,728.00 | \$28,728.00 | \$5,745.60 | \$8,618.40 | \$43,092.00 |
| 2963 | 1.2.4.4.4.1 | Data Processing (Engineer) | SLAC | $\mathrm{B} \& \mathrm{H}$ | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,368.00 | \$1,368.00 | \$273.60 | \$410.40 | \$2,052.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 2964 | 1.2.4.4.4.2 | Networking/linj lunnel | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$912.00 | \$1,368.00 | \$6,840.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 2965 | 1.2.4.4.4.3 | Networking/Sec. 20-8,20-9,21-1 | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$9,120.00 | \$9,120.00 | \$1,824.00 | \$2,736.00 | \$13,680.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9, 120.00 | \$0.00 | \$0.00 | \$0.00 |
| 2966 | 1.2.4.4.4.4 | Lay-out | SLAC | B\&H | 2 | 1.2 wks | \$0.00 | \$0.00 | \$2,736.00 | \$2,736.00 | \$547.20 | \$820.80 | \$4,104.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,736.00 | \$0.00 | \$0.00 | \$0.00 |
| 2967 | 1.2.4.4.4.5 | Align supports | SLAC | B\&H | 2 | 1.2 wks | \$0.00 | \$0.00 | \$2,736.00 | \$2,736.00 | \$547.20 | \$820.80 | \$4,104.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,736.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 2968 | 1.2.4.4.4.6 | Pre-align components | SLAC | B\&H | 2 | 1.6 wks | \$0.00 | \$0.00 | \$3,648.00 | \$3,648.00 | \$729.60 | \$1,094.40 | \$5,472.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1.6 wks | \$0.00 | \$0.00 | \$0.00 | \$3,648.00 | \$0.00 | \$0.00 | \$0.00 |
| 2969 | 1.2.4.4.4.7 | Fine alignment | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$912.00 | \$1,368.00 | \$6,840.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 2970 | 1.2.4.4.5 | Linac (20-9 through 28-7) |  |  | 0 | 40 wks | \$0.00 | \$0.00 | \$91,200.00 | \$91,200.00 | \$18,240.00 | \$27,360.00 | \$136,800.00 |
| 2971 | 1.2.4.4.5.1 | Data Processing (Engineer) | SLAC | B\&H | 2 | 12 wks | \$0.00 | \$0.00 | \$27,360.00 | \$27,360.00 | \$5,472.00 | \$8,208.00 | \$41,040.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$27,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 2972 | 1.2.4.4.5.2 | Networking : L2 | SLAC | B\&H | 2 | 8 wks | \$0.00 | \$0.00 | \$18,240.00 | \$18,240.00 | \$3,648.00 | \$5,472.00 | \$27,360.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$18,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 2973 | 1.2.4.4.5.3 | Pre-align components | SLAC | B\&H | 2 | 10 wks | \$0.00 | \$0.00 | \$22,800.00 | \$22,800.00 | \$4,560.00 | \$6,840.00 | \$34,200.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | BRH | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$22,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 2974 | 1.2.4.4.5.4 | Fine alignment (map and moves) | SLAC | B\&H | 2 | 10 wks | \$0.00 | \$0.00 | \$22,800.00 | \$22,800.00 | \$4,560.00 | \$6,840.00 | \$34,200.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$22,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 2975 | 1.2.4.5 | Linac Smoothing |  |  | 0 | 200 wks | \$0.00 | \$117,000.00 | \$456,000.00 | \$573,000.00 | \$98,220.00 | \$167,805.00 | \$839,025.00 |
| 2976 | 1.2.4.5.1 | Equipment |  |  | 0 | 0 wks | \$0.00 | \$117,000.00 | \$0.00 | \$117,000.00 | \$7,020.00 | \$31,005.00 | \$155,025.00 |
| 2977 | 1.2.4.5.1.1 | Hamar Laser | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$720.00 | \$3,180.00 | \$15,900.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2978 | 1.2.4.5.1.2 | Hamar Laser largets | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$22,000.00 | \$0.00 | \$22,000.00 | \$1,320.00 | \$5,830.00 | \$29,150.00 |
|  |  | SLAC M\&S Iotal |  | M $\mathrm{S}_{\text {S }}$ | 0 | 22,000 | \$0.00 | \$0.00 | \$0.00 | \$22,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2979 | 1.2.4.5.1.3 | Digital Interface | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2980 | 1.2.4.5.1.4 | Data Logger | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2981 | 1.2.4.5.1.5 | Laser/I arget Stand | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2982 | 1.2.4.5.1.6 | Laser/Target Mount | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2983 | 1.2.4.5.1.7 | Oftret Arm | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2984 | 1.2.4.5.1.8 | Stand w. lockable wheels | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2985 | 1.2.4.5.1.9 | Leiss Automatic Level | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$1,800.00 | \$7,950.00 | \$39,750.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 2986 | 1.2.4.5.1.10 | Leiss Industrial Scales | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 2987 | 1.2.4.5.1.11 | Minirod | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 2988 | 1.2.4.5.2 | Smooth Linac | SLAC |  | 0 | 200 wks | \$0.00 | \$0.00 | \$456,000.00 | \$456,000.00 | \$91,200.00 | \$136,800.00 | \$684,000.00 |
| 2989 | 1.2.4.5.2.1 | Horizontal Survey 1st it. | SLAC | B\&H | 2 | 26 wks | \$0.00 | \$0.00 | \$59,280.00 | \$59,280.00 | \$11,856.00 | \$17,784.00 | \$88,920.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 26 wks | \$0.00 | \$0.00 | \$0.00 | \$59,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 2990 | 1.2.4.5.2.2 | Vertical Survey 1st It. | SLAC | B\&H | 2 | 17.5 wks | \$0.00 | \$0.00 | \$39,900.00 | \$39,900.00 | \$7,980.00 | \$11,970.00 | \$59,850.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 17.5 wks | \$0.00 | \$0.00 | \$0.00 | \$39,900.00 | \$0.00 | \$0.00 | \$0.00 |
| 2991 | 1.2.4.5.2.3 | Analyse Data | SLAC | B\&H | 2 | 8.75 wks | \$0.00 | \$0.00 | \$19,950.00 | \$19,950.00 | \$3,990.00 | \$5,985.00 | \$29,925.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 8.75 wks | \$0.00 | \$0.00 | \$0.00 | \$19,950.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 2992 | 1.2.4.5.2.4 | Apply Position Corrections | SLAC | B\&H | 2 | 26 wks | \$0.00 | \$0.00 | \$59,280.00 | \$59,280.00 | \$11,856.00 | \$17,784.00 | \$88,920.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | BRH | 0 | 26 wks | \$0.00 | \$0.00 | \$0.00 | \$59,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 2993 | 1.2.4.5.2.5 | Horizontal Survey 2nd lt. | SLAC | B\&H | 2 | 26 wks | \$0.00 | \$0.00 | \$59,280.00 | \$59,280.00 | \$11,856.00 | \$17,784.00 | \$88,920.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 26 wks | \$0.00 | \$0.00 | \$0.00 | \$59,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 2994 | 1.2.4.5.2.6 | Vertical Survey 2nd lt. | SLAC | B\&H | 2 | 17.5 wks | \$0.00 | \$0.00 | \$39,900.00 | \$39,900.00 | \$7,980.00 | \$11,970.00 | \$59,850.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 17.5 wks | \$0.00 | \$0.00 | \$0.00 | \$39,900.00 | \$0.00 | \$0.00 | \$0.00 |
| 2995 | 1.2.4.5.2.7 | Analyse Data | SLAC | B\&H | 2 | 8.75 wks | \$0.00 | \$0.00 | \$19,950.00 | \$19,950.00 | \$3,990.00 | \$5,985.00 | \$29,925.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | BRH | 0 | 8.75 wks | \$0.00 | \$0.00 | \$0.00 | \$19,950.00 | \$0.00 | \$0.00 | \$0.00 |
| 2996 | 1.2.4.5.2.8 | Apply Position Corrections | SLAC | B\&H | 2 | 26 wks | \$0.00 | \$0.00 | \$59,280.00 | \$59,280.00 | \$11,856.00 | \$17,784.00 | \$88,920.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 26 wks | \$0.00 | \$0.00 | \$0.00 | \$59,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 2997 | 1.2.4.5.2.9 | Horizontal Check Survey | SLAC | B\&H | 2 | 26 wks | \$0.00 | \$0.00 | \$59,280.00 | \$59,280.00 | \$11,856.00 | \$17,784.00 | \$88,920.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 26 wks | \$0.00 | \$0.00 | \$0.00 | \$59,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 2998 | 1.2.4.5.2.10 | Vertical Check Survey | SLAC | B\&H | 2 | 17.5 wks | \$0.00 | \$0.00 | \$39,900.00 | \$39,900.00 | \$7,980.00 | \$11,970.00 | \$59,850.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 17.5 wks | \$0.00 | \$0.00 | \$0.00 | \$39,900.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 2999 | 1.2.4.6 | Undulator Alignment |  |  | 0 | 200.6 wks | \$0.00 | \$998,000.00 | \$457,368.00 | \$1,455,368.00 | \$151,353.60 | \$401,680.40 | \$2,008,402.00 |
| 3000 | 1.2.4.6.1 | M\&S |  |  | 0 | 0 wks | \$0.00 | \$448,000.00 | \$0.00 | \$448,000.00 | \$26,880.00 | \$118,720.00 | \$593,600.00 |
| 3001 | 1.2.4.6.1.1 | Hydrostatic Level System, 80 sensors | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$240,000.00 | \$0.00 | \$240,000.00 | \$14,400.00 | \$63,600.00 | \$318,000.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 240,000 | \$0.00 | \$0.00 | \$0.00 | \$240,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3002 | 1.2.4.6.1.2 | Stretched wire system, 10 sensors | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$200,000.00 | \$0.00 | \$200,000.00 | \$12,000.00 | \$53,000.00 | \$265,000.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 200,000 | \$0.00 | \$0.00 | \$0.00 | \$200,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3003 | 1.2.4.6.1.3 | Reference Points | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$2,120.00 | \$10,600.00 |
|  |  | SLAC M\&S Total |  | MLS | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3004 | 1.2.4.6.2 | Network |  |  | 0 | 85.2 wks | \$0.00 | \$0.00 | \$194,256.00 | \$194,256.00 | \$38,851.20 | \$58,276.80 | \$291,384.00 |
| 3005 | 1.2.4.6.2.1 | Installation | SLAC | B\&H | 2 | 1.2 wks | \$0.00 | \$0.00 | \$2,736.00 | \$2,736.00 | \$547.20 | \$820.80 | \$4,104.00 |
|  |  | SLAC Metrology:Eng. \& Surveyors |  | B\& ${ }^{\text {H }}$ | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,736.00 | \$0.00 | \$0.00 | \$0.00 |
| 3006 | 1.2.4.6.2.2 | Measurements | SLAC | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$13,680.00 | \$13,680.00 | \$2,736.00 | \$4,104.00 | \$20,520.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$13,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 3007 | 1.2.4.6.2.3 | HLS Installation | SLAC | B\&H | 2 | 8 wks | \$0.00 | \$0.00 | \$18,240.00 | \$18,240.00 | \$3,648.00 | \$5,472.00 | \$27,360.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$18,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 3008 | 1.2.4.6.2.4 | HLS Commisioning | SLAC | B\&H | 2 | 12 wks | \$0.00 | \$0.00 | \$27,360.00 | \$27,360.00 | \$5,472.00 | \$8,208.00 | \$41,040.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$27,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 3009 | 1.2.4.6.2.5 | HLS Testing | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$9,120.00 | \$9,120.00 | \$1,824.00 | \$2,736.00 | \$13,680.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | BRH | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 3010 | 1.2.4.6.2.6 | HLS Measurements | SLAC | B\&H | 2 | 8 wks | \$0.00 | \$0.00 | \$18,240.00 | \$18,240.00 | \$3,648.00 | \$5,472.00 | \$27,360.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | $8 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$18,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 3011 | 1.2.4.6.2.7 | Stretchwire Installation | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$9,120.00 | \$9,120.00 | \$1,824.00 | \$2,736.00 | \$13,680.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 3012 | 1.2.4.6.2.8 | Stretchwire Commisioning | SLAC | B\&H | 2 | 12 wks | \$0.00 | \$0.00 | \$27,360.00 | \$27,360.00 | \$5,472.00 | \$8,208.00 | \$41,040.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$27,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 3013 | 1.2.4.6.2.9 | Stretchwire lesting | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$9,120.00 | \$9,120.00 | \$1,824.00 | \$2,736.00 | \$13,680.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | $4 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$9,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 3014 | 1.2.4.6.2.10 | Stretchwire Measurements | SLAC | B\&H | 2 | 8 wks | \$0.00 | \$0.00 | \$18,240.00 | \$18,240.00 | \$3,648.00 | \$5,472.00 | \$27,360.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | BRH | 0 | $8 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$18,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 3015 | 1.2.4.6.2.11 | Re-measurement (Laser tracker) | SLAC | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$13,680.00 | \$13,680.00 | \$2,736.00 | \$4,104.00 | \$20,520.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$13,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 3016 | 1.2.4.6.2.12 | Re-measurement (HLS) | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$912.00 | \$1,368.00 | \$6,840.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 3017 | 1.2.4.6.2.13 | Re-measurement (Wire) | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$912.00 | \$1,368.00 | \$6,840.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 3018 | 1.2.4.6.2.14 | Data Evaulation | SLAC | B\&H | 2 | 8 wks | \$0.00 | \$0.00 | \$18,240.00 | \$18,240.00 | \$3,648.00 | \$5,472.00 | \$27,360.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$18,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 3019 | 1.2.4.6.3 | Layout |  |  | 0 | 5 wks | \$0.00 | \$0.00 | \$11,400.00 | \$11,400.00 | \$2,280.00 | \$3,420.00 | \$17,100.00 |
| 3020 | 1.2.4.6.3.1 | Computation | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$456.00 | \$684.00 | \$3,420.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 3021 | 1.2.4.6.3.2 | Mark Support bolts on Floor | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$9,120.00 | \$9,120.00 | \$1,824.00 | \$2,736.00 | \$13,680.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 3022 | 1.2.4.6.4 | Pre-Align |  |  | 0 | 23.2 wks | \$0.00 | \$0.00 | \$52,896.00 | \$52,896.00 | \$10,579.20 | \$15,868.80 | \$79,344.00 |
| 3023 | 1.2.4.6.4. | Adjust stut nuts to nominal elevation | SLAC | B\&H | 2 | 2.4 wks | \$0.00 | \$0.00 | \$5,472.00 | \$5,472.00 | \$1,094.40 | \$1,641.60 | \$8,208.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 2.4 wks | \$0.00 | \$0.00 | \$0.00 | \$5,472.00 | \$0.00 | \$0.00 | \$0.00 |
| 3024 | 1.2.4.6.4.2 | Pre-align Stands | SLAC | B\&H | 2 | 8 wks | \$0.00 | \$0.00 | \$18,240.00 | \$18,240.00 | \$3,648.00 | \$5,472.00 | \$27,360.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$18,240.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 3025 | 1.2.4.6.4.3 | Lab-align components on common supports | SLAC | B\&H | 2 | 6.4 wks | \$0.00 | \$0.00 | \$14,592.00 | \$14,592.00 | \$2,918.40 | \$4,377.60 | \$21,888.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 6.4 wks | \$0.00 | \$0.00 | \$0.00 | \$14,592.00 | \$0.00 | \$0.00 | \$0.00 |
| 3026 | 1.2.4.6.4.4 | Pre-align undulators | SLAC | B\&H | 2 | 3.2 wks | \$0.00 | \$0.00 | \$7,296.00 | \$7,296.00 | \$1,459.20 | \$2,188.80 | \$10,944.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 3.2 wks | \$0.00 | \$0.00 | \$0.00 | \$7,296.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3027 | 1.2.4.6.4.5 | Pre-align rafts in tunnel | SLAC | B\&H | 2 | 3.2 wks | \$0.00 | \$0.00 | \$7,296.00 | \$7,296.00 | \$1,459.20 | \$2,188.80 | \$10,944.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 3.2 wks | \$0.00 | \$0.00 | \$0.00 | \$7,296.00 | \$0.00 | \$0.00 | \$0.00 |
| 3028 | 1.2.4.6. | Align |  |  | 0 | 25.4 wks | \$0.00 | \$0.00 | \$57,912.00 | \$57,912.00 | \$11,582.40 | \$17,373.60 | \$86,868.00 |
| 3029 | 1.2.4.6.5.1 | Undulators Horiz | SLAC | B\&H | 2 | 2.4 wks | \$0.00 | \$0.00 | \$5,472.00 | \$5,472.00 | \$1,094.40 | \$1,641.60 | \$8,208.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 2.4 wks | \$0.00 | \$0.00 | \$0.00 | \$5,472.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3030 | 1.2.4.6.5.2 | Undulators Vert | SLAC | B\&H | 2 | 6.6 wks | \$0.00 | \$0.00 | \$15,048.00 | \$15,048.00 | \$3,009.60 | \$4,514.40 | \$22,572.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 6.6 wks | \$0.00 | \$0.00 | \$0.00 | \$15,048.00 | \$0.00 | \$0.00 | \$0.00 |
| 3031 | 1.2.4.6.5.3 | Survey Quadrupole/ BPM fiducial offsets | SLAC | B\&H | 2 | 3.2 wks | \$0.00 | \$0.00 | \$7,296.00 | \$7,296.00 | \$1,459.20 | \$2,188.80 | \$10,944.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 3.2 wks | \$0.00 | \$0.00 | \$0.00 | \$7,296.00 | \$0.00 | \$0.00 | \$0.00 |
| 3032 | 1.2.4.6.5.4 | Survey Quadrupole to undulator tiducial oftsets | SLAC | B\&H | 2 | 3.2 wks | \$0.00 | \$0.00 | \$7,296.00 | \$7,296.00 | \$1,459.20 | \$2,188.80 | \$10,944.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 3.2 wks | \$0.00 | \$0.00 | \$0.00 | \$7,296.00 | \$0.00 | \$0.00 | \$0.00 |
| 3033 | 1.2.4.6.5.5 | Correctors | SLAC | B\&H | 2 | 0.8 wks | \$0.00 | \$0.00 | \$1,824.00 | \$1,824.00 | \$364.80 | \$547.20 | \$2,736.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.8 wks | \$0.00 | \$0.00 | \$0.00 | \$1,824.00 | \$0.00 | \$0.00 | \$0.00 |
| 3034 | 1.2.4.6.5.6 | $X$-ray diagnostics | SLAC | B\&H | 2 | 1.2 wks | \$0.00 | \$0.00 | \$2,736.00 | \$2,736.00 | \$547.20 | \$820.80 | \$4,104.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | BKH | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,736.00 | \$0.00 | \$0.00 | \$0.00 |
| 3035 | 1.2.4.6.5.7 | Quality Control | SLAC | B\&H | 2 | 8 wks | \$0.00 | \$0.00 | \$18,240.00 | \$18,240.00 | \$3,648.00 | \$5,472.00 | \$27,360.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$18,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 3036 | 1.2.4.6.6 | Fiducialization M\&S |  |  | 0 | 0 wks | \$0.00 | \$550,000.00 | \$0.00 | \$550,000.00 | \$33,000.00 | \$145,750.00 | \$728,750.00 |
| 3037 | 1.2.4.6.6. 1 | Undulator test stand + CCM | SLAC |  | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3038 | 1.2.4.6.6.2 | Quad test stand | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$150,000.00 | \$0.00 | \$150,000.00 | \$9,000.00 | \$39,750.00 | \$198,750.00 |
|  |  | SLAC MES Total |  | M 2 S | 0 | 150,000 | \$0.00 | \$0.00 | \$0.00 | \$150,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3039 | 1.2.4.6.6.3 | Climatized lab | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$200,000.00 | \$0.00 | \$200,000.00 | \$12,000.00 | \$53,000.00 | \$265,000.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 200,000 | \$0.00 | \$0.00 | \$0.00 | \$200,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3040 | 1.2.4.6.6.4 | BPM test stand | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$50,000.00 | \$0.00 | \$50,000.00 | \$3,000.00 | \$13,250.00 | \$66,250.00 |
|  |  | SLAC MES Iotal |  | M M $^{\text {S }}$ | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3041 | 1.2.4.6.6.5 | $X$-ray opdiag test stand | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$150,000.00 | \$0.00 | \$150,000.00 | \$9,000.00 | \$39,750.00 | \$198,750.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 150,000 | \$0.00 | \$0.00 | \$0.00 | \$150,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3042 | 1.2.4.6.7 | Fiducialization |  |  | 0 | 61.8 wks | \$0.00 | \$0.00 | \$140,904.00 | \$140,904.00 | \$28,180.80 | \$42,271.20 | \$211,356.00 |
| 3043 | 1.2.4.6.5.1 | Undulators Mag Meas | SLAC | B\&H | 2 | 30 wks | \$0.00 | \$0.00 | \$68,400.00 | \$68,400.00 | \$13,680.00 | \$20,520.00 | \$102,600.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 30 wks | \$0.00 | \$0.00 | \$0.00 | \$68,400.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3044 | 1.2.4.6.5.2 | Und Fiduc Measure | SLAC | $\mathrm{B} \& \mathrm{H}$ | 2 | 13 wks | \$0.00 | \$0.00 | \$29,640.00 | \$29,640.00 | \$5,928.00 | \$8,892.00 | \$44,460.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 13 wks | \$0.00 | \$0.00 | \$0.00 | \$29,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 3045 | 1.2.4.6.5.3 | Und data Eval | SLAC | B\&H | 2 | 7.5 wks | \$0.00 | \$0.00 | \$17,100.00 | \$17,100.00 | \$3,420.00 | \$5,130.00 | \$25,650.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 7.5 wks | \$0.00 | \$0.00 | \$0.00 | \$17,100.00 | \$0.00 | \$0.00 | \$0.00 |
| 3046 | 1.2.4.6.5.4 | Quads | SLAC | B\&H | 2 | 4.6 wks | \$0.00 | \$0.00 | \$10,488.00 | \$10,488.00 | \$2,097.60 | \$3,146.40 | \$15,732.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 4.6 wks | \$0.00 | \$0.00 | \$0.00 | \$10,488.00 | \$0.00 | \$0.00 | \$0.00 |
| 3047 | 1.2.4.6.5.5 | X -ray diagnostics | SLAC | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$13,680.00 | \$13,680.00 | \$2,736.00 | \$4,104.00 | \$20,520.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$13,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 3048 | 1.2.4.6.5.6 | BPMs | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$912.00 | \$912.00 | \$182.40 | \$273.60 | \$1,368.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$912.00 | \$0.00 | \$0.00 | \$0.00 |
| 3049 | 1.2.4.6.5.7 | Correctors | SLAC | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$684.00 | \$684.00 | \$136.80 | \$205.20 | \$1,026.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | BRH | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$684.00 | \$0.00 | \$0.00 | \$0.00 |
| 3050 | 1.3 | Photo Beam Handling and Systems |  |  | 0 | 12,142.14 wks | \$7,964,589.56 | \$14,144,503.00 | \$4,264,255.80 | \$26,373,348.36 | \$9,132,171.24 | \$9,049,919.55 | \$44,555,439.15 |
| 3051 | 1.3.1 | X -ray transport and diagnostics |  |  | 0 | 9,896.79 wks | \$3,889,494.00 | \$8,094,702.00 | \$2,421,710.24 | \$14,405,906.24 | \$7,585,654.95 | \$4,657,178.00 | \$26,648,739.20 |
| 3052 | 1.3.1.1 | PED/Management |  |  | 0 | 1,646.15 wks | \$3,889,494.00 | \$0.00 | \$0.00 | \$3,889,494.00 | \$3,754,752.12 | \$1,598,944.95 | \$9,243,191.07 |
| 3053 | 1.3.1.1.1 | Management and oversight |  |  | 0 | 276.6 wks | \$569,232.00 | \$0.00 | \$0.00 | \$569,232.00 | \$500,895.36 | \$160,519.10 | \$1,230,646.46 |
| 3054 | 1.3.1.1.1.1 | Management | LLNL |  | 0 | 276.6 wks | \$497,232.00 | \$0.00 | \$0.00 | \$497,232.00 | \$487,287.36 | \$147,677.90 | \$1,132,197.26 |
| 3055 | 1.3.1.1.1.1 | Director | LLNL | ED\& | 1 | 60 wks | \$129,600.00 | \$0.00 | \$0.00 | \$129,600.00 | \$127,008.00 | \$38,491.20 | \$295,099.20 |
|  |  | LLNL Physicist-Scientist |  | ED\&I | 0 | 60 wks | \$0.00 | \$0.00 | \$0.00 | \$129,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 3056 | 1.3.1.1.1.1 | Deputy | LLNL | ED\& | 1 | 60 wks | \$129,600.00 | \$0.00 | \$0.00 | \$129,600.00 | \$127,008.00 | \$38,491.20 | \$295,099.20 |
|  |  | LLNL Physicist-Scientist |  | ED\&1 | 0 | 60 wks | \$0.00 | \$0.00 | \$0.00 | \$129,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 3057 | 1.3.1.1.1.1 | Administrator | LLNL | ED\& | 1 | 156.6 wks | \$238,032.00 | \$0.00 | \$0.00 | \$238,032.00 | \$233,271.36 | \$70,695.50 | \$541,998.86 |
|  |  | LLNL Administration |  | ED\& | 0 | 156.6 wks | \$0.00 | \$0.00 | \$0.00 | \$238,032.00 | \$0.00 | \$0.00 | \$0.00 |
| 3058 | 1.3.1.1.1.2 | Travel to SSRL | LLNL |  | 0 | 0 wks | \$32,000.00 | \$0.00 | \$0.00 | \$32,000.00 | \$6,048.00 | \$5,707.20 | \$43,755.20 |
| 3059 | 1.3.1.1.1.2 | Director | LLNL | M 2 S | 1 | 0 wks | \$8,000.00 | \$0.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3060 | 1.3.1.1.1.2 | Deputy | LLNL | M\&S | 1 | 0 wks | \$24,000.00 | \$0.00 | \$0.00 | \$24,000.00 | \$4,536.00 | \$4,280.40 | \$32,816.40 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 24,000 | \$0.00 | \$0.00 | \$0.00 | \$24,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3061 | 1.3.1.1.1.3 | Meetings | LLNL |  | 0 | 0 wks | \$40,000.00 | \$0.00 | \$0.00 | \$40,000.00 | \$7,560.00 | \$7,134.00 | \$54,694.00 |
| 3062 | 1.3.1.1.1.3 | SSRL | LLNL | M 2 S | 1 | 0 wks | \$1,000.00 | \$0.00 | \$0.00 | \$1,000.00 | \$189.00 | \$178.35 | \$1,367.35 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3063 | 1.3.1.1.1.3 | ANL | LLNL | M 2 S | 1 | 0 wks | \$5,000.00 | \$0.00 | \$0.00 | \$5,000.00 | \$945.00 | \$891.75 | \$6,836.75 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3064 | 1.3.1.1.1.3 | SSRL | LLNL | M\&S | 1 | 0 wks | \$3,000.00 | \$0.00 | \$0.00 | \$3,000.00 | \$567.00 | \$535.05 | \$4,102.05 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | $\$ 0.00$ | \$3,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3065 | 1.3.1.1.1.3 | UCLA | LLNL | M\&S | 1 | 0 wks | \$5,000.00 | \$0.00 | \$0.00 | \$5,000.00 | \$945.00 | \$891.75 | \$6,836.75 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units5,000 | PED (Direct) | $\frac{\mathrm{M} \& \mathrm{~S} \text { (Direct) }}{\$ 0.00}$ | Labor (Direct) <br> $\$ 0.00$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 5,000.00 \end{aligned}$ | Overhead Cost $\$ 0.00$ | Contingency Cost $\$ 0.00$ |  |
|  |  | LLNLM\&S Total | LLNL | M\&S | 0 |  | \$0.00 |  |  |  |  |  | $\$ 0.00$ |
| 3066 | 1.3.1.1.1.3 | SSRL |  | M 2 S | 1 | 0 wks | \$3,000.00 | \$0.00 | \$0.00 | \$3,000.00 | \$567.00 | \$535.05 | \$4,102.05 |
|  |  | LLNL M\&S Iotal |  | M ${ }^{\text {S }}$ S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3067 | 1.3.1.1.1.3 | BNL | LLNL | M 2 S | 1 | 0 wks | \$8,000.00 | \$0.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3068 | 1.3.1.1.1.3 | SSRL | LLNL | M 2 S | 1 | 0 wks | \$3,000.00 | \$0.00 | \$0.00 | \$3,000.00 | \$567.00 | \$535.05 | \$4,102.05 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3069 | 1.3.1.1.1.3 | LANL | LLNL | M\&S | 1 | 0 wks | \$6,000.00 | \$0.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,070.10 | \$8,204.10 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3070 | 1.3.1.1.1.3 | SSRL | LLNL | M 2 S | 1 | 0 wks | \$3,000.00 | \$0.00 | \$0.00 | \$3,000.00 | \$567.00 | \$535.05 | \$4,102.05 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3071 | 1.3.1.1.1.3 | LLNL | LLNL | M 2 S | 1 | 0 wks | \$3,000.00 | \$0.00 | \$0.00 | \$3,000.00 | \$567.00 | \$535.05 | \$4,102.05 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3072 | 1.3.1.1.2 | Mechanical and Vacuum |  |  | 0 | 307.75 wks | \$711,050.00 | \$0.00 | \$0.00 | \$711,050.00 | \$696,829.00 | \$242,972.73 | \$1,650,851.73 |
| 3073 | 1.3.1.1.2. | Fast close valve | LLNL |  | 0 | 5 wks | \$11,560.00 | \$0.00 | \$0.00 | \$11,560.00 | \$11,328.80 | \$3,433.32 | \$26,322.12 |
| 3074 | 1.3.1.1.2.1 | Spec | LLNL | ED\& | 1 | 1 wk | \$2,800.00 | \$0.00 | \$0.00 | \$2,800.00 | \$2,744.00 | \$831.60 | \$6,375.60 |
|  |  | LLNL Project Management |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 3075 | 1.3.1.1.2.1 | Engr | LLNL | B\&H | 1 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$617.76 | \$4,736.16 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3076 | 1.3.1.1.2.1 | Quotation | LLNL | ED\& | 1 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$748.44 | \$5,738.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3077 | 1.3.1.1.2.1 | Design | LLNL | ED\& 1 | 1 | 2 wks | \$4,160.00 | \$0.00 | \$0.00 | \$4,160.00 | \$4,076.80 | \$1,235.52 | \$9,472.32 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | $2 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3078 | 1.3.1.1.2.2 | Isolation valve-w/ Be window | LLNL |  | 0 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
| 3079 | 1.3.1.1.2.2 | Engineering | LLNL | ED\& 1 | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3080 | 1.3.1.1.2.3 | Stands | LLNL |  | 0 | 14 wks | \$30,880.00 | \$0.00 | \$0.00 | \$30,880.00 | \$30,262.40 | \$19,902.96 | \$81,045.36 |
| 3081 | 1.3.1.1.2.3 | Spec | LLNL | ED\&I | 3 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,746.36 | \$6,735.96 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3082 | 1.3.1.1.2.3 | Engr \& Safety note | LLNL | ED\& | 2 | 3 wks | \$7,560.00 | \$0.00 | \$0.00 | \$7,560.00 | \$7,408.80 | \$3,742.20 | \$18,711.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 3083 | 1.3.1.1.2.3 | Design | LLNL | ED\& | 3 | 10 wks | \$20,800.00 | \$0.00 | \$0.00 | \$20,800.00 | \$20,384.00 | \$14,414.40 | \$55,598.40 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$20,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 3084 | 1.3.1.1.2.4 | Vacuum systems-Electcontrols | LLNL |  | 0 | 44 wks | \$103,840.00 | \$0.00 | \$0.00 | \$103,840.00 | \$101,763.20 | \$51,400.80 | \$257,004.00 |
| 3085 | 1.3.1.1.2.4 | Electr. Engr | LLNL | ED\& | 2 | 12 wks | \$30,240.00 | \$0.00 | \$0.00 | \$30,240.00 | \$29,635.20 | \$14,968.80 | \$74,844.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | Task Name | OBS | PHASE | $\frac{\text { Risk }}{0}$ | Units | PED (Direct) | $\frac{\text { M2S (Direct) }}{\$ 0.00}$ | Labor (Direct) | $\begin{aligned} & \text { Direct Cost } \\ & \$ 30,240.00 \end{aligned}$ | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL Klystron: Engineer |  | ED\& |  | ${ }^{\text {Units }} 12 \mathrm{wks}$ | PED (Direct) |  |  |  | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3086 | 1.3.1.1.2.4 | Controls engr |  | B\&H | 2 | 16 wks | \$33,920.00 | \$0.00 | \$0.00 | \$33,920.00 | \$33,241.60 | \$16,790.40 | \$83,952.00 |
|  |  | LLNL Controls: Iechnician |  | B\&H | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$33,920.00 | \$0.00 | \$0.00 | \$0.00 |
| 3087 | 1.3.1.1.2.4 | Electr. Design | LLNL | ED\& | 2 | 16 wks | \$39,680.00 | \$0.00 | \$0.00 | \$39,680.00 | \$38,886.40 | \$19,641.60 | \$98,208.00 |
|  |  | LLNL Electrical Engineer |  | ED\&I | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$39,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 3088 | 1.3.1.1.2.5 | Engr oversight/mgt | LLNL |  | 0 | 243.75 wks | \$562,250.00 | \$0.00 | \$0.00 | \$562,250.00 | \$551,005.00 | \$166,988.25 | \$1,280,243.25 |
| 3089 | 1.3.1.1.2.5 | Vac Engr | LLNL | B\&H | 1 | 81.25 wks | \$185,250.00 | \$0.00 | \$0.00 | \$185,250.00 | \$181,545.00 | \$55,019.25 | \$421,814.25 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 81.25 wks | \$0.00 | \$0.00 | \$0.00 | \$185,250.00 | \$0.00 | \$0.00 | \$0.00 |
| 3090 | 1.3.1.1.2.5 | Controls engr | LLNL | B\&H | 1 | 81.25 wks | \$172,250.00 | \$0.00 | \$0.00 | \$172,250.00 | \$168,805.00 | \$51,158.25 | \$392,213.25 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 81.25 wks | \$0.00 | \$0.00 | \$0.00 | \$172,250.00 | \$0.00 | \$0.00 | \$0.00 |
| 3091 | 1.3.1.1.2.5 | Electr. Engr | LLNL | ED\& | 1 | 81.25 wks | \$204,750.00 | \$0.00 | \$0.00 | \$204,750.00 | \$200,655.00 | \$60,810.75 | \$466,215.75 |
|  |  | LLNL KIystron: Engineer |  | ED\& | 0 | 81.25 wks | \$0.00 | \$0.00 | \$0.00 | \$204,750.00 | \$0.00 | \$0.00 | \$0.00 |
| 3092 | 1.3.1.1.3 | Facility Optics |  |  | 0 | 227.6 wks | \$583,220.00 | \$0.00 | \$0.00 | \$583,220.00 | \$571,555.60 | \$291,975.16 | \$1,446,750.76 |
| 3093 | 1.3.1.1.3.1 | Fixed Masks | LLNL |  | 0 | 17.6 wks | \$39,104.00 | \$0.00 | \$0.00 | \$39,104.00 | \$38,321.92 | \$19,356.48 | \$96,782.40 |
| 3094 | 1.3.1.1.3.1 | Specification | LLNL | ED\& | 2 | 1 wk | \$2,800.00 | \$0.00 | \$0.00 | \$2,800.00 | \$2,744.00 | \$1,386.00 | \$6,930.00 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& 1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 3095 | 1.3.1.1.3.1 | engineering | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | EDQI | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3096 | 1.3.1.1.3.1 | Quotation | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3097 | 1.3.1.1.3.1 | Hardware unit 1 | LLNL | ED\& | 2 | 2 wks | \$5,040.00 | \$0.00 | \$0.00 | \$5,040.00 | \$4,939.20 | \$2,494.80 | \$12,474.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 3098 | 1.3.1.1.3.1 | Characterization unit 1 | LLNL | ED\& | 2 | 2 wks | \$3,040.00 | \$0.00 | \$0.00 | \$3,040.00 | \$2,979.20 | \$1,504.80 | \$7,524.00 |
|  |  | LLNL Physicist - Post Doc |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,040.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3099 | 1.3.1.1.3.1 | Test Spec unit 1 | LLNL | ED\& | 2 | 1 wk | \$3,440.00 | \$0.00 | \$0.00 | \$3,440.00 | \$3,371.20 | \$1,702.80 | \$8,514.00 |
|  |  | LLNL Precision Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 3100 | 1.3.1.1.3.1 | Beamline test unit 1 | LLNL | ED\& | 2 | 1 wk | \$1,520.00 | \$0.00 | \$0.00 | \$1,520.00 | \$1,489.60 | \$752.40 | \$3,762.00 |
|  |  | LLNL Physicist - Post Doc |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3101 | 1.3.1.1.3.1 | Beamline test unit 1 | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& 1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3102 | 1.3.1.1.3.1 | Hardware unit 2 | LLNL | ED\& | 2 | 2 wks | \$5,040.00 | \$0.00 | \$0.00 | \$5,040.00 | \$4,939.20 | \$2,494.80 | \$12,474.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3103 | 1.3.1.1.3.1 | Characterization unit 2 | LLNL | ED\& | 2 | 1 wk | \$1,520.00 | \$0.00 | \$0.00 | \$1,520.00 | \$1,489.60 | \$752.40 | \$3,762.00 |
|  |  | LLNL Physicist - Post Doc |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3104 | 1.3.1.1.3.1 | Beamline test unit 2 | LLNL | ED\& | 2 | 0.4 wks | \$608.00 | \$0.00 | \$0.00 | \$608.00 | \$595.84 | \$300.96 | \$1,504.80 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | $\begin{array}{\|l\|} \hline \text { Risk } \\ \hline \end{array}$ | Units <br> 0.4 wks | PED (Direct) $\$ 0.00$ | $\begin{gathered} \text { M\&S (Direct) } \\ \$ 0.00 \end{gathered}$ | Labor (Direct) <br> $\$ 0.00$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 608.00 \end{aligned}$ | Overhead Cost $\$ 0.00$ | Contingency Cost $\$ 0.00$ | $\begin{aligned} & \text { Total Cost } \\ & \$ 0.00 \end{aligned}$ |
|  |  | Task Name LLNL Physicist - Post Doc |  |  |  |  |  |  |  |  |  |  |  |
| 3105 | 1.3.1.1.3.1 | Beamline test unit 2 | LLNL | ED\& | 2 | 0.4 wks | \$864.00 | \$0.00 | \$0.00 | \$864.00 | \$846.72 | \$427.68 | \$2,138.40 |
|  |  | LLNL Physicist -Scientist |  | EDQ1 | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$864.00 | \$0.00 | \$0.00 | \$0.00 |
| 3106 | 1.3.1.1.3.1 | Hardware unit 3 | LLNL | ED\& | 2 | 2 wks | \$5,040.00 | \$0.00 | \$0.00 | \$5,040.00 | \$4,939.20 | \$2,494.80 | \$12,474.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 3107 | 1.3.1.1.3.1 | Characterization unit 3 | LLNL | ED\& | 2 | 1 wk | \$1,520.00 | \$0.00 | \$0.00 | \$1,520.00 | \$1,489.60 | \$752.40 | \$3,762.00 |
|  |  | LLNL Physicist - Post Doc |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3108 | 1.3.1.1.3.1 | Beamline test unit 3 | LLNL | ED\& | 2 | 0.4 wks | \$608.00 | \$0.00 | \$0.00 | \$608.00 | \$595.84 | \$300.96 | \$1,504.80 |
|  |  | LLNL Physicist - Post Doc |  | ED\&1 | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$608.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3109 | 1.3.1.1.3.1 | Beamline test unit 3 | LLNL | ED\& | 2 | 0.4 wks | \$864.00 | \$0.00 | \$0.00 | \$864.00 | \$846.72 | \$427.68 | \$2,138.40 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$864.00 | \$0.00 | \$0.00 | \$0.00 |
| 3110 | 1.3.1.1.3.2 | Slits/Collimator A | LLNL |  | 0 | 29 wks | \$72,980.00 | \$0.00 | \$0.00 | \$72,980.00 | \$71,520.40 | \$30,054.42 | \$174,554.82 |
| 3111 | 1.3.1.1.3.2 | Precision motion Engr | LLNL | ED\& | 2 | 3 wks | \$10,320.00 | \$0.00 | \$0.00 | \$10,320.00 | \$10,113.60 | \$5,108.40 | \$25,542.00 |
|  |  | LLNL Precision Engineer |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 3112 | 1.3.1.1.3.2 | Precision motion Design | LLNL | ED\& | 2 | 8 wks | \$16,640.00 | \$0.00 | \$0.00 | \$16,640.00 | \$16,307.20 | \$8,236.80 | \$41,184.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$16,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 3113 | 1.3.1.1.3.2 | Jaws Specification | LLNL | ED\& | 1 | 2 wks | \$5,600.00 | \$0.00 | \$0.00 | \$5,600.00 | \$5,488.00 | \$1,663.20 | \$12,751.20 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 3114 | 1.3.1.1.3.2 | Jaws engineering | LLNL | ED\& | 1 | 2 wks | \$6,880.00 | \$0.00 | \$0.00 | \$6,880.00 | \$6,742.40 | \$2,043.36 | \$15,665.76 |
|  |  | LLNL Precision Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,880.00 | \$0.00 | \$0.00 | \$0.00 |
| 3115 | 1.3.1.1.3.2 | Jaws Quotation | LLNL | ED\& | 1 | 0.5 wks | \$1,260.00 | \$0.00 | \$0.00 | \$1,260.00 | \$1,234.80 | \$374.22 | \$2,869.02 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&I | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,260.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3116 | 1.3.1.1.3.2 | Controls and Electronics Engr. | LLNL | ED\&1 | 2 | 3 wks | \$7,680.00 | \$0.00 | \$0.00 | \$7,680.00 | \$7,526.40 | \$3,801.60 | \$19,008.00 |
|  |  | LLNL Controls: Engineer |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 3117 | 1.3.1.1.3.2 | Controls and Electronics Design | LLNL | B\&H | 2 | 2 wks | \$4,240.00 | \$0.00 | \$0.00 | \$4,240.00 | \$4,155.20 | \$2,098.80 | \$10,494.00 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 3118 | 1.3.1.1.3.2 | Test Specification | LLNL | ED\& | 2 | 1 wk | \$3,440.00 | \$0.00 | \$0.00 | \$3,440.00 | \$3,371.20 | \$1,702.80 | \$8,514.00 |
|  |  | LLNL Precision Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 3119 | 1.3.1.1.3.2 | Tank Design | LLNL | ED\&I | 1 | 2.5 wks | \$5,200.00 | \$0.00 | \$0.00 | \$5,200.00 | \$5,096.00 | \$1,544.40 | \$11,840.40 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$5,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 3120 | 1.3.1.1.3.2 | Vacuum Design | LLNL | ED\& | 1 | 2 wks | \$5,040.00 | \$0.00 | \$0.00 | \$5,040.00 | \$4,939.20 | \$1,496.88 | \$11,476.08 |
|  |  | LLNL AD: Mech/Vacuum Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | $\$ 0.00$ | $\$ 0.00$ | $\$ 0.00$ |
| 3121 | 1.3.1.1.3.2 | Stand Design | LLNL | ED\& | 1 | 2 wks | \$4,160.00 | \$0.00 | \$0.00 | \$4,160.00 | \$4,076.80 | \$1,235.52 | \$9,472.32 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3122 | 1.3.1.1.3.2 | Stand Engr | LLNL | ED\&1 | 1 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$748.44 | \$5,738.04 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3123 | 1.3.1.1.3.3 | Slits/Collimator B | LLNL |  | 0 | 10.5 wks | \$26,732.00 | \$0.00 | \$0.00 | \$26,732.00 | \$26,197.36 | \$10,966.43 | \$63,895.79 |
| 3124 | 1.3.1.1.3.3 | Precision motion Engr | LLNL | ED\& 1 | 2 | 1 wk | \$3,440.00 | \$0.00 | \$0.00 | \$3,440.00 | \$3,371.20 | \$1,702.80 | \$8,514.00 |
|  |  | LLNL Precision Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 3125 | 1.3.1.1.3.3 | Precision motion Design | LLNL | ED\& | 2 | 2 wks | \$4,160.00 | \$0.00 | \$0.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3126 | 1.3.1.1.3.3 | Jaws Specification | LLNL | ED\& | 2 | 1 wk | \$2,800.00 | \$0.00 | \$0.00 | \$2,800.00 | \$2,744.00 | \$1,386.00 | \$6,930.00 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 3127 | 1.3.1.1.3.3 | Jaws engineering | LLNL | ED\& | 1 | 1 wk | \$3,440.00 | \$0.00 | \$0.00 | \$3,440.00 | \$3,371.20 | \$1,021.68 | \$7,832.88 |
|  |  | LLNL Precision Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 3128 | 1.3.1.1.3.3 | Jaws Quotation | LLNL | ED\& | 1 | 0.5 wks | \$1,260.00 | \$0.00 | \$0.00 | \$1,260.00 | \$1,234.80 | \$374.22 | \$2,869.02 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,260.00 | \$0.00 | \$0.00 | \$0.00 |
| 3129 | 1.3.1.1.3.3 | Controls and Electronics Engr. | LLNL | ED\& | 1 | 1 wk | \$2,560.00 | \$0.00 | \$0.00 | \$2,560.00 | \$2,508.80 | \$760.32 | \$5,829.12 |
|  |  | LLNL Controls: Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 3130 | 1.3.1.1.3.3 | Controls and Electronics Design | LLNL | B\&H | 2 | 1 wk | \$2,120.00 | \$0.00 | \$0.00 | \$2,120.00 | \$2,077.60 | \$1,049.40 | \$5,247.00 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 3131 | 1.3.1.1.3.3 | Test Specification | LLNL | ED\& | 2 | 0.2 wks | \$688.00 | \$0.00 | \$0.00 | \$688.00 | \$674.24 | \$340.56 | \$1,702.80 |
|  |  | LLNL Precision Engineer |  | ED\&I | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$688.00 | \$0.00 | \$0.00 | \$0.00 |
| 3132 | 1.3.1.1.3.3 | Tank Design | LLNL | ED\&1 | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3133 | 1.3.1.1.3.3 | Vacuum Design | LLNL | ED\& | 1 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$748.44 | \$5,738.04 |
|  |  | LLNL AD: Mech/Vacuum Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3134 | 1.3.1.1.3.3 | Stand Design | LLNL | ED\&1 | 1 | 0.4 wks | \$832.00 | \$0.00 | \$0.00 | \$832.00 | \$815.36 | \$247.10 | \$1,894.46 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$832.00 | \$0.00 | \$0.00 | \$0.00 |
| 3135 | 1.3.1.1.3.3 | Stand Engr | LLNL | ED\& | 1 | 0.4 wks | \$832.00 | \$0.00 | \$0.00 | \$832.00 | \$815.36 | \$247.10 | \$1,894.46 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$832.00 | \$0.00 | \$0.00 | \$0.00 |
| 3136 | 1.3.1.1.3.4 | Gas Attenuator | LLNL |  | 0 | 101.5 wks | \$233,520.00 | \$0.00 | \$0.00 | \$233,520.00 | \$228,849.60 | \$129,337.56 | \$591,707.16 |
| 3137 | 1.3.1.1.3.4 | PDR Theory | LLNL | ED\& | 3 | 8 wks | \$17,280.00 | \$0.00 | \$0.00 | \$17,280.00 | \$16,934.40 | \$11,975.04 | \$46,189.44 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$17,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 3138 | 1.3.1.1.3.4 | PDR Engineering EE | LLNL | ED\& | 2 | 2 wks | \$4,960.00 | \$0.00 | \$0.00 | \$4,960.00 | \$4,860.80 | \$2,455.20 | \$12,276.00 |
|  |  | LLNL Electrical Engineer |  | ED\& 1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 3139 | 1.3.1.1.3.4 | PDR Engineering ME | LLNL | ED\& | 4 | 4 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$9,878.40 | \$9,979.20 | \$29,937.60 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 3140 | 1.3.1.1.3.4 | PDR Dratting ME | LLNL | ED\& | 1 | 2 wks | \$4,160.00 | \$0.00 | \$0.00 | \$4,160.00 | \$4,076.80 | \$1,235.52 | \$9,472.32 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | cwbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 3141 | 1.3.1.1.3.4 | PDR Drafting EE | LLNL | ED\& | 1 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$617.76 | \$4,736.16 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3142 | 1.3.1.1.3.4 | FDR Iheory | LLNL | ED\& 1 | 3 | 8 wks | \$17,280.00 | \$0.00 | \$0.00 | \$17,280.00 | \$16,934.40 | \$11,975.04 | \$46,189.44 |
|  |  | LLNL Physicist-Scientist |  | ED\&1 | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$17,280.00 | $\$ 0.00$ | $\$ 0.00$ | \$0.00 |
| 3143 | 1.3.1.1.3.4 | FDR Engineering EE | LLNL | ED\& | 2 | 2 wks | \$4,960.00 | \$0.00 | \$0.00 | \$4,960.00 | \$4,860.80 | \$2,455.20 | \$12,276.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 3144 | 1.3.1.1.3.4 | FDR Engineering ME | LLNL | ED\& | 4 | 4 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$9,878.40 | \$9,979.20 | \$29,937.60 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 3145 | 1.3.1.1.3.4 | FDR D Dratting ME | LLNL | ED\& | 4 | 2 wks | \$4,160.00 | \$0.00 | \$0.00 | \$4,160.00 | \$4,076.80 | \$4,118.40 | \$12,355.20 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3146 | 1.3.1.1.3.4 | FDR Dratting EE | LLNL | ED\& | 1 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$617.76 | \$4,736.16 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3147 | 1.3.1.1.3.4 | Satety Note Gas/Pressure Analysis | LLNL | ED\& 1 | 2 | 4 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$9,878.40 | \$4,989.60 | \$24,948.00 |
|  |  | LLNL Mechanical Engineer |  | EDQ1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3148 | 1.3.1.1.3.4 | Safety Note Electrical Safety | LLNL | ED\& | 2 | 4 wks | \$9,920.00 | \$0.00 | \$0.00 | \$9,920.00 | \$9,721.60 | \$4,910.40 | \$24,552.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,920.00 | \$0.00 | \$0.00 | \$0.00 |
| 3149 | 1.3.1.1.3.4 | Safety Note Earthquake | LLNL | ED\& | 2 | 4 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$9,878.40 | \$4,989.60 | \$24,948.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3150 | 1.3.1.1.3.4 | Satety Note Documentation | LLNL | ED\& | 2 | 4 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$9,878.40 | \$4,989.60 | \$24,948.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3151 | 1.3.1.1.3.4 | Safety Note Dratting | LLNL | ED\& | 2 | 4 wks | \$8,320.00 | \$0.00 | \$0.00 | \$8,320.00 | \$8,153.60 | \$4,118.40 | \$20,592.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 3152 | 1.3.1.1.3.4 | Chamber Engineering | LLNL | ED\& | 4 | 3 wks | \$7,560.00 | \$0.00 | \$0.00 | \$7,560.00 | \$7,408.80 | \$7,484.40 | \$22,453.20 |
|  |  | LLNL Mechanical Engineer |  | EDEI | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 3153 | 1.3.1.1.3.4 | Chamber Dratting ME | LLNL | ED\& | 1 | 2 wks | \$4,160.00 | \$0.00 | \$0.00 | \$4,160.00 | \$4,076.80 | \$1,235.52 | \$9,472.32 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3154 | 1.3.1.1.3.4 | Chamber Dratting EE | LLNL | ED\& | 1 | 2 wks | \$4,160.00 | \$0.00 | \$0.00 | \$4,160.00 | \$4,076.80 | \$1,235.52 | \$9,472.32 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3155 | 1.3.1.1.3.4 | Venture Engineering | LLNL | ED\& 1 | 4 | 2 wks | \$5,040.00 | \$0.00 | \$0.00 | \$5,040.00 | \$4,939.20 | \$4,989.60 | \$14,968.80 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 3156 | 1.3.1.1.3.4 | Venture Dratting ME | LLNL | ED\& | 3 | 2.5 wks | \$5,200.00 | \$0.00 | \$0.00 | \$5,200.00 | \$5,096.00 | \$3,603.60 | \$13,899.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$5,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 3157 | 1.3.1.1.3.4 | Iurbo pump Engineering | LLNL | ED\&1 | 1 | 2 wks | \$5,040.00 | \$0.00 | \$0.00 | \$5,040.00 | \$4,939.20 | \$1,496.88 | \$11,476.08 |
|  |  | LLNL Mechanical Engineer |  | ED\&I | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 3158 | 1.3.1.1.3.4 | Turbo pump Drafting ME | LLNL | ED\& | 1 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$617.76 | \$4,736.16 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL Mech Drafting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3159 | 1.3.1.1.3.4 | Turbo pump Dratting EE | LLNL | ED\& | 1 | 2 wks | \$4,160.00 | \$0.00 | \$0.00 | \$4,160.00 | \$4,076.80 | \$1,235.52 | \$9,472.32 |
|  |  | LLNL Mech Dratting/Design |  | EDQ1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3160 | 1.3.1.1.3.4 | Dry Pump Engineering | LLNL | ED\&1 | 1 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$748.44 | \$5,738.04 |
|  |  | LLNL Mechanical Engineer |  | ED\& 1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3161 | 1.3.1.1.3.4 | Dry Pump Dratting ME | LLNL | ED\& | 1 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$617.76 | \$4,736.16 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3162 | 1.3.1.1.3.4 | Storage Tank Engineering | LLNL | ED\& | 1 | 3 wks | \$7,560.00 | \$0.00 | \$0.00 | \$7,560.00 | \$7,408.80 | \$2,245.32 | \$17,214.12 |
|  |  | LLNL Mechanical Engineer |  | EDQI | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 3163 | 1.3.1.1.3.4 | Storage Tank Dratting ME | LLNL | ED\& | 1 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$617.76 | \$4,736.16 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3164 | 1.3.1.1.3.4 | Gast Pump Engineering | LLNL | ED\& | 1 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$748.44 | \$5,738.04 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3165 | 1.3.1.1.3.4 | Gast Pump Dratting ME | LLNL | ED\& | 1 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$617.76 | \$4,736.16 |
|  |  | LLNL Mech Dratting/Design |  | ED\& 1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3166 | 1.3.1.1.3.4 | Controls Engineering | LLNL | ED\& | 2 | 5 wks | \$12,600.00 | \$0.00 | \$0.00 | \$12,600.00 | \$12,348.00 | \$6,237.00 | \$31,185.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$12,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 3167 | 1.3.1.1.3.4 | Controls Dratting ME | LLNL | ED\& | 2 | 3 wks | \$6,240.00 | \$0.00 | \$0.00 | \$6,240.00 | \$6,115.20 | \$3,088.80 | \$15,444.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 3168 | 1.3.1.1.3.4 | Controls Dratting EE | LLNL | ED\& | 2 | 4 wks | \$8,320.00 | \$0.00 | \$0.00 | \$8,320.00 | \$8,153.60 | \$4,118.40 | \$20,592.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 3169 | 1.3.1.1.3.4 | Controls Programming | LLNL | ED\& | 2 | 4 wks | \$8,640.00 | \$0.00 | \$0.00 | \$8,640.00 | \$8,467.20 | \$4,276.80 | \$21,384.00 |
|  |  | LLNL Physicist-Scientist |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 3170 | 1.3.1.1.3.4 | Greenfield Compresser Engineering | LLNL | ED\&1 | 1 | 3 wks | \$7,560.00 | \$0.00 | \$0.00 | \$7,560.00 | \$7,408.80 | \$2,245.32 | \$17,214.12 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 3171 | 1.3.1.1.3.4 | GreenField Compresser Dratting ME | LLNL | ED\& | 1 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$617.76 | \$4,736.16 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3172 | 1.3.1.1.3.4 | GreenField Compresser Dratting EE | LLNL | ED\& | 1 | 3 wks | \$6,240.00 | \$0.00 | \$0.00 | \$6,240.00 | \$6,115.20 | \$1,853.28 | \$14,208.48 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,240.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3173 | 1.3.1.1.3.5 | Apertures | LLNL |  | 0 | 9 wks | \$25,048.00 | \$0.00 | \$0.00 | \$25,048.00 | \$24,547.04 | \$12,398.76 | \$61,993.80 |
| 3174 | 1.3.1.1.3.5 | Specification | LLNL | ED\& | 2 | 2 wks | \$5,600.00 | \$0.00 | \$0.00 | \$5,600.00 | \$5,488.00 | \$2,772.00 | \$13,860.00 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,600.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3175 | 1.3.1.1.3.5 | engineering | LLNL | ED\& 1 | 2 | 4 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$9,878.40 | \$4,989.60 | \$24,948.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3176 | 1.3.1.1.3.5 | Quotation | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 4 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&I | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3177 | 1.3.1.1.3.5 | Test Spec unit 1 | LLNL | ED\& | 2 | 1 wk | \$3,440.00 | \$0.00 | \$0.00 | \$3,440.00 | \$3,371.20 | \$1,702.80 | \$8,514.00 |
|  |  | LLNL Precision Engineer |  | EDEI | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 3178 | 1.3.1.1.3.5 | Beamline test unit 1 | LLNL | ED\&1 | 2 | 0.4 wks | \$608.00 | \$0.00 | \$0.00 | \$608.00 | \$595.84 | \$300.96 | \$1,504.80 |
|  |  | LLNL Physicist - Post Doc |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$608.00 | \$0.00 | \$0.00 | \$0.00 |
| 3179 | 1.3.1.1.3.5 | Beamline test unit 1 | LLNL | ED\& | 2 | 0.4 wks | \$1,376.00 | \$0.00 | \$0.00 | \$1,376.00 | \$1,348.48 | \$681.12 | \$3,405.60 |
|  |  | LLNL Precision Engineer |  | EDRI | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,376.00 | \$0.00 | \$0.00 | \$0.00 |
| 3180 | 1.3.1.1.3.5 | Test Spec unit 2 | LLNL | ED\& | 2 | 1 wk | \$3,440.00 | \$0.00 | \$0.00 | \$3,440.00 | \$3,371.20 | \$1,702.80 | \$8,514.00 |
|  |  | LLNL Precision Engineer |  | EDQ1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 3181 | 1.3.1.1.3.6 | Solid Attenuator | LLNL |  | 0 | 7 wks | \$20,336.00 | \$0.00 | \$0.00 | \$20,336.00 | \$19,929.28 | \$10,066.32 | \$50,331.60 |
| 3182 | 1.3.1.1.3.6 | Unit 1 Specification | LLNL | ED\& | 2 | 2 wks | \$5,600.00 | \$0.00 | \$0.00 | \$5,600.00 | \$5,488.00 | \$2,772.00 | \$13,860.00 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 3183 | 1.3.1.1.3.6 | Unit 1 engineering | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3184 | 1.3.1.1.3.6 | Unit 1 Quotation | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3185 | 1.3.1.1.3.6 | Unit 1 Test Spec | LLNL | ED\& | 2 | 1 wk | \$3,440.00 | \$0.00 | \$0.00 | \$3,440.00 | \$3,371.20 | \$1,702.80 | \$8,514.00 |
|  |  | LLNL Precision Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 3186 | 1.3.1.1.3.6 | Unit 2 lest Spec | LLNL | ED\& | 2 | 0.2 wks | \$688.00 | \$0.00 | \$0.00 | \$688.00 | \$674.24 | \$340.56 | \$1,702.80 |
|  |  | LLNL Precision Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$688.00 | \$0.00 | \$0.00 | \$0.00 |
| 3187 | 1.3.1.1.3.6 | Unit 3 Specification | LLNL | ED\& | 2 | 0.4 wks | \$1,120.00 | \$0.00 | \$0.00 | \$1,120.00 | \$1,097.60 | \$554.40 | \$2,772.00 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 3188 | 1.3.1.1.3.6 | Unit 3 engineering | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\&I | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3189 | 1.3.1.1.3.6 | Unit 3 Quotation | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&I | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3190 | 1.3.1.1.3.6 | Unit 3 Test Spec | LLNL | ED\& | 2 | 1 wk | \$3,440.00 | \$0.00 | \$0.00 | \$3,440.00 | \$3,371.20 | \$1,702.80 | \$8,514.00 |
|  |  | LLNL Precision Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3191 | 1.3.1.1.3.7 | Low Energy Mirror System | LLNL |  | 0 | 53 wks | \$165,500.00 | \$0.00 | \$0.00 | \$165,500.00 | \$162,190.00 | \$79,795.19 | \$407,485.19 |
| 3192 | 1.3.1.1.3.7 | Precision motion Engr | LLNL | ED\& | 2 | 12 wks | \$41,280.00 | \$0.00 | \$0.00 | \$41,280.00 | \$40,454.40 | \$20,433.60 | \$102,168.00 |
|  |  | LLNL Precision Engineer |  | ED\& 1 | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$41,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 3193 | 1.3.1.1.3.7 | Precision motion Design | LLNL | ED\& | 2 | 20 wks | \$68,800.00 | \$0.00 | \$0.00 | \$68,800.00 | \$67,424.00 | \$34,056.00 | \$170,280.00 |
|  |  | LLNL Precision Engineer |  | ED\& | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$68,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 3194 | 1.3.1.1.3.7 | Optic Specitication | LLNL | ED\& | 2 | 2 wks | \$5,600.00 | \$0.00 | \$0.00 | \$5,600.00 | \$5,488.00 | \$2,772.00 | \$13,860.00 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,600.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{3195}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.1.1.3.7 | Optic engineering | LLNL | ED\& | 2 | 4 wks | \$13,760.00 | \$0.00 | \$0.00 | \$13,760.00 | \$13,484.80 | \$6,811.20 | \$34,056.00 |
|  |  | LLNL Precision Engineer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,760.00 | \$0.00 | \$0.00 | \$0.00 |
| 3196 | 1.3.1.1.3.7 | Optic Quotation | LLNL | ED\&1 | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3197 | 1.3.1.1.3.7 | Controls and Electronics Engr. | LLNL | ED\& | 2 | 3 wks | \$7,680.00 | \$0.00 | \$0.00 | \$7,680.00 | \$7,526.40 | \$3,801.60 | \$19,008.00 |
|  |  | LLNL Controls: Engineer |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 3198 | 1.3.1.1.3.7 | Controls and Electronics Design | LLNL | B\&H | 2 | 2 wks | \$4,240.00 | \$0.00 | \$0.00 | \$4,240.00 | \$4,155.20 | \$2,098.80 | \$10,494.00 |
|  |  | LLNL Controls: lechnician |  | B\& ${ }^{\text {c }}$ | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 3199 | 1.3.1.1.3.7 | Test Spec | LLNL | ED\& | 2 | 1 wk | \$3,440.00 | \$0.00 | \$0.00 | \$3,440.00 | \$3,371.20 | \$1,702.80 | \$8,514.00 |
|  |  | LLNL Precision Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 3200 | 1.3.1.1.3.7 | Tank Design | LLNL | ED\& | , | 2.5 wks | \$5,200.00 | \$0.00 | \$0.00 | \$5,200.00 | \$5,096.00 | \$1,544.40 | \$11,840.40 |
|  |  | LLNL Mech Drafting/Design |  | ED\&1 | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$5,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 3201 | 1.3.1.1.3.7 | Tank Fabrication | LLNL | ED\&1 | 2 | 0.1 wks | \$252.00 | \$0.00 | \$0.00 | \$252.00 | \$246.96 | \$124.74 | \$623.70 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&I | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$252.00 | \$0.00 | \$0.00 | \$0.00 |
| 3202 | 1.3.1.1.3.7 | Vacuum Design | LLNL | ED\& | 1 | 2 wks | \$5,040.00 | \$0.00 | \$0.00 | \$5,040.00 | \$4,939.20 | \$1,496.88 | \$11,476.08 |
|  |  | LLNL AD: Mech/Vacuum Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 3203 | 1.3.1.1.3.7 | Vacuum Pumps | LLNL | ED\& 1 | 1 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$149.69 | \$1,147.61 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3204 | 1.3.1.1.3.7 | Stand Design | LLNL | ED\& 1 | 2 | 2 wks | \$4,160.00 | \$0.00 | \$0.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3205 | 1.3.1.1.3.7 | Stand Engr | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3206 | 1.3.1.1.3.7 | Stand Fabrication | LLNL | ED\&1 | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3207 | 1.3.1.1.4 | End Station Optics |  |  | 0 | 118.3 wks | \$283,316.00 | \$0.00 | \$0.00 | \$283,316.00 | \$277,649.68 | \$139,505.65 | \$700,471.33 |
| 3208 | 1.3.1.1.4.1 | KB Mirror System | LLNL |  | 0 | 77 wks | \$187,160.00 | \$0.00 | \$0.00 | \$187,160.00 | \$183,416.80 | \$92,644.20 | \$463,221.00 |
| 3209 | 1.3.1.1.4.1 | Precision Motion Engr | LLNL | ED\& | 2 | 10 wks | \$34,400.00 | \$0.00 | \$0.00 | \$34,400.00 | \$33,712.00 | \$17,028.00 | \$85,140.00 |
|  |  | LLNL Precision Engineer |  | ED\&I | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$34,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 3210 | 1.3.1.1.4.1 | Precision Motion Design | LLNL | ED\& 1 | 2 | 14 wks | \$29,120.00 | \$0.00 | \$0.00 | \$29,120.00 | \$28,537.60 | \$14,414.40 | \$72,072.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 14 wks | \$0.00 | \$0.00 | \$0.00 | \$29,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 3211 | 1.3.1.1.4.1 | Optic Specification | LLNL | ED\& | 2 | 5 wks | \$10,800.00 | \$0.00 | \$0.00 | \$10,800.00 | \$10,584.00 | \$5,346.00 | \$26,730.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 5 wks | \$0.00 | $\$ 0.00$ | \$0.00 | \$10,800.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3212 | 1.3.1.1.4.1 | Optic engineering | LLNL | ED\&1 | 2 | 4 wks | \$13,760.00 | \$0.00 | \$0.00 | \$13,760.00 | \$13,484.80 | \$6,811.20 | \$34,056.00 |
|  |  | LLNL Precision Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,760.00 | \$0.00 | \$0.00 | \$0.00 |
| 3213 | 1.3.1.1.4.1 | Optic Quotation | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | obs | PHASE | $\begin{array}{\|l\|} \hline \text { Risk } \\ \hline \end{array}$ | Units <br> 1 wk | $\frac{\text { PED (Direct) }}{\$ 0.00}$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct) | $\begin{aligned} & \text { Direct Cost } \\ & \$ 2,520.00 \end{aligned}$ | $\begin{array}{r} \text { Overhead Cost } \\ \$ 0.00 \end{array}$ | Contingency Cost $\$ 0.00$ | $\begin{aligned} & \text { Total Cost } \\ & \$ 0.00 \end{aligned}$ |
|  |  | LLNL PCD:Coordinator Associate |  |  |  |  |  |  |  |  |  |  |  |
| 3214 | 1.3.1.1.4.1 | Optic Hardware | LLNL | ED\& | 2 | 2 wks | \$6,880.00 | \$0.00 | \$0.00 | \$6,880.00 | \$6,742.40 | \$3,405.60 | \$17,028.00 |
|  |  | LLNL Precision Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,880.00 | \$0.00 | \$0.00 | \$0.00 |
| 3215 | 1.3.1.1.4.1 | Optic Characterization | LLNL | ED\&1 | 2 | 8 wks | \$12,160.00 | \$0.00 | \$0.00 | \$12,160.00 | \$11,916.80 | \$6,019.20 | \$30,096.00 |
|  |  | LLNL Physicist - Post Doc |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$12,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3216 | 1.3.1.1.4.1 | Optic Characterization | LLNL | ED\& | 2 | 8 wks | \$27,520.00 | \$0.00 | \$0.00 | \$27,520.00 | \$26,969.60 | \$13,622.40 | \$68,112.00 |
|  |  | LLNL Precision Engineer |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$27,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3217 | 1.3.1.1.4.1 | Controls \& Elect Engr. | LLNL | ED\& | 2 | 3 wks | \$7,680.00 | \$0.00 | \$0.00 | \$7,680.00 | \$7,526.40 | \$3,801.60 | \$19,008.00 |
|  |  | LLNL Controls: Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 3218 | 1.3.1.1.4.1 | Controls \& Elect Design | LLNL | B\&H | 2 | 2 wks | \$4,240.00 | \$0.00 | \$0.00 | \$4,240.00 | \$4,155.20 | \$2,098.80 | \$10,494.00 |
|  |  | LLNL Controls: Technician |  | BRH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 3219 | 1.3.1.1.4.1 | Test Spec | LLNL | ED\& | 2 | 1 wk | \$3,440.00 | \$0.00 | \$0.00 | \$3,440.00 | \$3,371.20 | \$1,702.80 | \$8,514.00 |
|  |  | LLNL Precision Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 3220 | 1.3.1.1.4.1 | Beamline test | LLNL | ED\& | 2 | 16 wks | \$24,320.00 | \$0.00 | \$0.00 | \$24,320.00 | \$23,833.60 | \$12,038.40 | \$60,192.00 |
|  |  | LLNL Physicist - Post Doc |  | ED\& | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$24,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 3221 | 1.3.1.1.4.1 | Beamline test | LLNL | ED\& | 2 | 3 wks | \$10,320.00 | \$0.00 | \$0.00 | \$10,320.00 | \$10,113.60 | \$5,108.40 | \$25,542.00 |
|  |  | LLNL Precision Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 3222 | 1.3.1.1.4.2 | Optics Tank A2 1 | LLNL |  | 0 | 23 wks | \$53,840.00 | \$0.00 | \$0.00 | \$53,840.00 | \$52,763.20 | \$23,449.54 | \$130,052.74 |
| 3223 | 1.3.1.1.4.2 | Motion \& Mech Engr | LLNL | ED\& | 2 | 1 wk | \$3,440.00 | \$0.00 | \$0.00 | \$3,440.00 | \$3,371.20 | \$1,702.80 | \$8,514.00 |
|  |  | LLNL Precision Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 3224 | 1.3.1.1.4.2 | Motion \& Mech Design | LLNL | ED\& | 2 | 3 wks | \$6,240.00 | \$0.00 | \$0.00 | \$6,240.00 | \$6,115.20 | \$3,088.80 | \$15,444.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 3225 | 1.3.1.1.4.2 | Controls \& Elect Engr. | LLNL | ED\& | 2 | 3 wks | \$7,680.00 | \$0.00 | \$0.00 | \$7,680.00 | \$7,526.40 | \$3,801.60 | \$19,008.00 |
|  |  | LLNL Controls: Engineer |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 3226 | 1.3.1.1.4.2 | Controls \& Elect Design | LLNL | B\&H | 2 | 2 wks | \$4,240.00 | \$0.00 | \$0.00 | \$4,240.00 | \$4,155.20 | \$2,098.80 | \$10,494.00 |
|  |  | LLNL Controls: Technician |  | BRH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 3227 | 1.3.1.1.4.2 | Test Spec | LLNL | ED\& | 2 | 1 wk | \$3,440.00 | \$0.00 | \$0.00 | \$3,440.00 | \$3,371.20 | \$1,702.80 | \$8,514.00 |
|  |  | LLNL Precision Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 3228 | 1.3.1.1.4.2 | Beamline test | LLNL | ED\&I | 2 | 4 wks | \$6,080.00 | \$0.00 | \$0.00 | \$6,080.00 | \$5,958.40 | \$3,009.60 | \$15,048.00 |
|  |  | LLNL Physicist - Post Doc |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$6,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3229 | 1.3.1.1.4.2 | Beamline test | LLNL | ED\& | 1 | 1 wk | \$3,440.00 | \$0.00 | \$0.00 | \$3,440.00 | \$3,371.20 | \$1,021.68 | \$7,832.88 |
|  |  | LLNL Precision Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 3230 | 1.3.1.1.4.2 | Tank Design | LLNL | ED\& | 2 | 2.5 wks | \$6,300.00 | \$0.00 | \$0.00 | \$6,300.00 | \$6,174.00 | \$3,118.50 | \$15,592.50 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$6,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 3231 | 1.3.1.1.4.2 | Tank Fabrication | LLNL | ED\& | 2 | 0.1 wks | \$252.00 | \$0.00 | \$0.00 | \$252.00 | \$246.96 | \$124.74 | \$623.70 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units <br> 0.1 wks | PED (Direct)$\$ 0.00$ | $\begin{aligned} & \text { M\&S (Direct) } \\ & \$ 0.00 \end{aligned}$ | Labor (Direct) $\$ 0.00$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 252.00 \end{aligned}$ | Overhead Cost $\$ 0.00$ | Contingency Cost $\$ 0.00$ | Total Cost <br> $\$ 0.00$ |
|  |  | TLNL PCD:Coordinator Associate |  |  |  |  |  |  |  |  |  |  |  |
| 3232 | 1.3.1.1.4.2 | Vacuum Design | LLNL | B\&H | 1 | 2 wks | \$4,160.00 | \$0.00 | \$0.00 | \$4,160.00 | \$4,076.80 | \$1,235.52 | \$9,472.32 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3233 | 1.3.1.1.4.2 | Vacuum Pumps | LLNL | ED\& | 1 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$149.69 | \$1,147.61 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&/ | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3234 | 1.3.1.1.4.2 | Stand Design | LLNL | ED\& | 1 | 2 wks | \$5,040.00 | \$0.00 | \$0.00 | \$5,040.00 | \$4,939.20 | \$1,496.88 | \$11,476.08 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 3235 | 1.3.1.1.4.2 | Stand Engr | LLNL | ED\& | 1 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$748.44 | \$5,738.04 |
|  |  | LLNL AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3236 | 1.3.1.1.4.2 | Stand Fabrication | LLNL | ED\& | 1 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$149.69 | \$1,147.61 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3237 | 1.3.1.1.4.3 | Optics Tank $\mathbf{B 2} 1$ | LLNL |  | 0 | 6.1 wks | \$14,932.00 | \$0.00 | \$0.00 | \$14,932.00 | \$14,633.36 | \$4,434.80 | \$34,000.16 |
| 3238 | 1.3.1.1.4.3 | Iank Design | LLNL | ED\& | 1 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$748.44 | \$5,738.04 |
|  |  | LLNL Mechanical Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3239 | 1.3.1.1.4.3 | Tank Fabrication | LLNL | ED\& | 1 | 0.1 wks | \$252.00 | \$0.00 | \$0.00 | \$252.00 | \$246.96 | \$74.84 | \$573.80 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$252.00 | \$0.00 | \$0.00 | \$0.00 |
| 3240 | 1.3.1.1.4.3 | Vacuum Design | LLNL | B\&H | 1 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$617.76 | \$4,736.16 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3241 | 1.3.1.1.4.3 | vacuum Pumps | LLNL | ED\& | 1 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$748.44 | \$5,738.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3242 | 1.3.1.1.4.3 | Stand Design | LLNL | ED\& | 1 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$748.44 | \$5,738.04 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3243 | 1.3.1.1.4.3 | Stand Engr | LLNL | ED\&I | 1 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$748.44 | \$5,738.04 |
|  |  | LLNL AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3244 | 1.3.1.1.4.3 | Stand Fabrication | LLNL | ED\& | 1 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$748.44 | \$5,738.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&/ | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3245 | 1.3.1.1.4.4 | Refractive Lenses | LLNL |  | 0 | 12.2 wks | \$27,384.00 | \$0.00 | \$0.00 | \$27,384.00 | \$26,836.32 | \$18,977.11 | \$73,197.43 |
| 3246 | 1.3.1.1.4.4 | PDR Design and Theory | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3247 | 1.3.1.1.4.4 | PDR Lens Design | LLNL | ED\& | 3 | 0.2 wKs | \$432.00 | \$0.00 | \$0.00 | \$432.00 | \$423.36 | \$299.38 | \$1,154.74 |
|  |  | LLNL Physicist-Scientist |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$432.00 | \$0.00 | \$0.00 | \$0.00 |
| 3248 | 1.3.1.1.4.4 | PDR Lens Testing | LLNL | ED\& | 3 | 0.2 wks | \$432.00 | \$0.00 | \$0.00 | \$432.00 | \$423.36 | \$299.38 | \$1,154.74 |
|  |  | LLNL Physicist-Scientist |  | ED\&I | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$432.00 | \$0.00 | \$0.00 | \$0.00 |
| 3249 | 1.3.1.1.4.4 | PDR Diamond lurned form | LLNL |  | 3 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3250 | 1.3.1.1.4.4 | PDR Press | LLNL |  | 3 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3251 | 1.3.1.1.4.4 | PDR Lens Mount | LLNL |  | 3 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 3252 | 1.3.1.1.4.4 | PDR Lens Fabrication | LLNL |  | 3 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3253 | 1.3.1.1.4.4 | PDR ME Drafing | LLNL | ED\& | 3 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,441.44 | \$5,559.84 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 1 wk | $\$ 0.00$ | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3254 | 1.3.1.1.4.4 | FDR Lens Design Physics | LLNL | ED\& | 3 | 2 wks | \$4,320.00 | \$0.00 | \$0.00 | \$4,320.00 | \$4,233.60 | \$2,993.76 | \$11,547.36 |
|  |  | LLNL Physicist -Scientist |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 3255 | 1.3.1.1.4.4 | FDR Lens Testing Physics | LLNL | ED\& | 3 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,496.88 | \$5,773.68 |
|  |  | LLNL Physicist -Scientist |  | ED\& 1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3256 | 1.3.1.1.4.4 | FDR Lens lesting EE | LLNL | ED\& | 3 | 0.6 wks | \$1,488.00 | \$0.00 | \$0.00 | \$1,488.00 | \$1,458.24 | \$1,031.18 | \$3,977.42 |
|  |  | LLNL Electrical Engineer |  | ED\&I | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,488.00 | \$0.00 | \$0.00 | \$0.00 |
| 3257 | 1.3.1.1.4.4 | FDR Lens Testing ME | LLNL | ED\& | 3 | 0.4 wks | \$832.00 | \$0.00 | \$0.00 | \$832.00 | \$815.36 | \$576.58 | \$2,223.94 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$832.00 | \$0.00 | \$0.00 | \$0.00 |
| 3258 | 1.3.1.1.4.4 | FDR Diamond Turned Form | LLNL | ED\& | 3 | 0.6 wks | \$1,512.00 | \$0.00 | \$0.00 | \$1,512.00 | \$1,481.76 | \$1,047.82 | \$4,041.58 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,512.00 | \$0.00 | \$0.00 | \$0.00 |
| 3259 | 1.3.1.1.4.4 | FDR Diamond lurning tixture for torm ME | LLNL | ED\& | 3 | 0.6 wks | \$1,512.00 | \$0.00 | \$0.00 | \$1,512.00 | \$1,481.76 | \$1,047.82 | \$4,041.58 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,512.00 | \$0.00 | \$0.00 | \$0.00 |
| 3260 | 1.3.1.1.4.4 | FDR Diamond Turned Form Mount ME | LLNL | ED\& | 3 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$349.27 | \$1,347.19 |
|  |  | LLNL Mechanical Engineer |  | ED\& 1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3261 | 1.3.1.1.4.4 | FDR Press ME | LLNL | ED\& 1 | 3 | 0.4 wks | \$1,008.00 | \$0.00 | \$0.00 | \$1,008.00 | \$987.84 | \$698.54 | \$2,694.38 |
|  |  | LLNL Mechanical Engineer |  | ED\&I | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,008.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3262 | 1.3.1.1.4.4 | FDR Lens ME | LLNL | ED\& | 3 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$349.27 | \$1,347.19 |
|  |  | LLNL Mechanical Engineer |  | ED\& 1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3263 | 1.3.1.1.4.4 | FDR Lens Mount ME | LLNL | ED\& | 3 | 0.6 wks | \$1,512.00 | \$0.00 | \$0.00 | \$1,512.00 | \$1,481.76 | \$1,047.82 | \$4,041.58 |
|  |  | LLNL Mechanical Engineer |  | ED\&I | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,512.00 | \$0.00 | \$0.00 | \$0.00 |
| 3264 | 1.3.1.1.4.4 | FDR Lens Fabrication ME | LLNL | ED\& | 3 | 0.6 wks | \$1,512.00 | \$0.00 | \$0.00 | \$1,512.00 | \$1,481.76 | \$1,047.82 | \$4,041.58 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,512.00 | \$0.00 | \$0.00 | \$0.00 |
| 3265 | 1.3.1.1.4.4 | FDR Lens Assembly ME | LLNL | ED\& | 3 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$349.27 | \$1,347.19 |
|  |  | LLNL Mechanical Engineer |  | ED\& 1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3266 | 1.3.1.1.4.4 | FDR Diamond Turned Form ME Drating | LLNL | ED\& | 3 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$288.29 | \$1,111.97 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 3267 | 1.3.1.1.4.4 | FDR Diamond Turning fixture for form ME Drating | LLNL | ED\& | 3 | 0.6 wks | \$1,248.00 | \$0.00 | \$0.00 | \$1,248.00 | \$1,223.04 | \$864.86 | \$3,335.90 |
|  |  | LLNL Mech Dratting/Design |  | ED\& 1 | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3268 | 1.3.1.1.4.4 | FDR Diamond lurned Form Mount ME Drating | LLNL | ED\& | 3 | 0.4 wks | \$832.00 | \$0.00 | \$0.00 | \$832.00 | \$815.36 | \$576.58 | \$2,223.94 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$832.00 | \$0.00 | \$0.00 | \$0.00 |
| 3269 | 1.3.1.1.4.4 | FDR Press ME Drating | LLNL | ED\& | 3 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,441.44 | \$5,559.84 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{3270}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.1.1.4.4 | FDR Lens ME Drafing | LLNL | ED\& | 3 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$288.29 | \$1,111.97 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 3271 | 1.3.1.1.4.4 | FDR Lens Mount ME Drating | LLNL | ED\&1 | 3 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$288.29 | \$1,111.97 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3272 | 1.3.1.1.4.4 | FDR Lens Fabrication ME Drating | LLNL | ED\& | 3 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$288.29 | \$1,111.97 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 3273 | 1.3.1.1.4.4 | FDR Lens Assembly ME Drafing | LLNL | ED\&1 | 3 | 0.6 wks | \$1,248.00 | \$0.00 | \$0.00 | \$1,248.00 | \$1,223.04 | \$864.86 | \$3,335.90 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3274 | 1.3.1.1.5 | Crystals and Gratings |  |  | 0 | 82.7 wks | \$192,684.00 | \$0.00 | \$0.00 | \$192,684.00 | \$188,830.32 | \$111,986.03 | \$493,500.35 |
| 3275 | 1.3.1.1.5.1 | Pulse Split and delay | LLNL |  | 0 | 37.3 wks | \$89,236.00 | \$0.00 | \$0.00 | \$89,236.00 | \$87,451.28 | \$49,613.65 | \$226,300.93 |
| 3276 | 1.3.1.1.5.1 | Vacuum engr | LLNL | ED\& | 3 | 2 wks | \$5,040.00 | \$0.00 | \$0.00 | \$5,040.00 | \$4,939.20 | \$3,492.72 | \$13,471.92 |
|  |  | LLNL AD: Mech/Vacuum Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 3277 | 1.3.1.1.5.1 | Engineering | LLNL | ED\&1 | 2 | 24 wks | \$60,480.00 | \$0.00 | \$0.00 | \$60,480.00 | \$59,270.40 | \$29,937.60 | \$149,688.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&I | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$60,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3278 | 1.3.1.1.5.1 | Design | LLNL | ED\& | 3 | 10 wks | \$20,800.00 | \$0.00 | \$0.00 | \$20,800.00 | \$20,384.00 | \$14,414.40 | \$55,598.40 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$20,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 3279 | 1.3.1.1.5.1 | Inspection | LLNL | B\&H | 1 | 0.3 wks | \$636.00 | \$0.00 | \$0.00 | \$636.00 | \$623.28 | \$188.89 | \$1,448.17 |
|  |  | LLNL Klystron: lechnician |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$636.00 | \$0.00 | \$0.00 | \$0.00 |
| 3280 | 1.3.1.1.5.1 | Alignment | LLNL | B\&H | 3 | 1 wk | \$2,280.00 | \$0.00 | \$0.00 | \$2,280.00 | \$2,234.40 | \$1,580.04 | \$6,094.44 |
|  |  | LLNL Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 3281 | 1.3.1.1.5.2 | Crystal Monochromator | LLNL |  | 0 | 45.4 wks | \$103,448.00 | \$0.00 | \$0.00 | \$103,448.00 | \$101,379.04 | \$62,372.38 | \$267,199.42 |
| 3282 | 1.3.1.1.5.2 | Engineering | LLNL | ED\& | 2 | 18 wks | \$45,360.00 | \$0.00 | \$0.00 | \$45,360.00 | \$44,452.80 | \$22,453.20 | \$112,266.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&I | 0 | 18 wks | \$0.00 | \$0.00 | \$0.00 | \$45,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 3283 | 1.3.1.1.5.2 | Design | LLNL | ED\& 1 | 3 | 24 wks | \$49,920.00 | \$0.00 | \$0.00 | \$49,920.00 | \$48,921.60 | \$34,594.56 | \$133,436.16 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 24 wks | \$0.00 | \$0.00 | \$0.00 | \$49,920.00 | \$0.00 | \$0.00 | \$0.00 |
| 3284 | 1.3.1.1.5.2 | Inspection | LLNL | B\&H | 1 | 0.4 wks | \$848.00 | \$0.00 | \$0.00 | \$848.00 | \$831.04 | \$251.86 | \$1,930.90 |
|  |  | LLNL Klystron: Technician |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$848.00 | \$0.00 | \$0.00 | \$0.00 |
| 3285 | 1.3.1.1.5.2 | Alignment planning | LLNL | B\&H | 3 | 1 wk | \$2,280.00 | \$0.00 | \$0.00 | \$2,280.00 | \$2,234.40 | \$1,580.04 | \$6,094.44 |
|  |  | LLNL Metrology:Eng.\& Surveyors |  | BKH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 3286 | 1.3.1.1.5.2 | Vacuum engineering | LLNL | ED\& | 3 | 2 wks | \$5,040.00 | \$0.00 | \$0.00 | \$5,040.00 | \$4,939.20 | \$3,492.72 | \$13,471.92 |
|  |  | LLNL AD: Mech/Vacuum Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 3287 | 1.3.1.1.6 | Diagnostics |  |  | 0 | 633.2 wks | \$1,549,992.00 | \$0.00 | \$0.00 | \$1,549,992.00 | \$1,518,992.16 | \$651,986.28 | \$3,720,970.44 |
| 3288 | 1.3.1.1.6.1 | Modeling and Simulation | LLNL |  | 0 | 207.9 wks | \$582,120.00 | \$0.00 | \$0.00 | \$582,120.00 | \$570,477.60 | \$172,889.64 | \$1,325,487.24 |
| 3289 | 1.3.1.1.6.1 | Ginger Intertace Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 3290 | 1.3.1.1.6.1 | FEL Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3291 | 1.3.1.1.6.1 | Harmonics Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\&1 | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3292 | 1.3.1.1.6.1 | Slit Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3293 | 1.3.1.1.6. 1 | Gas Attenuator Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3294 | 1.3.1.1.6.1 | Wedge Attenuator Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3295 | 1.3.1.1.6.1 | Mirror Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3296 | 1.3.1.1.6.1 | Direct Scintillation Imager Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\&I | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3297 | 1.3.1.1.6. 1 | Scattering Foil lmager Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3298 | 1.3.1.1.6. 1 | Micro Strip Ion Chamber Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\&I | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3299 | 1.3.1.1.6.1 | Diagnostics Tanks Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3300 | 1.3.1.1.6.1 | Calorimeter Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | $\$ 0.00$ | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3301 | 1.3.1.1.6.1 | Pulse Length Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\&1 | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3302 | 1.3.1.1.6. 1 | Spectrometer Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\&1 | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3303 | 1.3.1.1.6.1 | Transverse coherence Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3304 | 1.3.1.1.6.1 | Spatial Shape and Centroid Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\&1 | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3305 | 1.3.1.1.6.1 | Zone Plates Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3306 | 1.3.1.1.6.1 | Divergence Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | EDQ1 | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 3307 | 1.3.1.1.6. 1 | KB Mirrors Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | obs | PHASE | $\begin{array}{\|c} \text { Risk } \\ \hline 0 \end{array}$ | Units <br> 4.95 wks | PED (Direct)$\$ 0.00$ | $\frac{\text { M } 2 S \text { (Direct) }}{80.00}$ | Labor (Direct) | Direct Cost \$13,860.00 | Overhead Cost <br> $\$ 0.00$ | Contingency Cost | Total Cost |
|  |  | LLNL Physicist - Senior Scientist |  |  |  |  |  |  | \$0.00 |  |  | \$0.00 | \$0.00 |
| 3308 | 1.3.1.1.6.1 | Divergence Wave Model |  | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | $\$ 0.00$ | $\$ 0.00$ |
| 3309 | 1.3.1.1.6.1 | Monochrometer Wave Model | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3310 | 1.3.1.1.6.1 | Spontanious Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3311 | 1.3.1.1.6.1 | FEL Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\&1 | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3312 | 1.3.1.1.6.1 | Harmonics Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3313 | 1.3.1.1.6.1 | Slit Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3314 | 1.3.1.1.6.1 | Gas Attenuator Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3315 | 1.3.1.1.6.1 | Wedge Attenuator Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3316 | 1.3.1.1.6.1 | Mirror Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3317 | 1.3.1.1.6.1 | Direct Scintillation Imager Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3318 | 1.3.1.1.6.1 | Scattering Foil Imager Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\&1 | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3319 | 1.3.1.1.6.1 | Micro Strip Ion Chamber Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3320 | 1.3.1.1.6. 1 | Diagnostics Tanks Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3321 | 1.3.1.1.6.1 | Calorimeter Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3322 | 1.3.1.1.6.1 | Pulse Length Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3323 | 1.3.1.1.6.1 | Spectrometer Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 3324 | 1.3.1.1.6.1 | Iransverse coherence Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{3325}$ | CWBS | Task Name | obs | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.1.1.6.1 | Spatial Shape and Centroid Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\&1 | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3326 | 1.3.1.1.6.1 | Lone Plates Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3327 | 1.3.1.1.6.1 | Divergence Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\&1 | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3328 | 1.3.1.1.6.1 | KB Mirrors Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | EDQ1 | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3329 | 1.3.1.1.6.1 | Divergence Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3330 | 1.3.1.1.6.1 | Monochrometer Monte Carlo | LLNL | ED\& | 1 | 4.95 wks | \$13,860.00 | \$0.00 | \$0.00 | \$13,860.00 | \$13,582.80 | \$4,116.42 | \$31,559.22 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 4.95 wks | \$0.00 | \$0.00 | \$0.00 | \$13,860.00 | \$0.00 | \$0.00 | \$0.00 |
| 3331 | 1.3.1.1.6.2 | Direct Scintillator Imager | LLNL |  | 0 | 49 wks | \$115,072.00 | \$0.00 | \$0.00 | \$115,072.00 | \$112,770.56 | \$56,960.64 | \$284,803.20 |
| 3332 | 1.3.1.1.6.2 | PDR Scintillator and light levels | LLNL | ED\& | 2 | 1 wk | \$2,800.00 | \$0.00 | \$0.00 | \$2,800.00 | \$2,744.00 | \$1,386.00 | \$6,930.00 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 3333 | 1.3.1.1.6.2 | PDR Optical Design | LLNL | ED\& | 2 | 0.6 wks | \$1,680.00 | \$0.00 | \$0.00 | \$1,680.00 | \$1,646.40 | \$831.60 | \$4,158.00 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 3334 | 1.3.1.1.6.2 | PDR Motion requirements | LLNL | ED\& | 2 | 0.4 wks | \$1,120.00 | \$0.00 | \$0.00 | \$1,120.00 | \$1,097.60 | \$554.40 | \$2,772.00 |
|  |  | LLNL Physicist - Senior Scientist |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 3335 | 1.3.1.1.6.2 | PDR CCD system EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3336 | 1.3.1.1.6.2 | PDR TE Cooling / Chiller EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3337 | 1.3.1.1.6.2 | PDR Optical Specitication EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3338 | 1.3.1.1.6.2 | PDR Readout / Data Acquisition EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3339 | 1.3.1.1.6.2 | PDR Motors EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3340 | 1.3.1.1.6.2 | PDR Drafting EE | LLNL | ED\& | 2 | 2 wks | \$4,160.00 | \$0.00 | \$0.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3341 | 1.3.1.1.6.2 | PDR Camera Housing ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3342 | 1.3.1.1.6.2 | PDR Objective/CCD ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cWbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| $3343$ | 1.3.1.1.6.2 | PDR Scintillator Objective ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3344 | 1.3.1.1.6.2 | PDR Base Plate ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3345 | 1.3.1.1.6.2 | PDR ME Drafing | LLNL | ED\& | 2 | 2 wks | \$4,160.00 | \$0.00 | \$0.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3346 | 1.3.1.1.6.2 | FDR Design and Theory | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist-Scientist |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3347 | 1.3.1.1.6.2 | FDR Scintillating Crystal EE | LLNL | ED\&1 | 2 | 2 wks | \$4,960.00 | \$0.00 | \$0.00 | \$4,960.00 | \$4,860.80 | \$2,455.20 | \$12,276.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 3348 | 1.3.1.1.6.2 | FDR Prism EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3349 | 1.3.1.1.6.2 | FDR Microscope objective EE | LLNL | ED\& 1 | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3350 | 1.3.1.1.6.2 | FDR Microchannel plate EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3351 | 1.3.1.1.6.2 | FDR 120 Hz CCDEE | LLNL | ED\& | 2 | 3 wks | \$7,440.00 | \$0.00 | \$0.00 | \$7,440.00 | \$7,291.20 | \$3,682.80 | \$18,414.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 3352 | 1.3.1.1.6.2 | FDR IE Cooler EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3353 | 1.3.1.1.6.2 | FDR CCD Analog board EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3354 | 1.3.1.1.6.2 | FDR Camera Digital board EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3355 | 1.3.1.1.6.2 | FDR Microchannel plate HV board EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3356 | 1.3.1.1.6.2 | FDR Camera Interface board EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3357 | 1.3.1.1.6.2 | FDR Computer Interrace board EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3358 | 1.3.1.1.6.2 | FDR System Dratting EE | LLNL | ED\& | 2 | 0.6 wks | \$1,248.00 | \$0.00 | \$0.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3359 | 1.3.1.1.6.2 | FDR CCD Analog board Dratting EE | LLNL | ED\&1 | 2 | 0.6 wks | \$1,248.00 | \$0.00 | \$0.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3360 | 1.3.1.1.6.2 | FDR Camera Digital board Dratting EE | LLNL | ED\& | 2 | 0.6 wks | \$1,248.00 | \$0.00 | \$0.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL Mech Drafting/Design |  | ED\& | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3361 | 1.3.1.1.6.2 | FDR Prism mount ME | LLNL | ED\&1 | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3362 | 1.3.1.1.6.2 | FDR Prism to objective motorized stage ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3363 | 1.3.1.1.6.2 | FDR Microscope objective ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3364 | 1.3.1.1.6.2 | FDR Objective to CCD manual stage ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3365 | 1.3.1.1.6.2 | FDR Microchannel plate I/F ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3366 | 1.3.1.1.6.2 | FDR TE Cooler ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3367 | 1.3.1.1.6.2 | FDR CCD Analog board ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3368 | 1.3.1.1.6.2 | FDR Camera Digital board ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3369 | 1.3.1.1.6.2 | FDR Microchannel plate HV board ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3370 | 1.3.1.1.6.2 | FDR Camera Interface board ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3371 | 1.3.1.1.6.2 | FDR Computer Interface board ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3372 | 1.3.1.1.6.2 | FDR Camera vaccum housing ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3373 | 1.3.1.1.6.2 | FDR Cold finger ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3374 | 1.3.1.1.6.2 | FDR Chiller ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3375 | 1.3.1.1.6.2 | FDR System ME Drafing | LLNL | ED\& | 2 | 0.6 wks | \$1,248.00 | \$0.00 | \$0.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3376 | 1.3.1.1.6.2 | FDR Prism to objective motorized stage ME Drating | LLNL | ED\& | 2 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 3377 | 1.3.1.1.6.2 | FDR Objective to CCD manual stage ME Drating | LLNL | ED\& | 2 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{3378}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.1.1.6.2 | FDR Camera vaccum housing ME Drafing | LLNL | ED\& | 2 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 3379 | 1.3.1.1.6.2 | FDR Cold tinger ME Drating | LLNL | ED\& | 2 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3380 | 1.3.1.1.6.2 | Computer Documentation \& drafting | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3381 | 1.3.1.1.6.2 | Computer Interface Programming | LLNL | ED\& | 2 | 6 wks | \$12,960.00 | \$0.00 | \$0.00 | \$12,960.00 | \$12,700.80 | \$6,415.20 | \$32,076.00 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$12,960.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3382 | 1.3.1.1.6.2 | Image Analysis | LLNL | ED\& | 2 | 6 wks | \$12,960.00 | \$0.00 | \$0.00 | \$12,960.00 | \$12,700.80 | \$6,415.20 | \$32,076.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$12,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 3383 | 1.3.1.1.6.3 | Scattering Foil Imager | LLNL |  | 0 | 23.4 wks | \$39,200.00 | \$0.00 | \$0.00 | \$39,200.00 | \$38,416.00 | \$19,404.00 | \$97,020.00 |
| 3384 | 1.3.1.1.6.3 | PDR Reflectivity and Thickness Design and Theory | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist -Scientist |  | EDQ1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3385 | 1.3.1.1.6.3 | PDR Motion requirements Design and Theory | LLNL | ED\& | 2 | 0.4 wks | \$864.00 | \$0.00 | \$0.00 | \$864.00 | \$846.72 | \$427.68 | \$2,138.40 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$864.00 | \$0.00 | \$0.00 | \$0.00 |
| 3386 | 1.3.1.1.6.3 | PDR Motors | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3387 | 1.3.1.1.6.3 | PDR Motor Controller EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3388 | 1.3.1.1.6.3 | PDR Motor Computer I/F EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3389 | 1.3.1.1.6.3 | PDR Electrical Hardware EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\&I | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3390 | 1.3.1.1.6.3 | PDR Dratting EE | LLNL | ED\& | 2 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 3391 | 1.3.1.1.6.3 | PDR Be foil ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3392 | 1.3.1.1.6.3 | PDR Be toil mount ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3393 | 1.3.1.1.6.3 | PDR Mirror mount ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3394 | 1.3.1.1.6.3 | PDR Mirror motorized rotation stage ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3395 | 1.3.1.1.6.3 | PDR Base plate ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 3396 | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.1.1.6.3 | PDR Camera Base Plate ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3397 | 1.3.1.1.6.3 | PDR Camera motorized horizontal stage ME | LLNL | ED\&1 | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3398 | 1.3.1.1.6.3 | PDR Camera motorized verticle stage ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3399 | 1.3.1.1.6.3 | PDR Mechanical Hardware ME | LLNL | ED\&1 | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3400 | 1.3.1.1.6.3 | PDR ME Drating | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3401 | 1.3.1.1.6.3 | FDR Reflectivity and Thickness Design and Theory | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3402 | 1.3.1.1.6.3 | FDR Motion requirements Design and Theory | LLNL | ED\&1 | 2 | 0.4 wks | \$864.00 | \$0.00 | \$0.00 | \$864.00 | \$846.72 | \$427.68 | \$2,138.40 |
|  |  | LLNL Physicist-Scientist |  | ED\&I | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$864.00 | \$0.00 | \$0.00 | \$0.00 |
| 3403 | 1.3.1.1.6.3 | FDR Motors EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3404 | 1.3.1.1.6.3 | FDR Motor Controller EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3405 | 1.3.1.1.6.3 | FDR Motor Computer I/F EE | LLNL | ED\& 1 | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3406 | 1.3.1.1.6.3 | FDR Electrical Hardware EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3407 | 1.3.1.1.6.3 | FDR Dratting EE | LLNL | ED\&1 | 2 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3408 | 1.3.1.1.6.3 | FDR Be foil ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3409 | 1.3.1.1.6.3 | FDR Be foil mount ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\&I | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3410 | 1.3.1.1.6.3 | FDR Mirror mount ME | LLNL | ED\& 1 | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3411 | 1.3.1.1.6.3 | FDR Mirror motorized rotation stage ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | $\$ 0.00$ | $\$ 0.00$ | \$504.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3412 | 1.3.1.1.6.3 | FDR Base plate ME | LLNL | ED\&1 | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\&I | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3413 | 1.3.1.1.6.3 | FDR Camera Base Plate ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |



| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3432 | 1.3.1.1.6.4 | PDR ME Drafing | LLNL | ED\&1 | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3433 | 1.3.1.1.6.4 | FDR Design and Theory | LLNL | ED\& | 2 | 3 wks | \$6,480.00 | \$0.00 | \$0.00 | \$6,480.00 | \$6,350.40 | \$3,207.60 | \$16,038.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | $3 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$6,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3434 | 1.3.1.1.6.4 | FDR Pumping Controller EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3435 | 1.3.1.1.6.4 | FDR Anode Et | LLNL | ED\& | 2 | 3 wks | \$7,440.00 | \$0.00 | \$0.00 | \$7,440.00 | \$7,291.20 | \$3,682.80 | \$18,414.00 |
|  |  | LLNL Electrical Engineer |  | EDQ1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 3436 | 1.3.1.1.6.4 | FDR Cathode EE | LLNL | ED\& | 2 | 2 wks | \$4,960.00 | \$0.00 | \$0.00 | \$4,960.00 | \$4,860.80 | \$2,455.20 | \$12,276.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 3437 | 1.3.1.1.6.4 | FDR Amplifier EE | LLNL | ED\&I | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3438 | 1.3.1.1.6.4 | FDR Data Processing Electronics EE | LLNL | ED\& | 2 | 2 wks | \$4,960.00 | \$0.00 | \$0.00 | \$4,960.00 | \$4,860.80 | \$2,455.20 | \$12,276.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 3439 | 1.3.1.1.6.4 | FDR Safety Note EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3440 | 1.3.1.1.6.4 | FDR Pumping Controller Dratting EE | LLNL | ED\& | 2 | 0.6 wks | \$1,248.00 | \$0.00 | \$0.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3441 | 1.3.1.1.6.4 | FDR Anode Dratting EE | LLNL | ED\& | 2 | 0.6 wks | \$1,248.00 | \$0.00 | \$0.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3442 | 1.3.1.1.6.4 | FDR Cathode Dratting EE | LLNL | ED\& | 2 | 0.6 wks | \$1,248.00 | \$0.00 | \$0.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3443 | 1.3.1.1.6.4 | FDR Data Processing Electronics Dratting EE | LLNL | ED\& | 2 | 0.6 wks | \$1,248.00 | \$0.00 | \$0.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3444 | 1.3.1.1.6.4 | FDR System Controller Engineering ME | LLNL | ED\& | 2 | 3 wks | \$7,560.00 | \$0.00 | \$0.00 | \$7,560.00 | \$7,408.80 | \$3,742.20 | \$18,711.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 3445 | 1.3.1.1.6.4 | FDR Manitold ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3446 | 1.3.1.1.6.4 | FDR Turbo Pumps Engineering ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3447 | 1.3.1.1.6.4 | FDR Dry Pumps ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3448 | 1.3.1.1.6.4 | FDR Chamber ME | LLNL | ED\& | 2 | 2 wks | \$5,040.00 | \$0.00 | \$0.00 | \$5,040.00 | \$4,939.20 | \$2,494.80 | \$12,474.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 3449 | 1.3.1.1.6.4 | FDR Stand ME | LLNL | ED\& | 2 | 2 wks | \$5,040.00 | \$0.00 | \$0.00 | \$5,040.00 | \$4,939.20 | \$2,494.80 | \$12,474.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 3450 | 1.3.1.1.6.4 | FDR Venture and Oritice ME | LLNL | ED\& | 2 | 3 wks | \$7,560.00 | \$0.00 | \$0.00 | \$7,560.00 | \$7,408.80 | \$3,742.20 | \$18,711.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 3451 | 1.3.1.1.6.4 | FDR FDR Blower ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3452 | 1.3.1.1.6.4 | FDR Hardware ME | LLNL | ED\& | 2 | 2 wks | \$5,040.00 | \$0.00 | \$0.00 | \$5,040.00 | \$4,939.20 | \$2,494.80 | \$12,474.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 3453 | 1.3.1.1.6.4 | FDR Satety Note ME | LLNL | ED\& | 2 | 4 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$9,878.40 | \$4,989.60 | \$24,948.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& 1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3454 | 1.3.1.1.6.4 | FDR System Controller Engineering ME Drating | LLNL | ED\& | 2 | 0.6 wks | \$1,248.00 | \$0.00 | \$0.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3455 | 1.3.1.1.6.4 | FDR Manitold ME Drating | LLNL | ED\& 1 | 2 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 3456 | 1.3.1.1.6.4 | FDR Turbo Pumps Engineering ME Drating | LLNL | ED\& | 2 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 3457 | 1.3.1.1.6.4 | FDR Dry Pumps ME Drafing | LLNL | ED\& | 2 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3458 | 1.3.1.1.6.4 | FDR Chamber ME Drating | LLNL | ED\& | 2 | 0.6 wks | \$1,248.00 | \$0.00 | \$0.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3459 | 1.3.1.1.6.4 | FDR Stand ME Drafing | LLNL | ED\& | 2 | 0.6 wks | \$1,248.00 | \$0.00 | \$0.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3460 | 1.3.1.1.6.4 | FDR Venture and Ortice ME Drating | LLNL | ED\& | 2 | 0.6 wks | \$1,248.00 | \$0.00 | \$0.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3461 | 1.3.1.1.6.4 | FDR Blower ME Drafing | LLNL | ED\& | 2 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\& 1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 3462 | 1.3.1.1.6.4 | FDR Hardware ME Drating | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3463 | 1.3.1.1.6.4 | Computer Documentation \& dratting | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3464 | 1.3.1.1.6.4 | Computer Interface Programming | LLNL | ED\& | 2 | 8 wks | \$17,280.00 | \$0.00 | \$0.00 | \$17,280.00 | \$16,934.40 | \$8,553.60 | \$42,768.00 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$17,280.00 | $\$ 0.00$ | \$0.00 | $\$ 0.00$ |
| 3465 | 1.3.1.1.6.4 | System Controller Programming | LLNL | ED\& | 2 | 6 wks | \$12,960.00 | \$0.00 | \$0.00 | \$12,960.00 | \$12,700.80 | \$6,415.20 | \$32,076.00 |
|  |  | LLNL Physicist-Scientist |  | ED\&1 | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$12,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 3466 | 1.3.1.1.6.4 | Signal Analysis | LLNL | ED\& | 2 | 6 wks | \$12,960.00 | \$0.00 | \$0.00 | \$12,960.00 | \$12,700.80 | \$6,415.20 | \$32,076.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | $\begin{array}{\|l\|} \hline \text { Risk } \\ \hline \end{array}$ | Units <br> 6 wks | $\frac{\text { PED (Direct) }}{\$ 0.00}$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct)$\qquad$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 12,960.00 \end{aligned}$ | $\begin{array}{r} \text { Overhead Cost } \\ \$ 0.00 \end{array}$ | Contingency Cost $\$ 0.00$ | $\begin{aligned} & \text { Total Cost } \\ & \$ 0.00 \end{aligned}$ |
|  |  | LLNL Physicist -Scientist |  |  |  |  |  |  |  |  |  |  |  |
| 3467 | 1.3.1.1.6.5 | Gas Mixing System | LLNL |  | 0 | 35.5 wks | \$81,040.00 | \$0.00 | \$0.00 | \$81,040.00 | \$79,419.20 | \$40,114.80 | \$200,574.00 |
| 3468 | 1.3.1.1.6.5 | Satety Note Design and Theory | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3469 | 1.3.1.1.6.5 | Safety Note Electrical Engineering | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist -Scientist |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3470 | 1.3.1.1.6.5 | Safety Note Dratting EE | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | EDQ1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3471 | 1.3.1.1.6.5 | Satety Note ME Engineering | LLNL | ED\& | 2 | 4 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$9,878.40 | \$4,989.60 | \$24,948.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3472 | 1.3.1.1.6.5 | Safety Note Dratting ME | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3473 | 1.3.1.1.6.5 | Satety Note Documentation | LLNL | ED\& | 2 | 1 wk | \$1,520.00 | \$0.00 | \$0.00 | \$1,520.00 | \$1,489.60 | \$752.40 | \$3,762.00 |
|  |  | LLNL Administration |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3474 | 1.3.1.1.6.5 | Design and Theory | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3475 | 1.3.1.1.6.5 | System Controller EE | LLNL | ED\& | 2 | 4 wks | \$8,640.00 | \$0.00 | \$0.00 | \$8,640.00 | \$8,467.20 | \$4,276.80 | \$21,384.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,640.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3476 | 1.3.1.1.6.5 | System Power EE | LLNL | ED\& | 2 | 2 wks | \$4,320.00 | \$0.00 | \$0.00 | \$4,320.00 | \$4,233.60 | \$2,138.40 | \$10,692.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 3477 | 1.3.1.1.6.5 | System Controller Dratting EE | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3478 | 1.3.1.1.6.5 | System Power Dratting EE | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3479 | 1.3.1.1.6.5 | System engineering ME | LLNL | ED\& | 2 | 3 wks | \$7,560.00 | \$0.00 | \$0.00 | \$7,560.00 | \$7,408.80 | \$3,742.20 | \$18,711.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 3480 | 1.3.1.1.6.5 | System Controller ME | LLNL | ED\& | 2 | 2 wks | \$5,040.00 | \$0.00 | \$0.00 | \$5,040.00 | \$4,939.20 | \$2,494.80 | \$12,474.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 3481 | 1.3.1.1.6.5 | Engineering Bottle Manitold ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3482 | 1.3.1.1.6.5 | Engineering Transfer Manifold ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3483 | 1.3.1.1.6.5 | Storage lanks Engineering ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3484 | 1.3.1.1.6.5 | Engineering Hardware ME | LLNL | ED\& | 2 | 2 wks | \$5,040.00 | \$0.00 | \$0.00 | \$5,040.00 | \$4,939.20 | \$2,494.80 | \$12,474.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 3485 | 1.3.1.1.6.5 | Engineering Hardware Blower ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | EDEI | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3486 | 1.3.1.1.6.5 | System ME Drating | LLNL | ED\&1 | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& 1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3487 | 1.3.1.1.6.5 | System Controller ME Drating | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& 1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3488 | 1.3.1.1.6.5 | Bottle Manitold ME Drating | LLNL | ED\& 1 | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3489 | 1.3.1.1.6.5 | Transter Manifold ME Drating | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3490 | 1.3.1.1.6.5 | Storage Tank ME Drating | LLNL | ED\& | 2 | 0.5 wks | \$1,040.00 | \$0.00 | \$0.00 | \$1,040.00 | \$1,019.20 | \$514.80 | \$2,574.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 3491 | 1.3.1.1.6.5 | Hardware ME Drating | LLNL | ED\& 1 | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3492 | 1.3.1.1.6.5 | Blower ME Drafing | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3493 | 1.3.1.1.6.6 | Tank FEE 1 | LLNL |  | 0 | 251.6 wks | \$580,040.00 | \$0.00 | \$0.00 | \$580,040.00 | \$568,439.20 | \$287,119.80 | \$1,435,599.00 |
| 3494 | 1.3.1.1.6.6 | PDR Design and Theory | LLNL | ED\& 1 | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& 1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3495 | 1.3.1.1.6.6 | PDR Electrical Engineering | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3496 | 1.3.1.1.6.6 | PDR Dratting EE | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3497 | 1.3.1.1.6.6 | PDR ME Engineering | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3498 | 1.3.1.1.6.6 | PDR Dratting ME | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3499 | 1.3.1.1.6.6 | FDR Design and Theory | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist -Scientist |  | ED\&/ | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3500 | 1.3.1.1.6.6 | FDR Data Acqusition EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | EDEI | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3501 | 1.3.1.1.6.6 | FDR Controls I/FEE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 3502 | 1.3.1.1.6.6 | FDR Motors EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name LLNL Electrical Engineer | obs | PHASE | Risk | Units | $\frac{\text { PED (Direct) }}{\$ 0.00}$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | $\begin{aligned} & \text { Labor (Direct) } \\ & \$ 0.00 \end{aligned}$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 2,480.00 \end{aligned}$ | $\begin{array}{r} \text { Overhead Cost } \\ \$ 0.00 \end{array}$ | Contingency Cost | Total Cost |
|  |  |  |  |  |  | 1 wk |  |  |  |  |  | \$0.00 |  |
| 3503 | 1.3.1.1.6.6 | FDR Data Acqusition Drafting EE | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | EDQI | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 3504 | 1.3.1.1.6.6 | FDR Controis I/F Dratting EE | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3505 | 1.3.1.1.6.6 | FDR Tank ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3506 | 1.3.1.1.6.6 | FDR Iurbo System ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3507 | 1.3.1.1.6.6 | FDR Stand ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& 1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3508 | 1.3.1.1.6.6 | FDR D I Imager insertion stage ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3509 | 1.3.1.1.6.6 | FDR SF Imager insertion stage ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3510 | 1.3.1.1.6.6 | FDR Spare insertion stage ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3511 | 1.3.1.1.6.6 | FDR I Iank ME Dratting | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3512 | 1.3.1.1.6.6 | FDR Turbo System ME Dratting | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& 1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3513 | 1.3.1.1.6.6 | FDR Stand ME Dratting | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | EDQ1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3514 | 1.3.1.1.6.6 | FDR DI Imager insertion stage ME Dratting | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3515 | 1.3.1.1.6.6 | FDR SF Imager insertion stage ME Dratting | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3516 | 1.3.1.1.6.6 | FDR Spare insertion stage ME Dratting | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | EDEI | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3517 | 1.3.1.1.6.7 | Ion Pumped Diagnostic Tanks | LLNL |  | 0 | 15.8 wks | \$35,760.00 | \$0.00 | \$0.00 | \$35,760.00 | \$35,044.80 | \$17,701.20 | \$88,506.00 |
| 3518 | 1.3.1.1.6.7 | PDR Design and Theory | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist -Scientist |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3519 | 1.3.1.1.6.7 | PDR Electrical Engineering | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | EDQ | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3520 | 1.3.1.1.6.7 | PDR Dratting EE | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3521 | 1.3.1.1.6.7 | PDR ME Engineering | LLNL | ED\&1 | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3522 | 1.3.1.1.6.7 | PDR Dratting ME | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3523 | 1.3.1.1.6.7 | Design and Theory | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3524 | 1.3.1.1.6.7 | Data Acqusition Et | LLNL | ED\& | 2 | 0.4 wks | \$992.00 | \$0.00 | \$0.00 | \$992.00 | \$972.16 | \$491.04 | \$2,455.20 |
|  |  | LLNL Electrical Engineer |  | EDQ1 | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$992.00 | \$0.00 | \$0.00 | \$0.00 |
| 3525 | 1.3.1.1.6.7 | Controls I/F EE | LLNL | ED\& | 2 | 0.4 wks | \$992.00 | \$0.00 | \$0.00 | \$992.00 | \$972.16 | \$491.04 | \$2,455.20 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$992.00 | \$0.00 | \$0.00 | \$0.00 |
| 3526 | 1.3.1.1.6.7 | Motors EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3527 | 1.3.1.1.6.7 | Data Acqusition Dratting EE | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3528 | 1.3.1.1.6.7 | Controls I/F Dratting EE | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3529 | 1.3.1.1.6.7 | tank ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3530 | 1.3.1.1.6.7 | Ion System ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3531 | 1.3.1.1.6.7 | Stand ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3532 | 1.3.1.1.6.7 | DI Imager insertion stage ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3533 | 1.3.1.1.6.7 | SF Imager insertion stage ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3534 | 1.3.1.1.6.7 | l ank ME Dratting | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3535 | 1.3.1.1.6.7 | Ion System ME Dratting | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3536 | 1.3.1.1.6.7 | Stand ME Dratting | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3537 | 1.3.1.1.6.7 | DII Imager insertion stage ME Dratting | LLNL | ED\& | 2 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cwbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 3538 | 1.3.1.1.6.7 | SF Imager insertion stage ME Drafting | LLNL | ED\& | 2 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 3539 | 1.3.1.1.6.8 | Diagnostic Tank A4 1 | LLNL |  | 0 | 23 wks | \$52,680.00 | \$0.00 | \$0.00 | \$52,680.00 | \$51,626.40 | \$26,076.60 | \$130,383.00 |
| 3540 | 1.3.1.1.6.8 | PDR Design and Theory | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3541 | 1.3.1.1.6.8 | PDR Electrical Engineering | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3542 | 1.3.1.1.6.8 | PDR Dratting EE | LLNL | ED\& 1 | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/vesign |  | EDQ1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3543 | 1.3.1.1.6.8 | PDRME Engineering | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3544 | 1.3.1.1.6.8 | PDR Dratting ME | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3545 | 1.3.1.1.6.8 | FDR Design and Theory | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3546 | 1.3.1.1.6.8 | FDR Data Acqusition EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3547 | 1.3.1.1.6.8 | FDR Controls I/F EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | EDQ1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3548 | 1.3.1.1.6.8 | FDR Motors EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\& 1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3549 | 1.3.1.1.6.8 | FDR Drafting EE | LLNL |  | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3550 | 1.3.1.1.6.8 | FDR Data Acqusition Dratting EE | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3551 | 1.3.1.1.6.8 | FDR Controls I/F Dratting EE | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | EDQ1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3552 | 1.3.1.1.6.8 | FDR Tank ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3553 | 1.3.1.1.6.8 | FDR Iurbo System ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3554 | 1.3.1.1.6.8 | FDR Stand ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3555 | 1.3.1.1.6.8 | FDR DI Imager insertion stage ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3556 | 1.3.1.1.6.8 | FDR Rail Alignment Stages ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3557 | 1.3.1.1.6.8 | FDR Optics and Aperure Stage ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | EDQ1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3558 | 1.3.1.1.6.8 | FDR I ank ME Drating | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3559 | 1.3.1.1.6.8 | FDR Turbo System ME Drafing | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3560 | 1.3.1.1.6.8 | FDR Stand ME Drating | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3561 | 1.3.1.1.6.8 | FDR DI Imager insertion stage ME Drafing | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3562 | 1.3.1.1.6.8 | FDR Rail Alignment Stages ME Drating | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3563 | 1.3.1.1.6.8 | FDR Optics and Aperure Stage ME Drating | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3564 | 1.3.1.1.6.9 | Total Energy | LLNL |  | 0 | 67.6 wks | \$156,584.00 | \$0.00 | \$0.00 | \$156,584.00 | \$153,452.32 | \$77,509.08 | \$387,545.40 |
| 3565 | 1.3.1.1.6.9 | PDR Thermal modeling | LLNL | ED\& | 2 | 2 wks | \$4,320.00 | \$0.00 | \$0.00 | \$4,320.00 | \$4,233.60 | \$2,138.40 | \$10,692.00 |
|  |  | LLNL Physicist-Scientist |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 3566 | 1.3.1.1.6.9 | PDR X Ray Absorber EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3567 | 1.3.1.1.6.9 | PDR Black Body EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3568 | 1.3.1.1.6.9 | PDR Front End Electronics EE | LLNL | ED\& | 2 | 0.1 wks | \$248.00 | \$0.00 | \$0.00 | \$248.00 | \$243.04 | \$122.76 | \$613.80 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3569 | 1.3.1.1.6.9 | PDR Signal Processing Electronics EE | LLNL | ED\& | 2 | 0.1 wks | \$248.00 | \$0.00 | \$0.00 | \$248.00 | \$243.04 | \$122.76 | \$613.80 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3570 | 1.3.1.1.6.9 | PDR Computer I/F Electronics EE | LLNL | ED\& | 2 | 0.1 wks | \$248.00 | \$0.00 | \$0.00 | \$248.00 | \$243.04 | \$122.76 | \$613.80 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3571 | 1.3.1.1.6.9 | PDR Front End Electronics Dratting EE | LLNL | ED\&I | 2 | 0.1 wks | \$208.00 | \$0.00 | \$0.00 | \$208.00 | \$203.84 | \$102.96 | \$514.80 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$208.00 | \$0.00 | \$0.00 | \$0.00 |
| 3572 | 1.3.1.1.6.9 | PDR Signal Processing Electronics Drafting EE | LLNL | ED\& | 2 | 0.1 wks | \$208.00 | \$0.00 | \$0.00 | \$208.00 | \$203.84 | \$102.96 | \$514.80 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$208.00 | \$0.00 | \$0.00 | \$0.00 |
| 3573 | 1.3.1.1.6.9 | PDR Absorber Dratting EE | LLNL | ED\& | 2 | 0.1 wks | \$208.00 | \$0.00 | \$0.00 | \$208.00 | \$203.84 | \$102.96 | \$514.80 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$208.00 | \$0.00 | \$0.00 | \$0.00 |
| 3574 | 1.3.1.1.6.9 | PDR X Ray Absorber ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3575 | 1.3.1.1.6.9 | PDR Thermal Semiconductor ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3576 | 1.3.1.1.6.9 | PDR Cold Head ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& 1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3577 | 1.3.1.1.6.9 | PDR Black Body ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3578 | 1.3.1.1.6.9 | PDR Pedistal mount ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\&I | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3579 | 1.3.1.1.6.9 | PDR Thermal Semiconductor ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3580 | 1.3.1.1.6.9 | PDR Temperature probes ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3581 | 1.3.1.1.6.9 | PDR Water absorber ME | LLNL | ED\& 1 | 2 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.2 wks | $\$ 0.00$ | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 3582 | 1.3.1.1.6.9 | PDR Absorber ME Dratting | LLNL | ED\& | 2 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 3583 | 1.3.1.1.6.9 | PDR Thermal Semiconductor ME Drating | LLNL | ED\& | 2 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 3584 | 1.3.1.1.6.9 | PDR Cold Head ME Dratting | LLNL | ED\& | 2 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 3585 | 1.3.1.1.6.9 | PDR Black Body ME Drafting | LLNL | ED\& | 2 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 3586 | 1.3.1.1.6.9 | PDR Pedistal mount ME Dratting | LLNL | ED\& | 2 | 0.2 wks | \$416.00 | \$0.00 | \$0.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 3587 | 1.3.1.1.6.9 | FDR Thermal modeling | LLNL | ED\& | 2 | 6 wks | \$12,960.00 | \$0.00 | \$0.00 | \$12,960.00 | \$12,700.80 | \$6,415.20 | \$32,076.00 |
|  |  | LLNL Physicist-Scientist |  | ED\&1 | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$12,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 3588 | 1.3.1.1.6.9 | FDR X Ray Absorber EE | LLNL | ED\& | 2 | 2 wks | \$4,960.00 | \$0.00 | \$0.00 | \$4,960.00 | \$4,860.80 | \$2,455.20 | \$12,276.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 3589 | 1.3.1.1.6.9 | FDR Black Body EE | LLNL | ED\& | 2 | 3 wks | \$7,440.00 | \$0.00 | \$0.00 | \$7,440.00 | \$7,291.20 | \$3,682.80 | \$18,414.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 3590 | 1.3.1.1.6.9 | FDR Front End Electronics EE | LLNL | ED\& | 2 | 3 wks | \$7,440.00 | \$0.00 | \$0.00 | \$7,440.00 | \$7,291.20 | \$3,682.80 | \$18,414.00 |
|  |  | LLNL Electrical Engineer |  | ED\&I | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 3591 | 1.3.1.1.6.9 | FDR Signal Processing Electronics EE | LLNL | ED\& 1 | 2 | 2 wks | \$4,960.00 | \$0.00 | \$0.00 | \$4,960.00 | \$4,860.80 | \$2,455.20 | \$12,276.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,960.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cWbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| $3592$ | 1.3.1.1.6.9 | FDR Computer I/F Electronics EE | LLNL | ED\& | 2 | 2 wks | \$4,160.00 | \$0.00 | \$0.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3593 | 1.3.1.1.6.9 | FDR Front End Electronics Dratting EE | LLNL | ED\& 1 | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3594 | 1.3.1.1.6.9 | FDR Signal Processing Electronics Dratting EE | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3595 | 1.3.1.1.6.9 | FDR X Ray Absorber Dratting EE | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3596 | 1.3.1.1.6.9 | FDR X ray Absorber ME | LLNL | ED\&1 | 2 | 2 wks | \$5,040.00 | \$0.00 | \$0.00 | \$5,040.00 | \$4,939.20 | \$2,494.80 | \$12,474.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 3597 | 1.3.1.1.6.9 | FDR Thermal Semiconductor ME | LLNL | ED\& | 2 | 4 wks | \$10,080.00 | \$0.00 | \$0.00 | \$10,080.00 | \$9,878.40 | \$4,989.60 | \$24,948.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3598 | 1.3.1.1.6.9 | FDR Cold Head ME | LLNL | ED\&1 | 2 | 3 wks | \$7,560.00 | \$0.00 | \$0.00 | \$7,560.00 | \$7,408.80 | \$3,742.20 | \$18,711.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&I | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 3599 | 1.3.1.1.6.9 | FDR Black Body ME | LLNL | ED\& | 2 | 3 wks | \$7,560.00 | \$0.00 | \$0.00 | \$7,560.00 | \$7,408.80 | \$3,742.20 | \$18,711.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 3600 | 1.3.1.1.6.9 | FDR Pedistal mount ME | LLNL | ED\& | 2 | 3 wks | \$7,560.00 | \$0.00 | \$0.00 | \$7,560.00 | \$7,408.80 | \$3,742.20 | \$18,711.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&I | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 3601 | 1.3.1.1.6.9 | FDR I emperature probes ME | LLNL | ED\&1 | 2 | 2 wks | \$5,040.00 | \$0.00 | \$0.00 | \$5,040.00 | \$4,939.20 | \$2,494.80 | \$12,474.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 3602 | 1.3.1.1.6.9 | FDR Water absorber ME | LLNL | ED\& | 2 | 3 wks | \$7,560.00 | \$0.00 | \$0.00 | \$7,560.00 | \$7,408.80 | \$3,742.20 | \$18,711.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 3603 | 1.3.1.1.6.9 | FDR X ray Absorber ME Dratting | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3604 | 1.3.1.1.6.9 | FDR Thermal Semiconductor ME Dratting | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3605 | 1.3.1.1.6.9 | FDR Cold Head ME Dratting | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3606 | 1.3.1.1.6.9 | FDR Black Body ME Dratting | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3607 | 1.3.1.1.6.9 | FDR Pedistal mount ME Drafting | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | EDQI | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3608 | 1.3.1.1.6.9 | FDR Water Absorber ME Dratting | LLNL | ED\&1 | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3609 | 1.3.1.1.6.9 | Computer Documentation \& dratting | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3610 | 1.3.1.1.6.9 | Computer Interface Programming | LLNL | ED\&1 | 2 | 8 wks | \$17,280.00 | \$0.00 | \$0.00 | \$17,280.00 | \$16,934.40 | \$8,553.60 | \$42,768.00 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$17,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 3611 | 1.3.1.1.6.9 | Data Analysis | LLNL | ED\& | 2 | 6 wks | \$12,960.00 | \$0.00 | \$0.00 | \$12,960.00 | \$12,700.80 | \$6,415.20 | \$32,076.00 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$12,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 3612 | 1.3.1.1.6.10 | Pulse Length | LLNL |  | 0 | 54 wks | \$125,080.00 | \$0.00 | \$0.00 | \$125,080.00 | \$122,578.40 | \$61,914.60 | \$309,573.00 |
| 3613 | 1.3.1.1.6.10 | Design and Theory | LLNL | ED\& | 2 | 0.2 wks | \$432.00 | \$0.00 | \$0.00 | \$432.00 | \$423.36 | \$213.84 | \$1,069.20 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$432.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3614 | 1.3.1.1.6.10 | xtal growth Design and Iheory | LLNL | ED\& | 2 | 0.2 wks | \$432.00 | \$0.00 | \$0.00 | \$432.00 | \$423.36 | \$213.84 | \$1,069.20 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$432.00 | \$0.00 | \$0.00 | \$0.00 |
| 3615 | 1.3.1.1.6.10 | dicing, packaging, pigtailing Design and Theory | LLNL | ED\& | 2 | 0.2 wks | \$432.00 | \$0.00 | \$0.00 | \$432.00 | \$423.36 | \$213.84 | \$1,069.20 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$432.00 | \$0.00 | \$0.00 | \$0.00 |
| 3616 | 1.3.1.1.6.10 | testing Design and Theory | LLNL | ED\& | 2 | 0.2 wks | \$432.00 | \$0.00 | \$0.00 | \$432.00 | \$423.36 | \$213.84 | \$1,069.20 |
|  |  | LLNL Physicist-Scientist |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$432.00 | \$0.00 | \$0.00 | \$0.00 |
| 3617 | 1.3.1.1.6.10 | Temporal lmaging System Design and Theory | LLNL | ED\& | 2 | 0.2 wks | \$432.00 | \$0.00 | \$0.00 | \$432.00 | \$423.36 | \$213.84 | \$1,069.20 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$432.00 | \$0.00 | \$0.00 | \$0.00 |
| 3618 | 1.3.1.1.6.10 | Temporal Imaging System Modeling Physics | LLNL | ED\& | 2 | 0.2 wks | \$432.00 | \$0.00 | \$0.00 | \$432.00 | \$423.36 | \$213.84 | \$1,069.20 |
|  |  | LLNL Physicist -Scientist |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$432.00 | \$0.00 | \$0.00 | \$0.00 |
| 3619 | 1.3.1.1.6.10 | Aberation compensation design Physics | LLNL | ED\& | 2 | 0.2 wks | \$432.00 | \$0.00 | \$0.00 | \$432.00 | \$423.36 | \$213.84 | \$1,069.20 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$432.00 | \$0.00 | \$0.00 | \$0.00 |
| 3620 | 1.3.1.1.6.10 | Tigger optimization Design and Theory | LLNL | ED\& | 2 | 0.2 wks | \$432.00 | \$0.00 | \$0.00 | \$432.00 | \$423.36 | \$213.84 | \$1,069.20 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$432.00 | \$0.00 | \$0.00 | \$0.00 |
| 3621 | 1.3.1.1.6.10 | Packaging design tor mixing system Physics | LLNL | ED\& | 2 | 0.2 wks | \$432.00 | \$0.00 | \$0.00 | \$432.00 | \$423.36 | \$213.84 | \$1,069.20 |
|  |  | LLNL Physicist -Scientist |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$432.00 | \$0.00 | \$0.00 | \$0.00 |
| 3622 | 1.3.1.1.6.10 | xtal growth EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3623 | 1.3.1.1.6.10 | lithography, processing EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3624 | 1.3.1.1.6.10 | dicing, packaging, pigtailing EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3625 | 1.3.1.1.6.10 | testing EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3626 | 1.3.1.1.6.10 | Iemporal Imaging System Design EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3627 | 1.3.1.1.6.10 | Temporal Imaging System Modeling EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3628 | 1.3.1.1.6.10 | Aberation compensation design EE | LLNL | ED\&1 | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3629 | 1.3.1.1.6.10 | IIgger optimization EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3630 | 1.3.1.1.6.10 | Packaging design for mixing system EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3631 | 1.3.1.1.6.10 | Iemporal Imaging System Design | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3632 | 1.3.1.1.6.10 | ME Engineering | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3633 | 1.3.1.1.6.10 | ME Drafing | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3634 | 1.3.1.1.6.10 | xtal growth | LLNL | ED\& | 2 | 0.4 wks | \$864.00 | \$0.00 | \$0.00 | \$864.00 | \$846.72 | \$427.68 | \$2,138.40 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$864.00 | \$0.00 | \$0.00 | \$0.00 |
| 3635 | 1.3.1.1.6.10 | dicing, packaging, pigtailing | LLNL | ED\& | 2 | 0.4 wks | \$864.00 | \$0.00 | \$0.00 | \$864.00 | \$846.72 | \$427.68 | \$2,138.40 |
|  |  | LLNL Physicist -Scientist |  | ED\&1 | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$864.00 | \$0.00 | \$0.00 | \$0.00 |
| 3636 | 1.3.1.1.6.10 | testing | LLNL | ED\& | 2 | 0.4 wks | \$864.00 | \$0.00 | \$0.00 | \$864.00 | \$846.72 | \$427.68 | \$2,138.40 |
|  |  | LLNL Physicist -Scientist |  | ED\&1 | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$864.00 | \$0.00 | \$0.00 | \$0.00 |
| 3637 | 1.3.1.1.6.10 | Temporal Imaging System Design | LLNL | ED\& | 2 | 4 wks | \$8,640.00 | \$0.00 | \$0.00 | \$8,640.00 | \$8,467.20 | \$4,276.80 | \$21,384.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 3638 | 1.3.1.1.6.10 | Temporal Imaging System Modeling | LLNL | ED\& | 2 | 4 wks | \$8,640.00 | \$0.00 | \$0.00 | \$8,640.00 | \$8,467.20 | \$4,276.80 | \$21,384.00 |
|  |  | LLNL Physicist-Scientist |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 3639 | 1.3.1.1.6.10 | Aberation compensation design | LLNL | ED\& | 2 | 2 wks | \$4,320.00 | \$0.00 | \$0.00 | \$4,320.00 | \$4,233.60 | \$2,138.40 | \$10,692.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 3640 | 1.3.1.1.6.10 | Tigger optimization | LLNL | ED\& | 2 | 3 wks | \$6,480.00 | \$0.00 | \$0.00 | \$6,480.00 | \$6,350.40 | \$3,207.60 | \$16,038.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3641 | 1.3.1.1.6.10 | Packaging design for mixing system | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3642 | 1.3.1.1.6.10 | xtal growth EE | LLNL | ED\& | 2 | 2 wks | \$4,960.00 | \$0.00 | \$0.00 | \$4,960.00 | \$4,860.80 | \$2,455.20 | \$12,276.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 3643 | 1.3.1.1.6.10 | lithography, processing EE | LLNL | ED\& | 2 | 2 wks | \$4,960.00 | \$0.00 | \$0.00 | \$4,960.00 | \$4,860.80 | \$2,455.20 | \$12,276.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 3644 | 1.3.1.1.6.10 | dicing, packaging, pigtailing EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 3645 | 1.3.1.1.6.10 | testing EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3646 | 1.3.1.1.6.10 | Iemporal Imaging System Design EE | LLNL | ED\& 1 | 2 | 4 wks | \$9,920.00 | \$0.00 | \$0.00 | \$9,920.00 | \$9,721.60 | \$4,910.40 | \$24,552.00 |
|  |  | LLNL Electrical Engineer |  | ED\&I | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,920.00 | \$0.00 | \$0.00 | \$0.00 |
| 3647 | 1.3.1.1.6.10 | Temporal Imaging System Modeling EE | LLNL | ED\& | 2 | 4 wks | \$9,920.00 | \$0.00 | \$0.00 | \$9,920.00 | \$9,721.60 | \$4,910.40 | \$24,552.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,920.00 | \$0.00 | \$0.00 | \$0.00 |
| 3648 | 1.3.1.1.6.10 | Aberation compensation design EE | LLNL | ED\& | 2 | 3 wks | \$7,440.00 | \$0.00 | \$0.00 | \$7,440.00 | \$7,291.20 | \$3,682.80 | \$18,414.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 3649 | 1.3.1.1.6.10 | IIgger optimization EE | LLNL | ED\&1 | 2 | 3 wks | \$7,440.00 | \$0.00 | \$0.00 | \$7,440.00 | \$7,291.20 | \$3,682.80 | \$18,414.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 3650 | 1.3.1.1.6.10 | Packaging design for mixing system EE | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3651 | 1.3.1.1.6.10 | Aberation compensation design EE | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3652 | 1.3.1.1.6.10 | Packaging design for mixing system EE | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3653 | 1.3.1.1.6.10 | Documentation EE | LLNL | ED\& | 2 | 2 wks | \$4,160.00 | \$0.00 | \$0.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech Dratting/Vesign |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3654 | 1.3.1.1.6.10 | Aberation compensation design ME | LLNL | ED\&1 | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3655 | 1.3.1.1.6.10 | Packaging design for mixing system ME | LLNL | ED\& 1 | 2 | 2 wks | \$5,040.00 | \$0.00 | \$0.00 | \$5,040.00 | \$4,939.20 | \$2,494.80 | \$12,474.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 3656 | 1.3.1.1.6.10 | Documentation ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3657 | 1.3.1.1.6.10 | ME Drafing | LLNL | ED\& 1 | 2 | 4 wks | \$8,320.00 | \$0.00 | \$0.00 | \$8,320.00 | \$8,153.60 | \$4,118.40 | \$20,592.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& 1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 3658 | 1.3.1.1.6.11 | Spectrometer | LLNL |  | 0 | 51.8 wks | \$119,576.00 | \$0.00 | \$0.00 | \$119,576.00 | \$117,184.48 | \$59,190.12 | \$295,950.60 |
| 3659 | 1.3.1.1.6.11 | PDR SCintillator and light levels Physics | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 1 wk | $\$ 0.00$ | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3660 | 1.3.1.1.6.11 | PDR Optical Design Physics Physics | LLNL | ED\& | 2 | 0.6 wks | \$1,296.00 | \$0.00 | \$0.00 | \$1,296.00 | \$1,270.08 | \$641.52 | \$3,207.60 |
|  |  | LLNL Physicist -Scientist |  | ED\&1 | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,296.00 | \$0.00 | \$0.00 | \$0.00 |
| 3661 | 1.3.1.1.6.11 | PDR Motion requirements Physics | LLNL | ED\& | 2 | 0.4 wks | \$864.00 | \$0.00 | \$0.00 | \$864.00 | \$846.72 | \$427.68 | \$2,138.40 |
|  |  | LLNL Physicist -Scientist |  | ED\&1 | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$864.00 | \$0.00 | \$0.00 | \$0.00 |
| 3662 | 1.3.1.1.6.11 | PDR Electrical Engineering | LLNL |  | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3663 | 1.3.1.1.6.11 | PDR Linear array EE | LLNL | ED\&1 | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBs | Task Name | obs | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3664 | 1.3.1.1.6.11 | PDR TE Cooling / Chiller EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 0.2 wks | $\$ 0.00$ | \$0.00 | $\$ 0.00$ | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3665 | 1.3.1.1.6.11 | PDR Optical Specitication EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\&/ | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3666 | 1.3.1.1.6.11 | PDR Readout / Data Acquisition EE | LLNL | ED\& | 2 | 0.4 wks | \$992.00 | \$0.00 | \$0.00 | \$992.00 | \$972.16 | \$491.04 | \$2,455.20 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$992.00 | \$0.00 | \$0.00 | \$0.00 |
| 3667 | 1.3.1.1.6.11 | PDR Motors EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3668 | 1.3.1.1.6.11 | PDR Dratting EE | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3669 | 1.3.1.1.6.11 | PDR Camera Housing ME | LLNL | ED\& | 2 | 0.4 wks | \$1,008.00 | \$0.00 | \$0.00 | \$1,008.00 | \$987.84 | \$498.96 | \$2,494.80 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,008.00 | \$0.00 | \$0.00 | \$0.00 |
| 3670 | 1.3.1.1.6.11 | PDR Crystal and Grating mount ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3671 | 1.3.1.1.6.11 | PDR ME Drafing | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3672 | 1.3.1.1.6.11 | FDR Design and Theory | LLNL | ED\& | 2 | 0.4 wks | \$864.00 | \$0.00 | \$0.00 | \$864.00 | \$846.72 | \$427.68 | \$2,138.40 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$864.00 | \$0.00 | \$0.00 | \$0.00 |
| 3673 | 1.3.1.1.6.11 | FDR Scintillating Crystal EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3674 | 1.3.1.1.6.11 | FDR Linear Array EE | LLNL | ED\& | 2 | 4 wks | \$9,920.00 | \$0.00 | \$0.00 | \$9,920.00 | \$9,721.60 | \$4,910.40 | \$24,552.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,920.00 | \$0.00 | \$0.00 | \$0.00 |
| 3675 | 1.3.1.1.6.11 | FDR IE Cooler EE | LLNL | ED\& | 2 | 0.2 wks | \$496.00 | \$0.00 | \$0.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 3676 | 1.3.1.1.6.11 | FDR Analog board EE | LLNL | ED\& | 2 | 4 wks | \$9,920.00 | \$0.00 | \$0.00 | \$9,920.00 | \$9,721.60 | \$4,910.40 | \$24,552.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,920.00 | \$0.00 | \$0.00 | \$0.00 |
| 3677 | 1.3.1.1.6.11 | FDR Camera Digital board EE | LLNL | ED\& | 2 | 2 wks | \$4,960.00 | \$0.00 | \$0.00 | \$4,960.00 | \$4,860.80 | \$2,455.20 | \$12,276.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,960.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3678 | 1.3.1.1.6.11 | FDR Computer Interface board EE | LLNL | ED\& | 2 | 2 wks | \$4,960.00 | \$0.00 | \$0.00 | \$4,960.00 | \$4,860.80 | \$2,455.20 | \$12,276.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 3679 | 1.3.1.1.6.11 | FDR System Dratting EE | LLNL | ED\&I | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 3680 | 1.3.1.1.6.11 | FDR Analog boards Dratting EE | LLNL | ED\&1 | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 3681 | 1.3.1.1.6.11 | FDR Camera Digital board Drafting EE | LLNL | ED\% | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3682 | 1.3.1.1.6.11 | FDR Crystal mount ME | LLNL | ED\&I | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | $\$ 0.00$ | $\$ 0.00$ | $\$ 0.00$ |
| 3683 | 1.3.1.1.6.11 | FDR Grating mount ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3684 | 1.3.1.1.6.11 | FDR Crystal ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3685 | 1.3.1.1.6.11 | FDR Grating ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3686 | 1.3.1.1.6.11 | FDR Alignment mirror ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3687 | 1.3.1.1.6.11 | FDR IE Cooler ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3688 | 1.3.1.1.6.11 | FDR Alignment mirror mount ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3689 | 1.3.1.1.6.11 | FDR Camera vaccum housing ME | LLNL | ED\& | 2 | 3 wks | \$7,560.00 | \$0.00 | \$0.00 | \$7,560.00 | \$7,408.80 | \$3,742.20 | \$18,711.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 3 wks | $\$ 0.00$ | \$0.00 | \$0.00 | \$7,560.00 | $\$ 0.00$ | $\$ 0.00$ | \$0.00 |
| 3690 | 1.3.1.1.6.11 | FDR Cold tinger ME | LLNL | ED\&1 | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3691 | 1.3.1.1.6.11 | FDR Chiller ME | LLNL | ED\& | 2 | 0.2 wks | \$504.00 | \$0.00 | \$0.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3692 | 1.3.1.1.6.11 | FDR System ME Drating | LLNL | ED\&I | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3693 | 1.3.1.1.6.11 | FDR Crystal mount ME Drating | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3694 | 1.3.1.1.6.11 | FDR Grating mount ME Drating | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3695 | 1.3.1.1.6.11 | FDR Camera vaccum housing ME Drating | LLNL | ED\& | 2 | 2 wks | \$4,160.00 | \$0.00 | \$0.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& 1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3696 | 1.3.1.1.6.11 | FDR Cold finger ME Drating | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3697 | 1.3.1.1.6.11 | Computer Documentation \& dratting | LLNL | ED\&I | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist -Scientist |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3698 | 1.3.1.1.6.11 | Computer Interface Programming | LLNL | ED\& | 2 | 6 wks | \$12,960.00 | \$0.00 | \$0.00 | \$12,960.00 | \$12,700.80 | \$6,415.20 | \$32,076.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$12,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 3699 | 1.3.1.1.6.11 | Image Analysis | LLNL | ED\&1 | 2 | 6 wks | \$12,960.00 | \$0.00 | \$0.00 | \$12,960.00 | \$12,700.80 | \$6,415.20 | \$32,076.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$12,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 3700 | 1.3.1.1.6.12 | Spatial Coherence | LLNL |  | 0 | 14 wks | \$31,616.00 | \$0.00 | \$0.00 | \$31,616.00 | \$30,983.68 | \$15,649.92 | \$78,249.60 |
| 3701 | 1.3.1.1.6.12 | PDR Low Energy Slits Physics | LLNL | ED\& | 2 | 0.4 wks | \$864.00 | \$0.00 | \$0.00 | \$864.00 | \$846.72 | \$427.68 | \$2,138.40 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$864.00 | \$0.00 | \$0.00 | \$0.00 |
| 3702 | 1.3.1.1.6.12 | PDR Hight Energy Slits Physics | LLNL | ED\& | 2 | 0.4 wks | \$864.00 | \$0.00 | \$0.00 | \$864.00 | \$846.72 | \$427.68 | \$2,138.40 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$864.00 | \$0.00 | \$0.00 | \$0.00 |
| 3703 | 1.3.1.1.6.12 | PDR Coherence Theory Physics | LLNL | ED\& | 2 | 0.4 wks | \$864.00 | \$0.00 | \$0.00 | \$864.00 | \$846.72 | \$427.68 | \$2,138.40 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$864.00 | \$0.00 | \$0.00 | \$0.00 |
| 3704 | 1.3.1.1.6.12 | PDR Low Energy Etching Process EE | LLNL | ED\& | 2 | 0.4 wks | \$992.00 | \$0.00 | \$0.00 | \$992.00 | \$972.16 | \$491.04 | \$2,455.20 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$992.00 | \$0.00 | \$0.00 | \$0.00 |
| 3705 | 1.3.1.1.6.12 | PDR Sputter / Sliced Process ME | LLNL | ED\& | 2 | 0.4 wks | \$1,008.00 | \$0.00 | \$0.00 | \$1,008.00 | \$987.84 | \$498.96 | \$2,494.80 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,008.00 | \$0.00 | \$0.00 | \$0.00 |
| 3706 | 1.3.1.1.6.12 | PDR Mounting ME | LLNL | ED\& | 2 | 0.4 wks | \$1,008.00 | \$0.00 | \$0.00 | \$1,008.00 | \$987.84 | \$498.96 | \$2,494.80 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,008.00 | \$0.00 | \$0.00 | \$0.00 |
| 3707 | 1.3.1.1.6.12 | PDR ME Drating | LLNL | ED\& | 2 | 0.4 wks | \$832.00 | \$0.00 | \$0.00 | \$832.00 | \$815.36 | \$411.84 | \$2,059.20 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$832.00 | \$0.00 | \$0.00 | \$0.00 |
| 3708 | 1.3.1.1.6.12 | FDR Design and Theory | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3709 | 1.3.1.1.6.12 | FDR Low Energy Masks | LLNL | ED\& | 2 | 1 wk | \$2,480.00 | \$0.00 | \$0.00 | \$2,480.00 | \$2,430.40 | \$1,227.60 | \$6,138.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 3710 | 1.3.1.1.6.12 | FDR Low Energy Masks Drating Et | LLNL | ED\& | 2 | 2 wks | \$4,160.00 | \$0.00 | \$0.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3771 | 1.3.1.1.6.12 | FDR Mount for Low Energy ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3712 | 1.3.1.1.6.12 | FDR Mount for High Energy ME | LLNL | ED\& | 2 | 1 wk | \$2,520.00 | \$0.00 | \$0.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3713 | 1.3.1.1.6.12 | FDR High Energy Substrate ME | LLNL | ED\& | 2 | 0.4 wks | \$1,008.00 | \$0.00 | \$0.00 | \$1,008.00 | \$987.84 | \$498.96 | \$2,494.80 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,008.00 | \$0.00 | \$0.00 | \$0.00 |
| 3714 | 1.3.1.1.6.12 | FDR Sputtering ME | LLNL | ED\& | 2 | 0.4 wks | \$1,008.00 | \$0.00 | \$0.00 | \$1,008.00 | \$987.84 | \$498.96 | \$2,494.80 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,008.00 | \$0.00 | \$0.00 | \$0.00 |
| 3715 | 1.3.1.1.6.12 | FDR Vacuum brase ME | LLNL | ED\& | 2 | 0.4 wks | \$1,008.00 | \$0.00 | \$0.00 | \$1,008.00 | \$987.84 | \$498.96 | \$2,494.80 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,008.00 | \$0.00 | \$0.00 | \$0.00 |
| 3716 | 1.3.1.1.6.12 | FDR M Mount for Low Energy ME Dratting | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3717 | 1.3.1.1.6.12 | FDR Mount for High Energy ME Dratting | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | $\$ 0.00$ | $\$ 0.00$ | \$0.00 |
| 3718 | 1.3.1.1.6.12 | FDR Slit Drawings ME Dratting | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3719 | 1.3.1.1.6.12 | FDR Assembly Drawing ME Drafting | LLNL | ED\& | 2 | 1 wk | \$2,080.00 | \$0.00 | \$0.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3720 | 1.3.1.1.6.13 | Spatial Shape and Centroid | LLNL |  | 0 | 1.2 wks | \$2,592.00 | \$0.00 | \$0.00 | \$2,592.00 | \$2,540.16 | \$1,283.04 | \$6,415.20 |
| 3721 | 1.3.1.1.6.13 | PDR Design and Iheory | LLNL | ED\& | 2 | 0.2 wks | \$432.00 | \$0.00 | \$0.00 | \$432.00 | \$423.36 | \$213.84 | \$1,069.20 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$432.00 | \$0.00 | \$0.00 | \$0.00 |
| 3722 | 1.3.1.1.6.13 | FDRDesign and Theory | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3723 | 1.3.1.1.6.14 | Divergence | LLNL |  | 0 | 1.2 wks | \$2,592.00 | \$0.00 | \$0.00 | \$2,592.00 | \$2,540.16 | \$1,283.04 | \$6,415.20 |
| 3724 | 1.3.1.1.6.14 | PDR Design and Theory | LLNL | ED\& | 2 | 0.2 wks | \$432.00 | \$0.00 | \$0.00 | \$432.00 | \$423.36 | \$213.84 | \$1,069.20 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$432.00 | \$0.00 | \$0.00 | \$0.00 |
| 3725 | 1.3.1.1.6.14 | FDR Design and Theory | LLNL | ED\& | 2 | 1 wk | \$2,160.00 | \$0.00 | \$0.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3726 | 1.3.1.2 | Mechanical and Vacuum |  |  | 0 | 182.55 wks | \$0.00 | \$1,453,001.00 | \$401,150.00 | \$1,854,151.00 | \$667,744.19 | \$465,272.25 | \$2,987,167.44 |
| 3727 | 1.3.1.2.1 | Front End Enclosure(FEE) |  |  | 0 | 13.46 wks | \$0.00 | \$106,500.00 | \$29,623.20 | \$136,123.20 | \$49,159.24 | \$32,454.29 | \$217,736.72 |
| 3728 | 1.3.1.2.1.1 | Isolation valve | LLNL |  | 0 | 1.2 wks | \$0.00 | \$7,000.00 | \$2,688.00 | \$9,688.00 | \$3,957.24 | \$2,579.01 | \$16,224.25 |
| 3729 | 1.3.1.2.1. | Hardware | LLNL | ED\& | 2 | 0.4 wks | \$0.00 | \$0.00 | \$1,008.00 | \$1,008.00 | \$987.84 | \$498.96 | \$2,494.80 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&/ | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,008.00 | \$0.00 | \$0.00 | \$0.00 |
| 3730 | 1.3.1.2.1.1 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$1,323.00 | \$1,248.45 | \$9,571.45 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3731 | 1.3.1.2.1. | Install \& test | LLNL | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$832.00 | \$832.00 | \$815.36 | \$411.84 | \$2,059.20 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$832.00 | \$0.00 | \$0.00 | \$0.00 |
| 3732 | 1.3.1.2.1.1 | Elect inst | LLNL | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$848.00 | \$848.00 | \$831.04 | \$419.76 | \$2,098.80 |
|  |  | LLNL Controls: Iechnician |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$848.00 | \$0.00 | \$0.00 | \$0.00 |
| 3733 | 1.3.1.2.1.2 | Isolation valve-Be | LLNL |  | 0 | 1.6 wks | \$0.00 | \$10,000.00 | \$3,520.00 | \$13,520.00 | \$5,339.60 | \$2,859.04 | \$21,718.64 |
| 3734 | 1.3.1.2.1.2 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$1,783.50 | \$13,673.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3735 | 1.3.1.2.1.2 | Hardware | LLNL | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$1,008.00 | \$1,008.00 | \$987.84 | \$0.00 | \$1,995.84 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 1 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,008.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3736 | 1.3.1.2.1.2 | Assemble, install \& test | LLNL | B\&H | 2 | 0.8 wks | \$0.00 | \$0.00 | \$1,664.00 | \$1,664.00 | \$1,630.72 | \$823.68 | \$4,118.40 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.8 wks | \$0.00 | \$0.00 | \$0.00 | \$1,664.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cwbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 3737 | 1.3.1.2.1.2 | Elect inst | LLNL | B\&H | 1 | 0.4 wks | \$0.00 | \$0.00 | \$848.00 | \$848.00 | \$831.04 | \$251.86 | \$1,930.90 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$848.00 | \$0.00 | \$0.00 | \$0.00 |
| 3738 | 1.3.1.2.1.3 | Vacuum piping | LLNL |  | 0 | 0.75 wks | \$0.00 | \$2,000.00 | \$1,626.00 | \$3,626.00 | \$1,971.48 | \$974.46 | \$6,571.94 |
| 3739 | 1.3.1.2.1.3 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$356.70 | \$2,734.70 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3740 | 1.3.1.2.1.3 | Hardware | LLNL | ED\& | 10 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$0.00 | \$748.44 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 3741 | 1.3.1.2.1.3 | Install \& test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3742 | 1.3.1.2.1.4 | lon pumps | LLNL |  | 0 | 1.2 wks | \$0.00 | \$38,000.00 | \$2,640.00 | \$40,640.00 | \$9,769.20 | \$7,934.41 | \$58,343.61 |
| 3743 | 1.3.1.2.1.4 | Hardware | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 3744 | 1.3.1.2.1.4 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$22,000.00 | \$0.00 | \$22,000.00 | \$4,158.00 | \$3,923.70 | \$30,081.70 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 22,000 | \$0.00 | \$0.00 | \$0.00 | \$22,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3745 | 1.3.1.2.1.4 | Controller | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$16,000.00 | \$0.00 | \$16,000.00 | \$3,024.00 | \$2,853.60 | \$21,877.60 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 16,000 | \$0.00 | \$0.00 | \$0.00 | \$16,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3746 | 1.3.1.2.1.4 | Controller | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&I | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 3747 | 1.3.1.2.1.4 | Install electrical | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$636.00 | \$636.00 | \$623.28 | \$314.82 | \$1,574.10 |
|  |  | LLNL Controls: Technician |  | BRH | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$636.00 | \$0.00 | \$0.00 | \$0.00 |
| 3748 | 1.3.1.2.1.4 | Install (mech) and test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3749 | 1.3.1.2.1.5 | Ion gauges | LLNL |  | 0 | 0.61 wks | \$0.00 | \$5,000.00 | \$1,345.20 | \$6,345.20 | \$2,263.30 | \$1,477.79 | \$10,086.29 |
| 3750 | 1.3.1.2.1. 5 | Hardware | LLNL | ED\&1 | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:Coordinator Associate |  | EDQI | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | \$0.00 | \$0.00 | \$0.00 |
| 3751 | 1.3.1.2.1.5 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$178.35 | \$1,367.35 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3752 | 1.3.1.2.1.5 | Controller | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3753 | 1.3.1.2.1.5 | Controller | LLNL | ED\& | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 0.08 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$201.60 | \$0.00 | \$0.00 | \$0.00 |
| 3754 | 1.3.1.2.1.5 | Install electrical | LLNL | B\&H | 2 | 0.15 wks | \$0.00 | \$0.00 | \$318.00 | \$318.00 | \$311.64 | \$157.41 | \$787.05 |
|  |  | LLNL Controls: lechnician |  | B\&H | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$318.00 | \$0.00 | \$0.00 | \$0.00 |
| 3755 | 1.3.1.2.1.5 | Install (mech) and test | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$624.00 | \$624.00 | \$611.52 | \$308.88 | \$1,544.40 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$624.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | obs | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 3756 | 1.3.1.2.1.6 | Spools | LLNL |  | 0 | 0.3 wks | \$0.00 | \$500.00 | \$668.00 | \$1,168.00 | \$749.14 | \$369.94 | \$2,287.08 |
| 3757 | 1.3.1.2.1.6 | Hardware | LLNL | ED\& | 1 | 0.1 wks | \$0.00 | \$0.00 | \$252.00 | \$252.00 | \$246.96 | \$74.84 | \$573.80 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.1 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$252.00 | \$0.00 | \$0.00 | \$0.00 |
| 3758 | 1.3.1.2.1.6 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$500.00 | \$0.00 | \$500.00 | \$94.50 | \$89.18 | \$683.68 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 500 | \$0.00 | \$0.00 | \$0.00 | \$500.00 | \$0.00 | \$0.00 | \$0.00 |
| 3759 | 1.3.1.2.1.6 | Installation | LLNL | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$416.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 3760 | 1.3.1.2.1.7 | Turbo pumps 500//s | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3761 | 1.3.1.2.1.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3762 | 1.3.1.2.1.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3763 | 1.3.1.2.1.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3764 | 1.3.1.2.1.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3765 | 1.3.1.2.1.7 | Install electrical | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3766 | 1.3.1.2.1.7 | Install (mech) and test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3767 | 1.3.1.2.1.8 | Stands | LLNL |  | 0 | 2.8 wks | \$0.00 | \$12,000.00 | \$6,176.00 | \$18,176.00 | \$8,320.48 | \$5,626.20 | \$32,122.68 |
| 3768 | 1.3.1.2.1.8 | Hardware | LLNL | ED\& | 0 | 0.8 wks | \$0.00 | \$0.00 | \$2,016.00 | \$2,016.00 | \$1,975.68 | \$0.00 | \$3,991.68 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.8 wks | \$0.00 | \$0.00 | \$0.00 | \$2,016.00 | \$0.00 | \$0.00 | \$0.00 |
| 3769 | 1.3.1.2.1.8 | Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$2,268.00 | \$3,567.00 | \$17,835.00 |
|  |  | LLNL M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3770 | 1.3.1.2.1.8 | Installation | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3771 | 1.3.1.2.1.9 | Fast close valve \& seat (1) | LLNL |  | 0 | 5 wks | \$0.00 | \$32,000.00 | \$10,960.00 | \$42,960.00 | \$16,788.80 | \$10,633.44 | \$70,382.24 |
| 3772 | 1.3.1.2.1.9 | valve and sensors | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$32,000.00 | \$0.00 | \$32,000.00 | \$6,048.00 | \$5,707.20 | \$43,755.20 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 32,000 | \$0.00 | \$0.00 | \$0.00 | \$32,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3773 | 1.3.1.2.1.9 | Valve and sensors | LLNL | ED\& | 1 | 1 wk | \$0.00 | \$0.00 | \$2,520.00 | \$2,520.00 | \$2,469.60 | \$748.44 | \$5,738.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3774 | 1.3.1.2.1.9 | Assly \& Test | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 3775 | 1.3.1.2.1.9 | Elect install | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,360.00 | \$6,360.00 | \$6,232.80 | \$3,148.20 | \$15,741.00 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 3776 | 1.3.1.2.2 | Electron Dump |  |  | 0 | 4.56 wks | \$0.00 | \$45,000.00 | \$9,771.20 | \$54,771.20 | \$18,080.78 | \$12,558.13 | \$85,410.10 |
| 3777 | 1.3.1.2.2.1 | Isolation valve | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3778 | 1.3.1.2.2.1 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3779 | 1.3.1.2.2.1 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3780 | 1.3.1.2.2. 1 | Install \& test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 4 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 3781 | 1.3.1.2.2. 1 | Elect inst | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3782 | 1.3.1.2.2.2 | Isolation valve-Be | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3783 | 1.3.1.2.2.2 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3784 | 1.3.1.2.2.2 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3785 | 1.3.1.2.2.2 | Assemble, install \& test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3786 | 1.3.1.2.2. 2 | Elect inst | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3787 | 1.3.1.2.2.3 | Vacuum piping | LLNL |  | 0 | 0.75 wks | \$0.00 | \$2,000.00 | \$1,626.00 | \$3,626.00 | \$1,971.48 | \$1,086.73 | \$6,684.21 |
| 3788 | 1.3.1.2.2.3 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$356.70 | \$2,734.70 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3789 | 1.3.1.2.2.3 | Hardware | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& 1 | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 3790 | 1.3.1.2.2.3 | Install \& test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3791 | 1.3.1.2.2.4 | Ion pumps | LLNL |  | 0 | 1.2 wks | \$0.00 | \$38,000.00 | \$2,640.00 | \$40,640.00 | \$9,769.20 | \$7,934.41 | \$58,343.61 |
| 3792 | 1.3.1.2.2.4 | Hardware | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 3793 | 1.3.1.2.2.4 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$22,000.00 | \$0.00 | \$22,000.00 | \$4,158.00 | \$3,923.70 | \$30,081.70 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 22,000 | \$0.00 | \$0.00 | \$0.00 | \$22,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3794 | 1.3.1.2.2.4 | Controller | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$16,000.00 | \$0.00 | \$16,000.00 | \$3,024.00 | \$2,853.60 | \$21,877.60 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 16,000 | \$0.00 | \$0.00 | \$0.00 | \$16,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3795 | 1.3.1.2.2.4 | Controller | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& 1 | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 3796 | 1.3.1.2.2.4 | Install electrical | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$636.00 | \$636.00 | \$623.28 | \$314.82 | \$1,574.10 |
|  |  | LLNL Controls: Iechnician |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$636.00 | \$0.00 | \$0.00 | \$0.00 |
| 3797 | 1.3.1.2.2.4 | Install (mech) and test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3798 | 1.3.1.2.2.5 | Ion gauges | LLNL |  | 0 | 0.61 wks | \$0.00 | \$5,000.00 | \$1,345.20 | \$6,345.20 | \$2,263.30 | \$1,477.79 | \$10,086.29 |
| 3799 | 1.3.1.2.2.5 | Hardware | LLNL | ED\& 1 | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3800 | 1.3.1.2.2.5 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$178.35 | \$1,367.35 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3801 | 1.3.1.2.2.5 | Controller | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3802 | 1.3.1.2.2.5 | Controller | LLNL | ED\&1 | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&I | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 3803 | 1.3.1.2.2.5 | Install electrical | LLNL | B\&H | 2 | 0.15 wks | \$0.00 | \$0.00 | \$318.00 | \$318.00 | \$311.64 | \$157.41 | \$787.05 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$318.00 | \$0.00 | \$0.00 | \$0.00 |
| 3804 | 1.3.1.2.2.5 | Install (mech) and test | LLNL | B\&H | 2 | $0.3 \text { wks }$ | 50.00 | \$0.00 | $\$ 624.00$ | \$624.00 | \$611.52 | \$308.88 | \$1,544.40 |
|  |  | LLNL Mech. Fab: Assembly lech | LLNL | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$624.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3805 | 1.3.1.2.2.6 | Spools |  | 0 wks |  |  | \$0.00 | \$0.00 | \$0.00 \$0.00 |  | \$0.00 | \$0.00 | \$0.00 |
| 3806 | 1.3.1.2.2.6 | Hardware | LLNL | 0 wks |  |  | \$0.00 | \$0.00 | \$0.00 | $\$ 0.00$ | \$0.00 | \$0.00 | \$0.00 |
| 3807 | 1.3.1.2.2.6 | Hardware | LLNL | $0 \quad 0$ wks |  |  | \$0.00 | \$0.00 | \$0.00 | $\$ 0.00$ | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3808 | 1.3.1.2.2.6 | Installation | LLNL | $0 \quad 0$ wks |  |  | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3809 | 1.3.1.2.2.7 | Turbo pumps 5001/s | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 $\quad \$ 0.00$ |  | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3810 | 1.3.1.2.2.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 $\quad \$ 0.00$ |  | \$0.00 | \$0.00 | \$0.00 |
| 3811 | 1.3.1.2.2.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 \$0.00 |  | \$0.00 | \$0.00 | \$0.00 |
| 3812 | 1.3.1.2.2.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 \$0.00 |  | \$0.00 | $\$ 0.00$ | \$0.00 |
| 3813 | 1.3.1.2.2.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 $\quad \$ 0.00$ |  | \$0.00 | $\$ 0.00$ | \$0.00 |
| 3814 | 1.3.1.2.2.7 | Install electrical | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 $\quad \$ 0.00$ |  | \$0.00 | $\$ 0.00$ | \$0.00 |
| 3815 | 1.3.1.2.2.7 | Install (mech) and test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 $\quad \$ 0.00$ |  | \$0.00 | $\$ 0.00$ | \$0.00 |
| 3816 | 1.3.1.2.2.8 | Stands | LLNL | 0 |  | 2 wks | \$0.00 | \$0.00 | \$4,160.00 \$4,160.00 |  | \$4,076.80 | \$2,059.20 | \$10,296.00 |
| 3817 | 1.3.1.2.2.8 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 $\quad \$ 0.00$ |  | \$0.00 | \$0.00 | \$0.00 |
| 3818 | 1.3.1.2.2.8 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3819 | 1.3.1.2.2.8 | Installation | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3820 | 1.3.1.2.3 | Hutch A1 |  | 0 |  | 10.26 wks | \$0.00 | \$72,001.00 | \$22,479.20 | \$94,480.20 | \$35,637.81 | \$25,423.59 | \$155,541.59 |
| 3821 | 1.3.1.2.3.1 | Isolation valve | LLNL | ED\& | 0 | 0.9 wks | \$0.00 | \$4,000.00 | \$2,100.00 | \$6,100.00 | \$2,814.00 | \$1,752.90 | \$10,666.90 |
| 3822 | 1.3.1.2.3.1 | Hardware | LLNL |  | 2 | 0.5 wks | \$0.00 | \$0.00 | \$1,260.00 | \$1,260.00 | \$1,234.80 | \$623.70 | \$3,118.50 |
|  |  | LLNL PCD:Coordinator Associate | ED\&I |  | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,260.00 | \$0.00 | \$0.00 | \$0.00 |
| 3823 | 1.3.1.2.3.1 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3824 | 1.3.1.2.3.1 | Install \& test | LLNL | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$416.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 3825 | 1.3.1.2.3.1 | Elect inst | LLNL | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$424.00 | \$424.00 | \$415.52 | \$209.88 | \$1,049.40 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$424.00 | \$0.00 | \$0.00 | \$0.00 |
| 3826 | 1.3.1.2.3.2 | Isolation valve-Be | LLNL |  | 0 | 0.8 wks | \$0.00 | \$1.00 | \$1,760.00 | \$1,761.00 | \$1,724.99 | \$606.67 | \$4,092.66 |
| 3827 | 1.3.1.2.3.2 | Hardware | LLNL | M 2 S | 0 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.19 | \$0.00 | \$1.19 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 3828 | 1.3.1.2.3.2 | Hardware | LLNL | ED\& 1 | 1 | 0.2 wks | \$0.00 | \$0.00 | \$504.00 | \$504.00 | \$493.92 | \$149.69 | \$1,147.61 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 3829 | 1.3.1.2.3.2 | Assemble, install \& test | LLNL | B\&H | 1 | 0.4 wks | \$0.00 | \$0.00 | \$832.00 | \$832.00 | \$815.36 | \$247.10 | \$1,894.46 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$832.00 | \$0.00 | \$0.00 | \$0.00 |
| 3830 | 1.3.1.2.3.2 | Elect inst | LLNL | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$424.00 | \$424.00 | \$415.52 | \$209.88 | \$1,049.40 |
|  |  | LLNL Controls: Iechnician |  | BKH | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$424.00 | \$0.00 | \$0.00 | \$0.00 |
| 3831 | 1.3.1.2.3.3 | Vacuum piping | LLNL |  | 0 | 0.75 wks | \$0.00 | \$2,000.00 | \$1,626.00 | \$3,626.00 | \$1,971.48 | \$1,086.73 | \$6,684.21 |
| 3832 | 1.3.1.2.3.3 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$356.70 | \$2,734.70 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3833 | 1.3.1.2.3.3 | Hardware | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3834 | 1.3.1.2.3.3 | Install \& test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3835 | 1.3.1.2.3.4 | Ion pumps | LLNL |  | 0 | 1.2 wks | \$0.00 | \$38,000.00 | \$2,640.00 | \$40,640.00 | \$9,769.20 | \$7,561.38 | \$57,970.58 |
| 3836 | 1.3.1.2.3.4 | Hardware | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | EDQ1 | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 3837 | 1.3.1.2.3.4 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$22,000.00 | \$0.00 | \$22,000.00 | \$4,158.00 | \$3,923.70 | \$30,081.70 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 22,000 | \$0.00 | \$0.00 | \$0.00 | \$22,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3838 | 1.3.1.2.3.4 | Controller | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$16,000.00 | \$0.00 | \$16,000.00 | \$3,024.00 | \$2,853.60 | \$21,877.60 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 16,000 | \$0.00 | \$0.00 | \$0.00 | \$16,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3839 | 1.3.1.2.3.4 | Controller | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$12.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 3840 | 1.3.1.2.3.4 | Install electrical | LLNL | B\&H | 1 | 0.3 wks | \$0.00 | \$0.00 | \$636.00 | \$636.00 | \$623.28 | \$188.89 | \$1,448.17 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$636.00 | \$0.00 | \$0.00 | \$0.00 |
| 3841 | 1.3.1.2.3.4 | Install (mech) and test | LLNL | B\&H | 1 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$370.66 | \$2,841.70 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3842 | 1.3.1.2.3.5 | lon gauges | LLNL |  | 0 | 0.61 wks | \$0.00 | \$5,000.00 | \$1,345.20 | \$6,345.20 | \$2,263.30 | \$1,477.79 | \$10,086.29 |
| 3843 | 1.3.1.2.3.5 | Hardware | LLNL | ED\& | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | \$0.00 | \$0.00 | \$0.00 |
| 3844 | 1.3.1.2.3.5 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$178.35 | \$1,367.35 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3845 | 1.3.1.2.3.5 | Controller | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3846 | 1.3.1.2.3.5 | Controller | LLNL | ED\& | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | \$0.00 | \$0.00 | \$0.00 |
| 3847 | 1.3.1.2.3.5 | Install electrical | LLNL | B\&H | 2 | 0.15 wks | \$0.00 | \$0.00 | \$318.00 | \$318.00 | \$311.64 | \$157.41 | \$787.05 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$318.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | Page 203 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 3848 | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.1.2.3.5 | Install (mech) and test | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$624.00 | \$624.00 | \$611.52 | \$308.88 | \$1,544.40 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$624.00 | \$0.00 | \$0.00 | \$0.00 |
| 3849 | 1.3.1.2.3.6 | Spools | LLNL |  | 0 | 1 wk | \$0.00 | \$2,000.00 | \$2,168.00 | \$4,168.00 | \$2,502.64 | \$1,330.07 | \$8,000.71 |
| 3850 | 1.3.1.2.3.6 | Hardware | LLNL | ED\& | 1 | 0.2 wks | \$0.00 | \$0.00 | \$504.00 | \$504.00 | \$493.92 | \$149.69 | \$1,147.61 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3851 | 1.3.1.2.3.6 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$356.70 | \$2,734.70 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3852 | 1.3.1.2.3.6 | Installation | LLNL | B\&H | 2 | 0.8 wks | \$0.00 | \$0.00 | \$1,664.00 | \$1,664.00 | \$1,630.72 | \$823.68 | \$4,118.40 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 0.8 wks | \$0.00 | \$0.00 | \$0.00 | \$1,664.00 | \$0.00 | \$0.00 | \$0.00 |
| 3853 | 1.3.1.2.3.7 | Turbo pumps 5001/s | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3854 | 1.3.1.2.3.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3855 | 1.3.1.2.3.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3856 | 1.3.1.2.3.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3857 | 1.3.1.2.3.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3858 | 1.3.1.2.3.7 | Install electrical | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3859 | 1.3.1.2.3.7 | Install (mech) and test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3860 | 1.3.1.2.3.8 | Stands | LLNL |  | 0 | 5 wks | \$0.00 | \$21,000.00 | \$10,840.00 | \$31,840.00 | \$14,592.20 | \$11,608.05 | \$58,040.25 |
| 3861 | 1.3.1.2.3.8 | Hardware | LLNL | ED\& | 2 | 1 wk | \$0.00 | \$0.00 | \$2,520.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 3862 | 1.3.1.2.3.8 | Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$21,000.00 | \$0.00 | \$21,000.00 | \$3,969.00 | \$6,242.25 | \$31,211.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 21,000 | \$0.00 | \$0.00 | \$0.00 | \$21,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3863 | 1.3.1.2.3.8 | Installation | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,320.00 | \$8,320.00 | \$8,153.60 | \$4,118.40 | \$20,592.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 3864 | 1.3.1.2.4 | Hutch A2 |  |  | 0 | 6.16 wks | \$0.00 | \$64,000.00 | \$13,335.20 | \$77,335.20 | \$25,164.50 | \$18,631.37 | \$121,131.07 |
| 3865 | 1.3.1.2.4.1 | Isolation valve | LLNL |  | 0 | 0.3 wks | \$0.00 | \$2,000.00 | \$672.00 | \$2,672.00 | \$1,036.56 | \$689.34 | \$4,397.90 |
| 3866 | 1.3.1.2.4.1 | Hardware | LLNL | ED\& | 2 | 0.1 wks | \$0.00 | \$0.00 | \$252.00 | \$252.00 | \$246.96 | \$124.74 | \$623.70 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$252.00 | \$0.00 | \$0.00 | \$0.00 |
| 3867 | 1.3.1.2.4.1 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$356.70 | \$2,734.70 |
|  |  | LLNL MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3868 | 1.3.1.2.4.1 | Install \& test | LLNL | B\&H | 2 | 0.1 wks | \$0.00 | \$0.00 | \$208.00 | \$208.00 | \$203.84 | \$102.96 | \$514.80 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$208.00 | \$0.00 | \$0.00 | \$0.00 |
| 3869 | 1.3.1.2.4.1 | Elect inst | LLNL | B\&H | 2 | 0.1 wks | \$0.00 | \$0.00 | \$212.00 | \$212.00 | \$207.76 | \$104.94 | \$524.70 |
|  |  | LLNL Controls: Iechnician |  | B\&H | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$212.00 | \$0.00 | \$0.00 | \$0.00 |
| 3870 | 1.3.1.2.4.2 | Isolation valve-Be | LLNL |  | 0 | 1.2 wks | \$0.00 | \$8,000.00 | \$2,640.00 | \$10,640.00 | \$4,099.20 | \$2,583.91 | \$17,323.11 |
| 3871 | 1.3.1.2.4.2 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | $\begin{aligned} & l^{\text {Units }} \\ & 8,000 \end{aligned}$ | $\begin{aligned} & \text { PED (Direct) } \\ & \$ 0.00 \end{aligned}$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct)$\$ 0.00$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 8,000.00 \end{aligned}$ | $\frac{\text { Overhead Cost }}{} 80.00$ | Contingency Cost | Total Cost |
|  |  | TLNL M\&S Total | LLNL | M\&S |  |  |  |  |  |  | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3872 | 1.3.1.2.4.2 | Hardware |  | ED\& | 1 | 0.3 wks | \$0.00 | \$0.00 | \$756.00 | \$756.00 | \$740.88 | \$224.53 | \$1,721.41 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$756.00 | \$0.00 | \$0.00 | \$0.00 |
| 3873 | 1.3.1.2.4.2 | Assemble, install \& test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3874 | 1.3.1.2.4.2 | Elect inst | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$636.00 | \$636.00 | \$623.28 | \$314.82 | \$1,574.10 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$636.00 | \$0.00 | \$0.00 | \$0.00 |
| 3875 | 1.3.1.2.4.3 | vacuum piping | LLNL |  | 0 | 0.75 wks | \$0.00 | \$2,000.00 | \$1,626.00 | \$3,626.00 | \$1,971.48 | \$1,086.73 | \$6,684.21 |
| 3876 | 1.3.1.2.4.3 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$356.70 | \$2,734.70 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3877 | 1.3.1.2.4.3 | Hardware | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 3878 | 1.3.1.2.4.3 | Install \& test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3879 | 1.3.1.2.4.4 | Ion pumps | LLNL |  | 0 | 1.2 wks | \$0.00 | \$38,000.00 | \$2,640.00 | \$40,640.00 | \$9,769.20 | \$7,934.41 | \$58,343.61 |
| 3880 | 1.3.1.2.4.4 | Hardware | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 3881 | 1.3.1.2.4.4 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$22,000.00 | \$0.00 | \$22,000.00 | \$4,158.00 | \$3,923.70 | \$30,081.70 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 22,000 | \$0.00 | \$0.00 | \$0.00 | \$22,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3882 | 1.3.1.2.4.4 | Controller | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$16,000.00 | \$0.00 | \$16,000.00 | \$3,024.00 | \$2,853.60 | \$21,877.60 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 16,000 | \$0.00 | \$0.00 | \$0.00 | \$16,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3883 | 1.3.1.2.4.4 | Controller | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 3884 | 1.3.1.2.4.4 | Install electrical | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$636.00 | \$636.00 | \$623.28 | \$314.82 | \$1,574.10 |
|  |  | LLNL Controls: Technician |  | BRH | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$636.00 | \$0.00 | \$0.00 | \$0.00 |
| 3885 | 1.3.1.2.4.4 | Install (mech) and test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3886 | 1.3.1.2.4.5 | Ion gauges | LLNL |  | 0 | 0.61 wks | \$0.00 | \$5,000.00 | \$1,345.20 | \$6,345.20 | \$2,263.30 | \$1,477.79 | \$10,086.29 |
| 3887 | 1.3.1.2.4.5 | Hardware | LLNL | ED\& | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | \$0.00 | \$0.00 | \$0.00 |
| 3888 | 1.3.1.2.4.5 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$178.35 | \$1,367.35 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3889 | 1.3.1.2.4.5 | Controller | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3890 | 1.3.1.2.4.5 | Controller | LLNL | ED\& | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 3891 | 1.3.1.2.4.5 | Install electrical | LLNL | B\&H | 2 | 0.15 wks | \$0.00 | \$0.00 | \$318.00 | \$318.00 | \$311.64 | \$157.41 | \$787.05 |
|  |  | LLNL Controls: Iechnician |  | B\&H | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$318.00 | \$0.00 | \$0.00 | \$0.00 |
| 3892 | 1.3.1.2.4.5 | Install (mech) and test | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$624.00 | \$624.00 | \$611.52 | \$308.88 | \$1,544.40 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$624.00 | \$0.00 | \$0.00 | \$0.00 |
| 3893 | 1.3.1.2.4.6 | Spools | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3894 | 1.3.1.2.4.6 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3895 | 1.3.1.2.4.6 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3896 | 1.3.1.2.4.6 | Installation | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3897 | 1.3.1.2.4.7 | Turbo pumps 5001/s | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3898 | 1.3.1.2.4.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3899 | 1.3.1.2.4.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3900 | 1.3.1.2.4.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3901 | 1.3.1.2.4.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3902 | 1.3.1.2.4.7 | Install electrical | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3903 | 1.3.1.2.4.7 | Install (mech) and test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3904 | 1.3.1.2.4.8 | Stands | LLNL |  | 0 | 2.1 wks | \$0.00 | \$9,000.00 | \$4,412.00 | \$13,412.00 | \$6,024.76 | \$4,859.19 | \$24,295.95 |
| 3905 | 1.3.1.2.4.8 | Hardware | LLNL | ED\&1 | 2 | 0.1 wks | \$0.00 | \$0.00 | \$252.00 | \$252.00 | \$246.96 | \$124.74 | \$623.70 |
|  |  | LLNL PCD:Coordinator Associate |  | EDQ1 | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$252.00 | \$0.00 | \$0.00 | \$0.00 |
| 3906 | 1.3.1.2.4.8 | Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$1,701.00 | \$2,675.25 | \$13,376.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3907 | 1.3.1.2.4.8 | Installation | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3908 | 1.3.1.2.5 | Hutch A3 |  |  | 0 | 4.66 wks | \$0.00 | \$54,000.00 | \$10,023.20 | \$64,023.20 | \$20,028.74 | \$15,358.12 | \$99,410.05 |
| 3909 | 1.3.1.2.5.1 | Isolation valve | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3910 | 1.3.1.2.5.1 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3911 | 1.3.1.2.5.1 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3912 | 1.3.1.2.5. 1 | Install \& test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3913 | 1.3.1.2.5.1 | Elect inst | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3914 | 1.3.1.2.5.2 | Isolation valve-Be | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3915 | 1.3.1.2.5.2 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3916 | 1.3.1.2.5.2 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3917 | 1.3.1.2.5.2 | Assemble, install \& test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3918 | 1.3.1.2.5.2 | Elect inst | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3919 | 1.3.1.2.5.3 | Vacuum piping | LLNL |  | 0 | 0.75 wks | \$0.00 | \$2,000.00 | \$1,626.00 | \$3,626.00 | \$1,971.48 | \$1,086.73 | \$6,684.21 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 3920 | 1.3.1.2.5.3 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$356.70 | \$2,734.70 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3921 | 1.3.1.2.5.3 | Hardware | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 3922 | 1.3.1.2.5.3 | Install \& test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3923 | 1.3.1.2.5.4 | Ion pumps | LLNL |  | 0 | 1.2 wks | \$0.00 | \$38,000.00 | \$2,640.00 | \$40,640.00 | \$9,769.20 | \$7,934.41 | \$58,343.61 |
| 3924 | 1.3.1.2.5.4 | Hardware | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 3925 | 1.3.1.2.5.4 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$22,000.00 | \$0.00 | \$22,000.00 | \$4,158.00 | \$3,923.70 | \$30,081.70 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 22,000 | \$0.00 | \$0.00 | \$0.00 | \$22,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3926 | 1.3.1.2.5.4 | Controller | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$16,000.00 | \$0.00 | \$16,000.00 | \$3,024.00 | \$2,853.60 | \$21,877.60 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 16,000 | \$0.00 | \$0.00 | \$0.00 | \$16,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3927 | 1.3.1.2.5.4 | Controller | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 3928 | 1.3.1.2.5.4 | Install electrical | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$636.00 | \$636.00 | \$623.28 | \$314.82 | \$1,574.10 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$636.00 | \$0.00 | \$0.00 | \$0.00 |
| 3929 | 1.3.1.2.5.4 | Install (mech) and test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3930 | 1.3.1.2.5.5 | Ion gauges | LLNL |  | 0 | 0.61 wks | \$0.00 | \$5,000.00 | \$1,345.20 | \$6,345.20 | \$2,263.30 | \$1,477.79 | \$10,086.29 |
| 3931 | 1.3.1.2.5.5 | Hardware | LLNL | ED\& | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | \$0.00 | \$0.00 | \$0.00 |
| 3932 | 1.3.1.2.5.5 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$178.35 | \$1,367.35 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3933 | 1.3.1.2.5.5 | Controller | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3934 | 1.3.1.2.5.5 | Controller | LLNL | ED\& | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | \$0.00 | \$0.00 | \$0.00 |
| 3935 | 1.3.1.2.5.5 | Install electrical | LLNL | B\&H | 2 | 0.15 wks | \$0.00 | \$0.00 | \$318.00 | \$318.00 | \$311.64 | \$157.41 | \$787.05 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$318.00 | \$0.00 | \$0.00 | \$0.00 |
| 3936 | 1.3.1.2.5.5 | Install (mech) and test | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$624.00 | \$624.00 | \$611.52 | \$308.88 | \$1,544.40 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$624.00 | \$0.00 | \$0.00 | \$0.00 |
| 3937 | 1.3.1.2.5.6 | Spools | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3938 | 1.3.1.2.5.6 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3939 | 1.3.1.2.5.6 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M \& S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 3940 | 1.3.1.2.5.6 | Installation | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3941 | 1.3.1.2.5.7 | Turbo pumps 5001/s | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3942 | 1.3.1.2.5.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3943 | 1.3.1.2.5.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3944 | 1.3.1.2.5.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3945 | 1.3.1.2.5.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3946 | 1.3.1.2.5.7 | Install electrical | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3947 | 1.3.1.2.5.7 | Install (mech) and test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3948 | 1.3.1.2.5.8 | Stands | LLNL |  | 0 | 2.1 wks | \$0.00 | \$9,000.00 | \$4,412.00 | \$13,412.00 | \$6,024.76 | \$4,859.19 | \$24,295.95 |
| 3949 | 1.3.1.2.5.8 | Hardware | LLNL | ED\& | 2 | 0.1 wks | \$0.00 | \$0.00 | \$252.00 | \$252.00 | \$246.96 | \$124.74 | \$623.70 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$252.00 | \$0.00 | \$0.00 | \$0.00 |
| 3950 | 1.3.1.2.5.8 | Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$1,701.00 | \$2,675.25 | \$13,376.25 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3951 | 1.3.1.2.5.8 | Installation | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3952 | 1.3.1.2.6 | Hutch A4 |  |  | 0 | 5.86 wks | \$0.00 | \$62,000.00 | \$12,663.20 | \$74,663.20 | \$24,127.94 | \$17,942.03 | \$116,733.17 |
| 3953 | 1.3.1.2.6. | Isolation valve | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3954 | 1.3.1.2.6.1 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3955 | 1.3.1.2.6.1 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3956 | 1.3.1.2.6. | Install \& test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3957 | 1.3.1.2.6.1 | Elect inst | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3958 | 1.3.1.2.6.2 | Isolation valve-Be | LLNL |  | 0 | 1.2 wks | \$0.00 | \$8,000.00 | \$2,640.00 | \$10,640.00 | \$4,099.20 | \$2,583.91 | \$17,323.11 |
| 3959 | 1.3.1.2.6.2 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3960 | 1.3.1.2.6.2 | Hardware | LLNL | ED\& | 1 | 0.3 wks | \$0.00 | \$0.00 | \$756.00 | \$756.00 | \$740.88 | \$224.53 | \$1,721.41 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$756.00 | \$0.00 | \$0.00 | \$0.00 |
| 3961 | 1.3.1.2.6.2 | Assemble, install \& test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3962 | 1.3.1.2.6.2 | Elect inst | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$636.00 | \$636.00 | \$623.28 | \$314.82 | \$1,574.10 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$636.00 | \$0.00 | \$0.00 | \$0.00 |
| 3963 | 1.3.1.2.6.3 | Vacuum piping | LLNL |  | 0 | 0.75 wks | \$0.00 | \$2,000.00 | \$1,626.00 | \$3,626.00 | \$1,971.48 | \$1,086.73 | \$6,684.21 |
| 3964 | 1.3.1.2.6.3 | Hardware | LLNL | M2S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$356.70 | \$2,734.70 |
|  |  | LLNL M\&S Iotal |  | M ${ }^{\text {S }}$ | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3965 | 1.3.1.2.6.3 | Hardware | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{3966}$ | cwbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.1.2.6.3 | Install \& test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3967 | 1.3.1.2.6.4 | lon pumps | LLNL |  | 0 | 1.2 wks | \$0.00 | \$38,000.00 | \$2,640.00 | \$40,640.00 | \$9,769.20 | \$7,934.41 | \$58,343.61 |
| 3968 | 1.3.1.2.6.4 | Hardware | LLNL | ED\&1 | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&/ | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 3969 | 1.3.1.2.6.4 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$22,000.00 | \$0.00 | \$22,000.00 | \$4,158.00 | \$3,923.70 | \$30,081.70 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 22,000 | \$0.00 | \$0.00 | \$0.00 | \$22,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3970 | 1.3.1.2.6.4 | Controller | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$16,000.00 | \$0.00 | \$16,000.00 | \$3,024.00 | \$2,853.60 | \$21,877.60 |
|  |  | LLNL M\&S Iotal |  | M ds $^{\text {S }}$ | 0 | 16,000 | \$0.00 | \$0.00 | \$0.00 | \$16,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3971 | 1.3.1.2.6.4 | Controller | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 3972 | 1.3.1.2.6.4 | Install electrical | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$636.00 | \$636.00 | \$623.28 | \$314.82 | \$1,574.10 |
|  |  | LLNL Controls: Iechnician |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$636.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3973 | 1.3.1.2.6.4 | Install (mech) and test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 3974 | 1.3.1.2.6.5 | lon gauges | LLNL |  | 0 | 0.61 wks | \$0.00 | \$5,000.00 | \$1,345.20 | \$6,345.20 | \$2,263.30 | \$1,477.79 | \$10,086.29 |
| 3975 | 1.3.1.2.6. | Hardware | LLNL | ED\& | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:COordinator Associate |  | ED\&I | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | \$0.00 | \$0.00 | \$0.00 |
| 3976 | 1.3.1.2.6.5 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$178.35 | \$1,367.35 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3977 | 1.3.1.2.6. 5 | Controller | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3978 | 1.3.1.2.6.5 | Controller | LLNL | ED\& | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | \$0.00 | \$0.00 | \$0.00 |
| 3979 | 1.3.1.2.6.5 | Install electrical | LLNL | B\&H | 2 | 0.15 wks | \$0.00 | \$0.00 | \$318.00 | \$318.00 | \$311.64 | \$157.41 | \$787.05 |
|  |  | LLNL Controls: Technician |  | BRH | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$318.00 | \$0.00 | \$0.00 | \$0.00 |
| 3980 | 1.3.1.2.6.5 | Install (mech) and test | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$624.00 | \$624.00 | \$611.52 | \$308.88 | \$1,544.40 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$624.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 3981 | 1.3.1.2.6.6 | Spools | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3982 | 1.3.1.2.6.6 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3983 | 1.3.1.2.6.6 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3984 | 1.3.1.2.6.6 | Installation | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3985 | 1.3.1.2.6.7 | Turbo pumps 5001/s | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3986 | 1.3.1.2.6.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3987 | 1.3.1.2.6.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 3988 | 1.3.1.2.6.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3989 | 1.3.1.2.6.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3990 | 1.3.1.2.6.7 | Install electrical | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3991 | 1.3.1.2.6.7 | Install (mech) and test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3992 | 1.3.1.2.6.8 | Stands | LLNL |  | 0 | 2.1 wks | \$0.00 | \$9,000.00 | \$4,412.00 | \$13,412.00 | \$6,024.76 | \$4,859.19 | \$24,295.95 |
| 3993 | 1.3.1.2.6.8 | Hardware | LLNL | ED\& | 2 | 0.1 wks | \$0.00 | \$0.00 | \$252.00 | \$252.00 | \$246.96 | \$124.74 | \$623.70 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$252.00 | \$0.00 | \$0.00 | \$0.00 |
| 3994 | 1.3.1.2.6.8 | Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$1,701.00 | \$2,675.25 | \$13,376.25 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 3995 | 1.3.1.2.6.8 | Installation | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | BRH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 3996 | 1.3.1.2.7 | Tunnel |  |  | 0 | 63.6 wks | \$0.00 | \$713,500.00 | \$137,816.00 | \$851,316.00 | \$269,911.18 | \$206,054.77 | \$1,327,281.95 |
| 3997 | 1.3.1.2.7.1 | Isolation valve | LLNL |  | 0 | 0.6 wks | \$0.00 | \$4,000.00 | \$1,344.00 | \$5,344.00 | \$2,073.12 | \$1,378.68 | \$8,795.80 |
| 3998 | 1.3.1.2.7.1 | Hardware | LLNL | ED\&1 | 2 | 0.2 wks | \$0.00 | \$0.00 | \$504.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 3999 | 1.3.1.2.7.1 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4000 | 1.3.1.2.7.1 | Install \& test | LLNL | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$416.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 4001 | 1.3.1.2.7.1 | Elect inst | LLNL | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$424.00 | \$424.00 | \$415.52 | \$209.88 | \$1,049.40 |
|  |  | LLNL Controls: Technician |  | BRH | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$424.00 | \$0.00 | \$0.00 | \$0.00 |
| 4002 | 1.3.1.2.7.2 | Isolation valve-Be | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4003 | 1.3.1.2.7.2 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4004 | 1.3.1.2.7.2 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4005 | 1.3.1.2.7.2 | Assemble, install \& test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4006 | 1.3.1.2.7.2 | Elect inst | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4007 | 1.3.1.2.7.3 | Vacuum piping | LLNL |  | 0 | 10 wks | \$0.00 | \$20,000.00 | \$21,680.00 | \$41,680.00 | \$25,026.40 | \$13,300.68 | \$80,007.08 |
| 4008 | 1.3.1.2.7.3 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$3,780.00 | \$3,567.00 | \$27,347.00 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4009 | 1.3.1.2.7.3 | Hardware | LLNL | ED\& | 1 | 2 wks | \$0.00 | \$0.00 | \$5,040.00 | \$5,040.00 | \$4,939.20 | \$1,496.88 | \$11,476.08 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 4010 | 1.3.1.2.7.3 | Install \& test | LLNL | B\&H | 2 | 8 wks | \$0.00 | \$0.00 | \$16,640.00 | \$16,640.00 | \$16,307.20 | \$8,236.80 | \$41,184.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | BKH | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$16,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 4011 | 1.3.1.2.7.4 | Ion pumps | LLNL |  | 0 | 16 wks | \$0.00 | \$500,000.00 | \$35,200.00 | \$535,200.00 | \$128,996.00 | \$104,603.16 | \$768,799.16 |
| 4012 | 1.3.1.2.7.4 | Hardware | LLNL | ED\& | 1 | 2 wks | \$0.00 | \$0.00 | \$5,040.00 | \$5,040.00 | \$4,939.20 | \$1,496.88 | \$11,476.08 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units <br> 2 wks | $\frac{\text { PED (Direct) }}{\$ 0.00}$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct) <br> $\$ 0.00$ | $\frac{\text { Direct Cost }}{\$ 5,040.00}$ | $\begin{array}{r} \text { Overhead Cost } \\ \hline \$ 0.00 \end{array}$ | Contingency Cost $\$ 0.00$ | Total Cost <br> $\$ 0.00$ |
|  |  | LLNL PCD:Coordinator Associate | LLNL |  |  |  |  |  |  |  |  |  |  |
| 4013 | 1.3.1.2.7.4 | Hardware |  | M 2 S | 1 | 0 wks | \$0.00 | \$288,000.00 | \$0.00 | \$288,000.00 | \$54,432.00 | \$51,364.80 | \$393,796.80 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 288,000 | \$0.00 | \$0.00 | \$0.00 | \$288,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4014 | 1.3.1.2.7.4 | Controller | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$212,000.00 | \$0.00 | \$212,000.00 | \$40,068.00 | \$37,810.20 | \$289,878.20 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 212,000 | \$0.00 | \$0.00 | \$0.00 | \$212,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4015 | 1.3.1.2.7.4 | Controller | LLNL | ED\& | 1 | 2 wks | \$0.00 | \$0.00 | \$5,040.00 | \$5,040.00 | \$4,939.20 | \$1,496.88 | \$11,476.08 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 4016 | 1.3.1.2.7.4 | Install electrical | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,480.00 | \$8,480.00 | \$8,310.40 | \$4,197.60 | \$20,988.00 |
|  |  | LLNL Controls: Iechnician |  | BKH | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 4017 | 1.3.1.2.7.4 | Install (mech) and test | LLNL | B\&H | 2 | 8 wks | \$0.00 | \$0.00 | \$16,640.00 | \$16,640.00 | \$16,307.20 | \$8,236.80 | \$41,184.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | $8 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$16,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 4018 | 1.3.1.2.7.5 | Ion gauges | LLNL |  | 0 | 8 wks | \$0.00 | \$66,000.00 | \$17,600.00 | \$83,600.00 | \$29,722.00 | \$19,485.18 | \$132,807.18 |
| 4019 | 1.3.1.2.7.5 | Hardware | LLNL | ED\&I | 1 | 1 wk | \$0.00 | \$0.00 | \$2,520.00 | \$2,520.00 | \$2,469.60 | \$748.44 | \$5,738.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 4020 | 1.3.1.2.7.5 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$18,000.00 | \$0.00 | \$18,000.00 | \$3,402.00 | \$3,210.30 | \$24,612.30 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 18,000 | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4021 | 1.3.1.2.7.5 | Controller | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$48,000.00 | \$0.00 | \$48,000.00 | \$9,072.00 | \$8,560.80 | \$65,632.80 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 48,000 | \$0.00 | \$0.00 | \$0.00 | \$48,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4022 | 1.3.1.2.7.5 | Controller | LLNL | ED\& | 1 | 1 wk | \$0.00 | \$0.00 | \$2,520.00 | \$2,520.00 | \$2,469.60 | \$748.44 | \$5,738.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 4023 | 1.3.1.2.7.5 | Install electrical | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,240.00 | \$4,240.00 | \$4,155.20 | \$2,098.80 | \$10,494.00 |
|  |  | LLNL Controls: Technician |  | BRH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 4024 | 1.3.1.2.7.5 | Install (mech) and test | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,320.00 | \$8,320.00 | \$8,153.60 | \$4,118.40 | \$20,592.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4025 | 1.3.1.2.7.6 | Spools | LLNL |  | 0 | 0.3 wks | \$0.00 | \$500.00 | \$668.00 | \$1,168.00 | \$749.14 | \$369.94 | \$2,287.08 |
| 4026 | 1.3.1.2.7.6 | Hardware | LLNL | ED\& | 1 | 0.1 wks | \$0.00 | \$0.00 | \$252.00 | \$252.00 | \$246.96 | \$74.84 | \$573.80 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$252.00 | \$0.00 | \$0.00 | \$0.00 |
| 4027 | 1.3.1.2.7.6 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$500.00 | \$0.00 | \$500.00 | \$94.50 | \$89.18 | \$683.68 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 500 | \$0.00 | \$0.00 | $\$ 0.00$ | \$500.00 | \$0.00 | \$0.00 | \$0.00 |
| 4028 | 1.3.1.2.7.6 | Installation | LLNL | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$416.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 4029 | 1.3.1.2.7.7 | Turbo pumps 5001/s | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4030 | 1.3.1.2.7.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4031 | 1.3.1.2.7.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4032 | 1.3.1.2.7.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 4033 | 1.3.1.2.7.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4034 | 1.3.1.2.7.7 | Install electrical | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4035 | 1.3.1.2.7.7 | Install (mech) and test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4036 | 1.3.1.2.7.8 | Stands | LLNL |  | 0 | 28.7 wks | \$0.00 | \$123,000.00 | \$61,324.00 | \$184,324.00 | \$83,344.52 | \$66,917.13 | \$334,585.65 |
| 4037 | 1.3.1.2.7.8 | Hardware | LLNL | ED\& | 2 | 3.7 wks | \$0.00 | \$0.00 | \$9,324.00 | \$9,324.00 | \$9,137.52 | \$4,615.38 | \$23,076.90 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 3.7 wks | \$0.00 | \$0.00 | \$0.00 | \$9,324.00 | \$0.00 | \$0.00 | \$0.00 |
| 4038 | 1.3.1.2.7.8 | Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$123,000.00 | \$0.00 | \$123,000.00 | \$23,247.00 | \$36,561.75 | \$182,808.75 |
|  |  | LLNL M\&S Iotal |  | M M S $^{\text {S }}$ | 0 | 123,000 | \$0.00 | \$0.00 | \$0.00 | \$123,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4039 | 1.3.1.2.7.8 | Installation | LLNL | B\&H | 2 | 25 wks | \$0.00 | \$0.00 | \$52,000.00 | \$52,000.00 | \$50,960.00 | \$25,740.00 | \$128,700.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 25 wks | \$0.00 | \$0.00 | \$0.00 | \$52,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4040 | 1.3.1.2.8 | Hutch B1 |  |  | 0 | 9.76 wks | \$0.00 | \$75,000.00 | \$21,307.20 | \$96,307.20 | \$35,056.06 | \$14,408.01 | \$145,771.26 |
| 4041 | 1.3.1.2.8.1 | Isolation valve | LLNL |  | 0 | 1.2 wks | \$0.00 | \$7,000.00 | \$2,688.00 | \$9,688.00 | \$3,957.24 | \$2,579.01 | \$16,224.25 |
| 4042 | 1.3.1.2.8.1 | Hardware | LLNL | ED\& 1 | 2 | 0.4 wks | \$0.00 | \$0.00 | \$1,008.00 | \$1,008.00 | \$987.84 | \$498.96 | \$2,494.80 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,008.00 | \$0.00 | \$0.00 | \$0.00 |
| 4043 | 1.3.1.2.8.1 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$1,323.00 | \$1,248.45 | \$9,571.45 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4044 | 1.3.1.2.8.1 | Install \& test | LLNL | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$832.00 | \$832.00 | \$815.36 | \$411.84 | \$2,059.20 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$832.00 | \$0.00 | \$0.00 | \$0.00 |
| 4045 | 1.3.1.2.8.1 | Elect inst | LLNL | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$848.00 | \$848.00 | \$831.04 | \$419.76 | \$2,098.80 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$848.00 | \$0.00 | \$0.00 | \$0.00 |
| 4046 | 1.3.1.2.8.2 | Isolation valve-Be | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4047 | 1.3.1.2.8.2 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4048 | 1.3.1.2.8.2 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4049 | 1.3.1.2.8.2 | Assemble, install \& test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4050 | 1.3.1.2.8.2 | Elect inst | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4051 | 1.3.1.2.8.3 | Vacuum piping | LLNL |  | 0 | 0.75 wks | \$0.00 | \$2,000.00 | \$1,626.00 | \$3,626.00 | \$1,971.48 | \$1,086.73 | \$6,684.21 |
| 4052 | 1.3.1.2.8.3 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$356.70 | \$2,734.70 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4053 | 1.3.1.2.8.3 | Hardware | LLNL | ED\&1 | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 4054 | 1.3.1.2.8.3 | Install \& test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 4055 | 1.3.1.2.8.4 | Ion pumps | LLNL |  | 0 | 1.2 wks | \$0.00 | \$38,000.00 | \$2,640.00 | \$40,640.00 | \$9,769.20 | \$7,934.41 | \$58,343.61 |
| 4056 | 1.3.1.2.8.4 | Hardware | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | Page 212 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{4057}$ | CWBS |  | OBS | $\frac{\text { PHASE }}{\text { M\&S }}$ | Risk | Units | $\frac{\operatorname{PED} \text { (Direct) }}{\$ 0.00}$ | $\frac{\text { M\&S (Direct) }}{\$ 22,000.00}$ | Labor (Direct) | $\begin{aligned} & \text { Direct Cost } \\ & \$ 22,000.00 \end{aligned}$ | Overhead Cost $\$ 4,158.00$ | Contingency Cost | Total Cost \$30,081.70 |
|  | 1.3.1.2.8.4 | Task Name Hardware | LLNL |  | 1 |  |  |  |  |  |  |  |  |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 22,000 | \$0.00 | \$0.00 | \$0.00 | \$22,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4058 | 1.3.1.2.8.4 | Controller | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$16,000.00 | \$0.00 | \$16,000.00 | \$3,024.00 | \$2,853.60 | \$21,877.60 |
|  |  | LLNL M\&S lotal |  | M\&S | 0 | 16,000 | \$0.00 | \$0.00 | \$0.00 | \$16,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4059 | 1.3.1.2.8.4 | Controller | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 4060 | 1.3.1.2.8.4 | Install electrical | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$636.00 | \$636.00 | \$623.28 | \$314.82 | \$1,574.10 |
|  |  | LLNL Controls: Iechnician |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$636.00 | \$0.00 | \$0.00 | \$0.00 |
| 4061 | 1.3.1.2.8.4 | Install (mech) and test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 4062 | 1.3.1.2.8.5 | lon gauges | LLNL |  | 0 | 0.61 wks | \$0.00 | \$5,000.00 | \$1,345.20 | \$6,345.20 | \$2,263.30 | \$1,477.79 | \$10,086.29 |
| 4063 | 1.3.1.2.8.5 | Hardware | LLNL | ED\& | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | \$0.00 | \$0.00 | \$0.00 |
| 4064 | 1.3.1.2.8.5 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$178.35 | \$1,367.35 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4065 | 1.3.1.2.8.5 | Controller | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4066 | 1.3.1.2.8.5 | Controller | LLNL | ED\& | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | \$0.00 | \$0.00 | \$0.00 |
| 4067 | 1.3.1.2.8.5 | Install electrical | LLNL | B\&H | 2 | 0.15 wks | \$0.00 | \$0.00 | \$318.00 | \$318.00 | \$311.64 | \$157.41 | \$787.05 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$318.00 | \$0.00 | \$0.00 | \$0.00 |
| 4068 | 1.3.1.2.8.5 | Install (mech) and test | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$624.00 | \$624.00 | \$611.52 | \$308.88 | \$1,544.40 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$624.00 | \$0.00 | \$0.00 | \$0.00 |
| 4069 | 1.3.1.2.8.6 | Spools | LLNL |  | 0 | 1 wk | \$0.00 | \$2,000.00 | \$2,168.00 | \$4,168.00 | \$2,502.64 | \$1,330.07 | \$8,000.71 |
| 4070 | 1.3.1.2.8.6 | Hardware | LLNL | ED\& | 1 | 0.2 wks | \$0.00 | \$0.00 | \$504.00 | \$504.00 | \$493.92 | \$149.69 | \$1,147.61 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 4071 | 1.3.1.2.8.6 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$356.70 | \$2,734.70 |
|  |  | LLNL MES Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4072 | 1.3.1.2.8.6 | Installation | LLNL | B\&H | 2 | 0.8 wks | \$0.00 | \$0.00 | \$1,664.00 | \$1,664.00 | \$1,630.72 | \$823.68 | \$4,118.40 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.8 wks | \$0.00 | \$0.00 | \$0.00 | \$1,664.00 | \$0.00 | \$0.00 | \$0.00 |
| 4073 | 1.3.1.2.8.7 | Turbo pumps 5001/s | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4074 | 1.3.1.2.8.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4075 | 1.3.1.2.8.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4076 | 1.3.1.2.8.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4077 | 1.3.1.2.8.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | obs | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 4078 | 1.3.1.2.8.7 | Install electrical | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4079 | 1.3.1.2.8.7 | Install (mech) and test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4080 | 1.3.1.2.8.8 | Stands | LLNL |  | 0 | 5 wks | \$0.00 | \$21,000.00 | \$10,840.00 | \$31,840.00 | \$14,592.20 | \$0.00 | \$46,432.20 |
| 4081 | 1.3.1.2.8.8 | Hardware | LLNL | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$2,520.00 | \$2,520.00 | \$2,469.60 | \$0.00 | \$4,989.60 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 4082 | 1.3.1.2.8.8 | Hardware | LLNL | M\&S | 0 | 0 wks | \$0.00 | \$21,000.00 | \$0.00 | \$21,000.00 | \$3,969.00 | \$0.00 | \$24,969.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 21,000 | \$0.00 | \$0.00 | \$0.00 | \$21,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4083 | 1.3.1.2.8.8 | Installation | LLNL | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$8,320.00 | \$8,320.00 | \$8,153.60 | \$0.00 | \$16,473.60 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | $\$ 0.00$ | $\$ 0.00$ |
| 4084 | 1.3.1.2.9 | Hutch B2 |  |  | 0 | 6.16 wks | \$0.00 | \$64,000.00 | \$13,335.20 | \$77,335.20 | \$25,164.50 | \$18,631.37 | \$121,131.07 |
| 4085 | 1.3.1.2.9.1 | Isolation valve | LLNL |  | 0 | 0.3 wks | \$0.00 | \$2,000.00 | \$672.00 | \$2,672.00 | \$1,036.56 | \$689.34 | \$4,397.90 |
| 4086 | 1.3.1.2.9.1 | Hardware | LLNL | ED\& | 2 | 0.1 wks | \$0.00 | \$0.00 | \$252.00 | \$252.00 | \$246.96 | \$124.74 | \$623.70 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$252.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 4087 | 1.3.1.2.9.1 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$356.70 | \$2,734.70 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4088 | 1.3.1.2.9.1 | Install \& test | LLNL | B\&H | 2 | 0.1 wks | \$0.00 | \$0.00 | \$208.00 | \$208.00 | \$203.84 | \$102.96 | \$514.80 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$208.00 | \$0.00 | \$0.00 | \$0.00 |
| 4089 | 1.3.1.2.9.1 | Elect inst | LLNL | B\&H | 2 | 0.1 wks | \$0.00 | \$0.00 | \$212.00 | \$212.00 | \$207.76 | \$104.94 | \$524.70 |
|  |  | LLNL Controls: Iechnician |  | B\&H | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$212.00 | \$0.00 | \$0.00 | \$0.00 |
| 4090 | 1.3.1.2.9.2 | Isolation valve-Be | LLNL |  | 0 | 1.2 wks | \$0.00 | \$8,000.00 | \$2,640.00 | \$10,640.00 | \$4,099.20 | \$2,583.91 | \$17,323.11 |
| 4091 | 1.3.1.2.9.2 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4092 | 1.3.1.2.9.2 | Hardware | LLNL | ED\& | 1 | 0.3 wks | \$0.00 | \$0.00 | \$756.00 | \$756.00 | \$740.88 | \$224.53 | \$1,721.41 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$756.00 | \$0.00 | \$0.00 | \$0.00 |
| 4093 | 1.3.1.2.9.2 | Assemble, install \& test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 4094 | 1.3.1.2.9.2 | Elect inst | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$636.00 | \$636.00 | \$623.28 | \$314.82 | \$1,574.10 |
|  |  | LLNL Controls: Iechnician |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$636.00 | \$0.00 | \$0.00 | \$0.00 |
| 4095 | 1.3.1.2.9.3 | Vacuum piping | LLNL |  | 0 | 0.75 wks | \$0.00 | \$2,000.00 | \$1,626.00 | \$3,626.00 | \$1,971.48 | \$1,086.73 | \$6,684.21 |
| 4096 | 1.3.1.2.9.3 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$356.70 | \$2,734.70 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4097 | 1.3.1.2.9.3 | Hardware | LLNL | ED\&1 | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 4098 | 1.3.1.2.9.3 | Install \& test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 4 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 4099 | 1.3.1.2.9.4 | Ion pumps | LLNL |  | 0 | 1.2 wks | \$0.00 | \$38,000.00 | \$2,640.00 | \$40,640.00 | \$9,769.20 | \$7,934.41 | \$58,343.61 |
| 4100 | 1.3.1.2.9.4 | Hardware | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 4101 | 1.3.1.2.9.4 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$22,000.00 | \$0.00 | \$22,000.00 | \$4,158.00 | \$3,923.70 | \$30,081.70 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 22,000 | \$0.00 | \$0.00 | \$0.00 | \$22,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4102 | 1.3.1.2.9.4 | Controller | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$16,000.00 | \$0.00 | \$16,000.00 | \$3,024.00 | \$2,853.60 | \$21,877.60 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 16,000 | \$0.00 | \$0.00 | \$0.00 | \$16,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4103 | 1.3.1.2.9.4 | Controller | LLNL | ED\&1 | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 4104 | 1.3.1.2.9.4 | Install electrical | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$636.00 | \$636.00 | \$623.28 | \$314.82 | \$1,574.10 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$636.00 | \$0.00 | \$0.00 | \$0.00 |
| 4105 | 1.3.1.2.9.4 | Install (mech) and test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 4106 | 1.3.1.2.9.5 | Ion gauges | LLNL |  | 0 | 0.61 wks | \$0.00 | \$5,000.00 | \$1,345.20 | \$6,345.20 | \$2,263.30 | \$1,477.79 | \$10,086.29 |
| 4107 | 1.3.1.2.9.5 | Hardware | LLNL | ED\& | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | \$0.00 | \$0.00 | \$0.00 |
| 4108 | 1.3.1.2.9.5 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$178.35 | \$1,367.35 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4109 | 1.3.1.2.9.5 | Controller | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4110 | 1.3.1.2.9.5 | Controller | LLNL | ED\& | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | \$0.00 | \$0.00 | \$0.00 |
| 4111 | 1.3.1.2.9.5 | Install electrical | LLNL | B\&H | 2 | 0.15 wks | \$0.00 | \$0.00 | \$318.00 | \$318.00 | \$311.64 | \$157.41 | \$787.05 |
|  |  | LLNL Controls: Iechnician |  | B\&H | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$318.00 | \$0.00 | \$0.00 | \$0.00 |
| 4112 | 1.3.1.2.9.5 | Install (mech) and test | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$624.00 | \$624.00 | \$611.52 | \$308.88 | \$1,544.40 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$624.00 | \$0.00 | \$0.00 | \$0.00 |
| 4113 | 1.3.1.2.9.6 | Spools | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4114 | 1.3.1.2.9.6 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4115 | 1.3.1.2.9.6 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4116 | 1.3.1.2.9.6 | Instalation | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4117 | 1.3.1.2.9.7 | Turbo pumps 5001/s | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4118 | 1.3.1.2.9.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4119 | 1.3.1.2.9.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4120 | 1.3.1.2.9.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4121 | 1.3.1.2.9.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cwbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 4122 | 1.3.1.2.9.7 | Install electrical | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4123 | 1.3.1.2.9.7 | Install (mech) and test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4124 | 1.3.1.2.9.8 | Stands | LLNL |  | 0 | 2.1 wks | \$0.00 | \$9,000.00 | \$4,412.00 | \$13,412.00 | \$6,024.76 | \$4,859.19 | \$24,295.95 |
| 4125 | 1.3.1.2.9.8 | Hardware | LLNL | ED\&1 | 2 | 0.1 wks | \$0.00 | \$0.00 | \$252.00 | \$252.00 | \$246.96 | \$124.74 | \$623.70 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$252.00 | \$0.00 | \$0.00 | \$0.00 |
| 4126 | 1.3.1.2.9.8 | Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$1,701.00 | \$2,675.25 | \$13,376.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4127 | 1.3.1.2.9.8 | Installation | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 4128 | 1.3.1.2.10 | Hutch B3 Totals |  |  | 0 | 19.51 wks | \$0.00 | \$54,000.00 | \$47,445.20 | \$101,445.20 | \$56,702.30 | \$26,463.15 | \$184,610.64 |
| 4129 | 1.3.1.2.10.1 | Isolation valve | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4130 | 1.3.1.2.10.1 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4131 | 1.3.1.2.10.1 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4132 | 1.3.1.2.10.1 | Install \& test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4133 | 1.3.1.2.10.1 | Elect inst | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4134 | 1.3.1.2.10.2 | Isolation valve-Be | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4135 | 1.3.1.2.10.2 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4136 | 1.3.1.2.10.2 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4137 | 1.3.1.2.10.2 | Assemble, install \& test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4138 | 1.3.1.2.10.2 | Elect inst | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4139 | 1.3.1.2.10.3 | Vacuum piping | LLNL |  | 0 | 15.6 wks | \$0.00 | \$2,000.00 | \$39,048.00 | \$41,048.00 | \$38,645.04 | \$12,191.76 | \$91,884.80 |
| 4140 | 1.3.1.2.10.3 | Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4141 | 1.3.1.2.10.3 | Hardware | LLNL | ED\& | 1 | 15 wks | \$0.00 | \$0.00 | \$37,800.00 | \$37,800.00 | \$37,044.00 | \$11,226.60 | \$86,070.60 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 15 wks | \$0.00 | \$0.00 | \$0.00 | \$37,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 4142 | 1.3.1.2.10.3 | Install \& test | LLNL | B\&H | 1 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$370.66 | \$2,841.70 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 4143 | 1.3.1.2.10.4 | Ion pumps | LLNL |  | 0 | 1.2 wks | \$0.00 | \$38,000.00 | \$2,640.00 | \$40,640.00 | \$9,769.20 | \$7,934.41 | \$58,343.61 |
| 4144 | 1.3.1.2.10.4 | Hardware | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 4145 | 1.3.1.2.10.4 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$22,000.00 | \$0.00 | \$22,000.00 | \$4,158.00 | \$3,923.70 | \$30,081.70 |
|  |  | LLNL M\&S Iotal |  | M M $^{\text {S }}$ | 0 | 22,000 | \$0.00 | \$0.00 | \$0.00 | \$22,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 4146 | 1.3.1.2.10.4 | Controller | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$16,000.00 | \$0.00 | \$16,000.00 | \$3,024.00 | \$2,853.60 | \$21,877.60 |
|  |  | LLNL MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 16,000 | \$0.00 | \$0.00 | \$0.00 | \$16,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4147 | 1.3.1.2.10.4 | Controller | LLNL | ED\& | 1 | 0.15 wks | \$0.00 | \$0.00 | \$378.00 | \$378.00 | \$370.44 | \$112.27 | \$860.71 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M ${ }^{\text {S }}$ ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$378.00 | \$0.00 | \$0.00 | \$0.00 |
| 4148 | 1.3.1.2.10.4 | Install electrical | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$636.00 | \$636.00 | \$623.28 | \$314.82 | \$1,574.10 |
|  |  | LLNL Controls: Iechnician |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$636.00 | \$0.00 | \$0.00 | \$0.00 |
| 4149 | 1.3.1.2.10.4 | Install (mech) and test | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |
| 4150 | 1.3.1.2.10.5 | lon gauges | LLNL |  | 0 | 0.61 wks | \$0.00 | \$5,000.00 | \$1,345.20 | \$6,345.20 | \$2,263.30 | \$1,477.79 | \$10,086.29 |
| 4151 | 1.3.1.2.10.5 | Hardware | LLNL | ED\& | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | \$0.00 | \$0.00 | \$0.00 |
| 4152 | 1.3.1.2.10.5 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$178.35 | \$1,367.35 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4153 | 1.3.1.2.10.5 | Controller | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4154 | 1.3.1.2.10.5 | Controller | LLNL | ED\& | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4155 | 1.3.1.2.10.5 | Install electrical | LLNL | B\&H | 2 | 0.15 wks | \$0.00 | \$0.00 | \$318.00 | \$318.00 | \$311.64 | \$157.41 | \$787.05 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$318.00 | \$0.00 | \$0.00 | \$0.00 |
| 4156 | 1.3.1.2.10.5 | Install (mech) and test | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$624.00 | \$624.00 | \$611.52 | \$308.88 | \$1,544.40 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$624.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4157 | 1.3.1.2.10.6 | Spools | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4158 | 1.3.1.2.10.6 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4159 | 1.3.1.2.10.6 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4160 | 1.3.1.2.10.6 | Installation | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4161 | 1.3.1.2.10.7 | Turbo pumps 5001/s | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4162 | 1.3.1.2.10.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4163 | 1.3.1.2.10.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4164 | 1.3.1.2.10.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4165 | 1.3.1.2.10.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4166 | 1.3.1.2.10.7 | Install electrical | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4167 | 1.3.1.2.10.7 | Install (mech) and test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4168 | 1.3.1.2.10.8 | Stands | LLNL |  | 0 | 2.1 wks | \$0.00 | \$9,000.00 | \$4,412.00 | \$13,412.00 | \$6,024.76 | \$4,859.19 | \$24,295.95 |
| 4169 | 1.3.1.2.10.8 | Hardware | LLNL | ED\& | 2 | 0.1 wks | \$0.00 | \$0.00 | \$252.00 | \$252.00 | \$246.96 | \$124.74 | \$623.70 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$252.00 | \$0.00 | \$0.00 | \$0.00 |
| 4170 | 1.3.1.2.10.8 | Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$1,701.00 | \$2,675.25 | \$13,376.25 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4171 | 1.3.1.2.10.8 | Instalation | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |



| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | $\frac{\text { PED (Direct) }}{}+\frac{1000}{}$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct) $\$ 0.00$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 1,248.00 \end{aligned}$ | Overhead Cost $\$ 0.00$ | Contingency Cost | Total Cost |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.6 wks |  |  |  |  |  | \$0.00 |  |
| 4194 | 1.3.1.2.11.5 | lon gauges | LLNL |  | 0 | 0.61 wks | \$0.00 | \$5,000.00 | \$1,345.20 | \$6,345.20 | \$2,263.30 | \$1,477.79 | \$10,086.29 |
| 4195 | 1.3.1.2.11.5 | Hardware | LLNL | ED\& 1 | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&I | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 4196 | 1.3.1.2.11.5 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$178.35 | \$1,367.35 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4197 | 1.3.1.2.11.5 | Controller | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4198 | 1.3.1.2.11.5 | Controller | LLNL | ED\&1 | 1 | 0.08 wks | \$0.00 | \$0.00 | \$201.60 | \$201.60 | \$197.57 | \$59.88 | \$459.04 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.08 wks | \$0.00 | \$0.00 | \$0.00 | \$201.60 | \$0.00 | \$0.00 | \$0.00 |
| 4199 | 1.3.1.2.11.5 | Install electrical | LLNL | B\&H | 2 | 0.15 wks | \$0.00 | \$0.00 | \$318.00 | \$318.00 | \$311.64 | \$157.41 | \$787.05 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 0.15 wks | \$0.00 | \$0.00 | \$0.00 | \$318.00 | \$0.00 | \$0.00 | \$0.00 |
| 4200 | 1.3.1.2.11.5 | Install (mech) and test | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$624.00 | \$624.00 | \$611.52 | \$308.88 | \$1,544.40 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$624.00 | \$0.00 | \$0.00 | \$0.00 |
| 4201 | 1.3.1.2.11.6 | Spools | LLNL |  | 0 | 0.3 wks | \$0.00 | \$1,000.00 | \$668.00 | \$1,668.00 | \$843.64 | \$459.11 | \$2,970.75 |
| 4202 | 1.3.1.2.11.6 | Hardware | LLNL | ED\& | 1 | 0.1 wks | \$0.00 | \$0.00 | \$252.00 | \$252.00 | \$246.96 | \$74.84 | \$573.80 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$252.00 | \$0.00 | \$0.00 | \$0.00 |
| 4203 | 1.3.1.2.11.6 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$178.35 | \$1,367.35 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4204 | 1.3.1.2.11.6 | Instalation | LLNL | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$416.00 | \$416.00 | \$407.68 | \$205.92 | \$1,029.60 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$416.00 | \$0.00 | \$0.00 | \$0.00 |
| 4205 | 1.3.1.2.11.7 | Turbo pumps 5001/s | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4206 | 1.3.1.2.11.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4207 | 1.3.1.2.11.7 | Hardware | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4208 | 1.3.1.2.11.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4209 | 1.3.1.2.11.7 | Controller | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4210 | 1.3.1.2.11.7 | Install electrical | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4211 | 1.3.1.2.11.7 | Install (mech) and test | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4212 | 1.3.1.2.11.8 | Stands | LLNL |  | 0 | 2.8 wks | \$0.00 | \$12,000.00 | \$6,176.00 | \$18,176.00 | \$8,320.48 | \$6,624.12 | \$33,120.60 |
| 4213 | 1.3.1.2.11.8 | Hardware | LLNL | ED\& | 2 | 0.8 wks | \$0.00 | \$0.00 | \$2,016.00 | \$2,016.00 | \$1,975.68 | \$997.92 | \$4,989.60 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 0.8 wks | \$0.00 | \$0.00 | \$0.00 | \$2,016.00 | \$0.00 | \$0.00 | \$0.00 |
| 4214 | 1.3.1.2.11.8 | Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$2,268.00 | \$3,567.00 | \$17,835.00 |
|  |  | LLNL MES Iotal |  | M\&S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4215 | 1.3.1.2.11.8 | Installation | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |



| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBs | Task Name | OBS | PHASE | Risk | Units 0.5 wks | $\begin{array}{r} \text { PED (Direct) } \\ \$ 0.00 \end{array}$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct) $\$ 0.00$ | $\frac{\text { Direct Cost }}{\$ 1,040.00}$ | Overhead Cost <br> $\$ 0.00$ | Contingency Cost $\$ 0.00$ | $\begin{aligned} & \text { Total Cost } \\ & \$ 0.00 \end{aligned}$ |
|  |  | Task Name LLNL Mech. Fab: Assembly Tech |  |  |  |  |  |  |  |  |  |  |  |
| 4241 | 1.3.1.3.1.4 | Perform Test | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | $\$ 0.00$ | $\$ 0.00$ |
| 4242 | 1.3.1.3.1.4 | Beamline install | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | BRH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4243 | 1.3.1.3.1.5 | Mask | LLNL |  | 2 | 0 wks | \$0.00 | \$13,000.00 | \$0.00 | \$13,000.00 | \$2,457.00 | \$3,864.25 | \$19,321.25 |
| 4244 | 1.3.1.3.1.5 | Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$13,000.00 | \$0.00 | \$13,000.00 | \$2,457.00 | \$3,864.25 | \$19,321.25 |
|  |  | LLNL M\&S Iotal |  | M ${ }_{\text {d }}$ S | 0 | 13,000 | \$0.00 | \$0.00 | \$0.00 | \$13,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4245 | 1.3.1.3.1.6 | Integ \& Test | LLNL |  | 0 | 2.5 wks | \$0.00 | \$0.00 | \$5,200.00 | \$5,200.00 | \$5,096.00 | \$2,574.00 | \$12,870.00 |
| 4246 | 1.3.1.3.1.6 | Bench Assembly | LLNL | B\&H | 2 | 0.5 wks | \$0.00 | \$0.00 | \$1,040.00 | \$1,040.00 | \$1,019.20 | \$514.80 | \$2,574.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | BRH | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 4247 | 1.3.1.3.1.6 | Perform Test | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4248 | 1.3.1.3.1.6 | Beamline install | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | BRH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4249 | 1.3.1.3.2 | Slits/Collimator A |  |  | 0 | 46.2 wks | \$0.00 | \$224,000.00 | \$118,584.00 | \$342,584.00 | \$158,548.32 | \$86,587.64 | \$587,719.96 |
| 4250 | 1.3.1.3.2. | Precision Motion | LLNL |  | 0 | 6.5 wks | \$0.00 | \$32,000.00 | \$21,900.00 | \$53,900.00 | \$27,510.00 | \$0.00 | \$81,410.00 |
| 4251 | 1.3.1.3.2.1 | Hardware | LLNL | M 2 S | 0 | 0 wks | \$0.00 | \$32,000.00 | \$0.00 | \$32,000.00 | \$6,048.00 | \$0.00 | \$38,048.00 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 32,000 | \$0.00 | \$0.00 | \$0.00 | \$32,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4252 | 1.3.1.3.2.1 | Hardware | LLNL | ED\& | 0 | 0.5 wks | \$0.00 | \$0.00 | \$1,260.00 | \$1,260.00 | \$1,234.80 | \$0.00 | \$2,494.80 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& 1 | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,260.00 | \$0.00 | \$0.00 | \$0.00 |
| 4253 | 1.3.1.3.2.1 | Assly \& Test | LLNL | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$20,640.00 | \$20,640.00 | \$20,227.20 | \$0.00 | \$40,867.20 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$20,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 4254 | 1.3.1.3.2.2 | Jaws | LLNL |  | 0 | 10 wks | \$0.00 | \$48,000.00 | \$19,040.00 | \$67,040.00 | \$27,731.20 | \$23,692.80 | \$118,464.00 |
| 4255 | 1.3.1.3.2.2 | Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$48,000.00 | \$0.00 | \$48,000.00 | \$9,072.00 | \$14,268.00 | \$71,340.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 48,000 | \$0.00 | \$0.00 | \$0.00 | \$48,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4256 | 1.3.1.3.2.2 | Characterization | LLNL | ED\& | 2 | 8 wks | \$0.00 | \$0.00 | \$12,160.00 | \$12,160.00 | \$11,916.80 | \$6,019.20 | \$30,096.00 |
|  |  | LLNL Physicist - Post Doc |  | ED\&I | 0 | $8 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$12,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 4257 | 1.3.1.3.2.2 | Characterization | LLNL | ED\&1 | 2 | 2 wks | \$0.00 | \$0.00 | \$6,880.00 | \$6,880.00 | \$6,742.40 | \$3,405.60 | \$17,028.00 |
|  |  | LLNL Precision Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,880.00 | \$0.00 | \$0.00 | \$0.00 |
| 4258 | 1.3.1.3.2.3 | Controls \& Elect | LLNL |  | 0 | 3.2 wks | \$0.00 | \$23,000.00 | \$6,864.00 | \$29,864.00 | \$11,073.72 | \$10,234.43 | \$51,172.15 |
| 4259 | 1.3.1.3.2.3 | Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$23,000.00 | \$0.00 | \$23,000.00 | \$4,347.00 | \$6,836.75 | \$34,183.75 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 23,000 | \$0.00 | \$0.00 | \$0.00 | \$23,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4260 | 1.3.1.3.2.3 | Hardware | LLNL | ED\&I | 2 | 0.2 wks | \$0.00 | \$0.00 | \$504.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 4261 | 1.3.1.3.2.3 | Assly \& Test | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,360.00 | \$6,360.00 | \$6,232.80 | \$3,148.20 | \$15,741.00 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 4262 | 1.3.1.3.2.4 | Integ \& Test | LLNL |  | 0 | 17 wks | \$0.00 | \$0.00 | \$50,800.00 | \$50,800.00 | \$49,784.00 | \$25,146.00 | \$125,730.00 |
| 4263 | 1.3.1.3.2.4 | Bench Assembly | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$10,320.00 | \$10,320.00 | \$10,113.60 | \$5,108.40 | \$25,542.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4264 | 1.3.1.3.2.4 | Perform Test | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$10,320.00 | \$10,320.00 | \$10,113.60 | \$5,108.40 | \$25,542.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4265 | 1.3.1.3.2.4 | Beamline install | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$10,320.00 | \$10,320.00 | \$10,113.60 | \$5,108.40 | \$25,542.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4266 | 1.3.1.3.2.4 | Beamline test | LLNL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$6,080.00 | \$6,080.00 | \$5,958.40 | \$3,009.60 | \$15,048.00 |
|  |  | LLNL Physicist - Post Doc |  | ED\&I | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$6,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4267 | 1.3.1.3.2.4 | Beamline test | LLNL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$13,760.00 | \$13,760.00 | \$13,484.80 | \$6,811.20 | \$34,056.00 |
|  |  | LLNL Precision Engineer |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,760.00 | \$0.00 | \$0.00 | \$0.00 |
| 4268 | 1.3.1.3.2.5 | Tank | LLNL |  | 0 | 4.1 wks | \$0.00 | \$40,000.00 | \$8,572.00 | \$48,572.00 | \$15,960.56 | \$9,679.88 | \$74,212.44 |
| 4269 | 1.3.1.3.2.5 | Fabrication | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$5,670.00 | \$5,350.50 | \$41,020.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4270 | 1.3.1.3.2.5 | Fabrication | LLNL | ED\& | 1 | 0.1 wks | \$0.00 | \$0.00 | \$252.00 | \$252.00 | \$246.96 | \$74.84 | \$573.80 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&I | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$252.00 | \$0.00 | \$0.00 | \$0.00 |
| 4271 | 1.3.1.3.2.5 | Accept. lest | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$1,783.50 | \$13,673.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4272 | 1.3.1.3.2.5 | Installation | LLNL | B\&H | 1 | 4 wks | \$0.00 | \$0.00 | \$8,320.00 | \$8,320.00 | \$8,153.60 | \$2,471.04 | \$18,944.64 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4273 | 1.3.1.3.2.6 | Vacuum | LLNL |  | 0 | 4.2 wks | \$0.00 | \$71,000.00 | \$8,824.00 | \$79,824.00 | \$22,066.52 | \$15,283.58 | \$117,174.10 |
| 4274 | 1.3.1.3.2.6 | Pumps | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$57,000.00 | \$0.00 | \$57,000.00 | \$10,773.00 | \$10,165.95 | \$77,938.95 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 57,000 | \$0.00 | \$0.00 | \$0.00 | \$57,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4275 | 1.3.1.3.2.6 | Pumps | LLNL | ED\& | 1 | 0.2 wks | \$0.00 | \$0.00 | \$504.00 | \$504.00 | \$493.92 | \$149.69 | \$1,147.61 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 4276 | 1.3.1.3.2.6 | Gauges | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,070.10 | \$8,204.10 |
|  |  | LLNL MXS Iotal |  | M ${ }^{\text {S }}$ | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4277 | 1.3.1.3.2.6 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4278 | 1.3.1.3.2.6 | Installation | LLNL | B\&H | 1 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$617.76 | \$4,736.16 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4279 | 1.3.1.3.2.6 | Leak check | LLNL | B\&H | 1 | 3 wks | \$0.00 | \$0.00 | \$6,240.00 | \$6,240.00 | \$6,115.20 | \$1,853.28 | \$14,208.48 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,240.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | obs | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 4280 | 1.3.1.3.2.7 | Stand | LLNL |  | 0 | 1.2 wks | \$0.00 | \$10,000.00 | \$2,584.00 | \$12,584.00 | \$4,422.32 | \$2,550.95 | \$19,557.27 |
| 4281 | 1.3.1.3.2.7 | Fabrication | LLNL | M2S | 1 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$1,783.50 | \$13,673.50 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4282 | 1.3.1.3.2.7 | Fabrication | LLNL | ED\& | 1 | 0.2 wks | \$0.00 | \$0.00 | \$504.00 | \$504.00 | \$493.92 | \$149.69 | \$1,147.61 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 4283 | 1.3.1.3.2.7 | Instalation | LLNL | B\&H | 1 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$617.76 | \$4,736.16 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4284 | 1.3.1.3.3 | Slits/Collimator B |  |  | 0 | 43.8 wks | \$0.00 | \$279,000.00 | \$113,680.00 | \$392,680.00 | \$164,137.40 | \$121,832.40 | \$678,649.80 |
| 4285 | 1.3.1.3.3.1 | Precision Motion | LLNL |  | 0 | 6.5 wks | \$0.00 | \$64,000.00 | \$21,900.00 | \$85,900.00 | \$33,558.00 | \$29,864.50 | \$149,322.50 |
| 4286 | 1.3.1.3.3.1 | Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$64,000.00 | \$0.00 | \$64,000.00 | \$12,096.00 | \$19,024.00 | \$95,120.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 64,000 | \$0.00 | \$0.00 | \$0.00 | \$64,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4287 | 1.3.1.3.3.1 | Hardware | LLNL | ED\& | 2 | 0.5 wks | \$0.00 | \$0.00 | \$1,260.00 | \$1,260.00 | \$1,234.80 | \$623.70 | \$3,118.50 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,260.00 | \$0.00 | \$0.00 | \$0.00 |
| 4288 | 1.3.1.3.3.1 | Assly \& lest | LLNL | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$20,640.00 | \$20,640.00 | \$20,227.20 | \$10,216.80 | \$51,084.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$20,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 4289 | 1.3.1.3.3.2 | Jaws | LLNL |  | 0 | 10 wks | \$0.00 | \$48,000.00 | \$19,040.00 | \$67,040.00 | \$27,731.20 | \$23,692.80 | \$118,464.00 |
| 4290 | 1.3.1.3.3.2 | Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$48,000.00 | \$0.00 | \$48,000.00 | \$9,072.00 | \$14,268.00 | \$71,340.00 |
|  |  | LLNL MES Iotal |  | MES | 0 | 48,000 | \$0.00 | \$0.00 | \$0.00 | \$48,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 4291 | 1.3.1.3.3.2 | Characterization | LLNL | ED\& | 2 | 8 wks | \$0.00 | \$0.00 | \$12,160.00 | \$12,160.00 | \$11,916.80 | \$6,019.20 | \$30,096.00 |
|  |  | LLNL Physicist - Post Doc |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$12,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 4292 | 1.3.1.3.3.2 | Characterization | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$6,880.00 | \$6,880.00 | \$6,742.40 | \$3,405.60 | \$17,028.00 |
|  |  | LLNL Precision Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,880.00 | \$0.00 | \$0.00 | \$0.00 |
| 4293 | 1.3.1.3.3.3 | Controls \& Elect | LLNL |  | 0 | 3.2 wks | \$0.00 | \$46,000.00 | \$6,864.00 | \$52,864.00 | \$15,420.72 | \$17,071.18 | \$85,355.90 |
| 4294 | 1.3.1.3.3.3 | Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$46,000.00 | \$0.00 | \$46,000.00 | \$8,694.00 | \$13,673.50 | \$68,367.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 46,000 | \$0.00 | \$0.00 | \$0.00 | \$46,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4295 | 1.3.1.3.3.3 | Hardware | LLNL | ED\& | 2 | 0.2 wks | \$0.00 | \$0.00 | \$504.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 4296 | 1.3.1.3.3.3 | Assly \& lest | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,360.00 | \$6,360.00 | \$6,232.80 | \$3,148.20 | \$15,741.00 |
|  |  | LLNL Controls: Iechnician |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,360.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4297 | 1.3.1.3.3.4 | Integ \& Test | LLNL |  | 0 | 17 wks | \$0.00 | \$0.00 | \$50,800.00 | \$50,800.00 | \$49,784.00 | \$25,146.00 | \$125,730.00 |
| 4298 | 1.3.1.3.3.4 | Bench Assembly | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$10,320.00 | \$10,320.00 | \$10,113.60 | \$5,108.40 | \$25,542.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,320.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 4299 | 1.3.1.3.3.4 | Pertorm lest | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$10,320.00 | \$10,320.00 | \$10,113.60 | \$5,108.40 | \$25,542.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,320.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 4300 | 1.3.1.3.3.4 | Beamline install | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$10,320.00 | \$10,320.00 | \$10,113.60 | \$5,108.40 | \$25,542.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units 3 wks | PED (Direct)$\$ 0.00$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct) <br> $\$ 0.00$ | Direct Cost \$10,320.00 | $\begin{array}{r} \text { Overhead Cost } \\ \hline \$ 0.00 \end{array}$ | Contingency Cost $\$ 0.00$ | Total Cost <br> $\$ 0.00$ |
|  |  | TLNL Precision Cratts (mach/tech) |  |  |  |  |  |  |  |  |  |  |  |
| 4301 | 1.3.1.3.3.4 | Beamline test | LLNL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$6,080.00 | \$6,080.00 | \$5,958.40 | \$3,009.60 | \$15,048.00 |
|  |  | LLNL Physicist - Post Doc |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$6,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4302 | 1.3.1.3.3.4 | Beamline test | LLNL | ED\&: | 2 | 4 wks | \$0.00 | \$0.00 | \$13,760.00 | \$13,760.00 | \$13,484.80 | \$6,811.20 | \$34,056.00 |
|  |  | LLNL Precision Engineer |  | ED\& | 0 | $4 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$13,760.00 | \$0.00 | \$0.00 | \$0.00 |
| 4303 | 1.3.1.3.3.5 | Tank | LLNL |  | 0 | 4.1 wks | \$0.00 | \$40,000.00 | \$8,572.00 | \$48,572.00 | \$15,960.56 | \$9,679.88 | \$74,212.44 |
| 4304 | 1.3.1.3.3.5 | Fabrication | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$5,670.00 | \$5,350.50 | \$41,020.50 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4305 | 1.3.1.3.3.5 | Fabrication | LLNL | ED\& | 1 | 0.1 wks | \$0.00 | \$0.00 | \$252.00 | \$252.00 | \$246.96 | \$74.84 | \$573.80 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$252.00 | \$0.00 | \$0.00 | \$0.00 |
| 4306 | 1.3.1.3.3.5 | Accept. Test | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$1,783.50 | \$13,673.50 |
|  |  | LLNL M\&S Total |  | M 4 S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4307 | 1.3.1.3.3.5 | Instalation | LLNL | B\&H | 1 | 4 wks | \$0.00 | \$0.00 | \$8,320.00 | \$8,320.00 | \$8,153.60 | \$2,471.04 | \$18,944.64 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4308 | 1.3.1.3.3.6 | Vacuum | LLNL |  | 0 | 1.6 wks | \$0.00 | \$71,000.00 | \$3,416.00 | \$74,416.00 | \$16,766.68 | \$13,677.40 | \$104,860.08 |
| 4309 | 1.3.1.3.3.6 | Pumps | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$57,000.00 | \$0.00 | \$57,000.00 | \$10,773.00 | \$10,165.95 | \$77,938.95 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 57,000 | \$0.00 | \$0.00 | \$0.00 | \$57,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4310 | 1.3.1.3.3.6 | Pumps | LLNL | ED\& | 1 | 0.2 wks | \$0.00 | \$0.00 | \$504.00 | \$504.00 | \$493.92 | \$149.69 | \$1,147.61 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 1 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 4311 | 1.3.1.3.3.6 | Gauges | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,070.10 | \$8,204.10 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4312 | 1.3.1.3.3.6 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |
|  |  | LLNL MXS Iotal |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4313 | 1.3.1.3.3.6 | Installation | LLNL | B\&H | 1 | 0.4 wKs | \$0.00 | \$0.00 | \$832.00 | \$832.00 | \$815.36 | \$247.10 | \$1,894.46 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$832.00 | \$0.00 | \$0.00 | \$0.00 |
| 4314 | 1.3.1.3.3.6 | Leak check | LLNL | B\&H | 1 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$617.76 | \$4,736.16 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4315 | 1.3.1.3.3.7 | Stand | LLNL |  | 0 | 1.4 wks | \$0.00 | \$10,000.00 | \$3,088.00 | \$13,088.00 | \$4,916.24 | \$2,700.64 | \$20,704.88 |
| 4316 | 1.3.1.3.3.7 | Fabrication | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$1,783.50 | \$13,673.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4317 | 1.3.1.3.3.7 | Fabrication | LLNL | ED\& | 1 | 0.4 wks | \$0.00 | \$0.00 | \$1,008.00 | \$1,008.00 | \$987.84 | \$299.38 | \$2,295.22 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\&I | 0 | 0.4 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$1,008.00 | \$0.00 | \$0.00 | \$0.00 |
| 4318 | 1.3.1.3.3.7 | Installation | LLNL | B\&H | 1 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$617.76 | \$4,736.16 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | $\$ 0.00$ | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4319 | 1.3.1.3.4 | Gas Attenuator |  |  | 0 | 5,061.5 wks | \$0.00 | \$754,000.00 | \$135,920.00 | \$889,920.00 | \$275,707.60 | \$186,358.32 | \$1,351,985.92 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M2S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 4320 | 1.3.1.3.4.1 | Chamber Work Order | LLNL |  | 0 | 4 wks | \$0.00 | \$61,000.00 | \$8,320.00 | \$69,320.00 | \$19,682.60 | \$14,997.75 | \$104,000.35 |
| 4321 | 1.3.1.3.4.1 | Three piece chamber | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$35,000.00 | \$0.00 | \$35,000.00 | \$6,615.00 | \$6,242.25 | \$47,857.25 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 35,000 | \$0.00 | \$0.00 | $\$ 0.00$ | \$35,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4322 | 1.3.1.3.4.1 | Gate Valves 8" | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$19,000.00 | \$0.00 | \$19,000.00 | \$3,591.00 | \$3,388.65 | \$25,979.65 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 19,000 | \$0.00 | \$0.00 | \$0.00 | \$19,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4323 | 1.3.1.3.4.1 | Gate Valves 4" | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$1,323.00 | \$1,248.45 | \$9,571.45 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4324 | 1.3.1.3.4.1 | Labor and Assembly | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,320.00 | \$8,320.00 | \$8,153.60 | \$4,118.40 | \$20,592.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4325 | 1.3.1.3.4.2 | Chamber Venture | LLNL |  | 1 | 2 wks | \$0.00 | \$22,000.00 | \$4,160.00 | \$26,160.00 | \$8,234.80 | \$2,059.20 | \$36,454.00 |
| 4326 | 1.3.1.3.4.2 | Venture | LLNL | M\&S | 0 | 0 wks | \$0.00 | \$22,000.00 | \$0.00 | \$22,000.00 | \$4,158.00 | \$0.00 | \$26,158.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 22,000 | \$0.00 | \$0.00 | \$0.00 | \$22,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4327 | 1.3.1.3.4.2 | Labor and Assembly | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 4328 | 1.3.1.3.4.3 | Turbo pumps | LLNL |  | 0 | 3 wks | \$0.00 | \$215,000.00 | \$6,240.00 | \$221,240.00 | \$46,750.20 | \$41,434.05 | \$309,424.25 |
| 4329 | 1.3.1.3.4.3 | M261 (2x@8.7K\$) | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$17,000.00 | \$0.00 | \$17,000.00 | \$3,213.00 | \$3,031.95 | \$23,244.95 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 17,000 | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4330 | 1.3.1.3.4.3 | M521 (2x@15.9K\$) | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$32,000.00 | \$0.00 | \$32,000.00 | \$6,048.00 | \$5,707.20 | \$43,755.20 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 32,000 | \$0.00 | \$0.00 | \$0.00 | \$32,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4331 | 1.3.1.3.4.3 | M2101 (4x@34.0K\$) | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$136,000.00 | \$0.00 | \$136,000.00 | \$25,704.00 | \$24,255.60 | \$185,959.60 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 136,000 | \$0.00 | \$0.00 | \$0.00 | \$136,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4332 | 1.3.1.3.4.3 | Display 261 (2x@2.5K\$) | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$535.05 | \$4,102.05 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4333 | 1.3.1.3.4.3 | Display 521 (2x@1.77K\$) | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4334 | 1.3.1.3.4.3 | Display 2101 (4×@1.325K\$) | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$1,783.50 | \$13,673.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4335 | 1.3.1.3.4.3 | Cables and Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$1,323.00 | \$1,248.45 | \$9,571.45 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4336 | 1.3.1.3.4.3 | Gate Controller | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,070.10 | \$8,204.10 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4337 | 1.3.1.3.4.3 | Labor and Assembly | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,240.00 | \$6,240.00 | \$6,115.20 | \$3,088.80 | \$15,444.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 4338 | 1.3.1.3.4.4 | Dry pumps | LLNL |  | 0 | 1.5 wks | \$0.00 | \$107,000.00 | \$3,120.00 | \$110,120.00 | \$23,280.60 | \$20,627.85 | \$154,028.45 |
| 4339 | 1.3.1.3.4.4 | M 35 cfm (4×@26.77K\$) | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$107,000.00 | \$0.00 | \$107,000.00 | \$20,223.00 | \$19,083.45 | \$146,306.45 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | $\begin{array}{\|c} \text { Risk } \\ \hline 0 \end{array}$ | Units 107,000 | PED (Direct) $\$ 0.00$ | $\begin{gathered} \text { M\&S (Direct) } \\ \$ 0.00 \end{gathered}$ | Labor (Direct) $\$ 0.00$ | Direct Cost \$107,000.00 | Overhead Cost $\$ 0.00$ | Contingency Cost | Total Cost |
|  |  | Task Name LLNL M\&S Total |  | M\&S |  |  |  |  |  |  |  | \$0.00 |  |
| 4340 | 1.3.1.3.4.4 | Labor and Assembly |  | B\&H | 2 | 1.5 wks | \$0.00 | \$0.00 | \$3,120.00 | \$3,120.00 | \$3,057.60 | \$1,544.40 | \$7,722.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$3,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 4341 | 1.3.1.3.4.5 | Storage Tanks | LLNL |  | 0 | 2 wks | \$0.00 | \$7,000.00 | \$4,160.00 | \$11,160.00 | \$5,399.80 | \$2,483.97 | \$19,043.77 |
| 4342 | 1.3.1.3.4.5 | Manchester Tank (3x@0.8K\$) | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$356.70 | \$2,734.70 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4343 | 1.3.1.3.4.5 | Platiorm (2x@2.5K\$) | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$891.75 | \$6,836.75 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4344 | 1.3.1.3.4.5 | Labor and Assembly | LLNL | B\&H | 1 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$1,235.52 | \$9,472.32 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | $2 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 4345 | 1.3.1.3.4.6 | Gast pumps | LLNL |  | 0 | 1.5 wks | \$0.00 | \$10,000.00 | \$3,120.00 | \$13,120.00 | \$4,947.60 | \$3,327.90 | \$21,395.50 |
| 4346 | 1.3.1.3.4.6 | Gast Model $66064 @ 2.5$ | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$1,783.50 | \$13,673.50 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4347 | 1.3.1.3.4.6 | Labor and Assembly | LLNL | B\&H | 2 | 1.5 wks | \$0.00 | \$0.00 | \$3,120.00 | \$3,120.00 | \$3,057.60 | \$1,544.40 | \$7,722.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | BRH | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$3,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 4348 | 1.3.1.3.4.7 | Controls | LLNL |  | 0 | 5 wks | \$0.00 | \$206,000.00 | \$10,400.00 | \$216,400.00 | \$49,126.00 | \$41,888.10 | \$307,414.10 |
| 4349 | 1.3.1.3.4.7 | Press. Control Head 4@1.8 | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$1,323.00 | \$1,248.45 | \$9,571.45 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4350 | 1.3.1.3.4.7 | Press. Controller 2@4.5 | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$32,000.00 | \$0.00 | \$32,000.00 | \$6,048.00 | \$5,707.20 | \$43,755.20 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 32,000 | \$0.00 | \$0.00 | \$0.00 | \$32,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4351 | 1.3.1.3.4.7 | Multiloop Controller | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$136,000.00 | \$0.00 | \$136,000.00 | \$25,704.00 | \$24,255.60 | \$185,959.60 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 136,000 | \$0.00 | \$0.00 | \$0.00 | \$136,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4352 | 1.3.1.3.4.7 | Press. Sensors | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$535.05 | \$4,102.05 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4353 | 1.3.1.3.4.7 | Flow Control 2@1.5 | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4354 | 1.3.1.3.4.7 | Flow Control Drive 2@1 | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$1,783.50 | \$13,673.50 |
|  |  | LLNL MES Iotal |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4355 | 1.3.1.3.4.7 | Cables and Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$1,323.00 | \$1,248.45 | \$9,571.45 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4356 | 1.3.1.3.4.7 | VME Crate | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$1,323.00 | \$1,248.45 | \$9,571.45 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4357 | 1.3.1.3.4.7 | Labor and Assembly | LLNL | B\&H | 2 | 5 wks | \$0.00 | \$0.00 | \$10,400.00 | \$10,400.00 | \$10,192.00 | \$5,148.00 | \$25,740.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 5 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$10,400.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4358 | 1.3.1.3.4.8 | Greenfield Compression System | LLNL |  | 0 | 3 wks | \$0.00 | \$95,000.00 | \$6,240.00 | \$101,240.00 | \$24,070.20 | \$20,032.05 | \$145,342.25 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cWbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| $4359$ | 1.3.1.3.4.8 | GreenField Compressor | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$95,000.00 | \$0.00 | \$95,000.00 | \$17,955.00 | \$16,943.25 | \$129,898.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 95,000 | \$0.00 | \$0.00 | \$0.00 | \$95,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4360 | 1.3.1.3.4.8 | Labor and Assembly | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,240.00 | \$6,240.00 | \$6,115.20 | \$3,088.80 | \$15,444.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | BKH | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 4361 | 1.3.1.3.4.9 | Transfer Manifold | LLNL |  | 0 | 5,006 wks | \$0.00 | \$0.00 | \$12,920.00 | \$12,920.00 | \$12,661.60 | \$1,983.96 | \$27,565.56 |
| 4362 | 1.3.1.3.4.9 | Engineering | LLNL | ED\& | 1 | 1 wk | \$0.00 | \$0.00 | \$2,520.00 | \$2,520.00 | \$2,469.60 | \$748.44 | \$5,738.04 |
|  |  | LLNL Mechanical Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 4363 | 1.3.1.3.4.9 | Drating ME | LLNL | ED\& | 1 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$1,235.52 | \$9,472.32 |
|  |  | LLNL Mech Dratting/Design |  | ED\&I | 0 | 2 wks | \$0.00 | $\$ 0.00$ | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 4364 | 1.3.1.3.4.9 | Manifold 2@2.5 | LLNL |  | 1 | 5,000 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4365 | 1.3.1.3.4.9 | Labor and Assembly | LLNL | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$6,240.00 | \$6,240.00 | \$6,115.20 | \$0.00 | \$12,355.20 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 4366 | 1.3.1.3.4.10 | Gas Puritier | LLNL |  | 0 | 5 wks | \$0.00 | \$8,000.00 | \$10,840.00 | \$18,840.00 | \$12,135.20 | \$5,469.96 | \$36,445.16 |
| 4367 | 1.3.1.3.4.10 | Engineering | LLNL | ED\& | 1 | 1 wk | \$0.00 | \$0.00 | \$2,520.00 | \$2,520.00 | \$2,469.60 | \$748.44 | \$5,738.04 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 4368 | 1.3.1.3.4.10 | Drafting ME | LLNL | ED\& | 1 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$1,235.52 | \$9,472.32 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 4369 | 1.3.1.3.4.10 | NuPure Purtier 2@4 | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |
|  |  | LLNL MES Iotal |  | M 2 S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4370 | 1.3.1.3.4.10 | Labor and Assembly | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 4371 | 1.3.1.3.4.11 | Hardware | LLNL |  | 0 | 5 wks | \$0.00 | \$18,000.00 | \$11,280.00 | \$29,280.00 | \$14,456.40 | \$7,845.30 | \$51,581.70 |
| 4372 | 1.3.1.3.4.11 | Engineering | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$5,040.00 | \$5,040.00 | \$4,939.20 | \$2,494.80 | \$12,474.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 4373 | 1.3.1.3.4.11 | Parts | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$18,000.00 | \$0.00 | \$18,000.00 | \$3,402.00 | \$5,350.50 | \$26,752.50 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 18,000 | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4374 | 1.3.1.3.4.11 | Labor and Assembly | LLNL | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$6,240.00 | \$6,240.00 | \$6,115.20 | \$0.00 | \$12,355.20 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 4375 | 1.3.1.3.4.12 | Blower | LLNL |  | 0 | 4 wks | \$0.00 | \$5,000.00 | \$8,760.00 | \$13,760.00 | \$9,529.80 | \$2,257.95 | \$25,547.75 |
| 4376 | 1.3.1.3.4.12 | Engineering | LLNL | ED\& 1 | 1 | 1 wk | \$0.00 | \$0.00 | \$2,520.00 | \$2,520.00 | \$2,469.60 | \$748.44 | \$5,738.04 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 4377 | 1.3.1.3.4.12 | Drating ME | LLNL | ED\&1 | 1 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$617.76 | \$4,736.16 |
|  |  | LLNL Mech Dratting/Design |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4378 | 1.3.1.3.4.12 | Blower | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$891.75 | \$6,836.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 4379 | 1.3.1.3.4.12 | Labor and Assembly | LLNL | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$0.00 | \$8,236.80 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 4380 | 1.3.1.3.4.13 | Shipping and Installation | LLNL |  | 0 | 8.5 wks | \$0.00 | \$0.00 | \$21,240.00 | \$21,240.00 | \$20,815.20 | \$9,515.88 | \$51,571.08 |
| 4381 | 1.3.1.3.4.13 | Rigging | LLNL | B\&H | 1 | 1.5 wks | \$0.00 | \$0.00 | \$3,780.00 | \$3,780.00 | \$3,704.40 | \$1,122.66 | \$8,607.06 |
|  |  | LLNL T\&M Cratts - Union Electrician |  | B\&H | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$3,780.00 | \$0.00 | \$0.00 | \$0.00 |
| 4382 | 1.3.1.3.4.13 | Transportation | LLNL | B\&H | 1 | 0.5 wks | \$0.00 | \$0.00 | \$1,260.00 | \$1,260.00 | \$1,234.80 | \$374.22 | \$2,869.02 |
|  |  | LLNL T\&M Cratts - Union Electrician |  | B\&H | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,260.00 | \$0.00 | \$0.00 | \$0.00 |
| 4383 | 1.3.1.3.4.13 | Plumbing | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$7,440.00 | \$7,440.00 | \$7,291.20 | \$3,682.80 | \$18,414.00 |
|  |  | LLNL I\&M Cratts - Union Equip. Op. |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 4384 | 1.3.1.3.4.13 | Crafts electrical | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$5,040.00 | \$5,040.00 | \$4,939.20 | \$2,494.80 | \$12,474.00 |
|  |  | LLNL Site Engineering: Plant Maint. |  | BRH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 4385 | 1.3.1.3.4.13 | Labor \& Assembly | LLNL | B\&H | 2 | 1.5 wks | \$0.00 | \$0.00 | \$3,720.00 | \$3,720.00 | \$3,645.60 | \$1,841.40 | \$9,207.00 |
|  |  | LLNL I\&M Crats - Union Equip. Op. |  | B\&H | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$3,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 4386 | 1.3.1.3.4.14 | Acceptance tests | LLNL |  | 0 | 11 wks | \$0.00 | \$0.00 | \$25,120.00 | \$25,120.00 | \$24,617.60 | \$12,434.40 | \$62,172.00 |
| 4387 | 1.3.1.3.4.14 | Theory | LLNL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$8,640.00 | \$8,640.00 | \$8,467.20 | \$4,276.80 | \$21,384.00 |
|  |  | LLNL Physicist-Scientist |  | ED\&/ | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 4388 | 1.3.1.3.4.14 | Engineering | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$5,040.00 | \$5,040.00 | \$4,939.20 | \$2,494.80 | \$12,474.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 4389 | 1.3.1.3.4.14 | Programming | LLNL | ED\& | 2 | 3 wks | \$0.00 | \$0.00 | \$6,480.00 | \$6,480.00 | \$6,350.40 | \$3,207.60 | \$16,038.00 |
|  |  | LLNL Physicist-Scientist |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 4390 | 1.3.1.3.4.14 | Engineering | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$4,960.00 | \$4,960.00 | \$4,860.80 | \$2,455.20 | \$12,276.00 |
|  |  | LLNL Electrical Engineer |  | ED\&/ | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 4391 | 1.3.1.3.5 | Local Apertures |  |  | 0 | 35.1 wks | \$0.00 | \$114,000.00 | \$83,684.00 | \$197,684.00 | \$103,556.32 | \$71,255.80 | \$372,496.12 |
| 4392 | 1.3.1.3.5.1 | Apertures | LLNL |  | 0 | 9.5 wks | \$0.00 | \$20,000.00 | \$17,320.00 | \$37,320.00 | \$20,753.60 | \$14,518.40 | \$72,592.00 |
| 4393 | 1.3.1.3.5.1 | Hardware | LLNL | M2S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$3,780.00 | \$5,945.00 | \$29,725.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4394 | 1.3.1.3.5.1 | Hardware | LLNL | ED\& | 2 | 0.5 wks | \$0.00 | \$0.00 | \$1,720.00 | \$1,720.00 | \$1,685.60 | \$851.40 | \$4,257.00 |
|  |  | LLNL Precision Engineer |  | ED\&1 | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 4395 | 1.3.1.3.5.1 | Characterization | LLNL | ED\& | 2 | 8 wks | \$0.00 | \$0.00 | \$12,160.00 | \$12,160.00 | \$11,916.80 | \$6,019.20 | \$30,096.00 |
|  |  | LLNL Physicist - Post Doc |  | ED\&/ | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$12,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 4396 | 1.3.1.3.5.1 | Characterization | LLNL | ED\& | 2 | 1 wk | \$0.00 | \$0.00 | \$3,440.00 | \$3,440.00 | \$3,371.20 | \$1,702.80 | \$8,514.00 |
|  |  | LLNL Precision Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4397 | 1.3.1.3.5.2 | Integ \& Test | LLNL |  | 0 | 2.2 wks | \$0.00 | \$0.00 | \$7,568.00 | \$7,568.00 | \$7,416.64 | \$3,746.16 | \$18,730.80 |
| 4398 | 1.3.1.3.5.2 | Bench Assembly | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$3,440.00 | \$3,440.00 | \$3,371.20 | \$1,702.80 | \$8,514.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cwbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 4399 | 1.3.1.3.5.2 | Perform Test | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$3,440.00 | \$3,440.00 | \$3,371.20 | \$1,702.80 | \$8,514.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 4400 | 1.3.1.3.5.2 | Beamline install | LLNL | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$688.00 | \$688.00 | \$674.24 | \$340.56 | \$1,702.80 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$688.00 | \$0.00 | \$0.00 | \$0.00 |
| 4401 | 1.3.1.3.5.3 | Precision Motion | LLNL |  | 0 | 6.5 wks | \$0.00 | \$32,000.00 | \$21,900.00 | \$53,900.00 | \$27,510.00 | \$16,298.22 | \$97,708.22 |
| 4402 | 1.3.1.3.5.3 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$32,000.00 | \$0.00 | \$32,000.00 | \$6,048.00 | \$5,707.20 | \$43,755.20 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 32,000 | \$0.00 | \$0.00 | \$0.00 | \$32,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4403 | 1.3.1.3.5.3 | Hardware | LLNL | ED\& 1 | 1 | 0.5 wks | \$0.00 | \$0.00 | \$1,260.00 | \$1,260.00 | \$1,234.80 | \$374.22 | \$2,869.02 |
|  |  | LLNL PCD:Coordinator Associate |  | EDQ1 | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,260.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4404 | 1.3.1.3.5.3 | Assly \& Test | LLNL | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$20,640.00 | \$20,640.00 | \$20,227.20 | \$10,216.80 | \$51,084.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$20,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 4405 | 1.3.1.3.5.4 | Apertures | LLNL |  | 0 | 9.5 wks | \$0.00 | \$20,000.00 | \$17,320.00 | \$37,320.00 | \$20,753.60 | \$14,518.40 | \$72,592.00 |
| 4406 | 1.3.1.3.5.4 | Hardware | LLNL | ED\& 1 | 2 | 0.5 wks | \$0.00 | \$0.00 | \$1,720.00 | \$1,720.00 | \$1,685.60 | \$851.40 | \$4,257.00 |
|  |  | LLNL Precision Engineer |  | ED\&1 | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 4407 | 1.3.1.3.5.4 | Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$3,780.00 | \$5,945.00 | \$29,725.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4408 | 1.3.1.3.5.4 | Characterization | LLNL | ED\& | 2 | 8 wks | \$0.00 | \$0.00 | \$12,160.00 | \$12,160.00 | \$11,916.80 | \$6,019.20 | \$30,096.00 |
|  |  | LLNL Physicist - Post Doc |  | ED\&1 | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$12,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 4409 | 1.3.1.3.5.4 | Characterization | LLNL | ED\&1 | 2 | 1 wk | \$0.00 | \$0.00 | \$3,440.00 | \$3,440.00 | \$3,371.20 | \$1,702.80 | \$8,514.00 |
|  |  | LLNL Precision Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 4410 | 1.3.1.3.5.5 | Controls \& Elect | LLNL |  | 0 | 3 wks | \$0.00 | \$42,000.00 | \$6,360.00 | \$48,360.00 | \$14,170.80 | \$15,632.70 | \$78,163.50 |
| 4411 | 1.3.1.3.5.5 | Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$42,000.00 | \$0.00 | \$42,000.00 | \$7,938.00 | \$12,484.50 | \$62,422.50 |
|  |  | LLNL M\&S Iotal |  | M ${ }^{\text {d }}$ S | 0 | 42,000 | \$0.00 | \$0.00 | \$0.00 | \$42,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4412 | 1.3.1.3.5.5 | Assly \& lest | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,360.00 | \$6,360.00 | \$6,232.80 | \$3,148.20 | \$15,741.00 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 4413 | 1.3.1.3.5.6 | Integ \& Test | LLNL |  | 0 | 4.4 wks | \$0.00 | \$0.00 | \$13,216.00 | \$13,216.00 | \$12,951.68 | \$6,541.92 | \$32,709.60 |
| 4414 | 1.3.1.3.5.6 | Bench Assembly | LLNL | $\mathrm{B} \& \mathrm{H}$ | 2 | 1 wk | \$0.00 | \$0.00 | \$3,440.00 | \$3,440.00 | \$3,371.20 | \$1,702.80 | \$8,514.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 4415 | 1.3.1.3.5.6 | Pertorm lest | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$3,440.00 | \$3,440.00 | \$3,371.20 | \$1,702.80 | \$8,514.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 4416 | 1.3.1.3.5.6 | Beamline install | LLNL | $\mathrm{B} \& \mathrm{H}$ | 2 | 0.4 wks | \$0.00 | \$0.00 | \$1,376.00 | \$1,376.00 | \$1,348.48 | \$681.12 | \$3,405.60 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,376.00 | \$0.00 | \$0.00 | \$0.00 |
| 4417 | 1.3.1.3.5.6 | Beamline test | LLNL | ED\& | 2 | 1 wk | \$0.00 | \$0.00 | \$1,520.00 | \$1,520.00 | \$1,489.60 | \$752.40 | \$3,762.00 |
|  |  | LLNL Physicist - Post Doc |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 4418 | 1.3.1.3.5.6 | Beamline test | LLNL | ED\& | 2 | 1 wk | \$0.00 | \$0.00 | \$3,440.00 | \$3,440.00 | \$3,371.20 | \$1,702.80 | \$8,514.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBs | Task Name | obs | PHASE | Risk | Units ${ }_{\text {1 }}$ /wk | PED (Direct)$\$ 0.00$ | M\&S (Direct) | Labor (Direct)$\$ 0.00$ | $\frac{\text { Direct Cost }}{\$ 3,440.00}$ | $\begin{array}{r} \text { Overhead Cost } \\ \hline \$ 0.00 \end{array}$ | Contingency Cost $\$ 0.00$ | Total Cost $\$ 0.00$ |
|  |  | LLNL Precision Engineer |  |  |  |  |  |  |  |  |  |  |  |
| 4419 | 1.3.1.3.6 | Wedge Attenuator |  |  | 0 | 55.7 wks | \$0.00 | \$86,000.00 | \$110,940.00 | \$196,940.00 | \$124,975.20 | \$72,734.40 | \$394,649.60 |
| 4420 | 1.3.1.3.6.1 | Motion Control | LLNL |  | 0 | 3 wks | \$0.00 | \$13,000.00 | \$9,400.00 | \$22,400.00 | \$11,669.00 | \$2,318.55 | \$36,387.55 |
| 4421 | 1.3.1.3.6.1 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$13,000.00 | \$0.00 | \$13,000.00 | \$2,457.00 | \$2,318.55 | \$17,775.55 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 13,000 | \$0.00 | \$0.00 | \$0.00 | \$13,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4422 | 1.3.1.3.6.1 | Hardware | LLNL | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$2,520.00 | \$2,520.00 | \$2,469.60 | \$0.00 | \$4,989.60 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 2 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 4423 | 1.3.1.3.6.1 | Assly \& lest | LLNL | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$6,880.00 | \$6,880.00 | \$6,742.40 | \$0.00 | \$13,622.40 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,880.00 | \$0.00 | \$0.00 | \$0.00 |
| 4424 | 1.3.1.3.6.2 | Attenuator | LLNL |  | 0 | 10.2 wks | \$0.00 | \$12,000.00 | \$17,704.00 | \$29,704.00 | \$19,617.92 | \$12,330.48 | \$61,652.40 |
| 4425 | 1.3.1.3.6.2 | Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$2,268.00 | \$3,567.00 | \$17,835.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4426 | 1.3.1.3.6.2 | Hardware | LLNL | ED\& | 2 | 0.2 wks | \$0.00 | \$0.00 | \$504.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 4427 | 1.3.1.3.6.2 | Characterization | LLNL | ED\& | 2 | 8 wks | \$0.00 | \$0.00 | \$12,160.00 | \$12,160.00 | \$11,916.80 | \$6,019.20 | \$30,096.00 |
|  |  | LLNL Physicist - Post Doc |  | ED\&1 | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$12,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 4428 | 1.3.1.3.6.2 | Characterization | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$5,040.00 | \$5,040.00 | \$4,939.20 | \$2,494.80 | \$12,474.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 4429 | 1.3.1.3.6.3 | Controls \& Elect | LLNL |  | 0 | 3.2 wks | \$0.00 | \$12,000.00 | \$6,864.00 | \$18,864.00 | \$8,994.72 | \$6,964.68 | \$34,823.40 |
| 4430 | 1.3.1.3.6.3 | Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$2,268.00 | \$3,567.00 | \$17,835.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4431 | 1.3.1.3.6.3 | Hardware | LLNL | ED\& | 2 | 0.2 wks | \$0.00 | \$0.00 | \$504.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 4432 | 1.3.1.3.6.3 | Assly \& lest | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,360.00 | \$6,360.00 | \$6,232.80 | \$3,148.20 | \$15,741.00 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 4433 | 1.3.1.3.6.4 | Integ \& Test | LLNL |  | 0 | 2.6 wks | \$0.00 | \$0.00 | \$5,360.00 | \$5,360.00 | \$5,252.80 | \$2,653.20 | \$13,266.00 |
| 4434 | 1.3.1.3.6.4 | Bench Assembly | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4435 | 1.3.1.3.6.4 | Pertorm lest | LLNL | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$832.00 | \$832.00 | \$815.36 | \$411.84 | \$2,059.20 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$832.00 | \$0.00 | \$0.00 | \$0.00 |
| 4436 | 1.3.1.3.6.4 | Beamline install | LLNL | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$832.00 | \$832.00 | \$815.36 | \$411.84 | \$2,059.20 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$832.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4437 | 1.3.1.3.6.4 | Beamine test | LLNL | ED\& | 2 | 0.4 wks | \$0.00 | \$0.00 | \$608.00 | \$608.00 | \$595.84 | \$300.96 | \$1,504.80 |
|  |  | LLNL Physicist - Post Doc |  | ED\& | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$608.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4438 | 1.3.1.3.6.4 | Beamline test | LLNL | ED\& | 2 | 0.4 wks | \$0.00 | \$0.00 | \$1,008.00 | \$1,008.00 | \$987.84 | \$498.96 | \$2,494.80 |




| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{gathered} \text { ID } \\ \hline 4478 \end{gathered}$ | cwbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.1.3.7.2 | Characterization | LLNL | ED\& | 2 | 8 wks | \$0.00 | \$0.00 | \$27,520.00 | \$27,520.00 | \$26,969.60 | \$13,622.40 | \$68,112.00 |
|  |  | LLNL Precision Engineer |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$27,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 4479 | 1.3.1.3.7.3 | Controls \& Elect | LLNL |  | 0 | 3.2 wks | \$0.00 | \$42,000.00 | \$6,864.00 | \$48,864.00 | \$14,664.72 | \$15,882.18 | \$79,410.90 |
| 4480 | 1.3.1.3.7.3 | Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$42,000.00 | \$0.00 | \$42,000.00 | \$7,938.00 | \$12,484.50 | \$62,422.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 42,000 | \$0.00 | \$0.00 | \$0.00 | \$42,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4481 | 1.3.1.3.7.3 | Hardware | LLNL | ED\& | 2 | 0.2 wks | \$0.00 | \$0.00 | \$504.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 4482 | 1.3.1.3.7.3 | Assly \& lest | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,360.00 | \$6,360.00 | \$6,232.80 | \$3,148.20 | \$15,741.00 |
|  |  | LLNL Controls: Iechnician |  | BKH | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 4483 | 1.3.1.3.7.4 | Integ \& Test | LLNL |  | 0 | 17 wks | \$0.00 | \$0.00 | \$50,800.00 | \$50,800.00 | \$49,784.00 | \$25,146.00 | \$125,730.00 |
| 4484 | 1.3.1.3.7.4 | Bench Assembly | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$10,320.00 | \$10,320.00 | \$10,113.60 | \$5,108.40 | \$25,542.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4485 | 1.3.1.3.7.4 | Pertorm lest | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$10,320.00 | \$10,320.00 | \$10,113.60 | \$5,108.40 | \$25,542.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4486 | 1.3.1.3.7.4 | Beamline install | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$10,320.00 | \$10,320.00 | \$10,113.60 | \$5,108.40 | \$25,542.00 |
|  |  | LLNL Precision Crafts (mach/tech) |  | BRH | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4487 | 1.3.1.3.7.4 | Beamline test | LLNL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$6,080.00 | \$6,080.00 | \$5,958.40 | \$3,009.60 | \$15,048.00 |
|  |  | LLNL Physicist - Post Doc |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$6,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4488 | 1.3.1.3.7.4 | Beamline test | LLNL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$13,760.00 | \$13,760.00 | \$13,484.80 | \$6,811.20 | \$34,056.00 |
|  |  | LLNL Precision Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,760.00 | \$0.00 | \$0.00 | \$0.00 |
| 4489 | 1.3.1.3.7.5 | Tank | LLNL |  | 0 | 4 wks | \$0.00 | \$40,000.00 | \$8,320.00 | \$48,320.00 | \$15,713.60 | \$12,441.40 | \$76,475.00 |
| 4490 | 1.3.1.3.7.5 | Fabrication | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$5,670.00 | \$5,350.50 | \$41,020.50 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4491 | 1.3.1.3.7.5 | Accept. lest | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4492 | 1.3.1.3.7.5 | Installation | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,320.00 | \$8,320.00 | \$8,153.60 | \$4,118.40 | \$20,592.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4493 | 1.3.1.3.7.6 | Vacuum | LLNL |  | 0 | 9 wks | \$0.00 | \$122,000.00 | \$18,720.00 | \$140,720.00 | \$41,403.60 | \$31,025.10 | \$213,148.70 |
| 4494 | 1.3.1.3.7.6 | Pumps | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$108,000.00 | \$0.00 | \$108,000.00 | \$20,412.00 | \$19,261.80 | \$147,673.80 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 108,000 | \$0.00 | \$0.00 | \$0.00 | \$108,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4495 | 1.3.1.3.7.6 | Gauges | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,070.10 | \$8,204.10 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4496 | 1.3.1.3.7.6 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4497 | 1.3.1.3.7.6 | Installation | LLNL | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$12,480.00 | \$12,480.00 | \$12,230.40 | \$6,177.60 | \$30,888.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units <br> 6 wks | PED (Direct)$\$ 0.00$ | $\begin{aligned} & \text { M\&S (Direct) } \\ & \$ 0.00 \end{aligned}$ | Labor (Direct) <br> $\$ 0.00$ | $\begin{aligned} & \text { Direct Cost } \\ & \hline \$ 12,480.00 \end{aligned}$ | Overhead Cost $\$ 0.00$ | Contingency Cost $\$ 0.00$ | Total Cost $\$ 0.00$ |
|  |  | TLNL Mech. Fab: Assembly Tech |  |  |  |  |  |  |  |  |  |  |  |
| 4498 | 1.3.1.3.7.6 | Leak check | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,240.00 | \$6,240.00 | \$6,115.20 | \$3,088.80 | \$15,444.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 4499 | 1.3.1.3.7.7 | Stand | LLNL |  | 0 | 1 wk | \$0.00 | \$10,000.00 | \$2,080.00 | \$12,080.00 | \$3,928.40 | \$4,002.10 | \$20,010.50 |
| 4500 | 1.3.1.3.7.7 | Fabrication | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4501 | 1.3.1.3.7.7 | Instalation | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4502 | 1.3.1.4 | End Station Optical Systems |  |  | 0 | 92.6 wks | \$0.00 | \$718,000.00 | \$243,824.00 | \$961,824.00 | \$374,649.52 | \$295,802.04 | \$1,632,275.56 |
| 4503 | 1.3.1.4.1 | K-B Mirror System A |  |  | 0 | 21.7 wks | \$0.00 | \$284,000.00 | \$66,084.00 | \$350,084.00 | \$118,438.32 | \$117,130.58 | \$585,652.90 |
| 4504 | 1.3.1.4.1.1 | Precision Motion | LLNL |  | 0 | 6.5 wks | \$0.00 | \$47,000.00 | \$21,900.00 | \$68,900.00 | \$30,345.00 | \$24,811.25 | \$124,056.25 |
| 4505 | 1.3.1.4.1.1 | Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$47,000.00 | \$0.00 | \$47,000.00 | \$8,883.00 | \$13,970.75 | \$69,853.75 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 47,000 | \$0.00 | \$0.00 | \$0.00 | \$47,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4506 | 1.3.1.4.1.1 | Hardware | LLNL | ED\& | 2 | 0.5 wks | \$0.00 | \$0.00 | \$1,260.00 | \$1,260.00 | \$1,234.80 | \$623.70 | \$3,118.50 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,260.00 | \$0.00 | \$0.00 | \$0.00 |
| 4507 | 1.3.1.4.1.1 | Assly \& Test | LLNL | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$20,640.00 | \$20,640.00 | \$20,227.20 | \$10,216.80 | \$51,084.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$20,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 4508 | 1.3.1.4.1.2 | Optic | LLNL |  | 0 | 0 wks | \$0.00 | \$195,000.00 | \$0.00 | \$195,000.00 | \$36,855.00 | \$57,963.75 | \$289,818.75 |
| 4509 | 1.3.1.4.1.2 | Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$195,000.00 | \$0.00 | \$195,000.00 | \$36,855.00 | \$57,963.75 | \$289,818.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 195,000 | \$0.00 | \$0.00 | \$0.00 | \$195,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4510 | 1.3.1.4.1.3 | Controls \& Elect | LLNL |  | 0 | 6.2 wks | \$0.00 | \$42,000.00 | \$13,224.00 | \$55,224.00 | \$20,897.52 | \$19,030.38 | \$95,151.90 |
| 4511 | 1.3.1.4.1.3 | Hardware (includes LVDT's) | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$42,000.00 | \$0.00 | \$42,000.00 | \$7,938.00 | \$12,484.50 | \$62,422.50 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 42,000 | \$0.00 | \$0.00 | \$0.00 | \$42,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4512 | 1.3.1.4.1.3 | Hardware (includes LVDT's) | LLNL | ED\& | 2 | 0.2 wks | \$0.00 | \$0.00 | \$504.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 4513 | 1.3.1.4.1.3 | Assly \& Test | LLNL | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$12,720.00 | \$12,720.00 | \$12,465.60 | \$6,296.40 | \$31,482.00 |
|  |  | LLNL Controls: Technician |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$12,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 4514 | 1.3.1.4.1.4 | Integ \& Test | LLNL |  | 0 | 9 wks | \$0.00 | \$0.00 | \$30,960.00 | \$30,960.00 | \$30,340.80 | \$15,325.20 | \$76,626.00 |
| 4515 | 1.3.1.4.1.4 | Bench Assembly | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$10,320.00 | \$10,320.00 | \$10,113.60 | \$5,108.40 | \$25,542.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4516 | 1.3.1.4.1.4 | Perform Test | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$10,320.00 | \$10,320.00 | \$10,113.60 | \$5,108.40 | \$25,542.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,320.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 4517 | 1.3.1.4.1.4 | Beamline install | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$10,320.00 | \$10,320.00 | \$10,113.60 | \$5,108.40 | \$25,542.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$10,320.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4518 | 1.3.1.4.2 | Optics Tank A2 1 |  |  | 0 | 21.9 wks | \$0.00 | \$228,000.00 | \$61,220.00 | \$289,220.00 | \$103,087.60 | \$80,588.42 | \$472,896.02 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cwbs | Task Name | obs | PHASE | Risk | Units | PED (Direct) | M2S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 4519 | 1.3.1.4.2.1 | Motion \& Mech | LLNL |  | 0 | 3.5 wks | \$0.00 | \$84,000.00 | \$11,580.00 | \$95,580.00 | \$27,224.40 | \$28,442.00 | \$151,246.40 |
| 4520 | 1.3.1.4.2. 1 | Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$56,000.00 | \$0.00 | \$56,000.00 | \$10,584.00 | \$16,646.00 | \$83,230.00 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 56,000 | \$0.00 | \$0.00 | $\$ 0.00$ | \$56,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4521 | 1.3.1.4.2.1 | Hardware | LLNL | ED\& | 2 | 0.5 wks | \$0.00 | \$0.00 | \$1,260.00 | \$1,260.00 | \$1,234.80 | \$623.70 | \$3,118.50 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,260.00 | \$0.00 | \$0.00 | \$0.00 |
| 4522 | 1.3.1.4.2.1 | Sample holder | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$1,701.00 | \$2,675.25 | \$13,376.25 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4523 | 1.3.1.4.2.1 | Optical lable | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$19,000.00 | \$0.00 | \$19,000.00 | \$3,591.00 | \$3,388.65 | \$25,979.65 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 19,000 | \$0.00 | \$0.00 | \$0.00 | \$19,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4524 | 1.3.1.4.2.1 | Assly \& Test | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$10,320.00 | \$10,320.00 | \$10,113.60 | \$5,108.40 | \$25,542.00 |
|  |  | LLNL Precision Crafts (mach/tech) |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$10,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4525 | 1.3.1.4.2.2 | Controls \& Elect | LLNL |  | 0 | 3.2 wks | \$0.00 | \$23,000.00 | \$6,864.00 | \$29,864.00 | \$11,073.72 | \$10,234.43 | \$51,172.15 |
| 4526 | 1.3.1.4.2.2 | Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$23,000.00 | \$0.00 | \$23,000.00 | \$4,347.00 | \$6,836.75 | \$34,183.75 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 23,000 | \$0.00 | \$0.00 | \$0.00 | \$23,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4527 | 1.3.1.4.2.2 | Hardware | LLNL | ED\& | 2 | 0.2 wks | \$0.00 | \$0.00 | \$504.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL PCD:Coordinator Associate |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 4528 | 1.3.1.4.2.2 | Assly \& Test | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,360.00 | \$6,360.00 | \$6,232.80 | \$3,148.20 | \$15,741.00 |
|  |  | LLNL Controls: Iechnician |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 4529 | 1.3.1.4.2.3 | Integ \& Test | LLNL |  | 0 | 7 wks | \$0.00 | \$0.00 | \$24,080.00 | \$24,080.00 | \$23,598.40 | \$11,919.60 | \$59,598.00 |
| 4530 | 1.3.1.4.2.3 | Bench Assembly | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$10,320.00 | \$10,320.00 | \$10,113.60 | \$5,108.40 | \$25,542.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | $3 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$10,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4531 | 1.3.1.4.2.3 | Perform Test | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$6,880.00 | \$6,880.00 | \$6,742.40 | \$3,405.60 | \$17,028.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\& $H$ | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,880.00 | \$0.00 | \$0.00 | \$0.00 |
| 4532 | 1.3.1.4.2.3 | Beamline install | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$6,880.00 | \$6,880.00 | \$6,742.40 | \$3,405.60 | \$17,028.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,880.00 | \$0.00 | \$0.00 | \$0.00 |
| 4533 | 1.3.1.4.2.4 | Tank | LLNL |  | 0 | 4 wks | \$0.00 | \$40,000.00 | \$9,120.00 | \$49,120.00 | \$16,497.60 | \$12,837.40 | \$78,455.00 |
| 4534 | 1.3.1.4.2.4 | Fabrication | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$5,670.00 | \$5,350.50 | \$41,020.50 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4535 | 1.3.1.4.2.4 | Accept. lest | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4536 | 1.3.1.4.2.4 | Installation | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$9,120.00 | \$9,120.00 | \$8,937.60 | \$4,514.40 | \$22,572.00 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 4537 | 1.3.1.4.2.5 | vacuum | LLNL |  | 0 | 4 wks | \$0.00 | \$71,000.00 | \$9,120.00 | \$80,120.00 | \$22,356.60 | \$15,371.49 | \$117,848.09 |
| 4538 | 1.3.1.4.2.5 | Pumps | LLNL | M 8 S | 1 | 0 wks | \$0.00 | \$57,000.00 | \$0.00 | \$57,000.00 | \$10,773.00 | \$10,165.95 | \$77,938.95 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 57,000 | \$0.00 | \$0.00 | \$0.00 | \$57,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{gathered} \text { ID } \\ 4539 \end{gathered}$ | CWBS | Task Name | obs | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.1.4.2.5 | Gauges | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,070.10 | \$8,204.10 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4540 | 1.3.1.4.2.5 | Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |
|  |  | LLNL M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4541 | 1.3.1.4.2.5 | Installation | LLNL | B\&H | 1 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$2,234.40 | \$677.16 | \$5,191.56 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 4542 | 1.3.1.4.2.5 | Leak check | LLNL | B\&H | 1 | 3 wks | \$0.00 | \$0.00 | \$6,840.00 | \$6,840.00 | \$6,703.20 | \$2,031.48 | \$15,574.68 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | BRH | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,840.00 | \$0.00 | \$0.00 | \$0.00 |
| 4543 | 1.3.1.4.2.6 | Stand | LLNL |  | 0 | 0.2 wks | \$0.00 | \$10,000.00 | \$456.00 | \$10,456.00 | \$2,336.88 | \$1,783.50 | \$14,576.38 |
| 4544 | 1.3.1.4.2.6 | Fabrication | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$1,783.50 | \$13,673.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4545 | 1.3.1.4.2.6 | Installation | LLNL | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$456.00 | \$456.00 | \$446.88 | \$0.00 | \$902.88 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | B\&H | 1 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$456.00 | \$0.00 | \$0.00 | \$0.00 |
| 4546 | 1.3.1.4.3 | Optics Tank B2 1 |  |  | 0 | 9 wks | \$0.00 | \$121,000.00 | \$20,520.00 | \$141,520.00 | \$42,978.60 | \$27,674.79 | \$212,173.39 |
| 4547 | 1.3.1.4.3.1 | Tank | LLNL |  | 0 | 4 wks | \$0.00 | \$40,000.00 | \$9,120.00 | \$49,120.00 | \$16,497.60 | \$9,842.64 | \$75,460.24 |
| 4548 | 1.3.1.4.3.1 | Fabrication | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$5,670.00 | \$5,350.50 | \$41,020.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4549 | 1.3.1.4.3.1 | Accept. lest | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$1,783.50 | \$13,673.50 |
|  |  | LLNL MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4550 | 1.3.1.4.3.1 | Installation | LLNL | B\&H | 1 | 4 wks | \$0.00 | \$0.00 | \$9,120.00 | \$9,120.00 | \$8,937.60 | \$2,708.64 | \$20,766.24 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | BRH | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 4551 | 1.3.1.4.3.2 | Vacuum | LLNL |  | 0 | 4 wks | \$0.00 | \$71,000.00 | \$9,120.00 | \$80,120.00 | \$22,356.60 | \$15,371.49 | \$117,848.09 |
| 4552 | 1.3.1.4.3.2 | Pumps | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$57,000.00 | \$0.00 | \$57,000.00 | \$10,773.00 | \$10,165.95 | \$77,938.95 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 57,000 | \$0.00 | \$0.00 | \$0.00 | \$57,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4553 | 1.3.1.4.3.2 | Gauges | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,070.10 | \$8,204.10 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4554 | 1.3.1.4.3.2 | Hardware | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |
|  |  | LLNL M\&S Iotal |  | M $\downarrow$ S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4555 | 1.3.1.4.3.2 | Installation | LLNL | B\&H | 1 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$2,234.40 | \$677.16 | \$5,191.56 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | BRH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 4556 | 1.3.1.4.3.2 | Leak check | LLNL | B\&H | 1 | 3 wks | \$0.00 | \$0.00 | \$6,840.00 | \$6,840.00 | \$6,703.20 | \$2,031.48 | \$15,574.68 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | BKH | 0 | 3 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$6,840.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4557 | 1.3.1.4.3.3 | Stand | LLNL |  | 0 | 1 wk | \$0.00 | \$10,000.00 | \$2,280.00 | \$12,280.00 | \$4,124.40 | \$2,460.66 | \$18,865.06 |
| 4558 | 1.3.1.4.3.3 | Fabrication | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$1,783.50 | \$13,673.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | $\begin{array}{\|c\|} \hline \text { Risk } \\ \hline 1 \\ \hline 0 \\ \hline \end{array}$ | Units <br> 1 wk | PED (Direct) $\$ 0.00$ | M\&S (Direct)$\$ 0.00$ | $\begin{aligned} & \text { Labor (Direct) } \\ & \$ 2,280.00 \end{aligned}$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 2,280.00 \end{aligned}$ | Overhead Cost \$2,234.40 | Contingency Cost <br> $\$ 677.16$ | $\begin{aligned} & \text { Total Cost } \\ & \$ 5,191.56 \end{aligned}$ |
| 4559 | 1.3.1.4.3.3 | Installation <br> LLNL Mech. Fab: Plating \& Cleaning | LLNL | $\begin{aligned} & B \& H \\ & B \& H \end{aligned}$ |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 4560 | 1.3.1.4.4 | Refractive Lenses |  |  | 0 | 40 wks | \$0.00 | \$85,000.00 | \$96,000.00 | \$181,000.00 | \$110,145.00 | \$70,408.25 | \$361,553.25 |
| 4561 | 1.3.1.4.4.1 | Diamond Turned Form | LLNL |  | 0 | 12 wks | \$0.00 | \$24,000.00 | \$36,440.00 | \$60,440.00 | \$40,247.20 | \$22,793.80 | \$123,481.00 |
| 4562 | 1.3.1.4.4.1 | Tool | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$18,000.00 | \$0.00 | \$18,000.00 | \$3,402.00 | \$3,210.30 | \$24,612.30 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 18,000 | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4563 | 1.3.1.4.4.1 | Blanks | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$356.70 | \$2,734.70 |
|  |  | LLNL M\&S lotal |  | M dS $^{\text {S }}$ | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4564 | 1.3.1.4.4.1 | Blank Preperation | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$4,468.80 | \$2,257.20 | \$11,286.00 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 4565 | 1.3.1.4.4.1 | Diamond turning fixture parts | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4566 | 1.3.1.4.4.1 | Diamond turning tixture tabrication | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$6,880.00 | \$6,880.00 | \$6,742.40 | \$3,405.60 | \$17,028.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,880.00 | \$0.00 | \$0.00 | \$0.00 |
| 4567 | 1.3.1.4.4.1 | Diamond Turning | LLNL | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$20,640.00 | \$20,640.00 | \$20,227.20 | \$10,216.80 | \$51,084.00 |
|  |  | LLNL Precision Cratts (mach/tech) |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$20,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 4568 | 1.3.1.4.4.1 | Form mount materials | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL M\&S Iotal |  | M\$S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4569 | 1.3.1.4.4.1 | Form mount labor | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$2,234.40 | \$1,128.60 | \$5,643.00 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 4570 | 1.3.1.4.4.1 | Assemble form to mount | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4571 | 1.3.1.4.4.2 | Press | LLNL |  | 0 | 4 wks | \$0.00 | \$14,000.00 | \$8,920.00 | \$22,920.00 | \$11,387.60 | \$8,576.90 | \$42,884.50 |
| 4572 | 1.3.1.4.4.2 | Returbish Gloce Box Parts | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$2,268.00 | \$3,567.00 | \$17,835.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4573 | 1.3.1.4.4.2 | Refurbish Gloce Box Labor | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$4,468.80 | \$2,257.20 | \$11,286.00 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 4574 | 1.3.1.4.4.2 | Press Parts | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4575 | 1.3.1.4.4.2 | Press Machining | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$2,234.40 | \$1,128.60 | \$5,643.00 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 4576 | 1.3.1.4.4.2 | Press Assembly | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4577 | 1.3.1.4.4.3 | Lens Mount | LLNL |  | 0 | 4 wks | \$0.00 | \$5,000.00 | \$8,320.00 | \$13,320.00 | \$9,098.60 | \$5,604.65 | \$28,023.25 |
| 4578 | 1.3.1.4.4.3 | Material | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$1,486.25 | \$7,431.25 |



| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{gathered} \text { ID } \\ \hline 4598 \end{gathered}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.1.5.1.1 | Spindle Assembly parts | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$1,200.00 | \$0.00 | \$1,200.00 | \$72.00 | \$445.20 | \$1,717.20 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,200 | \$0.00 | \$0.00 | \$0.00 | \$1,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 4599 | 1.3.1.5.1.1 | Spindle Assembly labor | SLAC | B\&H | 3 | 0.6 wks | \$0.00 | \$0.00 | \$1,199.28 | \$1,199.28 | \$239.86 | \$503.70 | \$1,942.83 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,199.28 | \$0.00 | \$0.00 | \$0.00 |
| 4600 | 1.3.1.5.1.1 | Bearings | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$600.00 | \$0.00 | \$600.00 | \$36.00 | \$222.60 | \$858.60 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 600 | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | \$0.00 | \$0.00 |
| 4601 | 1.3.1.5.1.1 | Fab \& Machining parts | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$100.00 | \$0.00 | \$100.00 | \$6.00 | \$37.10 | \$143.10 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 100 | \$0.00 | \$0.00 | \$0.00 | \$100.00 | \$0.00 | \$0.00 | \$0.00 |
| 4602 | 1.3.1.5.1.1 | Fab \& Machining labor | SLAC | B\&H | 3 | 0.2 wks | \$0.00 | \$0.00 | \$456.00 | \$456.00 | \$446.88 | \$316.01 | \$1,218.89 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$456.00 | \$0.00 | \$0.00 | \$0.00 |
| 4603 | 1.3.1.5.1.1 | Fab \& Machining welding | SLAC |  | 3 | 3.2 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4604 | 1.3.1.5.1.1 | Sine Arm Drive Mechanical Assembly | SLAC | $\mathrm{B} \& \mathrm{H}$ | 3 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,678.99 | \$6,476.11 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 4605 | 1.3.1.5.1.1 | Sine Arm Drive Electrical Assembly | SLAC | B\&H | 3 | 0.5 wks | \$0.00 | \$0.00 | \$1,000.00 | \$1,000.00 | \$200.00 | \$420.00 | \$1,620.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4606 | 1.3.1.5.1.1 | Encoder-Heidenhain | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$7,300.00 | \$0.00 | \$7,300.00 | \$438.00 | \$2,708.30 | \$10,446.30 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 7,300 | \$0.00 | \$0.00 | \$0.00 | \$7,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 4607 | 1.3.1.5.1.1 | Micrometer Mitutyo | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$600.00 | \$0.00 | \$600.00 | \$36.00 | \$222.60 | \$858.60 |
|  |  | SLAC MES Iotal |  | M $\mathrm{S}_{\text {S }}$ | 0 | 600 | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | \$0.00 | \$0.00 |
| 4608 | 1.3.1.5.1.1 | Gear Reducer/Adapter | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$5,100.00 | \$0.00 | \$5,100.00 | \$306.00 | \$1,892.10 | \$7,298.10 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,100 | \$0.00 | \$0.00 | \$0.00 | \$5,100.00 | \$0.00 | \$0.00 | \$0.00 |
| 4609 | 1.3.1.5.1.1 | Stepper Motor Drive Syst. | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$1,500.00 | \$0.00 | \$1,500.00 | \$90.00 | \$556.50 | \$2,146.50 |
|  |  | SLAC M ${ }^{\text {a }}$ S Iotal |  | M 2 S | 0 | 1,500 | \$0.00 | \$0.00 | \$0.00 | \$1,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 4610 | 1.3.1.5.1.1 | Bearing and Couplings | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$74.20 | \$286.20 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 4611 | 1.3.1.5.1.1 | White Beam Stop Mechanical Assy | SLAC | $\mathrm{B} \& \mathrm{H}$ | 3 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,441.44 | \$5,559.84 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4612 | 1.3.1.5.1.1 | White Beam Stop Electrical Assy | SLAC | B\&H | 3 | 0.25 wks | \$0.00 | \$0.00 | \$500.00 | \$500.00 | \$100.00 | \$210.00 | \$810.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.25 wks | \$0.00 | \$0.00 | \$0.00 | \$500.00 | \$0.00 | \$0.00 | \$0.00 |
| 4613 | 1.3.1.5.1.1 | Tee Vessel | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$600.00 | \$0.00 | \$600.00 | \$36.00 | \$222.60 | \$858.60 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 600 | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | \$0.00 | \$0.00 |
| 4614 | 1.3.1.5.1.1 | Feeathru \& Hardware | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$700.00 | \$0.00 | \$700.00 | \$42.00 | \$259.70 | \$1,001.70 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 700 | \$0.00 | \$0.00 | \$0.00 | \$700.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 4615 | 1.3.1.5.1.1 | Support Stand Mechanical Assy | SLAC | B\&H | 3 | 0.1 wks | \$0.00 | \$0.00 | \$199.88 | \$199.88 | \$39.98 | \$83.95 | \$323.81 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$199.88 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{4616}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.1.5.1.1 | Support Stand Electrical Assy | SLAC | B\&H | 3 | 0.25 wks | \$0.00 | \$0.00 | \$500.00 | \$500.00 | \$100.00 | \$210.00 | \$810.00 |
|  |  | SLACL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.25 wks | \$0.00 | \$0.00 | \$0.00 | \$500.00 | \$0.00 | \$0.00 | \$0.00 |
| 4617 | 1.3.1.5.1.1 | Fab, Welding \& Maching | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$2,600.00 | \$0.00 | \$2,600.00 | \$156.00 | \$964.60 | \$3,720.60 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 2,600 | \$0.00 | \$0.00 | \$0.00 | \$2,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 4618 | 1.3.1.5.1.1 | Ion Pump \& Controller | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$5,400.00 | \$0.00 | \$5,400.00 | \$324.00 | \$2,003.40 | \$7,727.40 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,400 | \$0.00 | \$0.00 | \$0.00 | \$5,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 4619 | 1.3.1.5.1.1 | Scoll Roughing Pump | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$540.00 | \$3,339.00 | \$12,879.00 |
|  |  | SLAC M\&S Iotal |  | M dS $^{\text {S }}$ | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4620 | 1.3.1.5.1.1 | Misc Hardware | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$700.00 | \$0.00 | \$700.00 | \$42.00 | \$259.70 | \$1,001.70 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 700 | \$0.00 | \$0.00 | \$0.00 | \$700.00 | \$0.00 | \$0.00 | \$0.00 |
| 4621 | 1.3.1.5.1.1 | plateing | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$5,000.00 | \$5,000.00 | \$1,000.00 | \$1,500.00 | \$7,500.00 |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4622 | 1.3.1.5.1.1 | cleaning | SLAC | B\&H | 2 | 0.75 wks | \$0.00 | \$0.00 | \$2,400.00 | \$2,400.00 | \$480.00 | \$720.00 | \$3,600.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | BRH | 0 | 0.75 wks | \$0.00 | \$0.00 | \$0.00 | \$2,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 4623 | 1.3.1.5.1.1 | braze/weld | SLAC | B\&H | 3 | 1.8 wks | \$0.00 | \$0.00 | \$4,104.00 | \$4,104.00 | \$820.80 | \$1,723.68 | \$6,648.48 |
|  |  | SLACL T\&M Cratts - Welder |  | BRH | 0 | 1.8 wks | \$0.00 | \$0.00 | \$0.00 | \$4,104.00 | \$0.00 | \$0.00 | \$0.00 |
| 4624 | 1.3.1.5.1.1 | Support Parts | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$500.00 | \$0.00 | \$500.00 | \$30.00 | \$185.50 | \$715.50 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d S }}$ | 0 | 500 | \$0.00 | \$0.00 | \$0.00 | \$500.00 | \$0.00 | \$0.00 | \$0.00 |
| 4625 | 1.3.1.5.1.1 | Support Fab \& Machining | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$839.50 | \$3,238.06 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 4626 | 1.3.1.5.1.1 | vacuum mechanical assembly | SLAC | B\&H | 1 | 1.2 wks | \$0.00 | \$0.00 | \$2,398.56 | \$2,398.56 | \$479.71 | \$431.74 | \$3,310.01 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,398.56 | \$0.00 | \$0.00 | \$0.00 |
| 4627 | 1.3.1.5.1.1 | vacuum electrical assembly | SLAC | ED\& | 1 | 0.2 wks | \$0.00 | \$0.00 | \$384.00 | \$384.00 | \$76.80 | \$69.12 | \$529.92 |
|  |  | SLAC PCD:COordinator Associate |  | ED\&1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$384.00 | \$0.00 | \$0.00 | \$0.00 |
| 4628 | 1.3.1.5.1.1 | alignment | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$456.00 | \$957.60 | \$3,693.60 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | BRH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 4629 | 1.3.1.5.1.1 | installation mechanical assembly | SLAC | B \& H | 3 | 2.2 wks | \$0.00 | \$0.00 | \$4,397.36 | \$4,397.36 | \$879.47 | \$1,846.89 | \$7,123.72 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 2.2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,397.36 | \$0.00 | \$0.00 | \$0.00 |
| 4630 | 1.3.1.5.1.1 | installation welding | SLAC | B\&H | 3 | 0.1 wks | \$0.00 | \$0.00 | \$228.00 | \$228.00 | \$45.60 | \$95.76 | \$369.36 |
|  |  | SLACL T\&M Cratts - Welder |  | B\&H | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$228.00 | \$0.00 | \$0.00 | \$0.00 |
| 4631 | 1.3.1.5.2 | Pulse Split and delay |  |  | 0 | 2,213.95 wks | \$0.00 | \$108,700.00 | \$36,649.16 | \$145,349.16 | \$13,851.83 | \$35,998.84 | \$195,199.83 |
| 4632 | 1.3.1.5.2.1 | Vacuum engr M\&S | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$742.00 | \$2,862.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4633 | 1.3.1.5.2.1 | vacuum Chamber Fab | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$22,500.00 | \$0.00 | \$22,500.00 | \$1,350.00 | \$3,577.50 | \$27,427.50 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 22,500 | \$0.00 | \$0.00 | \$0.00 | \$22,500.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{4634}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.1.5.2.1 | technician | SLAC | B\&H | 3 | 0.2 wks | \$0.00 | \$0.00 | \$399.76 | \$399.76 | \$79.95 | \$167.90 | \$647.61 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$399.76 | \$0.00 | \$0.00 | \$0.00 |
| 4635 | 1.3.1.5.2.1 | Adapter Flanges | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$500.00 | \$0.00 | \$500.00 | \$30.00 | \$185.50 | \$715.50 |
|  |  | SLAC M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 500 | \$0.00 | \$0.00 | \$0.00 | \$500.00 | \$0.00 | \$0.00 | \$0.00 |
| 4636 | 1.3.1.5.2. | Support Stand Assy | SLAC | B\&H | 3 | 0.2 wks | \$0.00 | \$0.00 | \$399.76 | \$399.76 | \$79.95 | \$167.90 | \$647.61 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$399.76 | \$0.00 | \$0.00 | \$0.00 |
| 4637 | 1.3.1.5.2.1 | Fab, Welding \& Maching Material | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$2,400.00 | \$0.00 | \$2,400.00 | \$144.00 | \$890.40 | \$3,434.40 |
|  |  | SLAC MRS Iotal |  | M 2 S | 0 | 2,400 | \$0.00 | \$0.00 | \$0.00 | \$2,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 4638 | 1.3.1.5.2.1 | Fab, Welding \& Maching Labor | SLAC |  | 3 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC T\&M Cratts - Welder |  |  | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4639 | 1.3.1.5.2.1 | Assy Base Plate | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$371.00 | \$1,431.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4640 | 1.3.1.5.2.1 | Crystal Goniometers M-035 Material | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$3,800.00 | \$0.00 | \$3,800.00 | \$228.00 | \$604.20 | \$4,632.20 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 3,800 | \$0.00 | \$0.00 | \$0.00 | \$3,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 4641 | 1.3.1.5.2. 1 | Crystal Goniometers M-035 Labor | SLAC | B\&H | 1 | 0.4 wks | \$0.00 | \$0.00 | \$799.52 | \$799.52 | \$159.90 | \$143.91 | \$1,103.34 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$799.52 | \$0.00 | \$0.00 | \$0.00 |
| 4642 | 1.3.1.5.2.1 | Goniom. Control 4Ch. | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$4,600.00 | \$0.00 | \$4,600.00 | \$276.00 | \$731.40 | \$5,607.40 |
|  |  | SLAC M\&S Iotal |  | M\$S | 0 | 4,600 | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 4643 | 1.3.1.5.2.1 | Amp/Pos Servo Controller | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$3,700.00 | \$0.00 | \$3,700.00 | \$222.00 | \$588.30 | \$4,510.30 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,700 | \$0.00 | \$0.00 | \$0.00 | \$3,700.00 | \$0.00 | \$0.00 | \$0.00 |
| 4644 | 1.3.1.5.2.1 | Amp Module 3 Ch . | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$2,200.00 | \$0.00 | \$2,200.00 | \$132.00 | \$349.80 | \$2,681.80 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 2,200 | \$0.00 | \$0.00 | \$0.00 | \$2,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 4645 | 1.3.1.5.2.1 | Controller Chassis | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,600.00 | \$0.00 | \$2,600.00 | \$156.00 | \$413.40 | \$3,169.40 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 2,600 | \$0.00 | \$0.00 | \$0.00 | \$2,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 4646 | 1.3.1.5.2.1 | Amp Module 3 Ch . | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$4,600.00 | \$0.00 | \$4,600.00 | \$276.00 | \$731.40 | \$5,607.40 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 4,600 | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 4647 | 1.3.1.5.2. 1 | Precision Lin. Stage UMP-160 | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$22,900.00 | \$0.00 | \$22,900.00 | \$1,374.00 | \$3,641.10 | \$27,915.10 |
|  |  | SLAC M\&S Iotal |  | M $\downarrow$ S | 0 | 22,900 | \$0.00 | \$0.00 | \$0.00 | \$22,900.00 | \$0.00 | \$0.00 | \$0.00 |
| 4648 | 1.3.1.5.2.1 | Precision Lin. Stage UMP-160 Labor | SLAC | B\&H | 1 | 2 wks | \$0.00 | \$0.00 | \$6,400.00 | \$6,400.00 | \$1,280.00 | \$1,152.00 | \$8,832.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 4649 | 1.3.1.5.2.1 | Stepper Controller +Rack | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$5,600.00 | \$0.00 | \$5,600.00 | \$336.00 | \$890.40 | \$6,826.40 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 5,600 | \$0.00 | \$0.00 | \$0.00 | \$5,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 4650 | 1.3.1.5.2.1 | Misc Cables \& hrdwr. | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$500.00 | \$0.00 | \$500.00 | \$30.00 | \$79.50 | \$609.50 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 500 | \$0.00 | \$0.00 | \$0.00 | \$500.00 | \$0.00 | \$0.00 | \$0.00 |
| 4651 | 1.3.1.5.2.1 | Detector Actuator Assys Parts | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$1,200.00 | \$0.00 | \$1,200.00 | \$72.00 | \$445.20 | \$1,717.20 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,200 | \$0.00 | \$0.00 | \$0.00 | \$1,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 4652 | 1.3.1.5.2.1 | Detector Actuator Assys Labor | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,678.99 | \$6,476.11 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 4653 | 1.3.1.5.2.1 | Detector mount fixtures | SLAC | M 8 S | 3 | 0 wks | \$0.00 | \$1,200.00 | \$0.00 | \$1,200.00 | \$72.00 | \$445.20 | \$1,717.20 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,200 | \$0.00 | \$0.00 | \$0.00 | \$1,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 4654 | 1.3.1.5.2.1 | Diode Detectors | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$400.00 | \$0.00 | \$400.00 | \$24.00 | \$148.40 | \$572.40 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 400 | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 4655 | 1.3.1.5.2.1 | Detector Amplitier | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$2,700.00 | \$0.00 | \$2,700.00 | \$162.00 | \$1,001.70 | \$3,863.70 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 2,700 | \$0.00 | \$0.00 | \$0.00 | \$2,700.00 | \$0.00 | \$0.00 | \$0.00 |
| 4656 | 1.3.1.5.2.1 | Detector P.Supply | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$1,500.00 | \$0.00 | \$1,500.00 | \$90.00 | \$556.50 | \$2,146.50 |
|  |  | SLAC MES Total |  | M\&S | 0 | 1,500 | \$0.00 | \$0.00 | \$0.00 | \$1,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 4657 | 1.3.1.5.2. | $\checkmark$ to F Counter | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$1,500.00 | \$0.00 | \$1,500.00 | \$90.00 | \$556.50 | \$2,146.50 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 1,500 | \$0.00 | \$0.00 | \$0.00 | \$1,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 4658 | 1.3.1.5.2.1 | Thick Silicon Crystals | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$500.00 | \$0.00 | \$500.00 | \$30.00 | \$185.50 | \$715.50 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 500 | \$0.00 | \$0.00 | \$0.00 | \$500.00 | \$0.00 | \$0.00 | \$0.00 |
| 4659 | 1.3.1.5.2.1 | Cut Silicon Crystals | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$500.00 | \$0.00 | \$500.00 | \$30.00 | \$185.50 | \$715.50 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 500 | \$0.00 | \$0.00 | \$0.00 | \$500.00 | \$0.00 | \$0.00 | \$0.00 |
| 4660 | 1.3.1.5.2.1 | Polish Silicon Crystals | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$500.00 | \$0.00 | \$500.00 | \$30.00 | \$185.50 | \$715.50 |
|  |  | SLAC M\&S Iotal |  | M ${ }_{\text {d }}$ S | 0 | 500 | \$0.00 | \$0.00 | \$0.00 | \$500.00 | \$0.00 | \$0.00 | \$0.00 |
| 4661 | 1.3.1.5.2.1 | Thin Silicon Crystal | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$300.00 | \$0.00 | \$300.00 | \$18.00 | \$111.30 | \$429.30 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 300 | \$0.00 | \$0.00 | \$0.00 | \$300.00 | \$0.00 | \$0.00 | \$0.00 |
| 4662 | 1.3.1.5.2.1 | Goniometer Hds (Huber 1002) | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$1,200.00 | \$0.00 | \$1,200.00 | \$72.00 | \$445.20 | \$1,717.20 |
|  |  | SLAC MAS Iotal |  | M 2 S | 0 | 1,200 | \$0.00 | \$0.00 | \$0.00 | \$1,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 4663 | 1.3.1.5.2.1 | Goniometer Hds (Huber 1002) Labor | SLAC | B\&H | 3 | 0.2 wks | \$0.00 | \$0.00 | \$399.76 | \$399.76 | \$79.95 | \$167.90 | \$647.61 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$399.76 | \$0.00 | \$0.00 | \$0.00 |
| 4664 | 1.3.1.5.2.1 | ACA Mounts | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$371.00 | \$1,431.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4665 | 1.3.1.5.2.1 | Crystal Mounting Fixtures Parts | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$74.20 | \$286.20 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 4666 | 1.3.1.5.2.1 | Crystal Mounting Fixtures Labor | SLAC | B\&H | 3 | 0.1 wks | \$0.00 | \$0.00 | \$199.88 | \$199.88 | \$39.98 | \$83.95 | \$323.81 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$199.88 | \$0.00 | \$0.00 | \$0.00 |
| 4667 | 1.3.1.5.2.1 | Feedthru \& Hardware Parts | SLAC |  | 3 | 2,200 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4668 | 1.3.1.5.2.1 | Feedthru \& Hardware Labor | SLAC | B\&H | 3 | 0.2 wks | \$0.00 | \$0.00 | \$399.76 | \$399.76 | \$79.95 | \$167.90 | \$647.61 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$399.76 | \$0.00 | \$0.00 | \$0.00 |
| 4669 | 1.3.1.5.2.1 | Ion Pump \& Controller | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$5,400.00 | \$0.00 | \$5,400.00 | \$324.00 | \$2,003.40 | \$7,727.40 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units <br> 5,400 | $\frac{\text { PED (Direct) }}{\$ 0.00}$ | $\begin{gathered} \text { M\&S (Direct) } \\ \$ 0.00 \end{gathered}$ | Labor (Direct) <br> $\$ 0.00$ | $\frac{\text { Direct Cost }}{\$ 5,400.00}$ | Overhead Cost $\$ 0.00$ | Contingency Cost $\$ 0.00$ | Total Cost $\$ 0.00$ |
|  |  | SLACM\&S Total |  | M\&S |  |  |  |  |  |  |  |  |  |
| 4670 | 1.3.1.5.2.1 | Misc Hardware |  | M 2 S | 3 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$3,710.00 | \$14,310.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }^{\text {S }}$ S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4671 | 1.3.1.5.2.1 | Misc plating/cleaning parts | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4672 | 1.3.1.5.2.1 | Misc plating/leaning plating labor | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$5,000.00 | \$5,000.00 | \$1,000.00 | \$1,500.00 | \$7,500.00 |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4673 | 1.3.1.5.2.1 | Misc plating/cleaning labor | SLAC | B\&H | 2 | 0.75 wks | \$0.00 | \$0.00 | \$2,400.00 | \$2,400.00 | \$480.00 | \$720.00 | \$3,600.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 0.75 wks | \$0.00 | \$0.00 | \$0.00 | \$2,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 4674 | 1.3.1.5.2.1 | Misc brazing/welding parts | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$500.00 | \$0.00 | \$500.00 | \$30.00 | \$185.50 | \$715.50 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 500 | \$0.00 | \$0.00 | \$0.00 | \$500.00 | \$0.00 | \$0.00 | \$0.00 |
| 4675 | 1.3.1.5.2.1 | Misc brazing/welding assembly | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$5,000.00 | \$5,000.00 | \$1,000.00 | \$2,100.00 | \$8,100.00 |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4676 | 1.3.1.5.2.1 | Misc brazing/welding welding | SLAC | B\&H | 3 | 0.2 wks | \$0.00 | \$0.00 | \$456.00 | \$456.00 | \$91.20 | \$191.52 | \$738.72 |
|  |  | SLACL T\&M Cratts - Welder |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$456.00 | \$0.00 | \$0.00 | \$0.00 |
| 4677 | 1.3.1.5.2.1 | vacuum assembly hardware | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$31.80 | \$243.80 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 4678 | 1.3.1.5.2.1 | vacuum assembly | SLAC | B\&H | 1 | 3 wks | \$0.00 | \$0.00 | \$5,996.40 | \$5,996.40 | \$1,199.28 | \$1,079.35 | \$8,275.03 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$5,996.40 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 4679 | 1.3.1.5.2.1 | vacuum tech | SLAC | B\&H | 1 | 0.1 wks | \$0.00 | \$0.00 | \$175.36 | \$175.36 | \$35.07 | \$31.56 | \$242.00 |
|  |  | SLAC PCD:Technician |  | B\&H | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$175.36 | \$0.00 | \$0.00 | \$0.00 |
| 4680 | 1.3.1.5.2. | installation assembly | SLAC | B\&H | 3 | 2.2 wks | \$0.00 | \$0.00 | \$4,397.36 | \$4,397.36 | \$879.47 | \$1,846.89 | \$7,123.72 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 2.2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,397.36 | \$0.00 | \$0.00 | \$0.00 |
| 4681 | 1.3.1.5.2.1 | installation welding | SLAC | B\&H | 3 | 0.1 wks | \$0.00 | \$0.00 | \$228.00 | \$228.00 | \$45.60 | \$95.76 | \$369.36 |
|  |  | SLACL T\&M Cratts - Welder |  | B\&H | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$228.00 | \$0.00 | \$0.00 | \$0.00 |
| 4682 | 1.3.1.6 | Diagnostics |  |  | 0 | 435.69 wks | \$0.00 | \$3,846,001.00 | \$973,311.60 | \$4,819,312.60 | \$1,680,739.56 | \$1,492,498.86 | \$7,992,551.02 |
| 4683 | 1.3.1.6. 1 | Modeling and Simulation |  |  | 0 | 2 wks | \$0.00 | \$14,000.00 | \$4,240.00 | \$18,240.00 | \$6,801.20 | \$6,260.30 | \$31,301.50 |
| 4684 | 1.3.1.6.1.1 | Computer System | LLNL |  | 0 | 2 wks | \$0.00 | \$14,000.00 | \$4,240.00 | \$18,240.00 | \$6,801.20 | \$6,260.30 | \$31,301.50 |
| 4685 | 1.3.1.6.1.1 | Computer Documentation \& dratting | LLNL | ED\& | 2 | 1 wk | \$0.00 | \$0.00 | \$2,160.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 4686 | 1.3.1.6.1.1 | Computer labor | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL PCD:Iechnician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4687 | 1.3.1.6.1.1 | Computer | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4688 | 1.3.1.6.1.1 | Monitor | LLNL | M2S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units ${ }_{4,000}$ | PED (Direct)$\$ 0.00$ | $\begin{aligned} & \text { M\&S (Direct) } \\ & \$ 0.00 \end{aligned}$ | Labor (Direct) | $\begin{aligned} & \text { Direct Cost } \\ & \$ 44,000.00 \end{aligned}$ | Overhead Cost $\$ 0.00$ | $\begin{array}{r} \text { Contingency Cost } \\ \$ 0.00 \end{array}$ | $\begin{aligned} & \text { Total Cost } \\ & \$ 0.00 \end{aligned}$ |
|  |  | TLAsk Name MES Total |  | M\&S | 0 |  |  |  |  |  |  |  |  |
| 4689 | 1.3.1.6.2 | Direct Scintillator Imager |  |  | 0 | 27.13 wks | \$0.00 | \$440,000.00 | \$59,535.60 | \$499,535.60 | \$141,504.89 | \$142,781.82 | \$783,822.31 |
| 4690 | 1.3.1.6.2.1 | Reserved | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4691 | 1.3.1.6.2.2 | Reserved | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4692 | 1.3.1.6.2.3 | Data Acquisition | LLNL |  | 0 | 1 wk | \$0.00 | \$39,000.00 | \$2,080.00 | \$41,080.00 | \$9,409.40 | \$12,622.35 | \$63,111.75 |
| 4693 | 1.3.1.6.2.3 | Computer labor | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL PCD:Technician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4694 | 1.3.1.6.2.3 | Computer | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |
|  |  | LLNL MES Iotal |  | M 2 S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4695 | 1.3.1.6.2.3 | Monitor | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4696 | 1.3.1.6.2.3 | Stage controller Channel-Card | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$1,323.00 | \$2,080.75 | \$10,403.75 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4697 | 1.3.1.6.2.3 | GPIs Card | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4698 | 1.3.1.6.2.3 | Diagnostic Hardware \& Controller | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$17,000.00 | \$0.00 | \$17,000.00 | \$3,213.00 | \$5,053.25 | \$25,266.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 17,000 | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4699 | 1.3.1.6.2.4 | Prototype | LLNL |  | 0 | 8.13 wks | \$0.00 | \$70,000.00 | \$18,135.60 | \$88,135.60 | \$31,002.89 | \$26,455.42 | \$145,593.91 |
| 4700 | 1.3.1.6.2.4 | Scintillating Crystal | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4701 | 1.3.1.6.2.4 | Prism | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4702 | 1.3.1.6.2.4 | Prism mount | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4703 | 1.3.1.6.2.4 | Prism to objective motorized stage | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4704 | 1.3.1.6.2.4 | Microscope objective | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$535.05 | \$4,102.05 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4705 | 1.3.1.6.2.4 | Objective to CCD manual stage | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$178.35 | \$1,367.35 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4706 | 1.3.1.6.2.4 | Microchannel plate | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$535.05 | \$4,102.05 |
|  |  | LLNL MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4707 | 1.3.1.6.2.4 | 120 Hz CCD | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$2,378.00 | \$11,890.00 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4708 | 1.3.1.6.2.4 | TE Cooler | LLNL | M2S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL MES Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4709 | 1.3.1.6.2.4 | CCD Analog board | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL M\&S Iotal |  | M ${ }^{\text {S }}$ S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4710 | 1.3.1.6.2.4 | Camera Digital board | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4711 | 1.3.1.6.2.4 | Microchannel plate HV board | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4712 | 1.3.1.6.2.4 | Camera Intertace board | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL M\&S Iotal |  | M ${ }^{\text {d }}$ | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4713 | 1.3.1.6.2.4 | Computer Interface board | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$356.70 | \$2,734.70 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4714 | 1.3.1.6.2.4 | Camera vaccum housing | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4715 | 1.3.1.6.2.4 | Cold tinger | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4716 | 1.3.1.6.2.4 | Chiller | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$356.70 | \$2,734.70 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4717 | 1.3.1.6.2.4 | Chiller Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4718 | 1.3.1.6.2.4 | Electrical Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4719 | 1.3.1.6.2.4 | Feed throughs | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$178.35 | \$1,367.35 |
|  |  | LLNL M\&S Iotal |  | M ${ }^{\text {S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4720 | 1.3.1.6.2.4 | Mechanical Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Total |  | MES | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4721 | 1.3.1.6.2.4 | Camera Base Plate | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,368.00 | \$1,368.00 | \$1,340.64 | \$677.16 | \$3,385.80 |
|  |  | LLNL Mech. Fab: Machine Shop |  | BRH | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 4722 | 1.3.1.6.2.4 | Prism to objective $1 /$ F | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,368.00 | \$1,368.00 | \$1,340.64 | \$677.16 | \$3,385.80 |
|  |  | LLNL Mech. Fab: Machine Shop |  | BKH | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 4723 | 1.3.1.6.2.4 | Objective to CCD I/F | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,368.00 | \$1,368.00 | \$1,340.64 | \$677.16 | \$3,385.80 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 4724 | 1.3.1.6.2.4 | Camera housing and Cold tinger | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,368.00 | \$1,368.00 | \$1,340.64 | \$677.16 | \$3,385.80 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 4725 | 1.3.1.6.2.4 | Camera Electrical assembly | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| $4726$ | 1.3.1.6.2.4 | Camera Mechanical assembly | LLNL | B\&H | 2 | 0.9 wks | \$0.00 | \$0.00 | \$1,872.00 | \$1,872.00 | \$1,834.56 | \$926.64 | \$4,633.20 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.9 wks | \$0.00 | \$0.00 | \$0.00 | \$1,872.00 | \$0.00 | \$0.00 | \$0.00 |
| 4727 | 1.3.1.6.2.4 | Camera Sottware installation | LLNL | ED\& | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,392.00 | \$1,392.00 | \$1,364.16 | \$689.04 | \$3,445.20 |
|  |  | LLNL Controls: Programmer |  | ED\&1 | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,392.00 | \$0.00 | \$0.00 | \$0.00 |
| 4728 | 1.3.1.6.2.4 | Camera Electrical acceptance test | LLNL | ED\& | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,488.00 | \$1,488.00 | \$1,458.24 | \$736.56 | \$3,682.80 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,488.00 | \$0.00 | \$0.00 | \$0.00 |
| 4729 | 1.3.1.6.2.4 | Camera Mechanical acceptance test | LLNL | ED\& | 2 | 0.33 wks | \$0.00 | \$0.00 | \$831.60 | \$831.60 | \$814.97 | \$411.64 | \$2,058.21 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 0.33 wks | \$0.00 | \$0.00 | \$0.00 | \$831.60 | \$0.00 | \$0.00 | \$0.00 |
| 4730 | 1.3.1.6.2.4 | Camera Alignment and tocus | LLNL | ED\&1 | 2 | 0.9 wks | \$0.00 | \$0.00 | \$1,944.00 | \$1,944.00 | \$1,905.12 | \$962.28 | \$4,811.40 |
|  |  | LLNL Physicist -Scientist |  | ED\&1 | 0 | 0.9 wks | \$0.00 | \$0.00 | \$0.00 | \$1,944.00 | \$0.00 | \$0.00 | \$0.00 |
| 4731 | 1.3.1.6.2.4 | Camera Calibration | LLNL | ED\& | 2 | 0.9 wks | \$0.00 | \$0.00 | \$1,944.00 | \$1,944.00 | \$1,905.12 | \$962.28 | \$4,811.40 |
|  |  | LLNL Physicist -Scientist |  | ED\& 1 | 0 | 0.9 wks | \$0.00 | \$0.00 | \$0.00 | \$1,944.00 | \$0.00 | \$0.00 | \$0.00 |
| 4732 | 1.3.1.6.2.4 | Camera System acceptance test | LLNL | ED\& | 2 | 0.9 wks | \$0.00 | \$0.00 | \$1,944.00 | \$1,944.00 | \$1,905.12 | \$962.28 | \$4,811.40 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 0.9 wks | \$0.00 | \$0.00 | \$0.00 | \$1,944.00 | \$0.00 | \$0.00 | \$0.00 |
| 4733 | 1.3.1.6.2.5 | Production units | LLNL |  | 0 | 18 wks | \$0.00 | \$331,000.00 | \$39,320.00 | \$370,320.00 | \$101,092.60 | \$103,704.05 | \$575,116.65 |
| 4734 | 1.3.1.6.2.5 | Scintillating Crystal | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4735 | 1.3.1.6.2.5 | Prism | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL MES Iotal |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4736 | 1.3.1.6.2.5 | Prism mount | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$891.75 | \$6,836.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4737 | 1.3.1.6.2.5 | Prism to objective motorized stage | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$40,000.00 | \$0.00 | \$40,000.00 | \$7,560.00 | \$11,890.00 | \$59,450.00 |
|  |  | LLNL Mes lotal |  | M ${ }^{\text {d }}$ S | 0 | 40,000 | \$0.00 | \$0.00 | \$0.00 | \$40,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4738 | 1.3.1.6.2.5 | Microscope objective | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$13,000.00 | \$0.00 | \$13,000.00 | \$2,457.00 | \$2,318.55 | \$17,775.55 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 13,000 | \$0.00 | \$0.00 | \$0.00 | \$13,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4739 | 1.3.1.6.2.5 | Objective to CCD manual stage | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$1,323.00 | \$1,248.45 | \$9,571.45 |
|  |  | LLNL M\&S Total |  | MRS | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4740 | 1.3.1.6.2.5 | Microchannel plate | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$14,000.00 | \$0.00 | \$14,000.00 | \$2,646.00 | \$2,496.90 | \$19,142.90 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 14,000 | \$0.00 | \$0.00 | \$0.00 | \$14,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4741 | 1.3.1.6.2.5 | 120 Hz CCD | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$40,000.00 | \$0.00 | \$40,000.00 | \$7,560.00 | \$7,134.00 | \$54,694.00 |
|  |  | LLNL M\&S Total |  | M 4 S | 0 | 40,000 | \$0.00 | \$0.00 | \$0.00 | \$40,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4742 | 1.3.1.6.2.5 | It Cooler | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$3,780.00 | \$5,945.00 | \$29,725.00 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4743 | 1.3.1.6.2.5 | CCD Analog board | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$5,670.00 | \$5,350.50 | \$41,020.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | \$30,000.00 | Labor (Direct) | $\begin{aligned} & \text { Direct Cost } \\ & \$ 30,000.00 \end{aligned}$ | Overhead Cost <br> $\$ 5,670.00$ | Contingency Cost | Total Cost <br> \$44,587.50 |
| $4744$ | 1.3.1.6.2.5 | Task Name Camera Digital board | LLNL | M\&S |  | Units 0 wks | PED (Direct) |  |  |  |  |  |  |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4745 | 1.3.1.6.2.5 | Microchannel plate HV board | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$3,780.00 | \$5,945.00 | \$29,725.00 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4746 | 1.3.1.6.2.5 | Camera Interface board | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$5,670.00 | \$8,917.50 | \$44,587.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4747 | 1.3.1.6.2.5 | Computer Interface board | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$1,701.00 | \$2,675.25 | \$13,376.25 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4748 | 1.3.1.6.2.5 | Camera vaccum housing | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$2,835.00 | \$4,458.75 | \$22,293.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4749 | 1.3.1.6.2.5 | Cold finger | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$1,486.25 | \$7,431.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4750 | 1.3.1.6.2.5 | Chiller | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |
|  |  | LLNL M\&S Iotal |  | M LS $^{\text {S }}$ | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4751 | 1.3.1.6.2.5 | Chiller Hardware | LLNL | M2S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$891.75 | \$6,836.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4752 | 1.3.1.6.2.5 | Electrical Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$2,835.00 | \$4,458.75 | \$22,293.75 |
|  |  | LLNL M\&S Iotal |  | M ${ }_{\text {d }}$ S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4753 | 1.3.1.6.2.5 | Feed throughs | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4754 | 1.3.1.6.2.5 | Mechanical Hardware | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$891.75 | \$6,836.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4755 | 1.3.1.6.2.5 | Camera Base Plate | LLNL | B\&H | 2 | 0.5 wks | \$0.00 | \$0.00 | \$1,140.00 | \$1,140.00 | \$1,117.20 | \$564.30 | \$2,821.50 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,140.00 | \$0.00 | \$0.00 | \$0.00 |
| 4756 | 1.3.1.6.2.5 | Prism to objective I/F | LLNL | B\&H | 2 | 0.5 wks | \$0.00 | \$0.00 | \$1,140.00 | \$1,140.00 | \$1,117.20 | \$564.30 | \$2,821.50 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,140.00 | \$0.00 | \$0.00 | \$0.00 |
| 4757 | 1.3.1.6.2.5 | Objective to CCD I/F | LLNL | B\&H | 2 | 0.5 wks | \$0.00 | \$0.00 | \$1,140.00 | \$1,140.00 | \$1,117.20 | \$564.30 | \$2,821.50 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,140.00 | \$0.00 | \$0.00 | \$0.00 |
| 4758 | 1.3.1.6.2.5 | Camera housing and Cold tinger | LLNL | B\&H | 2 | 0.5 wks | \$0.00 | \$0.00 | \$1,140.00 | \$1,140.00 | \$1,117.20 | \$564.30 | \$2,821.50 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,140.00 | \$0.00 | \$0.00 | \$0.00 |
| 4759 | 1.3.1.6.2.5 | Camera Electrical assembly | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 4760 | 1.3.1.6.2.5 | Camera Mechanical assembly | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,240.00 | \$6,240.00 | \$6,115.20 | \$3,088.80 | \$15,444.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 4761 | 1.3.1.6.2.5 | Camera Software installation | LLNL | ED\& | 2 | 0.5 wks | \$0.00 | \$0.00 | \$1,160.00 | \$1,160.00 | \$1,136.80 | \$574.20 | \$2,871.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL Controls: Programmer |  | ED\& | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 4762 | 1.3.1.6.2.5 | Camera Electrical acceptance test | LLNL | ED\&1 | 2 | 0.5 wks | \$0.00 | \$0.00 | \$1,240.00 | \$1,240.00 | \$1,215.20 | \$613.80 | \$3,069.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 4763 | 1.3.1.6.2.5 | Camera Mechanical acceptance test | LLNL | ED\& | 2 | 1 wk | \$0.00 | \$0.00 | \$2,520.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&/ | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 4764 | 1.3.1.6.2.5 | Camera Alignment and focus | LLNL | ED\& | 2 | 3 wks | \$0.00 | \$0.00 | \$6,480.00 | \$6,480.00 | \$6,350.40 | \$3,207.60 | \$16,038.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 4765 | 1.3.1.6.2.5 | Camera Calibration | LLNL | ED\& | 2 | 3 wks | \$0.00 | \$0.00 | \$6,480.00 | \$6,480.00 | \$6,350.40 | \$3,207.60 | \$16,038.00 |
|  |  | LLNL Physicist-Scientist |  | ED\&1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 4766 | 1.3.1.6.2.5 | Camera System acceptance test | LLNL | ED\& | 2 | 3 wks | \$0.00 | \$0.00 | \$6,480.00 | \$6,480.00 | \$6,350.40 | \$3,207.60 | \$16,038.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 4767 | 1.3.1.6.3 | Scattering Foil Imager |  |  | 0 | 33.66 wks | \$0.00 | \$498,001.00 | \$74,304.00 | \$572,305.00 | \$166,940.11 | \$161,744.68 | \$900,989.79 |
| 4768 | 1.3.1.6.3.1 | Reserved | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4769 | 1.3.1.6.3.2 | Reserved | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4770 | 1.3.1.6.3.3 | Data Acquisition | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4771 | 1.3.1.6.3.3 | Computer labor | LLNL | B\&H | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | LLNL PCD:Technician |  | B\&H | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4772 | 1.3.1.6.3.4 | Prototype | LLNL |  | 0 | 13.86 wks | \$0.00 | \$156,001.00 | \$30,984.00 | \$186,985.00 | \$59,848.51 | \$54,693.28 | \$301,526.79 |
| 4773 | 1.3.1.6.3.4 | Be toll | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$50,000.00 | \$0.00 | \$50,000.00 | \$9,450.00 | \$14,862.50 | \$74,312.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4774 | 1.3.1.6.3.4 | Be foil mount | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.19 | \$0.30 | \$1.49 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 4775 | 1.3.1.6.3.4 | Mirror mount | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$535.05 | \$4,102.05 |
|  |  | LLNL MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4776 | 1.3.1.6.3.4 | Mirror motorized rotation stage | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4777 | 1.3.1.6.3.4 | Base plate | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4778 | 1.3.1.6.3.4 | Camera Base Plate | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4779 | 1.3.1.6.3.4 | Camera motorized horizontal stage | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$891.75 | \$6,836.75 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4780 | 1.3.1.6.3.4 | Camera motorized verticle stage | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |
|  |  | LLNL M\&S Iotal |  | M d $^{\text {S }}$ | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4781 | 1.3.1.6.3.4 | Motor Controller | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | obs | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4782 | 1.3.1.6.3.4 | Motor Computer I/F | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |
|  |  | LLNL M\&S Iotal |  | M ${ }_{\text {W }}$ S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 4783 | 1.3.1.6.3.4 | Scintillating Crystal | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4784 | 1.3.1.6.3.4 | Prism | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4785 | 1.3.1.6.3.4 | Prism mount | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL Mes lotal |  | M ${ }^{\text {d }}$ S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4786 | 1.3.1.6.3.4 | Prism to objective motorized stage | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4787 | 1.3.1.6.3.4 | Microscope objective | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$535.05 | \$4,102.05 |
|  |  | LLNL MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4788 | 1.3.1.6.3.4 | Objective to CCD manual stage | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$178.35 | \$1,367.35 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4789 | 1.3.1.6.3.4 | Microchannel plate | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$535.05 | \$4,102.05 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4790 | 1.3.1.6.3.4 | 120 Hz CCD | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$2,378.00 | \$11,890.00 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4791 | 1.3.1.6.3.4 | TE Cooler | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4792 | 1.3.1.6.3.4 | CCD Analog board | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4793 | 1.3.1.6.3.4 | Camera Digital board | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4794 | 1.3.1.6.3.4 | Microchannel plate HV board | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |
|  |  | LLNL M\&S Total |  | MRS | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4795 | 1.3.1.6.3.4 | Camera Intertace board | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4796 | 1.3.1.6.3.4 | Computer Interface board | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4797 | 1.3.1.6.3.4 | Camera vaccum housing | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL MES Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | $\$ 0.00$ | $\$ 0.00$ |
| 4798 | 1.3.1.6.3.4 | Cold tinger | LLNL | M 8 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 4799 | 1.3.1.6.3.4 | Chiller | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4800 | 1.3.1.6.3.4 | Chiller Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4801 | 1.3.1.6.3.4 | Electrical Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4802 | 1.3.1.6.3.4 | Feed throughs | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S lotal |  | M dS $^{\text {S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4803 | 1.3.1.6.3.4 | Mechanical Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4804 | 1.3.1.6.3.4 | Scatter plane Base Plate | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,368.00 | \$1,368.00 | \$1,340.64 | \$677.16 | \$3,385.80 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 4805 | 1.3.1.6.3.4 | Be foil mount | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,368.00 | \$1,368.00 | \$1,340.64 | \$677.16 | \$3,385.80 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 4806 | 1.3.1.6.3.4 | Camera Base Plate | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,368.00 | \$1,368.00 | \$1,340.64 | \$677.16 | \$3,385.80 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 4807 | 1.3.1.6.3.4 | Prism to objective I/F | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,368.00 | \$1,368.00 | \$1,340.64 | \$677.16 | \$3,385.80 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 4808 | 1.3.1.6.3.4 | Objective to CCD I/F | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,368.00 | \$1,368.00 | \$1,340.64 | \$677.16 | \$3,385.80 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 4809 | 1.3.1.6.3.4 | Camera housing and Cold finger | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,368.00 | \$1,368.00 | \$1,340.64 | \$677.16 | \$3,385.80 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,368.00 | \$0.00 | \$0.00 | \$0.00 |
| 4810 | 1.3.1.6.3.4 | Mechanical assembly | LLNL | B\&H | 2 | 1.8 wks | \$0.00 | \$0.00 | \$3,744.00 | \$3,744.00 | \$3,669.12 | \$1,853.28 | \$9,266.40 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 1.8 wks | \$0.00 | \$0.00 | \$0.00 | \$3,744.00 | \$0.00 | \$0.00 | \$0.00 |
| 4811 | 1.3.1.6.3.4 | Camera Electrical assembly | LLNL | B\&H | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,248.00 | \$1,248.00 | \$1,223.04 | \$617.76 | \$3,088.80 |
|  |  | LLNL PCD:IInst-Cabling-Elec Fab |  | B\&H | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,248.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4812 | 1.3.1.6.3.4 | Software installation | LLNL | ED\& | 2 | 0.33 wks | \$0.00 | \$0.00 | \$765.60 | \$765.60 | \$750.29 | \$378.97 | \$1,894.86 |
|  |  | LLNL Controls: Programmer |  | ED\&1 | 0 | 0.33 wks | \$0.00 | \$0.00 | \$0.00 | \$765.60 | \$0.00 | \$0.00 | \$0.00 |
| 4813 | 1.3.1.6.3.4 | Electrical acceptance test | LLNL | ED\& | 2 | 0.33 wks | \$0.00 | \$0.00 | \$818.40 | \$818.40 | \$802.03 | \$405.11 | \$2,025.54 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.33 wks | \$0.00 | \$0.00 | \$0.00 | \$818.40 | \$0.00 | \$0.00 | \$0.00 |
| 4814 | 1.3.1.6.3.4 | Mechanical acceptance test | LLNL | ED\& | 2 | 1.8 wks | \$0.00 | \$0.00 | \$4,536.00 | \$4,536.00 | \$4,445.28 | \$2,245.32 | \$11,226.60 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 1.8 wks | \$0.00 | \$0.00 | \$0.00 | \$4,536.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4815 | 1.3.1.6.3.4 | Alignment and tocus | LLNL | ED\& | 2 | 1.8 wks | \$0.00 | \$0.00 | \$3,888.00 | \$3,888.00 | \$3,810.24 | \$1,924.56 | \$9,622.80 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 1.8 wks | \$0.00 | \$0.00 | \$0.00 | \$3,888.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4816 | 1.3.1.6.3.4 | Calibration | LLNL | ED\& | 2 | 1.8 wks | \$0.00 | \$0.00 | \$3,888.00 | \$3,888.00 | \$3,810.24 | \$1,924.56 | \$9,622.80 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | cWBS | Task Name | OBS | PHASE | $\begin{array}{\|l\|} \hline \text { Risk } \\ \hline \end{array}$ | Units <br> 1.8 wks | $\frac{\text { PED (Direct) }}{\$ 0.00}$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct) <br> $\$ 0.00$ | Direct Cost \$3,888.00 | $\begin{array}{r} \text { Overhead Cost } \\ \$ 0.00 \end{array}$ | $\begin{array}{r} \text { Contingency Cost } \\ \$ 0.00 \end{array}$ | Total Cost $\$ 0.00$ |
|  |  | Task Name LLNL Physicist -Scientist |  |  |  |  |  |  |  |  |  |  |  |
| 4817 | 1.3.1.6.3.4 | System acceptance test | LLNL | ED\& | 2 | 1.8 wks | \$0.00 | \$0.00 | \$3,888.00 | \$3,888.00 | \$3,810.24 | \$1,924.56 | \$9,622.80 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 1.8 wks | \$0.00 | \$0.00 | \$0.00 | \$3,888.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4818 | 1.3.1.6.3.5 | Production units | LLNL |  | 0 | 19.8 wks | \$0.00 | \$342,000.00 | \$43,320.00 | \$385,320.00 | \$107,091.60 | \$107,051.40 | \$599,463.00 |
| 4819 | 1.3.1.6.3.5 | Be foil | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$2,835.00 | \$4,458.75 | \$22,293.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4820 | 1.3.1.6.3.5 | Be foil mount | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$1,701.00 | \$2,675.25 | \$13,376.25 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4821 | 1.3.1.6.3.5 | Mirror mount | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$1,701.00 | \$1,605.15 | \$12,306.15 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4822 | 1.3.1.6.3.5 | Mirror motorized rotation stage | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$24,000.00 | \$0.00 | \$24,000.00 | \$4,536.00 | \$4,280.40 | \$32,816.40 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 24,000 | \$0.00 | \$0.00 | \$0.00 | \$24,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4823 | 1.3.1.6.3.5 | Base plate | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4824 | 1.3.1.6.3.5 | Camera Base Plate | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4825 | 1.3.1.6.3.5 | Camera motorized horizontal stage | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$2,835.00 | \$2,675.25 | \$20,510.25 |
|  |  | LLNL M\&S Iotal |  | M MS $^{\text {S }}$ | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4826 | 1.3.1.6.3.5 | Camera motorized verticle stage | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$24,000.00 | \$0.00 | \$24,000.00 | \$4,536.00 | \$4,280.40 | \$32,816.40 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 24,000 | \$0.00 | \$0.00 | \$0.00 | \$24,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4827 | 1.3.1.6.3.5 | Motor Controller | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$24,000.00 | \$0.00 | \$24,000.00 | \$4,536.00 | \$4,280.40 | \$32,816.40 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 24,000 | \$0.00 | \$0.00 | \$0.00 | \$24,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4828 | 1.3.1.6.3.5 | Motor Computer I/F | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$2,268.00 | \$2,140.20 | \$16,408.20 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4829 | 1.3.1.6.3.5 | Scintillating Crystal | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4830 | 1.3.1.6.3.5 | Prism | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$178.35 | \$1,367.35 |
|  |  | LLNL M\&S Iotal |  | M ${ }_{\text {d }}$ S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4831 | 1.3.1.6.3.5 | Prism mount | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4832 | 1.3.1.6.3.5 | Prism to objective motorized stage | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$24,000.00 | \$0.00 | \$24,000.00 | \$4,536.00 | \$4,280.40 | \$32,816.40 |
|  |  | LLNL M\&S Iotal |  | M\$S | 0 | 24,000 | \$0.00 | \$0.00 | \$0.00 | \$24,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4833 | 1.3.1.6.3.5 | Microscope objective | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4834 | 1.3.1.6.3.5 | Objective to CCD manual stage | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | obs | PHASEM\&S | $\begin{array}{\|c} \text { Risk } \\ \hline 0 \end{array}$ | Units | $\frac{\text { PED (Direct) }}{\$ 0.00}$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct) | Direct Cost \$4,000.00 | Overhead Cost <br> $\$ 0.00$ | Contingency Cost | Total Cost |
|  |  | LLNL M\&S Total |  |  |  |  |  |  | \$0.00 |  |  | \$0.00 | \$0.00 |
| 4835 | 1.3.1.6.3.5 | Microchannel plate |  | M 2 S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$1,426.80 | \$10,938.80 |
|  |  | LLNL M\&S Iotal |  | M ${ }_{\text {W }}$ S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 4836 | 1.3.1.6.3.5 | 120 Hz CCD | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$24,000.00 | \$0.00 | \$24,000.00 | \$4,536.00 | \$7,134.00 | \$35,670.00 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 24,000 | \$0.00 | \$0.00 | \$0.00 | \$24,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4837 | 1.3.1.6.3.5 | TE Cooler | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$2,268.00 | \$2,140.20 | \$16,408.20 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4838 | 1.3.1.6.3.5 | CCD Analog board | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$18,000.00 | \$0.00 | \$18,000.00 | \$3,402.00 | \$5,350.50 | \$26,752.50 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 18,000 | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4839 | 1.3.1.6.3.5 | Camera Digital board | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$18,000.00 | \$0.00 | \$18,000.00 | \$3,402.00 | \$5,350.50 | \$26,752.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 18,000 | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4840 | 1.3.1.6.3.5 | Microchannel plate HV board | LLNL | M 2 S | 4 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$2,268.00 | \$7,134.00 | \$21,402.00 |
|  |  | LLNL M\&S Iotal |  | M ${ }_{\text {d }}$ S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4841 | 1.3.1.6.3.5 | Camera Intertace board | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$18,000.00 | \$0.00 | \$18,000.00 | \$3,402.00 | \$5,350.50 | \$26,752.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 18,000 | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4842 | 1.3.1.6.3.5 | Computer Interface board | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$1,486.25 | \$7,431.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4843 | 1.3.1.6.3.5 | Camera vaccum housing | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$1,701.00 | \$2,675.25 | \$13,376.25 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4844 | 1.3.1.6.3.5 | Cold finger | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4845 | 1.3.1.6.3.5 | Chiller | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL Mes lotal |  | M ${ }^{\text {d }}$ S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4846 | 1.3.1.6.3.5 | Chiller Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4847 | 1.3.1.6.3.5 | Electrical Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$1,701.00 | \$2,675.25 | \$13,376.25 |
|  |  | LLNL M\&S Total |  | MRS | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4848 | 1.3.1.6.3.5 | Feed throughs | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4849 | 1.3.1.6.3.5 | Mechanical Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4850 | 1.3.1.6.3.5 | Scatter plane Base Plate | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$684.00 | \$684.00 | \$670.32 | \$338.58 | \$1,692.90 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$684.00 | \$0.00 | $\$ 0.00$ | $\$ 0.00$ |
| 4851 | 1.3.1.6.3.5 | Be foil mount | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$684.00 | \$684.00 | \$670.32 | \$338.58 | \$1,692.90 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$684.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name Camera Base Plate | OBS | $\frac{\text { PHASE }}{\text { B\&H }}$ | Risk | Units <br> 0.3 wks | PED (Direct)$\$ 0.00$ | $\begin{aligned} & \text { M\&S (Direct) } \\ & \$ 0.00 \end{aligned}$ | $\begin{aligned} & \text { Labor (Direct) } \\ & \$ 684.00 \end{aligned}$ | $\frac{\text { Direct Cost }}{\$ 684.00}$ | Overhead Cost $\$ 670.32$ | Contingency Cost $\$ 338.58$ | Total Cost <br> \$1,692.90 |
| $4852$ | 1.3.1.6.3.5 |  | LLNL |  |  |  |  |  |  |  |  |  |  |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$684.00 | \$0.00 | \$0.00 | \$0.00 |
| 4853 | 1.3.1.6.3.5 | Prism to objective $1 /$ - | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$684.00 | \$684.00 | \$670.32 | \$338.58 | \$1,692.90 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$684.00 | $\$ 0.00$ | \$0.00 | $\$ 0.00$ |
| 4854 | 1.3.1.6.3.5 | Objective to CCD I/F | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$684.00 | \$684.00 | \$670.32 | \$338.58 | \$1,692.90 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$684.00 | \$0.00 | \$0.00 | \$0.00 |
| 4855 | 1.3.1.6.3.5 | Camera housing and Cold finger | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$684.00 | \$684.00 | \$670.32 | \$338.58 | \$1,692.90 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$684.00 | \$0.00 | \$0.00 | \$0.00 |
| 4856 | 1.3.1.6.3.5 | Mechanical assembly | LLNL | B\&H | 2 | 3.6 wks | \$0.00 | \$0.00 | \$7,488.00 | \$7,488.00 | \$7,338.24 | \$3,706.56 | \$18,532.80 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 3.6 wks | \$0.00 | \$0.00 | \$0.00 | \$7,488.00 | \$0.00 | \$0.00 | \$0.00 |
| 4857 | 1.3.1.6.3.5 | Camera Electrical assembly | LLNL | B\&H | 2 | 1.2 wks | \$0.00 | \$0.00 | \$2,496.00 | \$2,496.00 | \$2,446.08 | \$1,235.52 | \$6,177.60 |
|  |  | LLNL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,496.00 | \$0.00 | \$0.00 | \$0.00 |
| 4858 | 1.3.1.6.3.5 | Sottware installation | LLNL | ED\& | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,392.00 | \$1,392.00 | \$1,364.16 | \$689.04 | \$3,445.20 |
|  |  | LLNL Controls: Programmer |  | ED\&I | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,392.00 | \$0.00 | \$0.00 | \$0.00 |
| 4859 | 1.3.1.6.3.5 | Electrical acceptance test | LLNL | ED\& | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,488.00 | \$1,488.00 | \$1,458.24 | \$736.56 | \$3,682.80 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,488.00 | \$0.00 | \$0.00 | \$0.00 |
| 4860 | 1.3.1.6.3.5 | Mechanical acceptance test | LLNL | ED\& | 2 | 1.2 wks | \$0.00 | \$0.00 | \$3,024.00 | \$3,024.00 | \$2,963.52 | \$1,496.88 | \$7,484.40 |
|  |  | LLNL Mechanical Engineer |  | ED\&I | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,024.00 | \$0.00 | \$0.00 | \$0.00 |
| 4861 | 1.3.1.6.3.5 | Alignment and tocus | LLNL | ED\& | 2 | 3.6 wks | \$0.00 | \$0.00 | \$7,776.00 | \$7,776.00 | \$7,620.48 | \$3,849.12 | \$19,245.60 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 3.6 wks | \$0.00 | \$0.00 | \$0.00 | \$7,776.00 | \$0.00 | \$0.00 | \$0.00 |
| 4862 | 1.3.1.6.3.5 | Calibration | LLNL | ED\& | 2 | 3.6 wks | \$0.00 | \$0.00 | \$7,776.00 | \$7,776.00 | \$7,620.48 | \$3,849.12 | \$19,245.60 |
|  |  | LLNL Physicist-Scientist |  | EDRI | 0 | 3.6 wks | \$0.00 | \$0.00 | \$0.00 | \$7,776.00 | \$0.00 | \$0.00 | \$0.00 |
| 4863 | 1.3.1.6.3.5 | System acceptance test | LLNL | ED\& | 2 | 3.6 wks | \$0.00 | \$0.00 | \$7,776.00 | \$7,776.00 | \$7,620.48 | \$3,849.12 | \$19,245.60 |
|  |  | LLNL Physicist-Scientist |  | ED\&I | 0 | 3.6 wks | \$0.00 | \$0.00 | \$0.00 | \$7,776.00 | \$0.00 | \$0.00 | \$0.00 |
| 4864 | 1.3.1.6.4 | Micro Strip Ion Chamber |  |  | 0 | 69.9 wks | \$0.00 | \$930,000.00 | \$149,884.00 | \$1,079,884.00 | \$322,656.32 | \$288,093.68 | \$1,690,634.00 |
| 4865 | 1.3.1.6.4.1 | Reserved | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4866 | 1.3.1.6.4.2 | Reserved | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4867 | 1.3.1.6.4.3 | Data Acquisition | LLNL |  | 0 | 1 wk | \$0.00 | \$36,000.00 | \$2,080.00 | \$38,080.00 | \$8,842.40 | \$12,087.30 | \$59,009.70 |
| 4868 | 1.3.1.6.4.3 | Computer labor | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL PCD:Technician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4869 | 1.3.1.6.4.3 | Computer | LLNL | M2S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$2,378.00 | \$11,890.00 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4870 | 1.3.1.6.4.3 | Monitor | LLNL | M\&S | 3 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$1,248.45 | \$4,815.45 |
|  |  | LLNL M\&S Iotal |  | M d S $^{\text {S }}$ | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4871 | 1.3.1.6.4.3 | Stage controller Channel-Card | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$1,323.00 | \$2,080.75 | \$10,403.75 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 4 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL MES Total |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4872 | 1.3.1.6.4.3 | GPIs Card | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4873 | 1.3.1.6.4.3 | Diagnostic Hardware \& Controller | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$17,000.00 | \$0.00 | \$17,000.00 | \$3,213.00 | \$5,053.25 | \$25,266.25 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 17,000 | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4874 | 1.3.1.6.4.4 | Prototype | LLNL |  | 0 | 17.1 wks | \$0.00 | \$168,000.00 | \$37,548.00 | \$205,548.00 | \$68,549.04 | \$59,131.16 | \$333,228.20 |
| 4875 | 1.3.1.6.4.4 | Chamber | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$40,000.00 | \$0.00 | \$40,000.00 | \$7,560.00 | \$11,890.00 | \$59,450.00 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 40,000 | \$0.00 | \$0.00 | \$0.00 | \$40,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4876 | 1.3.1.6.4.4 | Chamber Stand | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$1,486.25 | \$7,431.25 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4877 | 1.3.1.6.4.4 | System Controller Multiloop controller | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$2,835.00 | \$2,675.25 | \$20,510.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4878 | 1.3.1.6.4.4 | Pressure, hardware Monitor "Sensors" | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,070.10 | \$8,204.10 |
|  |  | LLNL MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4879 | 1.3.1.6.4.4 | Pressure Baratron MKS Head | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$356.70 | \$2,734.70 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4880 | 1.3.1.6.4.4 | Pressure Controller Baratron MKS | LLNL | M 2 S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$891.75 | \$6,836.75 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4881 | 1.3.1.6.4.4 | How Controller 500 sccm HA MKS | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$535.05 | \$4,102.05 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4882 | 1.3.1.6.4.4 | Flow Controller Driver | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$356.70 | \$2,734.70 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4883 | 1.3.1.6.4.4 | Flow Controler Manitold | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,070.10 | \$8,204.10 |
|  |  | LLNL M\&S Iotal |  | M $\downarrow$ S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4884 | 1.3.1.6.4.4 | Plate Holder | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4885 | 1.3.1.6.4.4 | Interface-Mount to Chamber | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$1,486.25 | \$7,431.25 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4886 | 1.3.1.6.4.4 | Chamber teed through | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4887 | 1.3.1.6.4.4 | Ion gage and read out | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4888 | 1.3.1.6.4.4 | Turbo Pump 521 | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$32,000.00 | \$0.00 | \$32,000.00 | \$6,048.00 | \$5,707.20 | \$43,755.20 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 32,000 | \$0.00 | \$0.00 | \$0.00 | \$32,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4889 | 1.3.1.6.4.4 | Gate Valves 4 inch | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$713.40 | \$5,469.40 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units 4,000 | PED (Direct) $\$ 0.00$ | $\begin{gathered} \text { M\&S (Direct) } \\ \$ 0.00 \end{gathered}$ | Labor (Direct)$\qquad$ | $\frac{\text { Direct Cost }}{\$ 4,000.00}$ | Overhead Cost <br> $\$ 0.00$ | Contingency Cost $\$ 0.00$ | $\begin{gathered} \text { Total cost } \\ \$ 0.00 \end{gathered}$ |
|  |  | Task Name LLNL M\&S Total |  | M\&S |  |  |  |  |  |  |  |  |  |
| 4890 | 1.3.1.6.4.4 | Cathode |  | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4891 | 1.3.1.6.4.4 | Anode | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4892 | 1.3.1.6.4.4 | Amp / Disc | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4893 | 1.3.1.6.4.4 | ADC | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$2,268.00 | \$3,567.00 | \$17,835.00 |
|  |  | LLNL M\&S Iotal |  | M ${ }^{\text {d }}$ S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4894 | 1.3.1.6.4.4 | Computer I/F | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$1,323.00 | \$2,080.75 | \$10,403.75 |
|  |  | LLNL MES Total |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4895 | 1.3.1.6.4.4 | HV Supply | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$1,323.00 | \$2,080.75 | \$10,403.75 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4896 | 1.3.1.6.4.4 | Chamber | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$684.00 | \$684.00 | \$670.32 | \$338.58 | \$1,692.90 |
|  |  | LLNL Mech. Fab: Machine Shop |  | BRH | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$684.00 | \$0.00 | \$0.00 | \$0.00 |
| 4897 | 1.3.1.6.4.4 | Chamber Stand | LLNL | B\&H | 2 | 0.3 wks | \$0.00 | \$0.00 | \$684.00 | \$684.00 | \$670.32 | \$338.58 | \$1,692.90 |
|  |  | LLNL Mech. Fab: Machine Shop |  | BRH | 0 | 0.3 wks | \$0.00 | \$0.00 | \$0.00 | \$684.00 | \$0.00 | \$0.00 | \$0.00 |
| 4898 | 1.3.1.6.4.4 | Fixtures | LLNL | B\&H | 2 | 0.9 wks | \$0.00 | \$0.00 | \$2,052.00 | \$2,052.00 | \$2,010.96 | \$1,015.74 | \$5,078.70 |
|  |  | LLNL Mech. Fab: Machine Shop |  | BKH | 0 | 0.9 wks | \$0.00 | \$0.00 | \$0.00 | \$2,052.00 | \$0.00 | \$0.00 | \$0.00 |
| 4899 | 1.3.1.6.4.4 | Turbopumps Labor and Assembly | LLNL | B\&H | 2 | 4.5 wks | \$0.00 | \$0.00 | \$9,360.00 | \$9,360.00 | \$9,172.80 | \$4,633.20 | \$23,166.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 4.5 wks | \$0.00 | \$0.00 | \$0.00 | \$9,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 4900 | 1.3.1.6.4.4 | Chamber Labor and Assembly | LLNL | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$12,480.00 | \$12,480.00 | \$12,230.40 | \$6,177.60 | \$30,888.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$12,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 4901 | 1.3.1.6.4.4 | Focal Plane Labor and Assembly | LLNL | ED\&I | 2 | 3 wks | \$0.00 | \$0.00 | \$7,560.00 | \$7,560.00 | \$7,408.80 | \$3,742.20 | \$18,711.00 |
|  |  | LLNL PCD:Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$7,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 4902 | 1.3.1.6.4.4 | Electrical cceptancs test | LLNL | ED\& | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,488.00 | \$1,488.00 | \$1,458.24 | \$736.56 | \$3,682.80 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,488.00 | \$0.00 | \$0.00 | \$0.00 |
| 4903 | 1.3.1.6.4.4 | Calibration | LLNL | ED\& | 2 | 1.5 wks | \$0.00 | \$0.00 | \$3,240.00 | \$3,240.00 | \$3,175.20 | \$1,603.80 | \$8,019.00 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$3,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 4904 | 1.3.1.6.4.5 | Production Units | LLNL |  | 0 | 51.8 wks | \$0.00 | \$726,000.00 | \$110,256.00 | \$836,256.00 | \$245,264.88 | \$216,875.22 | \$1,298,396.10 |
| 4905 | 1.3.1.6.4.5 | Chamber Venture Baffle | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$44,000.00 | \$0.00 | \$44,000.00 | \$8,316.00 | \$13,079.00 | \$65,395.00 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 44,000 | \$0.00 | \$0.00 | \$0.00 | \$44,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4906 | 1.3.1.6.4.5 | Chamber | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$80,000.00 | \$0.00 | \$80,000.00 | \$15,120.00 | \$23,780.00 | \$118,900.00 |
|  |  | LLNL M\&S Iotal |  | M ${ }^{\text {d }}$ S | 0 | 80,000 | \$0.00 | \$0.00 | \$0.00 | \$80,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4907 | 1.3.1.6.4.5 | Chamber Stand | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |



| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{4925}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) $\$ 0.00$ | $\begin{aligned} & \text { M\&S (Direct) } \\ & \$ 13,000.00 \end{aligned}$ | Labor (Direct) <br> $\$ 0.00$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 13,000.00 \end{aligned}$ | Overhead Cost \$2,457.00 | Contingency Cost \$2,318.55 | $\begin{aligned} & \text { Total Cost } \\ & \hline \$ 17,775.55 \end{aligned}$ |
|  | 1.3.1.6.4.5 | Gate vales $8^{\prime \prime}$ | LLNL | M\&S |  |  |  |  |  |  |  |  |  |
|  |  | LLNL MES Total |  | M2S | 0 | 13,000 | \$0.00 | \$0.00 | \$0.00 | \$13,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4926 | 1.3.1.6.4.5 | Gate vales 4* | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$1,323.00 | \$1,248.45 | \$9,571.45 |
|  |  | LLNL M\&S lotal |  | M 2 S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4927 | 1.3.1.6.4.5 | Dry pumps 35 cfm | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$107,000.00 | \$0.00 | \$107,000.00 | \$20,223.00 | \$19,083.45 | \$146,306.45 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 107,000 | \$0.00 | \$0.00 | \$0.00 | \$107,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4928 | 1.3.1.6.4.5 | Plate holder | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$2,268.00 | \$3,567.00 | \$17,835.00 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4929 | 1.3.1.6.4.5 | Hardware Support Blower | LLNL | M\&S | 1 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$1,783.50 | \$13,673.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4930 | 1.3.1.6.4.5 | Mechanical Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$36,000.00 | \$0.00 | \$36,000.00 | \$6,804.00 | \$10,701.00 | \$53,505.00 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 36,000 | \$0.00 | \$0.00 | \$0.00 | \$36,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4931 | 1.3.1.6.4.5 | Cathode | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | LLNL MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4932 | 1.3.1.6.4.5 | Anode | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$2,268.00 | \$3,567.00 | \$17,835.00 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4933 | 1.3.1.6.4.5 | Amp/ Disc | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL M\&S Iotal |  | M\$S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4934 | 1.3.1.6.4.5 | ADC | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$24,000.00 | \$0.00 | \$24,000.00 | \$4,536.00 | \$7,134.00 | \$35,670.00 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 24,000 | \$0.00 | \$0.00 | \$0.00 | \$24,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4935 | 1.3.1.6.4.5 | Computer I/F | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$14,000.00 | \$0.00 | \$14,000.00 | \$2,646.00 | \$4,161.50 | \$20,807.50 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 14,000 | \$0.00 | \$0.00 | \$0.00 | \$14,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4936 | 1.3.1.6.4.5 | HV Supply | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$14,000.00 | \$0.00 | \$14,000.00 | \$2,646.00 | \$4,161.50 | \$20,807.50 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 14,000 | \$0.00 | \$0.00 | \$0.00 | \$14,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4937 | 1.3.1.6.4.5 | Chamber | LLNL | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$912.00 | \$912.00 | \$893.76 | \$451.44 | \$2,257.20 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$912.00 | \$0.00 | \$0.00 | \$0.00 |
| 4938 | 1.3.1.6.4.5 | Chamber Stand | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$9,120.00 | \$9,120.00 | \$8,937.60 | \$4,514.40 | \$22,572.00 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 4939 | 1.3.1.6.4.5 | Fixtures | LLNL | B\&H | 2 | 1.2 wKs | \$0.00 | \$0.00 | \$2,736.00 | \$2,736.00 | \$2,681.28 | \$1,354.32 | \$6,771.60 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 1.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,736.00 | \$0.00 | \$0.00 | \$0.00 |
| 4940 | 1.3.1.6.4.5 | Maniforl Labor and Assembly | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,320.00 | \$8,320.00 | \$8,153.60 | \$4,118.40 | \$20,592.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4941 | 1.3.1.6.4.5 | Iurbo Pumps Labor and Assembly | LLNL | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$12,480.00 | \$12,480.00 | \$12,230.40 | \$6,177.60 | \$30,888.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$12,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 4942 | 1.3.1.6.4.5 | Dry Pumps Labor and Assembly | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,240.00 | \$6,240.00 | \$6,115.20 | \$3,088.80 | \$15,444.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 4943 | 1.3.1.6.4.5 | Chamber Labor and Assembly | LLNL | B\&H | 2 | 8 wks | \$0.00 | \$0.00 | \$16,640.00 | \$16,640.00 | \$16,307.20 | \$8,236.80 | \$41,184.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$16,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 4944 | 1.3.1.6.4.5 | Venture and Oritice Labor and Assembly | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,320.00 | \$8,320.00 | \$8,153.60 | \$4,118.40 | \$20,592.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4945 | 1.3.1.6.4.5 | Hardware Blower Labor and Assembly | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,320.00 | \$8,320.00 | \$8,153.60 | \$4,118.40 | \$20,592.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4946 | 1.3.1.6.4.5 | Mechanical Hardware Labor and Assembly | LLNL | B\&H | 2 | 8 wks | \$0.00 | \$0.00 | \$16,640.00 | \$16,640.00 | \$16,307.20 | \$8,236.80 | \$41,184.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$16,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 4947 | 1.3.1.6.4.5 | Focal plane electrical assembly | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,320.00 | \$8,320.00 | \$8,153.60 | \$4,118.40 | \$20,592.00 |
|  |  | LLNL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4948 | 1.3.1.6.4.5 | Sottware Load | LLNL | ED\& | 2 | 0.4 wks | \$0.00 | \$0.00 | \$864.00 | \$864.00 | \$846.72 | \$427.68 | \$2,138.40 |
|  |  | LLNL Physicist -Scientist |  | ED\&1 | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$864.00 | \$0.00 | \$0.00 | \$0.00 |
| 4949 | 1.3.1.6.4.5 | Mechanical Acceptance Iest | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$5,040.00 | \$5,040.00 | \$4,939.20 | \$2,494.80 | \$12,474.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 4950 | 1.3.1.6.4.5 | Electrical Acceptance Test | LLNL | ED\& | 2 | 0.8 wks | \$0.00 | \$0.00 | \$1,984.00 | \$1,984.00 | \$1,944.32 | \$982.08 | \$4,910.40 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 0.8 wks | \$0.00 | \$0.00 | \$0.00 | \$1,984.00 | \$0.00 | \$0.00 | \$0.00 |
| 4951 | 1.3.1.6.4.5 | Callibration | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$4,320.00 | \$4,320.00 | \$4,233.60 | \$2,138.40 | \$10,692.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4952 | 1.3.1.6.5 | Gas Mixing System |  |  | 0 | 30.2 wks | \$0.00 | \$150,000.00 | \$66,016.00 | \$216,016.00 | \$93,045.68 | \$77,265.42 | \$386,327.10 |
| 4953 | 1.3.1.6.5.1 | Safety Note | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4954 | 1.3.1.6.5.2 | FDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4955 | 1.3.1.6.5.3 | Procurement | LLNL |  | 0 | 0 wks | \$0.00 | \$150,000.00 | \$0.00 | \$150,000.00 | \$28,350.00 | \$44,587.50 | \$222,937.50 |
| 4956 | 1.3.1.6.5.3 | System Controller | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$1,701.00 | \$2,675.25 | \$13,376.25 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4957 | 1.3.1.6.5.3 | System Controller Panel | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$1,486.25 | \$7,431.25 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4958 | 1.3.1.6.5.3 | Pressure Baratron MKS Head 750B | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$2,378.00 | \$11,890.00 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4959 | 1.3.1.6.5.3 | Pressure Controller Baratron MKS 146 | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$9,000.00 | \$0.00 | \$9,000.00 | \$1,701.00 | \$2,675.25 | \$13,376.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 9,000 | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4960 | 1.3.1.6.5.3 | Flow Controller 5000 sccm 2179 | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$2,378.00 | \$11,890.00 |
|  |  | LLNL MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4961 | 1.3.1.6.5.3 | How Meter 5000 sccm 179 | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$1,486.25 | \$7,431.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cwbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 4962 | 1.3.1.6.5.3 | Flow Controller Driver 246 | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$1,486.25 | \$7,431.25 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4963 | 1.3.1.6.5.3 | How and Pressure Read Out Driver 660 | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$2,378.00 | \$11,890.00 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4964 | 1.3.1.6.5.3 | Driver Card Bay Pneumatic | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4965 | 1.3.1.6.5.3 | Cables | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 4966 | 1.3.1.6.5.3 | Racks and Chases | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$1,486.25 | \$7,431.25 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4967 | 1.3.1.6.5.3 | Regulator Manifold and Bottle Bank | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$17,000.00 | \$0.00 | \$17,000.00 | \$3,213.00 | \$5,053.25 | \$25,266.25 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 17,000 | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4968 | 1.3.1.6.5.3 | Plattorm for bottle rack | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4969 | 1.3.1.6.5.3 | Bottle Heater and Scale | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$2,378.00 | \$11,890.00 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4970 | 1.3.1.6.5.3 | Transfer and Regulator and Flow Control Manifold | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |
|  |  | LLNL MES Iotal |  | M ${ }_{\text {M }}$ S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4971 | 1.3.1.6.5.3 | Manchester lanks | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4972 | 1.3.1.6.5.3 | Plattorm for mixer | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4973 | 1.3.1.6.5.3 | Hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$18,000.00 | \$0.00 | \$18,000.00 | \$3,402.00 | \$5,350.50 | \$26,752.50 |
|  |  | LLNL M\&S Iotal |  | M\$S | 0 | 18,000 | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4974 | 1.3.1.6.5.3 | Hardware Support Blower | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$1,486.25 | \$7,431.25 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4975 | 1.3.1.6.5.3 | EPICS IF | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$17,000.00 | \$0.00 | \$17,000.00 | \$3,213.00 | \$5,053.25 | \$25,266.25 |
|  |  | LLNL MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 17,000 | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4976 | 1.3.1.6.5.4 | Assembly and Test | LLNL |  | 0 | 28 wks | \$0.00 | \$0.00 | \$60,480.00 | \$60,480.00 | \$59,270.40 | \$29,937.60 | \$149,688.00 |
| 4977 | 1.3.1.6.5.4 | System Controller Computer Labor | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,240.00 | \$4,240.00 | \$4,155.20 | \$2,098.80 | \$10,494.00 |
|  |  | LLNL Controls: Technician |  | BRH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 4978 | 1.3.1.6.5.4 | System Controller Computer Programming and intertace | LLNL | ED\&I | 2 | 4 wks | \$0.00 | \$0.00 | \$8,640.00 | \$8,640.00 | \$8,467.20 | \$4,276.80 | \$21,384.00 |
|  |  | LLNL Physicist-Scientist |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 4979 | 1.3.1.6.5.4 | System Controller Assembly | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,240.00 | \$4,240.00 | \$4,155.20 | \$2,098.80 | \$10,494.00 |
|  |  | LLNL Controls: Technician |  | BRH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,240.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 4980 | 1.3.1.6.5.4 | System Controller Panel Assembly | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 4981 | 1.3.1.6.5.4 | EE Wireing | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 4982 | 1.3.1.6.5.4 | Labor and Assembly Bottle Manifold | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,320.00 | \$8,320.00 | \$8,153.60 | \$4,118.40 | \$20,592.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4983 | 1.3.1.6.5.4 | Labor and Assembly Transfer Manifold | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,320.00 | \$8,320.00 | \$8,153.60 | \$4,118.40 | \$20,592.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 4984 | 1.3.1.6.5.4 | Labor and Assembly Hardware | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,240.00 | \$6,240.00 | \$6,115.20 | \$3,088.80 | \$15,444.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,240.00 | \$0.00 | \$0.00 | \$0.00 |
| 4985 | 1.3.1.6.5.4 | Labor and Assembly Hardware Blower | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4986 | 1.3.1.6.5.4 | System Pressure Qualiting | LLNL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$10,080.00 | \$10,080.00 | \$9,878.40 | \$4,989.60 | \$24,948.00 |
|  |  | LLNL AD: Mech/Vacuum Engineer |  | ED\&I | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$10,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 4987 | 1.3.1.6.5.5 | Install and Test | LLNL |  | 0 | 2.2 wks | \$0.00 | \$0.00 | \$5,536.00 | \$5,536.00 | \$5,425.28 | \$2,740.32 | \$13,701.60 |
| 4988 | 1.3.1.6.5.5 | Shipping | LLNL | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$496.00 | \$496.00 | \$486.08 | \$245.52 | \$1,227.60 |
|  |  | LLNL T\&M Cratts - Union Equip. Op. |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$496.00 | \$0.00 | \$0.00 | \$0.00 |
| 4989 | 1.3.1.6.5.5 | Install | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,520.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL I\&M Cratts - Union Pipetitter |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 4990 | 1.3.1.6.5.5 | Final Acceptance Test | LLNL | ED\& | 2 | 1 wk | \$0.00 | \$0.00 | \$2,520.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 4991 | 1.3.1.6.6 | Tank FEE 1 |  |  | 0 | 15.4 wks | \$0.00 | \$264,000.00 | \$33,672.00 | \$297,672.00 | \$82,894.56 | \$95,141.64 | \$475,708.20 |
| 4992 | 1.3.1.6.6.1 | PDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4993 | 1.3.1.6.6.2 | FDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 4994 | 1.3.1.6.6.3 | Procurement | LLNL |  | 0 | 0 wks | \$0.00 | \$264,000.00 | \$0.00 | \$264,000.00 | \$49,896.00 | \$78,474.00 | \$392,370.00 |
| 4995 | 1.3.1.6.6.3 | Tank with 3 doors and lid | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$50,000.00 | \$0.00 | \$50,000.00 | \$9,450.00 | \$14,862.50 | \$74,312.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4996 | 1.3.1.6.6.3 | Turbo System -2101 | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$35,000.00 | \$0.00 | \$35,000.00 | \$6,615.00 | \$10,403.75 | \$52,018.75 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 35,000 | \$0.00 | \$0.00 | \$0.00 | \$35,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4997 | 1.3.1.6.6.3 | Scroll Dry Pump | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4998 | 1.3.1.6.6.3 |  | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$13,000.00 | \$0.00 | \$13,000.00 | \$2,457.00 | \$3,864.25 | \$19,321.25 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 13,000 | \$0.00 | \$0.00 | \$0.00 | \$13,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 4999 | 1.3.1.6.6.3 | Pressure Baratron MKS Head 750B | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{array}{\|c\|} \hline 10 \\ 5000 \end{array}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.1.6.6.3 | Pressure Controller Baratron MKS | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$1,486.25 | \$7,431.25 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5001 | 1.3.1.6.6.3 | Gate valve MDC 8" | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5002 | 1.3.1.6.6.3 | Ion Guage (2) | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5003 | 1.3.1.6.6.3 | Key vacuum map ADP-3500 | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5004 | 1.3.1.6.6.3 | Optical rails (6m@0.5) | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5005 | 1.3.1.6.6.3 | DIImager insertion stage | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$3,780.00 | \$5,945.00 | \$29,725.00 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5006 | 1.3.1.6.6.3 | SF Imager insertion stage | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$3,780.00 | \$5,945.00 | \$29,725.00 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5007 | 1.3.1.6.6.3 | Spare insertion stage | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$3,780.00 | \$5,945.00 | \$29,725.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5008 | 1.3.1.6.6.3 | Plates | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5009 | 1.3.1.6.6.3 | Feeathroughs 21*0.3 | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5010 | 1.3.1.6.6.3 | Cables | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$1,486.25 | \$7,431.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5011 | 1.3.1.6.6.3 | Racks and Chases | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$2,378.00 | \$11,890.00 |
|  |  | LLNL MeS Iotal |  | M ${ }^{\text {d }}$ S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | $\$ 0.00$ | $\$ 0.00$ |
| 5012 | 1.3.1.6.6.3 | Stand | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$17,000.00 | \$0.00 | \$17,000.00 | \$3,213.00 | \$5,053.25 | \$25,266.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 17,000 | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5013 | 1.3.1.6.6.3 | Motor Driver | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$2,835.00 | \$4,458.75 | \$22,293.75 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5014 | 1.3.1.6.6.3 | Motor PCI card | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5015 | 1.3.1.6.6.3 | Computer | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |
|  |  | LLNL M\&S Iotal |  | M ${ }_{\text {d }}$ | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5016 | 1.3.1.6.6.3 | Monitor | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5017 | 1.3.1.6.6.3 | EPICS IF | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$17,000.00 | \$0.00 | \$17,000.00 | \$3,213.00 | \$5,053.25 | \$25,266.25 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | $\begin{aligned} & \text { Labor (Direct) } \\ & \$ 0.00 \end{aligned}$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 17,000.00 \end{aligned}$ | Overhead Cost $\$ 0.00$ | Contingency Cost | $\begin{aligned} & \text { Total cost } \\ & \$ 0.00 \end{aligned}$ |
|  |  | TLNL M\&S Total |  | M\&S | 0 | 17,000 | \$0.00 |  |  |  |  | \$0.00 |  |
| 5018 | 1.3.1.6.6.4 | Assembly and Test | LLNL |  | 0 | 13 wks | \$0.00 | \$0.00 | \$27,640.00 | \$27,640.00 | \$27,087.20 | \$13,681.80 | \$68,409.00 |
| 5019 | 1.3.1.6.6.4 | Assemble vaccum system | LLNL | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$12,480.00 | \$12,480.00 | \$12,230.40 | \$6,177.60 | \$30,888.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$12,480.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5020 | 1.3.1.6.6.4 | Computer Programming and interface | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$4,320.00 | \$4,320.00 | \$4,233.60 | \$2,138.40 | \$10,692.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 5021 | 1.3.1.6.6.4 | Assemble Stand | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 5022 | 1.3.1.6.6.4 | EE Wireing | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 5023 | 1.3.1.6.6.4 | System Vacuum test | LLNL | ED\& | 2 | 1 wk | \$0.00 | \$0.00 | \$2,520.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL AD: Mech/Vacuum Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 5024 | 1.3.1.6.6.5 | Install and Test | LLNL |  | 0 | 2.4 wks | \$0.00 | \$0.00 | \$6,032.00 | \$6,032.00 | \$5,911.36 | \$2,985.84 | \$14,929.20 |
| 5025 | 1.3.1.6.6.5 | Shipping | LLNL | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$992.00 | \$992.00 | \$972.16 | \$491.04 | \$2,455.20 |
|  |  | LLNL T\&M Cratts - Union Equip. Op. |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$992.00 | \$0.00 | \$0.00 | \$0.00 |
| 5026 | 1.3.1.6.6.5 | Install | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,520.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL T\&M Cratts - Union Pipefitter |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 5027 | 1.3.1.6.6.5 | Final Acceptance lest | LLNL | ED\& | 2 | 1 wk | \$0.00 | \$0.00 | \$2,520.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL AD: Mech/Vacuum Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5028 | 1.3.1.6.7 | Ion Pumped Diagnostic Tanks |  |  | 0 | 29.8 wks | \$0.00 | \$314,000.00 | \$65,464.00 | \$379,464.00 | \$123,500.72 | \$119,769.50 | \$622,734.22 |
| 5029 | 1.3.1.6.7.1 | PDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5030 | 1.3.1.6.7.2 | FDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5031 | 1.3.1.6.7.3 | Procurement | LLNL |  | 0 | 0 wks | \$0.00 | \$314,000.00 | \$0.00 | \$314,000.00 | \$59,346.00 | \$93,336.50 | \$466,682.50 |
| 5032 | 1.3.1.6.7.3 | Tank with lid | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$60,000.00 | \$0.00 | \$60,000.00 | \$11,340.00 | \$17,835.00 | \$89,175.00 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 60,000 | \$0.00 | \$0.00 | \$0.00 | \$60,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5033 | 1.3.1.6.7.3 | Ion Pump | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$22,000.00 | \$0.00 | \$22,000.00 | \$4,158.00 | \$6,539.50 | \$32,697.50 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 22,000 | \$0.00 | \$0.00 | \$0.00 | \$22,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5034 | 1.3.1.6.7.3 | Ion pump power supply | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5035 | 1.3.1.6.7.3 | Ion Guage (2) | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$1,323.00 | \$2,080.75 | \$10,403.75 |
|  |  | LLNL M\&S Total |  | MLS | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5036 | 1.3.1.6.7.3 | Convectron guage | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5037 | 1.3.1.6.7.3 | Optical ralls (2m@0.5) | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 5038 | 1.3.1.6.7.3 | DIlmager insertion stage | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$40,000.00 | \$0.00 | \$40,000.00 | \$7,560.00 | \$11,890.00 | \$59,450.00 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 40,000 | \$0.00 | \$0.00 | \$0.00 | \$40,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5039 | 1.3.1.6.7.3 | DIBase plate | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | LLNL M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5040 | 1.3.1.6.7.3 | Scatter Imager insertion stage | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$40,000.00 | \$0.00 | \$40,000.00 | \$7,560.00 | \$11,890.00 | \$59,450.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 40,000 | \$0.00 | \$0.00 | \$0.00 | \$40,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5041 | 1.3.1.6.7.3 | Scatter Imager Base plate | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | LLNL M\&S Iotal |  | M dS $^{\text {S }}$ | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5042 | 1.3.1.6.7.3 | Stage Feeathroughs $8^{* 0.3}$ | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$1,486.25 | \$7,431.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5043 | 1.3.1.6.7.3 | Camera Feedthroughs 2*0.3 | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5044 | 1.3.1.6.7.3 | Racks and Chases | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$2,835.00 | \$4,458.75 | \$22,293.75 |
|  |  | LLNL MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5045 | 1.3.1.6.7.3 | Stand | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$3,780.00 | \$5,945.00 | \$29,725.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5046 | 1.3.1.6.7.3 | Motor Driver | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$26,000.00 | \$0.00 | \$26,000.00 | \$4,914.00 | \$7,728.50 | \$38,642.50 |
|  |  | LLNL M\&S Iotal |  | M\$S | 0 | 26,000 | \$0.00 | \$0.00 | \$0.00 | \$26,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5047 | 1.3.1.6.7.3 | Motor PCI card | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5048 | 1.3.1.6.7.3 | Computer | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$3,780.00 | \$5,945.00 | \$29,725.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5049 | 1.3.1.6.7.3 | Monitor | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$2,378.00 | \$11,890.00 |
|  |  | LLNL MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5050 | 1.3.1.6.7.3 | EPICS IF | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$34,000.00 | \$0.00 | \$34,000.00 | \$6,426.00 | \$10,106.50 | \$50,532.50 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 34,000 | \$0.00 | \$0.00 | \$0.00 | \$34,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5051 | 1.3.1.6.7.4 | Machined parts | LLNL |  | 0 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$2,234.40 | \$1,128.60 | \$5,643.00 |
| 5052 | 1.3.1.6.7.4 | Base Plate | LLNL | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$456.00 | \$456.00 | \$446.88 | \$225.72 | \$1,128.60 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$456.00 | \$0.00 | \$0.00 | \$0.00 |
| 5053 | 1.3.1.6.7.4 | DI Base Plate | LLNL | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$912.00 | \$912.00 | \$893.76 | \$451.44 | \$2,257.20 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$912.00 | \$0.00 | \$0.00 | \$0.00 |
| 5054 | 1.3.1.6.7.4 | SF Base Plate | LLNL | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$912.00 | \$912.00 | \$893.76 | \$451.44 | \$2,257.20 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$912.00 | \$0.00 | \$0.00 | \$0.00 |
| 5055 | 1.3.1.6.7.5 | Assembly and Test | LLNL |  | 0 | 24 wks | \$0.00 | \$0.00 | \$51,120.00 | \$51,120.00 | \$50,097.60 | \$25,304.40 | \$126,522.00 |
| 5056 | 1.3.1.6.7.5 | Assemble vaccum system | LLNL | $\mathrm{B} \& \mathrm{H}$ | 2 | 10 wks | \$0.00 | \$0.00 | \$20,800.00 | \$20,800.00 | \$20,384.00 | \$10,296.00 | \$51,480.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | obs | PHASE | Risk | Units | PED (Direct) | M 4 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$20,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 5057 | 1.3.1.6.7.5 | Computer Programming and interface | LLNL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$8,640.00 | \$8,640.00 | \$8,467.20 | \$4,276.80 | \$21,384.00 |
|  |  | LLNL Physicist -Scientist |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 5058 | 1.3.1.6.7.5 | Assemble Stand | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,320.00 | \$8,320.00 | \$8,153.60 | \$4,118.40 | \$20,592.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 5059 | 1.3.1.6.7.5 | EE Wireing | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,320.00 | \$8,320.00 | \$8,153.60 | \$4,118.40 | \$20,592.00 |
|  |  | LLNL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 5060 | 1.3.1.6.7.5 | System vacuum test | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$5,040.00 | \$5,040.00 | \$4,939.20 | \$2,494.80 | \$12,474.00 |
|  |  | LLNL AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | $\$ 0.00$ | $\$ 0.00$ |
| 5061 | 1.3.1.6.7.6 | Install and Test | LLNL |  | 0 | 4.8 wks | \$0.00 | \$0.00 | \$12,064.00 | \$12,064.00 | \$11,822.72 | \$0.00 | \$23,886.72 |
| 5062 | 1.3.1.6.7.6 | Shipping | LLNL | B\&H | 0 | 0.8 wks | \$0.00 | \$0.00 | \$1,984.00 | \$1,984.00 | \$1,944.32 | \$0.00 | \$3,928.32 |
|  |  | LLNL T\&M Cratts - Union Equip. Op. |  | B\&H | 2 | 0.8 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$1,984.00 | \$0.00 | \$0.00 | \$0.00 |
| 5063 | 1.3.1.6.7.6 | Install | LLNL | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$5,040.00 | \$5,040.00 | \$4,939.20 | \$0.00 | \$9,979.20 |
|  |  | LLNL I\&M Cratts - Union Pipetitter |  | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5064 | 1.3.1.6.7.6 | Final Acceptance Test | LLNL | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$5,040.00 | \$5,040.00 | \$4,939.20 | \$0.00 | \$9,979.20 |
|  |  | LLNL AD: Mech/Vacuum Engineer |  | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,040.00 | \$0.00 | \$0.00 | \$0.00 |
| 5065 | 1.3.1.6.8 | Diagnostic Tank A4 1 |  |  | 0 | 16.1 wks | \$0.00 | \$347,000.00 | \$35,268.00 | \$382,268.00 | \$100,145.64 | \$120,603.41 | \$603,017.05 |
| 5066 | 1.3.1.6.8.1 | PDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5067 | 1.3.1.6.8.2 | FDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5068 | 1.3.1.6.8.3 | Procurement | LLNL |  | 0 | 0 wks | \$0.00 | \$347,000.00 | \$0.00 | \$347,000.00 | \$65,583.00 | \$103,145.75 | \$515,728.75 |
| 5069 | 1.3.1.6.8.3 | Tank with 3 doors and lid | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$50,000.00 | \$0.00 | \$50,000.00 | \$9,450.00 | \$14,862.50 | \$74,312.50 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5070 | 1.3.1.6.8.3 | Observation ports 3@(.65+.2) | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Iotal |  | M M $^{\text {S }}$ | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5071 | 1.3.1.6.8.3 | Turbo System -2101 | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$35,000.00 | \$0.00 | \$35,000.00 | \$6,615.00 | \$10,403.75 | \$52,018.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 35,000 | \$0.00 | \$0.00 | \$0.00 | \$35,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5072 | 1.3.1.6.8.3 | Display Panel-2101 | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL MeS Iotal |  | M ${ }^{\text {d }}$ S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5073 | 1.3.1.6.8.3 | Scroll Dry Pump | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$13,000.00 | \$0.00 | \$13,000.00 | \$2,457.00 | \$3,864.25 | \$19,321.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 13,000 | \$0.00 | \$0.00 | \$0.00 | \$13,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5074 | 1.3.1.6.8.3 | Pressure Baratron MKS Head 750B | LLNL | M2S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5075 | 1.3.1.6.8.3 | Pressure Controller Baratron MKS | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$1,486.25 | \$7,431.25 |
|  |  | LLNL M\&S Iotal |  | M d $^{\text {S }}$ | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5076 | 1.3.1.6.8.3 | Gate Valve MDC 8" | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | obs | PHASE | Risk | Units3,000 | $\frac{\text { PED (Direct) }}{\$ 0.00}$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct) | Direct Cost <br> $\$ 3,000.00$ | Overhead Cost <br> $\$ 0.00$ | Contingency Cost | Total Cost |
|  |  | LLNL M\&S Total | M\&S |  |  |  |  |  | \$0.00 |  |  | \$0.00 | \$0.00 |
| 5077 | 1.3.1.6.8.3 | Ion Guage (2) | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5078 | 1.3.1.6.8.3 | Key vacuum map ADP-3500 | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5079 | 1.3.1.6.8.3 | Optical rails (2m@0.5) | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5080 | 1.3.1.6.8.3 | 2 axis Rail adjustment | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$14,000.00 | \$0.00 | \$14,000.00 | \$2,646.00 | \$4,161.50 | \$20,807.50 |
|  |  | LLNL Mes lotal |  | M ${ }^{\text {d }}$ S | 0 | 14,000 | \$0.00 | \$0.00 | \$0.00 | \$14,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5081 | 1.3.1.6.8.3 | 1 axis Rail adjustment and pivot | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$2,378.00 | \$11,890.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5082 | 1.3.1.6.8.3 | DI Imager insertion stage | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$3,780.00 | \$5,945.00 | \$29,725.00 |
|  |  | LLNL MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5083 | 1.3.1.6.8.3 | Attenuation Stage and carrier | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$2,378.00 | \$11,890.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5084 | 1.3.1.6.8.3 | DI Base plate | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5085 | 1.3.1.6.8.3 | 4 axis Optics Stage + Carrer | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$29,000.00 | \$0.00 | \$29,000.00 | \$5,481.00 | \$8,620.25 | \$43,101.25 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 29,000 | \$0.00 | \$0.00 | \$0.00 | \$29,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 5086 | 1.3.1.6.8.3 | 6 axis Aperture Stage + Carrer | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$43,000.00 | \$0.00 | \$43,000.00 | \$8,127.00 | \$12,781.75 | \$63,908.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 43,000 | \$0.00 | \$0.00 | \$0.00 | \$43,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5087 | 1.3.1.6.8.3 | Base Plates | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL Mes lotal |  | M ${ }^{\text {d }}$ S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5088 | 1.3.1.6.8.3 | Stage Feedthroughs $21 \times 0.3$ | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5089 | 1.3.1.6.8.3 | Camera Feedthrough $5^{*} 0.3$ | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL M\&S Total |  | MRS | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5090 | 1.3.1.6.8.3 | Laser Feeathroughs 4*0.3 | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5091 | 1.3.1.6.8.3 | Racks and Chases | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$2,378.00 | \$11,890.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5092 | 1.3.1.6.8.3 | Stand | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$17,000.00 | \$0.00 | \$17,000.00 | \$3,213.00 | \$5,053.25 | \$25,266.25 |
|  |  | LLNL MES Iotal |  | M\&S | 0 | 17,000 | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5093 | 1.3.1.6.8.3 | Motor Driver | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$35,000.00 | \$0.00 | \$35,000.00 | \$6,615.00 | \$10,403.75 | \$52,018.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 35,000 | \$0.00 | \$0.00 | \$0.00 | \$35,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{array}{\|c\|} \hline \text { ID } \\ \hline 5094 \end{array}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.1.6.8.3 | Motor PCI card | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5095 | 1.3.1.6.8.3 | Computer | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |
|  |  | LLNL M\&S Iotal |  | M ${ }^{\text {d }}$ S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5096 | 1.3.1.6.8.3 | Monitor | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5097 | 1.3.1.6.8.3 | EPICS IF | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$17,000.00 | \$0.00 | \$17,000.00 | \$3,213.00 | \$5,053.25 | \$25,266.25 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 17,000 | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5098 | 1.3.1.6.8.4 | Machined parts | LLNL |  | 0 | 0.7 wks | \$0.00 | \$0.00 | \$1,596.00 | \$1,596.00 | \$1,564.08 | \$790.02 | \$3,950.10 |
| 5099 | 1.3.1.6.8.4 | Base Plate | LLNL | B\&H | 2 | 0.1 wks | \$0.00 | \$0.00 | \$228.00 | \$228.00 | \$223.44 | \$112.86 | \$564.30 |
|  |  | LLNL Mech. Fab: Machine Shop |  | BRH | 2 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$228.00 | \$0.00 | \$0.00 | \$0.00 |
| 5100 | 1.3.1.6.8.4 | Pivot | LLNL | B\&H | 2 | 0.1 wks | \$0.00 | \$0.00 | \$228.00 | \$228.00 | \$223.44 | \$112.86 | \$564.30 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 2 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$228.00 | \$0.00 | \$0.00 | \$0.00 |
| 5101 | 1.3.1.6.8.4 | Rail Alignment | LLNL | B\&H | 2 | 0.1 wks | \$0.00 | \$0.00 | \$228.00 | \$228.00 | \$223.44 | \$112.86 | \$564.30 |
|  |  | LLNL Mech. Fab: Machine Shop |  | BRH | 2 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$228.00 | \$0.00 | \$0.00 | \$0.00 |
| 5102 | 1.3.1.6.8.4 | Aperture Stage | LLNL | B\&H | 2 | 0.1 wks | \$0.00 | \$0.00 | \$228.00 | \$228.00 | \$223.44 | \$112.86 | \$564.30 |
|  |  | LLNL Mech. Fab: Machine Shop |  | BRH | 2 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$228.00 | \$0.00 | \$0.00 | \$0.00 |
| 5103 | 1.3.1.6.8.4 | Optics Stage | LLNL | B\&H | 2 | 0.1 wks | \$0.00 | \$0.00 | \$228.00 | \$228.00 | \$223.44 | \$112.86 | \$564.30 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 2 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$228.00 | \$0.00 | \$0.00 | \$0.00 |
| 5104 | 1.3.1.6.8.4 | DI Base Plate | LLNL | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$456.00 | \$456.00 | \$446.88 | \$225.72 | \$1,128.60 |
|  |  | LLNL Mech. Fab: Machine Shop |  | BRH | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$456.00 | \$0.00 | \$0.00 | \$0.00 |
| 5105 | 1.3.1.6.8.5 | Assembly and Test | LLNL |  | 0 | 13 wks | \$0.00 | \$0.00 | \$27,640.00 | \$27,640.00 | \$27,087.20 | \$13,681.80 | \$68,409.00 |
| 5106 | 1.3.1.6.8.5 | Assemble vaccum system | LLNL | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$12,480.00 | \$12,480.00 | \$12,230.40 | \$6,177.60 | \$30,888.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$12,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 5107 | 1.3.1.6.8.5 | Computer Programming and interface | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$4,320.00 | \$4,320.00 | \$4,233.60 | \$2,138.40 | \$10,692.00 |
|  |  | LLNL Physicist -Scientist |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 5108 | 1.3.1.6.8.5 | Assemble Stand | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 5109 | 1.3.1.6.8.5 | EE Wireing | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 5110 | 1.3.1.6.8.5 | System Vacuum test | LLNL | ED\& | 2 | 1 wk | \$0.00 | \$0.00 | \$2,520.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL AD: Mech/Vacuum Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 5111 | 1.3.1.6.8.6 | Install and Test | LLNL |  | 0 | 2.4 wks | \$0.00 | \$0.00 | \$6,032.00 | \$6,032.00 | \$5,911.36 | \$2,985.84 | \$14,929.20 |
| 5112 | 1.3.1.6.8.6 | Shipping | LLNL | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$992.00 | \$992.00 | \$972.16 | \$491.04 | \$2,455.20 |
|  |  | LLNL T\&M Cratts - Union Equip. Op. |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$992.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{gathered} \text { ID } \\ 5113 \end{gathered}$ | CWBS | Task Name | obs | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.1.6.8.6 | Install | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,520.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL T\&M Crafts - Union Pipefitter |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 5114 | 1.3.1.6.8.6 | Final Acceptance Iest | LLNL | ED\&I | 2 | 1 wk | \$0.00 | \$0.00 | \$2,520.00 | \$2,520.00 | \$2,469.60 | \$1,247.40 | \$6,237.00 |
|  |  | LLNL AD: Mech/Vacuum Engineer |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,520.00 | \$0.00 | \$0.00 | \$0.00 |
| 5115 | 1.3.1.6.9 | Total Energy |  |  | 0 | 38.5 wks | \$0.00 | \$137,000.00 | \$87,208.00 | \$224,208.00 | \$111,356.84 | \$74,741.61 | \$410,306.45 |
| 5176 | 1.3.1.6.9.1 | PDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5117 | 1.3.1.6.9.2 | FDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5118 | 1.3.1.6.9.3 | Data Acquisition | LLNL |  | 0 | 1 wk | \$0.00 | \$39,000.00 | \$2,080.00 | \$41,080.00 | \$9,409.40 | \$12,622.35 | \$63,111.75 |
| 5119 | 1.3.1.6.9.3 | Computer labor | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL PCD:Technician |  | BRH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 5120 | 1.3.1.6.9.3 | Computer | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5121 | 1.3.1.6.9.3 | Monitor | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5122 | 1.3.1.6.9.3 | Stage controller Channel-Card | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$1,323.00 | \$2,080.75 | \$10,403.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5123 | 1.3.1.6.9.3 | GPIs Card | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5124 | 1.3.1.6.9.3 | Diagnostic Hardware \& Controller | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$17,000.00 | \$0.00 | \$17,000.00 | \$3,213.00 | \$5,053.25 | \$25,266.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 17,000 | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5125 | 1.3.1.6.9.4 | Production unit | LLNL |  | 0 | 37.5 wks | \$0.00 | \$98,000.00 | \$85,128.00 | \$183,128.00 | \$101,947.44 | \$62,119.26 | \$347,194.70 |
| 5126 | 1.3.1.6.9.4 | Thermal Semiconductor purchace | LLNL | M 2 S | 0 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$1,512.00 | \$0.00 | \$9,512.00 |
|  |  | LLNL Mes lotal |  | M ${ }^{\text {d }}$ S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5127 | 1.3.1.6.9.4 | Machining tor transter measurements | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$5,600.00 | \$5,600.00 | \$5,488.00 | \$2,772.00 | \$13,860.00 |
|  |  | LLNL Project Management |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5128 | 1.3.1.6.9.4 | Transfer measurements | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$4,320.00 | \$4,320.00 | \$4,233.60 | \$2,138.40 | \$10,692.00 |
|  |  | LLNL Physicist-Scientist |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 5129 | 1.3.1.6.9.4 | Sensor head tabrication | LLNL | ED\&I | 2 | 2 wks | \$0.00 | \$0.00 | \$4,960.00 | \$4,960.00 | \$4,860.80 | \$2,455.20 | \$12,276.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,960.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 5130 | 1.3.1.6.9.4 | Sensor head machining | LLNL | ED\& | 2 | 1 wk | \$0.00 | \$0.00 | \$2,800.00 | \$2,800.00 | \$2,744.00 | \$1,386.00 | \$6,930.00 |
|  |  | LLNL Project Management |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 5131 | 1.3.1.6.9.4 | Cold Head tabrication | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,840.00 | \$6,840.00 | \$6,703.20 | \$3,385.80 | \$16,929.00 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,840.00 | \$0.00 | \$0.00 | \$0.00 |
| 5132 | 1.3.1.6.9.4 | Cold Head material | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$1,486.25 | \$7,431.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 5133 | 1.3.1.6.9.4 | Cold Head mount fabrication | LLNL | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$6,840.00 | \$6,840.00 | \$6,703.20 | \$0.00 | \$13,543.20 |
|  |  | LLNL Mech. Fab: Machine Shop |  | BRH | 2 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,840.00 | \$0.00 | \$0.00 | \$0.00 |
| 5134 | 1.3.1.6.9.4 | Cold Head mount material | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5135 | 1.3.1.6.9.4 | Black body materials | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5136 | 1.3.1.6.9.4 | Black body fabrication | LLNL | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$6,840.00 | \$6,840.00 | \$6,703.20 | \$0.00 | \$13,543.20 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,840.00 | \$0.00 | \$0.00 | \$0.00 |
| 5137 | 1.3.1.6.9.4 | Water Absorber Purchace | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$35,000.00 | \$0.00 | \$35,000.00 | \$6,615.00 | \$10,403.75 | \$52,018.75 |
|  |  | LLNL M\&S Total |  | M ${ }_{\text {d }}$ S | 0 | 35,000 | \$0.00 | \$0.00 | \$0.00 | \$35,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5138 | 1.3.1.6.9.4 | Water Absorber Fabrication | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$4,468.80 | \$2,257.20 | \$11,286.00 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 5139 | 1.3.1.6.9.4 | Front End Electronics Purchace | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5140 | 1.3.1.6.9.4 | Front End Electronics fab | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL PCD:Inst-Cabling-Elec Fab |  | BRH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 5141 | 1.3.1.6.9.4 | Signal Processing Electronics Purchace | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |
|  |  | LLNL MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5142 | 1.3.1.6.9.4 | Signal Processing Electronics tab | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 5143 | 1.3.1.6.9.4 | Computer Interface Electronics Purchace | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5144 | 1.3.1.6.9.4 | Computer Interrace Electronics tab | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,160.00 | \$4,160.00 | \$4,076.80 | \$2,059.20 | \$10,296.00 |
|  |  | LLNL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 5145 | 1.3.1.6.9.4 | Temperature Standard | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$2,268.00 | \$3,567.00 | \$17,835.00 |
|  |  | LLNL M\&S Total |  | M 4 S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5146 | 1.3.1.6.9.4 | Temperature Standard Electronics | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL MES Iotal |  | M 2 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5147 | 1.3.1.6.9.4 | Electrical assembly | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,320.00 | \$8,320.00 | \$8,153.60 | \$4,118.40 | \$20,592.00 |
|  |  | LLNL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 5148 | 1.3.1.6.9.4 | Mechanical assembly | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$8,320.00 | \$8,320.00 | \$8,153.60 | \$4,118.40 | \$20,592.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 5149 | 1.3.1.6.9.4 | Sottware installation | LLNL | ED\&1 | 2 | 0.1 wks | \$0.00 | \$0.00 | \$232.00 | \$232.00 | \$227.36 | \$114.84 | \$574.20 |
|  |  | LLNL Controls: Programmer |  | ED\&1 | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$232.00 | \$0.00 | \$0.00 | \$0.00 |
| 5150 | 1.3.1.6.9.4 | Electrical acceptance test | LLNL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$9,920.00 | \$9,920.00 | \$9,721.60 | \$4,910.40 | \$24,552.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units <br> 4 wks | PED (Direct)$\$ 0.00$ | $\begin{gathered} \text { M\&S (Direct) } \\ \$ 0.00 \end{gathered}$ | Labor (Direct) <br> $\$ 0.00$ | Direct Cost \$9,920.00 | Overhead Cost $\$ 0.00$ | Contingency Cost $\$ 0.00$ | Total Cost <br> $\$ 0.00$ |
|  |  | TLNL Electrical Engineer |  |  |  |  |  |  |  |  |  |  |  |
| 5151 | 1.3.1.6.9.4 | Mechanical acceptance test | LLNL | ED\& | 2 | 0.2 wks | \$0.00 | \$0.00 | \$504.00 | \$504.00 | \$493.92 | \$249.48 | \$1,247.40 |
|  |  | LLNL Mechanical Engineer |  | EDQ1 | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$504.00 | \$0.00 | \$0.00 | \$0.00 |
| 5152 | 1.3.1.6.9.4 | Calibration | LLNL | ED\&: | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,296.00 | \$1,296.00 | \$1,270.08 | \$641.52 | \$3,207.60 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,296.00 | \$0.00 | \$0.00 | \$0.00 |
| 5153 | 1.3.1.6.9.4 | System acceptance test | LLNL | ED\& | 2 | 0.6 wks | \$0.00 | \$0.00 | \$1,296.00 | \$1,296.00 | \$1,270.08 | \$641.52 | \$3,207.60 |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 0.6 wks | \$0.00 | \$0.00 | \$0.00 | \$1,296.00 | \$0.00 | \$0.00 | \$0.00 |
| 5154 | 1.3.1.6.10 | Pulse Length |  |  | 0 | 90 wks | \$0.00 | \$469,000.00 | \$201,960.00 | \$670,960.00 | \$286,561.80 | \$235,813.45 | \$1,193,335.25 |
| 5155 | 1.3.1.6.10.1 | PDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5156 | 1.3.1.6.10.2 | FDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5157 | 1.3.1.6.10.3 | Detector Fab | LLNL |  | 0 | 20 wks | \$0.00 | \$11,000.00 | \$44,640.00 | \$55,640.00 | \$45,826.20 | \$25,366.55 | \$126,832.75 |
| 5158 | 1.3.1.6.10.3 | Crystal Groth | LLNL | $\mathrm{B} \& \mathrm{H}$ | 2 | 4 wks | \$0.00 | \$0.00 | \$9,120.00 | \$9,120.00 | \$8,937.60 | \$4,514.40 | \$22,572.00 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 5159 | 1.3.1.6.10.3 | Crystal Groth | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5160 | 1.3.1.6.10.3 | Crystal Groth Supplies | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5161 | 1.3.1.6.10.3 | Lithography, processing | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$9,120.00 | \$9,120.00 | \$8,937.60 | \$4,514.40 | \$22,572.00 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | B\& H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,120.00 | $\$ 0.00$ | \$0.00 | $\$ 0.00$ |
| 5162 | 1.3.1.6.10.3 | Dicing, packaging, pigtailing | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$9,120.00 | \$9,120.00 | \$8,937.60 | \$4,514.40 | \$22,572.00 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | BRH | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 5163 | 1.3.1.6.10.3 | Testing | LLNL | ED\& | 2 | 8 wks | \$0.00 | \$0.00 | \$17,280.00 | \$17,280.00 | \$16,934.40 | \$8,553.60 | \$42,768.00 |
|  |  | LLNL Physicist -Scientist |  | ED\&I | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$17,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5164 | 1.3.1.6.10.3 | lesting hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$1,486.25 | \$7,431.25 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5165 | 1.3.1.6.10.4 | Input Dispersion System | LLNL |  | 0 | 6 wks | \$0.00 | \$18,000.00 | \$13,320.00 | \$31,320.00 | \$16,455.60 | \$11,943.90 | \$59,719.50 |
| 5166 | 1.3.1.6.10.4 | Dispersive Module ( $-170 \mathrm{ps} / \mathrm{nm}$ ) | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$594.50 | \$2,972.50 |
|  |  | LLNL MXS Iotal |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5167 | 1.3.1.6.10.4 | Fiber Bragg Grating Dispersion Module | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5168 | 1.3.1.6.10.4 | Optical Circulator | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S lotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | $\$ 0.00$ | \$0.00 | $\$ 0.00$ |
| 5169 | 1.3.1.6.10.4 | Fiber polariation controller (automatic) | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5170 | 1.3.1.6.10.4 | Assembly | LLNL | ED\& | 2 | 1 wk | \$0.00 | \$0.00 | \$2,160.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | LLNL Physicist-Scientist |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 5171 | 1.3.1.6.10.4 | Assembly Labor | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$4,468.80 | \$2,257.20 | \$11,286.00 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 5172 | 1.3.1.6.10.4 | lest | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$4,320.00 | \$4,320.00 | \$4,233.60 | \$2,138.40 | \$10,692.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 5173 | 1.3.1.6.10.4 | Test Labor | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$2,234.40 | \$1,128.60 | \$5,643.00 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5174 | 1.3.1.6.10.5 | Time Lens Pump Source | LLNL |  | 0 | 10 wks | \$0.00 | \$179,000.00 | \$22,200.00 | \$201,200.00 | \$55,587.00 | \$64,196.75 | \$320,983.75 |
| 5175 | 1.3.1.6.10.5 | Ultratast tiber laser | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$85,000.00 | \$0.00 | \$85,000.00 | \$16,065.00 | \$25,266.25 | \$126,331.25 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 85,000 | \$0.00 | \$0.00 | \$0.00 | \$85,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5176 | 1.3.1.6.10.5 | Amplifier \& Pulse Compressor Unit | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$25,000.00 | \$0.00 | \$25,000.00 | \$4,725.00 | \$7,431.25 | \$37,156.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 25,000 | \$0.00 | \$0.00 | \$0.00 | \$25,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5177 | 1.3.1.6.10.5 | Amplitude Modulator | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5178 | 1.3.1.6.10.5 | Modulator Driver | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5179 | 1.3.1.6.10.5 | RF frequency synthesizer | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$45,000.00 | \$0.00 | \$45,000.00 | \$8,505.00 | \$13,376.25 | \$66,881.25 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 45,000 | \$0.00 | \$0.00 | \$0.00 | \$45,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5180 | 1.3.1.6.10.5 | RF Phase Snitter or optical delay line | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5181 | 1.3.1.6.10.5 | 10 km Single mode fiber at 1550 nm (ie SMF28) | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5182 | 1.3.1.6.10.5 | Fiber polariation controller (automatic) | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |
|  |  | LLNL M\&S Iotal |  | M ${ }_{\text {d }}$ S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5183 | 1.3.1.6.10.5 | Assembly | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$4,320.00 | \$4,320.00 | \$4,233.60 | \$2,138.40 | \$10,692.00 |
|  |  | LLNL Physicist -Scientist |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 5184 | 1.3.1.6.10.5 | Assembly Labor | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,840.00 | \$6,840.00 | \$6,703.20 | \$3,385.80 | \$16,929.00 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,840.00 | \$0.00 | \$0.00 | \$0.00 |
| 5185 | 1.3.1.6.10.5 | lest | LLNL | ED\& | 2 | 3 wks | \$0.00 | \$0.00 | \$6,480.00 | \$6,480.00 | \$6,350.40 | \$3,207.60 | \$16,038.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 5186 | 1.3.1.6.10.5 | Test Labor | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$4,468.80 | \$2,257.20 | \$11,286.00 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | BKH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 5187 | 1.3.1.6.10.6 | Time Lens Mixer | LLNL |  | 0 | 12 wks | \$0.00 | \$54,000.00 | \$26,640.00 | \$80,640.00 | \$36,313.20 | \$29,238.30 | \$146,191.50 |
| 5188 | 1.3.1.6.10.6 | Power EDFA (\$46K short pulse certitied, 33k not) | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$46,000.00 | \$0.00 | \$46,000.00 | \$8,694.00 | \$13,673.50 | \$68,367.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 46,000 | \$0.00 | \$0.00 | \$0.00 | \$46,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{5189}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.1.6.10.6 | PPLN crystal(s) | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5190 | 1.3.1.6.10.6 | oven and temp controller | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5191 | 1.3.1.6.10.6 | collimating/fiber coupling lens | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5192 | 1.3.1.6.10.6 | small positioning stages | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5193 | 1.3.1.6.10.6 | FC bulkhead connectors | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5194 | 1.3.1.6.10.6 | package | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5195 | 1.3.1.6.10.6 | Assembly | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$4,320.00 | \$4,320.00 | \$4,233.60 | \$2,138.40 | \$10,692.00 |
|  |  | LLNL Physicist-Scientist |  | ED\&I | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 5196 | 1.3.1.6.10.6 | Assembly Labor | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$9,120.00 | \$9,120.00 | \$8,937.60 | \$4,514.40 | \$22,572.00 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 5197 | 1.3.1.6.10.6 | Test | LLNL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$8,640.00 | \$8,640.00 | \$8,467.20 | \$4,276.80 | \$21,384.00 |
|  |  | LLNL Physicist-Scientist |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 5198 | 1.3.1.6.10.6 | Iest Labor | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$4,468.80 | \$2,257.20 | \$11,286.00 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | BRH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 5199 | 1.3.1.6.10.7 | Output Dispersion System | LLNL |  | 0 | 6 wks | \$0.00 | \$16,000.00 | \$13,320.00 | \$29,320.00 | \$16,077.60 | \$11,349.40 | \$56,747.00 |
| 5200 | 1.3.1.6.10.7 | Fiber Bragg Grating Dispersive Module | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL MXS Iotal |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5201 | 1.3.1.6.10.7 | Optical Circulator | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$567.00 | \$891.75 | \$4,458.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5202 | 1.3.1.6.10.7 | Single mode fiber at 775 nm | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL M\&S Total |  | MRS | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5203 | 1.3.1.6.10.7 | tast 2x2 switch | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5204 | 1.3.1.6.10.7 | Assembly | LLNL | ED\& | 2 | 1 wk | \$0.00 | \$0.00 | \$2,160.00 | \$2,160.00 | \$2,116.80 | \$1,069.20 | \$5,346.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 5205 | 1.3.1.6.10.7 | Assembly Labor | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$4,468.80 | \$2,257.20 | \$11,286.00 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 5206 | 1.3.1.6.10.7 | Iest | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$4,320.00 | \$4,320.00 | \$4,233.60 | \$2,138.40 | \$10,692.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,320.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{aligned} & \text { ID } \\ & 5207 \end{aligned}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.1.6.10.7 | Test Labor | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$2,234.40 | \$1,128.60 | \$5,643.00 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5208 | 1.3.1.6.10.8 | Data Recording | LLNL |  | 0 | 8 wks | \$0.00 | \$152,000.00 | \$17,520.00 | \$169,520.00 | \$45,897.60 | \$50,287.40 | \$265,705.00 |
| 5209 | 1.3.1.6.10.8 | Visible Streak Camera | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$65,000.00 | \$0.00 | \$65,000.00 | \$12,285.00 | \$19,321.25 | \$96,606.25 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 65,000 | \$0.00 | \$0.00 | \$0.00 | \$65,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5210 | 1.3.1.6.10.8 | Xray Streak Camera | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$65,000.00 | \$0.00 | \$65,000.00 | \$12,285.00 | \$19,321.25 | \$96,606.25 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 65,000 | \$0.00 | \$0.00 | \$0.00 | \$65,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5211 | 1.3.1.6.10.8 | Data Acquisition Sottware | LLNL | ED\& | 2 | 6 wks | \$0.00 | \$0.00 | \$12,960.00 | \$12,960.00 | \$12,700.80 | \$6,415.20 | \$32,076.00 |
|  |  | LLNL Physicist-Scientist |  | ED\&I | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$12,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 5212 | 1.3.1.6.10.8 | Computer | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5213 | 1.3.1.6.10.8 | Monitor | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL M\&S Iotal |  | M M S $^{\text {S }}$ | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5214 | 1.3.1.6.10.8 | Subsystem Integraton | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$4,468.80 | \$2,257.20 | \$11,286.00 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 5215 | 1.3.1.6.10.8 | Subsystem Integraton Hardware | LLNL | M\&S | 0 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$2,268.00 | \$0.00 | \$14,268.00 |
|  |  | LLNL M\&S Total |  | M2S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5216 | 1.3.1.6.10.9 | Rad Sensor Laser and Assembly | LLNL |  | 0 | 28 wks | \$0.00 | \$39,000.00 | \$64,320.00 | \$103,320.00 | \$70,404.60 | \$43,431.15 | \$217,155.75 |
| 5217 | 1.3.1.6.10.9 | CW laser source procurement | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$3,780.00 | \$5,945.00 | \$29,725.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5218 | 1.3.1.6.10.9 | Subsystem Integraton | LLNL | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$4,468.80 | \$2,257.20 | \$11,286.00 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | \$0.00 |
| 5219 | 1.3.1.6.10.9 | Subsystem Integraton Hardware | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$2,268.00 | \$3,567.00 | \$17,835.00 |
|  |  | LLNL MeS Iotal |  | M ${ }^{\text {d }}$ S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5220 | 1.3.1.6.10.9 | Basic functional verification assembly | LLNL | ED\& | 2 | 5 wks | \$0.00 | \$0.00 | \$12,600.00 | \$12,600.00 | \$12,348.00 | \$6,237.00 | \$31,185.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$12,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5221 | 1.3.1.6.10.9 | Basic functional verification tests | LLNL | ED\& | 2 | 8 wks | \$0.00 | \$0.00 | \$17,280.00 | \$17,280.00 | \$16,934.40 | \$8,553.60 | \$42,768.00 |
|  |  | LLNL Physicist-Scientist |  | ED\&I | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$17,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5222 | 1.3.1.6.10.9 | Xray calibration assembly | LLNL | ED\& | 2 | 5 wks | \$0.00 | \$0.00 | \$12,600.00 | \$12,600.00 | \$12,348.00 | \$6,237.00 | \$31,185.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$12,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5223 | 1.3.1.6.10.9 | Xray calibration | LLNL | ED\& | 2 | 8 wks | \$0.00 | \$0.00 | \$17,280.00 | \$17,280.00 | \$16,934.40 | \$8,553.60 | \$42,768.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$17,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5224 | 1.3.1.6.10.9 | Xray calibration travel | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$1,323.00 | \$2,080.75 | \$10,403.75 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5225 | 1.3.1.6.11 | Spectrometer |  |  | 0 | 21 wks | \$0.00 | \$233,000.00 | \$46,120.00 | \$279,120.00 | \$89,234.60 | \$81,349.05 | \$449,703.65 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 5226 | 1.3.1.6.11.1 | PDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5227 | 1.3.1.6.11.2 | FDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5228 | 1.3.1.6.11.3 | Data Acquisition | LLNL |  | 0 | 1 wk | \$0.00 | \$39,000.00 | \$2,080.00 | \$41,080.00 | \$9,409.40 | \$12,622.35 | \$63,111.75 |
| 5229 | 1.3.1.6.11.3 | Computer labor | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL PCD:Technician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 5230 | 1.3.1.6.11.3 | Computer | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$1,890.00 | \$2,972.50 | \$14,862.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5231 | 1.3.1.6.11.3 | Monitor | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL M\&S Iotal |  | M ${ }^{\text {d }}$ S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5232 | 1.3.1.6.11.3 | Stage controller Channel-Card | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$1,323.00 | \$2,080.75 | \$10,403.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5233 | 1.3.1.6.11.3 | GPIs Card | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5234 | 1.3.1.6.11.3 | Diagnostic Hardware \& Controller | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$17,000.00 | \$0.00 | \$17,000.00 | \$3,213.00 | \$5,053.25 | \$25,266.25 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 17,000 | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5235 | 1.3.1.6.11.4 | Grating / Crystal | LLNL |  | 0 | 3 wks | \$0.00 | \$68,000.00 | \$6,840.00 | \$74,840.00 | \$19,555.20 | \$14,681.30 | \$109,076.50 |
| 5236 | 1.3.1.6.11.4 | Purchace Crystal | LLNL | M 2 S | 0 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$5,670.00 | \$0.00 | \$35,670.00 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5237 | 1.3.1.6.11.4 | Crystal mount tab | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$2,234.40 | \$1,128.60 | \$5,643.00 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5238 | 1.3.1.6.11.4 | Crystal mount purchace | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5239 | 1.3.1.6.11.4 | Purchace Grating | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$5,670.00 | \$8,917.50 | \$44,587.50 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5240 | 1.3.1.6.11.4 | Grating Mount Fab | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$2,234.40 | \$1,128.60 | \$5,643.00 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5241 | 1.3.1.6.11.4 | Grating Mount Purchace | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5242 | 1.3.1.6.11.4 | Alignment mirror Purchace | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$1,486.25 | \$7,431.25 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5243 | 1.3.1.6.11.4 | Alignment mirror mount fab | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$2,234.40 | \$1,128.60 | \$5,643.00 |
|  |  | LLNL Mech. Fab: Machine Shop |  | BKH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5244 | 1.3.1.6.11.4 | Alignment mirror mount Purchace | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Iotal |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5245 | 1.3.1.6.11.5 | Low Energy Linear camera | LLNL |  | 0 | 8 wks | \$0.00 | \$52,000.00 | \$17,360.00 | \$69,360.00 | \$26,840.80 | \$24,050.20 | \$120,251.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| $5246$ | 1.3.1.6.11.5 | Purchace Linear Array | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$3,780.00 | \$5,945.00 | \$29,725.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5247 | 1.3.1.6.11.5 | Purchace Sensor board | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL M\&S lotal |  | M ${ }^{\text {S }}$ | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5248 | 1.3.1.6.11.5 | Purchace Analog board | LLNL | M2S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5249 | 1.3.1.6.11.5 | Purchace Digital board | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5250 | 1.3.1.6.11.5 | Purchace It Cooler | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5251 | 1.3.1.6.11.5 | Purchace Cold Finger | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5252 | 1.3.1.6.11.5 | Fabricate Cold Finger | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$2,234.40 | \$1,128.60 | \$5,643.00 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5253 | 1.3.1.6.11.5 | Purchace Chiller | LLNL | M2S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$945.00 | \$1,486.25 | \$7,431.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5254 | 1.3.1.6.11.5 | Purchace Housing | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5255 | 1.3.1.6.11.5 | Fabricate Housing | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$2,234.40 | \$1,128.60 | \$5,643.00 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5256 | 1.3.1.6.11.5 | Electronic Assembly | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 5257 | 1.3.1.6.11.5 | Mechanical Assembly | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech. Fab: Assembly lech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 5258 | 1.3.1.6.11.5 | Calibration | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$4,320.00 | \$4,320.00 | \$4,233.60 | \$2,138.40 | \$10,692.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& 1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 5259 | 1.3.1.6.11.5 | Acceptance Test | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$4,320.00 | \$4,320.00 | \$4,233.60 | \$2,138.40 | \$10,692.00 |
|  |  | LLNL Physicist-Scientist |  | ED\&I | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 5260 | 1.3.1.6.11.6 | Rails and Stages | LLNL |  | 0 | 0 wks | \$0.00 | \$25,000.00 | \$0.00 | \$25,000.00 | \$4,725.00 | \$7,431.25 | \$37,156.25 |
| 5261 | 1.3.1.6.11.6 | Rail | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5262 | 1.3.1.6.11.6 | Linear Array Stage 3 axis | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$23,000.00 | \$0.00 | \$23,000.00 | \$4,347.00 | \$6,836.75 | \$34,183.75 |
|  |  | LLNL M\&S lotal |  | M 2 S | 0 | 23,000 | \$0.00 | \$0.00 | \$0.00 | \$23,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5263 | 1.3.1.6.11.6 | Cabels | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cwbs | Task Name | obs | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 5264 | 1.3.1.6.11.7 | High Energy Linear camera | LLNL |  | 0 | 9 wks | \$0.00 | \$49,000.00 | \$19,840.00 | \$68,840.00 | \$28,704.20 | \$22,563.95 | \$120,108.15 |
| 5265 | 1.3.1.6.11.7 | Purchace Scintillator Crystal | LLNL | M 2 S | 0 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$378.00 | \$0.00 | \$2,378.00 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5266 | 1.3.1.6.11.7 | Mount Crystal Scintillator | LLNL | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$2,480.00 | \$2,480.00 | \$2,430.40 | \$0.00 | \$4,910.40 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 5267 | 1.3.1.6.11.7 | Purchace Linear Array | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$3,780.00 | \$5,945.00 | \$29,725.00 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5268 | 1.3.1.6.11.7 | Purchace Sensor board | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL Mes lotal |  | M ${ }^{\text {d }}$ S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5269 | 1.3.1.6.11.7 | Purchace Analog board | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5270 | 1.3.1.6.11.7 | Purchace Digital board | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$1,134.00 | \$1,783.50 | \$8,917.50 |
|  |  | LLNL MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5271 | 1.3.1.6.11.7 | Purchace IE Cooler | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL M\&S Total |  | M 2 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5272 | 1.3.1.6.11.7 | Purchace Cold Finger | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5273 | 1.3.1.6.11.7 | Fabricate Cold Finger | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$2,234.40 | \$1,128.60 | \$5,643.00 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5274 | 1.3.1.6.11.7 | Purchace Housing | LLNL | M 2 S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$756.00 | \$1,189.00 | \$5,945.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5275 | 1.3.1.6.11.7 | Fabricate Housing | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$2,234.40 | \$1,128.60 | \$5,643.00 |
|  |  | LLNL Mech. Fab: Machine Shop |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5276 | 1.3.1.6.11.7 | Electronic Assembly | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL PCD:Inst-Cabling-Elec Fab |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 5277 | 1.3.1.6.11.7 | Mechanical Assembly | LLNL | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,080.00 | \$2,080.00 | \$2,038.40 | \$1,029.60 | \$5,148.00 |
|  |  | LLNL Mech. Fab: Assembly Tech |  | BRH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 5278 | 1.3.1.6.11.7 | Calibration | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$4,320.00 | \$4,320.00 | \$4,233.60 | \$2,138.40 | \$10,692.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | $2 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$4,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 5279 | 1.3.1.6.11.7 | Acceptance Test | LLNL | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$4,320.00 | \$4,320.00 | \$4,233.60 | \$2,138.40 | \$10,692.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 5280 | 1.3.1.6.12 | Spatial Coherence | LLNL |  | 0 | 52 wks | \$0.00 | \$50,000.00 | \$128,040.00 | \$178,040.00 | \$134,929.20 | \$78,242.30 | \$391,211.50 |
| 5281 | 1.3.1.6.12.1 | PDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5282 | 1.3.1.6.12.2 | FDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5283 | 1.3.1.6.12.3 | Low Energy Slits | LLNL |  | 0 | 33 wks | \$0.00 | \$35,000.00 | \$81,840.00 | \$116,840.00 | \$86,818.20 | \$50,914.55 | \$254,572.75 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 5284 | 1.3.1.6.12.3 | Fabrate Masks | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$2,268.00 | \$3,567.00 | \$17,835.00 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5285 | 1.3.1.6.12.3 | Etch | LLNL | ED\& | 2 | 12 wks | \$0.00 | \$0.00 | \$29,760.00 | \$29,760.00 | \$29,164.80 | \$14,731.20 | \$73,656.00 |
|  |  | LLNL Electrical Engineer |  | ED\&1 | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$29,760.00 | \$0.00 | \$0.00 | \$0.00 |
| 5286 | 1.3.1.6.12.3 | Dice | LLNL | ED\& | 2 | 12 wks | \$0.00 | \$0.00 | \$29,760.00 | \$29,760.00 | \$29,164.80 | \$14,731.20 | \$73,656.00 |
|  |  | LLNL Electrical Engineer |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$29,760.00 | \$0.00 | \$0.00 | \$0.00 |
| 5287 | 1.3.1.6.12.3 | Mount | LLNL | ED\& | 2 | 9 wks | \$0.00 | \$0.00 | \$22,320.00 | \$22,320.00 | \$21,873.60 | \$11,048.40 | \$55,242.00 |
|  |  | LLNL Electrical Engineer |  | EDQ1 | 0 | 9 wks | \$0.00 | \$0.00 | \$0.00 | \$22,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 5288 | 1.3.1.6.12.3 | Materials | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$23,000.00 | \$0.00 | \$23,000.00 | \$4,347.00 | \$6,836.75 | \$34,183.75 |
|  |  | LLNL M\&S Total |  | M\&S | 0 | 23,000 | \$0.00 | \$0.00 | \$0.00 | \$23,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5289 | 1.3.1.6.12.4 | High Energy Slit System | LLNL |  | 0 | 19 wks | \$0.00 | \$15,000.00 | \$46,200.00 | \$61,200.00 | \$48,111.00 | \$27,327.75 | \$136,638.75 |
| 5290 | 1.3.1.6.12.4 | Materials | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$14,000.00 | \$0.00 | \$14,000.00 | \$2,646.00 | \$4,161.50 | \$20,807.50 |
|  |  | LLNL M\&S Iotal |  | M 4 S | 0 | 14,000 | \$0.00 | \$0.00 | \$0.00 | \$14,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5291 | 1.3.1.6.12.4 | Sputter | LLNL | ED\& | 2 | 6 wks | \$0.00 | \$0.00 | \$15,120.00 | \$15,120.00 | \$14,817.60 | \$7,484.40 | \$37,422.00 |
|  |  | LLNL Mechanical Engineer |  | ED\&1 | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$15,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 5292 | 1.3.1.6.12.4 | Vaccum Braze | LLNL | ED\& | 2 | 6 wks | \$0.00 | \$0.00 | \$15,120.00 | \$15,120.00 | \$14,817.60 | \$7,484.40 | \$37,422.00 |
|  |  | LLNL Mechanical Engineer |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$15,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 5293 | 1.3.1.6.12.4 | Slice | LLNL | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$9,120.00 | \$9,120.00 | \$8,937.60 | \$4,514.40 | \$22,572.00 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$9,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 5294 | 1.3.1.6.12.4 | Mount | LLNL | B\&H | 2 | 3 wks | \$0.00 | \$0.00 | \$6,840.00 | \$6,840.00 | \$6,703.20 | \$3,385.80 | \$16,929.00 |
|  |  | LLNL Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,840.00 | \$0.00 | \$0.00 | \$0.00 |
| 5295 | 1.3.1.6.12.4 | Mount hardware | LLNL | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$189.00 | \$297.25 | \$1,486.25 |
|  |  | LLNL M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5296 | 1.3.1.6.13 | Spatial Shape and Centroid |  |  | 0 | 6 wks | \$0.00 | \$0.00 | \$12,960.00 | \$12,960.00 | \$12,700.80 | \$6,415.20 | \$32,076.00 |
| 5297 | 1.3.1.6.13.1 | PDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5298 | 1.3.1.6.13.2 | FDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5299 | 1.3.1.6.13.3 | Analysis Sottware | LLNL |  | 0 | 6 wks | \$0.00 | \$0.00 | \$12,960.00 | \$12,960.00 | \$12,700.80 | \$6,415.20 | \$32,076.00 |
| 5300 | 1.3.1.6.13.3 | Spatial Shape extraction | LLNL | ED\& | 2 | 6 wks | \$0.00 | \$0.00 | \$12,960.00 | \$12,960.00 | \$12,700.80 | \$6,415.20 | \$32,076.00 |
|  |  | LLNL Physicist -Scientist |  | ED\&1 | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$12,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 5301 | 1.3.1.6.14 | Divergence | LLNL |  | 0 | 4 wks | \$0.00 | \$0.00 | \$8,640.00 | \$8,640.00 | \$8,467.20 | \$4,276.80 | \$21,384.00 |
| 5302 | 1.3.1.6.14.1 | PDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5303 | 1.3.1.6.14.2 | FDR | LLNL |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5304 | 1.3.1.6.14.3 | Analysis Sottware | LLNL |  | 0 | 4 wks | \$0.00 | \$0.00 | \$8,640.00 | \$8,640.00 | \$8,467.20 | \$4,276.80 | \$21,384.00 |
| 5305 | 1.3.1.6.14.3 | Divergence extraction | LLNL | ED\& | 2 | 4 wks | \$0.00 | \$0.00 | \$8,640.00 | \$8,640.00 | \$8,467.20 | \$4,276.80 | \$21,384.00 |
|  |  | LLNL Physicist -Scientist |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,640.00 | \$0.00 | \$0.00 | \$0.00 |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cwbs | Task Name | obs | PHASE | Risk | Units | PED (Direct) | M2S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 5306 | 1.3.2 | X-ray end station systems |  |  | 0 | 2,161.35 wks | \$4,075,095.56 | \$6,049,801.00 | \$1,660,391.76 | \$11,785,288.32 | \$1,510,085.52 | \$4,316,236.95 | \$17,611,610.79 |
| 5307 | 1.3.2.1 | PED |  |  | 0 | 1,609.2 wks | \$4,075,095.56 | \$0.00 | \$0.00 | \$4,075,095.56 | \$815,019.11 | \$1,657,633.28 | \$6,547,747.96 |
| 5308 | 1.3.2.1.1 | PPS System |  |  | 0 | 1,609.2 wks | \$4,075,095.56 | \$0.00 | \$0.00 | \$4,075,095.56 | \$815,019.11 | \$1,657,633.28 | \$6,547,747.96 |
| 5309 | 1.3.2.1.1.1 | Control Racks | SLAC |  | 2 | 5 wks | \$13,600.00 | \$0.00 | \$0.00 | \$13,600.00 | \$2,720.00 | \$4,080.00 | \$20,400.00 |
| 5310 | 1.3.2.1.1.1 | engineering | SLAC | ED\& | 2 | 3 wks | \$9,000.00 | \$0.00 | \$0.00 | \$9,000.00 | \$1,800.00 | \$2,700.00 | \$13,500.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5311 | 1.3.2.1.1.1 | design | SLAC | ED\& 1 | 2 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$1,380.00 | \$6,900.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5312 | 1.3.2.1.1.2 | HPS Control | SLAC |  | 2 | 7 wks | \$18,900.00 | \$0.00 | \$0.00 | \$18,900.00 | \$3,780.00 | \$5,670.00 | \$28,350.00 |
| 5313 | 1.3.2.1.1.2 | engineering | SLAC | ED\& | 2 | 4 wks | \$12,000.00 | \$0.00 | \$0.00 | \$12,000.00 | \$2,400.00 | \$3,600.00 | \$18,000.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5314 | 1.3.2.1.1.2 | design | SLAC | ED\& | 2 | 3 wks | \$6,900.00 | \$0.00 | \$0.00 | \$6,900.00 | \$1,380.00 | \$2,070.00 | \$10,350.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,900.00 | \$0.00 | \$0.00 | \$0.00 |
| 5315 | 1.3.2.1.1.3 | HPS Fan-in | SLAC |  | 2 | 3 wks | \$8,300.00 | \$0.00 | \$0.00 | \$8,300.00 | \$1,660.00 | \$3,486.00 | \$13,446.00 |
| 5316 | 1.3.2.1.1.3 | engineering | SLAC | ED\& | 3 | 2 wks | \$6,000.00 | \$0.00 | \$0.00 | \$6,000.00 | \$1,200.00 | \$2,520.00 | \$9,720.00 |
|  |  | S LAC Electrical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5317 | 1.3.2.1.1.3 | design | SLAC | ED\& | 3 | 1 wk | \$2,300.00 | \$0.00 | \$0.00 | \$2,300.00 | \$460.00 | \$966.00 | \$3,726.00 |
|  |  | SLAC Mech Dratting/Design |  | EDQI | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 5318 | 1.3.2.1.1.4 | PPS Junction Box | SLAC |  | 2 | 3 wks | \$8,300.00 | \$0.00 | \$0.00 | \$8,300.00 | \$1,660.00 | \$2,490.00 | \$12,450.00 |
| 5319 | 1.3.2.1.1.4 | engineering | SLAC | ED\& | 2 | 2 wks | \$6,000.00 | \$0.00 | \$0.00 | \$6,000.00 | \$1,200.00 | \$1,800.00 | \$9,000.00 |
|  |  | S LAC Electrical Engineer |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5320 | 1.3.2.1.1.4 | design | SLAC | ED\& 1 | 2 | 1 wk | \$2,300.00 | \$0.00 | \$0.00 | \$2,300.00 | \$460.00 | \$690.00 | \$3,450.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 5321 | 1.3.2.1.1.5 | Search Reset System | SLAC |  | 2 | 4 wks | \$10,600.00 | \$0.00 | \$0.00 | \$10,600.00 | \$2,120.00 | \$3,180.00 | \$15,900.00 |
| 5322 | 1.3.2.1.1.5 | engineering | SLAC | ED\& | 2 | 2 wks | \$6,000.00 | \$0.00 | \$0.00 | \$6,000.00 | \$1,200.00 | \$1,800.00 | \$9,000.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5323 | 1.3.2.1.1.5 | design | SLAC | ED\& | 2 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$1,380.00 | \$6,900.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5324 | 1.3.2.1.1.6 | Burn Thru Monitor | SLAC |  | 2 | 5 wks | \$13,600.00 | \$0.00 | \$0.00 | \$13,600.00 | \$2,720.00 | \$4,080.00 | \$20,400.00 |
| 5325 | 1.3.2.1.1.6 | engineering | SLAC | ED\& | 2 | 3 wks | \$9,000.00 | \$0.00 | \$0.00 | \$9,000.00 | \$1,800.00 | \$2,700.00 | \$13,500.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$9,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5326 | 1.3.2.1.1.6 | design | SLAC | ED\& | 2 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$1,380.00 | \$6,900.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5327 | 1.3.2.1.1.7 | Hutch Summary | SLAC |  | 2 | 2 wks | \$5,300.00 | \$0.00 | \$0.00 | \$5,300.00 | \$1,060.00 | \$1,590.00 | \$7,950.00 |
| 5328 | 1.3.2.1.1.7 | engineering | SLAC | ED\& | 2 | 1 wk | \$3,000.00 | \$0.00 | \$0.00 | \$3,000.00 | \$600.00 | \$900.00 | \$4,500.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units <br> 1 wk | PED (Direct) $\$ 0.00$ | $\begin{array}{r} \text { M\&S (Direct) } \\ \$ 0.00 \end{array}$ | Labor (Direct)$\qquad$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 3,000.00 \end{aligned}$ | Overhead Cost <br> $\$ 0.00$ | Contingency Cost | Total Cost |
|  |  | Task Name SLAC Electrical Engineer |  | ED\& |  |  |  |  |  |  |  | \$0.00 |  |
| 5329 | 1.3.2.1.1.7 | design |  | ED\&1 | 2 | 1 wk | \$2,300.00 | \$0.00 | \$0.00 | \$2,300.00 | \$460.00 | \$690.00 | \$3,450.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 5330 | 1.3.2.1.1.8 | Pneumatic Controls | SLAC |  | 2 | 2 wks | \$5,300.00 | \$0.00 | \$0.00 | \$5,300.00 | \$1,060.00 | \$1,590.00 | \$7,950.00 |
| 5331 | 1.3.2.1.1.8 | engineering | SLAC | ED\& | 2 | 1 wk | \$3,000.00 | \$0.00 | \$0.00 | \$3,000.00 | \$600.00 | \$900.00 | \$4,500.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5332 | 1.3.2.1.1.8 | design | SLAC | ED\& | 2 | 1 wk | \$2,300.00 | \$0.00 | \$0.00 | \$2,300.00 | \$460.00 | \$690.00 | \$3,450.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&I | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 5333 | 1.3.2.1.1.9 | MPS Systen | SLAC |  | 0 | 8 wks | \$22,600.00 | \$0.00 | \$0.00 | \$22,600.00 | \$4,520.00 | \$6,780.00 | \$33,900.00 |
| 5334 | 1.3.2.1.1.9 | Control racks | SLAC |  | 0 | 8 wks | \$22,600.00 | \$0.00 | \$0.00 | \$22,600.00 | \$4,520.00 | \$6,780.00 | \$33,900.00 |
| 5335 | 1.3.2.1.1.9 | engineering | SLAC | ED\& | 2 | 6 wks | \$18,000.00 | \$0.00 | \$0.00 | \$18,000.00 | \$3,600.00 | \$5,400.00 | \$27,000.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5336 | 1.3.2.1.1.9 | design | SLAC | ED\&I | 2 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$1,380.00 | \$6,900.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&I | 0 | $2 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5337 | 1.3.2.1.1.10 | PLC CONTROLS | SLAC |  | 0 | 8 wks | \$22,600.00 | \$0.00 | \$0.00 | \$22,600.00 | \$4,520.00 | \$6,780.00 | \$33,900.00 |
| 5338 | 1.3.2.1.1.10 | engineering | SLAC | ED\& | 2 | 6 wks | \$18,000.00 | \$0.00 | \$0.00 | \$18,000.00 | \$3,600.00 | \$5,400.00 | \$27,000.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5339 | 1.3.2.1.1.10 | design | SLAC | ED\& | 2 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$1,380.00 | \$6,900.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5340 | 1.3.2.1.1.11 | VACUUM MONITORING | SLAC |  | 0 | 7 wks | \$18,900.00 | \$0.00 | \$0.00 | \$18,900.00 | \$3,780.00 | \$5,670.00 | \$28,350.00 |
| 5341 | 1.3.2.1.1.11 | engineering | SLAC | ED\& | 2 | 4 wks | \$12,000.00 | \$0.00 | \$0.00 | \$12,000.00 | \$2,400.00 | \$3,600.00 | \$18,000.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5342 | 1.3.2.1.1.11 | design | SLAC | ED\& | 2 | 3 wks | \$6,900.00 | \$0.00 | \$0.00 | \$6,900.00 | \$1,380.00 | \$2,070.00 | \$10,350.00 |
|  |  | SLAC Mech Dratting/Design |  | EDQ1 | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,900.00 | \$0.00 | \$0.00 | \$0.00 |
| 5343 | 1.3.2.1.1.12 | PNEUMATICS | SLAC |  | 0 | 3 wks | \$8,300.00 | \$0.00 | \$0.00 | \$8,300.00 | \$1,660.00 | \$2,490.00 | \$12,450.00 |
| 5344 | 1.3.2.1.1.12 | engineering | SLAC | ED\& | 2 | 2 wks | \$6,000.00 | \$0.00 | \$0.00 | \$6,000.00 | \$1,200.00 | \$1,800.00 | \$9,000.00 |
|  |  | S LAC Electrical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5345 | 1.3.2.1.1.12 | design | SLAC | ED\& | 2 | 1 wk | \$2,300.00 | \$0.00 | \$0.00 | \$2,300.00 | \$460.00 | \$690.00 | \$3,450.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 1 wk | $\$ 0.00$ | \$0.00 | \$0.00 | \$2,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 5346 | 1.3.2.1.1.13 | Experimental chambers |  |  | 0 | 40.4 wks | \$135,640.00 | \$0.00 | \$0.00 | \$135,640.00 | \$27,128.00 | \$56,996.40 | \$219,764.40 |
| 5347 | 1.3.2.1.1.13 | Chamber: A3 | SLAC |  | 3 | 20.2 wks | \$67,820.00 | \$0.00 | \$0.00 | \$67,820.00 | \$13,564.00 | \$28,567.20 | \$109,951.20 |
| 5348 | 1.3.2.1.1.13 | specitication | SLAC | ED\& | 3 | 4 wks | \$13,600.00 | \$0.00 | \$0.00 | \$13,600.00 | \$2,720.00 | \$5,712.00 | \$22,032.00 |
|  |  | SLAC Physicist -Scientist |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5349 | 1.3.2.1.1.13 | design | SLAC | ED\& | 3 | 16 wks | \$53,760.00 | \$0.00 | \$0.00 | \$53,760.00 | \$10,752.00 | \$22,579.20 | \$87,091.20 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$53,760.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{5350}$ | cwbs | Task Name | OBS | PHASE | $\begin{aligned} & \text { Risk } \\ & \hline \end{aligned}$ | Units$0.2 \mathrm{wks}$ | $\begin{aligned} & \text { PED (Direct) } \\ & \$ 460.00 \end{aligned}$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct) | $\frac{\text { Direct Cost }}{\$ 460.00}$ | Overhead Cost $\$ 92.00$ | Contingency Cost$\$ 276.00$ | Total Cost <br> $\$ 828.00$ |
|  | 1.3.2.1.1.13 | design | SLAC | ED\& |  |  |  |  |  |  |  |  |  |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$460.00 | \$0.00 | \$0.00 | \$0.00 |
| 5351 | 1.3.2.1.1.13 | Chamber: B5 | SLAC |  | 3 | 20.2 wks | \$67,820.00 | \$0.00 | \$0.00 | \$67,820.00 | \$13,564.00 | \$28,429.20 | \$109,813.20 |
| 5352 | 1.3.2.1.1.13 | specitication | SLAC | ED\& | 3 | 4 wks | \$13,600.00 | \$0.00 | \$0.00 | \$13,600.00 | \$2,720.00 | \$5,712.00 | \$22,032.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5353 | 1.3.2.1.1.13 | design | SLAC | ED\& | 3 | 16 wks | \$53,760.00 | \$0.00 | \$0.00 | \$53,760.00 | \$10,752.00 | \$22,579.20 | \$87,091.20 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$53,760.00 | \$0.00 | \$0.00 | \$0.00 |
| 5354 | 1.3.2.1.1.13 | design | SLAC | ED\& | 2 | 0.2 wks | \$460.00 | \$0.00 | \$0.00 | \$460.00 | \$92.00 | \$138.00 | \$690.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$460.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5355 | 1.3.2.1.1.14 | Movable Mask Absorber |  |  | 0 | 57 wks | \$148,420.80 | \$0.00 | \$0.00 | \$148,420.80 | \$29,684.16 | \$50,229.70 | \$228,334.66 |
| 5356 | 1.3.2.1.1.14 | first item | SLAC | ED\& | 3 | 1 wk | \$3,360.00 | \$0.00 | \$0.00 | \$3,360.00 | \$672.00 | \$1,411.20 | \$5,443.20 |
|  | 1.3.2.1.1.14 | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 5357 | 1.3.2.1.1.14 | Engineering | SLAC | ED\& | 2 | 6 wks | \$20,160.00 | \$0.00 | \$0.00 | \$20,160.00 | \$4,032.00 | \$6,048.00 | \$30,240.00 |
|  | 1.3.2.1.1.14 | SLAC Mechanical Engineer |  | ED\&I | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$20,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 5358 | 1.3.2.1.1.14 | Design | SLAC | ED\& | 3 | 10 wks | \$23,000.00 | \$0.00 | \$0.00 | \$23,000.00 | \$4,600.00 | \$9,660.00 | \$37,260.00 |
|  | 1.3.2.1.1.14 | SLAC Mech Dratting/Design |  | ED\& | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$23,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5359 | 1.3.2.1.1.14 | Beryllium/Cu Fabrication | SLAC | B\&H | 1 | 3 wks | \$9,600.00 | \$0.00 | \$0.00 | \$9,600.00 | \$1,920.00 | \$1,728.00 | \$13,248.00 |
|  | 1.3.2.1.1.14 | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$9,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5360 | 1.3.2.1.1.14 | Bellows Spool Assy. | SLAC | B\&H | 3 | 1 wk | \$1,998.80 | \$0.00 | \$0.00 | \$1,998.80 | \$399.76 | \$839.50 | \$3,238.06 |
|  | 1.3.2.1.1.14 | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 5361 | 1.3.2.1.1.14 | Actuator assy | SLAC | B\&H | 3 | 1 wk | \$1,998.80 | \$0.00 | \$0.00 | \$1,998.80 | \$399.76 | \$839.50 | \$3,238.06 |
|  | 1.3.2.1.1.14 | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 5362 | 1.3.2.1.1.14 | Plate/clean | SLAC | B\&H | 2 | 6 wks | \$30,000.00 | \$0.00 | \$0.00 | \$30,000.00 | \$6,000.00 | \$9,000.00 | \$45,000.00 |
|  | 1.3.2.1.1.14 | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5363 | 1.3.2.1.1.14 | Braze/weld | SLAC | B\&H | 3 | 6 wks | \$11,992.80 | \$0.00 | \$0.00 | \$11,992.80 | \$2,398.56 | \$5,036.98 | \$19,428.34 |
|  | 1.3.2.1.1.14 | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$11,992.80 | \$0.00 | \$0.00 | \$0.00 |
| 5364 | 1.3.2.1.1.14 | Vacuum assembly | SLAC | B\&H | 1 | 7 wks | \$13,991.60 | \$0.00 | \$0.00 | \$13,991.60 | \$2,798.32 | \$2,518.49 | \$19,308.41 |
|  | 1.3.2.1.1.14 | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 7 wks | \$0.00 | \$0.00 | \$0.00 | \$13,991.60 | \$0.00 | \$0.00 | \$0.00 |
| 5365 | 1.3.2.1.1.14 | Inspection | SLAC | B\&H | 1 | 1 wk | \$1,774.40 | \$0.00 | \$0.00 | \$1,774.40 | \$354.88 | \$319.39 | \$2,448.67 |
|  | 1.3.2.1.1.14 | SLAC Klystron: Technician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,774.40 | \$0.00 | \$0.00 | \$0.00 |
| 5366 | 1.3.2.1.1.14 | Alignment | SLAC | B\&H | 3 | 2 wks | \$4,560.00 | \$0.00 | \$0.00 | \$4,560.00 | \$912.00 | \$1,915.20 | \$7,387.20 |
|  | 1.3.2.1.1.14 | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5367 | 1.3.2.1.1.14 | Installation | SLAC | B\&H | 3 | 13 Wks | \$25,984.40 | \$0.00 | \$0.00 | \$25,984.40 | \$5,196.88 | \$10,913.45 | \$42,094.73 |
|  |  | SLAC Mech. rab: Assembly lech |  | B\&H | 0 | 13 wks | \$0.00 | \$0.00 | \$0.00 | \$25,984.40 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5368 | 1.3.2.1.1.15 | PPS Shutter Stoppers | SLAC |  | 0 | 80.5 wks | \$211,603.20 | \$0.00 | \$0.00 | \$211,603.20 | \$42,320.64 | \$69,649.82 | \$323,573.66 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{5369}$ | cWBs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.2.1.1.15 | first item | SLAC | ED\& | 3 | 1 wk | \$3,360.00 | \$0.00 | \$0.00 | \$3,360.00 | \$672.00 | \$1,411.20 | \$5,443.20 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 5370 | 1.3.2.1.1.15 | Engineering | SLAC | ED\& 1 | 2 | 6 wks | \$20,160.00 | \$0.00 | \$0.00 | \$20,160.00 | \$4,032.00 | \$6,048.00 | \$30,240.00 |
|  |  | SLAC Mechanical Engineer |  | ED\&I | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$20,160.00 | \$0.00 | \$0.00 | \$0.00 |
| 5371 | 1.3.2.1.1.15 | Design | SLAC | ED\& | 3 | 12 wks | \$27,600.00 | \$0.00 | \$0.00 | \$27,600.00 | \$5,520.00 | \$11,592.00 | \$44,712.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$27,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5372 | 1.3.2.1.1.15 | Brick Backet Stem Assy | SLAC | B\&H | 3 | 1.5 wks | \$2,998.20 | \$0.00 | \$0.00 | \$2,998.20 | \$599.64 | \$1,259.24 | \$4,857.08 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$2,998.20 | \$0.00 | \$0.00 | \$0.00 |
| 5373 | 1.3.2.1.1.15 | Plate/clean | SLAC | B\&H | 2 | 13 wks | \$65,000.00 | \$0.00 | \$0.00 | \$65,000.00 | \$13,000.00 | \$19,500.00 | \$97,500.00 |
|  |  | SLAC Mech. Fab: Plating \& Cleaning |  | B\&H | 0 | 13 wks | \$0.00 | \$0.00 | \$0.00 | \$65,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5374 | 1.3.2.1.1.15 | Braze/weld | SLAC | B\&H | 3 | 13 wks | \$25,984.40 | \$0.00 | \$0.00 | \$25,984.40 | \$5,196.88 | \$10,913.45 | \$42,094.73 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 13 wks | \$0.00 | \$0.00 | \$0.00 | \$25,984.40 | \$0.00 | \$0.00 | \$0.00 |
| 5375 | 1.3.2.1.1.15 | Support Fab \& Machining | SLAC | B\&H | 3 | 13 wks | \$25,984.40 | \$0.00 | \$0.00 | \$25,984.40 | \$5,196.88 | \$10,913.45 | \$42,094.73 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 13 wks | \$0.00 | \$0.00 | \$0.00 | \$25,984.40 | \$0.00 | \$0.00 | \$0.00 |
| 5376 | 1.3.2.1.1.15 | Air Actuator assy | SLAC | B\&H | 3 | 1.5 wks | \$2,998.20 | \$0.00 | \$0.00 | \$2,998.20 | \$599.64 | \$1,259.24 | \$4,857.08 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$2,998.20 | \$0.00 | \$0.00 | \$0.00 |
| 5377 | 1.3.2.1.1.15 | Vacuum assembly | SLAC | B\&H | 1 | 13 wks | \$25,984.40 | \$0.00 | \$0.00 | \$25,984.40 | \$5,196.88 | \$4,677.19 | \$35,858.47 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 13 wks | \$0.00 | \$0.00 | \$0.00 | \$25,984.40 | \$0.00 | \$0.00 | \$0.00 |
| 5378 | 1.3.2.1.1.15 | Inspection | SLAC | B\&H | 1 | 6.5 wks | \$11,533.60 | \$0.00 | \$0.00 | \$11,533.60 | \$2,306.72 | \$2,076.05 | \$15,916.37 |
|  |  | SLAC KIystron: Technician |  | B\&H | 0 | 6.5 wks | \$0.00 | \$0.00 | \$0.00 | \$11,533.60 | \$0.00 | \$0.00 | \$0.00 |
| 5379 | 1.3.2.1.1.16 | PPS Final Beam Stop | SLAC |  | 0 | 2.3 wks | \$5,934.76 | \$0.00 | \$0.00 | \$5,934.76 | \$1,186.95 | \$2,352.71 | \$9,474.42 |
| 5380 | 1.3.2.1.1.16 | first item | SLAC | ED\& | 3 | 0.4 wks | \$1,344.00 | \$0.00 | \$0.00 | \$1,344.00 | \$268.80 | \$564.48 | \$2,177.28 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&I | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,344.00 | \$0.00 | \$0.00 | \$0.00 |
| 5381 | 1.3.2.1.1.16 | Engineering | SLAC | B\&H | 2 | 0.2 wks | \$456.00 | \$0.00 | \$0.00 | \$456.00 | \$91.20 | \$136.80 | \$684.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$456.00 | \$0.00 | \$0.00 | \$0.00 |
| 5382 | 1.3.2.1.1.16 | Design | SLAC | ED\& | 3 | 1 wk | \$2,300.00 | \$0.00 | \$0.00 | \$2,300.00 | \$460.00 | \$966.00 | \$3,726.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 5383 | 1.3.2.1.1.16 | Cooled Cu Plug | SLAC | B\&H | 3 | 0.4 wks | \$1,280.00 | \$0.00 | \$0.00 | \$1,280.00 | \$256.00 | \$537.60 | \$2,073.60 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5384 | 1.3.2.1.1.16 | Inspection | SLAC | B\&H | 1 | 0.2 wks | \$354.88 | \$0.00 | \$0.00 | \$354.88 | \$70.98 | \$63.88 | \$489.73 |
|  |  | SLAC Klystron: Technician |  | B\&H | 0 | 0.2 wks | $\$ 0.00$ | \$0.00 | \$0.00 | \$354.88 | \$0.00 | \$0.00 | \$0.00 |
| 5385 | 1.3.2.1.1.16 | Installation | SLAC | B\&H | 3 | 0.1 wks | \$199.88 | \$0.00 | \$0.00 | \$199.88 | \$39.98 | \$83.95 | \$323.81 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$199.88 | \$0.00 | \$0.00 | \$0.00 |
| 5386 | 1.3.2.1.1.17 | Spectrometers | SLAC |  | 0 | 18 wks | \$47,920.00 | \$0.00 | \$0.00 | \$47,920.00 | \$9,584.00 | \$20,126.40 | \$77,630.40 |
| 5387 | 1.3.2.1.1.17 | Specification | SLAC | ED\& | 3 | 4 wks | \$13,600.00 | \$0.00 | \$0.00 | \$13,600.00 | \$2,720.00 | \$5,712.00 | \$22,032.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | $\begin{array}{\|l\|} \hline \text { Risk } \\ \hline \end{array}$ | Units 4 wks | PED (Direct) $\$ 0.00$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct) <br> $\$ 0.00$ | $\begin{aligned} & \text { Direct Cost } \\ & \hline \$ 13,600.00 \end{aligned}$ | Overhead Cost $\$ 0.00$ | Contingency Cost $\$ 0.00$ | $\begin{aligned} & \text { Total Cost } \\ & \$ 0.00 \end{aligned}$ |
|  |  | Task Name SLAC Physicist -Scientist | SLAC |  |  |  |  |  |  |  |  |  |  |
| 5388 | 1.3.2.1.1.17 | Design |  | ED\& | 3 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,822.40 | \$10,886.40 |
|  |  | SLAC Mechanical Engineer |  | EDQ1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 5389 | 1.3.2.1.1.17 | Design | SLAC | ED\&I | 3 | 12 wks | \$27,600.00 | \$0.00 | \$0.00 | \$27,600.00 | \$5,520.00 | \$11,592.00 | \$44,712.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$27,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5390 | 1.3.2.1.1.18 | Chamber support tables |  |  | 0 | 14 wks | \$38,720.00 | \$0.00 | \$0.00 | \$38,720.00 | \$7,744.00 | \$16,262.40 | \$62,726.40 |
| 5391 | 1.3.2.1.1.18 | Specification | SLAC | ED\& | 3 | 4 wks | \$13,600.00 | \$0.00 | \$0.00 | \$13,600.00 | \$2,720.00 | \$5,712.00 | \$22,032.00 |
|  |  | SLAC Physicist-Scientist |  | ED\&I | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5392 | 1.3.2.1.1.18 | Design | SLAC | ED\& | 3 | 2 wks | \$6,720.00 | \$0.00 | \$0.00 | \$6,720.00 | \$1,344.00 | \$2,822.40 | \$10,886.40 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 5393 | 1.3.2.1.1.18 | Design | SLAC | ED\& | 3 | 8 wks | \$18,400.00 | \$0.00 | \$0.00 | \$18,400.00 | \$3,680.00 | \$7,728.00 | \$29,808.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$18,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 5394 | 1.3.2.1.1.19 | vacuum Components |  |  | 0 | 12 wks | \$33,960.00 | \$0.00 | \$0.00 | \$33,960.00 | \$6,792.00 | \$14,263.20 | \$55,015.20 |
| 5395 | 1.3.2.1.1.19 | valves |  |  | 0 | 6 wks | \$18,040.00 | \$0.00 | \$0.00 | \$18,040.00 | \$3,608.00 | \$7,576.80 | \$29,224.80 |
| 5396 | 1.3.2.1.1.19 | Specification | SLAC | ED\& | 3 | 4 wks | \$13,440.00 | \$0.00 | \$0.00 | \$13,440.00 | \$2,688.00 | \$5,644.80 | \$21,772.80 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 5397 | 1.3.2.1.1.19 | Specification | SLAC | ED\& | 3 | 2 wks | \$4,600.00 | \$0.00 | \$0.00 | \$4,600.00 | \$920.00 | \$1,932.00 | \$7,452.00 |
|  |  | SLAC Mech DrattingIDesign |  | ED\&1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5398 | 1.3.2.1.1.19 | Hardware |  |  | 3 | 1.5 wks | \$3,980.00 | \$0.00 | \$0.00 | \$3,980.00 | \$796.00 | \$1,671.60 | \$6,447.60 |
| 5399 | 1.3.2.1.1.19 | Specification | SLAC | ED\& | 3 | 0.5 wks | \$1,680.00 | \$0.00 | \$0.00 | \$1,680.00 | \$336.00 | \$705.60 | \$2,721.60 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 5400 | 1.3.2.1.1.19 | Specification | SLAC | ED\& | 3 | 1 wk | \$2,300.00 | \$0.00 | \$0.00 | \$2,300.00 | \$460.00 | \$966.00 | \$3,726.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 5401 | 1.3.2.1.1.19 | Ion Pump System |  |  | 3 | 1.5 wks | \$3,980.00 | \$0.00 | \$0.00 | \$3,980.00 | \$796.00 | \$1,671.60 | \$6,447.60 |
| 5402 | 1.3.2.1.1.19 | Specification | SLAC | ED\& | 3 | 0.5 wks | \$1,680.00 | \$0.00 | \$0.00 | \$1,680.00 | \$336.00 | \$705.60 | \$2,721.60 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 5403 | 1.3.2.1.1.19 | Specification | SLAC | ED\& | 3 | 1 wk | \$2,300.00 | \$0.00 | \$0.00 | \$2,300.00 | \$460.00 | \$966.00 | \$3,726.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 5404 | 1.3.2.1.1.19 | Turbo Pump System |  |  | 3 | 1.5 wks | \$3,980.00 | \$0.00 | \$0.00 | \$3,980.00 | \$796.00 | \$1,671.60 | \$6,447.60 |
| 5405 | 1.3.2.1.1.19 | Specification | SLAC | ED\& | 3 | 0.5 wks | \$1,680.00 | \$0.00 | \$0.00 | \$1,680.00 | \$336.00 | \$705.60 | \$2,721.60 |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\&1 | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 5406 | 1.3.2.1.1.19 | Specitication | SLAC | ED\& | 3 | 1 wk | \$2,300.00 | \$0.00 | \$0.00 | \$2,300.00 | \$460.00 | \$966.00 | \$3,726.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 5407 | 1.3.2.1.1.19 | Guage System |  |  | 3 | 1.5 wks | \$3,980.00 | \$0.00 | \$0.00 | \$3,980.00 | \$796.00 | \$1,671.60 | \$6,447.60 |
| 5408 | 1.3.2.1.1.19 | Specification | SLAC | ED\& | 3 | 0.5 wks | \$1,680.00 | \$0.00 | \$0.00 | \$1,680.00 | \$336.00 | \$705.60 | \$2,721.60 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC AD: Mech/Vacuum Engineer |  | ED\& | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 5409 | 1.3.2.1.1.19 | Specification | SLAC | ED\& | 3 | 1 wk | \$2,300.00 | \$0.00 | \$0.00 | \$2,300.00 | \$460.00 | \$966.00 | \$3,726.00 |
|  |  | SLAC Mech Dratting/Design |  | EDEI | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 5410 | 1.3.2.1.1.20 | Experimental chamber |  |  | 0 | 48 wks | \$127,680.00 | \$0.00 | \$0.00 | \$127,680.00 | \$25,536.00 | \$53,625.60 | \$206,841.60 |
| 5411 | 1.3.2.1.1.20 | Chamber: A2 |  |  | 0 | 24 wks | \$63,840.00 | \$0.00 | \$0.00 | \$63,840.00 | \$12,768.00 | \$26,812.80 | \$103,420.80 |
| 5412 | 1.3.2.1.1.20 | Specification | SLAC | ED\& | 3 | 4 wks | \$13,600.00 | \$0.00 | \$0.00 | \$13,600.00 | \$2,720.00 | \$5,712.00 | \$22,032.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& 1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5413 | 1.3.2.1.1.20 | Design | SLAC | ED\& 1 | 3 | 4 wks | \$13,440.00 | \$0.00 | \$0.00 | \$13,440.00 | \$2,688.00 | \$5,644.80 | \$21,772.80 |
|  |  | SLAC Mechanical Engineer |  | EDEI | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,440.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5414 | 1.3.2.1.1.20 | Design | SLAC | ED\& | 3 | 16 wks | \$36,800.00 | \$0.00 | \$0.00 | \$36,800.00 | \$7,360.00 | \$15,456.00 | \$59,616.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&I | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$36,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 5415 | 1.3.2.1.1.20 | Chamber: B4 |  |  | 0 | 24 wks | \$63,840.00 | \$0.00 | \$0.00 | \$63,840.00 | \$12,768.00 | \$26,812.80 | \$103,420.80 |
| 5416 | 1.3.2.1.1.20 | Specitication | SLAC | ED\& | 3 | 4 wks | \$13,600.00 | \$0.00 | \$0.00 | \$13,600.00 | \$2,720.00 | \$5,712.00 | \$22,032.00 |
|  |  | SLAC Physicist-Scientist |  | ED\&1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5417 | 1.3.2.1.1.20 | Design | SLAC | ED\& | 3 | 4 wks | \$13,440.00 | \$0.00 | \$0.00 | \$13,440.00 | \$2,688.00 | \$5,644.80 | \$21,772.80 |
|  |  | SLAC Mechanical Engineer |  | ED\& 1 | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$13,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 5418 | 1.3.2.1.1.20 | Design | SLAC | ED\& | 3 | 16 wks | \$36,800.00 | \$0.00 | \$0.00 | \$36,800.00 | \$7,360.00 | \$15,456.00 | \$59,616.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&I | 0 | 16 wks | \$0.00 | \$0.00 | \$0.00 | \$36,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 5419 | 1.3.2.1.1.21 | Controls |  |  | 0 | 599 wks | \$1,610,436.80 | \$0.00 | \$0.00 | \$1,610,436.80 | \$322,087.36 | \$676,383.46 | \$2,608,907.62 |
| 5420 | 1.3.2.1.1.21 | Network |  |  | 0 | 338 wks | \$747,884.80 | \$0.00 | \$0.00 | \$747,884.80 | \$149,576.96 | \$314,111.62 | \$1,211,573.38 |
| 5421 | 1.3.2.1.1.21 | Engineering | SLAC | ED\& | 3 | 130 wks | \$383,136.00 | \$0.00 | \$0.00 | \$383,136.00 | \$76,627.20 | \$160,917.12 | \$620,680.32 |
|  |  | SLAC Controls: Engineer |  | ED\& 1 | 0 | 130 wks | \$0.00 | \$0.00 | \$0.00 | \$383,136.00 | \$0.00 | \$0.00 | \$0.00 |
| 5422 | 1.3.2.1.1.21 | Iechnical support | SLAC | B\&H | 3 | 208 wks | \$364,748.80 | \$0.00 | \$0.00 | \$364,748.80 | \$72,949.76 | \$153,194.50 | \$590,893.06 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 208 wks | \$0.00 | \$0.00 | \$0.00 | \$364,748.80 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5423 | 1.3.2.1.1.21 | Reserved |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5424 | 1.3.2.1.1.21 | PC Administrator | SLAC | ED\& 1 | 3 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Controls: Engineer |  | ED\& 1 | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5425 | 1.3.2.1.1.21 | Iechnical support | SLAC | B\&H | 3 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | owks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5426 | 1.3.2.1.1.21 | Beamline controls |  |  | 0 | 261 wks | \$862,552.00 | \$0.00 | \$0.00 | \$862,552.00 | \$172,510.40 | \$362,271.84 | \$1,397,334.24 |
| 5427 | 1.3.2.1.1.21 | Scientific Integration | SLAC | ED\& | 3 | 34 wks | \$163,200.00 | \$0.00 | \$0.00 | \$163,200.00 | \$32,640.00 | \$68,544.00 | \$264,384.00 |
|  |  | SLAC Project Management |  | ED\&I | 0 | 34 wks | \$0.00 | \$0.00 | \$0.00 | \$163,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 5428 | 1.3.2.1.1.21 | Scientitic support | SLAC | ED\&1 | 3 | 67 wks | \$227,800.00 | \$0.00 | \$0.00 | \$227,800.00 | \$45,560.00 | \$95,676.00 | \$369,036.00 |
|  |  | SLAC Physicist-Scientist |  | EDEI | 0 | 67 wks | \$0.00 | \$0.00 | \$0.00 | \$227,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 5429 | 1.3.2.1.1.21 | Sotware Development | SLAC | ED\& | 3 | 160 wks | \$471,552.00 | \$0.00 | \$0.00 | \$471,552.00 | \$94,310.40 | \$198,051.84 | \$763,914.24 |



| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{array}{\|c\|} \hline \text { ID } \\ \hline 5451 \end{array}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.2.2.1.1 | Tank Fab and Machining | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$33,000.00 | \$0.00 | \$33,000.00 | \$1,980.00 | \$5,247.00 | \$40,227.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 33,000 | \$0.00 | \$0.00 | \$0.00 | \$33,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5452 | 1.3.2.2.1.1 | Flanges \& transitions | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$371.00 | \$1,431.00 |
|  |  | SLAC MES Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5453 | 1.3.2.2.1.1 | Bellows Spool parts | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$742.00 | \$2,862.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5454 | 1.3.2.2.1.1 | Bellows Spool Assy | SLAC | B\&H | 3 | 1.5 wks | \$0.00 | \$0.00 | \$3,420.00 | \$3,420.00 | \$684.00 | \$1,436.40 | \$5,540.40 |
|  |  | SLACL I\&M Cratts - Welder |  | B\&H | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$3,420.00 | \$0.00 | \$0.00 | \$0.00 |
| 5455 | 1.3.2.2.1.1 | Actuators parts | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$371.00 | \$1,431.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5456 | 1.3.2.2.1.1 | Actuator assy | SLAC |  | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC PCD:Inst-Cabling-Elec Fab |  |  | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5457 | 1.3.2.2.1.1 | Misc Hardware | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$371.00 | \$1,431.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5458 | 1.3.2.2.1.1 | Plate/clean | SLAC | B\&H | 3 | 4.5 wks | \$0.00 | \$0.00 | \$14,400.00 | \$14,400.00 | \$2,880.00 | \$6,048.00 | \$23,328.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 4.5 wks | \$0.00 | \$0.00 | \$0.00 | \$14,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 5459 | 1.3.2.2.1.1 | Braze/weld | SLAC | B\&H | 3 | 5 wks | \$0.00 | \$0.00 | \$9,994.00 | \$9,994.00 | \$1,998.80 | \$4,197.48 | \$16,190.28 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$9,994.00 | \$0.00 | \$0.00 | \$0.00 |
| 5460 | 1.3.2.2.1.1 | Support Fab \& Machining | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$456.00 | \$957.60 | \$3,693.60 |
|  |  | SLACL T\&M Cratts - Welder |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5461 | 1.3.2.2.1.1 | Vacuum assembly | SLAC | B\&H | 1 | 1 wk | \$0.00 | \$0.00 | \$1,753.60 | \$1,753.60 | \$350.72 | \$315.65 | \$2,419.97 |
|  |  | SLAC PCD:Technician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,753.60 | \$0.00 | \$0.00 | \$0.00 |
| 5462 | 1.3.2.2.1.1 | Alignment | SLAC | B\&H | 3 | 6 wks | \$0.00 | \$0.00 | \$13,680.00 | \$13,680.00 | \$2,736.00 | \$5,745.60 | \$22,161.60 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$13,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 5463 | 1.3.2.2.1.1 | Installation | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$456.00 | \$957.60 | \$3,693.60 |
|  |  | SLACL T\&M Cratts - Welder |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5464 | 1.3.2.2.1.2 | PPS Shutter Stoppers | SLAC |  | 0 | 71 wks | \$0.00 | \$133,000.00 | \$158,076.00 | \$291,076.00 | \$39,595.20 | \$84,952.76 | \$415,623.96 |
| 5465 | 1.3.2.2.1.2 | Hvy Met 6500cc3 Brick sets | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$720.00 | \$1,908.00 | \$14,628.00 |
|  |  | SLAC MES Iotal |  | M 2 S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5466 | 1.3.2.2.1.2 | Tank Fab and Machining | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$106,500.00 | \$0.00 | \$106,500.00 | \$6,390.00 | \$16,933.50 | \$129,823.50 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 106,500 | \$0.00 | \$0.00 | \$0.00 | \$106,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 5467 | 1.3.2.2.1.2 | Brick Backet Stem Assy | SLAC |  | 3 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC PCD:Inst-Cabling-Elec Fab |  |  | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5468 | 1.3.2.2.1.2 | Flanges \& transitions | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,484.00 | \$5,724.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| $5469$ | 1.3.2.2.1.2 | Misc Hardware | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$5,500.00 | \$0.00 | \$5,500.00 | \$330.00 | \$2,040.50 | \$7,870.50 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,500 | \$0.00 | \$0.00 | \$0.00 | \$5,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 5470 | 1.3.2.2.1.2 | Plate/clean | SLAC | B\&H | 2 | 12 wks | \$0.00 | \$0.00 | \$38,400.00 | \$38,400.00 | \$7,680.00 | \$11,520.00 | \$57,600.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$38,400.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5471 | 1.3.2.2.1.2 | Braze/weld | SLAC | B\&H | 3 | 10 wks | \$0.00 | \$0.00 | \$19,988.00 | \$19,988.00 | \$3,997.60 | \$8,394.96 | \$32,380.56 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 10 wks | \$0.00 | \$0.00 | \$0.00 | \$19,988.00 | \$0.00 | \$0.00 | \$0.00 |
| 5472 | 1.3.2.2.1.2 | Support Fab \& Machining | SLAC | B\&H | 3 | 2.5 wks | \$0.00 | \$0.00 | \$5,700.00 | \$5,700.00 | \$1,140.00 | \$2,394.00 | \$9,234.00 |
|  |  | SLACL I\&M Cratts - Welder |  | B\&H | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$5,700.00 | \$0.00 | \$0.00 | \$0.00 |
| 5473 | 1.3.2.2.1.2 | Support Fab \& Machining | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$2,500.00 | \$0.00 | \$2,500.00 | \$150.00 | \$927.50 | \$3,577.50 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,500 | \$0.00 | \$0.00 | \$0.00 | \$2,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 5474 | 1.3.2.2.1.2 | Air Cylinder parts | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$2,500.00 | \$0.00 | \$2,500.00 | \$150.00 | \$927.50 | \$3,577.50 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 2,500 | \$0.00 | \$0.00 | \$0.00 | \$2,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 5475 | 1.3.2.2.1.2 | Air Actuator assy | SLAC | B\&H | 3 | 4 wks | \$0.00 | \$0.00 | \$7,995.20 | \$7,995.20 | \$1,599.04 | \$3,357.98 | \$12,952.22 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,995.20 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5476 | 1.3.2.2.1.2 | Vacuum assembly | SLAC | B\&H | 1 | 2.5 wks | \$0.00 | \$0.00 | \$4,384.00 | \$4,384.00 | \$876.80 | \$789.12 | \$6,049.92 |
|  |  | SLAC PCD:Technician |  | B\&H | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$4,384.00 | \$0.00 | \$0.00 | \$0.00 |
| 5477 | 1.3.2.2.1.2 | Alignment | SLAC | B\&H | 3 | 13 wks | \$0.00 | \$0.00 | \$29,640.00 | \$29,640.00 | \$5,928.00 | \$12,448.80 | \$48,016.80 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 13 wks | \$0.00 | \$0.00 | \$0.00 | \$29,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 5478 | 1.3.2.2.1.2 | Installation | SLAC | B\&H | 3 | 26 wks | \$0.00 | \$0.00 | \$51,968.80 | \$51,968.80 | \$10,393.76 | \$21,826.90 | \$84,189.46 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 26 wks | \$0.00 | \$0.00 | \$0.00 | \$51,968.80 | \$0.00 | \$0.00 | \$0.00 |
| 5479 | 1.3.2.2.1.3 | PPS Final Beam Stop | SLAC |  | 0 | 2.9 wks | \$0.00 | \$2,400.00 | \$4,083.76 | \$6,483.76 | \$960.75 | \$1,978.86 | \$9,423.37 |
| 5480 | 1.3.2.2.1.3 | firstitem | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$74.20 | \$286.20 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 5481 | 1.3.2.2.1.3 | Design | SLAC | B\&H | 2 | 2.2 wks | \$0.00 | \$0.00 | \$2,816.00 | \$2,816.00 | \$563.20 | \$844.80 | \$4,224.00 |
|  |  | SLAC Site Engineering: Labor |  | B\&H | 0 | 2.2 wks | \$0.00 | \$0.00 | \$0.00 | \$2,816.00 | \$0.00 | \$0.00 | \$0.00 |
| 5482 | 1.3.2.2.1.3 | Lead External Bricks | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5483 | 1.3.2.2.1.3 | Cooled Cu Plug | SLAC |  | 3 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC PCD:Inst-Cabling-Elec Fab |  |  | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5484 | 1.3.2.2.1.3 | Flanges \& transitions | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$371.00 | \$1,431.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5485 | 1.3.2.2.1.3 | Misc Hardware | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$74.20 | \$286.20 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 5486 | 1.3.2.2.1.3 | Plate/clean | SLAC | B\&H | 2 | 0.2 wks | \$0.00 | \$0.00 | \$640.00 | \$640.00 | \$128.00 | \$192.00 | \$960.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$640.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cWbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| $5487$ | 1.3.2.2.1.3 | Braze/weld | SLAC | B\&H | 3 | 0.2 wks | \$0.00 | \$0.00 | \$399.76 | \$399.76 | \$79.95 | \$167.90 | \$647.61 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 0.2 wks | \$0.00 | \$0.00 | \$0.00 | \$399.76 | \$0.00 | \$0.00 | \$0.00 |
| 5488 | 1.3.2.2.1.3 | Support Fab \& Machining | SLAC | B\&H | 3 | 0.1 wks | \$0.00 | \$0.00 | \$228.00 | \$228.00 | \$45.60 | \$95.76 | \$369.36 |
|  |  | SLACL I\&M Cratts - Welder |  | B\&H | 0 | 0.1 wks | \$0.00 | \$0.00 | \$0.00 | \$228.00 | \$0.00 | \$0.00 | \$0.00 |
| 5489 | 1.3.2.2. 2 | Endstation mechanical |  |  | 0 | 55 wks | \$0.00 | \$190,000.00 | \$241,590.40 | \$431,590.40 | \$59,718.08 | \$149,061.97 | \$640,370.45 |
| 5490 | 1.3.2.2.2.1 | Spectrometers | SLAC |  | 0 | 5 wks | \$0.00 | \$164,000.00 | \$9,994.00 | \$173,994.00 | \$11,838.80 | \$47,657.48 | \$233,490.28 |
| 5491 | 1.3.2.2.2. 1 | 2 -axis spectrometer | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$164,000.00 | \$0.00 | \$164,000.00 | \$9,840.00 | \$43,460.00 | \$217,300.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {S }}$ S | 0 | 164,000 | \$0.00 | \$0.00 | \$0.00 | \$164,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5492 | 1.3.2.2.2.1 | linspection | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,678.99 | \$6,476.11 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 5493 | 1.3.2.2.2. 1 | Assembly | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$5,996.40 | \$5,996.40 | \$1,199.28 | \$2,518.49 | \$9,714.17 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$5,996.40 | \$0.00 | \$0.00 | \$0.00 |
| 5494 | 1.3.2.2.2.2 | Chamber support tables |  |  | 0 | 15 wks | \$0.00 | \$26,000.00 | \$63,596.40 | \$89,596.40 | \$14,279.28 | \$30,844.49 | \$134,720.17 |
| 5495 | 1.3.2.2.2.2 | Optical table $4 \times 8 \times 12^{\prime \prime}$ | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$720.00 | \$1,908.00 | \$14,628.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5496 | 1.3.2.2.2.2 | Isolator legs | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,113.00 | \$8,533.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5497 | 1.3.2.2.2.2 | Ile bars | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5498 | 1.3.2.2.2.2 | Earthquake restraints | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$954.00 | \$7,314.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5499 | 1.3.2.2.2.2 | Inspection | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$839.50 | \$3,238.06 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 5500 | 1.3.2.2.2.2 | Assembly/Installation | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,678.99 | \$6,476.11 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 5501 | 1.3.2.2.2.2 | Assembly/nstallation | SLAC | ED\& | 3 | 12 wks | \$0.00 | \$0.00 | \$57,600.00 | \$57,600.00 | \$11,520.00 | \$24,192.00 | \$93,312.00 |
|  |  | SLAC Project Management |  | ED\&1 | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$57,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5502 | 1.3.2.2.2.3 | System Integration | SLAC | ED\&1 | 3 | 35 wks | \$0.00 | \$0.00 | \$168,000.00 | \$168,000.00 | \$33,600.00 | \$70,560.00 | \$272,160.00 |
|  |  | SLAC Project Management |  | ED\& | 0 | 35 wks | \$0.00 | \$0.00 | \$0.00 | \$168,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5503 | 1.3.2.3 | Vacuum |  |  | 0 | 74 wks | \$0.00 | \$266,001.00 | \$230,270.80 | \$496,271.80 | \$62,014.22 | \$119,766.25 | \$678,052.27 |
| 5504 | 1.3.2.3.1 | Vacuum Components |  |  | 0 | 25 wks | \$0.00 | \$192,001.00 | \$83,584.40 | \$275,585.40 | \$28,236.94 | \$68,149.75 | \$371,972.09 |
| 5505 | 1.3.2.3.1.1 | valves |  |  | 0 | 2 wks | \$0.00 | \$20,000.00 | \$3,997.60 | \$23,997.60 | \$1,999.52 | \$4,858.99 | \$30,856.11 |
| 5506 | 1.3.2.3.1.1 | Gate valves | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$13,000.00 | \$0.00 | \$13,000.00 | \$780.00 | \$2,067.00 | \$15,847.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 13,000 | \$0.00 | \$0.00 | \$0.00 | \$13,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5507 | 1.3.2.3.1.1 | Roughing | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,113.00 | \$8,533.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5508 | 1.3.2.3.1.1 | Inspection | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,678.99 | \$6,476.11 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 5509 | 1.3.2.3.1.2 | Hardware |  |  | 0 | 1 wk | \$0.00 | \$13,000.00 | \$1,998.80 | \$14,998.80 | \$1,179.76 | \$5,662.50 | \$21,841.06 |
| 5510 | 1.3.2.3.1.2 | Flanges | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,113.00 | \$4,293.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5511 | 1.3.2.3.1.2 | Bellows | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$3,710.00 | \$14,310.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5512 | 1.3.2.3.1.2 | Inspection | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$839.50 | \$3,238.06 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 5513 | 1.3.2.3.1.3 | Ion Pump System |  |  | 0 | 4 wks | \$0.00 | \$82,000.00 | \$7,995.20 | \$89,995.20 | \$6,519.04 | \$16,395.98 | \$112,910.22 |
| 5514 | 1.3.2.3.1.3 | Pumps | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$46,000.00 | \$0.00 | \$46,000.00 | \$2,760.00 | \$7,314.00 | \$56,074.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 46,000 | \$0.00 | \$0.00 | \$0.00 | \$46,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5515 | 1.3.2.3.1.3 | Controller | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$29,000.00 | \$0.00 | \$29,000.00 | \$1,740.00 | \$4,611.00 | \$35,351.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 29,000 | \$0.00 | \$0.00 | \$0.00 | \$29,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5516 | 1.3.2.3.1.3 | 4 -way cross | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$954.00 | \$7,314.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5517 | 1.3.2.3.1.3 | Iee | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5518 | 1.3.2.3.1.3 | Assembly | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$5,996.40 | \$5,996.40 | \$1,199.28 | \$2,518.49 | \$9,714.17 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | $3 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$5,996.40 | \$0.00 | \$0.00 | \$0.00 |
| 5519 | 1.3.2.3.1.3 | Inspection | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$839.50 | \$3,238.06 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 5520 | 1.3.2.3.1.4 | Turbo Pump System |  |  | 0 | 2 wks | \$0.00 | \$24,001.00 | \$3,997.60 | \$27,998.60 | \$2,239.58 | \$5,495.15 | \$35,733.33 |
| 5521 | 1.3.2.3.1.4 | Pump | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$900.00 | \$2,385.00 | \$18,285.00 |
|  |  | SLAC M\&S Total |  | M 4 S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5522 | 1.3.2.3.1.4 | Controller | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5523 | 1.3.2.3.1.4 | Backing Punp | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$795.00 | \$6,095.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5524 | 1.3.2.3.1.4 | Water Cooling | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1.00 | \$0.00 | \$1.00 | \$0.06 | \$0.16 | \$1.22 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1 | \$0.00 | \$0.00 | \$0.00 | \$1.00 | \$0.00 | \$0.00 | \$0.00 |
| 5525 | 1.3.2.3.1.4 | Vent System | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }_{\text {d }}$ S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5526 | 1.3.2.3.1.4 | Inspection | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,678.99 | \$6,476.11 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | SLAC Mech. Fab: Assembly Tech | OBS | PHASE | Risk | Units2 wks | PED (Direct)$\$ 0.00$ | $\begin{aligned} & \text { M\&S (Direct) } \\ & \$ 0.00 \end{aligned}$ | Labor (Direct) | $\begin{aligned} & \text { Direct Cost } \\ & \hline \$ 3,997.60 \end{aligned}$ | Overhead Cost $\$ 0.00$ | $\begin{array}{r} \text { Contingency Cost } \\ \$ 0.00 \end{array}$ | $\begin{aligned} & \text { Total Cost } \\ & \$ 0.00 \end{aligned}$ |
|  |  |  |  | B\&H | 0 |  |  |  |  |  |  |  |  |
| 5527 | 1.3.2.3.1.5 | Guage System |  |  | 0 | 16 wks | \$0.00 | \$53,000.00 | \$65,595.20 | \$118,595.20 | \$16,299.04 | \$35,737.13 | \$170,631.37 |
| 5528 | 1.3.2.3.1.5 | Gauges | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$954.00 | \$7,314.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5529 | 1.3.2.3.1.5 | Gauge controllers | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$46,000.00 | \$0.00 | \$46,000.00 | \$2,760.00 | \$7,314.00 | \$56,074.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 46,000 | \$0.00 | \$0.00 | \$0.00 | \$46,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5530 | 1.3.2.3.1.5 | Cables | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5531 | 1.3.2.3.1.5 | Assembly | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$5,996.40 | \$5,996.40 | \$1,199.28 | \$2,518.49 | \$9,714.17 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$5,996.40 | \$0.00 | \$0.00 | \$0.00 |
| 5532 | 1.3.2.3.1.5 | Inspection | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$599.64 | \$2,998.20 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 5533 | 1.3.2.3.1.6 | System Integration | SLAC |  | 0 | 12 wks | \$0.00 | \$0.00 | \$57,600.00 | \$57,600.00 | \$11,520.00 | \$24,192.00 | \$93,312.00 |
| 5534 | 1.3.2.3.1.6 | System Integration | SLAC | ED\& | 3 | 12 wks | \$0.00 | \$0.00 | \$57,600.00 | \$57,600.00 | \$11,520.00 | \$24,192.00 | \$93,312.00 |
|  |  | SLAC Project Management |  | ED\& | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$57,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5535 | 1.3.2.3.2 | Experimental chambers |  |  | 0 | 49 wks | \$0.00 | \$74,000.00 | \$146,686.40 | \$220,686.40 | \$33,777.28 | \$51,616.50 | \$306,080.18 |
| 5536 | 1.3.2.3.2.1 | Chamber: A2 |  |  | 0 | 8 wks | \$0.00 | \$20,000.00 | \$16,271.60 | \$36,271.60 | \$4,454.32 | \$14,797.48 | \$55,523.40 |
| 5537 | 1.3.2.3.2.1 | Chamber | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$10,600.00 | \$31,800.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5538 | 1.3.2.3.2.1 | Inspection | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,678.99 | \$6,476.11 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 5539 | 1.3.2.3.2.1 | Assembly | SLAC | $\mathrm{B} \& \mathrm{H}$ | 3 | 3 wks | \$0.00 | \$0.00 | \$5,996.40 | \$5,996.40 | \$1,199.28 | \$2,518.49 | \$9,714.17 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$5,996.40 | \$0.00 | \$0.00 | \$0.00 |
| 5540 | 1.3.2.3.2.1 | Installation | SLAC | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$0.00 | \$4,797.12 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 5541 | 1.3.2.3.2.1 | Alignment | SLAC | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$456.00 | \$0.00 | \$2,736.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5542 | 1.3.2.3.2.2 | Chamber: B4 |  |  | 0 | 8 wks | \$0.00 | \$17,000.00 | \$16,271.60 | \$33,271.60 | \$4,274.32 | \$11,339.07 | \$48,884.99 |
| 5543 | 1.3.2.3.2.2 | Chamber | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$17,000.00 | \$0.00 | \$17,000.00 | \$1,020.00 | \$4,505.00 | \$22,525.00 |
|  |  | SLAC MES Total |  | M 2 S | 0 | 17,000 | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5544 | 1.3.2.3.2.2 | Inspection | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,678.99 | \$6,476.11 |
|  |  | SLAC Mech. rab: Assembly lech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | $\$ 0.00$ | $\$ 0.00$ |
| 5545 | 1.3.2.3.2.2 | Assembly | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$5,996.40 | \$5,996.40 | \$1,199.28 | \$2,518.49 | \$9,714.17 |
|  |  | SLAC Mech. rab: Assembly lech |  | BRH | 0 | 3 wks | \$0.00 | \$0.00 | $\$ 0.00$ | \$5,996.40 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 5546 | 1.3.2.3.2.2 | Installation | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,678.99 | \$6,476.11 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 5547 | 1.3.2.3.2.2 | Alignment | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$456.00 | \$957.60 | \$3,693.60 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5548 | 1.3.2.3.2.3 | System Integration | SLAC |  | 0 | 17 wks | \$0.00 | \$0.00 | \$81,600.00 | \$81,600.00 | \$16,320.00 | \$0.00 | \$97,920.00 |
| 5549 | 1.3.2.3.2.3 | System Integration | SLAC | ED\& | 0 | 17 wks | \$0.00 | \$0.00 | \$81,600.00 | \$81,600.00 | \$16,320.00 | \$0.00 | \$97,920.00 |
|  |  | SLAC Project Management |  | ED\& | 0 | 17 wks | \$0.00 | \$0.00 | \$0.00 | \$81,600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5550 | 1.3.2.3.2.4 | Chamber: A3 | SLAC |  | 3 | 8 wks | \$0.00 | \$20,000.00 | \$16,271.60 | \$36,271.60 | \$4,454.32 | \$13,296.47 | \$54,022.39 |
| 5551 | 1.3.2.3.2.4 | chamber | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$7,420.00 | \$28,620.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5552 | 1.3.2.3.2.4 | inspection | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,678.99 | \$6,476.11 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 5553 | 1.3.2.3.2.4 | assembly | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$5,996.40 | \$5,996.40 | \$1,199.28 | \$2,518.49 | \$9,714.17 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$5,996.40 | \$0.00 | \$0.00 | \$0.00 |
| 5554 | 1.3.2.3.2.4 | installation | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,678.99 | \$6,476.11 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 5555 | 1.3.2.3.2.4 | alignment | SLAC | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$456.00 | \$0.00 | \$2,736.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | BRH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5556 | 1.3.2.3.2.5 | Chamber: B5 | SLAC |  | 3 | 8 wks | \$0.00 | \$17,000.00 | \$16,271.60 | \$33,271.60 | \$4,274.32 | \$12,183.47 | \$49,729.39 |
| 5557 | 1.3.2.3.2.5 | chamber | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$17,000.00 | \$0.00 | \$17,000.00 | \$1,020.00 | \$6,307.00 | \$24,327.00 |
|  |  | SLAC MES Total |  | M 2 S | 0 | 17,000 | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5558 | 1.3.2.3.2.5 | inspection | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,678.99 | \$6,476.11 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | $2 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 5559 | 1.3.2.3.2.5 | assembly | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$5,996.40 | \$5,996.40 | \$1,199.28 | \$2,518.49 | \$9,714.17 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$5,996.40 | \$0.00 | \$0.00 | \$0.00 |
| 5560 | 1.3.2.3.2.5 | installation | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,678.99 | \$6,476.11 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 5561 | 1.3.2.3.2.5 | alignment | SLAC | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$456.00 | \$0.00 | \$2,736.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | BRH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5562 | 1.3.2.4 | Controls |  |  | 0 | 75 wks | \$0.00 | \$3,704,000.00 | \$291,291.20 | \$3,995,291.20 | \$280,498.24 | \$1,769,698.30 | \$6,045,487.74 |
| 5563 | 1.3.2.4.1 | Controls |  |  | 0 | 13 wks | \$0.00 | \$1,166,000.00 | \$35,360.00 | \$1,201,360.00 | \$77,032.00 | \$447,437.20 | \$1,725,829.20 |
| 5564 | 1.3.2.4.1. | Infrastructure |  |  | 0 | 0 wks | \$0.00 | \$86,000.00 | \$0.00 | \$86,000.00 | \$5,160.00 | \$31,906.00 | \$123,066.00 |
| 5565 | 1.3.2.4.1.1 | Cable trays:outside contract | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5566 | 1.3.2.4.1.1 | FFIB extension | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$14,000.00 | \$0.00 | \$14,000.00 | \$840.00 | \$5,194.00 | \$20,034.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 14,000 | \$0.00 | \$0.00 | \$0.00 | \$14,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | $\begin{array}{\|l\|} \hline \text { Risk } \\ \hline 3 \end{array}$ | Units <br> 0 wks | $\frac{\text { PED (Direct) }}{\$ 0.00}$ | $\frac{\text { M\&S (Direct) }}{\$ 12,000.00}$ | Labor (Direct) | $\begin{aligned} & \text { Direct Cost } \\ & \$ 12,000.00 \end{aligned}$ | Overhead Cost $\$ 720.00$ | Contingency Cost$\$ 4,452.00$ | Total Cost <br> \$17,172.00 |
| $5567$ | 1.3.2.4.1.1 | Hask Name Hall A | SLAC | M\&S |  |  |  |  |  |  |  |  |  |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5568 | 1.3.2.4.1.1 | tunnel | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$48,000.00 | \$0.00 | \$48,000.00 | \$2,880.00 | \$17,808.00 | \$68,688.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 48,000 | \$0.00 | \$0.00 | \$0.00 | \$48,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5569 | 1.3.2.4.1.1 | Hall B | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$720.00 | \$4,452.00 | \$17,172.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5570 | 1.3.2.4.1.2 | Network |  |  | 0 | 13 wks | \$0.00 | \$530,000.00 | \$35,360.00 | \$565,360.00 | \$38,872.00 | \$211,481.20 | \$815,713.20 |
| 5571 | 1.3.2.4.1.2 | Installation (trunk cable) | SLAC | B\&H | ${ }^{3}$ | 13 wks | \$0.00 | \$0.00 | \$35,360.00 | \$35,360.00 | \$7,072.00 | \$14,851.20 | \$57,283.20 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 13 wks | \$0.00 | \$0.00 | \$0.00 | \$35,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 5572 | 1.3.2.4.1.2 | Cisco 6509 router | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$150,000.00 | \$0.00 | \$150,000.00 | \$9,000.00 | \$55,650.00 | \$214,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 150,000 | \$0.00 | \$0.00 | \$0.00 | \$150,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5573 | 1.3.2.4.1.2 | Catalyst switches | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$100,000.00 | \$0.00 | \$100,000.00 | \$6,000.00 | \$37,100.00 | \$143,100.00 |
|  |  | SLAC MXS Iotal |  | M ${ }^{\text {d S }}$ | 0 | 100,000 | \$0.00 | \$0.00 | \$0.00 | \$100,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5574 | 1.3.2.4.1.2 | Cisco Wireless hubs | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$1,800.00 | \$11,130.00 | \$42,930.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5575 | 1.3.2.4.1.2 | Fiber optics, CAT-5 cable | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$50,000.00 | \$0.00 | \$50,000.00 | \$3,000.00 | \$18,550.00 | \$71,550.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5576 | 1.3.2.4.1.2 | Connectors/components | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$1,800.00 | \$11,130.00 | \$42,930.00 |
|  |  | SLAC M\&S Iotal |  | M $\mathrm{S}_{\text {S }}$ | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5577 | 1.3.2.4.1.2 | Satellite room components | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$50,000.00 | \$0.00 | \$50,000.00 | \$3,000.00 | \$18,550.00 | \$71,550.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5578 | 1.3.2.4.1.2 | Network testterminate tools | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$60,000.00 | \$0.00 | \$60,000.00 | \$3,600.00 | \$22,260.00 | \$85,860.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 60,000 | \$0.00 | \$0.00 | \$0.00 | \$60,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5579 | 1.3.2.4.1.2 | Maintanence contract | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$60,000.00 | \$0.00 | \$60,000.00 | \$3,600.00 | \$22,260.00 | \$85,860.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 60,000 | \$0.00 | \$0.00 | \$0.00 | \$60,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5580 | 1.3.2.4.1.3 | Reserved |  |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5581 | 1.3.2.4.1.3 | Domain servers | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5582 | 1.3.2.4.1.3 | tape library | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5583 | 1.3.2.4.1.3 | File server | SLAC | M2S | 3 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5584 | 1.3.2.4.1.3 | Printers | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC MXS Iotal |  | M d S $^{\text {S }}$ | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5585 | 1.3.2.4.1.3 | PC's | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBs | Task Name | OBS | PHASEM\&S | $\begin{array}{\|l\|} \hline \text { Risk } \\ \hline \end{array}$ | Units | PED (Direct) $\$ 0.00$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | Labor (Direct)$\qquad$ | Direct Cost $\$ 0.00$ | Overhead Cost <br> $\$ 0.00$ | Contingency Cost $\$ 0.00$ | Total Cost $\$ 0.00$ |
|  |  | SLAC M\&S Total |  |  |  | 0 |  |  |  |  |  |  |  |
| 5586 | 1.3.2.4.1.3 | Sottware (specialized apps +OS) |  | M 2 S | 3 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d S }}$ | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | $\$ 0.00$ | \$0.00 | \$0.00 | \$0.00 |
| 5587 | 1.3.2.4.1.4 | Beamline controls |  |  | 0 | 0 wks | \$0.00 | \$550,000.00 | \$0.00 | \$550,000.00 | \$33,000.00 | \$204,050.00 | \$787,050.00 |
| 5588 | 1.3.2.4.1.4 | Motion controlelectronics | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$240,000.00 | \$0.00 | \$240,000.00 | \$14,400.00 | \$89,040.00 | \$343,440.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 240,000 | \$0.00 | \$0.00 | \$0.00 | \$240,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5589 | 1.3.2.4.1.4 | Single task computers | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$7,420.00 | \$28,620.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }_{\text {d }}$ S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5590 | 1.3.2.4.1.4 | Control computer | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$3,710.00 | \$14,310.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5591 | 1.3.2.4.1.4 | Graphics computer | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$100,000.00 | \$0.00 | \$100,000.00 | \$6,000.00 | \$37,100.00 | \$143,100.00 |
|  |  | SLAC M2S Total |  | M2S | 0 | 100,000 | \$0.00 | \$0.00 | \$0.00 | \$100,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5592 | 1.3.2.4.1.4 | Into services | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5593 | 1.3.2.4.1.4 | Web-server | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$50,000.00 | \$0.00 | \$50,000.00 | \$3,000.00 | \$18,550.00 | \$71,550.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5594 | 1.3.2.4.1.4 | Database server | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$80,000.00 | \$0.00 | \$80,000.00 | \$4,800.00 | \$29,680.00 | \$114,480.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d S }}$ | 0 | 80,000 | \$0.00 | \$0.00 | \$0.00 | \$80,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5595 | 1.3.2.4.1.4 | Oftice apps | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$50,000.00 | \$0.00 | \$50,000.00 | \$3,000.00 | \$18,550.00 | \$71,550.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5596 | 1.3.2.4.1.4 | High performance computing | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5597 | 1.3.2.4.1.4 | High pertormance/capacity data storage | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5598 | 1.3.2.4.2 | Detectors |  |  | 0 | 62 wks | \$0.00 | \$2,538,000.00 | \$255,931.20 | \$2,793,931.20 | \$203,466.24 | \$1,322,261.10 | \$4,319,658.54 |
| 5599 | 1.3.2.4.2.1 | Beam Imaging | SLAC |  | 0 | 6 wks | \$0.00 | \$20,000.00 | \$11,502.40 | \$31,502.40 | \$3,500.48 | \$12,251.01 | \$47,253.89 |
| 5600 | 1.3.2.4.2.1 | Hardware | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$7,420.00 | \$28,620.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5601 | 1.3.2.4.2.1 | Assembly | SLAC | B\&H | 3 | 4 wks | \$0.00 | \$0.00 | \$7,995.20 | \$7,995.20 | \$1,599.04 | \$3,357.98 | \$12,952.22 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,995.20 | \$0.00 | \$0.00 | \$0.00 |
| 5602 | 1.3.2.4.2.1 | Assembly/install | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,507.20 | \$3,507.20 | \$701.44 | \$1,473.02 | \$5,681.66 |
|  |  | SLAC PCD:Iechnician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,507.20 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5603 | 1.3.2.4.2.2 | Intensity | SLAC |  | 0 | 2 wks | \$0.00 | \$21,000.00 | \$3,507.20 | \$24,507.20 | \$1,961.44 | \$9,264.02 | \$35,732.66 |
| 5604 | 1.3.2.4.2.2 | Detectors | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$1,113.00 | \$4,293.00 |
|  |  | SLAC MES Total |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 5605 | 1.3.2.4.2.2 | Electronics | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$18,000.00 | \$0.00 | \$18,000.00 | \$1,080.00 | \$6,678.00 | \$25,758.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 18,000 | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5606 | 1.3.2.4.2.2 | Assembly/install | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,507.20 | \$3,507.20 | \$701.44 | \$1,473.02 | \$5,681.66 |
|  |  | SLAC PCD:Iechnician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,507.20 | \$0.00 | \$0.00 | \$0.00 |
| 5607 | 1.3.2.4.2.3 | Streak Camera | SLAC |  | 0 | 2 wks | \$0.00 | \$97,000.00 | \$3,507.20 | \$100,507.20 | \$6,521.44 | \$25,800.02 | \$132,828.66 |
| 5608 | 1.3.2.4.2.3 | Vacuum pumps | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$15,000.00 | \$0.00 | \$15,000.00 | \$900.00 | \$3,975.00 | \$19,875.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 15,000 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5609 | 1.3.2.4.2.3 | Gauges | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5610 | 1.3.2.4.2.3 | Cathode PSU | SLAC | M2S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5611 | 1.3.2.4.2.3 | Cathode Pulser | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$17,000.00 | \$0.00 | \$17,000.00 | \$1,020.00 | \$4,505.00 | \$22,525.00 |
|  |  | SLAC MES Iotal |  | M 4 S | 0 | 17,000 | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5612 | 1.3.2.4.2.3 | Bias/sweep PSUs | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$35,000.00 | \$0.00 | \$35,000.00 | \$2,100.00 | \$9,275.00 | \$46,375.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 35,000 | \$0.00 | \$0.00 | \$0.00 | \$35,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5613 | 1.3.2.4.2.3 | Electron cod system | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$636.00 | \$4,876.00 |
|  |  | SLAC M\&S Total |  | MES | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5614 | 1.3.2.4.2.3 | vacuum hardware | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$371.00 | \$1,431.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5615 | 1.3.2.4.2.3 | Slits | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$636.00 | \$4,876.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5616 | 1.3.2.4.2.3 | Cathode substrates (20) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$636.00 | \$4,876.00 |
|  |  | SLAC MES Iotal |  | M 2 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5617 | 1.3.2.4.2.3 | Cathode coatings (3) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5618 | 1.3.2.4.2.3 | Slides / picomotors | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Total |  | MRS | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5619 | 1.3.2.4.2.3 | BN insulator and 11 bolts | SLAC | M\&S | 3 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$371.00 | \$1,431.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5620 | 1.3.2.4.2.3 | Sweep plates materials and fab | SLAC | M 2 S | 3 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$742.00 | \$2,862.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5621 | 1.3.2.4.2.3 | Assembly/install | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$3,507.20 | \$3,507.20 | \$701.44 | \$1,473.02 | \$5,681.66 |
|  |  | SLAC PCD:Iechnician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,507.20 | \$0.00 | \$0.00 | \$0.00 |
| 5622 | 1.3.2.4.2.4 | 2-D X-Ray Detector | SLAC |  | 0 | 4 wks | \$0.00 | \$2,400,000.00 | \$7,014.40 | \$2,407,014.40 | \$145,402.88 | \$1,274,946.05 | \$3,827,363.33 |
| 5623 | 1.3.2.4.2.4 | Fab runs | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$2,000,000.00 | \$0.00 | \$2,000,000.00 | \$120,000.00 | \$1,060,000.00 | \$3,180,000.00 |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5624 | 1.3.2.4.2.4 | Misc materials | SLAC | M\&S | 4 | 0 wks | \$0.00 | \$400,000.00 | \$0.00 | \$400,000.00 | \$24,000.00 | \$212,000.00 | \$636,000.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 400,000 | \$0.00 | \$0.00 | \$0.00 | \$400,000.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 5625 | 1.3.2.4.2.4 | Assembly/install | SLAC | B\&H | 3 | 4 wks | \$0.00 | \$0.00 | \$7,014.40 | \$7,014.40 | \$1,402.88 | \$2,946.05 | \$11,363.33 |
|  |  | SLAC PCD:Technician |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,014.40 | \$0.00 | \$0.00 | \$0.00 |
| 5626 | 1.3.2.4.2.5 | System Integration | SLAC |  | 3 | 48 wks | \$0.00 | \$0.00 | \$230,400.00 | \$230,400.00 | \$46,080.00 | \$0.00 | \$276,480.00 |
| 5627 | 1.3.2.4.2.5 | Project Manager | SLAC | ED\& | 0 | 48 wks | \$0.00 | \$0.00 | \$230,400.00 | \$230,400.00 | \$46,080.00 | \$0.00 | \$276,480.00 |
|  |  | SLAC Project Management |  | ED\& | 0 | 48 wks | \$0.00 | \$0.00 | \$0.00 | \$230,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 5628 | 1.3.2.5 | Laser systems |  |  | 0 | 120.75 wks | \$0.00 | \$1,412,400.00 | \$405,297.60 | \$1,817,697.60 | \$165,803.52 | \$398,138.08 | \$2,381,639.20 |
| 5629 | 1.3.2.5.1 | Oscillator Laser \& Pump |  |  | 0 | 5 wks | \$0.00 | \$247,000.00 | \$17,000.00 | \$264,000.00 | \$18,220.00 | \$44,373.00 | \$326,593.00 |
| 5630 | 1.3.2.5.1.1 | Oscillator Laser \& Pump | SLAC | ED\& | 2 | 2.5 wks | \$0.00 | \$0.00 | \$8,500.00 | \$8,500.00 | \$1,700.00 | \$2,550.00 | \$12,750.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$8,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 5631 | 1.3.2.5.1.1 | Oscillator Laser \& Pump | SLAC | ED\&1 | 2 | 2.5 wks | \$0.00 | \$0.00 | \$8,500.00 | \$8,500.00 | \$1,700.00 | \$2,550.00 | \$12,750.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\&1 | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$8,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 5632 | 1.3.2.5.1.1 | CW diode-pumped doubled Nd:YVO4 (eg. Model Millennia Xs-P) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$104,400.00 | \$0.00 | \$104,400.00 | \$6,264.00 | \$16,599.60 | \$127,263.60 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 104,400 | \$0.00 | \$0.00 | \$0.00 | \$104,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 5633 | 1.3.2.5.1.2 | Nd:YVO4 Service Contract | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$13,200.00 | \$0.00 | \$13,200.00 | \$792.00 | \$2,098.80 | \$16,090.80 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 13,200 | \$0.00 | \$0.00 | \$0.00 | \$13,200.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 5634 | 1.3.2.5.1.3 | CW mode locked II:S Oscillator, 1.4W (eg. Model 3960-x1M) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$98,400.00 | \$0.00 | \$98,400.00 | \$5,904.00 | \$15,645.60 | \$119,949.60 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 98,400 | \$0.00 | \$0.00 | \$0.00 | \$98,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 5635 | 1.3.2.5.1.4 | Ti:S Oscillator Service Contract | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5636 | 1.3.2.5.1.5 | Oscillator synchronization option (eg. C-Option) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$29,000.00 | \$0.00 | \$29,000.00 | \$1,740.00 | \$4,611.00 | \$35,351.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 29,000 | \$0.00 | \$0.00 | \$0.00 | \$29,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5637 | 1.3.2.5.2 | Oscillator Diagnostics |  |  | 0 | 5 wks | \$0.00 | \$228,500.00 | \$17,000.00 | \$245,500.00 | \$17,110.00 | \$42,703.50 | \$305,313.50 |
| 5638 | 1.3.2.5.2.1 | Oscillator Diagnostics | SLAC | ED\& | 2 | 2.5 wks | \$0.00 | \$0.00 | \$8,500.00 | \$8,500.00 | \$1,700.00 | \$2,550.00 | \$12,750.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$8,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 5639 | 1.3.2.5.2.1 | Oscillator Diagnostics | SLAC | ED\& | 2 | 2.5 wks | \$0.00 | \$0.00 | \$8,500.00 | \$8,500.00 | \$1,700.00 | \$2,550.00 | \$12,750.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$8,500.00 | \$0.00 | $\$ 0.00$ | \$0.00 |
| 5640 | 1.3.2.5.2.1 | Autocorrelators (scanning) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$18,500.00 | \$0.00 | \$18,500.00 | \$1,110.00 | \$2,941.50 | \$22,551.50 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 18,500 | \$0.00 | \$0.00 | \$0.00 | \$18,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 5641 | 1.3.2.5.2.2 | IR wavelength monitors (spectrometers) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5642 | 1.3.2.5.2.3 | CCD camera | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | Page 293 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 5643 | 1.3.2.5.2.4 | Powerlenergy meter (2 channel) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$1,272.00 | \$9,752.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5644 | 1.3.2.5.2.5 | Power/energy sensor, 10w | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 5645 | 1.3.2.5.2.6 | Power /energy sensor , 2W | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5646 | 1.3.2.5.2.7 | >12 GHz photodiodes | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$14,000.00 | \$0.00 | \$14,000.00 | \$840.00 | \$2,226.00 | \$17,066.00 |
|  |  | SLAC MAS Iotal |  | M\&S | 0 | 14,000 | \$0.00 | \$0.00 | \$0.00 | \$14,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5647 | 1.3.2.5.2.8 | $20-50 \mathrm{GHz}, 4$ channel scope | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$70,000.00 | \$0.00 | \$70,000.00 | \$4,200.00 | \$11,130.00 | \$85,330.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 70,000 | \$0.00 | $\$ 0.00$ | \$0.00 | \$70,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5648 | 1.3.2.5.2.9 | 1 -ns risetime diodes | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5649 | 1.3.2.5. 2 . 10 | IR FROG | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$21,000.00 | \$0.00 | \$21,000.00 | \$1,260.00 | \$3,339.00 | \$25,599.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 21,000 | \$0.00 | \$0.00 | \$0.00 | \$21,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5650 | 1.3.2.5.2.11 | Fiber-coupled spectrometer (vis-ir) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5651 | 1.3.2.5.2.12 | Planar mirrors/splitters | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$11,000.00 | \$0.00 | \$11,000.00 | \$660.00 | \$1,749.00 | \$13,409.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 11,000 | \$0.00 | \$0.00 | \$0.00 | \$11,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 5652 | 1.3.2.5.2.13 | Mirror mounts | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5653 | 1.3.2.5.2.14 | Pop-in mounts (rotary) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5654 | 1.3.2.5.2.15 | Alignment irises on posts | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5655 | 1.3.2.5.2.16 | Post collars | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5656 | 1.3.2.5.2.17 | Beam profiler system (includes ir,vis, uv cameras + PC) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$60,000.00 | \$0.00 | \$60,000.00 | \$3,600.00 | \$9,540.00 | \$73,140.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 60,000 | \$0.00 | \$0.00 | \$0.00 | \$60,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5657 | 1.3.2.5. 2.18 | Posts | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5658 | 1.3.2.5.2.19 | Posts Holders | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 5659 | 1.3.2.5.2.20 | Post Holder Bases | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5660 | 1.3.2.5. 2.21 | Beam dumps | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units ${ }_{\text {1,000 }}$ | PED (Direct)$\$ 0.00$ | M\&S (Direct)$\$ 0.00$ | Labor (Direct) $\$ 0.00$ | $\begin{gathered} \text { Direct Cost } \\ \$ 1,000.00 \end{gathered}$ | Overhead Cost <br> $\$ 0.00$ | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  |  |  |  |  |  |  |  |  | \$0.00 | \$0.00 |
| 5661 | 1.3.2.5.3 | Pulse Stretcher |  |  | 0 | 3.15 wks | \$0.00 | \$19,000.00 | \$10,630.00 | \$29,630.00 | \$3,266.00 | \$6,374.40 | \$39,270.40 |
| 5662 | 1.3.2.5.3.1 | Pulse Stretcher | SLAC | ED\& | 2 | 1.25 wks | \$0.00 | \$0.00 | \$4,250.00 | \$4,250.00 | \$850.00 | \$1,275.00 | \$6,375.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 1.25 wks | \$0.00 | \$0.00 | \$0.00 | \$4,250.00 | \$0.00 | \$0.00 | \$0.00 |
| 5663 | 1.3.2.5.3.1 | Pulse Stretcher | SLAC | ED\& | 2 | 1.5 wks | \$0.00 | \$0.00 | \$5,100.00 | \$5,100.00 | \$1,020.00 | \$1,530.00 | \$7,650.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$5,100.00 | \$0.00 | \$0.00 | \$0.00 |
| 5664 | 1.3.2.5.3.1 | Gratings, $1 \times 2 \mathrm{in}, 1700 \mathrm{li} / \mathrm{mm}, 780 \mathrm{~nm}$ | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$720.00 | \$1,908.00 | \$14,628.00 |
|  |  | SLAC MES Iotal |  | M 4 S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | $\$ 0.00$ | $\$ 0.00$ |
| 5665 | 1.3.2.5.3.2 | Grating mounts, tip,tilt,azim knobs | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5666 | 1.3.2.5.3.3 | Lenses, $\mathrm{D}=2$ in $\mathrm{f}=0.5 \mathrm{~m}$, coated, 780 nm | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5667 | 1.3.2.5.3.4 | 2 inch lens mounts | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC MES Iotal |  | M MS | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5668 | 1.3.2.5.3.5 | Prisms, $2 \times 2$ in, coated, 780 nm | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5669 | 1.3.2.5.3.6 | Prism mount with tip, tilt | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {M S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5670 | 1.3.2.5.3.7 | Iranslation stages with micrometer | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC MES Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5671 | 1.3.2.5.3.8 | Beam covers | SLAC | B\&H | 1 | 0.4 wks | \$0.00 | \$0.00 | \$1,280.00 | \$1,280.00 | \$256.00 | \$230.40 | \$1,766.40 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5672 | 1.3.2.5.4 | Pockels Cells and Drivers (ir) |  |  | 0 | 9.5 wks | \$0.00 | \$27,000.00 | \$32,300.00 | \$59,300.00 | \$8,080.00 | \$14,195.00 | \$81,575.00 |
| 5673 | 1.3.2.5.4.1 | Pockels Cells and Drivers (ir) | SLAC | ED\& | 2 | 5 wks | \$0.00 | \$0.00 | \$17,000.00 | \$17,000.00 | \$3,400.00 | \$5,100.00 | \$25,500.00 |
|  |  | SLAC Physicist-Scientist |  | ED\&1 | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5674 | 1.3.2.5.4.1 | Pockels Cells and Drivers (ir) | SLAC | ED\& | 2 | 4.5 wks | \$0.00 | \$0.00 | \$15,300.00 | \$15,300.00 | \$3,060.00 | \$4,590.00 | \$22,950.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\&1 | 0 | 4.5 wks | \$0.00 | \$0.00 | \$0.00 | \$15,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 5675 | 1.3.2.5.4.1 | Pockels cells, 8 mm , sol-gel@780nm | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Iotal |  | M M S $^{\text {S }}$ | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5676 | 1.3.2.5.4.2 | Tilt mounts for pockels cells | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5677 | 1.3.2.5.4.3 | v-block clamps for pockels cells | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5678 | 1.3.2.5.4.4 | 6.5 kV pulsers, full ott-on-ott in <12ns | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$3,180.00 | \$24,380.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 5679 | 1.3.2.5.4.5 | Polarizers, coated for 780 nm (cubes) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5680 | 1.3.2.5.4.6 | Polarizer mounts | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC MES Iotal |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5681 | 1.3.2.5.4.7 | Post collars | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5682 | 1.3.2.5.4.8 | Posts | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC MKS Iotal |  | MKS | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5683 | 1.3.2.5.4.9 | Post holders | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5684 | 1.3.2.5.4.10 | Post holder bases | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5685 | 1.3.2.5.4.11 | Beam covers | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5686 | 1.3.2.5.5 | Pump Laser System |  |  | 0 | 16.8 wks | \$0.00 | \$357,000.00 | \$56,960.00 | \$413,960.00 | \$32,812.00 | \$81,483.00 | \$528,255.00 |
| 5687 | 1.3.2.5.5 | Pump Laser System | SLAC | ED\& | 2 | 8 wks | \$0.00 | \$0.00 | \$27,200.00 | \$27,200.00 | \$5,440.00 | \$8,160.00 | \$40,800.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\&1 | 0 | $8 w k s$ | \$0.00 | \$0.00 | \$0.00 | \$27,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 5688 | 1.3.2.5.5 | Pump Laser System | SLAC | ED\& | 2 | 8 wks | \$0.00 | \$0.00 | \$27,200.00 | \$27,200.00 | \$5,440.00 | \$8,160.00 | \$40,800.00 |
|  |  | SLAC Physicist -Scientist |  | ED\& | 0 | 8 wks | \$0.00 | \$0.00 | \$0.00 | \$27,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 5689 | 1.3.2.5.5.1 | Q-switched Nd:YAG, 532nm, 60Hz, 200mJ | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$238,000.00 | \$0.00 | \$238,000.00 | \$14,280.00 | \$37,842.00 | \$290,122.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 238,000 | \$0.00 | \$0.00 | \$0.00 | \$238,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5690 | 1.3.2.5.5.2 | Nd:YAG Service Contract | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$16,000.00 | \$0.00 | \$16,000.00 | \$960.00 | \$2,544.00 | \$19,504.00 |
|  |  | SLAC MES Iotal |  | M 4 S | 0 | 16,000 | \$0.00 | \$0.00 | \$0.00 | \$16,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5691 | 1.3.2.5.5.3 | Pockels cells(19mm) sol-gel @ ${ }^{\text {c }}$ ( ${ }^{\text {anm }}$ | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5692 | 1.3.2.5.5.4 | Tilt mounts for pockels cells | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5693 | 1.3.2.5.5.5 | $v$-block clamps tor pockels cells | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5694 | 1.3.2.5.5.6 | 6.5 KV pulser | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$5,300.00 | \$26,500.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5695 | 1.3.2.5.5.7 | Pockels cell HV teedtorward drivers | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5696 | 1.3.2.5.5.8 | PDU unit (80ns risetime, SCP intertace | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | Page 296 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{5697}$ | cWbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.2.5.5.9 | CAMAC controller | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5698 | 1.3.2.5.5.10 | Digital delay generators | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5699 | 1.3.2.5.5.11 | Polarizers, coated for 532 nm (cubes) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5700 | 1.3.2.5.5.12 | Polarizer mounts | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5701 | 1.3.2.5.5.13 | Waveplates | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5702 | 1.3.2.5.5.14 | Waveplate mounts | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5703 | 1.3.2.5.5.15 | trises | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5704 | 1.3.2.5.5.16 | Post collars | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5705 | 1.3.2.5.5.17 | Post | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5706 | 1.3.2.5.5.18 | Post holders | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5707 | 1.3.2.5.5.19 | Post holder bases | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5708 | 1.3.2.5.5.20 | CCD camera | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5709 | 1.3.2.5.5.21 | Planar mirrors/spliters | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5710 | 1.3.2.5.5.22 | Mirror mounts | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5711 | 1.3.2.5.5.23 | Diodes (Insec) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5712 | 1.3.2.5.5.24 | 6 GHz photodiodes | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$1,590.00 | \$12,190.00 |
|  |  | SLAC M\&S Iotal |  | M ${ }_{\text {d }}$ | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5713 | 1.3.2.5.5.25 | Power/energy sensors | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$795.00 | \$6,095.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5714 | 1.3.2.5.5.26 | Power/energy meters | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$1,590.00 | \$12,190.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units 10,000 | PED (Direct) $\$ 0.00$ | $\begin{aligned} & \text { M\&S (Direct) } \\ & \$ 0.00 \end{aligned}$ | Labor (Direct) $\$ 0.00$ | $\begin{aligned} & \text { Direct Cost } \\ & \$ 10,000.00 \end{aligned}$ | Overhead Cost $\$ 0.00$ | Contingency Cost | Total Cost |
|  |  | Task Name SLAC M\&S Total |  | M\&S |  |  |  |  |  |  |  |  |  |
| 5715 | 1.3.2.5.5.27 | Faraday isolator |  | M 2 S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5716 | 1.3.2.5.5.28 | Isolator mount | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$1,280.00 | \$1,280.00 | \$256.00 | \$384.00 | \$1,920.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5717 | 1.3.2.5.5.29 | Sphericallenses | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5718 | 1.3.2.5.5.30 | Lens mounts | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5719 | 1.3.2.5.5.31 | Beam dumps | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5720 | 1.3.2.5.5.32 | Integrate\&hold mods (peak detector) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Iotal |  | M M S $^{\text {S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5721 | 1.3.2.5.5.33 | Beam covers | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$1,280.00 | \$1,280.00 | \$256.00 | \$384.00 | \$1,920.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | BRH | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5722 | 1.3.2.5.6 | Timing Stabilization |  |  | 0 | 5 wks | \$0.00 | \$195,000.00 | \$17,000.00 | \$212,000.00 | \$15,100.00 | \$51,369.00 | \$278,469.00 |
| 5723 | 1.3.2.5.6.1 | Timing Stabilization | SLAC | ED\& | 2 | 1.25 wks | \$0.00 | \$0.00 | \$4,250.00 | \$4,250.00 | \$850.00 | \$1,275.00 | \$6,375.00 |
|  |  | SLAC Physicist-Scientist |  | ED\&I | 0 | 1.25 wks | \$0.00 | \$0.00 | \$0.00 | \$4,250.00 | \$0.00 | \$0.00 | \$0.00 |
| 5724 | 1.3.2.5.6.1 | liming Stabilization | SLAC | ED\& | 2 | 3.75 wks | \$0.00 | \$0.00 | \$12,750.00 | \$12,750.00 | \$2,550.00 | \$3,825.00 | \$19,125.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& | 0 | 3.75 wks | \$0.00 | \$0.00 | \$0.00 | \$12,750.00 | \$0.00 | \$0.00 | \$0.00 |
| 5725 | 1.3.2.5.6.1 | Fiber optic link | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$5,300.00 | \$26,500.00 |
|  |  | SLAC M2S Total |  | M2S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5726 | 1.3.2.5.6.2 | 20 GHz photodiode | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,113.00 | \$8,533.00 |
|  |  | SLAC MES Iotal |  | M 2 S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5727 | 1.3.2.5.6.3 | Low Pass \& Band Pass filters | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5728 | 1.3.2.5.6.4 | RF amplifier | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5729 | 1.3.2.5.6.5 | Isolator | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5730 | 1.3.2.5.6.6 | Phase shifter | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5731 | 1.3.2.5.6.7 | Double-balanced mixer | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5732 | 1.3.2.5.6.8 | DC amp, 200 V | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBs | Task Name | OBS | PHASEM\&S | $\begin{array}{\|l\|} \hline \text { Risk } \\ \hline \end{array}$ | Units <br> 1,000 | $\frac{\text { PED (Direct) }}{\$ 0.00}$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | $\begin{aligned} & \text { Labor (Direct) } \\ & \$ 0.00 \end{aligned}$ | $\frac{\text { Direct Cost }}{\$ 1,000.00}$ | $\begin{array}{r} \text { Overhead Cost } \\ \hline \$ 0.00 \end{array}$ | Contingency Cost $\$ 0.00$ | $\begin{aligned} & \text { Total Cost } \\ & \$ 0.00 \end{aligned}$ |
|  |  | SLAC M\&S Total |  |  |  |  |  |  |  |  |  |  |  |
| 5733 | 1.3.2.5.6.9 | DC amp, 10 V | SLAC | M2S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5734 | 1.3.2.5.6.10 | 20 GHz sampling scope | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$44,000.00 | \$0.00 | \$44,000.00 | \$2,640.00 | \$6,996.00 | \$53,636.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 44,000 | \$0.00 | \$0.00 | \$0.00 | \$44,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5735 | 1.3.2.5.6.11 | DC-3GHz spectrum analyzer | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$50,000.00 | \$0.00 | \$50,000.00 | \$3,000.00 | \$13,250.00 | \$66,250.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5736 | 1.3.2.5.6.12 | Computer intertace | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5737 | 1.3.2.5.6.13 | Prism on computer controlled stage | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5738 | 1.3.2.5.6.14 | Integrated elecro-optic module | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$7,000.00 | \$0.00 | \$7,000.00 | \$420.00 | \$1,855.00 | \$9,275.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 7,000 | \$0.00 | \$0.00 | \$0.00 | \$7,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5739 | 1.3.2.5.6.15 | Planar mirrors / splitters | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5740 | 1.3.2.5.6.16 | BPM or res. Cavity | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5741 | 1.3.2.5.6.17 | S/H meas. Module | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$5,300.00 | \$26,500.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5742 | 1.3.2.5.7 | Laser Amplifiers |  |  | 0 | 48.15 wks | \$0.00 | \$61,000.00 | \$161,980.00 | \$222,980.00 | \$36,056.00 | \$62,109.00 | \$321,145.00 |
| 5743 | 1.3.2.5.7.1 | Laser Amplifiers | SLAC | ED\& | 2 | 28.75 wks | \$0.00 | \$0.00 | \$97,750.00 | \$97,750.00 | \$19,550.00 | \$29,325.00 | \$146,625.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 28.75 wks | \$0.00 | \$0.00 | \$0.00 | \$97,750.00 | \$0.00 | \$0.00 | \$0.00 |
| 5744 | 1.3.2.5.7.1 | Laser Amplitiers | SLAC | ED\& | 2 | 17.5 wks | \$0.00 | \$0.00 | \$59,500.00 | \$59,500.00 | \$11,900.00 | \$17,850.00 | \$89,250.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& | 0 | 17.5 wks | \$0.00 | \$0.00 | \$0.00 | \$59,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 5745 | 1.3.2.5.7.1 | Ti-Sapphire crystals | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$2,120.00 | \$10,600.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5746 | 1.3.2.5.7.2 | Hor crystal mounts with water cooling | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5747 | 1.3.2.5.7.2 | Hor crystal mounts with water cooling | SLAC | ED\& | 2 | 1.5 wks | \$0.00 | \$0.00 | \$3,450.00 | \$3,450.00 | \$690.00 | \$1,035.00 | \$5,175.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$3,450.00 | \$0.00 | \$0.00 | \$0.00 |
| 5748 | 1.3.2.5.7.3 | Planar mirrors/splitters | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC M\&S Iotal |  | M M $^{\text {S }}$ | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5749 | 1.3.2.5.7.4 | Mirror mounts | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5750 | 1.3.2.5.7.5 | Spherical lenses, $\mathrm{f}=1 \mathrm{~m}$, coated | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5751 | 1.3.2.5.7.6 | Lens mounts | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5752 | 1.3.2.5.7.7 | Pinholes | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5753 | 1.3.2.5.7.8 | Pinhole mounts (with xy translation) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5754 | 1.3.2.5.7.9 | Alignment irises (on posts) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5755 | 1.3.2.5.7.10 | Post collars | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5756 | 1.3.2.5.7.11 | Posts | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5757 | 1.3.2.5.7.12 | Post Holders | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5758 | 1.3.2.5.7.13 | Post Holder Bases | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5759 | 1.3.2.5.7.14 | CCD cameras | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5760 | 1.3.2.5.7.15 | Power/energy sensors | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$954.00 | \$7,314.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5761 | 1.3.2.5.7.16 | Power/energy meters | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$13,000.00 | \$0.00 | \$13,000.00 | \$780.00 | \$2,067.00 | \$15,847.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 13,000 | \$0.00 | \$0.00 | \$0.00 | \$13,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5762 | 1.3.2.5.7.17 | Halt waveplates | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5763 | 1.3.2.5.7.18 | Waveplate mounts | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5764 | 1.3.2.5.7.19 | Polarizing cube | SLAC | M2S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC MES Iotal |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5765 | 1.3.2.5.7.20 | Polarizer cube mount | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5766 | 1.3.2.5.7.21 | Beam dumps | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5767 | 1.3.2.5.7.22 | Beam covers | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$1,280.00 | \$1,280.00 | \$256.00 | \$384.00 | \$1,920.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,280.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 4 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 5768 | 1.3.2.5.8 | Amplifier Diagnostics | SLAC |  | 0 | 9.5 wks | \$0.00 | \$89,200.00 | \$32,300.00 | \$121,500.00 | \$11,812.00 | \$29,194.00 | \$162,506.00 |
| 5769 | 1.3.2.5.8.1 | Amplifier Diagnostics | SLAC | ED\& | 2 | 4.5 wks | \$0.00 | \$0.00 | \$15,300.00 | \$15,300.00 | \$3,060.00 | \$4,590.00 | \$22,950.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 4.5 wks | \$0.00 | \$0.00 | \$0.00 | \$15,300.00 | \$0.00 | \$0.00 | \$0.00 |
| 5770 | 1.3.2.5.8.1 | Amplitier Diagnostics | SLAC | ED\& | 2 | 5 wks | \$0.00 | \$0.00 | \$17,000.00 | \$17,000.00 | \$3,400.00 | \$5,100.00 | \$25,500.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5771 | 1.3.2.5.8.1 | Powerlenergy meters (2 channel) | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$13,000.00 | \$0.00 | \$13,000.00 | \$780.00 | \$2,067.00 | \$15,847.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 13,000 | \$0.00 | \$0.00 | \$0.00 | \$13,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5772 | 1.3.2.5.8.2 | Power/energy sensors | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$954.00 | \$7,314.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | $\$ 0.00$ | $\$ 0.00$ |
| 5773 | 1.3.2.5.8.3 | ND Filter set | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5774 | 1.3.2.5.8.4 | 532 nm filter | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$100.00 | \$0.00 | \$100.00 | \$6.00 | \$26.50 | \$132.50 |
|  |  | SLAC M\&S Iotal |  | M ${ }^{\text {S }}$ | 0 | 100 | \$0.00 | \$0.00 | \$0.00 | \$100.00 | \$0.00 | \$0.00 | \$0.00 |
| 5775 | 1.3.2.5.8.5 | 780 nm tilter | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$100.00 | \$0.00 | \$100.00 | \$6.00 | \$26.50 | \$132.50 |
|  |  | SLAC M\&S Total |  | MLS | 0 | 100 | \$0.00 | \$0.00 | \$0.00 | \$100.00 | \$0.00 | \$0.00 | \$0.00 |
| 5776 | 1.3.2.5.8.6 | Filter/attenuator holders | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5777 | 1.3.2.5.8.7 | Photodiodes (nsec) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d S }}$ | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5778 | 1.3.2.5.8.8 | 12 GHz photodiode | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$14,000.00 | \$0.00 | \$14,000.00 | \$840.00 | \$2,226.00 | \$17,066.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 14,000 | \$0.00 | \$0.00 | \$0.00 | \$14,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5779 | 1.3.2.5.8.8 | CCD cameras | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5780 | 1.3.2.5.8.9 | Frame grabber card tor PC | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5781 | 1.3.2.5.8.10 | Labview sottware | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5782 | 1.3.2.5.8.11 | Beam analysis sottware | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5783 | 1.3.2.5.8.12 | Planar mirrors/sPlitters | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5784 | 1.3.2.5.8.13 | Mirror mounts | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5785 | 1.3.2.5.8.14 | FROG (r) | SLAC | M 8 S | 2 | 0 wks | \$0.00 | \$21,000.00 | \$0.00 | \$21,000.00 | \$1,260.00 | \$5,565.00 | \$27,825.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 21,000 | \$0.00 | \$0.00 | \$0.00 | \$21,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 5786 | 1.3.2.5.8.15 | PC (FROG analyses) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5787 | 1.3.2.5.8.16 | Alignment irises | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5788 | 1.3.2.5.8.17 | Post collars | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5789 | 1.3.2.5.8.18 | Posts | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5790 | 1.3.2.5.8.19 | Post holders | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5791 | 1.3.2.5.8.20 | Post holder bases | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5792 | 1.3.2.5.9 | Vacuum Spatial Filters |  |  | 0 | 3.15 wks | \$0.00 | \$26,000.00 | \$10,630.00 | \$36,630.00 | \$3,686.00 | \$9,559.60 | \$49,875.60 |
| 5793 | 1.3.2.5.9.1 | Vacuum Spatial Filters | SLAC | ED\& | 2 | 1.5 wks | \$0.00 | \$0.00 | \$5,100.00 | \$5,100.00 | \$1,020.00 | \$1,530.00 | \$7,650.00 |
|  |  | SLAC Physicist -Scientist |  | ED\& | 0 | 1.5 wks | \$0.00 | \$0.00 | \$0.00 | \$5,100.00 | \$0.00 | \$0.00 | \$0.00 |
| 5794 | 1.3.2.5.9.1 | Vacuum Spatial Filters | SLAC | ED\& | 2 | 1.25 wks | \$0.00 | \$0.00 | \$4,250.00 | \$4,250.00 | \$850.00 | \$1,275.00 | \$6,375.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& | 0 | 1.25 wks | \$0.00 | \$0.00 | \$0.00 | \$4,250.00 | \$0.00 | \$0.00 | \$0.00 |
| 5795 | 1.3.2.5.9.1 | Lenses, t $\sim 0.5 \mathrm{~m}, \mathrm{AR}$ coated | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$600.00 | \$0.00 | \$600.00 | \$36.00 | \$95.40 | \$731.40 |
|  |  | SLAC M\&S Iotal |  | M ${ }^{\text {S }}$ | 0 | 600 | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5796 | 1.3.2.5.9.2 | Vacuum tubing, $1.5^{\prime \prime}$ dia, $16^{\prime \prime}$, flanged (includes pinhole viewport) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$400.00 | \$0.00 | \$400.00 | \$24.00 | \$63.60 | \$487.60 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 400 | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 5797 | 1.3.2.5.9.3 | Vacuum welded bellows | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC MES Iotal |  | M 2 S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5798 | 1.3.2.5.9.4 | Diamond pinholes, mounted | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$300.00 | \$0.00 | \$300.00 | \$18.00 | \$79.50 | \$397.50 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 300 | \$0.00 | \$0.00 | \$0.00 | \$300.00 | \$0.00 | \$0.00 | \$0.00 |
| 5799 | 1.3.2.5.9.5 | XYZ mounts, 1 in travel | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5800 | 1.3.2.5.9.6 | Diode vacuum pumps $81 / \mathrm{s}$ | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,800.00 | \$0.00 | \$1,800.00 | \$108.00 | \$477.00 | \$2,385.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,800 | \$0.00 | \$0.00 | \$0.00 | \$1,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 5801 | 1.3.2.5.9.7 | lon-pump controller and cable | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$2,800.00 | \$0.00 | \$2,800.00 | \$168.00 | \$445.20 | \$3,413.20 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,800 | \$0.00 | \$0.00 | \$0.00 | \$2,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 5802 | 1.3.2.5.9.8 | Rack-mount, setpoint display, pumps | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,100.00 | \$0.00 | \$1,100.00 | \$66.00 | \$174.90 | \$1,340.90 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,100 | \$0.00 | \$0.00 | \$0.00 | \$1,100.00 | \$0.00 | \$0.00 | \$0.00 |
| 5803 | 1.3.2.5.9.9 | Turbo roughing and support pump | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$2,120.00 | \$10,600.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{array}{\|c\|} \hline \text { ID } \\ \hline 5804 \end{array}$ | cWBs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.2.5.9.10 | Misc vacuum hardware | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5805 | 1.3.2.5.9.11 | Vacuum windows (AR coated for 780 nm ) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$400.00 | \$0.00 | \$400.00 | \$24.00 | \$106.00 | \$530.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 400 | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 5806 | 1.3.2.5.9.12 | Lens mounts | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$600.00 | \$0.00 | \$600.00 | \$36.00 | \$159.00 | \$795.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 600 | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5807 | 1.3.2.5.9.13 | Beam covers | SLAC | B\&H | 2 | 0.4 wks | \$0.00 | \$0.00 | \$1,280.00 | \$1,280.00 | \$256.00 | \$384.00 | \$1,920.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 0.4 wks | \$0.00 | \$0.00 | \$0.00 | \$1,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5808 | 1.3.2.5.9.13 | Beam covers | SLAC | M 8 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M2S Total |  | M 2 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5809 | 1.3.2.5.10 | High Power Pulse Compressor |  |  | 0 | 4 wks | \$0.00 | \$7,700.00 | \$13,600.00 | \$21,300.00 | \$3,182.00 | \$5,675.30 | \$30,157.30 |
| 5810 | 1.3.2.5.10.1 | High Power Pulse Compressor | SLAC | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$6,800.00 | \$6,800.00 | \$1,360.00 | \$2,040.00 | \$10,200.00 |
|  |  | SLAC Physicist-Scientist |  | EDQ1 | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 5811 | 1.3.2.5.10.1 | High Power Pulse Compressor | SLAC | ED\& | 2 | 2 wks | \$0.00 | \$0.00 | \$6,800.00 | \$6,800.00 | \$1,360.00 | \$2,040.00 | \$10,200.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 5812 | 1.3.2.5.10.1 | Gratings, $2 \times 4$ in, $1700 \mathrm{l} / \mathrm{mm}, 780 \mathrm{~nm}$ | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,200.00 | \$0.00 | \$1,200.00 | \$72.00 | \$190.80 | \$1,462.80 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 1,200 | \$0.00 | \$0.00 | \$0.00 | \$1,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 5813 | 1.3.2.5.10.2 | Grating mounts with tip/tit/azim knobs | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Iotal |  | M $\mathrm{S}_{\text {S }}$ | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5814 | 1.3.2.5.10.3 | Prisms, $3 \times 3 \mathrm{in}$, coated 780 nm | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,500.00 | \$0.00 | \$1,500.00 | \$90.00 | \$397.50 | \$1,987.50 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,500 | \$0.00 | \$0.00 | \$0.00 | \$1,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 5815 | 1.3.2.5.10.4 | Prism mounts with tip/tilt | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$500.00 | \$0.00 | \$500.00 | \$30.00 | \$132.50 | \$662.50 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 500 | \$0.00 | \$0.00 | \$0.00 | \$500.00 | \$0.00 | \$0.00 | \$0.00 |
| 5816 | 1.3.2.5.10.5 | Iranslation stages with micrometer | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5817 | 1.3.2.5.10.6 | Optical rail (24 inch) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$300.00 | \$0.00 | \$300.00 | \$18.00 | \$79.50 | \$397.50 |
|  |  | SLAC M\&S Total |  | MRS | 0 | 300 | \$0.00 | \$0.00 | \$0.00 | \$300.00 | \$0.00 | \$0.00 | \$0.00 |
| 5818 | 1.3.2.5.10.7 | Planar mirrors/splitters | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$600.00 | \$0.00 | \$600.00 | \$36.00 | \$95.40 | \$731.40 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 600 | \$0.00 | \$0.00 | \$0.00 | \$600.00 | \$0.00 | \$0.00 | \$0.00 |
| 5819 | 1.3.2.5.10.8 | Mirror mounts | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$400.00 | \$0.00 | \$400.00 | \$24.00 | \$63.60 | \$487.60 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 400 | \$0.00 | \$0.00 | \$0.00 | \$400.00 | \$0.00 | \$0.00 | \$0.00 |
| 5820 | 1.3.2.5.10.9 | Alignmentirises | SLAC | M\&S | ${ }^{2}$ | 0 wks | \$0.00 | \$200.00 | \$0.00 | \$200.00 | \$12.00 | \$53.00 | \$265.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 200 | \$0.00 | \$0.00 | \$0.00 | \$200.00 | \$0.00 | \$0.00 | \$0.00 |
| 5821 | 1.3.2.5.10.10 | Post collars | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | cWbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S ( Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 5822 | 1.3.2.5.10.11 | Posts | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5823 | 1.3.2.5.10.12 | Post Holders | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5824 | 1.3.2.5.10.13 | Post Holder Bases | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5825 | 1.3.2.5.10.14 | Beam covers | SLAC | B\&H | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | O wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5826 | 1.3.2.5.11 | Optical Transport |  |  | 0 | 7.5 wks | \$0.00 | \$22,000.00 | \$25,500.00 | \$47,500.00 | \$6,420.00 | \$13,056.00 | \$66,976.00 |
| 5827 | 1.3.2.5.11.1 | Optical Transport | SLAC | ED\& | 2 | 2.5 wks | \$0.00 | \$0.00 | \$8,500.00 | \$8,500.00 | \$1,700.00 | \$2,550.00 | \$12,750.00 |
|  |  | SLAC Physicist - Senior Scientist |  | ED\& | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$8,500.00 | \$0.00 | \$0.00 | \$0.00 |
| 5828 | 1.3.2.5.11.1 | Optical Transport | SLAC | ED\& | 2 | 5 wks | \$0.00 | \$0.00 | \$17,000.00 | \$17,000.00 | \$3,400.00 | \$5,100.00 | \$25,500.00 |
|  |  | SLAC Physicist-Scientist |  | ED\& | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$17,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5829 | 1.3.2.5.11.1 | Spherical Lenses (UV) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5830 | 1.3.2.5.11.2 | Transport tube windows | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$318.00 | \$2,438.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5831 | 1.3.2.5.11.3 | Diode vacuum pump | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5832 | 1.3.2.5.11.4 | Ion pump controller and cable | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5833 | 1.3.2.5.11.5 | Misc vacuum hardware | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5834 | 1.3.2.5.11.6 | Drilling penetration | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5835 | 1.3.2.5.11.7 | Installation of transport tube | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5836 | 1.3.2.5.11.8 | Spherical lenses - (green) | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5837 | 1.3.2.5.11.9 | Spherical lenses (ir) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5838 | 1.3.2.5.11.10 | Spherical lens mounts | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5839 | 1.3.2.5.11.11 | Planar mirrors/spiliters | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cWbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 5840 | 1.3.2.5.11.12 | Mirror mounts | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5841 | 1.3.2.5.11.13 | Powerlenergy sensor | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$2,000.00 | \$0.00 | \$2,000.00 | \$120.00 | \$530.00 | \$2,650.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {d }}$ S | 0 | 2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5842 | 1.3.2.5.11.14 | Power/energy meter (2 ch) | SLAC | M2S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5843 | 1.3.2.5.11.15 | Posts | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5844 | 1.3.2.5.11.16 | Post Holders | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5845 | 1.3.2.5.11.17 | Post Holder Bases | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5846 | 1.3.2.5.11.18 | Alignment irises | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5847 | 1.3.2.5.11.19 | Post collars | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5848 | 1.3.2.5.12 | Laser Support Systems \& Miscellaneous Items |  |  | 0 | 4 wks | \$0.00 | \$133,000.00 | \$10,397.60 | \$143,397.60 | \$10,059.52 | \$38,046.28 | \$191,503.40 |
| 5849 | 1.3.2.5.12.1 | Optical tables tor clean room | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$42,000.00 | \$0.00 | \$42,000.00 | \$2,520.00 | \$11,130.00 | \$55,650.00 |
|  |  | SLAC MKS Iotal |  | M ${ }^{\text {S }}$ | 0 | 42,000 | \$0.00 | \$0.00 | \$0.00 | \$42,000.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 5850 | 1.3.2.5.12.2 | Table enclosures | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$5,000.00 | \$0.00 | \$5,000.00 | \$300.00 | \$1,325.00 | \$6,625.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 5,000 | \$0.00 | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5851 | 1.3.2.5.12.3 | Optical table next to the RF gun | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$795.00 | \$3,975.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5852 | 1.3.2.5.12.4 | Support and enclosure for breadboard | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$6,400.00 | \$6,400.00 | \$1,280.00 | \$1,920.00 | \$9,600.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$6,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 5853 | 1.3.2.5.12.5 | Racks and other furniture | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,997.60 | \$3,997.60 | \$799.52 | \$1,199.28 | \$5,996.40 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,997.60 | \$0.00 | \$0.00 | \$0.00 |
| 5854 | 1.3.2.5.12.7 | Elevated instrumentation shelves (on optical tables) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$2,120.00 | \$10,600.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5855 | 1.3.2.5.12.8 | Vidmar cabinets (Stanley) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$720.00 | \$3,180.00 | \$15,900.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5856 | 1.3.2.5.12.9 | 1001 set and box | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$2,650.00 | \$13,250.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5857 | 1.3.2.5.12.10 | IR viewers | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$4,000.00 | \$0.00 | \$4,000.00 | \$240.00 | \$1,060.00 | \$5,300.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 4,000 | \$0.00 | \$0.00 | \$0.00 | \$4,000.00 | \$0.00 | \$0.00 | \$0.00 |
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|  |  |  |  |  |  | Page 305 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 5858 | cwbs | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M $\mathrm{S}_{\text {S }}$ (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.2.5.12.11 | Microscope (stereo) | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$38,000.00 | \$0.00 | \$38,000.00 | \$2,280.00 | \$10,070.00 | \$50,350.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 38,000 | \$0.00 | \$0.00 | \$0.00 | \$38,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5859 | 1.3.2.5.12.12 | IR sensor cards | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5860 | 1.3.2.5.12.13 | Latex gloves \& finger cots | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5861 | 1.3.2.5.12.14 | Microdusters | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5862 | 1.3.2.5.12.15 | Solvents | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$1,590.00 | \$7,950.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5863 | 1.3.2.5.12.16 | Clean room attire (hats, smocks, booties) | SLAC | M 2 S | 2 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$265.00 | \$1,325.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5864 | 1.3.2.5.12.17 | UV diagnostic paper \& lens tissue | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | $\$ 0.00$ | \$0.00 | \$0.00 | \$0.00 |
| 5865 | 1.3.2.5.12.18 | Burn paper | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 0 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5866 | 1.3.2.6 | PPS/MPS Systems |  |  | 0 | 132 wks | \$0.00 | \$294,000.00 | \$281,974.40 | \$575,974.40 | \$74,034.88 | \$106,657.12 | \$756,666.40 |
| 5867 | 1.3.2.6. ${ }^{\text {a }}$ | PPS System |  |  | 0 | 83 wks | \$0.00 | \$144,000.00 | \$172,854.40 | \$316,854.40 | \$43,210.88 | \$73,268.32 | \$433,333.60 |
| 5868 | 1.3.2.6.1.1 | Control Racks | SLAC |  | 0 | 22 wks | \$0.00 | \$8,000.00 | \$50,176.00 | \$58,176.00 | \$10,515.20 | \$15,052.80 | \$83,744.00 |
| 5869 | 1.3.2.6.1.1 | Control Racks | SLAC | M 2 S | 0 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$0.00 | \$8,480.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5870 | 1.3.2.6.1.1 | Fabrication | SLAC | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$10,521.60 | \$10,521.60 | \$2,104.32 | \$3,156.48 | \$15,782.40 |
|  |  | SLAC PCD:Iechnician |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$10,521.60 | \$0.00 | \$0.00 | \$0.00 |
| 5871 | 1.3.2.6.1.1 | Installation | SLAC | B\&H | 2 | 12 wks | \$0.00 | \$0.00 | \$32,640.00 | \$32,640.00 | \$6,528.00 | \$9,792.00 | \$48,960.00 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$32,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 5872 | 1.3.2.6.1.1 | Test | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$7,014.40 | \$7,014.40 | \$1,402.88 | \$2,104.32 | \$10,521.60 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,014.40 | \$0.00 | \$0.00 | \$0.00 |
| 5873 | 1.3.2.6.1.2 | HPS Control | SLAC |  | 0 | 18 wks | \$0.00 | \$64,000.00 | \$32,777.60 | \$96,777.60 | \$10,395.52 | \$26,793.28 | \$133,966.40 |
| 5874 | 1.3.2.6.1.2 | HPS Control | SLAC | M\&S | 2 | 0 wks | \$0.00 | \$64,000.00 | \$0.00 | \$64,000.00 | \$3,840.00 | \$16,960.00 | \$84,800.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 64,000 | \$0.00 | \$0.00 | \$0.00 | \$64,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5875 | 1.3.2.6.1.2 | Fabrication | SLAC | B\&H | 2 | 15 wks | \$0.00 | \$0.00 | \$26,304.00 | \$26,304.00 | \$5,260.80 | \$7,891.20 | \$39,456.00 |
|  |  | SLAC PCD:Iechnician |  | B\&H | 0 | 15 wks | \$0.00 | $\$ 0.00$ | \$0.00 | \$26,304.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5876 | 1.3.2.6.1.2 | Installation | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$4,720.00 | \$4,720.00 | \$944.00 | \$1,416.00 | \$7,080.00 |
|  |  | SLAC I\&M Cratts - Union Equip. Op. |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,720.00 | \$0.00 | \$0.00 | \$0.00 |
| 5877 | 1.3.2.6.1.2 | Test | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,753.60 | \$1,753.60 | \$350.72 | \$526.08 | \$2,630.40 |



| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{gathered} \text { ID } \\ \hline 5897 \end{gathered}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.3.2.6.1.6 | Test | SLAC | B\&H | 2 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5898 | 1.3.2.6.1.7 | Hutch Summary | SLAC |  | 0 | 6 wks | \$0.00 | \$6,000.00 | \$11,488.00 | \$17,488.00 | \$2,657.60 | \$3,446.40 | \$23,592.00 |
| 5899 | 1.3.2.6.1.7 | Hutch Summary | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$6,000.00 | \$0.00 | \$6,000.00 | \$360.00 | \$0.00 | \$6,360.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 6,000 | \$0.00 | \$0.00 | \$0.00 | \$6,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5900 | 1.3.2.6.1.7 | Fabrication | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$7,014.40 | \$7,014.40 | \$1,402.88 | \$2,104.32 | \$10,521.60 |
|  |  | SLAC PCD:Technician |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,014.40 | \$0.00 | \$0.00 | \$0.00 |
| 5901 | 1.3.2.6.1.7 | Installation | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$2,720.00 | \$2,720.00 | \$544.00 | \$816.00 | \$4,080.00 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,720.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5902 | 1.3.2.6.1.7 | Test | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,753.60 | \$1,753.60 | \$350.72 | \$526.08 | \$2,630.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,753.60 | \$0.00 | \$0.00 | \$0.00 |
| 5903 | 1.3.2.6.1.8 | Pneumatic Controls | SLAC |  | 0 | 7 wks | \$0.00 | \$10,000.00 | \$16,140.80 | \$26,140.80 | \$3,828.16 | \$4,842.24 | \$34,811.20 |
| 5904 | 1.3.2.6.1.8 | Pneumatic Controls | SLAC | M 2 S | 0 | 0 wks | \$0.00 | \$10,000.00 | \$0.00 | \$10,000.00 | \$600.00 | \$0.00 | \$10,600.00 |
|  |  | SLAC MES Iotal |  | M ${ }_{\text {d }}$ S | 0 | 10,000 | \$0.00 | \$0.00 | \$0.00 | \$10,000.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5905 | 1.3.2.6.1.8 | Fabrication | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,507.20 | \$3,507.20 | \$701.44 | \$1,052.16 | \$5,260.80 |
|  |  | SLAC PCD:Technician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,507.20 | \$0.00 | \$0.00 | \$0.00 |
| 5906 | 1.3.2.6.1.8 | Installation | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$10,880.00 | \$10,880.00 | \$2,176.00 | \$3,264.00 | \$16,320.00 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$10,880.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5907 | 1.3.2.6.1.8 | lest | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,753.60 | \$1,753.60 | \$350.72 | \$526.08 | \$2,630.40 |
|  |  | SLAC Controls: Technician |  | BRH | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,753.60 | \$0.00 | \$0.00 | \$0.00 |
| 5908 | 1.3.2.6. 2 | MPS System |  |  | 0 | 49 wks | \$0.00 | \$150,000.00 | \$109,120.00 | \$259,120.00 | \$30,824.00 | \$33,388.80 | \$323,332.80 |
| 5909 | 1.3.2.6.2.1 | Control Racks | SLAC |  | 2 | 22 wks | \$0.00 | \$8,000.00 | \$50,176.00 | \$58,176.00 | \$10,515.20 | \$15,052.80 | \$83,744.00 |
| 5910 | 1.3.2.6.2.1 | Control Racks | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$8,000.00 | \$0.00 | \$8,000.00 | \$480.00 | \$0.00 | \$8,480.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 8,000 | \$0.00 | \$0.00 | \$0.00 | \$8,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5911 | 1.3.2.6.2. 1 | Fabrication | SLAC | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$10,521.60 | \$10,521.60 | \$2,104.32 | \$3,156.48 | \$15,782.40 |
|  |  | SLAC PCD:Technician |  | BRH | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$10,521.60 | \$0.00 | \$0.00 | \$0.00 |
| 5912 | 1.3.2.6.2.1 | Installation | SLAC | B\&H | 2 | 12 wks | \$0.00 | \$0.00 | \$32,640.00 | \$32,640.00 | \$6,528.00 | \$9,792.00 | \$48,960.00 |
|  |  | SLAC I\&M Cratts - Union Electrician |  | B\&H | 0 | 12 wks | \$0.00 | \$0.00 | \$0.00 | \$32,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 5913 | 1.3.2.6.2.1 | Iest | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$7,014.40 | \$7,014.40 | \$1,402.88 | \$2,104.32 | \$10,521.60 |
|  |  | SLAC Controls: Technician |  | BRH | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,014.40 | \$0.00 | \$0.00 | \$0.00 |
| 5914 | 1.3.2.6.2.2 | PLC CONTROLS | SLAC |  | 2 | 14 wks | \$0.00 | \$60,000.00 | \$30,348.80 | \$90,348.80 | \$9,669.76 | \$9,104.64 | \$109,123.20 |
| 5915 | 1.3.2.6.2.2 | PLC Controld | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$60,000.00 | \$0.00 | \$60,000.00 | \$3,600.00 | \$0.00 | \$63,600.00 |
|  |  | SLAC M\&S Iotal |  | M $\downarrow \mathrm{S}$ | 0 | 60,000 | \$0.00 | \$0.00 | \$0.00 | \$60,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5916 | 1.3.2.6.2.2 | Fabrication | SLAC | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$10,521.60 | \$10,521.60 | \$2,104.32 | \$3,156.48 | \$15,782.40 |
|  |  | SLAC PCD:Technician |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$10,521.60 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 5917 | 1.3.2.6.2.2 | Installation | SLAC | B\&H | 2 | 6 wks | \$0.00 | \$0.00 | \$16,320.00 | \$16,320.00 | \$3,264.00 | \$4,896.00 | \$24,480.00 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 6 wks | \$0.00 | \$0.00 | \$0.00 | \$16,320.00 | \$0.00 | \$0.00 | \$0.00 |
| 5918 | 1.3.2.6.2.2 | Iest | SLAC | B\&H | 2 | 2 wks | \$0.00 | \$0.00 | \$3,507.20 | \$3,507.20 | \$701.44 | \$1,052.16 | \$5,260.80 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$3,507.20 | \$0.00 | \$0.00 | \$0.00 |
| 5919 | 1.3.2.6.2.3 | VACUUM MONITORING | SLAC |  | 2 | 4 wks | \$0.00 | \$70,000.00 | \$8,947.20 | \$78,947.20 | \$5,989.44 | \$3,336.96 | \$88,273.60 |
| 5920 | 1.3.2.6.2.3 | Vacuum Monitoring | SLAC | M\&S | 0 | 0 wks | \$0.00 | \$70,000.00 | \$0.00 | \$70,000.00 | \$4,200.00 | \$0.00 | \$74,200.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 70,000 | \$0.00 | \$0.00 | \$0.00 | \$70,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5921 | 1.3.2.6.2.3 | Fabrication | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,753.60 | \$1,753.60 | \$350.72 | \$526.08 | \$2,630.40 |
|  |  | SLAC PCD:Iechnician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,753.60 | \$0.00 | \$0.00 | \$0.00 |
| 5922 | 1.3.2.6.2.3 | Installation | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$5,440.00 | \$5,440.00 | \$1,088.00 | \$2,284.80 | \$8,812.80 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | BRH | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$5,440.00 | \$0.00 | \$0.00 | \$0.00 |
| 5923 | 1.3.2.6.2.3 | Test | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,753.60 | \$1,753.60 | \$350.72 | \$526.08 | \$2,630.40 |
|  |  | SLAC Controls: Iechnician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,753.60 | \$0.00 | \$0.00 | \$0.00 |
| 5924 | 1.3.2.6.2.4 | PNEUMATICS | SLAC |  | 2 | 9 wks | \$0.00 | \$12,000.00 | \$19,648.00 | \$31,648.00 | \$4,649.60 | \$5,894.40 | \$42,192.00 |
| 5925 | 1.3.2.6.2.4 | Pneumatics | SLAC | M 2 S | 0 | 0 wks | \$0.00 | \$12,000.00 | \$0.00 | \$12,000.00 | \$720.00 | \$0.00 | \$12,720.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 12,000 | \$0.00 | \$0.00 | \$0.00 | \$12,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5926 | 1.3.2.6.2.4 | Fabrication | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$7,014.40 | \$7,014.40 | \$1,402.88 | \$2,104.32 | \$10,521.60 |
|  |  | SLAC PCD:Iechnician |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$7,014.40 | \$0.00 | \$0.00 | \$0.00 |
| 5927 | 1.3.2.6.2.4 | Instalation | SLAC | B\&H | 2 | 4 wks | \$0.00 | \$0.00 | \$10,880.00 | \$10,880.00 | \$2,176.00 | \$3,264.00 | \$16,320.00 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$10,880.00 | \$0.00 | \$0.00 | \$0.00 |
| 5928 | 1.3.2.6.2.4 | Test | SLAC | B\&H | 2 | 1 wk | \$0.00 | \$0.00 | \$1,753.60 | \$1,753.60 | \$350.72 | \$526.08 | \$2,630.40 |
|  |  | SLAC Controls: Technician |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,753.60 | \$0.00 | \$0.00 | \$0.00 |
| 5929 | 1.3.3 | Installation \& Alignment |  |  | 0 | 84 wks | \$0.00 | \$0.00 | \$182,153.80 | \$182,153.80 | \$36,430.76 | \$76,504.60 | \$295,089.16 |
| 5930 | 1.3.3.1 | Overall survey |  |  | 0 | 26 wks | \$0.00 | \$0.00 | \$59,280.00 | \$59,280.00 | \$11,856.00 | \$24,897.60 | \$96,033.60 |
| 5931 | 1.3.3.1.1 | locate monuments | SLAC | B\&H | 3 | 26 wks | \$0.00 | \$0.00 | \$59,280.00 | \$59,280.00 | \$11,856.00 | \$24,897.60 | \$96,033.60 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 26 wks | \$0.00 | \$0.00 | \$0.00 | \$59,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5932 | 1.3.3.2 | Componenet stand |  |  | 0 | 25.5 wks | \$0.00 | \$0.00 | \$50,969.40 | \$50,969.40 | \$10,193.88 | \$21,407.15 | \$82,570.43 |
| 5933 | 1.3.3.2.1 | layout hole pattern | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$5,996.40 | \$5,996.40 | \$1,199.28 | \$2,518.49 | \$9,714.17 |
|  |  | SLAC Mech. rab: Assembly lech |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$5,996.40 | \$0.00 | \$0.00 | \$0.00 |
| 5934 | 1.3.3.2.2 | check hole pattern | SLAC | B\&H | 3 | 2.5 wks | \$0.00 | \$0.00 | \$4,997.00 | \$4,997.00 | \$999.40 | \$2,098.74 | \$8,095.14 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 2.5 wks | \$0.00 | \$0.00 | \$0.00 | \$4,997.00 | \$0.00 | \$0.00 | \$0.00 |
| 5935 | 1.3.3.2.3 | drill holes-insert anchors | SLAC | B\&H | 3 | 13 wks | \$0.00 | \$0.00 | \$25,984.40 | \$25,984.40 | \$5,196.88 | \$10,913.45 | \$42,094.73 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 13 wks | \$0.00 | \$0.00 | \$0.00 | \$25,984.40 | \$0.00 | \$0.00 | \$0.00 |
| 5936 | 1.3.3.2.4 | move in, level bolt | SLAC | B\&H | 3 | 7 wks | \$0.00 | \$0.00 | \$13,991.60 | \$13,991.60 | \$2,798.32 | \$5,876.47 | \$22,666.39 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 7 wks | \$0.00 | \$0.00 | \$0.00 | \$13,991.60 | \$0.00 | \$0.00 | \$0.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | Page 309 |  |  |  |  |  |  |  |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | cwbs | Task Name Vacuum tank | obs | PHASE | $\begin{array}{\|c} \hline \text { Risk } \\ \hline 0 \end{array}$ | Units <br> 23 wks | PED (Direct) $\$ 0.00$ | $\frac{\text { M\&S (Direct) }}{\$ 0.00}$ | $\begin{aligned} & \text { Labor (Direct) } \\ & \$ 48,739.60 \end{aligned}$ | $\begin{array}{c\|} \text { Direct Cost } \\ \hline \$ 48,739.60 \end{array}$ | $\begin{array}{r} \text { Overhead Cost } \\ \hline \$ 9,747.92 \end{array}$ | Contingency Cost \$20,470.63 | Total Cost \$78,958.15 |
| 5937 | 1.3.3.3 |  | OBS |  |  |  |  |  |  |  |  |  |  |
| 5938 | 1.3.3.3.1 | alignment | SLAC | ED\& | 3 | 1 wk | \$0.00 | \$0.00 | \$3,360.00 | \$3,360.00 | \$672.00 | \$1,411.20 | \$5,443.20 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 1 wk | $\$ 0.00$ | \$0.00 | $\$ 0.00$ | \$3,360.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5939 | 1.3.3.3.2 | alignment | SLAC | B\&H | 3 | 5 wks | \$0.00 | \$0.00 | \$11,400.00 | \$11,400.00 | \$2,280.00 | \$4,788.00 | \$18,468.00 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$11,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 5940 | 1.3.3.3.3 | connect/purge | SLAC | B\&H | 3 | 8.5 wks | \$0.00 | \$0.00 | \$16,989.80 | \$16,989.80 | \$3,397.96 | \$7,135.72 | \$27,523.48 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 8.5 wks | \$0.00 | \$0.00 | \$0.00 | \$16,989.80 | \$0.00 | \$0.00 | \$0.00 |
| 5941 | 1.3.3.3.4 | pump startleak check | SLAC | B\&H | 3 | 8.5 wks | \$0.00 | \$0.00 | \$16,989.80 | \$16,989.80 | \$3,397.96 | \$7,135.72 | \$27,523.48 |
|  |  | SLAC Mech. Fab: Assembly lech |  | B\&H | 0 | 8.5 wks | \$0.00 | \$0.00 | \$0.00 | \$16,989.80 | \$0.00 | \$0.00 | \$0.00 |
| 5942 | 1.3.3.4 | Optical element align |  |  | 0 | 6 wks | \$0.00 | \$0.00 | \$14,644.80 | \$14,644.80 | \$2,928.96 | \$6,150.82 | \$23,724.58 |
| 5943 | 1.3.3.4.1 | alignment | SLAC | ED\& | 3 | 0.5 wks | \$0.00 | \$0.00 | \$1,446.60 | \$1,446.60 | \$289.32 | \$607.57 | \$2,343.49 |
|  |  | SLAC Klystron: Engineer |  | ED\& | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,446.60 | \$0.00 | \$0.00 | \$0.00 |
| 5944 | 1.3.3.4.2 | alignment | SLAC | B\&H | 3 | 2 wks | \$0.00 | \$0.00 | \$4,560.00 | \$4,560.00 | \$912.00 | \$1,915.20 | \$7,387.20 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 2 wks | \$0.00 | \$0.00 | \$0.00 | \$4,560.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5945 | 1.3.3.4.3 | alignment | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$1,998.80 | \$1,998.80 | \$399.76 | \$839.50 | \$3,238.06 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$1,998.80 | \$0.00 | \$0.00 | \$0.00 |
| 5946 | 1.3.3.4.4 | calibrate/limits | SLAC | ED\& | 3 | 1 wk | \$0.00 | \$0.00 | \$3,360.00 | \$3,360.00 | \$672.00 | \$1,411.20 | \$5,443.20 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,360.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 5947 | 1.3.3.4.5 | calibrate/limits | SLAC | B\&H | 3 | 1 wk | \$0.00 | \$0.00 | \$2,280.00 | \$2,280.00 | \$456.00 | \$957.60 | \$3,693.60 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,280.00 | \$0.00 | \$0.00 | \$0.00 |
| 5948 | 1.3.3.4.6 | calibrate/limits | SLAC | B\&H | 3 | 0.5 wks | \$0.00 | \$0.00 | \$999.40 | \$999.40 | \$199.88 | \$419.75 | \$1,619.03 |
|  |  | SLAC Mech. Fab: Assembly Tech |  | BRH | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$999.40 | \$0.00 | \$0.00 | \$0.00 |
| 5949 | 1.3.3.5 | Precision alignment |  |  | 0 | 3.5 wks | \$0.00 | \$0.00 | \$8,520.00 | \$8,520.00 | \$1,704.00 | \$3,578.40 | \$13,802.40 |
| 5950 | 1.3.3.5.1 | alignment | SLAC | ED\& | 3 | 0.5 wks | \$0.00 | \$0.00 | \$1,680.00 | \$1,680.00 | \$336.00 | \$705.60 | \$2,721.60 |
|  |  | SLAC Mechanical Engineer |  | ED\& | 0 | 0.5 wks | \$0.00 | \$0.00 | \$0.00 | \$1,680.00 | \$0.00 | \$0.00 | \$0.00 |
| 5951 | 1.3.3.5.2 | alignment | SLAC | B\&H | 3 | 3 wks | \$0.00 | \$0.00 | \$6,840.00 | \$6,840.00 | \$1,368.00 | \$2,872.80 | \$11,080.80 |
|  |  | SLAC Metrology:Eng.\& Surveyors |  | B\&H | 0 | 3 wks | \$0.00 | \$0.00 | \$0.00 | \$6,840.00 | \$0.00 | \$0.00 | \$0.00 |
| 5952 | 1.4 | Conventional Facilities |  |  | 0 | 587 wks | \$2,826,672.00 | \$26,634,000.00 | \$339,600.00 | \$29,800,272.00 | \$1,977,894.40 | \$6,132,276.89 | \$37,910,443.29 |
| 5953 | 1.4.1 | Injector tacilities |  |  | 0 | 154 wks | \$165,960.00 | \$506,000.00 | \$211,600.00 | \$883,560.00 | \$105,872.00 | \$145,567.97 | \$1,134,999.97 |
| 5954 | 1.4.1.1 | PED |  |  | 0 | 70 wks | \$165,960.00 | \$0.00 | \$0.00 | \$165,960.00 | \$33,192.00 | \$29,872.80 | \$229,024.80 |
| 5955 | 1.4.1.1.1 | SEM Engineering | SLAC | ED\& | 1 | 40 wks | \$96,960.00 | \$0.00 | \$0.00 | \$96,960.00 | \$19,392.00 | \$17,452.80 | \$133,804.80 |
|  |  | SLAC Site Engineering: Engineer |  | ED\&I | 0 | 40 wks | \$0.00 | \$0.00 | \$0.00 | \$96,960.00 | $\$ 0.00$ | \$0.00 | \$0.00 |
| 5956 | 1.4.1.1.2 | Mechanical Design | SLAC | ED\& | 1 | 30 wks | \$69,000.00 | \$0.00 | \$0.00 | \$69,000.00 | \$13,800.00 | \$12,420.00 | \$95,220.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&1 | 0 | 30 wks | \$0.00 | \$0.00 | \$0.00 | \$69,000.00 | $\$ 0.00$ | \$0.00 | $\$ 0.00$ |
| 5957 | 1.4.1.2 | Buildings |  |  | 0 | 84 wks | \$0.00 | \$506,000.00 | \$211,600.00 | \$717,600.00 | \$72,680.00 | \$115,695.17 | \$905,975.17 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 5958 | 1.4.1.2.1 | Remove Shielding | SLAC | B\&H | 1 | 4 wks | \$0.00 | \$0.00 | \$5,120.00 | \$5,120.00 | \$1,024.00 | \$921.60 | \$7,065.60 |
|  |  | SLAC Site Engineering: Labor |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$5,120.00 | \$0.00 | \$0.00 | \$0.00 |
| 5959 | 1.4.1.2.2 | Sort/ransport Biks | SLAC | B\&H | 1 | 5 wks | \$0.00 | \$0.00 | \$11,800.00 | \$11,800.00 | \$2,360.00 | \$2,124.00 | \$16,284.00 |
|  |  | SLAC I\&M Cratts - Union Equip. Op. |  | B\&H | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$11,800.00 | \$0.00 | \$0.00 | \$0.00 |
| 5960 | 1.4.1.2.3 | Stackpack Blks | SLAC | B\&H | 1 | 5 wks | \$0.00 | \$0.00 | \$6,400.00 | \$6,400.00 | \$1,280.00 | \$1,152.00 | \$8,832.00 |
|  |  | SLAC Site Engineering: Labor |  | B\&H | 0 | 5 wks | \$0.00 | \$0.00 | \$0.00 | \$6,400.00 | \$0.00 | \$0.00 | \$0.00 |
| 5961 | 1.4.1.2.3 | Stackpack Blks | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Iotal |  | M dS $^{\text {S }}$ | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5962 | 1.4.1.2.3 | Layout/drill holes | SLAC | B\&H | 1 | 1 wk | \$0.00 | \$0.00 | \$2,360.00 | \$2,360.00 | \$472.00 | \$424.80 | \$3,256.80 |
|  |  | SLAC T\&M Cratts - Union Equip. Op. |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$2,360.00 | \$0.00 | \$0.00 | \$0.00 |
| 5963 | 1.4.1.2.3 | Layout/drill holes | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5964 | 1.4.1.2.5 | Seismic Bracing | SLAC | B\&H | 1 | 4 wks | \$0.00 | \$0.00 | \$8,640.00 | \$8,640.00 | \$1,728.00 | \$1,555.20 | \$11,923.20 |
|  |  | SLAC I\&M Cratts - Union Ironwork. |  | B\&H | 0 | 4 wks | \$0.00 | \$0.00 | \$0.00 | \$8,640.00 | \$0.00 | \$0.00 | \$0.00 |
| 5965 | 1.4.1.2.5 | Seismic Bracing | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$3,000.00 | \$0.00 | \$3,000.00 | \$180.00 | \$477.00 | \$3,657.00 |
|  |  | SLAC MRS Total |  | M\&S | 0 | 3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5966 | 1.4.1.2.6 | Air Controls | SLAC | B\&H | 1 | 1 wk | \$0.00 | \$0.00 | \$3,200.00 | \$3,200.00 | \$640.00 | \$576.00 | \$4,416.00 |
|  |  | SLAC Mech. Fab: Machine Shop |  | B\&H | 0 | 1 wk | \$0.00 | \$0.00 | \$0.00 | \$3,200.00 | \$0.00 | \$0.00 | \$0.00 |
| 5967 | 1.4.1.2.6 | Air Controls | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$1,000.00 | \$0.00 | \$1,000.00 | \$60.00 | \$159.00 | \$1,219.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,000 | \$0.00 | \$0.00 | \$0.00 | \$1,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5968 | 1.4.1.2.7 | Modify exist structure | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$100,000.00 | \$0.00 | \$100,000.00 | \$6,000.00 | \$15,900.00 | \$121,900.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 100,000 | \$0.00 | \$0.00 | \$0.00 | \$100,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5969 | 1.4.1.2.8 | Laser Room | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$250,000.00 | \$0.00 | \$250,000.00 | \$15,000.00 | \$39,750.00 | \$304,750.00 |
|  |  | SLAC MES Iotal |  | M ${ }^{\text {S }}$ S | 0 | 250,000 | \$0.00 | \$0.00 | \$0.00 | \$250,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5970 | 1.4.1.2.9 | Utilities | SLAC | B\&H | 5 | 64 wks | \$0.00 | \$0.00 | \$174,080.00 | \$174,080.00 | \$34,816.00 | \$28,487.57 | \$237,383.57 |
|  |  | SLAC T\&M Cratts - Union Electrician |  | B\&H | 0 | 64 wks | \$0.00 | \$0.00 | \$0.00 | \$174,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 5971 | 1.4.1.2.9 | Utilities | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$150,000.00 | \$0.00 | \$150,000.00 | \$9,000.00 | \$23,850.00 | \$182,850.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 150,000 | \$0.00 | \$0.00 | \$0.00 | \$150,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5972 | 1.4.2 | Linac Facilities |  |  | 0 | 120 wks | \$94,480.00 | \$665,000.00 | \$128,000.00 | \$887,480.00 | \$84,396.00 | \$145,781.40 | \$1,117,657.40 |
| 5973 | 1.4.2.1 | PED |  |  | 0 | 40 wks | \$94,480.00 | \$0.00 | \$0.00 | \$94,480.00 | \$18,896.00 | \$17,006.40 | \$130,382.40 |
| 5974 | 1.4.2.1.1 | SEM Engineering | SLAC | ED\& | 1 | 20 wks | \$48,480.00 | \$0.00 | \$0.00 | \$48,480.00 | \$9,696.00 | \$8,726.40 | \$66,902.40 |
|  |  | SLAC Site Engineering: Engineer |  | ED\& | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$48,480.00 | \$0.00 | \$0.00 | \$0.00 |
| 5975 | 1.4.2.1.2 | Mechanical Design | SLAC | ED\& | 1 | 20 wks | \$46,000.00 | \$0.00 | \$0.00 | \$46,000.00 | \$9,200.00 | \$8,280.00 | \$63,480.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\&I | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$46,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5976 | 1.4.2.2 | Buildings |  |  | 0 | 80 wks | \$0.00 | \$665,000.00 | \$128,000.00 | \$793,000.00 | \$65,500.00 | \$128,775.00 | \$987,275.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 2 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 5977 | 1.4.2.2.1 | Building Electrical | SLAC | B\&H | 1 | 20 wks | \$0.00 | \$0.00 | \$32,000.00 | \$32,000.00 | \$6,400.00 | \$5,760.00 | \$44,160.00 |
|  |  | SLAC Site Engineering: Plant Maint. |  | B\&H | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$32,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5978 | 1.4.2.2. 1 | Building Electrical | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$350,000.00 | \$0.00 | \$350,000.00 | \$21,000.00 | \$55,650.00 | \$426,650.00 |
|  |  | SLAC MES Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 350,000 | \$0.00 | \$0.00 | \$0.00 | \$350,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5979 | 1.4.2.2. 2 | Building Water | SLAC | B\&H | 1 | 20 wks | \$0.00 | \$0.00 | \$32,000.00 | \$32,000.00 | \$6,400.00 | \$5,760.00 | \$44,160.00 |
|  |  | SLAC Site Engineering: Plant Maint. |  | B\&H | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$32,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5980 | 1.4.2.2.2 | Building Water | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$140,000.00 | \$0.00 | \$140,000.00 | \$8,400.00 | \$22,260.00 | \$170,660.00 |
|  |  | SLAC M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 140,000 | \$0.00 | \$0.00 | \$0.00 | \$140,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5981 | 1.4.2.2.3 | Building HVAC | SLAC | B\&H | 1 | 20 wks | \$0.00 | \$0.00 | \$32,000.00 | \$32,000.00 | \$6,400.00 | \$5,760.00 | \$44,160.00 |
|  |  | SLAC Site Engineering: Plant Maint. |  | B\&H | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$32,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5982 | 1.4.2.2.3 | Building HVAC | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$150,000.00 | \$0.00 | \$150,000.00 | \$9,000.00 | \$23,850.00 | \$182,850.00 |
|  |  | SLAC MES Total |  | M\&S | 0 | 150,000 | \$0.00 | \$0.00 | \$0.00 | \$150,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5983 | 1.4.2.2.4 | Building Special Systems | SLAC | B\&H | 1 | 20 wks | \$0.00 | \$0.00 | \$32,000.00 | \$32,000.00 | \$6,400.00 | \$5,760.00 | \$44,160.00 |
|  |  | SLAC Site Engineering: Plant Maint. |  | BRH | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$32,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5984 | 1.4.2.2.4 | Building Special Systems | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$25,000.00 | \$0.00 | \$25,000.00 | \$1,500.00 | \$3,975.00 | \$30,475.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 25,000 | \$0.00 | \$0.00 | \$0.00 | \$25,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5985 | 1.4 .3 | Undulator Facilities |  |  | 0 | 60 wks | \$142,960.00 | \$710,000.00 | \$0.00 | \$852,960.00 | \$71,192.00 | \$141,848.00 | \$1,066,000.00 |
| 5986 | 1.4.3.1 | PED |  |  | 0 | 60 wks | \$142,960.00 | \$0.00 | \$0.00 | \$142,960.00 | \$28,592.00 | \$25,732.80 | \$197,284.80 |
| 5987 | 1.4.3.1.1 | SEM Engineering | SLAC | ED\& | 1 | 40 wks | \$96,960.00 | \$0.00 | \$0.00 | \$96,960.00 | \$19,392.00 | \$17,452.80 | \$133,804.80 |
|  |  | SLAC Site Engineering: Engineer |  | ED\& | 0 | 40 wks | \$0.00 | \$0.00 | \$0.00 | \$96,960.00 | \$0.00 | \$0.00 | \$0.00 |
| 5988 | 1.4.3.1.2 | Mechanical Design | SLAC | ED\& | 1 | 20 wks | \$46,000.00 | \$0.00 | \$0.00 | \$46,000.00 | \$9,200.00 | \$8,280.00 | \$63,480.00 |
|  |  | SLAC Mech Dratting/Design |  | ED\& | 0 | 20 wks | \$0.00 | \$0.00 | \$0.00 | \$46,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5989 | 1.4.3.2 | Grounds Preparation |  |  | 0 | 0 wks | \$0.00 | \$150,000.00 | \$0.00 | \$150,000.00 | \$9,000.00 | \$23,850.00 | \$182,850.00 |
| 5990 | 1.4.3.2.1 | Grounds Preparation | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$150,000.00 | \$0.00 | \$150,000.00 | \$9,000.00 | \$23,850.00 | \$182,850.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 150,000 | \$0.00 | \$0.00 | \$0.00 | \$150,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5991 | 1.4.3.3 | Structures |  |  | 0 | 0 wks | \$0.00 | \$400,000.00 | \$0.00 | \$400,000.00 | \$24,000.00 | \$66,825.20 | \$490,825.20 |
| 5992 | 1.4.3.3.1 | Structures | SLAC | M\&S | 5 | 0 wks | \$0.00 | \$400,000.00 | \$0.00 | \$400,000.00 | \$24,000.00 | \$66,825.20 | \$490,825.20 |
|  |  | SLAC MES Iotal |  | M\&S | 0 | 400,000 | \$0.00 | \$0.00 | \$0.00 | \$400,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5993 | 1.4.3.4 | Buildings |  |  | 0 | 0 wks | \$0.00 | \$160,000.00 | \$0.00 | \$160,000.00 | \$9,600.00 | \$25,440.00 | \$195,040.00 |
| 5994 | 1.4.3.4.1 | Building Electrical | SLAC | M 2 S | 1 | 0 wks | \$0.00 | \$20,000.00 | \$0.00 | \$20,000.00 | \$1,200.00 | \$3,180.00 | \$24,380.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 20,000 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5995 | 1.4.3.4.2 | Building Water | SLAC | MES | 1 | 0 wks | \$0.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$1,800.00 | \$4,770.00 | \$36,570.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 30,000 | \$0.00 | \$0.00 | \$0.00 | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5996 | 1.4.3.4.3 | Building HVAC | SLAC | M\&S | 1 | 0 wks | \$0.00 | \$50,000.00 | \$0.00 | \$50,000.00 | \$3,000.00 | \$7,950.00 | \$60,950.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
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| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{gathered} \text { ID } \\ 5997 \end{gathered}$ | CWBS | Task Name Building Special Systems | $\frac{\text { OBS }}{}$ | $\frac{\text { PHASE }}{\text { M\&S }}$ | Risk | Units | $\begin{aligned} & \text { PED (Direct) } \\ & \$ 0.00 \end{aligned}$ | $\frac{\text { M\&S (Direct) }}{\$ 60,000.00}$ | Labor (Direct) | $\begin{aligned} & \text { Direct Cost } \\ & \$ 60,000.00 \end{aligned}$ | Overhead Cost $\$ 3,600.00$ | Contingency Cost \$9,540.00 | $\begin{aligned} & \text { Total Cost } \\ & \$ 73,140.00 \end{aligned}$ |
|  | 1.4.3.4.4 |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 60,000 | \$0.00 | \$0.00 | \$0.00 | \$60,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 5998 | 1.4.3.4.5 | Building Interior | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 5999 | 1.4.3.4.6 | Building Furnishings | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 6000 | 1.4.3.4.7 | Building Interior Modifications/Cleanout/Shielding | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 6001 | 1.4 .4 | Near Hall |  |  | 0 | 104 wks | \$952,096.00 | \$8,821,000.00 | \$0.00 | \$9,773,096.00 | \$621,679.20 | \$2,078,955.04 | \$12,473,730.24 |
| 6002 | 1.4.4.1 | PED |  |  | 0 | 104 wks | \$952,096.00 | \$0.00 | \$0.00 | \$952,096.00 | \$92,419.20 | \$208,903.04 | \$1,253,418.24 |
| 6003 | 1.4.4.1.1 | SEM Engineering | SLAC | ED\& | 5 | 104 wks | \$252,096.00 | \$0.00 | \$0.00 | \$252,096.00 | \$50,419.20 | \$60,503.04 | \$363,018.24 |
|  |  | SLAC Site Engineering: Engineer |  | ED\& | 0 | 104 wks | \$0.00 | \$0.00 | \$0.00 | \$252,096.00 | \$0.00 | \$0.00 | $\$ 0.00$ |
| 6004 | 1.4.4.1.2 | A\&E Services | SLAC | M 2 S | 5 | 0 wks | \$700,000.00 | \$0.00 | \$0.00 | \$700,000.00 | \$42,000.00 | \$148,400.00 | \$890,400.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 700,000 | \$0.00 | \$0.00 | \$0.00 | \$700,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6005 | 1.4.4.2 | Grounds Preparation |  |  | 0 | 0 wks | \$0.00 | \$3,216,000.00 | \$0.00 | \$3,216,000.00 | \$192,960.00 | \$681,792.00 | \$4,090,752.00 |
| 6006 | 1.4.4.2.1 | Equip, Drainage, etc | SLAC | M 2 S | 5 | 0 wks | \$0.00 | \$1,399,000.00 | \$0.00 | \$1,399,000.00 | \$83,940.00 | \$296,588.00 | \$1,779,588.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 1,399,000 | \$0.00 | \$0.00 | \$0.00 | \$1,399,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6007 | 1.4.4.2.2 | Modify Bldg 102 | SLAC | M 2 S | 5 | 0 wks | \$0.00 | \$100,000.00 | \$0.00 | \$100,000.00 | \$6,000.00 | \$21,200.00 | \$127,200.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 100,000 | \$0.00 | \$0.00 | \$0.00 | \$100,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6008 | 1.4.4.2.3 | Modity Bldg 104 | SLAC | M 2 S | 5 | 0 wks | \$0.00 | \$225,000.00 | \$0.00 | \$225,000.00 | \$13,500.00 | \$47,700.00 | \$286,200.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 225,000 | \$0.00 | \$0.00 | \$0.00 | \$225,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6009 | 1.4.4.2.4 | Modity Bldg 211 | SLAC | M\&S | 5 | 0 wks | \$0.00 | \$250,000.00 | \$0.00 | \$250,000.00 | \$15,000.00 | \$53,000.00 | \$318,000.00 |
|  |  | SLAC MES Total |  | M 2 S | 0 | 250,000 | \$0.00 | \$0.00 | \$0.00 | \$250,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6010 | 1.4.4.2.5 | Roadway Access | SLAC | M 2 S | 5 | 0 wks | \$0.00 | \$742,000.00 | \$0.00 | \$742,000.00 | \$44,520.00 | \$157,304.00 | \$943,824.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 742,000 | \$0.00 | \$0.00 | \$0.00 | \$742,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6011 | 1.4.4.2.6 | Substation \#512 Site characterization \& remediation | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 6012 | 1.4.4.2.7 | Site Characterization waste protiling/disposal | SLAC | M 2 S | 5 | 0 wks | \$0.00 | \$500,000.00 | \$0.00 | \$500,000.00 | \$30,000.00 | \$106,000.00 | \$636,000.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 500,000 | \$0.00 | \$0.00 | \$0.00 | \$500,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6013 | 1.4.4.3 | Structures |  |  | 0 | 0 wks | \$0.00 | \$1,553,000.00 | \$0.00 | \$1,553,000.00 | \$93,180.00 | \$329,236.00 | \$1,975,416.00 |
| 6014 | 1.4.4.3.1 | Concrete | SLAC | M 2 S | 5 | 0 wks | \$0.00 | \$742,000.00 | \$0.00 | \$742,000.00 | \$44,520.00 | \$157,304.00 | \$943,824.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 742,000 | \$0.00 | \$0.00 | \$0.00 | \$742,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6015 | 1.4.4.3.2 | Metals | SLAC | M\&S | 5 | 0 wks | \$0.00 | \$811,000.00 | \$0.00 | \$811,000.00 | \$48,660.00 | \$171,932.00 | \$1,031,592.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 811,000 | \$0.00 | \$0.00 | \$0.00 | \$811,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6016 | 1.4.4.4 | Buildings |  |  | 0 | 0 wks | \$0.00 | \$4,052,000.00 | \$0.00 | \$4,052,000.00 | \$243,120.00 | \$859,024.00 | \$5,154,144.00 |
| 6017 | 1.4.4.4.1 | Building Electrical | SLAC | M\&S | 5 | 0 wks | \$0.00 | \$953,000.00 | \$0.00 | \$953,000.00 | \$57,180.00 | \$202,036.00 | \$1,212,216.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 953,000 | \$0.00 | \$0.00 | \$0.00 | \$953,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6018 | 1.4.4.4.2 | Building Water | SLAC | M\&S | 5 | 0 wks | \$0.00 | \$158,000.00 | \$0.00 | \$158,000.00 | \$9,480.00 | \$33,496.00 | \$200,976.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 158,000 | \$0.00 | \$0.00 | \$0.00 | \$158,000.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\frac{\text { ID }}{6019}$ | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M 4 S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
|  | 1.4.4.4.3 | Building HVAC | SLAC | M\&S | 5 | 0 wks | \$0.00 | \$500,000.00 | \$0.00 | \$500,000.00 | \$30,000.00 | \$106,000.00 | \$636,000.00 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 500,000 | \$0.00 | \$0.00 | \$0.00 | \$500,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6020 | 1.4.4.4.4 | Building Special Systems | SLAC | M\&S | 5 | 0 wks | \$0.00 | \$302,000.00 | \$0.00 | \$302,000.00 | \$18,120.00 | \$64,024.00 | \$384,144.00 |
|  |  | SLAC M\&S Iotal |  | M $\mathrm{S}^{\text {S }}$ | 0 | 302,000 | \$0.00 | \$0.00 | \$0.00 | \$302,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6021 | 1.4.4.4.5 | Building Interior | SLAC | M 2 S | 5 | 0 wks | \$0.00 | \$1,279,000.00 | \$0.00 | \$1,279,000.00 | \$76,740.00 | \$271,148.00 | \$1,626,888.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 1,279,000 | \$0.00 | \$0.00 | \$0.00 | \$1,279,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6022 | 1.4.4.4.6 | Building Furnishings | SLAC | M\&S | 5 | 0 wks | \$0.00 | \$110,000.00 | \$0.00 | \$110,000.00 | \$6,600.00 | \$23,320.00 | \$139,920.00 |
|  |  | SLAC M\&S Iotal |  | M 4 S | 0 | 110,000 | \$0.00 | \$0.00 | \$0.00 | \$170,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6023 | 1.4.4.4.7 | Building X-ray Enclosures | SLAC | M\&S | 5 | 0 wks | \$0.00 | \$750,000.00 | \$0.00 | \$750,000.00 | \$45,000.00 | \$159,000.00 | \$954,000.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 750,000 | \$0.00 | \$0.00 | \$0.00 | \$750,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6024 | 1.4.5 | Tunnel |  |  | 0 | 45 wks | \$309,080.00 | \$2,102,000.00 | \$0.00 | \$2,411,080.00 | \$159,936.00 | \$514,203.20 | \$3,085,219.20 |
| 6025 | 1.4.5.1 | PED |  |  | 0 | 45 wks | \$309,080.00 | \$0.00 | \$0.00 | \$309,080.00 | \$33,816.00 | \$68,579.20 | \$411,475.20 |
| 6026 | 1.4.5.1.1 | SEM Engineering | SLAC | ED\& | 5 | 45 wks | \$109,080.00 | \$0.00 | \$0.00 | \$109,080.00 | \$21,816.00 | \$26,179.20 | \$157,075.20 |
|  |  | SLAC Site Engineering: Engineer |  | ED\&1 | 0 | 45 wks | \$0.00 | \$0.00 | \$0.00 | \$109,080.00 | \$0.00 | \$0.00 | \$0.00 |
| 6027 | 1.4.5.1.2 | Geo Tech Study | SLAC | M 2 S | 5 | 0 wks | \$50,000.00 | \$0.00 | \$0.00 | \$50,000.00 | \$3,000.00 | \$10,600.00 | \$63,600.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 50,000 | \$0.00 | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6028 | 1.4.5.1.3 | Tunnel Engineering | SLAC | M 2 S | 5 | 0 wks | \$150,000.00 | \$0.00 | \$0.00 | \$150,000.00 | \$9,000.00 | \$31,800.00 | \$190,800.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 150,000 | \$0.00 | \$0.00 | \$0.00 | \$150,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6029 | 1.4.5.2 | Site Preparation |  |  | 0 | 0 wks | \$0.00 | \$200,000.00 | \$0.00 | \$200,000.00 | \$12,000.00 | \$42,400.00 | \$254,400.00 |
| 6030 | 1.4.5.2.1 | Site Preparation | SLAC | M2S | 5 | 0 wks | \$0.00 | \$200,000.00 | \$0.00 | \$200,000.00 | \$12,000.00 | \$42,400.00 | \$254,400.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 200,000 | \$0.00 | \$0.00 | \$0.00 | \$200,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6031 | 1.4.5.3 | Structures |  |  | 0 | 0 wks | \$0.00 | \$1,502,000.00 | \$0.00 | \$1,502,000.00 | \$90,120.00 | \$318,424.00 | \$1,910,544.00 |
| 6032 | 1.4.5.3.1 | Structures | SLAC | M\&S | 5 | 0 wks | \$0.00 | \$1,502,000.00 | \$0.00 | \$1,502,000.00 | \$90,120.00 | \$318,424.00 | \$1,910,544.00 |
|  |  | SLAC MRS Iotal |  | M 2 S | 0 | 1,502,000 | \$0.00 | \$0.00 | \$0.00 | \$1,502,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6033 | 1.4.5.4 | Buildings |  |  | 0 | 0 wks | \$0.00 | \$400,000.00 | \$0.00 | \$400,000.00 | \$24,000.00 | \$84,800.00 | \$508,800.00 |
| 6034 | 1.4.5.4.1 | Building Electrical | SLAC | M 2 S | 5 | 0 wks | \$0.00 | \$75,000.00 | \$0.00 | \$75,000.00 | \$4,500.00 | \$15,900.00 | \$95,400.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 75,000 | \$0.00 | \$0.00 | \$0.00 | \$75,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6035 | 1.4.5.4.2 | Bulding Water | SLAC | M\&S | 5 | 0 wks | \$0.00 | \$25,000.00 | \$0.00 | \$25,000.00 | \$1,500.00 | \$5,300.00 | \$31,800.00 |
|  |  | SLAC MRS Iotal |  | M 2 S | 0 | 25,000 | \$0.00 | \$0.00 | \$0.00 | \$25,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6036 | 1.4.5.4.3 | Building HVAC | SLAC | M\&S | 5 | 0 wks | \$0.00 | \$200,000.00 | \$0.00 | \$200,000.00 | \$12,000.00 | \$42,400.00 | \$254,400.00 |
|  |  | SLAC M\&S Total |  | M 2 S | 0 | 200,000 | \$0.00 | \$0.00 | \$0.00 | \$200,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6037 | 1.4.5.4.4 | Building Special Systems | SLAC | M\&S | 5 | 0 wks | \$0.00 | \$100,000.00 | \$0.00 | \$100,000.00 | \$6,000.00 | \$21,200.00 | \$127,200.00 |
|  |  | SLAC M\&S Iotal |  | M 2 S | 0 | 100,000 | \$0.00 | \$0.00 | \$0.00 | \$100,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6038 | 1.4.5.4.5 | Building Interior | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 6039 | 1.4.5.4.6 | Building Furnishings | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |


| LCLS_CD1_TEC |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| ID | CWBS | Task Name | OBS | PHASE | Risk | Units | PED (Direct) | M\&S (Direct) | Labor (Direct) | Direct Cost | Overhead Cost | Contingency Cost | Total Cost |
| 6040 | 1.4.5.4.7 | Building X-ray Enclosures | SLAC |  | 0 | 0 wks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 6041 | 1.4.6 | Far Hall |  |  | 0 | 104 wks | \$1,162,096.00 | \$13,830,000.00 | \$0.00 | \$14,992,096.00 | \$934,819.20 | \$3,105,921.28 | \$19,032,836.48 |
| 6042 | 1.4.6.1 | PED |  |  | 0 | 104 wks | \$1,162,096.00 | \$0.00 | \$0.00 | \$1,162,096.00 | \$105,019.20 | \$253,423.04 | \$1,520,538.24 |
| 6043 | 1.4.6.1.1 | SEM Engineering | SLAC | ED\&1 | 5 | 104 wks | \$252,096.00 | \$0.00 | \$0.00 | \$252,096.00 | \$50,419.20 | \$60,503.04 | \$363,018.24 |
|  |  | SLAC Site Engineering: Engineer |  | ED\& | 0 | 104 wks | \$0.00 | \$0.00 | \$0.00 | \$252,096.00 | \$0.00 | \$0.00 | \$0.00 |
| 6044 | 1.4.6.1.4 | A \& E Serv | SLAC | M 2 S | 5 | 0 wks | \$990,000.00 | \$0.00 | \$0.00 | \$910,000.00 | \$54,600.00 | \$192,920.00 | \$1,157,520.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 910,000 | \$0.00 | \$0.00 | \$0.00 | \$910,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6045 | 1.4.6.2 | Site Preparation |  |  | 0 | 0 wks | \$0.00 | \$2,250,000.00 | \$0.00 | \$2,250,000.00 | \$135,000.00 | \$477,000.00 | \$2,862,000.00 |
| 6046 | 1.4.6.2.1 | Site Preparation | SLAC | M\&S | 5 | 0 wks | \$0.00 | \$2,250,000.00 | \$0.00 | \$2,250,000.00 | \$135,000.00 | \$477,000.00 | \$2,862,000.00 |
|  |  | SLAC M\&S Total |  | MLS | 0 | 2,250,000 | \$0.00 | \$0.00 | \$0.00 | \$2,250,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6047 | 1.4.6.3 | Structures |  |  | 0 | 0 wks | \$0.00 | \$4,500,000.00 | \$0.00 | \$4,500,000.00 | \$270,000.00 | \$954,000.00 | \$5,724,000.00 |
| 6048 | 1.4.6.3.1 | Structures | SLAC | M 2 S | 5 | 0 wks | \$0.00 | \$4,500,000.00 | \$0.00 | \$4,500,000.00 | \$270,000.00 | \$954,000.00 | \$5,724,000.00 |
|  |  | SLAC M\&S Iotal |  | M LS $^{\text {S }}$ | 0 | 4,500,000 | \$0.00 | \$0.00 | \$0.00 | \$4,500,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6049 | 1.4.6.4 | Buildings |  |  | 0 | 0 wks | \$0.00 | \$7,080,000.00 | \$0.00 | \$7,080,000.00 | \$424,800.00 | \$1,421,498.24 | \$8,926,298.24 |
| 6050 | 1.4.6.4. 1 | Building Electrical | SLAC | M 2 S | 5 | 0 wks | \$0.00 | \$1,648,000.00 | \$0.00 | \$1,648,000.00 | \$98,880.00 | \$349,376.00 | \$2,096,256.00 |
|  |  | SLAC MRS Total |  | M\&S | 0 | 1,648,000 | \$0.00 | \$0.00 | \$0.00 | \$1,648,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6051 | 1.4.6.4.2 | Building Water | SLAC | M 2 S | 5 | 0 wks | \$0.00 | \$300,000.00 | \$0.00 | \$300,000.00 | \$18,000.00 | \$63,600.00 | \$381,600.00 |
|  |  | SLAC M\&S Iotal |  | M MS $^{\text {S }}$ | 0 | 300,000 | \$0.00 | \$0.00 | \$0.00 | \$300,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6052 | 1.4.6.4.3 | Bullding HVAC | SLAC | M\&S | 5 | 0 wks | \$0.00 | \$1,395,000.00 | \$0.00 | \$1,395,000.00 | \$83,700.00 | \$216,278.24 | \$1,694,978.24 |
|  |  | SLAC M\&S Total |  | M2S | 0 | 1,395,000 | \$0.00 | \$0.00 | \$0.00 | \$1,395,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6053 | 1.4.6.4.4 | Building Special Systems | SLAC | M 2 S | 5 | 0 wks | \$0.00 | \$973,000.00 | \$0.00 | \$973,000.00 | \$58,380.00 | \$206,276.00 | \$1,237,656.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 973,000 | \$0.00 | \$0.00 | \$0.00 | \$973,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6054 | 1.4.6.4.5 | Building Interior | SLAC | M\&S | 5 | 0 wks | \$0.00 | \$1,427,000.00 | \$0.00 | \$1,427,000.00 | \$85,620.00 | \$302,524.00 | \$1,815,144.00 |
|  |  | SLAC MES Iotal |  | M 2 S | 0 | 1,427,000 | \$0.00 | \$0.00 | \$0.00 | \$1,427,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6055 | 1.4.6.4.6 | Building Furnishings | SLAC | M\&S | 5 | 0 wks | \$0.00 | \$587,000.00 | \$0.00 | \$587,000.00 | \$35,220.00 | \$124,444.00 | \$746,664.00 |
|  |  | SLAC M\&S Total |  | M\&S | 0 | 587,000 | \$0.00 | \$0.00 | \$0.00 | \$587,000.00 | \$0.00 | \$0.00 | \$0.00 |
| 6056 | 1.4.6.4.7 | Building X-ray Enclosures | SLAC | M\&S | 5 | 0 wks | \$0.00 | \$750,000.00 | \$0.00 | \$750,000.00 | \$45,000.00 | \$159,000.00 | \$954,000.00 |
|  |  | SLAC M\&S Iotal |  | M\&S | 0 | 750,000 | \$0.00 | \$0.00 | \$0.00 | \$750,000.00 | \$0.00 | \$0.00 | \$0.00 |

