PROJECT: **Linac Coherent Light Source** 5/10/2004

REPORT: **Detailed Cost Estimate**

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
							LINAC COHERENT LIGHT SOURCE (TPC)					**957,647**	**135,796,045**	**95,949,300**	**149,966,960**	**245,916,260**	
1							**LCLS PROJECT - PED & CONSTRUCTION**					**773,272**	**117,451,406**	**76,022,229**	**129,411,792**	**205,434,021**	
1	**01**						**LCLS PROJECT MGMT, PLANNING & ADMN (TEC)**					**106,703**	**5,994,543**	**9,302,193**	**6,796,365**	**16,098,558**	
1	**01**	**01**					**Environment, Safety & Health**					**7,155**	**-**	**653,234**	**-**	**653,234**	
1	**01**	**01**	**01**				**Radiation Physics**					**4,472**	**-**	**408,282**	**-**	**408,282**	
1	01	01	01			PM110_0010	Radiation Physics - PED	S	PED	SL_PHH	Hrs	1,504		131,679		131,679	50%
1	01	01	01			PM110_0011	Radiation Physics- CONST	S	CON	SL_PHH	Hrs	2,968		276,603		276,603	50%
1	**01**	**01**	**02**				**ESH Management & Coordination**					**2,236**	**-**	**204,140**	**-**	**204,140**	
1	01	01	02			PM120_0020	ESH Management & Coordination - PED	S	PED	SL_PHH	Hrs	752		65,839		65,839	30%
1	01	01	02			PM120_0021	ESH Management & Coordination - CONST	S	CON	SL_PHH	Hrs	1,484		138,301		138,301	30%
1	**01**	**01**	**03**				**Seismic & Engineering Support**					**447**	**-**	**40,812**	**-**	**40,812**	
1	01	01	03			PM120_0030	Seismic & Engineering - PED	S	PED	SL_PHH	Hrs	150		13,133		13,133	20%
1	01	01	03			PM120_0031	Seismic & Engineering - CONST	S	CON	SL_PHH	Hrs	297		27,679		27,679	20%
1	**01**	**02**					**Project Management**					**56,910**	**4,943,612**	**4,707,915**	**5,619,600**	**10,327,515**	
1	**01**	**02**	**01**				**SLAC Project Management Office**					**56,910**	**4,943,612**	**4,707,915**	**5,619,600**	**10,327,515**	
1	**01**	**02**	**01**	**01**			**SLAC Project Office - General**					**44,723**	**-**	**4,060,209**	**-**	**4,060,209**	
1	01	02	01	01		PM211_0040	Administrative Support - SLAC 1 - PED	S	PED	SL_ADMN	Hrs	2,632		152,230		152,230	20%
1	01	02	01	01		PM211_0020	Chief Engineer - PED	S	PED	SL_PM	Hrs	2,632		321,881		321,881	30%
1	01	02	01	01		PM211_0010	Project Director - PED	S	PED	SL_PM	Hrs	2,632		321,881		321,881	30%
1	01	02	01	01		PM211_0025	Cost & Schedule Manager PED	S	PED	SL_FA	Hrs	2,205		172,671		172,671	
1	01	02	01	01		PM211_0050	Administrative Support - SLAC 2 - PED	S	PED	SL_ADMN	Hrs	1,729		100,974		100,974	20%
1	01	02	01	01		PM211_0030	Budget/Finance Officer - PED	S	PED	SL_FA	Hrs	1,729		136,176		136,176	20%
1	01	02	01	01		PM211_0051	Administrative Support - SLAC 2 - CONST	S	CON	SL_ADMN	Hrs	5,194		319,745		319,745	20%
1	01	02	01	01		PM211_0041	Administrative Support - SLAC 1 - CONST	S	CON	SL_ADMN	Hrs	5,194		319,745		319,745	20%
1	01	02	01	01		PM211_0031	Budget/Finance Officer - CON	S	CON	SL_FA	Hrs	5,194		431,251		431,251	20%
1	01	02	01	01		PM211_0021	Chief Engineer - CONST	S	CON	SL_PM	Hrs	5,194		676,134		676,134	30%
1	01	02	01	01		PM211_0011	Project Director - CONST	S	CON	SL_PM	Hrs	5,194		676,134		676,134	30%
1	01	02	01	01		PM211_0026	Cost & Schedule Manager - CONST	S	CON	SL_FA	Hrs	5,194		431,387		431,387	
1	**01**	**02**	**01**	**02**			**SLAC Project Support**					**12,187**	**3,964,167**	**647,706**	**4,472,539**	**5,120,245**	
1	01	02	01	02		PM212_0070	Computing Support - PED	S	PED	SL_CRM	Hrs	752		44,582		44,582	
1	01	02	01	02		PM212_0060	Software Licenses - PED	S	PED	SL_MSEG	$$		15,762		17,020	17,020	30%
1	01	02	01	02		PM212_0020	Website Support - PED	S	PED	SL_CRA	Hrs	752		34,803		34,803	30%
1	01	02	01	02		PM212_0010	PMCS Support - Implementation/Development	S	PED	SL_MSPS	$$		210,000		222,600	222,600	30%
1	01	02	01	02		PM212_0016	PMCS Support - Maintenance - PED	S	PED	SL_MSPS	$$		1,057,272		1,146,022	1,146,022	
1	01	02	01	02		PM212_0080	Recruiting/Relocation Support - PED	S	PED	SL_MSTR	$$		12,477		15,347	15,347	
1	01	02	01	02		PM212_0050	QA/QC Support - PED	S	PED	SL_MSPS	$$		21,853		23,820	23,820	30%
1	01	02	01	02		PM212_0040	Procurement Expediting Support - PED	S	PED	SL_FA	Hrs	198		15,594		15,594	30%
1	01	02	01	02		PM212_0030	Relational Database Support - PED	S	PED	SL_CRA	Hrs	1,729		80,796		80,796	30%
1	01	02	01	02		PM212_0081	Recruiting/Relocation Support - CONST	S	CON	SL_MSTR	$$		37,523		48,866	48,866	
1	01	02	01	02		PM212_0071	Computing Support - CONST	S	CON	SL_CRM	Hrs	1,484		93,639		93,639	
1	01	02	01	02		PM212_0061	Software Licenses - CONST	S	CON	SL_MSEG	$$		29,313		33,686	33,686	30%
1	01	02	01	02		PM212_0051	QA/QC Support - CONST	S	CON	SL_MSPS	$$		65,559		75,337	75,337	30%
1	01	02	01	02		PM212_0041	Procurement Expediting Support - CONST	S	CON	SL_FA	Hrs	594		49,319		49,319	30%
1	01	02	01	02		PM212_0031	Relational Database Support - CONST	S	CON	SL_CRA	Hrs	5,194		255,868		255,868	30%
1	01	02	01	02		PM212_0021	Website Support - CONST	S	CON	SL_CRA	Hrs	1,484		73,105		73,105	30%
1	01	02	01	02		PM212_0017	PMCS Support - Maintenance - CONST	S	CON	SL_MSPS	$$		2,514,408		2,889,841	2,889,841	
1	**01**	**02**	**01**	**03**			**SLAC Project Office M&S**					**-**	**979,445**	**-**	**1,147,061**	**1,147,061**	
1	01	02	01	03		PM213_0050	Project Related Travel - PED	S	PED	SL_MSTR	$$		30,000		36,594	36,594	30%
1	01	02	01	03		PM213_0040	Misc. Shipping/Storage Costs - PED	S	PED	SL_MSTR	$$		17,485		21,328	21,328	30%
1	01	02	01	03		PM213_0030	Computer M&S - PED	S	PED	SL_MSEG	$$		40,000		43,191	43,191	30%
1	01	02	01	03		PM213_0020	Tele/Video Conferencing - PED	S	PED	SL_MSEG	$$		3,672		3,965	3,965	30%
1	01	02	01	03		PM213_0010	SLAC Project Office M&S - PED	S	PED	SL_MSCS	$$		30,000		32,394	32,394	30%
1	01	02	01	03		PM213_0070	Review Committee Support - PED	S	PED	SL_MSCS	$$		12,487		13,611	13,611	
1	01	02	01	03		PM213_0060	Building Refurb/Remodeling @ SLAC - CONST	S	CON	SL_MSEG	$$		250,000		283,602	283,602	
1	01	02	01	03		PM213_0071	Review Committee Support - CONST	S	CON	SL_MSCS	$$		37,513		43,108	43,108	
1	01	02	01	03		PM213_0051	Project Related Travel - CONST	S	CON	SL_MSTR	$$		148,270		193,099	193,099	30%
1	01	02	01	03		PM213_0041	Misc. Shipping/Storage Costs CONST	S	CON	SL_MSTR	$$		32,515		42,346	42,346	30%
1	01	02	01	03		PM213_0031	Computer M&S - CONST	S	CON	SL_MSEG	$$		175,583		201,778	201,778	30%
1	01	02	01	03		PM213_0021	Tele/Video Conferencing - CONST	S	CON	SL_MSEG	$$		6,828		7,847	7,847	30%
1	01	02	01	03		PM213_0011	SLAC Project Office M&S - CONST	S	CON	SL_MSCS	$$		195,092		224,198	224,198	30%
1	**01**	**02**	**01**	**04**			**Reserved**										
1	**01**	**02**	**01**	**05**			**Reserved**										

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	01	02	02				**Reserved**										
1	01	02	03				**Reserved**										
1	01	03					**Technical Integration**					**42,638**	**1,019,429**	**3,941,044**	**1,137,361**	**5,078,405**	
1	01	03	01				**Global Controls**					**29,820**	**941,429**	**2,640,028**	**1,050,001**	**3,690,029**	
1	01	03	01			PM300_0010	Global Controls Consulting - PED	S	PED	SL_MSPS	$$		211,000		227,835	227,835	30%
1	01	03	01			PM02080100	Define low level application sftwe reqmts - PED	S	PED	SL_CP	Hrs	2,205		199,442		199,442	
1	01	03	01			PM300_0030	Global Controls Management - PED		PED	SL_CE	Hrs	1,904		213,753		213,753	
1	01	03	01			PM300_0090	LCLS Beam Instrumentation Cntls & Test Equip	S	PED	SL_MSEG	$$		292,000		318,280	318,280	
1	01	03	01			PM300_0080	High Level Application Programming - PED	S	PED	SL_CP	Hrs	3,458		314,574		314,574	
1	01	03	01			PM300_0070	Global Controls System Administrator - PED	S	PED	SL_CRA	Hrs	1,729		80,796		80,796	
1	01	03	01			PM300_0081	High Level Application Programming - CONST	S	CON	SL_CP	Hrs	6,916		654,842		654,842	
1	01	03	01			PM300_0071	Global Controls System Administrator - CONST	S	CON	SL_CRA	Hrs	5,194		255,868		255,868	
1	01	03	01			PM300_0011	Global Controls Management - CONST	S	CON	SL_MSPS	$$		380,429		437,186	437,186	30%
1	01	03	01			PM300_0011	Global Controls Management - CONST	S	CON	SL_CE	Hrs	5,194		616,064		616,064	30%
1	01	03	01			PM02080110	Define low level application sftwe reqmts - CON		CON	SL_CP	Hrs	3,220		304,689		304,689	
1	01	03	01			PM300_0020	SLAC MCC Controls Upgrade	S	CON	SL_MSEG	$$		58,000		66,700	66,700	50%
1	01	03	02				**Global Alignment Coordination**					**7,176**	**78,000**	**674,662**	**87,360**	**762,022**	
1	01	03	02			PM300_0050	Global Alignment Coordination - PED	S	PED	SL_MES	Hrs	988		89,256		89,256	30%
1	01	03	02			PM300_0051	Global Alignment Coordination - CONST	S	CON	SL_MES	Hrs	2,968		282,663		282,663	30%
1	01	03	02			PM300_0170	Install and Measure Surface Network	S	CON	SL_MES	Hrs	2,340		220,006		220,006	
1	01	03	02			PM300_0160	Procure Surface Network Components	S	CON	SL_MSEG	$$		78,000		87,360	87,360	
1	01	03	02			PM300_0150	Surface Network Oversight and Integration	S	CON	SL_MES	Hrs	880		82,737		82,737	
1	01	03	03				**Global Installation Coordination**					**5,642**	**-**	**626,354**	**-**	**626,354**	
1	01	03	03			PM300_0060	Installation Coordination - PED	S	PED	SL_ME	Hrs	448		47,358		47,358	30%
1	01	03	03			PM300_0061	Installation Coordination - CONST	S	CON	SL_ME	Hrs	5,194		578,996		578,996	30%
1	01	04					**Education Support**					**-**	**31,502**	**-**	**39,404**	**39,404**	
1	01	04	01				**Education/Outreach Travel**					**-**	**24,500**	**-**	**31,464**	**31,464**	
1	01	04	01			PM400_0030	Education Support - PED	S	PED	SL_MSTR	$$		6,119		7,526	7,526	0%
1	01	04	01			PM400_0031	Education Support - CONST	S	CON	SL_MSTR	$$		18,381		23,938	23,938	0%
1	01	04	02				**Education/Outreach M&S**					**-**	**7,002**	**-**	**7,940**	**7,940**	
1	01	04	02			PM400_0040	Education/Outreach M&S - PED	S	PED	SL_MSCS	$$		1,798		1,960	1,960	0%
1	01	04	02			PM400_0041	Education/Outreach M&S - CONST	S	CON	SL_MSCS	$$		5,204		5,980	5,980	0%
1	01	05					**Reserved**										
1	02						**INJECTOR SYSTEM**					**118,439**	**7,759,546**	**10,580,950**	**8,525,855**	**19,106,805**	
1	02	01					**Injector System Management & Integration**					**8,801**	**100,000**	**874,644**	**119,066**	**993,710**	
1	02	01	01				**Injector System Integration Effort / M&S**					**8,801**	**100,000**	**874,644**	**119,066**	**993,710**	
1	02	01	01			IJ0101U	Materials & Supplies - PED	S	PED	SL_MSCS	$$		4,330		4,645	4,645	0%
1	02	01	01			IJ0101T	Travel - PED	S	PED	SL_MSTR	$$		12,473		15,128	15,128	0%
1	02	01	01			IJ0101S	Computers - PED	S	PED	SL_MSEG	$$		6,494		6,967	6,967	0%
1	02	01	01			IJ0101C	Cost Account Managers - PED	S	PED	SL_ME	Hrs	2,653		277,779		277,779	0%
1	02	01	01			IJ0101A	Management - PED	S	PED	SL_PHSS	Hrs	2,653		243,515		243,515	0%
1	02	01	01			IJ0101U1	Materials & Supplies - CONST	S	CON	SL_MSCS	$$		15,670		17,719	17,719	0%
1	02	01	01			IJ0101T1	Travel - CONST	S	CON	SL_MSTR	$$		37,527		48,027	48,027	0%
1	02	01	01			IJ0101S1	Computers - CONST	S	CON	SL_MSEG	$$		23,506		26,580	26,580	0%
1	02	01	01			IJ0101D	Cost Account Managers - CONST	S	CON	SL_ME	Hrs	1,472		159,962		159,962	0%
1	02	01	01			IJ0101B	Management - CONST	S	CON	SL_PHSS	Hrs	2,023		193,388		193,388	0%
1	02	01	02				**Reserved**										
1	02	01	03				**Reserved**										
1	02	02					**Injector Controls Subsystem**					**25,235**	**990,228**	**2,327,436**	**1,094,540**	**3,421,976**	
1	02	02	01				**Reserved**										
1	02	02	02				**LLRF Controls**					**10,394**	**241,196**	**999,365**	**276,081**	**1,275,446**	
1	02	02	02	01			**Readback & Controls - RF Gun LLRF & Temperature**					**7,230**	**40,044**	**728,581**	**43,648**	**772,229**	
1	02	02	02	01		IJ02020140	Write Docs - LLRF gun Cntrls @ Sec20/21	S	CON	SL_CP	Hrs	180		16,523		16,523	35%
1	02	02	02	01		IJ02020140	Write Docs - LLRF gun Cntrls @ Sec20/21	S	CON	SL_CCA	Hrs	180		11,902		11,902	35%
1	02	02	02	01		IJ02020135	Write S/W - Gun Cntrls @ Sec20/21	S	CON	SL_CP	Hrs	1,760		160,937		160,937	35%
1	02	02	02	01		IJ02020118	Procure GADC 8 Channel	S	CON	SL_MSEG	$$		3,000		3,270	3,270	35%
1	02	02	02	01		IJ02020117	Procure VME Digitizers 100MHz-8 Channel	S	CON	SL_MSEG	$$		8,000		8,720	8,720	35%
1	02	02	02	01		IJ02020116	Procure Thermocouples(3)	S	CON	SL_MSEG	$$		3,125		3,406	3,406	35%
1	02	02	02	01		IJ02020110	Procure VME Module, IDOM	S	CON	SL_MSEG	$$		3,500		3,815	3,815	35%
1	02	02	02	01		IJ02020105	Procure VME Module, IDIM	S	CON	SL_MSEG	$$		3,500		3,815	3,815	35%
1	02	02	02	01		IJ02020100	Procure VME Module, PIOP	S	CON	SL_MSEG	$$		3,500		3,815	3,815	35%
1	02	02	02	01		IJ02020095	Procure VME cables to 2 PAU channels	S	CON	SL_MSEG	$$		266		290	290	35%

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												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	02	02	01		IJ02020090	Procure VME Module PAU (2)	S	CON	SL_MSEG	$$		3,500		3,815	3,815	35%
1	02	02	02	01		IJ02020085	Procure 1:2 Fanouts to change 3 triggers to 6	S	CON	SL_MSEG	$$		200		218	218	35%
1	02	02	02	01		IJ02020080	Procure VME cables to 3 STB channels to trigge	S	CON	SL_MSEG	$$		133		145	145	35%
1	02	02	02	01		IJ02020075	Procure VME Module, STB for triggers	S	CON	SL_MSEG	$$		3,500		3,815	3,815	35%
1	02	02	02	01		IJ02020070	Procure VME cables to 5 SAM channels of temper	S	CON	SL_MSEG	$$		133		145	145	35%
1	02	02	02	01		IJ02020065	Procure VME Module, 3122 for temperature	S	CON	SL_MSEG	$$		3,777		4,117	4,117	35%
1	02	02	02	01		IJ02020060	Procure VME cables to 4 SAM channels of Phase	S	CON	SL_MSEG	$$		133		145	145	35%
1	02	02	02	01		IJ02020055	Procure VME Module, 3122 for phase meas adjust	S	CON	SL_MSEG	$$		3,777		4,117	4,117	35%
1	02	02	02	01		IJ02020051	Build RF Boards - Rev .B.C.D	S	CON	SL_CE	Hrs	3,960		446,718		446,718	35%
1	02	02	02	01		IJ02020125	Assemble parts for LLRF gun Cntrls @ Sec20/21	S	CON	SL_CT	Hrs	8		507		507	35%
1	02	02	02	01		IJ02020125	Assemble parts for LLRF gun Cntrls @ Sec20/21	S	CON	SL_CCA	Hrs	8		539		539	35%
1	02	02	02	01		IJ02020129	Install Hardware in RF Hut	S	CON	SL_PCEF	Hrs	8		507		507	35%
1	02	02	02	01		IJ02020129	Install Hardware in RF Hut	S	CON	SL_CT	Hrs	8		507		507	35%
1	02	02	02	01		IJ02020129	Install Hardware in RF Hut	S	CON	SL_CCA	Hrs	8		539		539	35%
1	02	02	02	01		IJ02020149	Point to Point Checkout	S	CON	SL_CP	Hrs	200		18,704		18,704	35%
1	02	02	02	01		IJ02020149	Point to Point Checkout	S	CON	SL_CCA	Hrs	200		13,472		13,472	35%
1	02	02	02	01		IJ02020150	Integrate software & hardware	S	CON	SL_CP	Hrs	340		31,797		31,797	35%
1	02	02	02	01		IJ02020150	Integrate software & hardware	S	CON	SL_CCA	Hrs	340		22,902		22,902	35%
1	02	02	02	01		IJ02020170	Perform tests in situ	S	CON	SL_CP	Hrs	20		1,870		1,870	35%
1	02	02	02	01		IJ02020170	Perform tests in situ	S	CON	SL_CE	Hrs	10		1,157		1,157	35%
1	**02**	**02**	**02**	**02**			**Readback & Controls - L0 LLRF**					**1,257**	**80,554**	**107,313**	**92,556**	**199,869**	
1	02	02	02	02		IJ02020200	Define LLRF L0-1Cntrls Reqmts @ Sector 20/21	S	CON	SL_CP	Hrs	8		748		748	35%
1	02	02	02	02		IJ02020200	Define LLRF L0-1Cntrls Reqmts @ Sector 20/21	S	CON	SL_CE	Hrs	8		925		925	35%
1	02	02	02	02		IJ02020210	Design LLRF L0-1 Cntrls @ Sector 20/21	S	CON	SL_CP	Hrs	8		748		748	35%
1	02	02	02	02		IJ02020210	Design LLRF L0-1 Cntrls @ Sector 20/21	S	CON	SL_CE	Hrs	8		925		925	35%
1	02	02	02	02		IJ02020220	Design Review	S	CON	SL_CP	Hrs	8		748		748	35%
1	02	02	02	02		IJ02020220	Design Review	S	CON	SL_CE	Hrs	8		925		925	35%
1	02	02	02	02		IJ02020325	Write Docs - LLRF L0-1 Cntrls @ Sec20/21	S	CON	SL_CP	Hrs	20		1,910		1,910	35%
1	02	02	02	02		IJ02020325	Write Docs - LLRF L0-1 Cntrls @ Sec20/21	S	CON	SL_CCA	Hrs	20		1,376		1,376	35%
1	02	02	02	02		IJ02020303	Procure GADC 8 Channel	S	CON	SL_MSEG	$$		3,000		3,360	3,360	35%
1	02	02	02	02		IJ02020302	Procure VME Digitizers 100 MHz - 8 Channel	S	CON	SL_MSEG	$$		8,000		8,960	8,960	35%
1	02	02	02	02		IJ02020301	Procure Thermocouples(3)	S	CON	SL_MSEG	$$		3,125		3,500	3,500	35%
1	02	02	02	02		IJ02020295	Procure VME Module, IDOM	S	CON	SL_MSEG	$$		3,500		3,920	3,920	35%
1	02	02	02	02		IJ02020290	Procure VME Module, IDIM	S	CON	SL_MSEG	$$		3,500		3,920	3,920	35%
1	02	02	02	02		IJ02020285	Procure VME Module, PIOP	S	CON	SL_MSEG	$$		3,500		3,920	3,920	35%
1	02	02	02	02		IJ02020280	Procure VME cables to 2 PAU channels	S	CON	SL_MSEG	$$		266		298	298	35%
1	02	02	02	02		IJ02020275	Procure VME Module PAU (2)	S	CON	SL_MSEG	$$		3,500		3,920	3,920	35%
1	02	02	02	02		IJ02020270	Procure 1:2 Fanouts to change 3 triggers to 6	S	CON	SL_MSEG	$$		200		224	224	35%
1	02	02	02	02		IJ02020265	Procure VME cables to 3 STB channels to trigge	S	CON	SL_MSEG	$$		133		149	149	35%
1	02	02	02	02		IJ02020260	Procure VME Module, STB for triggers	S	CON	SL_MSEG	$$		3,500		3,920	3,920	35%
1	02	02	02	02		IJ02020255	Procure VME cables to 5 SAM channels of temper	S	CON	SL_MSEG	$$		133		149	149	35%
1	02	02	02	02		IJ02020250	Procure VME Module, 3122 for temperature	S	CON	SL_MSEG	$$		3,777		4,230	4,230	35%
1	02	02	02	02		IJ02020245	Procure VME cables to 4 SAM channels of Phase	S	CON	SL_MSEG	$$		133		149	149	35%
1	02	02	02	02		IJ02020240	Procure VME Module, 3122 for phase meas adjust	S	CON	SL_MSEG	$$		3,777		4,230	4,230	35%
1	02	02	02	02		IJ02020310	Assemble parts for LLRF L0-1 Cntrls @ Sec 20/21	S	CON	SL_CT	Hrs	8		507		507	35%
1	02	02	02	02		IJ02020310	Assemble parts for LLRF L0-1 Cntrls @ Sec 20/21	S	CON	SL_CCA	Hrs	8		539		539	35%
1	02	02	02	02		IJ02020314	Install Hardware in RF Hut	S	CON	SL_PCEF	Hrs	8		507		507	35%
1	02	02	02	02		IJ02020314	Install Hardware in RF Hut	S	CON	SL_CT	Hrs	8		507		507	35%
1	02	02	02	02		IJ02020314	Install Hardware in RF Hut	S	CON	SL_CCA	Hrs	8		539		539	35%
1	02	02	02	02		IJ02020334	Point to Point Checkout	S	CON	SL_CP	Hrs	200		19,015		19,015	35%
1	02	02	02	02		IJ02020334	Point to Point Checkout	S	CON	SL_CCA	Hrs	200		13,696		13,696	35%
1	02	02	02	02		IJ02020375	Define LLRF L0-2 Controls Reqmts @ Sec20/21	S	CON	SL_CP	Hrs	8		768		768	35%
1	02	02	02	02		IJ02020375	Define LLRF L0-2 Controls Reqmts @ Sec20/21	S	CON	SL_CE	Hrs	8		949		949	35%
1	02	02	02	02		IJ02020320	Write S/W - L0-1 Cntrls @ Sec20/21	S	CON	SL_CP	Hrs	40		3,851		3,851	35%
1	02	02	02	02		IJ02020395	Design LLRF L0-2 Cntrls @ Sec20/21	S	CON	SL_CP	Hrs	8		768		768	35%
1	02	02	02	02		IJ02020395	Design LLRF L0-2 Cntrls @ Sec20/21	S	CON	SL_CE	Hrs	8		949		949	35%
1	02	02	02	02		IJ02020405	Design Review	S	CON	SL_CT	Hrs	1		65		65	35%
1	02	02	02	02		IJ02020405	Design Review	S	CON	SL_CP	Hrs	8		768		768	35%
1	02	02	02	02		IJ02020405	Design Review	S	CON	SL_CE	Hrs	8		949		949	35%
1	02	02	02	02		IJ02020515	Write Docs - LLRF L0-2 Cntrls @ Sec20/21	S	CON	SL_CP	Hrs	20		1,967		1,967	35%
1	02	02	02	02		IJ02020515	Write Docs - LLRF L0-2 Cntrls @ Sec20/21	S	CON	SL_CCA	Hrs	20		1,417		1,417	35%
1	02	02	02	02		IJ02020510	Write S/W - L0-2 Cntrls @ Sec20/21	S	CON	SL_CP	Hrs	40		3,930		3,930	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	02	02	02		IJ02020493	Procure GADC 8 Channel	S	CON	SL_MSEG	$$		3,000		3,533	3,533	35%
1	02	02	02	02		IJ02020492	Procure VME Digitizers 100MHz - 8 Channel	S	CON	SL_MSEG	$$		8,000		9,421	9,421	35%
1	02	02	02	02		IJ02020491	Procure Thermocouples(3)	S	CON	SL_MSEG	$$		3,125		3,680	3,680	35%
1	02	02	02	02		IJ02020485	Procure VME cables to IDIM & IDOM	S	CON	SL_MSEG	$$		266		313	313	35%
1	02	02	02	02		IJ02020480	Procure VME Module, IDOM	S	CON	SL_MSEG	$$		3,500		4,122	4,122	35%
1	02	02	02	02		IJ02020475	Procure VME Module, IDIM	S	CON	SL_MSEG	$$		3,500		4,122	4,122	35%
1	02	02	02	02		IJ02020470	Procure VME Module, PIOP	S	CON	SL_MSEG	$$		3,500		4,122	4,122	35%
1	02	02	02	02		IJ02020465	Procure VME cables to 2 PAU channels	S	CON	SL_MSEG	$$		266		313	313	35%
1	02	02	02	02		IJ02020460	Procure VME Module PAU (2)	S	CON	SL_MSEG	$$		3,500		4,122	4,122	35%
1	02	02	02	02		IJ02020455	Procure 1:2 Fanouts to change 3 triggers to 6	S	CON	SL_MSEG	$$		200		236	236	35%
1	02	02	02	02		IJ02020450	Procure VME cables to 3 STB channels to trigge	S	CON	SL_MSEG	$$		133		157	157	35%
1	02	02	02	02		IJ02020445	Procure VME Module, STB for triggers	S	CON	SL_MSEG	$$		3,500		4,122	4,122	35%
1	02	02	02	02		IJ02020440	Procure VME cables to 5 SAM channels of temper	S	CON	SL_MSEG	$$		233		274	274	35%
1	02	02	02	02		IJ02020435	Procure VME Module, 3122 for temperature	S	CON	SL_MSEG	$$		3,777		4,448	4,448	35%
1	02	02	02	02		IJ02020430	Procure VME cables to 4 SAM channels of Phase	S	CON	SL_MSEG	$$		233		274	274	35%
1	02	02	02	02		IJ02020425	Procure VME Module, 3122 for phase meas adjust	S	CON	SL_MSEG	$$		3,777		4,448	4,448	35%
1	02	02	02	02		IJ02020335	Integrate software & hardware	S	CON	SL_CP	Hrs	40		3,938		3,938	35%
1	02	02	02	02		IJ02020335	Integrate software & hardware	S	CON	SL_CCA	Hrs	20		1,418		1,418	35%
1	02	02	02	02		IJ02020500	Assemble parts for LLRF L0-2 Cntrls @ Sec20/21	S	CON	SL_CT	Hrs	8		533		533	35%
1	02	02	02	02		IJ02020500	Assemble parts for LLRF L0-2 Cntrls @ Sec20/21	S	CON	SL_CCA	Hrs	8		567		567	35%
1	02	02	02	02		IJ02020507	Install Hardware in RF Hut	S	CON	SL_PCEF	Hrs	8		533		533	35%
1	02	02	02	02		IJ02020507	Install Hardware in RF Hut	S	CON	SL_CT	Hrs	8		533		533	35%
1	02	02	02	02		IJ02020507	Install Hardware in RF Hut	S	CON	SL_CCA	Hrs	8		567		567	35%
1	02	02	02	02		IJ02020524	Point to Point Checkout	S	CON	SL_CP	Hrs	200		19,690		19,690	35%
1	02	02	02	02		IJ02020524	Point to Point Checkout	S	CON	SL_CCA	Hrs	200		14,182		14,182	35%
1	02	02	02	02		IJ02020525	Integrate software & hardware-LLRF L0-2	S	CON	SL_CP	Hrs	40		3,938		3,938	35%
1	02	02	02	02		IJ02020525	Integrate software & hardware-LLRF L0-2	S	CON	SL_CCA	Hrs	20		1,418		1,418	35%
1	**02**	**02**	**02**	**03**			**Readback & Controls - LLRF Transverse Cavity**					**647**	**40,510**	**54,337**	**45,371**	**99,708**	
1	02	02	02	03		IJ02021805	Define LLRF Tranv Cav Controls Reqmts @ Sec20/21	S	CON	SL_CP	Hrs	8		748		748	35%
1	02	02	02	03		IJ02021805	Define LLRF Tranv Cav Controls Reqmts @ Sec20/21	S	CON	SL_CE	Hrs	8		925		925	35%
1	02	02	02	03		IJ02021815	Design LLRF Tranv Cav Cntrls @ Sec20/21	S	CON	SL_CP	Hrs	8		748		748	35%
1	02	02	02	03		IJ02021815	Design LLRF Tranv Cav Cntrls @ Sec20/21	S	CON	SL_CE	Hrs	8		925		925	35%
1	02	02	02	03		IJ02021925	Write Docs - LLRF Tranv Cav Cntrls @ Sec20/21	S	CON	SL_CP	Hrs	10		938		938	35%
1	02	02	02	03		IJ02021925	Write Docs - LLRF Tranv Cav Cntrls @ Sec20/21	S	CON	SL_CCA	Hrs	5		338		338	35%
1	02	02	02	03		IJ02021920	Write S/W - Tranv Cav Cntrls @ Sec20/21	S	CON	SL_CP	Hrs	100		9,352		9,352	35%
1	02	02	02	03		IJ02021897	Procure GADC 8 Channel	S	CON	SL_MSEG	$$		3,000		3,360	3,360	35%
1	02	02	02	03		IJ02021896	Procure VME Digitizers 100MHz - 8 Channel	S	CON	SL_MSEG	$$		8,000		8,960	8,960	35%
1	02	02	02	03		IJ02021895	Procure Thermocouples(3)	S	CON	SL_MSEG	$$		3,125		3,500	3,500	35%
1	02	02	02	03		IJ02021890	Procure VME cables to IDIM & IDOM	S	CON	SL_MSEG	$$		266		298	298	35%
1	02	02	02	03		IJ02021885	Procure VME Module, IDOM	S	CON	SL_MSEG	$$		3,500		3,920	3,920	35%
1	02	02	02	03		IJ02021880	Procure VME Module, IDIM	S	CON	SL_MSEG	$$		3,500		3,920	3,920	35%
1	02	02	02	03		IJ02021875	Procure VME Module, PIOP	S	CON	SL_MSEG	$$		3,500		3,920	3,920	35%
1	02	02	02	03		IJ02021870	Procure VME cables to 2 PAU channels	S	CON	SL_MSEG	$$		266		298	298	35%
1	02	02	02	03		IJ02021865	Procure VME Module PAU (2)	S	CON	SL_MSEG	$$		3,500		3,920	3,920	35%
1	02	02	02	03		IJ02021860	Procure 1:2 Fanouts to change 3 triggers to 6	S	CON	SL_MSEG	$$		200		224	224	35%
1	02	02	02	03		IJ02021855	Procure VME cables to 3 STB channels to trigge	S	CON	SL_MSEG	$$		133		149	149	35%
1	02	02	02	03		IJ02021850	Procure VME Module, STB for triggers	S	CON	SL_MSEG	$$		3,500		3,920	3,920	35%
1	02	02	02	03		IJ02021845	Procure VME cables to 5 SAM channels of temper	S	CON	SL_MSEG	$$		233		261	261	35%
1	02	02	02	03		IJ02021840	Procure VME Module, 3122 for temperature	S	CON	SL_MSEG	$$		3,777		4,230	4,230	35%
1	02	02	02	03		IJ02021835	Procure VME cables to 4 SAM channels of Phase	S	CON	SL_MSEG	$$		233		261	261	35%
1	02	02	02	03		IJ02021830	Procure VME Module, 3122 for phase meas adjust	S	CON	SL_MSEG	$$		3,777		4,230	4,230	35%
1	02	02	02	03		IJ02021905	Assy parts for LLRF Tranv Cav Cntrls @ Sec20/21	S	CON	SL_CT	Hrs	8		507		507	35%
1	02	02	02	03		IJ02021905	Assy parts for LLRF Tranv Cav Cntrls @ Sec20/21	S	CON	SL_CCA	Hrs	8		539		539	35%
1	02	02	02	03		IJ02021915	Install Hardware in RF Hut	S	CON	SL_PCEF	Hrs	8		507		507	35%
1	02	02	02	03		IJ02021915	Install Hardware in RF Hut	S	CON	SL_CT	Hrs	8		507		507	35%
1	02	02	02	03		IJ02021915	Install Hardware in RF Hut	S	CON	SL_CCA	Hrs	8		539		539	35%
1	02	02	02	03		IJ02021929	Point to Point Checkout	S	CON	SL_CP	Hrs	200		18,918		18,918	35%
1	02	02	02	03		IJ02021929	Point to Point Checkout	S	CON	SL_CCA	Hrs	200		13,626		13,626	35%
1	02	02	02	03		IJ02021930	Integrate software & hardware	S	CON	SL_CP	Hrs	40		3,838		3,838	35%
1	02	02	02	03		IJ02021930	Integrate software & hardware	S	CON	SL_CCA	Hrs	20		1,382		1,382	35%
1	**02**	**02**	**02**	**04**			**S-Band Cavity Controls**					**1,260**	**80,088**	**109,134**	**94,506**	**203,640**	
1	02	02	02	04		IJ02020745	Define LLRF L1 X-Band Controls Reqmts @ Sec20/21	S	CON	SL_CP	Hrs	8		768		768	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	02	02	04		IJ02020745	Define LLRF L1 X-Band Controls Reqmts @ Sec20/21	S	CON	SL_CE	Hrs	8		949		949	35%
1	02	02	02	04		IJ02020565	Define LLRF L1 S-Band Cntrls Reqmts @ Sec20/21	S	CON	SL_CP	Hrs	8		768		768	35%
1	02	02	02	04		IJ02020565	Define LLRF L1 S-Band Cntrls Reqmts @ Sec20/21	S	CON	SL_CE	Hrs	8		949		949	35%
1	02	02	02	04		IJ02020765	Design LLRF L1 X-Band Cntrls @ Sec20/21	S	CON	SL_CP	Hrs	8		768		768	35%
1	02	02	02	04		IJ02020765	Design LLRF L1 X-Band Cntrls @ Sec20/21	S	CON	SL_CE	Hrs	8		949		949	35%
1	02	02	02	04		IJ02020585	Design LLRF L1 S-Band Cntrls @ Sec20/21	S	CON	SL_CP	Hrs	8		768		768	35%
1	02	02	02	04		IJ02020585	Design LLRF L1 S-Band Cntrls @ Sec20/21	S	CON	SL_CE	Hrs	8		949		949	35%
1	02	02	02	04		IJ02020775	Design Review	S	CON	SL_CT	Hrs	2		130		130	35%
1	02	02	02	04		IJ02020775	Design Review	S	CON	SL_CP	Hrs	8		768		768	35%
1	02	02	02	04		IJ02020775	Design Review	S	CON	SL_CE	Hrs	8		949		949	35%
1	02	02	02	04		IJ02020595	Design Review	S	CON	SL_CT	Hrs	2		130		130	35%
1	02	02	02	04		IJ02020595	Design Review	S	CON	SL_CP	Hrs	8		768		768	35%
1	02	02	02	04		IJ02020595	Design Review	S	CON	SL_CE	Hrs	8		949		949	35%
1	02	02	02	04		IJ02020875	Write Docs - LLRF L1 X-Band Cntrls @ Sec20/21	S	CON	SL_CP	Hrs	20		1,969		1,969	35%
1	02	02	02	04		IJ02020875	Write Docs - LLRF L1 X-Band Cntrls @ Sec20/21	S	CON	SL_CCA	Hrs	20		1,418		1,418	35%
1	02	02	02	04		IJ02020870	Write S/W - L1 X-Band Cntrls @ Sec20/21	S	CON	SL_CP	Hrs	40		3,938		3,938	35%
1	02	02	02	04		IJ02020858	Procure GADC 8 Channel	S	CON	SL_MSEG	$$		3,000		3,540	3,540	35%
1	02	02	02	04		IJ02020857	Procure VME Digitizers 100MHz - 8 Channel	S	CON	SL_MSEG	$$		8,000		9,440	9,440	35%
1	02	02	02	04		IJ02020856	Procure Thermocouples(3)	S	CON	SL_MSEG	$$		3,125		3,688	3,688	35%
1	02	02	02	04		IJ02020850	Procure VME Module, IDOM	S	CON	SL_MSEG	$$		3,500		4,130	4,130	35%
1	02	02	02	04		IJ02020845	Procure VME Module, IDIM	S	CON	SL_MSEG	$$		3,500		4,130	4,130	35%
1	02	02	02	04		IJ02020840	Procure VME Module, PIOP	S	CON	SL_MSEG	$$		3,500		4,130	4,130	35%
1	02	02	02	04		IJ02020835	Procure VME cables to 2 PAU channels	S	CON	SL_MSEG	$$		266		314	314	35%
1	02	02	02	04		IJ02020830	Procure VME Module PAU (2)	S	CON	SL_MSEG	$$		3,500		4,130	4,130	35%
1	02	02	02	04		IJ02020825	Procure 1:2 Fanouts to change 3 triggers to 6	S	CON	SL_MSEG	$$		200		236	236	35%
1	02	02	02	04		IJ02020820	Procure VME cables to 3 STB channels to trigge	S	CON	SL_MSEG	$$		133		157	157	35%
1	02	02	02	04		IJ02020815	Procure VME Module, STB for triggers	S	CON	SL_MSEG	$$		3,500		4,130	4,130	35%
1	02	02	02	04		IJ02020810	Procure VME cables to 5 SAM channels of temper	S	CON	SL_MSEG	$$		133		157	157	35%
1	02	02	02	04		IJ02020805	Procure VME Module, 3122 for temperature	S	CON	SL_MSEG	$$		3,777		4,457	4,457	35%
1	02	02	02	04		IJ02020800	Procure VME cables to 4 SAM channels of Phase	S	CON	SL_MSEG	$$		133		157	157	35%
1	02	02	02	04		IJ02020795	Procure VME Module, 3122 for phase meas adjust	S	CON	SL_MSEG	$$		3,777		4,457	4,457	35%
1	02	02	02	04		IJ02020695	Write Docs - LLRF L1 S-Band Cntrls @ Sec20/21	S	CON	SL_CP	Hrs	20		1,969		1,969	35%
1	02	02	02	04		IJ02020695	Write Docs - LLRF L1 S-Band Cntrls @ Sec20/21	S	CON	SL_CCA	Hrs	20		1,418		1,418	35%
1	02	02	02	04		IJ02020690	Write S/W - L1 S-Band Cntrls @ Sec20/21	S	CON	SL_CP	Hrs	40		3,938		3,938	35%
1	02	02	02	04		IJ02020678	Procure GADC 8 Channel	S	CON	SL_MSEG	$$		3,000		3,540	3,540	35%
1	02	02	02	04		IJ02020677	Procure VME Digitizers 100MHz - 8 Channel	S	CON	SL_MSEG	$$		8,000		9,440	9,440	35%
1	02	02	02	04		IJ02020676	Procure Thermocouples (9)	S	CON	SL_MSEG	$$		3,125		3,688	3,688	35%
1	02	02	02	04		IJ02020670	Procure VME Module, IDOM	S	CON	SL_MSEG	$$		3,500		4,130	4,130	35%
1	02	02	02	04		IJ02020665	Procure VME Module, IDIM	S	CON	SL_MSEG	$$		3,500		4,130	4,130	35%
1	02	02	02	04		IJ02020660	Procure VME Module, PIOP	S	CON	SL_MSEG	$$		3,500		4,130	4,130	35%
1	02	02	02	04		IJ02020655	Procure VME cables to 2 PAU channels	S	CON	SL_MSEG	$$		266		314	314	35%
1	02	02	02	04		IJ02020650	Procure VME Module PAU (2)	S	CON	SL_MSEG	$$		3,500		4,130	4,130	35%
1	02	02	02	04		IJ02020645	Procure 1:2 Fanouts to change 3 triggers to 6	S	CON	SL_MSEG	$$		200		236	236	35%
1	02	02	02	04		IJ02020640	Procure VME cables to 3 STB channels to trigge	S	CON	SL_MSEG	$$		133		157	157	35%
1	02	02	02	04		IJ02020635	Procure VME Module, STB for triggers	S	CON	SL_MSEG	$$		3,500		4,130	4,130	35%
1	02	02	02	04		IJ02020630	Procure VME cables to 5 SAM channels of temper	S	CON	SL_MSEG	$$		133		157	157	35%
1	02	02	02	04		IJ02020625	Procure VME Module, 3122 for temperature	S	CON	SL_MSEG	$$		3,777		4,457	4,457	35%
1	02	02	02	04		IJ02020620	Procure VME cables to 4 SAM channels of Phase	S	CON	SL_MSEG	$$		133		157	157	35%
1	02	02	02	04		IJ02020615	Procure VME Module, 3122 for phase meas adjust	S	CON	SL_MSEG	$$		3,777		4,457	4,457	35%
1	02	02	02	04		IJ02020865	Assemble parts for LLRF L1 X-Band Cntrls @ Sec20	S	CON	SL_CT	Hrs	8		533		533	35%
1	02	02	02	04		IJ02020865	Assemble parts for LLRF L1 X-Band Cntrls @ Sec20	S	CON	SL_CCA	Hrs	8		567		567	35%
1	02	02	02	04		IJ02020685	Assemble parts for LLRF L1 S-Band Cntrls @ Sec20	S	CON	SL_CT	Hrs	8		533		533	35%
1	02	02	02	04		IJ02020685	Assemble parts for LLRF L1 S-Band Cntrls @ Sec20	S	CON	SL_CCA	Hrs	8		567		567	35%
1	02	02	02	04		IJ02020869	Install Hardware in RF Hut	S	CON	SL_PCEF	Hrs	8		533		533	35%
1	02	02	02	04		IJ02020869	Install Hardware in RF Hut	S	CON	SL_CT	Hrs	8		533		533	35%
1	02	02	02	04		IJ02020869	Install Hardware in RF Hut	S	CON	SL_CCA	Hrs	8		567		567	35%
1	02	02	02	04		IJ02020689	Install Hardware in RF Hut	S	CON	SL_PCEF	Hrs	8		533		533	35%
1	02	02	02	04		IJ02020689	Install Hardware in RF Hut	S	CON	SL_CT	Hrs	8		533		533	35%
1	02	02	02	04		IJ02020689	Install Hardware in RF Hut	S	CON	SL_CCA	Hrs	8		567		567	35%
1	02	02	02	04		IJ02020884	Point to Point Checkout	S	CON	SL_CP	Hrs	200		19,690		19,690	35%
1	02	02	02	04		IJ02020884	Point to Point Checkout	S	CON	SL_CCA	Hrs	200		14,182		14,182	35%
1	02	02	02	04		IJ02020704	Point to Point Checkout	S	CON	SL_CP	Hrs	200		19,690		19,690	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	02	02	04		IJ02020704	Point to Point Checkout	S	CON	SL_CCA	Hrs	200		14,182		14,182	35%
1	02	02	02	04		IJ02020885	Integrate software & hardware-LLRF L1 X-Band	S	CON	SL_CP	Hrs	40		3,938		3,938	35%
1	02	02	02	04		IJ02020885	Integrate software & hardware-LLRF L1 X-Band	S	CON	SL_CCA	Hrs	20		1,418		1,418	35%
1	02	02	02	04		IJ02020705	Integrate software & hardware-LLRF L1 S-Band	S	CON	SL_CP	Hrs	40		3,938		3,938	35%
1	02	02	02	04		IJ02020705	Integrate software & hardware-LLRF L1 S-Band	S	CON	SL_CCA	Hrs	20		1,418		1,418	35%
1	**02**	**02**	**02**	**05**			**Reserved**										
1	**02**	**02**	**03**				**E-Beam Diagnostics Controls**					**5,923**	**285,686**	**503,182**	**312,532**	**815,714**	
1	**02**	**02**	**03**	**01**			**Reserved**										
1	**02**	**02**	**03**	**02**			**Controls - Toroids**					**1,056**	**26,191**	**93,718**	**29,334**	**123,052**	
1	02	02	03	02		IJ02030242	Write Docs - Toroid Controls	S	CON	SL_CP	Hrs	80		7,567		7,567	35%
1	02	02	03	02		IJ02030242	Write Docs - Toroid Controls	S	CON	SL_CCA	Hrs	40		2,725		2,725	35%
1	02	02	03	02		IJ02030240	Write S/W - Toroid Controls	S	CON	SL_CP	Hrs	440		41,573		41,573	35%
1	02	02	03	02		IJ02030236	Procure RG58, TCM to TCM PreAmp (1 each toroid))	S	CON	SL_MSEG	$$		1,050		1,176	1,176	35%
1	02	02	03	02		IJ02030234	Procure 2/c power, TCM to TCM PreAmp (1 each tor	S	CON	SL_MSEG	$$		1,050		1,176	1,176	35%
1	02	02	03	02		IJ02030232	Procure RG22, TCM to TCM PreAmp (2)	S	CON	SL_MSEG	$$		2,100		2,352	2,352	35%
1	02	02	03	02		IJ02030230	Procure RG214, TCM PreAmp to Toroid (1)	S	CON	SL_MSEG	$$		525		588	588	35%
1	02	02	03	02		IJ02030228	Procure RG22, TCM PreAmp to Toroid (1 each toroi	S	CON	SL_MSEG	$$		396		444	444	35%
1	02	02	03	02		IJ02030226	Procure Adapter Box, RG22 to Twinax (2 each toro	S	CON	SL_MSEG	$$		720		806	806	35%
1	02	02	03	02		IJ02030224	Procure Platforms (5)	S	CON	SL_MSEG	$$		250		280	280	35%
1	02	02	03	02		IJ02030222	Procure Steel Covers (5)	S	CON	SL_MSEG	$$		1,000		1,120	1,120	35%
1	02	02	03	02		IJ02030220	Procure Lead Shielding (12 Bricks/Unit) (5)	S	CON	SL_MSEG	$$		600		672	672	35%
1	02	02	03	02		IJ02030218	Procure TCM PreAmps (5)	S	CON	SL_MSEG	$$		15,000		16,800	16,800	35%
1	02	02	03	02		IJ02030216	Procure VME Module, TCM (5)	S	CON	SL_MSEG	$$		3,500		3,920	3,920	35%
1	02	02	03	02		IJ02030246	Assemble Toroid Controls	S	CON	SL_CT	Hrs	8		507		507	35%
1	02	02	03	02		IJ02030246	Assemble Toroid Controls	S	CON	SL_CCA	Hrs	8		539		539	35%
1	02	02	03	02		IJ02030247	Point to Point Checkout	S	CON	SL_CP	Hrs	100		9,352		9,352	35%
1	02	02	03	02		IJ02030247	Point to Point Checkout	S	CON	SL_CCA	Hrs	100		6,736		6,736	35%
1	02	02	03	02		IJ02030248	Integrate software & hardware	S	CON	SL_CP	Hrs	200		19,190		19,190	35%
1	02	02	03	02		IJ02030248	Integrate software & hardware	S	CON	SL_CCA	Hrs	80		5,529		5,529	35%
1	**02**	**02**	**03**	**03**			**Controls - Faraday Cups**					**1,040**	**38,169**	**89,028**	**41,604**	**130,632**	
1	02	02	03	03		IJ02030348	Write Docs - Faraday Cup Controls	S	CON	SL_CP	Hrs	80		7,296		7,296	35%
1	02	02	03	03		IJ02030348	Write Docs - Faraday Cup Controls	S	CON	SL_CCA	Hrs	40		2,628		2,628	35%
1	02	02	03	03		IJ02030346	Write S/W - Faraday Cup Controls	S	CON	SL_CP	Hrs	440		40,027		40,027	35%
1	02	02	03	03		IJ02030342	Procure Wiring of Faraday Cup units in lab (4)	S	CON	SL_MSEG	$$		560		610	610	35%
1	02	02	03	03		IJ02030340	Procure VME cable IDOM (2ea) Chassis to Crate	S	CON	SL_MSEG	$$		266		290	290	35%
1	02	02	03	03		IJ02030338	Procure VME cable IDIM (3ea) Chassis to Crate	S	CON	SL_MSEG	$$		400		436	436	35%
1	02	02	03	03		IJ02030336	Procure Multi-conductor (8/C) Chassis to Faraday	S	CON	SL_MSEG	$$		1,580		1,722	1,722	35%
1	02	02	03	03		IJ02030334	Procure Multi-conductor (8/C) Chassis to Faraday	S	CON	SL_MSEG	$$		1,580		1,722	1,722	35%
1	02	02	03	03		IJ02030332	Procure RG214, coax (3ea) Chassis to Faraday Cup	S	CON	SL_MSEG	$$		1,010		1,101	1,101	35%
1	02	02	03	03		IJ02030330	Procure RG214, coax (3ea) Chassis to Faraday Cup	S	CON	SL_MSEG	$$		1,010		1,101	1,101	35%
1	02	02	03	03		IJ02030328	Procure VME Module, GADC (1)	S	CON	SL_MSEG	$$		3,000		3,270	3,270	35%
1	02	02	03	03		IJ02030326	Procure Profile Monitor Lamp Units (4)	S	CON	SL_MSEG	$$		800		872	872	35%
1	02	02	03	03		IJ02030324	Procure Profile Monitor Camera/Electronics (4)	S	CON	SL_MSEG	$$		12,000		13,080	13,080	35%
1	02	02	03	03		IJ02030322	Procure Profile monitor chassis (2)	S	CON	SL_MSEG	$$		7,000		7,630	7,630	35%
1	02	02	03	03		IJ02030320	Procure IDOM Module (2)	S	CON	SL_MSEG	$$		3,000		3,270	3,270	35%
1	02	02	03	03		IJ02030318	Procure IDIM Module (2)	S	CON	SL_MSEG	$$		3,100		3,379	3,379	35%
1	02	02	03	03		IJ02030316	Procure VME Module, 4132 (1)	S	CON	SL_MSEG	$$		2,863		3,121	3,121	35%
1	02	02	03	03		IJ02030352	Assemble Faraday Cup Controls	S	CON	SL_CCA	Hrs	40		2,621		2,621	35%
1	02	02	03	03		IJ02030353	Point to Point Checkout	S	CON	SL_CP	Hrs	80		7,278		7,278	35%
1	02	02	03	03		IJ02030353	Point to Point Checkout	S	CON	SL_CCA	Hrs	80		5,242		5,242	35%
1	02	02	03	03		IJ02030354	Integrate software & hardware	S	CON	SL_CP	Hrs	200		18,582		18,582	35%
1	02	02	03	03		IJ02030354	Integrate software & hardware	S	CON	SL_CCA	Hrs	80		5,354		5,354	35%
1	**02**	**02**	**03**	**04**			**Controls - Tune-Up Dump**					**96**	**3,300**	**8,416**	**3,795**	**12,211**	
1	02	02	03	04		IJ02030426	Write Docs - Tune-Up Dump Controls	S	CON	SL_CP	Hrs	8		778		778	35%
1	02	02	03	04		IJ02030426	Write Docs - Tune-Up Dump Controls	S	CON	SL_CCA	Hrs	8		560		560	35%
1	02	02	03	04		IJ02030424	Write S/W - Tune-Up Dump Controls	S	CON	SL_CP	Hrs	40		3,882		3,882	35%
1	02	02	03	04		IJ02030416	Procure IDIM Module (2)	S	CON	SL_MSEG	$$		3,300		3,795	3,795	35%
1	02	02	03	04		IJ02030430	Assemble Tune-up Dump Controls	S	CON	SL_PCEF	Hrs	8		520		520	35%
1	02	02	03	04		IJ02030431	Point to Point Checkout	S	CON	SL_CP	Hrs	8		768		768	35%
1	02	02	03	04		IJ02030431	Point to Point Checkout	S	CON	SL_CCA	Hrs	8		553		553	35%
1	02	02	03	04		IJ02030432	Integrate software & hardware	S	CON	SL_CP	Hrs	8		788		788	35%
1	02	02	03	04		IJ02030432	Integrate software & hardware	S	CON	SL_CCA	Hrs	8		567		567	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	**02**	**02**	**03**	**05**			**Controls - Profile Monitors**					**1,864**	**82,686**	**145,648**	**90,128**	**235,776**	
1	02	02	03	05		IJ02030560	Write Docs - Profile Monitor Controls	S	CON	SL_CP	Hrs	120		10,944		10,944	35%
1	02	02	03	05		IJ02030560	Write Docs - Profile Monitor Controls	S	CON	SL_CCA	Hrs	80		5,255		5,255	35%
1	02	02	03	05		IJ02030558	Write S/W - Profile Monitor Controls	S	CON	SL_CP	Hrs	440		40,027		40,027	35%
1	02	02	03	05		IJ02030554	Procure Multi-Cond. cable (4PR)	S	CON	SL_MSEG	$$		400		436	436	35%
1	02	02	03	05		IJ02030552	Procure Actuator/Attenuator Interface panel	S	CON	SL_MSEG	$$		1,000		1,090	1,090	35%
1	02	02	03	05		IJ02030550	Procure VME cable IDOM (1)	S	CON	SL_MSEG	$$		133		145	145	35%
1	02	02	03	05		IJ02030548	Procure VME Module, IDOM (1)	S	CON	SL_MSEG	$$		3,500		3,815	3,815	35%
1	02	02	03	05		IJ02030546	Procure Laser / CCD DiagnosticSoftware	S	CON	SL_MSEG	$$		2,000		2,180	2,180	35%
1	02	02	03	05		IJ02030544	Procure WIRING OF PROFILE MONT. ASSEMBLY IN LAB	S	CON	SL_MSEG	$$		700		763	763	35%
1	02	02	03	05		IJ02030542	Procure VME cable DAC (1)	S	CON	SL_MSEG	$$		133		145	145	35%
1	02	02	03	05		IJ02030540	Procure VME cable IDOM (8)	S	CON	SL_MSEG	$$		1,066		1,162	1,162	35%
1	02	02	03	05		IJ02030538	Procure VME cable IDIM (8)	S	CON	SL_MSEG	$$		1,066		1,162	1,162	35%
1	02	02	03	05		IJ02030536	Procure Multi-conductor (3C/16GA-AC POWER)(11)	S	CON	SL_MSEG	$$		2,200		2,398	2,398	35%
1	02	02	03	05		IJ02030534	Procure Multi-conductor (21C/16GA-CONT&STAT)(11)	S	CON	SL_MSEG	$$		2,200		2,398	2,398	35%
1	02	02	03	05		IJ02030532	Procure RG59, coax-video (11)	S	CON	SL_MSEG	$$		1,100		1,199	1,199	35%
1	02	02	03	05		IJ02030530	Procure Profile Monitor Camera/Electronics (11)	S	CON	SL_MSEG	$$		22,000		23,980	23,980	35%
1	02	02	03	05		IJ02030528	Procure Profile Monitor Chassis (4)	S	CON	SL_MSEG	$$		8,000		8,720	8,720	35%
1	02	02	03	05		IJ02030526	Procure Profile Monitor Lamp Units (11)	S	CON	SL_MSEG	$$		2,200		2,398	2,398	35%
1	02	02	03	05		IJ02030524	Procure 16 Channel Interface Chassis (1)	S	CON	SL_MSEG	$$		3,125		3,406	3,406	35%
1	02	02	03	05		IJ02030522	Procure Video Modulator Chassis (11)	S	CON	SL_MSEG	$$		22,000		23,980	23,980	35%
1	02	02	03	05		IJ02030520	Procure VME Module,IDOM (4)	S	CON	SL_MSEG	$$		3,500		3,815	3,815	35%
1	02	02	03	05		IJ02030518	Procure VME Module, IDIM (4)	S	CON	SL_MSEG	$$		3,500		3,815	3,815	35%
1	02	02	03	05		IJ02030516	Procure VME Module, 4132 (1)	S	CON	SL_MSEG	$$		2,863		3,121	3,121	35%
1	02	02	03	05		IJ02030564	Assemble Profile Monitor Controls	S	CON	SL_PCEF	Hrs	504		31,056		31,056	35%
1	02	02	03	05		IJ02030565	Point to Point Checkout	S	CON	SL_CP	Hrs	220		20,013		20,013	35%
1	02	02	03	05		IJ02030565	Point to Point Checkout	S	CON	SL_CCA	Hrs	220		14,417		14,417	35%
1	02	02	03	05		IJ02030566	Integrate software & hardware	S	CON	SL_CP	Hrs	200		18,582		18,582	35%
1	02	02	03	05		IJ02030566	Integrate software & hardware	S	CON	SL_CCA	Hrs	80		5,354		5,354	35%
1	**02**	**02**	**03**	**06**			**Controls - E/O Diagnostics**					**941**	**5,000**	**84,149**	**5,600**	**89,749**	
1	02	02	03	06		IJ02030626	Write Docs - EO Diagnostic Controls	S	CON	SL_CP	Hrs	120		11,273		11,273	35%
1	02	02	03	06		IJ02030626	Write Docs - EO Diagnostic Controls	S	CON	SL_CCA	Hrs	80		5,413		5,413	35%
1	02	02	03	06		IJ02030624	Write S/W - EO Diagnostic Controls	S	CON	SL_CP	Hrs	440		41,217		41,217	35%
1	02	02	03	06		IJ02030616	Procure EO Diagnostic Controls hardware	S	CON	SL_MSEG	$$		5,000		5,600	5,600	35%
1	02	02	03	06		IJ02030622	Assemble EO Diagnostic Controls hardware	S	CON	SL_CT	Hrs	9		570		570	35%
1	02	02	03	06		IJ02030622	Assemble EO Diagnostic Controls hardware	S	CON	SL_CCA	Hrs	8		539		539	35%
1	02	02	03	06		IJ02030627	Point to Point Checkout	S	CON	SL_CP	Hrs	2		187		187	35%
1	02	02	03	06		IJ02030627	Point to Point Checkout	S	CON	SL_CE	Hrs	2		231		231	35%
1	02	02	03	06		IJ02030628	Integrate software & hardware	S	CON	SL_CP	Hrs	200		19,190		19,190	35%
1	02	02	03	06		IJ02030628	Integrate software & hardware	S	CON	SL_CCA	Hrs	80		5,529		5,529	35%
1	**02**	**02**	**03**	**07**			**Controls - BPM**					**926**	**130,340**	**82,223**	**142,071**	**224,294**	
1	02	02	03	07		IJ02030747	Procure BLM Controls Hdwr/Eq	S	CON	SL_MSEG	$$		5,000		5,450	5,450	35%
1	02	02	03	07		IJ02030714	Procure preliminary/final design's board & parts	S	CON	SL_MSEG	$$		30,000		32,700	32,700	35%
1	02	02	03	07		IJ02030730	Write Docs - BPM processor module Cntrls	S	CON	SL_CP	Hrs	120		11,034		11,034	35%
1	02	02	03	07		IJ02030730	Write Docs - BPM processor module Cntrls	S	CON	SL_CCA	Hrs	80		5,298		5,298	35%
1	02	02	03	07		IJ02030728	Write S/W - BPM processor module Cntrls	S	CON	SL_CP	Hrs	440		40,365		40,365	35%
1	02	02	03	07		IJ02030724	Procure Pigtail Cables (21 Sets)	S	CON	SL_MSEG	$$		4,620		5,036	5,036	35%
1	02	02	03	07		IJ02030722	Procure LH Cables (21 Sets)	S	CON	SL_MSEG	$$		11,970		13,047	13,047	35%
1	02	02	03	07		IJ02030718	Procure, fab & assemble board & parts (21 sets)	S	CON	SL_MSEG	$$		78,750		85,838	85,838	35%
1	02	02	03	07		IJ02030734	Assemble BPM Cntrls	S	CON	SL_CP	Hrs	8		728		728	35%
1	02	02	03	07		IJ02030734	Assemble BPM Cntrls	S	CON	SL_CE	Hrs	8		900		900	35%
1	02	02	03	07		IJ02030735	Point to Point Checkout	S	CON	SL_CP	Hrs	45		4,094		4,094	35%
1	02	02	03	07		IJ02030735	Point to Point Checkout	S	CON	SL_CE	Hrs	45		5,063		5,063	35%
1	02	02	03	07		IJ02030736	Integrate software & hardware	S	CON	SL_CP	Hrs	100		9,352		9,352	35%
1	02	02	03	07		IJ02030736	Integrate software & hardware	S	CON	SL_CCA	Hrs	80		5,389		5,389	35%
1	**02**	**02**	**03**	**08**			**Reserved**										
1	**02**	**02**	**04**				**Laser Controls**					**1,735**	**78,026**	**149,714**	**85,050**	**234,764**	
1	**02**	**02**	**04**	**01**			**Reserved**										
1	**02**	**02**	**04**	**02**			**Controls - Gun Laser**					**1,735**	**78,026**	**149,714**	**85,050**	**234,764**	
1	02	02	04	02		IJ02040200	Define Gun Laser Controls Reqmts	S	CON	SL_CP	Hrs	160		14,555		14,555	35%
1	02	02	04	02		IJ02040200	Define Gun Laser Controls Reqmts	S	CON	SL_CE	Hrs	160		18,002		18,002	35%
1	02	02	04	02		IJ02040204	Design Gun Laser Controls	S	CON	SL_CP	Hrs	160		14,555		14,555	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	02	04	02		IJ02040204	Design Gun Laser Controls	S	CON	SL_CE	Hrs	160		18,002		18,002	35%
1	02	02	04	02		IJ02040204	Design Gun Laser Controls	S	CON	SL_CCA	Hrs	504		33,027		33,027	35%
1	02	02	04	02		IJ02040206	Design Review - Gun Laser	S	CON	SL_CT	Hrs	2		123		123	35%
1	02	02	04	02		IJ02040206	Design Review - Gun Laser	S	CON	SL_CP	Hrs	15		1,365		1,365	35%
1	02	02	04	02		IJ02040206	Design Review - Gun Laser	S	CON	SL_CE	Hrs	20		2,250		2,250	35%
1	02	02	04	02		IJ02040208	Design Modifications	S	CON	SL_CP	Hrs	20		1,819		1,819	35%
1	02	02	04	02		IJ02040208	Design Modifications	S	CON	SL_CE	Hrs	80		9,001		9,001	35%
1	02	02	04	02		IJ02040278	Write Docs - Gun Laser Controls	S	CON	SL_CP	Hrs	40		3,639		3,639	35%
1	02	02	04	02		IJ02040278	Write Docs - Gun Laser Controls	S	CON	SL_CCA	Hrs	40		2,621		2,621	35%
1	02	02	04	02		IJ02040276	Write S/W - Gun Laser Controls	S	CON	SL_CP	Hrs	160		14,555		14,555	35%
1	02	02	04	02		IJ02040271	Procure Thermocouples (12)	S	CON	SL_MSEG	$$		200		218	218	35%
1	02	02	04	02		IJ02040260	Procure VME cables to 10 (or 20?) channels	S	CON	SL_MSEG	$$		2,666		2,906	2,906	35%
1	02	02	04	02		IJ02040258	Procure VME cables to 8 IDOM channels	S	CON	SL_MSEG	$$		1,066		1,162	1,162	35%
1	02	02	04	02		IJ02040256	Procure VME cables to 8 IDIM channels	S	CON	SL_MSEG	$$		1,066		1,162	1,162	35%
1	02	02	04	02		IJ02040254	Procure VME cable to 1 SAM channel	S	CON	SL_MSEG	$$		133		145	145	35%
1	02	02	04	02		IJ02040252	Procure VME cable to 1 DAC channel	S	CON	SL_MSEG	$$		133		145	145	35%
1	02	02	04	02		IJ02040250	Procure Temp pulse shaper (share phase lock VME)	S	CON	SL_MSEG	$$		1,000		1,090	1,090	35%
1	02	02	04	02		IJ02040248	Procure VME cables to 1 IDOM channel	S	CON	SL_MSEG	$$		133		145	145	35%
1	02	02	04	02		IJ02040246	Procure VME Module, IDOM (1) for Shutter	S	CON	SL_MSEG	$$		3,500		3,815	3,815	35%
1	02	02	04	02		IJ02040244	Procure VME cables to 2 IDIM channels	S	CON	SL_MSEG	$$		266		290	290	35%
1	02	02	04	02		IJ02040242	Procure VME Module, IDIM (1) for Shutter	S	CON	SL_MSEG	$$		3,500		3,815	3,815	35%
1	02	02	04	02		IJ02040240	Procure VME cables to 2 SAM channels	S	CON	SL_MSEG	$$		266		290	290	35%
1	02	02	04	02		IJ02040238	Procure VME Module, 3122 (1)	S	CON	SL_MSEG	$$		3,777		4,117	4,117	35%
1	02	02	04	02		IJ02040236	Procure VME cables to 2 SAM channels	S	CON	SL_MSEG	$$		266		290	290	35%
1	02	02	04	02		IJ02040234	Procure VME Module, 3122 (1)	S	CON	SL_MSEG	$$		3,777		4,117	4,117	35%
1	02	02	04	02		IJ02040232	Procure VME cables to 2 DAC channels	S	CON	SL_MSEG	$$		266		290	290	35%
1	02	02	04	02		IJ02040230	Procure VME Module, 4132 (1)	S	CON	SL_MSEG	$$		2,863		3,121	3,121	35%
1	02	02	04	02		IJ02040228	Procure VME cables to 4 GADC channels	S	CON	SL_MSEG	$$		533		581	581	35%
1	02	02	04	02		IJ02040226	Procure VME Module, GADC LRS 2249W (1)	S	CON	SL_MSEG	$$		3,500		3,815	3,815	35%
1	02	02	04	02		IJ02040224	Procure PC, S/W & cables to extract 2 ch of vide	S	CON	SL_MSEG	$$		1,250		1,363	1,363	35%
1	02	02	04	02		IJ02040222	Procure Gun Control Chassis Cables (6)	S	CON	SL_MSEG	$$		2,200		2,398	2,398	35%
1	02	02	04	02		IJ02040220	Procure VME cable MMC (5)	S	CON	SL_MSEG	$$		665		725	725	35%
1	02	02	04	02		IJ02040218	Procure VME Module, MMC (5)	S	CON	SL_MSEG	$$		17,500		19,075	19,075	35%
1	02	02	04	02		IJ02040216	Procure DC Power Supply, Stepper Motor System (1	S	CON	SL_MSEG	$$		2,500		2,725	2,725	35%
1	02	02	04	02		IJ02040214	Procure Stepper Motor Cont Chassis (1) -20 2D st	S	CON	SL_MSEG	$$		5,000		5,450	5,450	35%
1	02	02	04	02		IJ02040212	Procure Laser Control & Interlock Chassis (2)	S	CON	SL_MSEG	$$		20,000		21,800	21,800	35%
1	02	02	04	02		IJ02040274	Assemble procured parts	S	CON	SL_PCEF	Hrs	84		5,176		5,176	35%
1	02	02	04	02		IJ02040281	Point to Point Checkout	S	CON	SL_CP	Hrs	20		1,819		1,819	35%
1	02	02	04	02		IJ02040281	Point to Point Checkout	S	CON	SL_CCA	Hrs	20		1,311		1,311	35%
1	02	02	04	02		IJ02040282	Integrate software & hardware	S	CON	SL_CP	Hrs	40		3,639		3,639	35%
1	02	02	04	02		IJ02040282	Integrate software & hardware	S	CON	SL_CCA	Hrs	20		1,311		1,311	35%
1	02	02	04	02		IJ02040_12	Integrate with MPS system	S	CON	SL_CP	Hrs	20		1,819		1,819	35%
1	02	02	04	02		IJ02040_12	Integrate with MPS system	S	CON	SL_CE	Hrs	10		1,125		1,125	35%
1	**02**	**02**	**05**				**Laser Heater Controls**					**1,222**	**13,200**	**115,711**	**14,784**	**130,495**	
1	02	02	05			IJ02050000	Define Laser Heater Cntrls Reqmts	S	CON	SL_CP	Hrs	160		14,555		14,555	35%
1	02	02	05			IJ02050000	Define Laser Heater Cntrls Reqmts	S	CON	SL_CE	Hrs	160		18,002		18,002	35%
1	02	02	05			IJ02050010	Design Laser Heater Cntrls	S	CON	SL_CP	Hrs	160		14,814		14,814	35%
1	02	02	05			IJ02050010	Design Laser Heater Cntrls	S	CON	SL_CE	Hrs	160		18,322		18,322	35%
1	02	02	05			IJ02050020	Design Review - Laser Heater	S	CON	SL_CT	Hrs	2		127		127	35%
1	02	02	05			IJ02050020	Design Review - Laser Heater	S	CON	SL_CP	Hrs	8		748		748	35%
1	02	02	05			IJ02050020	Design Review - Laser Heater	S	CON	SL_CE	Hrs	8		925		925	35%
1	02	02	05			IJ02050040	Design Modifications	S	CON	SL_CP	Hrs	40		3,741		3,741	35%
1	02	02	05			IJ02050040	Design Modifications	S	CON	SL_CE	Hrs	40		4,626		4,626	35%
1	02	02	05			IJ02050175	Write Docs - Laser Heater Controls	S	CON	SL_CP	Hrs	40		3,741		3,741	35%
1	02	02	05			IJ02050175	Write Docs - Laser Heater Controls	S	CON	SL_CCA	Hrs	40		2,694		2,694	35%
1	02	02	05			IJ02050170	Write S/W - Laser Heater Controls	S	CON	SL_CP	Hrs	160		14,963		14,963	35%
1	02	02	05			IJ02050155	Procure chicane magnet Cntrls hardware	S	CON	SL_MSEG	$$		1,400		1,568	1,568	35%
1	02	02	05			IJ02050150	Procure undulator cable to MCC	S	CON	SL_MSEG	$$		200		224	224	35%
1	02	02	05			IJ02050145	Procure undulator s/w to send data to MCC	S	CON	SL_MSEG	$$		1,000		1,120	1,120	35%
1	02	02	05			IJ02050140	Procure data reduction software for previous 2 i	S	CON	SL_MSEG	$$		2,000		2,240	2,240	35%
1	02	02	05			IJ02050135	Procure Elect Beam E Spread data acq from OTR	S	CON	SL_MSEG	$$		1,000		1,120	1,120	35%
1	02	02	05			IJ02050130	Procure spiricon camera cable(s) to send images/	S	CON	SL_MSEG	$$		400		448	448	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	02	05			IJ02050125	Procure IR timing diode oscilloscope cable	S	CON	SL_MSEG	$$		200		224	224	35%
1	02	02	05			IJ02050110	Procure IR joulemeter cable from IR diagnostics	S	CON	SL_MSEG	$$		200		224	224	35%
1	02	02	05			IJ02050060	Proc Cntrls for Kine PicoMotor(Pulse Train-4)	S	CON	SL_MSEG	$$		6,400		7,168	7,168	35%
1	02	02	05			IJ02050055	Procure IR shutters (2) cables-TTL	S	CON	SL_MSEG	$$		400		448	448	35%
1	02	02	05			IJ02050165	Assemble procured parts	S	CON	SL_PCEF	Hrs	84		5,321		5,321	35%
1	02	02	05			IJ02050179	Point to Point Checkout	S	CON	SL_CP	Hrs	50		4,676		4,676	35%
1	02	02	05			IJ02050179	Point to Point Checkout	S	CON	SL_CCA	Hrs	50		3,368		3,368	35%
1	02	02	05			IJ02050180	Integrate software & hardware	S	CON	SL_CP	Hrs	40		3,741		3,741	35%
1	02	02	05			IJ02050180	Integrate software & hardware	S	CON	SL_CCA	Hrs	20		1,347		1,347	35%
1	**02**	**02**	**06**				**Timing Controls**					**-**	**59,100**	**-**	**64,419**	**64,419**	
1	02	02	06			IJ02060085	Procure Timing System Heliax Cableplant	S	CON	SL_MSPS	$$		15,000		16,350	16,350	35%
1	02	02	06			IJ02060080	Procure SLCnet cable to MPG micro 360 Hz signal	S	CON	SL_MSEG	$$		200		218	218	35%
1	02	02	06			IJ02060075	Procure Fiducial RF Amplifier	S	CON	SL_MSEG	$$		2,000		2,180	2,180	35%
1	02	02	06			IJ02060070	Procure Fiducial Output Module	S	CON	SL_MSEG	$$		2,000		2,180	2,180	35%
1	02	02	06			IJ02060065	Procure Splitter to Main Drive Line (MDL) 476 MH	S	CON	SL_MSEG	$$		9,900		10,791	10,791	35%
1	02	02	06			IJ02060060	Procure Master & Distributed Timing Hardware	S	CON	SL_MSEG	$$		30,000		32,700	32,700	35%
1	**02**	**02**	**07**				**Vacuum Controls**					**2,864**	**128,770**	**276,460**	**140,361**	**416,821**	
1	02	02	07			IJ02070000	Define vacuum control Reqmts	S	CON	SL_CP	Hrs	120		10,916		10,916	35%
1	02	02	07			IJ02070000	Define vacuum control Reqmts	S	CON	SL_CE	Hrs	120		13,501		13,501	35%
1	02	02	07			IJ02070010	Design vacuum Cntrls	S	CON	SL_CP	Hrs	400		36,388		36,388	35%
1	02	02	07			IJ02070010	Design vacuum Cntrls	S	CON	SL_CE	Hrs	584		65,706		65,706	35%
1	02	02	07			IJ02070020	Design Review - Vacuum	S	CON	SL_CT	Hrs	2		123		123	35%
1	02	02	07			IJ02070020	Design Review - Vacuum	S	CON	SL_CP	Hrs	40		3,639		3,639	35%
1	02	02	07			IJ02070020	Design Review - Vacuum	S	CON	SL_CE	Hrs	40		4,500		4,500	35%
1	02	02	07			IJ02070040	Design Modifications	S	CON	SL_CE	Hrs	80		9,001		9,001	35%
1	02	02	07			IJ02070045	Design Modifications	S	CON	SL_CP	Hrs	168		15,283		15,283	35%
1	02	02	07			IJ02070210	Write Docs - Vacuum Controls Modules	S	CON	SL_CP	Hrs	160		14,773		14,773	35%
1	02	02	07			IJ02070210	Write Docs - Vacuum Controls Modules	S	CON	SL_CCA	Hrs	10		665		665	35%
1	02	02	07			IJ02070201	Write S/W - Vacuum Control Modules	S	CON	SL_CP	Hrs	880		81,227		81,227	35%
1	02	02	07			IJ02070190	Procure SLAC 16-CH DIST	S	CON	SL_MSEG	$$		2,850		3,107	3,107	35%
1	02	02	07			IJ02070185	Procure SMC-24B	S	CON	SL_MSEG	$$		5,180		5,646	5,646	35%
1	02	02	07			IJ02070180	Procure 3122 Module	S	CON	SL_MSEG	$$		3,777		4,117	4,117	35%
1	02	02	07			IJ02070175	Procure IDOM	S	CON	SL_MSEG	$$		4,467		4,869	4,869	35%
1	02	02	07			IJ02070170	Procure IDIM	S	CON	SL_MSEG	$$		10,150		11,064	11,064	35%
1	02	02	07			IJ02070160	Procure FASTON RELAY BLOCK	S	CON	SL_MSEG	$$		244		266	266	35%
1	02	02	07			IJ02070155	Procure FASTON BLOCKS	S	CON	SL_MSEG	$$		1,152		1,256	1,256	35%
1	02	02	07			IJ02070150	Procure FASTON FRAMES	S	CON	SL_MSEG	$$		4,140		4,513	4,513	35%
1	02	02	07			IJ02070140	Procure SLAC 50 UNIT FUSE PANEL	S	CON	SL_MSEG	$$		300		327	327	35%
1	02	02	07			IJ02070135	Procure SOLA PWR SUPPLY	S	CON	SL_MSEG	$$		640		698	698	35%
1	02	02	07			IJ02070125	Procure SLAC KAISER I'FACE CHASSIS	S	CON	SL_MSEG	$$		1,800		1,962	1,962	35%
1	02	02	07			IJ02070120	Procure KAISER P.S.	S	CON	SL_MSEG	$$		40,000		43,600	43,600	35%
1	02	02	07			IJ02070110	Procure SLAC J-BKTS	S	CON	SL_MSEG	$$		1,400		1,526	1,526	35%
1	02	02	07			IJ02070105	Procure VENDOR CABLE TERM SPECIAL FOR HOT FIL	S	CON	SL_MSEG	$$		3,500		3,815	3,815	35%
1	02	02	07			IJ02070100	Procure SLAC J-BOX FORHOT FIL CABLE	S	CON	SL_MSEG	$$		1,400		1,526	1,526	35%
1	02	02	07			IJ02070095	Procure GP307 CONTROLLERS	S	CON	SL_MSEG	$$		32,970		35,937	35,937	35%
1	02	02	07			IJ02070085	Procure SLAC AIR BOTTLE, CERTIFIED	S	CON	SL_MSEG	$$		600		654	654	35%
1	02	02	07			IJ02070080	Procure SLAC VACV I'FACE PANEL	S	CON	SL_MSEG	$$		3,000		3,270	3,270	35%
1	02	02	07			IJ02070075	Procure SLAC VACV J-BOX	S	CON	SL_MSEG	$$		1,200		1,308	1,308	35%
1	02	02	07			IJ02070070	Procure SLAC PMVC 6 VACV CONTLR	S	CON	SL_MSEG	$$		10,000		10,900	10,900	35%
1	02	02	07			IJ02070214	Point to Point Checkout	S	CON	SL_CP	Hrs	100		9,097		9,097	35%
1	02	02	07			IJ02070214	Point to Point Checkout	S	CON	SL_CCA	Hrs	100		6,553		6,553	35%
1	02	02	07			IJ02070215	Integrate software & hardware	S	CON	SL_CP	Hrs	40		3,741		3,741	35%
1	02	02	07			IJ02070215	Integrate software & hardware	S	CON	SL_CCA	Hrs	20		1,347		1,347	35%
1	**02**	**02**	**08**				**Software & Controls Infrastructure**					**248**	**184,250**	**16,793**	**201,313**	**218,106**	
1	**02**	**02**	**08**	**01**			**Reserved**										
1	**02**	**02**	**08**	**02**			**Reserved**										
1	**02**	**02**	**08**	**03**			**Data Communications**					**248**	**30,850**	**16,793**	**34,107**	**50,900**	
1	02	02	08	03		IJ02080300	Supervision of installation	S	CON	SL_CCA	Hrs	90		5,898		5,898	35%
1	02	02	08	03		IJ02080304	SEM install wall board	S	CON	SL_TMUC	Hrs	2		150		150	35%
1	02	02	08	03		IJ02080306	SEM install two 20 A circuits	S	CON	SL_TMUE	Hrs	16		1,541		1,541	35%
1	02	02	08	03		IJ02080310	Procure singlemode fiber	S	CON	SL_MSEG	$$		11,250		12,263	12,263	35%
1	02	02	08	03		IJ02080312	Fiber cabling installation	S	CON	SL_CCA	Hrs	64		4,194		4,194	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	02	08	03		IJ02080314	Fiber termination	S	CON	SL_MSPS	$$		3,600		3,924	3,924	35%
1	02	02	08	03		IJ02080318	Cabling installation in ground & sub-ground loca	S	CON	SL_CCA	Hrs	32		2,097		2,097	35%
1	02	02	08	03		IJ02080320	Cable termination	S	CON	SL_CCA	Hrs	32		2,105		2,105	35%
1	02	02	08	03		IJ02080326	Procure Cisco 3550-24 hubs (4)	S	CON	SL_MSEG	$$		16,000		17,920	17,920	35%
1	02	02	08	03		IJ02080328	Hub installation & data circuit activation	S	CON	SL_CCA	Hrs	12		808		808	35%
1	**02**	**02**	**08**	**04**			**Computers & Crates**					**-**	**153,400**	**-**	**167,206**	**167,206**	
1	02	02	08	04		IJ02080435	Procure Test Eq (Sgnl Anlyzrs, BO Boxes, Xtendr	S	CON	SL_MSEG	$$		3,000		3,270	3,270	35%
1	02	02	08	04		IJ02080430	Procure Consummables -paper, PROMs, backup media	S	CON	SL_MSEG	$$		5,000		5,450	5,450	35%
1	02	02	08	04		IJ02080425	Procure VxWorks toolkit licence	S	CON	SL_MSEG	$$		5,000		5,450	5,450	35%
1	02	02	08	04		IJ02080410	Procure cableplant	S	CON	SL_MSPS	$$		400		436	436	35%
1	02	02	08	04		IJ02080408	Procure (15 slot) VME Crates for BPMs	S	CON	SL_MSEG	$$		45,000		49,050	49,050	35%
1	02	02	08	04		IJ02080405	Procure VME Crates, IOCs & Interface Cha	S	CON	SL_MSEG	$$		90,000		98,100	98,100	35%
1	02	02	08	04		IJ02080400	Procure workstations for Sect 20 Cntrl Rms (2)	S	CON	SL_MSEG	$$		5,000		5,450	5,450	35%
1	**02**	**02**	**09**				**Power Supply Controls**					**1,029**	**-**	**99,799**	**-**	**99,799**	
1	02	02	09			IJ02090000	Define Power Supply Controls Reqmts	S	CON	SL_CP	Hrs	42		3,821		3,821	35%
1	02	02	09			IJ02090000	Define Power Supply Controls Reqmts	S	CON	SL_CE	Hrs	84		9,451		9,451	35%
1	02	02	09			IJ02090010	Design power supply Cntrls (EPICS)	S	CON	SL_CP	Hrs	168		15,283		15,283	35%
1	02	02	09			IJ02090010	Design power supply Cntrls (EPICS)	S	CON	SL_CE	Hrs	168		18,902		18,902	35%
1	02	02	09			IJ02090020	Design Review - Power Supply	S	CON	SL_CT	Hrs	2		123		123	35%
1	02	02	09			IJ02090020	Design Review - Power Supply	S	CON	SL_CP	Hrs	15		1,365		1,365	35%
1	02	02	09			IJ02090020	Design Review - Power Supply	S	CON	SL_CE	Hrs	20		2,250		2,250	35%
1	02	02	09			IJ02090025	Design Modifications	S	CON	SL_CP	Hrs	168		15,283		15,283	35%
1	02	02	09			IJ02090025	Design Modifications	S	CON	SL_CE	Hrs	168		18,902		18,902	35%
1	02	02	09			IJ02090060	Write Docs - Power Supply Controls Modules	S	CON	SL_CP	Hrs	20		1,819		1,819	35%
1	02	02	09			IJ02090060	Write Docs - Power Supply Controls Modules	S	CON	SL_CCA	Hrs	10		655		655	35%
1	02	02	09			IJ02090055	Write S/W - Power Supply Control Modules	S	CON	SL_CP	Hrs	20		1,819		1,819	35%
1	02	02	09			IJ02090050	Assemble procured parts	S	CON	SL_PCEF	Hrs	84		5,176		5,176	35%
1	02	02	09			IJ02090065	Integrate software & hardware	S	CON	SL_CP	Hrs	40		3,639		3,639	35%
1	02	02	09			IJ02090065	Integrate software & hardware	S	CON	SL_CCA	Hrs	20		1,311		1,311	35%
1	**02**	**02**	**10**				**PPS,BCS,MPS Controls**					**1,820**	**-**	**166,412**	**-**	**166,412**	
1	02	02	10			IJ02100000	Define PPS, BCS, MPS control Reqmts	S	CON	SL_CP	Hrs	200		18,194		18,194	35%
1	02	02	10			IJ02100010	Design PPS, BCS, MPS	S	CON	SL_CP	Hrs	400		36,388		36,388	35%
1	02	02	10			IJ02100020	Design Review - PPS, BCS, MPS	S	CON	SL_CP	Hrs	40		3,639		3,639	35%
1	02	02	10			IJ02100060	Write Docs - PPS, BCS, MPS	S	CON	SL_CP	Hrs	160		14,555		14,555	35%
1	02	02	10			IJ02100055	Write First Article S/W - PPS, BCS, MPS	S	CON	SL_CP	Hrs	880		80,798		80,798	35%
1	02	02	10			IJ02100063	Point to Point Checkout	S	CON	SL_CP	Hrs	100		9,097		9,097	35%
1	02	02	10			IJ02100065	Integrate software & hardware	S	CON	SL_CP	Hrs	40		3,741		3,741	35%
1	**02**	**03**					**Injector Lasers**					**12,308**	**2,981,400**	**1,111,098**	**3,252,035**	**4,363,133**	
1	**02**	**03**	**01**				**Reserved**										
1	**02**	**03**	**02**				**Drive Laser Oscillator**					**407**	**261,700**	**38,042**	**285,253**	**323,295**	
1	02	03	02			IJ03020000	Define Drive Laser Physics Requirements	S	PED	SL_PHSS	Hrs	27		2,432		2,432	29%
1	02	03	02			IJ03020000	Define Drive Laser Physics Requirements	S	PED	SL_OE	Hrs	27		2,952		2,952	29%
1	02	03	02			IJ03020000	Define Drive Laser Physics Requirements	S	PED	SL_MDD	Hrs	21		1,280		1,280	29%
1	02	03	02			IJ03020005	Define Oscillator Specs	S	PED	SL_PHSS	Hrs	40		3,602		3,602	29%
1	02	03	02			IJ03020005	Define Oscillator Specs	S	PED	SL_OE	Hrs	32		3,499		3,499	29%
1	02	03	02			IJ03020035	Prep Bid Pak - Oscillator & Pre-Amplifier	S	PED	SL_PHSS	Hrs	20		1,801		1,801	29%
1	02	03	02			IJ03020035	Prep Bid Pak - Oscillator & Pre-Amplifier	S	PED	SL_OE	Hrs	40		4,374		4,374	29%
1	02	03	02			IJ03020035	Prep Bid Pak - Oscillator & Pre-Amplifier	S	PED	SL_ADMN	Hrs	40		2,270		2,270	29%
1	02	03	02			IJ03020065	Evaluate Vendor Proposals-Oscillator & Pre-Ampli	S	PED	SL_PHSS	Hrs	40		3,602		3,602	29%
1	02	03	02			IJ03020065	Evaluate Vendor Proposals-Oscillator & Pre-Ampli	S	PED	SL_OE	Hrs	40		4,374		4,374	29%
1	02	03	02			IJ03020015	Define Uninterruptible Power Supply Requirements	S	PED	SL_OE	Hrs	40		4,374		4,374	29%
1	02	03	02			IJ03020090	Procure Uninterruptible Power Supplies	S	CON	SL_MSEG	$$		8,300		9,047	9,047	29%
1	02	03	02			IJ03020080	Vendor Fab, Assy & Test - Oscillator	S	CON	SL_MSSC	$$		253,400		276,206	276,206	29%
1	02	03	02			IJ03020100	Assemble Oscillator	S	CON	SL_OT	Hrs	20		1,232		1,232	29%
1	02	03	02			IJ03020100	Assemble Oscillator	S	CON	SL_OE	Hrs	20		2,250		2,250	29%
1	**02**	**03**	**03**				**Oscillator Diagnostics & Isolator**					**540**	**167,000**	**48,368**	**182,030**	**230,398**	
1	02	03	03			IJ03030005	Define Oscillator Diagnostics Specs	S	PED	SL_PHSS	Hrs	20		1,801		1,801	33%
1	02	03	03			IJ03030005	Define Oscillator Diagnostics Specs	S	PED	SL_OE	Hrs	20		2,187		2,187	33%
1	02	03	03			IJ03030010	Define Isolator specs	S	PED	SL_OE	Hrs	20		2,187		2,187	33%
1	02	03	03			IJ03030015	Develop Osc Diag & Isolator Engineering & Design	S	PED	SL_PHSS	Hrs	20		1,801		1,801	33%
1	02	03	03			IJ03030015	Develop Osc Diag & Isolator Engineering & Design	S	PED	SL_OE	Hrs	40		4,374		4,374	33%
1	02	03	03			IJ03030015	Develop Osc Diag & Isolator Engineering & Design	S	PED	SL_MDD	Hrs	40		2,439		2,439	33%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	03	03			IJ03030045	Prep Bid Pak Osc Diagnostics & Isolator & Parts	S	PED	SL_PHSS	Hrs	20		1,801		1,801	33%
1	02	03	03			IJ03030045	Prep Bid Pak Osc Diagnostics & Isolator & Parts	S	PED	SL_OE	Hrs	40		4,374		4,374	33%
1	02	03	03			IJ03030045	Prep Bid Pak Osc Diagnostics & Isolator & Parts	S	PED	SL_ADMN	Hrs	40		2,270		2,270	33%
1	02	03	03			IJ03030090	FAB (inhouse): custom diagnostic parts	S	CON	SL_MFMS	Hrs	40		4,016		4,016	33%
1	02	03	03			IJ03030065	Evaluate Vendor Proposals	S	CON	SL_PHSS	Hrs	20		1,853		1,853	33%
1	02	03	03			IJ03030065	Evaluate Vendor Proposals	S	CON	SL_OE	Hrs	20		2,250		2,250	33%
1	02	03	03			IJ03030080	Vendor Fab, Assy & Test-Osc Diagnostics/Isolator	S	CON	SL_MSSC	$$		167,000		182,030	182,030	33%
1	02	03	03			IJ03030100	Assemble: Oscillator Diagnostics & Isolator Assy	S	CON	SL_OT	Hrs	60		3,697		3,697	33%
1	02	03	03			IJ03030100	Assemble: Oscillator Diagnostics & Isolator Assy	S	CON	SL_OE	Hrs	40		4,500		4,500	33%
1	02	03	03			IJ03030105	Checkout : Osc Diagnostics & Isolator	S	CON	SL_PHSS	Hrs	20		1,853		1,853	33%
1	02	03	03			IJ03030105	Checkout : Osc Diagnostics & Isolator	S	CON	SL_OT	Hrs	40		2,465		2,465	33%
1	02	03	03			IJ03030105	Checkout : Osc Diagnostics & Isolator	S	CON	SL_OE	Hrs	40		4,500		4,500	33%
1	**02**	**03**	**04**				**Stretcher / Shaper**					**560**	**84,500**	**48,098**	**92,105**	**140,203**	
1	02	03	04			IJ03040005	Define Stretcher/Shaper specs	S	PED	SL_PHSS	Hrs	10		912		912	31%
1	02	03	04			IJ03040005	Define Stretcher/Shaper specs	S	PED	SL_OE	Hrs	10		1,108		1,108	31%
1	02	03	04			IJ03040010	Develop Stretcher/Shaper Engineering & Design	S	CON	SL_PHSS	Hrs	40		3,707		3,707	31%
1	02	03	04			IJ03040010	Develop Stretcher/Shaper Engineering & Design	S	CON	SL_OE	Hrs	80		9,001		9,001	31%
1	02	03	04			IJ03040010	Develop Stretcher/Shaper Engineering & Design	S	CON	SL_MDD	Hrs	120		7,529		7,529	31%
1	02	03	04			IJ03040090	Prep Bid Pak - Temporal Shaper	S	CON	SL_PHSS	Hrs	20		1,853		1,853	31%
1	02	03	04			IJ03040090	Prep Bid Pak - Temporal Shaper	S	CON	SL_OE	Hrs	40		4,500		4,500	31%
1	02	03	04			IJ03040090	Prep Bid Pak - Temporal Shaper	S	CON	SL_ADMN	Hrs	40		2,336		2,336	31%
1	02	03	04			IJ03040070	FAB Custom Stretcher parts (inhouse)	S	CON	SL_MFMS	Hrs	40		4,016		4,016	31%
1	02	03	04			IJ03040050	Define Parts List - Stretcher/Parts	S	CON	SL_PHSS	Hrs	20		1,853		1,853	31%
1	02	03	04			IJ03040060	Procure Stretcher/Parts	S	CON	SL_MSEG	$$		32,000		34,880	34,880	31%
1	02	03	04			IJ03040110	Evaluate Vendor Proposals - Temporal Shaper	S	CON	SL_PHSS	Hrs	20		1,853		1,853	31%
1	02	03	04			IJ03040120	Vendor Fab, Assy & Test - Temporal Shaper	S	CON	SL_MSSC	$$		52,500		57,225	57,225	31%
1	02	03	04			IJ03040130	Assemble: Stretcher/Shaper	S	CON	SL_OT	Hrs	80		4,930		4,930	31%
1	02	03	04			IJ03040130	Assemble: Stretcher/Shaper	S	CON	SL_OE	Hrs	40		4,500		4,500	31%
1	**02**	**03**	**05**				**Oscillator - Based Measurement**					**356**	**42,000**	**31,991**	**45,780**	**77,771**	
1	02	03	05			IJ03050010	Define Steering stability specs	S	CON	SL_PHSS	Hrs	16		1,483		1,483	27%
1	02	03	05			IJ03050010	Define Steering stability specs	S	CON	SL_OE	Hrs	4		450		450	27%
1	02	03	05			IJ03050005	Define Timing stability specs	S	CON	SL_PHSS	Hrs	8		741		741	27%
1	02	03	05			IJ03050005	Define Timing stability specs	S	CON	SL_OE	Hrs	8		900		900	27%
1	02	03	05			IJ03050050	Proc Optical Parts Timing Stability Apparatus	S	CON	SL_MSEG	$$		32,000		34,880	34,880	27%
1	02	03	05			IJ03050030	Develop Steering stability Meas Dsn (SSI)	S	CON	SL_PHSS	Hrs	40		3,707		3,707	27%
1	02	03	05			IJ03050030	Develop Steering stability Meas Dsn (SSI)	S	CON	SL_OE	Hrs	40		4,500		4,500	27%
1	02	03	05			IJ03050030	Develop Steering stability Meas Dsn (SSI)	S	CON	SL_MDD	Hrs	20		1,255		1,255	27%
1	02	03	05			IJ03050060	Procure Beam steering stability meas apparatus	S	CON	SL_MSEG	$$		10,000		10,900	10,900	27%
1	02	03	05			IJ03050090	Assemble: Steering Stabilization apparatus	S	CON	SL_PHSS	Hrs	10		927		927	27%
1	02	03	05			IJ03050090	Assemble: Steering Stabilization apparatus	S	CON	SL_OT	Hrs	40		2,465		2,465	27%
1	02	03	05			IJ03050090	Assemble: Steering Stabilization apparatus	S	CON	SL_OE	Hrs	20		2,250		2,250	27%
1	02	03	05			IJ03050070	Assemble: Timing stability Meas apparatus	S	CON	SL_OT	Hrs	40		2,465		2,465	27%
1	02	03	05			IJ03050070	Assemble: Timing stability Meas apparatus	S	CON	SL_OE	Hrs	20		2,250		2,250	27%
1	02	03	05			IJ03050070	Assemble: Timing stability Meas apparatus	S	CON	SL_KE	Hrs	10		1,125		1,125	27%
1	02	03	05			IJ03050095	Checkout : steering stability Meas app	S	CON	SL_OT	Hrs	20		1,232		1,232	27%
1	02	03	05			IJ03050095	Checkout : steering stability Meas app	S	CON	SL_OE	Hrs	20		2,250		2,250	27%
1	02	03	05			IJ03050075	Checkout : Timing stability Meas appa	S	CON	SL_OT	Hrs	10		616		616	27%
1	02	03	05			IJ03050075	Checkout : Timing stability Meas appa	S	CON	SL_OE	Hrs	20		2,250		2,250	27%
1	02	03	05			IJ03050075	Checkout : Timing stability Meas appa	S	CON	SL_KE	Hrs	10		1,125		1,125	27%
1	**02**	**03**	**06**				**Oscillator Beam Transport & Encl**					**125**	**4,000**	**11,986**	**4,360**	**16,346**	
1	02	03	06			IJ03060000	Define Beam path, Beam Properties & Model Xport	S	CON	SL_PHSS	Hrs	5		463		463	26%
1	02	03	06			IJ03060000	Define Beam path, Beam Properties & Model Xport	S	CON	SL_OE	Hrs	40		4,500		4,500	26%
1	02	03	06			IJ03060005	Develop Beam tube enclosure engr & Dsn	S	CON	SL_OE	Hrs	10		1,125		1,125	26%
1	02	03	06			IJ03060005	Develop Beam tube enclosure engr & Dsn	S	CON	SL_MDD	Hrs	30		1,882		1,882	26%
1	02	03	06			IJ03060020	Procure Beam tube enclosure Hdwr & Matl for Fab	S	CON	SL_MSEG	$$		4,000		4,360	4,360	26%
1	02	03	06			IJ03060022	FAB (inhouse): custom Beam tube encl/tube mount	S	CON	SL_MFMS	Hrs	40		4,016		4,016	26%
1	**02**	**03**	**07**				**PreAmplifier**					**80**	**218,300**	**7,469**	**237,947**	**245,416**	
1	02	03	07			IJ03070000	Define preAmplifier specs	S	PED	SL_PHSS	Hrs	20		1,801		1,801	29%
1	02	03	07			IJ03070000	Define preAmplifier specs	S	PED	SL_OE	Hrs	10		1,093		1,093	29%
1	02	03	07			IJ03070005	Define uninterruptible power supply rqmts	S	PED	SL_OE	Hrs	10		1,093		1,093	29%
1	02	03	07			IJ03070075	Procure uninterruptible power supplies	S	CON	SL_MSEG	$$		8,300		9,047	9,047	29%
1	02	03	07			IJ03070065	Vendor Fab, Assy & Test-preAmplifier & pump	S	CON	SL_MSSC	$$		210,000		228,900	228,900	29%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	03	07			IJ03070085	Assemble: preAmplifier	S	CON	SL_OT	Hrs	20		1,232		1,232	29%
1	02	03	07			IJ03070085	Assemble: preAmplifier	S	CON	SL_OE	Hrs	20		2,250		2,250	29%
1	**02**	**03**	**08**				**PreAmplifier Diagnostics & Isolator**					**380**	**49,000**	**34,154**	**53,410**	**87,564**	
1	02	03	08			IJ03080000	Define PreAmplifier Diagnostic Specs	S	CON	SL_PHSS	Hrs	20		1,853		1,853	29%
1	02	03	08			IJ03080000	Define PreAmplifier Diagnostic Specs	S	CON	SL_OE	Hrs	20		2,250		2,250	29%
1	02	03	08			IJ03080005	Define isolator specs	S	CON	SL_OE	Hrs	10		1,125		1,125	29%
1	02	03	08			IJ03080010	Develop preAmplifier diag & isolator engineering	S	CON	SL_PHSS	Hrs	20		1,853		1,853	29%
1	02	03	08			IJ03080010	Develop preAmplifier diag & isolator engineering	S	CON	SL_OE	Hrs	40		4,500		4,500	29%
1	02	03	08			IJ03080010	Develop preAmplifier diag & isolator engineering	S	CON	SL_MDD	Hrs	40		2,510		2,510	29%
1	02	03	08			IJ03080035	Prep Bid Pak - FROG	S	CON	SL_PHSS	Hrs	20		1,853		1,853	29%
1	02	03	08			IJ03080035	Prep Bid Pak - FROG	S	CON	SL_OE	Hrs	40		4,500		4,500	29%
1	02	03	08			IJ03080035	Prep Bid Pak - FROG	S	CON	SL_ADMN	Hrs	40		2,336		2,336	29%
1	02	03	08			IJ03080025	Procure PreAmplifier Diagnostics & isolator	S	CON	SL_MSEG	$$		28,000		30,520	30,520	29%
1	02	03	08			IJ03080060	Evaluate Vendor Proposals	S	CON	SL_PHSS	Hrs	10		927		927	29%
1	02	03	08			IJ03080060	Evaluate Vendor Proposals	S	CON	SL_OE	Hrs	20		2,250		2,250	29%
1	02	03	08			IJ03080075	Vendor Fab, Assy & Test FROG	S	CON	SL_MSSC	$$		21,000		22,890	22,890	29%
1	02	03	08			IJ03080085	Assemble: PreAmplifier diag	S	CON	SL_OT	Hrs	60		3,697		3,697	29%
1	02	03	08			IJ03080085	Assemble: PreAmplifier diag	S	CON	SL_OE	Hrs	40		4,500		4,500	29%
1	**02**	**03**	**09**				**Preamplifier Temporal Pulse Shaping and Low Power Compresor**					**300**	**32,000**	**28,649**	**34,880**	**63,529**	
1	02	03	09			IJ03090000	Define Temporal Pulse shaper & low power comp sp	S	CON	SL_PHSS	Hrs	20		1,853		1,853	31%
1	02	03	09			IJ03090000	Define Temporal Pulse shaper & low power comp sp	S	CON	SL_OE	Hrs	20		2,250		2,250	31%
1	02	03	09			IJ03090005	Develop Temp Pulse Shaper/Low Pwr Comp Dsn (PSHI	S	CON	SL_PHSS	Hrs	40		3,707		3,707	31%
1	02	03	09			IJ03090005	Develop Temp Pulse Shaper/Low Pwr Comp Dsn (PSHI	S	CON	SL_OE	Hrs	40		4,500		4,500	31%
1	02	03	09			IJ03090005	Develop Temp Pulse Shaper/Low Pwr Comp Dsn (PSHI	S	CON	SL_MDD	Hrs	20		1,255		1,255	31%
1	02	03	09			IJ03090080	FAB (inhouse): custom low power compressor parts	S	CON	SL_MFMS	Hrs	40		4,016		4,016	31%
1	02	03	09			IJ03090045	Define Part List for Shaper/Low Pwr Compr	S	CON	SL_PHSS	Hrs	20		1,853		1,853	31%
1	02	03	09			IJ03090045	Define Part List for Shaper/Low Pwr Compr	S	CON	SL_OE	Hrs	20		2,250		2,250	31%
1	02	03	09			IJ03090060	Vendor Fab, Assy & Test-Temporal Shaper/Low Pwr	S	CON	SL_MSSC	$$		32,000		34,880	34,880	31%
1	02	03	09			IJ03090085	Assemble: Temporal shaper/low power compressor	S	CON	SL_OT	Hrs	40		2,465		2,465	31%
1	02	03	09			IJ03090085	Assemble: Temporal shaper/low power compressor	S	CON	SL_OE	Hrs	40		4,500		4,500	31%
1	**02**	**03**	**10**				**KHz Pulse Selection & 120Hz Splitter**					**310**	**76,000**	**28,422**	**82,840**	**111,262**	
1	02	03	10			IJ03100000	Define KHz Pulse selection & 120Hz splitter requ	S	CON	SL_PHSS	Hrs	10		927		927	35%
1	02	03	10			IJ03100000	Define KHz Pulse selection & 120Hz splitter requ	S	CON	SL_OE	Hrs	20		2,250		2,250	35%
1	02	03	10			IJ03100005	Develop KHz Pulse selection & 120Hz splitter eng	S	CON	SL_PHSS	Hrs	20		1,853		1,853	35%
1	02	03	10			IJ03100005	Develop KHz Pulse selection & 120Hz splitter eng	S	CON	SL_OE	Hrs	40		4,500		4,500	35%
1	02	03	10			IJ03100005	Develop KHz Pulse selection & 120Hz splitter eng	S	CON	SL_MDD	Hrs	20		1,255		1,255	35%
1	02	03	10			IJ03100050	Define Parts List for 120Hz Splitter	S	CON	SL_PHSS	Hrs	20		1,853		1,853	35%
1	02	03	10			IJ03100050	Define Parts List for 120Hz Splitter	S	CON	SL_OE	Hrs	20		2,250		2,250	35%
1	02	03	10			IJ03100020	Procure KHz Pulse selection	S	CON	SL_MSEG	$$		40,000		43,600	43,600	35%
1	02	03	10			IJ03100065	Procure - 120 Hz Splitter Parts	S	CON	SL_MSEG	$$		36,000		39,240	39,240	35%
1	02	03	10			IJ03100075	Assy & C/O:KHz Pulse selection & 120 Hz splitter	S	CON	SL_PHSS	Hrs	20		1,853		1,853	35%
1	02	03	10			IJ03100075	Assy & C/O:KHz Pulse selection & 120 Hz splitter	S	CON	SL_OT	Hrs	80		4,930		4,930	35%
1	02	03	10			IJ03100075	Assy & C/O:KHz Pulse selection & 120 Hz splitter	S	CON	SL_OE	Hrs	60		6,751		6,751	35%
1	**02**	**03**	**11**				**PreAmplifier Spatial Filter**					**220**	**14,700**	**19,865**	**16,023**	**35,888**	
1	02	03	11			IJ03110000	Define Spatial filter specs (vacuum)	S	CON	SL_OE	Hrs	20		2,250		2,250	27%
1	02	03	11			IJ03110005	Develop Spatial filter engr & Dsn	S	CON	SL_PHSS	Hrs	20		1,853		1,853	27%
1	02	03	11			IJ03110005	Develop Spatial filter engr & Dsn	S	CON	SL_OE	Hrs	40		4,500		4,500	27%
1	02	03	11			IJ03110005	Develop Spatial filter engr & Dsn	S	CON	SL_MDD	Hrs	60		3,764		3,764	27%
1	02	03	11			IJ03110025	Procure Spatial filter parts	S	CON	SL_MSEG	$$		14,700		16,023	16,023	27%
1	02	03	11			IJ03110020	FAB (inhouse): custom Spatial filter Hdwr	S	CON	SL_MFMS	Hrs	40		4,016		4,016	27%
1	02	03	11			IJ03110035	Assemble: Spatial filter	S	CON	SL_OT	Hrs	20		1,232		1,232	27%
1	02	03	11			IJ03110035	Assemble: Spatial filter	S	CON	SL_OE	Hrs	20		2,250		2,250	27%
1	**02**	**03**	**12**				**PreAmplifier - Based Measurement**					**240**	**34,000**	**20,239**	**37,196**	**57,435**	
1	02	03	12			IJ03120000	Define IR Timing stability specs	S	CON	SL_PHSS	Hrs	10		927		927	33%
1	02	03	12			IJ03120000	Define IR Timing stability specs	S	CON	SL_OE	Hrs	10		1,125		1,125	33%
1	02	03	12			IJ03120015	Develop Timing stability Meas eng & Dsn (TSIIa)	S	CON	SL_PHSS	Hrs	20		1,853		1,853	33%
1	02	03	12			IJ03120015	Develop Timing stability Meas eng & Dsn (TSIIa)	S	CON	SL_OE	Hrs	20		2,250		2,250	33%
1	02	03	12			IJ03120015	Develop Timing stability Meas eng & Dsn (TSIIa)	S	CON	SL_MDD	Hrs	80		5,019		5,019	33%
1	02	03	12			IJ03120075	Procure Timing stability Meas Hdwr	S	CON	SL_MSEG	$$		34,000		37,196	37,196	33%
1	02	03	12			IJ03120105	Assemble: Timing stability Meas Hdwr	S	CON	SL_PHSS	Hrs	20		1,905		1,905	33%
1	02	03	12			IJ03120105	Assemble: Timing stability Meas Hdwr	S	CON	SL_OT	Hrs	40		2,534		2,534	33%
1	02	03	12			IJ03120105	Assemble: Timing stability Meas Hdwr	S	CON	SL_OE	Hrs	40		4,626		4,626	33%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	**02**	**03**	**13**				**PreAmplifier Beam Transport & Encl.**					**110**	**9,000**	**10,200**	**9,810**	**20,010**	
1	02	03	13			IJ03130000	Define Beam path, Beam properties & model tranpo	S	CON	SL_PHSS	Hrs	10		927		927	29%
1	02	03	13			IJ03130000	Define Beam path, Beam properties & model tranpo	S	CON	SL_OE	Hrs	20		2,250		2,250	29%
1	02	03	13			IJ03130005	Develop Beam tube Encl engr & Dsn	S	CON	SL_OE	Hrs	10		1,125		1,125	29%
1	02	03	13			IJ03130005	Develop Beam tube Encl engr & Dsn	S	CON	SL_MDD	Hrs	30		1,882		1,882	29%
1	02	03	13			IJ03130020	Procure Beam tube enclosure Hdwr	S	CON	SL_MSEG	$$		9,000		9,810	9,810	29%
1	02	03	13			IJ03130015	FAB (inhouse): custom Beam tube encl/tube mount	S	CON	SL_MFMS	Hrs	40		4,016		4,016	29%
1	**02**	**03**	**14**				**Final Amplifier**					**460**	**588,300**	**41,196**	**636,447**	**677,643**	
1	02	03	14			IJ03140005	Define Final Amplifier & Pump specs	S	PED	SL_PHSS	Hrs	20		1,801		1,801	34%
1	02	03	14			IJ03140005	Define Final Amplifier & Pump specs	S	PED	SL_OE	Hrs	20		2,187		2,187	34%
1	02	03	14			IJ03140040	Prep Bid Pak - Final Amplifier & Pump	S	PED	SL_PHSS	Hrs	20		1,801		1,801	34%
1	02	03	14			IJ03140040	Prep Bid Pak - Final Amplifier & Pump	S	PED	SL_OE	Hrs	40		4,374		4,374	34%
1	02	03	14			IJ03140040	Prep Bid Pak - Final Amplifier & Pump	S	PED	SL_ADMN	Hrs	40		2,270		2,270	34%
1	02	03	14			IJ03140065	Evaluate Vendor Proposals-Final Amp & Pump	S	PED	SL_PHSS	Hrs	20		1,801		1,801	34%
1	02	03	14			IJ03140065	Evaluate Vendor Proposals-Final Amp & Pump	S	PED	SL_OE	Hrs	20		2,187		2,187	34%
1	02	03	14			IJ03140010	Define Uninterruptible Power Supply Requirements	S	PED	SL_OE	Hrs	40		4,374		4,374	34%
1	02	03	14			IJ03140087	Procure Uninterruptible Power Supplies	S	CON	SL_MSEG	$$		8,300		9,047	9,047	34%
1	02	03	14			IJ03140080	Vendor Fab, Assy & Test-Final Amp & Pump	S	CON	SL_MSXX	$$		80,000		82,400	82,400	34%
1	02	03	14			IJ03140080	Vendor Fab, Assy & Test-Final Amp & Pump	S	CON	SL_MSSC	$$		500,000		545,000	545,000	34%
1	02	03	14			IJ03140090	Assemble: Final Amplifier & pump	S	CON	SL_PHSS	Hrs	40		3,762		3,762	34%
1	02	03	14			IJ03140090	Assemble: Final Amplifier & pump	S	CON	SL_OT	Hrs	120		7,504		7,504	34%
1	02	03	14			IJ03140090	Assemble: Final Amplifier & pump	S	CON	SL_OE	Hrs	80		9,135		9,135	34%
1	**02**	**03**	**15**				**Final Amplifier Diagnostics**					**480**	**180,000**	**42,239**	**196,200**	**238,439**	
1	02	03	15			IJ03150000	Define Final Amplifier Diagnostics specs	S	PED	SL_PHSS	Hrs	20		1,801		1,801	33%
1	02	03	15			IJ03150000	Define Final Amplifier Diagnostics specs	S	PED	SL_OE	Hrs	20		2,187		2,187	33%
1	02	03	15			IJ03150005	Develop Final Amplifier diagnostic engineering &	S	PED	SL_PHSS	Hrs	20		1,841		1,841	33%
1	02	03	15			IJ03150005	Develop Final Amplifier diagnostic engineering &	S	PED	SL_OE	Hrs	80		8,940		8,940	33%
1	02	03	15			IJ03150005	Develop Final Amplifier diagnostic engineering &	S	PED	SL_MDD	Hrs	80		4,985		4,985	33%
1	02	03	15			IJ03150030	Prep Bid Pak -Final Amplifier diagnostics	S	CON	SL_PHSS	Hrs	20		1,853		1,853	33%
1	02	03	15			IJ03150030	Prep Bid Pak -Final Amplifier diagnostics	S	CON	SL_OE	Hrs	40		4,500		4,500	33%
1	02	03	15			IJ03150030	Prep Bid Pak -Final Amplifier diagnostics	S	CON	SL_ADMN	Hrs	40		2,336		2,336	33%
1	02	03	15			IJ03150020	Procure Final Amplifier diagnostics	S	CON	SL_MSEG	$$		120,000		130,800	130,800	33%
1	02	03	15			IJ03150055	Evaluate Vendor Proposals-Final Amplifier diagno	S	CON	SL_PHSS	Hrs	20		1,853		1,853	33%
1	02	03	15			IJ03150055	Evaluate Vendor Proposals-Final Amplifier diagno	S	CON	SL_OE	Hrs	20		2,250		2,250	33%
1	02	03	15			IJ03150070	Vendor Fab, Assy & Test-Final Amplifier diagnost	S	CON	SL_MSSC	$$		60,000		65,400	65,400	33%
1	02	03	15			IJ03150080	Assemble: Final Amp diagnostics	S	CON	SL_OT	Hrs	80		5,067		5,067	33%
1	02	03	15			IJ03150080	Assemble: Final Amp diagnostics	S	CON	SL_OE	Hrs	40		4,626		4,626	33%
1	**02**	**03**	**16**				**120Hz Combiner**					**250**	**76,000**	**22,090**	**82,840**	**104,930**	
1	02	03	16			IJ03160000	Define 120Hz combiner requirements	S	CON	SL_PHSS	Hrs	20		1,853		1,853	36%
1	02	03	16			IJ03160000	Define 120Hz combiner requirements	S	CON	SL_OE	Hrs	20		2,250		2,250	36%
1	02	03	16			IJ03160005	Develop 120Hz combiner engr & Dsn	S	CON	SL_PHSS	Hrs	10		927		927	36%
1	02	03	16			IJ03160005	Develop 120Hz combiner engr & Dsn	S	CON	SL_OE	Hrs	20		2,250		2,250	36%
1	02	03	16			IJ03160005	Develop 120Hz combiner engr & Dsn	S	CON	SL_MDD	Hrs	40		2,510		2,510	36%
1	02	03	16			IJ03160045	Define Parts List for 120Hz Combiner	S	CON	SL_PHSS	Hrs	20		1,853		1,853	36%
1	02	03	16			IJ03160045	Define Parts List for 120Hz Combiner	S	CON	SL_OE	Hrs	20		2,250		2,250	36%
1	02	03	16			IJ03160015	Procure 120 Hz combiner parts	S	CON	SL_MSEG	$$		76,000		82,840	82,840	36%
1	02	03	16			IJ03160070	Assemble: 120 Hz combiner	S	CON	SL_OT	Hrs	60		3,697		3,697	36%
1	02	03	16			IJ03160070	Assemble: 120 Hz combiner	S	CON	SL_OE	Hrs	40		4,500		4,500	36%
1	**02**	**03**	**17**				**High Power Compressor**					**250**	**32,000**	**24,660**	**34,880**	**59,540**	
1	02	03	17			IJ03170000	Define high power compressor specs	S	CON	SL_PHSS	Hrs	10		927		927	34%
1	02	03	17			IJ03170000	Define high power compressor specs	S	CON	SL_OE	Hrs	20		2,250		2,250	34%
1	02	03	17			IJ03170005	Develop high power compressor engr & Dsn	S	CON	SL_PHSS	Hrs	20		1,853		1,853	34%
1	02	03	17			IJ03170005	Develop high power compressor engr & Dsn	S	CON	SL_OE	Hrs	40		4,500		4,500	34%
1	02	03	17			IJ03170005	Develop high power compressor engr & Dsn	S	CON	SL_MDD	Hrs	40		2,510		2,510	34%
1	02	03	17			IJ03170025	FAB (inhouse): custom high power compressor part	S	CON	SL_MFMS	Hrs	40		4,016		4,016	34%
1	02	03	17			IJ03170015	Procure high power compressor parts	S	CON	SL_MSEG	$$		32,000		34,880	34,880	34%
1	02	03	17			IJ03170030	Assemble: High Power Compressor	S	CON	SL_PHSS	Hrs	20		1,853		1,853	34%
1	02	03	17			IJ03170030	Assemble: High Power Compressor	S	CON	SL_OE	Hrs	60		6,751		6,751	34%
1	**02**	**03**	**18**				**High Pwr Vac Spatial Filters & Relay**					**280**	**47,000**	**24,383**	**51,230**	**75,613**	
1	02	03	18			IJ03180000	Define vacuum Spatial filter specs	S	CON	SL_PHSS	Hrs	10		927		927	30%
1	02	03	18			IJ03180000	Define vacuum Spatial filter specs	S	CON	SL_OE	Hrs	10		1,125		1,125	30%
1	02	03	18			IJ03180005	Develop vacuum Spatial filters & optical relay e	S	CON	SL_PHSS	Hrs	20		1,853		1,853	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	03	18			IJ03180005	Develop vacuum Spatial filters & optical relay e	S	CON	SL_OE	Hrs	60		6,751		6,751	30%
1	02	03	18			IJ03180005	Develop vacuum Spatial filters & optical relay e	S	CON	SL_MDD	Hrs	60		3,764		3,764	30%
1	02	03	18			IJ03180015	FAB (inhouse): custom vacuum Spatial filters & o	S	CON	SL_MFMS	Hrs	40		4,016		4,016	30%
1	02	03	18			IJ03180020	Procure vacuum Spatial filters & optical relay	S	CON	SL_MSEG	$$		47,000		51,230	51,230	30%
1	02	03	18			IJ03180030	Assemble: vacuum Spatial filter & optical relay	S	CON	SL_OT	Hrs	60		3,697		3,697	30%
1	02	03	18			IJ03180030	Assemble: vacuum Spatial filter & optical relay	S	CON	SL_OE	Hrs	20		2,250		2,250	30%
1	**02**	**03**	**19**				**Final Amplifier-Based Meas**					**950**	**261,400**	**85,211**	**288,878**	**374,089**	
1	02	03	19			IJ03190015	Define IR Spatial Profile Shaping Specs	S	CON	SL_PHSS	Hrs	10		927		927	34%
1	02	03	19			IJ03190015	Define IR Spatial Profile Shaping Specs	S	CON	SL_OE	Hrs	10		1,125		1,125	34%
1	02	03	19			IJ03190010	Define IR steering stability specs	S	CON	SL_PHSS	Hrs	10		927		927	34%
1	02	03	19			IJ03190010	Define IR steering stability specs	S	CON	SL_OE	Hrs	10		1,125		1,125	34%
1	02	03	19			IJ03190005	Define IR Pulse energy stability specs	S	CON	SL_PHSS	Hrs	10		927		927	34%
1	02	03	19			IJ03190005	Define IR Pulse energy stability specs	S	CON	SL_OE	Hrs	10		1,125		1,125	34%
1	02	03	19			IJ03190000	Define IR Timing stability specs	S	CON	SL_PHSS	Hrs	10		927		927	34%
1	02	03	19			IJ03190000	Define IR Timing stability specs	S	CON	SL_OE	Hrs	10		1,125		1,125	34%
1	02	03	19			IJ03190050	Develop Spatial profile shaping engr & Dsn (PFII	S	CON	SL_PHSS	Hrs	20		1,853		1,853	34%
1	02	03	19			IJ03190050	Develop Spatial profile shaping engr & Dsn (PFII	S	CON	SL_OE	Hrs	40		4,500		4,500	34%
1	02	03	19			IJ03190050	Develop Spatial profile shaping engr & Dsn (PFII	S	CON	SL_MDD	Hrs	40		2,510		2,510	34%
1	02	03	19			IJ03190040	Develop steering stability apparatus engr & Dsn	S	CON	SL_PHSS	Hrs	20		1,853		1,853	34%
1	02	03	19			IJ03190040	Develop steering stability apparatus engr & Dsn	S	CON	SL_OE	Hrs	10		1,125		1,125	34%
1	02	03	19			IJ03190040	Develop steering stability apparatus engr & Dsn	S	CON	SL_MDD	Hrs	30		1,882		1,882	34%
1	02	03	19			IJ03190030	Develop Pulse energy stabilizer engr & Dsn (PESI	S	CON	SL_PHSS	Hrs	20		1,853		1,853	34%
1	02	03	19			IJ03190030	Develop Pulse energy stabilizer engr & Dsn (PESI	S	CON	SL_OE	Hrs	10		1,125		1,125	34%
1	02	03	19			IJ03190030	Develop Pulse energy stabilizer engr & Dsn (PESI	S	CON	SL_MDD	Hrs	20		1,255		1,255	34%
1	02	03	19			IJ03190020	Develop Timing Stability Apparatus Eng & Dsn	S	CON	SL_OE	Hrs	10		1,125		1,125	34%
1	02	03	19			IJ03190020	Develop Timing Stability Apparatus Eng & Dsn	S	CON	SL_MDD	Hrs	20		1,255		1,255	34%
1	02	03	19			IJ03190150	Procure Steering stabilization apparatus	S	CON	SL_MSEG	$$		73,000		80,227	80,227	34%
1	02	03	19			IJ03190080	Procure Timing stability apparatus	S	CON	SL_MSEG	$$		13,000		14,287	14,287	34%
1	02	03	19			IJ03190160	Procure Spatial profile shaping Hdwr	S	CON	SL_MSEG	$$		6,400		7,082	7,082	34%
1	02	03	19			IJ03190100	Prep Bid Pak - Pulse energy stabilization Hdwr	S	CON	SL_PHSS	Hrs	10		927		927	34%
1	02	03	19			IJ03190100	Prep Bid Pak - Pulse energy stabilization Hdwr	S	CON	SL_OE	Hrs	40		4,500		4,500	34%
1	02	03	19			IJ03190100	Prep Bid Pak - Pulse energy stabilization Hdwr	S	CON	SL_ADMN	Hrs	40		2,336		2,336	34%
1	02	03	19			IJ03190090	Procure Pulse energy stabilization Hdwr	S	CON	SL_MSEG	$$		148,000		163,762	163,762	34%
1	02	03	19			IJ03190125	Evaluate Vendor Proposals	S	CON	SL_PHSS	Hrs	20		1,905		1,905	34%
1	02	03	19			IJ03190125	Evaluate Vendor Proposals	S	CON	SL_OE	Hrs	20		2,313		2,313	34%
1	02	03	19			IJ03190170	Assemble: Timing stability Meas apparatus	S	CON	SL_PHSS	Hrs	40		3,811		3,811	34%
1	02	03	19			IJ03190170	Assemble: Timing stability Meas apparatus	S	CON	SL_OT	Hrs	40		2,534		2,534	34%
1	02	03	19			IJ03190170	Assemble: Timing stability Meas apparatus	S	CON	SL_OE	Hrs	40		4,626		4,626	34%
1	02	03	19			IJ03190140	Vendor Fab, Assy & Test-Pulse energy stab HW	S	CON	SL_MSSC	$$		21,000		23,520	23,520	34%
1	02	03	19			IJ03190185	Assemble: Pulse energy stabilization Hdwr	S	CON	SL_PHSS	Hrs	40		3,811		3,811	34%
1	02	03	19			IJ03190185	Assemble: Pulse energy stabilization Hdwr	S	CON	SL_OT	Hrs	60		3,800		3,800	34%
1	02	03	19			IJ03190185	Assemble: Pulse energy stabilization Hdwr	S	CON	SL_OE	Hrs	40		4,626		4,626	34%
1	02	03	19			IJ03190185	Assemble: Pulse energy stabilization Hdwr	S	CON	SL_EE	Hrs	40		4,626		4,626	34%
1	02	03	19			IJ03190195	Assemble: steering stabilization apparatus	S	CON	SL_OT	Hrs	60		3,800		3,800	34%
1	02	03	19			IJ03190195	Assemble: steering stabilization apparatus	S	CON	SL_OE	Hrs	40		4,626		4,626	34%
1	02	03	19			IJ03190205	Assemble: Spatial profile shaper	S	CON	SL_OT	Hrs	60		3,800		3,800	34%
1	02	03	19			IJ03190205	Assemble: Spatial profile shaper	S	CON	SL_OE	Hrs	40		4,626		4,626	34%
1	**02**	**03**	**20**				**Final Amp Beam Transport & Encl**					**280**	**12,000**	**25,807**	**13,440**	**39,247**	
1	02	03	20			IJ03200000	Define Beam paths, Beam properties & model tranp	S	CON	SL_PHSS	Hrs	10		927		927	23%
1	02	03	20			IJ03200000	Define Beam paths, Beam properties & model tranp	S	CON	SL_OE	Hrs	20		2,250		2,250	23%
1	02	03	20			IJ03200000	Define Beam paths, Beam properties & model tranp	S	CON	SL_MDD	Hrs	10		627		627	23%
1	02	03	20			IJ03200005	Develop Beam relay & Encl engr & Dsn	S	CON	SL_PHSS	Hrs	20		1,861		1,861	23%
1	02	03	20			IJ03200005	Develop Beam relay & Encl engr & Dsn	S	CON	SL_OE	Hrs	40		4,519		4,519	23%
1	02	03	20			IJ03200005	Develop Beam relay & Encl engr & Dsn	S	CON	SL_MDD	Hrs	40		2,520		2,520	23%
1	02	03	20			IJ03200025	Procure Beam relay & Encl Hdwr	S	CON	SL_MSEG	$$		12,000		13,440	13,440	23%
1	02	03	20			IJ03200020	FAB (inhouse): custom Beam relay & encl/mount Hd	S	CON	SL_MFMS	Hrs	80		8,256		8,256	23%
1	02	03	20			IJ03200035	Assemble: Beam relay & Encl	S	CON	SL_OT	Hrs	40		2,534		2,534	23%
1	02	03	20			IJ03200035	Assemble: Beam relay & Encl	S	CON	SL_OE	Hrs	20		2,313		2,313	23%
1	**02**	**03**	**21**				**UV Conv Harmonic Generation Unit**					**560**	**34,400**	**50,496**	**37,496**	**87,992**	
1	02	03	21			IJ03210000	Define UV Pulse physics specs	S	PED	SL_PHSS	Hrs	20		1,801		1,801	33%
1	02	03	21			IJ03210000	Define UV Pulse physics specs	S	PED	SL_OE	Hrs	20		2,187		2,187	33%
1	02	03	21			IJ03210004	Develop UV conversion unit prelim optical Design	S	PED	SL_PHSS	Hrs	40		3,602		3,602	33%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	03	21			IJ03210004	Develop UV conversion unit prelim optical Design	S	PED	SL_OE	Hrs	40		4,374		4,374	33%
1	02	03	21			IJ03210005	Develop UV conversion unit final Design	S	CON	SL_PHSS	Hrs	10		927		927	33%
1	02	03	21			IJ03210005	Develop UV conversion unit final Design	S	CON	SL_OE	Hrs	30		3,375		3,375	33%
1	02	03	21			IJ03210005	Develop UV conversion unit final Design	S	CON	SL_ME	Hrs	40		4,228		4,228	33%
1	02	03	21			IJ03210005	Develop UV conversion unit final Design	S	CON	SL_MDD	Hrs	60		3,764		3,764	33%
1	02	03	21			IJ03210035	Prep Bid Pak - UV conversion Hdwr	S	CON	SL_PHSS	Hrs	20		1,853		1,853	33%
1	02	03	21			IJ03210035	Prep Bid Pak - UV conversion Hdwr	S	CON	SL_OE	Hrs	40		4,500		4,500	33%
1	02	03	21			IJ03210035	Prep Bid Pak - UV conversion Hdwr	S	CON	SL_ADMN	Hrs	40		2,336		2,336	33%
1	02	03	21			IJ03210025	Procure UV conversion Hdwr	S	CON	SL_MSEG	$$		14,400		15,696	15,696	33%
1	02	03	21			IJ03210020	FAB (inhouse): custom UV conversion Hdwr	S	CON	SL_MFMS	Hrs	40		4,016		4,016	33%
1	02	03	21			IJ03210060	Evaluate Vendor Proposals	S	CON	SL_PHSS	Hrs	20		1,853		1,853	33%
1	02	03	21			IJ03210060	Evaluate Vendor Proposals	S	CON	SL_OE	Hrs	20		2,250		2,250	33%
1	02	03	21			IJ03210075	Vendor Fab, Assy & Test	S	CON	SL_MSSC	$$		20,000		21,800	21,800	33%
1	02	03	21			IJ03210085	Assemble: UV conversion unit	S	CON	SL_OT	Hrs	80		4,930		4,930	33%
1	02	03	21			IJ03210085	Assemble: UV conversion unit	S	CON	SL_OE	Hrs	40		4,500		4,500	33%
1	**02**	**03**	**22**				**UV Diagnostics**					**350**	**408,000**	**30,779**	**444,720**	**475,499**	
1	02	03	22			IJ03220000	Define UV conversion Diagnostics specs	S	CON	SL_PHSS	Hrs	10		927		927	34%
1	02	03	22			IJ03220000	Define UV conversion Diagnostics specs	S	CON	SL_OE	Hrs	20		2,250		2,250	34%
1	02	03	22			IJ03220005	Develop UV conversion diagnostic engineering & D	S	CON	SL_PHSS	Hrs	20		1,853		1,853	34%
1	02	03	22			IJ03220005	Develop UV conversion diagnostic engineering & D	S	CON	SL_OE	Hrs	40		4,500		4,500	34%
1	02	03	22			IJ03220005	Develop UV conversion diagnostic engineering & D	S	CON	SL_MDD	Hrs	40		2,510		2,510	34%
1	02	03	22			IJ03220030	Prep Bid Pak -UV conversion diagnostics	S	CON	SL_PHSS	Hrs	20		1,853		1,853	34%
1	02	03	22			IJ03220030	Prep Bid Pak -UV conversion diagnostics	S	CON	SL_OE	Hrs	40		4,500		4,500	34%
1	02	03	22			IJ03220030	Prep Bid Pak -UV conversion diagnostics	S	CON	SL_ADMN	Hrs	40		2,336		2,336	34%
1	02	03	22			IJ03220020	Procure UV conversion diagnostics	S	CON	SL_MSEG	$$		58,000		63,220	63,220	34%
1	02	03	22			IJ03220055	Evaluate Vendor Proposals	S	CON	SL_PHSS	Hrs	20		1,853		1,853	34%
1	02	03	22			IJ03220055	Evaluate Vendor Proposals	S	CON	SL_OE	Hrs	20		2,250		2,250	34%
1	02	03	22			IJ03220070	Vendor Fab, Assy & Test	S	CON	SL_MSSC	$$		350,000		381,500	381,500	34%
1	02	03	22			IJ03220080	Assemble: UV diagnostics	S	CON	SL_OT	Hrs	60		3,697		3,697	34%
1	02	03	22			IJ03220080	Assemble: UV diagnostics	S	CON	SL_OE	Hrs	20		2,250		2,250	34%
1	**02**	**03**	**23**				**UV Measurements**					**410**	**47,100**	**36,570**	**52,641**	**89,211**	
1	02	03	23			IJ03230000	Develop UV Pulse energy stability meas apparatus	S	CON	SL_PHSS	Hrs	20		1,853		1,853	35%
1	02	03	23			IJ03230000	Develop UV Pulse energy stability meas apparatus	S	CON	SL_OE	Hrs	40		4,500		4,500	35%
1	02	03	23			IJ03230000	Develop UV Pulse energy stability meas apparatus	S	CON	SL_MDD	Hrs	60		3,764		3,764	35%
1	02	03	23			IJ03230055	Procure UV Pulse energy stability Meas apparatu	S	CON	SL_MSEG	$$		13,100		14,561	14,561	35%
1	02	03	23			IJ03230005	Develop UV Pulse Timing stability meas apparatus	S	CON	SL_PHSS	Hrs	80		7,445		7,445	35%
1	02	03	23			IJ03230005	Develop UV Pulse Timing stability meas apparatus	S	CON	SL_OE	Hrs	60		6,779		6,779	35%
1	02	03	23			IJ03230005	Develop UV Pulse Timing stability meas apparatus	S	CON	SL_MDD	Hrs	10		630		630	35%
1	02	03	23			IJ03230045	Procure UV Pulse Timing stability meas apparatu	S	CON	SL_MSEG	$$		34,000		38,080	38,080	35%
1	02	03	23			IJ03230075	Assemble: UV Pulse energy stability Meas apparat	S	CON	SL_OT	Hrs	40		2,534		2,534	35%
1	02	03	23			IJ03230075	Assemble: UV Pulse energy stability Meas apparat	S	CON	SL_OE	Hrs	20		2,313		2,313	35%
1	02	03	23			IJ03230085	Assemble: UV Pulse Timing stability Meas apparat	S	CON	SL_PHSS	Hrs	20		1,905		1,905	35%
1	02	03	23			IJ03230085	Assemble: UV Pulse Timing stability Meas apparat	S	CON	SL_OT	Hrs	40		2,534		2,534	35%
1	02	03	23			IJ03230085	Assemble: UV Pulse Timing stability Meas apparat	S	CON	SL_OE	Hrs	20		2,313		2,313	35%
1	**02**	**03**	**24**				**UV Optical Transport & Diag.**					**710**	**39,600**	**64,156**	**43,164**	**107,320**	
1	02	03	24			IJ03240000	Define Beam paths, Beam properties & model tranp	S	PED	SL_PHSS	Hrs	10		927		927	25%
1	02	03	24			IJ03240000	Define Beam paths, Beam properties & model tranp	S	PED	SL_OE	Hrs	20		2,250		2,250	25%
1	02	03	24			IJ03240025	Develop Beam transport Optics (to photocathode)	S	PED	SL_PHSS	Hrs	20		1,853		1,853	25%
1	02	03	24			IJ03240025	Develop Beam transport Optics (to photocathode)	S	PED	SL_OE	Hrs	80		9,001		9,001	25%
1	02	03	24			IJ03240025	Develop Beam transport Optics (to photocathode)	S	PED	SL_MDD	Hrs	20		1,255		1,255	25%
1	02	03	24			IJ03240005	Develop vertical Beam transport tube engr & Dsn	S	PED	SL_PHSS	Hrs	10		927		927	25%
1	02	03	24			IJ03240005	Develop vertical Beam transport tube engr & Dsn	S	PED	SL_OE	Hrs	20		2,250		2,250	25%
1	02	03	24			IJ03240005	Develop vertical Beam transport tube engr & Dsn	S	PED	SL_MDD	Hrs	60		3,764		3,764	25%
1	02	03	24			IJ03240080	Procure Beam transport Optics & Encl Hdwr	S	CON	SL_MSEG	$$		18,100		19,729	19,729	25%
1	02	03	24			IJ03240060	Procure vertical Beam transport tube material	S	CON	SL_MSEG	$$		3,000		3,270	3,270	25%
1	02	03	24			IJ03240055	FAB (inhouse): Custom Beam Transport Optics & En	S	CON	SL_MFMS	Hrs	40		4,016		4,016	25%
1	02	03	24			IJ03240050	FAB (inhouse): vertical Beam transport tube	S	CON	SL_MFMS	Hrs	40		4,016		4,016	25%
1	02	03	24			IJ03240015	Develop UV Beam steering stabilization apparatus	S	CON	SL_PHSS	Hrs	10		927		927	25%
1	02	03	24			IJ03240015	Develop UV Beam steering stabilization apparatus	S	CON	SL_OE	Hrs	40		4,500		4,500	25%
1	02	03	24			IJ03240015	Develop UV Beam steering stabilization apparatus	S	CON	SL_MDD	Hrs	20		1,255		1,255	25%
1	02	03	24			IJ03240070	Procure UV Beam steering stabilization apparatu	S	CON	SL_MSEG	$$		18,500		20,165	20,165	25%
1	02	03	24			IJ03240090	Assemble: vertical Beam transport tube	S	CON	SL_OT	Hrs	60		3,697		3,697	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	03	24			IJ03240090	Assemble: vertical Beam transport tube	S	CON	SL_OE	Hrs	40		4,500		4,500	25%
1	02	03	24			IJ03240090	Assemble: vertical Beam transport tube	S	CON	SL_MFAT	Hrs	60		4,912		4,912	25%
1	02	03	24			IJ03240100	Assemble: UV Beam steering stabilization apparat	S	CON	SL_OT	Hrs	40		2,465		2,465	25%
1	02	03	24			IJ03240100	Assemble: UV Beam steering stabilization apparat	S	CON	SL_OE	Hrs	40		4,500		4,500	25%
1	02	03	24			IJ03240110	Assemble: UV transport Optics & Encl	S	CON	SL_OT	Hrs	40		2,527		2,527	25%
1	02	03	24			IJ03240110	Assemble: UV transport Optics & Encl	S	CON	SL_OE	Hrs	40		4,614		4,614	25%
1	**02**	**03**	**25**				**Visible Optical Transport & Diag.**					**550**	**40,200**	**49,700**	**43,818**	**93,518**	
1	02	03	25			IJ03250000	Define Visible Beam properties, Beam path/model	S	CON	SL_PHSS	Hrs	10		927		927	29%
1	02	03	25			IJ03250000	Define Visible Beam properties, Beam path/model	S	CON	SL_OE	Hrs	20		2,250		2,250	29%
1	02	03	25			IJ03250000	Define Visible Beam properties, Beam path/model	S	CON	SL_MDD	Hrs	20		1,255		1,255	29%
1	02	03	25			IJ03250015	Develop Visible Beam transport Optics & encl dsn	S	CON	SL_PHSS	Hrs	20		1,853		1,853	29%
1	02	03	25			IJ03250015	Develop Visible Beam transport Optics & encl dsn	S	CON	SL_OE	Hrs	40		4,500		4,500	29%
1	02	03	25			IJ03250015	Develop Visible Beam transport Optics & encl dsn	S	CON	SL_MDD	Hrs	60		3,764		3,764	29%
1	02	03	25			IJ03250005	Define Visible Beam transport Diagnostics requir	S	CON	SL_PHSS	Hrs	20		1,853		1,853	29%
1	02	03	25			IJ03250005	Define Visible Beam transport Diagnostics requir	S	CON	SL_OE	Hrs	20		2,250		2,250	29%
1	02	03	25			IJ03250065	Procure Visible Beam transport Optics & encl Hd	S	CON	SL_MSEG	$$		7,100		7,739	7,739	29%
1	02	03	25			IJ03250055	Procure vertical transport tube material	S	CON	SL_MSEG	$$		3,000		3,270	3,270	29%
1	02	03	25			IJ03250025	Develop Visible Beam transport Diagnostics engr	S	CON	SL_PHSS	Hrs	20		1,853		1,853	29%
1	02	03	25			IJ03250025	Develop Visible Beam transport Diagnostics engr	S	CON	SL_OE	Hrs	20		2,250		2,250	29%
1	02	03	25			IJ03250025	Develop Visible Beam transport Diagnostics engr	S	CON	SL_MDD	Hrs	20		1,255		1,255	29%
1	02	03	25			IJ03250075	Procure Visible Beam transport diagnostics	S	CON	SL_MSEG	$$		30,100		32,809	32,809	29%
1	02	03	25			IJ03250050	FAB (inhouse): custom Visible Beam transport Opt	S	CON	SL_MFMS	Hrs	40		4,016		4,016	29%
1	02	03	25			IJ03250045	FAB (inhouse): vertical transport tube	S	CON	SL_MFMS	Hrs	40		4,016		4,016	29%
1	02	03	25			IJ03250085	Assemble: Visible Beam transport Optics & Encl	S	CON	SL_OT	Hrs	40		2,527		2,527	29%
1	02	03	25			IJ03250085	Assemble: Visible Beam transport Optics & Encl	S	CON	SL_OE	Hrs	40		4,614		4,614	29%
1	02	03	25			IJ03250085	Assemble: Visible Beam transport Optics & Encl	S	CON	SL_MFAT	Hrs	40		3,357		3,357	29%
1	02	03	25			IJ03250100	Assemble: Visible Beam transport diagnostics	S	CON	SL_OT	Hrs	40		2,534		2,534	29%
1	02	03	25			IJ03250100	Assemble: Visible Beam transport diagnostics	S	CON	SL_OE	Hrs	40		4,626		4,626	29%
1	**02**	**03**	**26**				**IR Optical Transport & Diagnostics**					**330**	**6,000**	**29,965**	**6,564**	**36,529**	
1	02	03	26			IJ03260000	Define IR Beam properties, Beam path & model tra	S	CON	SL_PHSS	Hrs	10		927		927	25%
1	02	03	26			IJ03260000	Define IR Beam properties, Beam path & model tra	S	CON	SL_OE	Hrs	20		2,250		2,250	25%
1	02	03	26			IJ03260000	Define IR Beam properties, Beam path & model tra	S	CON	SL_MDD	Hrs	20		1,255		1,255	25%
1	02	03	26			IJ03260005	Develop IR Beam transport Optics & encl engr & D	S	CON	SL_PHSS	Hrs	20		1,853		1,853	25%
1	02	03	26			IJ03260005	Develop IR Beam transport Optics & encl engr & D	S	CON	SL_OE	Hrs	40		4,500		4,500	25%
1	02	03	26			IJ03260005	Develop IR Beam transport Optics & encl engr & D	S	CON	SL_MDD	Hrs	60		3,764		3,764	25%
1	02	03	26			IJ03260035	Procure IR Beam transport Optics & Encl parts	S	CON	SL_MSEG	$$		3,000		3,282	3,282	25%
1	02	03	26			IJ03260025	Procure vertical transport tube material	S	CON	SL_MSEG	$$		3,000		3,282	3,282	25%
1	02	03	26			IJ03260015	FAB (inhouse): vertical transport tube	S	CON	SL_MFMS	Hrs	40		4,128		4,128	25%
1	02	03	26			IJ03260020	FAB (inhouse): custom IR Beam transport Optics/e	S	CON	SL_MFMS	Hrs	40		4,128		4,128	25%
1	02	03	26			IJ03260045	Assemble: IR Beam transport Optics & Encl	S	CON	SL_OT	Hrs	40		2,534		2,534	25%
1	02	03	26			IJ03260045	Assemble: IR Beam transport Optics & Encl	S	CON	SL_OE	Hrs	40		4,626		4,626	25%
1	**02**	**03**	**27**				**UV Conditioning**					**1,010**	**55,700**	**94,405**	**60,713**	**155,118**	
1	02	03	27			IJ03270000	Define UV Pulse conditioning requirements	S	PED	SL_PHSS	Hrs	40		3,707		3,707	37%
1	02	03	27			IJ03270035	Develop UV launch Optics (to photocathode) Dsn	S	CON	SL_PHSS	Hrs	80		7,414		7,414	37%
1	02	03	27			IJ03270035	Develop UV launch Optics (to photocathode) Dsn	S	CON	SL_OE	Hrs	80		9,001		9,001	37%
1	02	03	27			IJ03270120	Procure UV launch Optics Hdwr	S	CON	SL_MSEG	$$		25,800		28,122	28,122	37%
1	02	03	27			IJ03270085	FAB (inhouse): custom UV launch Optics Hdwr	S	CON	SL_MFMS	Hrs	40		4,016		4,016	37%
1	02	03	27			IJ03270045	Develop UV Pulse energy control engr & Dsn	S	CON	SL_PHSS	Hrs	40		3,707		3,707	37%
1	02	03	27			IJ03270045	Develop UV Pulse energy control engr & Dsn	S	CON	SL_OE	Hrs	60		6,751		6,751	37%
1	02	03	27			IJ03270045	Develop UV Pulse energy control engr & Dsn	S	CON	SL_MDD	Hrs	60		3,764		3,764	37%
1	02	03	27			IJ03270045	Develop UV Pulse energy control engr & Dsn	S	CON	SL_CE	Hrs	60		6,751		6,751	37%
1	02	03	27			IJ03270025	Develop UV Spatial profile shaper engr & Dsn	S	CON	SL_PHSS	Hrs	20		1,853		1,853	37%
1	02	03	27			IJ03270025	Develop UV Spatial profile shaper engr & Dsn	S	CON	SL_OE	Hrs	40		4,500		4,500	37%
1	02	03	27			IJ03270025	Develop UV Spatial profile shaper engr & Dsn	S	CON	SL_MDD	Hrs	60		3,764		3,764	37%
1	02	03	27			IJ03270015	Develop UV Spatial filter engr & Dsn	S	CON	SL_PHSS	Hrs	40		3,707		3,707	37%
1	02	03	27			IJ03270015	Develop UV Spatial filter engr & Dsn	S	CON	SL_OE	Hrs	40		4,500		4,500	37%
1	02	03	27			IJ03270015	Develop UV Spatial filter engr & Dsn	S	CON	SL_MDD	Hrs	10		627		627	37%
1	02	03	27			IJ03270130	Procure UV Pulse energy control Hdwr	S	CON	SL_MSEG	$$		8,800		9,592	9,592	37%
1	02	03	27			IJ03270110	Procure UV Spatial profile shaper Hdwr	S	CON	SL_MSEG	$$		6,400		6,976	6,976	37%
1	02	03	27			IJ03270100	Procure UV Spatial filter Hdwr	S	CON	SL_MSEG	$$		14,700		16,023	16,023	37%
1	02	03	27			IJ03270080	FAB (inhouse): custom UV Spatial filter Hdwr	S	CON	SL_MFMS	Hrs	40		4,016		4,016	37%
1	02	03	27			IJ03270170	Assemble: UV launch Optics Hdwr	S	CON	SL_OT	Hrs	40		2,534		2,534	37%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	03	27			IJ03270170	Assemble: UV launch Optics Hdwr	S	CON	SL_OE	Hrs	40		4,626		4,626	37%
1	02	03	27			IJ03270150	Assemble: UV Spatial filter Hdwr	S	CON	SL_OT	Hrs	40		2,534		2,534	37%
1	02	03	27			IJ03270150	Assemble: UV Spatial filter Hdwr	S	CON	SL_OE	Hrs	20		2,313		2,313	37%
1	02	03	27			IJ03270160	Assemble: UV Spatial profile shaper Hdwr	S	CON	SL_OT	Hrs	40		2,534		2,534	37%
1	02	03	27			IJ03270160	Assemble: UV Spatial profile shaper Hdwr	S	CON	SL_OE	Hrs	40		4,626		4,626	37%
1	02	03	27			IJ03270180	Assemble: UV Pulse energy control Hdwr	S	CON	SL_OT	Hrs	40		2,534		2,534	37%
1	02	03	27			IJ03270180	Assemble: UV Pulse energy control Hdwr	S	CON	SL_OE	Hrs	20		2,313		2,313	37%
1	02	03	27			IJ03270180	Assemble: UV Pulse energy control Hdwr	S	CON	SL_CE	Hrs	20		2,313		2,313	37%
1	**02**	**03**	**28**				**LB Infrastruc & LB System-Wide Items**					**945**	**108,000**	**80,088**	**117,720**	**197,808**	
1	02	03	28			IJ03280270	Develop Preliminary 3D Layout of Total Beam Path	S	PED	SL_MDD	Hrs	40		2,510		2,510	28%
1	02	03	28			IJ03280230	Define OAL Equipment Requirements	S	PED	SL_PHSS	Hrs	5		463		463	28%
1	02	03	28			IJ03280230	Define OAL Equipment Requirements	S	PED	SL_OE	Hrs	10		1,125		1,125	28%
1	02	03	28			IJ03280095	Drive Laser Bay Earthquake Safety Review plannin	S	PED	SL_PHSS	Hrs	40		3,707		3,707	28%
1	02	03	28			IJ03280095	Drive Laser Bay Earthquake Safety Review plannin	S	PED	SL_OE	Hrs	40		4,500		4,500	28%
1	02	03	28			IJ03280005	Define tunnel optical table specs	S	PED	SL_PHSS	Hrs	10		927		927	28%
1	02	03	28			IJ03280005	Define tunnel optical table specs	S	PED	SL_OE	Hrs	20		2,250		2,250	28%
1	02	03	28			IJ03280005	Define tunnel optical table specs	S	PED	SL_MDD	Hrs	10		627		627	28%
1	02	03	28			IJ03280000	Define Laser bay optical table specs	S	PED	SL_PHSS	Hrs	10		927		927	28%
1	02	03	28			IJ03280000	Define Laser bay optical table specs	S	PED	SL_OE	Hrs	20		2,250		2,250	28%
1	02	03	28			IJ03280000	Define Laser bay optical table specs	S	PED	SL_MDD	Hrs	10		627		627	28%
1	02	03	28			IJ03280235	Develop OAL Design	S	PED	SL_OE	Hrs	40		4,500		4,500	28%
1	02	03	28			IJ03280235	Develop OAL Design	S	PED	SL_MDD	Hrs	10		627		627	28%
1	02	03	28			IJ03280025	Develop tunnel optical tables, legs & encl Dsn	S	PED	SL_PHSS	Hrs	10		927		927	28%
1	02	03	28			IJ03280025	Develop tunnel optical tables, legs & encl Dsn	S	PED	SL_OE	Hrs	20		2,250		2,250	28%
1	02	03	28			IJ03280025	Develop tunnel optical tables, legs & encl Dsn	S	PED	SL_MDD	Hrs	40		2,510		2,510	28%
1	02	03	28			IJ03280015	Develop Laser bay optical tables, legs & encl Ds	S	PED	SL_PHSS	Hrs	10		927		927	28%
1	02	03	28			IJ03280015	Develop Laser bay optical tables, legs & encl Ds	S	PED	SL_OE	Hrs	20		2,250		2,250	28%
1	02	03	28			IJ03280015	Develop Laser bay optical tables, legs & encl Ds	S	PED	SL_MDD	Hrs	40		2,510		2,510	28%
1	02	03	28			IJ03280240	Procure OAL Equipment	S	CON	SL_MSEG	$$		30,000		32,700	32,700	28%
1	02	03	28			IJ03280085	Drive Laser Dsn Technical Review planning	S	CON	SL_PHSS	Hrs	40		3,707		3,707	28%
1	02	03	28			IJ03280085	Drive Laser Dsn Technical Review planning	S	CON	SL_OE	Hrs	40		4,500		4,500	28%
1	02	03	28			IJ03280087	Drive Laser Design Review	S	CON	SL_PHSS	Hrs	10		927		927	28%
1	02	03	28			IJ03280087	Drive Laser Design Review	S	CON	SL_OE	Hrs	10		1,125		1,125	28%
1	02	03	28			IJ03280089	Drive Laser Design Modifications	S	CON	SL_PHSS	Hrs	40		3,707		3,707	28%
1	02	03	28			IJ03280089	Drive Laser Design Modifications	S	CON	SL_OE	Hrs	40		4,500		4,500	28%
1	02	03	28			IJ03280210	Develop Integration of all the system design and	S	CON	SL_PHSS	Hrs	10		927		927	28%
1	02	03	28			IJ03280210	Develop Integration of all the system design and	S	CON	SL_OE	Hrs	40		4,500		4,500	28%
1	02	03	28			IJ03280210	Develop Integration of all the system design and	S	CON	SL_MDD	Hrs	100		6,274		6,274	28%
1	02	03	28			IJ03280255	Install OAL Equipment	S	CON	SL_SEL	Hrs	40		1,877		1,877	28%
1	02	03	28			IJ03280255	Install OAL Equipment	S	CON	SL_OT	Hrs	40		2,465		2,465	28%
1	02	03	28			IJ03280255	Install OAL Equipment	S	CON	SL_OE	Hrs	10		1,125		1,125	28%
1	02	03	28			IJ03280160	Procure tunnel optical tables, legs & Encl	S	CON	SL_MSEG	$$		26,000		28,340	28,340	28%
1	02	03	28			IJ03280150	Procure Laser bay optical tables, legs & Encl	S	CON	SL_MSEG	$$		52,000		56,680	56,680	28%
1	02	03	28			IJ03280180	Assemble tunnel optical tables, legs & Encl	S	CON	SL_SEL	Hrs	30		1,408		1,408	28%
1	02	03	28			IJ03280180	Assemble tunnel optical tables, legs & Encl	S	CON	SL_OE	Hrs	10		1,125		1,125	28%
1	02	03	28			IJ03280175	Assemble Laser bay optical tables, legs & Encl	S	CON	SL_SEL	Hrs	30		1,408		1,408	28%
1	02	03	28			IJ03280175	Assemble Laser bay optical tables, legs & Encl	S	CON	SL_OE	Hrs	10		1,125		1,125	28%
1	02	03	28			IJ03280195	Checkout & Integrate: tunnel optical tables, leg	S	CON	SL_OT	Hrs	15		924		924	28%
1	02	03	28			IJ03280195	Checkout & Integrate: tunnel optical tables, leg	S	CON	SL_OE	Hrs	5		563		563	28%
1	02	03	28			IJ03280190	Checkout & Integrate: Laser bay optical tables,	S	CON	SL_OT	Hrs	15		924		924	28%
1	02	03	28			IJ03280190	Checkout & Integrate: Laser bay optical tables,	S	CON	SL_OE	Hrs	5		563		563	28%
1	**02**	**03**	**29**				**Alignment Laser**					**230**	**20,000**	**20,838**	**22,130**	**42,968**	
1	02	03	29			IJ03290000	Define alignment Laser System requirements	S	CON	SL_PHSS	Hrs	10		927		927	23%
1	02	03	29			IJ03290000	Define alignment Laser System requirements	S	CON	SL_OE	Hrs	20		2,250		2,250	23%
1	02	03	29			IJ03290005	Develop alignment Laser System Engrg & Design	S	CON	SL_OE	Hrs	40		4,500		4,500	23%
1	02	03	29			IJ03290005	Develop alignment Laser System Engrg & Design	S	CON	SL_MDD	Hrs	60		3,764		3,764	23%
1	02	03	29			IJ03290040	Fab (In House) Alignmt Laser System parts	S	CON	SL_MFMS	Hrs	40		4,027		4,027	23%
1	02	03	29			IJ03290030	Procure alignment Laser System off-shelf parts	S	CON	SL_MSEG	$$		20,000		22,130	22,130	23%
1	02	03	29			IJ03290055	Assemble: alignment Laser system	S	CON	SL_OT	Hrs	20		1,267		1,267	23%
1	02	03	29			IJ03290055	Assemble: alignment Laser system	S	CON	SL_OE	Hrs	20		2,313		2,313	23%
1	02	03	29			IJ03290060	Test : alignment Laser system	S	CON	SL_OT	Hrs	10		633		633	23%
1	02	03	29			IJ03290060	Test : alignment Laser system	S	CON	SL_OE	Hrs	10		1,157		1,157	23%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	**02**	**03**	**30**				**Light Path to Streak Camera**					**635**	**33,500**	**61,032**	**37,520**	**98,552**	
1	02	03	30			IJ03300000	Define Light Path Sys Reqmts, Beam path & model	S	CON	SL_PHSS	Hrs	20		1,853		1,853	30%
1	02	03	30			IJ03300000	Define Light Path Sys Reqmts, Beam path & model	S	CON	SL_OE	Hrs	20		2,250		2,250	30%
1	02	03	30			IJ03300005	Develop Light Path System Engrg & Design	S	CON	SL_OE	Hrs	60		6,833		6,833	30%
1	02	03	30			IJ03300005	Develop Light Path System Engrg & Design	S	CON	SL_MDD	Hrs	80		5,080		5,080	30%
1	02	03	30			IJ03300085	Proc Light Path transport tube/enclosure/supts	S	CON	SL_MSEG	$$		8,000		8,960	8,960	30%
1	02	03	30			IJ03300040	Procure Light Path off shelf parts	S	CON	SL_MSEG	$$		19,000		21,280	21,280	30%
1	02	03	30			IJ03300060	Evaluate Vendor Proposals	S	CON	SL_PHSS	Hrs	5		476		476	30%
1	02	03	30			IJ03300060	Evaluate Vendor Proposals	S	CON	SL_OE	Hrs	10		1,157		1,157	30%
1	02	03	30			IJ03300070	Vendor Fab, Assy & Test	S	CON	SL_MSSC	$$		6,500		7,280	7,280	30%
1	02	03	30			IJ03300080	FAB: Light Path transport tube/enclosure/supts	S	CON	SL_MFMS	Hrs	300		30,960		30,960	30%
1	02	03	30			IJ03300125	Assemble: Light Path System	S	CON	SL_OT	Hrs	40		2,534		2,534	30%
1	02	03	30			IJ03300125	Assemble: Light Path System	S	CON	SL_OE	Hrs	40		4,626		4,626	30%
1	02	03	30			IJ03300125	Assemble: Light Path System	S	CON	SL_MFAT	Hrs	20		1,683		1,683	30%
1	02	03	30			IJ03300140	Test: Light Path system	S	CON	SL_OT	Hrs	20		1,267		1,267	30%
1	02	03	30			IJ03300140	Test: Light Path system	S	CON	SL_OE	Hrs	20		2,313		2,313	30%
1	**02**	**04**					**RF Gun, Load Lock & Supports**					**4,243**	**384,000**	**322,981**	**427,200**	**750,181**	
1	**02**	**04**	**01**				**RF Gun (Copper Brazement Only)**					**236**	**158,000**	**19,400**	**172,220**	**191,620**	
1	02	04	01			IJ04010020	Design RF Gun - Preliminary	S	PED	SL_MDD	Hrs	116		7,073		7,073	30%
1	02	04	01			IJ04010030	Prep Bid Pak - RF Gun Design & Build	S	PED	SL_ME	Hrs	80		8,218		8,218	30%
1	02	04	01			IJ04010050	Evaluate Proposals - RF Gun Design & Build	S	PED	SL_ME	Hrs	40		4,109		4,109	30%
1	02	04	01			IJ04010060	Vendor RF Gun Production Design and Build	S	CON	SL_MSSC	$$		158,000		172,220	172,220	30%
1	**02**	**04**	**02**				**RF Gun Supports**					**94**	**6,000**	**6,316**	**6,540**	**12,856**	
1	02	04	02			IJ04020000	Define RF Gun Support Requirements	S	PED	SL_ME	Hrs	4		411		411	30%
1	02	04	02			IJ04020100	Design RF Gun Support	S	PED	SL_ME	Hrs	10		1,027		1,027	30%
1	02	04	02			IJ04020100	Design RF Gun Support	S	PED	SL_MDD	Hrs	80		4,878		4,878	30%
1	02	04	02			IJ04020107	Procure RF Gun Support	S	CON	SL_MSEG	$$		6,000		6,540	6,540	30%
1	**02**	**04**	**03**				**Gun Load Lock**					**2,996**	**135,000**	**229,626**	**155,250**	**384,876**	
1	02	04	03			IJ04030010	Define Load Lock Cathode Transfer Reqmts	S	CON	SL_PHS	Hrs	20		1,456		1,456	30%
1	02	04	03			IJ04030010	Define Load Lock Cathode Transfer Reqmts	S	CON	SL_ME	Hrs	40		4,228		4,228	30%
1	02	04	03			IJ04030010	Define Load Lock Cathode Transfer Reqmts	S	CON	SL_MDD	Hrs	80		5,019		5,019	30%
1	02	04	03			IJ04030005	Define Load Lock Cathode Clamping Reqmts	S	CON	SL_PHS	Hrs	10		728		728	30%
1	02	04	03			IJ04030005	Define Load Lock Cathode Clamping Reqmts	S	CON	SL_ME	Hrs	20		2,114		2,114	30%
1	02	04	03			IJ04030005	Define Load Lock Cathode Clamping Reqmts	S	CON	SL_MDD	Hrs	40		2,510		2,510	30%
1	02	04	03			IJ04030020	Design Cathode Clamping	S	CON	SL_PHS	Hrs	20		1,456		1,456	30%
1	02	04	03			IJ04030020	Design Cathode Clamping	S	CON	SL_ME	Hrs	40		4,228		4,228	30%
1	02	04	03			IJ04030020	Design Cathode Clamping	S	CON	SL_MDD	Hrs	80		5,019		5,019	30%
1	02	04	03			IJ04030025	Prototype - Cathode Clamping	S	CON	SL_MFMS	Hrs	160		16,062		16,062	30%
1	02	04	03			IJ04030025	Prototype - Cathode Clamping	S	CON	SL_ME	Hrs	10		1,057		1,057	30%
1	02	04	03			IJ04030025	Prototype - Cathode Clamping	S	CON	SL_MDD	Hrs	20		1,255		1,255	30%
1	02	04	03			IJ04030030	Evaluate - Cathode Clamping prototype	S	CON	SL_PHS	Hrs	6		437		437	30%
1	02	04	03			IJ04030030	Evaluate - Cathode Clamping prototype	S	CON	SL_ME	Hrs	16		1,691		1,691	30%
1	02	04	03			IJ04030030	Evaluate - Cathode Clamping prototype	S	CON	SL_MDD	Hrs	24		1,506		1,506	30%
1	02	04	03			IJ04030035	Design Cathode Transfer	S	CON	SL_PHS	Hrs	30		2,184		2,184	30%
1	02	04	03			IJ04030035	Design Cathode Transfer	S	CON	SL_ME	Hrs	80		8,457		8,457	30%
1	02	04	03			IJ04030035	Design Cathode Transfer	S	CON	SL_MDD	Hrs	250		15,685		15,685	30%
1	02	04	03			IJ04030040	Design Cathode Tuner	S	CON	SL_PHS	Hrs	30		2,220		2,220	30%
1	02	04	03			IJ04030040	Design Cathode Tuner	S	CON	SL_ME	Hrs	60		6,446		6,446	30%
1	02	04	03			IJ04030040	Design Cathode Tuner	S	CON	SL_MDD	Hrs	250		15,940		15,940	30%
1	02	04	03			IJ04030050	Design Load Lock	S	CON	SL_PHS	Hrs	20		1,497		1,497	30%
1	02	04	03			IJ04030050	Design Load Lock	S	CON	SL_ME	Hrs	200		21,734		21,734	30%
1	02	04	03			IJ04030050	Design Load Lock	S	CON	SL_MDD	Hrs	750		48,368		48,368	30%
1	02	04	03			IJ04030045	Design Load Lock Transporter	S	CON	SL_PHS	Hrs	20		1,512		1,512	30%
1	02	04	03			IJ04030045	Design Load Lock Transporter	S	CON	SL_ME	Hrs	160		17,560		17,560	30%
1	02	04	03			IJ04030045	Design Load Lock Transporter	S	CON	SL_MDD	Hrs	500		32,567		32,567	30%
1	02	04	03			IJ04030060	Prep Bid Pak - Load Lock Cathode	S	CON	SL_ME	Hrs	40		4,460		4,460	30%
1	02	04	03			IJ04030085	Evaluate Proposals - Load Lock Cathode	S	CON	SL_ME	Hrs	20		2,230		2,230	30%
1	02	04	03			IJ04030095	Vendor Fab Load Lock Cathode	S	CON	SL_MSSC	$$		135,000		155,250	155,250	30%
1	**02**	**04**	**04**				**Gun Load Lock Supports**					**102**	**9,000**	**7,678**	**10,350**	**18,028**	
1	02	04	04			IJ04040100	Define Load Lock Support Requirements	S	CON	SL_PHS	Hrs	2		154		154	30%
1	02	04	04			IJ04040100	Define Load Lock Support Requirements	S	CON	SL_ME	Hrs	4		446		446	30%
1	02	04	04			IJ04040110	Design Load Lock Support	S	CON	SL_ME	Hrs	10		1,115		1,115	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	04	04			IJ04040110	Design Load Lock Support	S	CON	SL_MDD	Hrs	80		5,294		5,294	30%
1	02	04	04			IJ04040120	Prep Bid Pak - Load Lock Support	S	CON	SL_ME	Hrs	4		446		446	30%
1	02	04	04			IJ04040140	Evaluate Proposals - Load Lock Support	S	CON	SL_ME	Hrs	2		223		223	30%
1	02	04	04			IJ04040150	Vendor Fab Load Lock Support	S	CON	SL_MSSC	$$		9,000		10,350	10,350	30%
1	**02**	**04**	**05**				**Gun Solenoid**					**359**	**20,000**	**26,174**	**21,800**	**47,974**	
1	02	04	05			IJ04050100	Define Solenoid & Skew Quad Requirements	S	PED	SL_PHS	Hrs	4		283		283	30%
1	02	04	05			IJ04050104	Design Solenoid Core	S	PED	SL_ME	Hrs	10		1,027		1,027	30%
1	02	04	05			IJ04050104	Design Solenoid Core	S	PED	SL_MDD	Hrs	40		2,439		2,439	30%
1	02	04	05			IJ04050106	Design Solenoid Coil	S	PED	SL_ME	Hrs	5		514		514	30%
1	02	04	05			IJ04050106	Design Solenoid Coil	S	PED	SL_MDD	Hrs	20		1,219		1,219	30%
1	02	04	05			IJ04050107	Design Skew Quad Coil	S	PED	SL_ME	Hrs	10		1,027		1,027	30%
1	02	04	05			IJ04050107	Design Skew Quad Coil	S	PED	SL_MDD	Hrs	80		4,878		4,878	30%
1	02	04	05			IJ04050108	Design Solenoid Electrical Connections	S	PED	SL_ME	Hrs	2		205		205	30%
1	02	04	05			IJ04050108	Design Solenoid Electrical Connections	S	PED	SL_MDD	Hrs	10		610		610	30%
1	02	04	05			IJ04050110	Design Solenoid Cooling Manifold	S	PED	SL_ME	Hrs	2		205		205	30%
1	02	04	05			IJ04050110	Design Solenoid Cooling Manifold	S	PED	SL_MDD	Hrs	10		610		610	30%
1	02	04	05			IJ04050112	Design Solenoid Assembly	S	PED	SL_ME	Hrs	20		2,105		2,105	30%
1	02	04	05			IJ04050112	Design Solenoid Assembly	S	PED	SL_MDD	Hrs	80		4,998		4,998	30%
1	02	04	05			IJ04050115	Prep Bid Pak - Solenoid Magnet Assembly	S	CON	SL_ME	Hrs	4		423		423	30%
1	02	04	05			IJ04050135	Evaluate Proposals - Solenoid Magnet Assembly	S	CON	SL_ME	Hrs	2		211		211	30%
1	02	04	05			IJ04050145	Vendor Fab Solenoid Magnet Assembly	S	CON	SL_MSSC	$$		20,000		21,800	21,800	30%
1	02	04	05			IJ04050160	Perform Lab Tests on Sol Magnet Assembly	S	CON	SL_MES	Hrs	60		5,420		5,420	30%
1	**02**	**04**	**06**				**Gun Solenoid Supports**					**26**	**9,000**	**1,835**	**9,810**	**11,645**	
1	02	04	06			IJ04060020	Design Solenoid Supports	S	PED	SL_ME	Hrs	3		308		308	30%
1	02	04	06			IJ04060020	Design Solenoid Supports	S	PED	SL_MDD	Hrs	20		1,219		1,219	30%
1	02	04	06			IJ04060035	Prep Bid Pak - Solenoid Supports	S	PED	SL_ME	Hrs	2		205		205	30%
1	02	04	06			IJ04060055	Evaluate Proposals - Solenoid Supports	S	PED	SL_ME	Hrs	1		103		103	30%
1	02	04	06			IJ04060065	Vendor Fab Solenoid Supports	S	CON	SL_MSSC	$$		9,000		9,810	9,810	30%
1	**02**	**04**	**07**				**Gun RF Feed**					**270**	**43,000**	**21,914**	**46,870**	**68,784**	
1	02	04	07			IJ04070010	Design Gun RF Feed	S	PED	SL_PHSS	Hrs	4		360		360	60%
1	02	04	07			IJ04070010	Design Gun RF Feed	S	PED	SL_ME	Hrs	8		822		822	60%
1	02	04	07			IJ04070010	Design Gun RF Feed	S	PED	SL_MDD	Hrs	80		4,878		4,878	60%
1	02	04	07			IJ04070026	Prep Bid Pak - Isolator	S	PED	SL_ME	Hrs	6		629		629	60%
1	02	04	07			IJ04070035	Procure Splitter Material	S	CON	SL_MSEG	$$		5,000		5,450	5,450	60%
1	02	04	07			IJ04070031	Eval Vendor Prop- Isolator	S	CON	SL_ME	Hrs	2		211		211	60%
1	02	04	07			IJ04070030	Vendor Fab & Assy - 1 Isolator	S	CON	SL_MSEG	$$		38,000		41,420	41,420	60%
1	02	04	07			IJ04070045	Fab & Assemble Splitter Assembly	S	CON	SL_MFMS	Hrs	50		5,020		5,020	60%
1	02	04	07			IJ04070045	Fab & Assemble Splitter Assembly	S	CON	SL_MFAT	Hrs	100		8,187		8,187	60%
1	02	04	07			IJ04070055	Perform Lab Tests on Gun RF Feed Assembly	S	CON	SL_MES	Hrs	20		1,807		1,807	60%
1	**02**	**04**	**08**				**Gun RF Feed Supports**					**160**	**4,000**	**10,038**	**4,360**	**14,398**	
1	02	04	08			IJ04080010	Design Gun RF Feed Supports	S	CON	SL_MDD	Hrs	160		10,038		10,038	60%
1	02	04	08			IJ04080017	Procure Gun RF Feed Supports Materials	S	CON	SL_MSEG	$$		4,000		4,360	4,360	60%
1	**02**	**05**					**Gun to Linac Section (GTL)**					**5,089**	**270,100**	**404,282**	**294,435**	**698,717**	
1	**02**	**05**	**01**				**GTL BPMs (3ea)**					**265**	**29,000**	**22,263**	**31,610**	**53,873**	
1	02	05	01			IJ05010000	Define BPM (3ea) Requirements	S	PED	SL_PHSS	Hrs	4		360		360	60%
1	02	05	01			IJ05010000	Define BPM (3ea) Requirements	S	PED	SL_ME	Hrs	4		411		411	60%
1	02	05	01			IJ05010010	Design BPM (3ea)	S	PED	SL_ME	Hrs	20		2,055		2,055	60%
1	02	05	01			IJ05010010	Design BPM (3ea)	S	PED	SL_MDD	Hrs	40		2,439		2,439	60%
1	02	05	01			IJ05010100	Define BPM (3ea) Support Requirements	S	PED	SL_PHSS	Hrs	2		180		180	60%
1	02	05	01			IJ05010100	Define BPM (3ea) Support Requirements	S	PED	SL_ME	Hrs	2		205		205	60%
1	02	05	01			IJ05010016	Prep Bid Pak - BPM (3ea)	S	PED	SL_ME	Hrs	8		822		822	60%
1	02	05	01			IJ05010110	Design BPM (3ea) Supports	S	PED	SL_ME	Hrs	10		1,027		1,027	60%
1	02	05	01			IJ05010110	Design BPM (3ea) Supports	S	PED	SL_MDD	Hrs	30		1,829		1,829	60%
1	02	05	01			IJ05010120	Prep Bid Pak - BPM (3ea) Supports	S	PED	SL_ME	Hrs	2		205		205	60%
1	02	05	01			IJ05010021	Evaluate Proposals -BPM (3ea)	S	PED	SL_ME	Hrs	2		205		205	60%
1	02	05	01			IJ05010140	Evaluate Proposals -BPM (3ea) Supports	S	PED	SL_ME	Hrs	1		103		103	60%
1	02	05	01			IJ05010150	Vendor Fab BPM (3ea) Supports	S	CON	SL_MSSC	$$		4,000		4,360	4,360	60%
1	02	05	01			IJ05010023	Vendor Fab BPM (3ea)	S	CON	SL_MSSC	$$		25,000		27,250	27,250	60%
1	02	05	01			IJ05010035	Perform Lab Tests on BPM (3ea) Assembly	S	CON	SL_MES	Hrs	40		3,614		3,614	60%
1	02	05	01			IJ05010035	Perform Lab Tests on BPM (3ea) Assembly	S	CON	SL_CT	Hrs	40		2,465		2,465	60%
1	02	05	01			IJ05010037	Vacuum Process BPM (3ea)	S	CON	SL_MVE	Hrs	60		6,343		6,343	60%
1	**02**	**05**	**02**				**GTL Faraday Cup/YAG1**					**305**	**18,900**	**23,491**	**20,601**	**44,092**	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	05	02			IJ05020100	Define FC/YAG1 Requirements (1ea)	S	PED	SL_PHS	Hrs	10		708		708	60%
1	02	05	02			IJ05020100	Define FC/YAG1 Requirements (1ea)	S	PED	SL_ME	Hrs	10		1,027		1,027	60%
1	02	05	02			IJ05020225	Define FC/YAG1 Support Rqmts (1ea)	S	PED	SL_PHS	Hrs	8		566		566	60%
1	02	05	02			IJ05020225	Define FC/YAG1 Support Rqmts (1ea)	S	PED	SL_ME	Hrs	8		822		822	60%
1	02	05	02			IJ05020125	Design FC/YAG1 (1ea)	S	PED	SL_PHS	Hrs	8		566		566	60%
1	02	05	02			IJ05020125	Design FC/YAG1 (1ea)	S	PED	SL_ME	Hrs	20		2,055		2,055	60%
1	02	05	02			IJ05020125	Design FC/YAG1 (1ea)	S	PED	SL_MDD	Hrs	88		5,365		5,365	60%
1	02	05	02			IJ05020240	Design FC/YAG1 Supports (1ea)	S	PED	SL_ME	Hrs	8		822		822	60%
1	02	05	02			IJ05020240	Design FC/YAG1 Supports (1ea)	S	PED	SL_MDD	Hrs	52		3,170		3,170	60%
1	02	05	02			IJ05020141	Prep Bid Pak - FC/YAG1	S	PED	SL_ME	Hrs	10		1,027		1,027	60%
1	02	05	02			IJ05020145	Evaluate Proposals -FC/YAG1	S	PED	SL_ME	Hrs	5		514		514	60%
1	02	05	02			IJ05020255	Prep Bid Pak - FC/YAG1 Supports	S	PED	SL_ME	Hrs	5		514		514	60%
1	02	05	02			IJ05020280	Evaluate Proposals - FC/YAG1 Supports	S	PED	SL_ME	Hrs	3		308		308	60%
1	02	05	02			IJ05020290	Vendor Fab FC/YAG1 Supports	S	CON	SL_MSSC	$$		2,400		2,616	2,616	60%
1	02	05	02			IJ05020147	Vendor Fab FC/YAG1	S	CON	SL_MSSC	$$		16,500		17,985	17,985	60%
1	02	05	02			IJ05020195	Perform Lab Tests on FC/YAG1 Assy (1ea)	S	CON	SL_MFAT	Hrs	35		2,865		2,865	60%
1	02	05	02			IJ05020195	Perform Lab Tests on FC/YAG1 Assy (1ea)	S	CON	SL_MES	Hrs	35		3,162		3,162	60%
1	**02**	**05**	**03**				**GTL Current Monitors (CM1)**					**126**	**17,800**	**11,358**	**19,402**	**30,760**	
1	02	05	03			IJ05030055	Design Current Monitor (CM1) Supports	S	CON	SL_ME	Hrs	2		211		211	50%
1	02	05	03			IJ05030055	Design Current Monitor (CM1) Supports	S	CON	SL_MDD	Hrs	10		627		627	50%
1	02	05	03			IJ05030010	Design Current Monitor (CM1)	S	CON	SL_PHS	Hrs	1		73		73	50%
1	02	05	03			IJ05030010	Design Current Monitor (CM1)	S	CON	SL_ME	Hrs	4		423		423	50%
1	02	05	03			IJ05030010	Design Current Monitor (CM1)	S	CON	SL_MDD	Hrs	2		125		125	50%
1	02	05	03			IJ05030065	Prep Bid Pak - Current Monitor (CM1) Supports	S	CON	SL_ME	Hrs	2		211		211	50%
1	02	05	03			IJ05030020	Procure Current Monitor (CM1)	S	CON	SL_MSEG	$$		16,000		17,440	17,440	50%
1	02	05	03			IJ05030085	Evaluate Proposals -Current Monitor (CM Supports	S	CON	SL_ME	Hrs	1		106		106	50%
1	02	05	03			IJ05030095	Vendor Fab Current Monitor (CM1) Supports	S	CON	SL_MSSC	$$		1,800		1,962	1,962	50%
1	02	05	03			IJ05030030	Assemble Current Monitor (CM1) Assembly	S	CON	SL_MFAT	Hrs	4		327		327	50%
1	02	05	03			IJ05030035	Perform Lab Tests on Current Monitor (CM1) Assy	S	CON	SL_PHS	Hrs	40		2,912		2,912	50%
1	02	05	03			IJ05030037	Vacuum Process CM1	S	CON	SL_MVE	Hrs	60		6,343		6,343	50%
1	**02**	**05**	**04**				**Reserved**										
1	**02**	**05**	**05**				**Reserved**										
1	**02**	**05**	**06**				**GTL Steering Coils, (2) (SC1)**					**481**	**3,500**	**37,713**	**3,725**	**41,438**	
1	02	05	06			IJ05060000	Define Steering Coils, (1ea) (SC1) Requirements	S	PED	SL_PHS	Hrs	8		566		566	50%
1	02	05	06			IJ05060000	Define Steering Coils, (1ea) (SC1) Requirements	S	PED	SL_ME	Hrs	2		205		205	50%
1	02	05	06			IJ05060010	Design Coils (SC1)	S	PED	SL_ME	Hrs	2		205		205	50%
1	02	05	06			IJ05060010	Design Coils (SC1)	S	PED	SL_MDD	Hrs	12		732		732	50%
1	02	05	06			IJ05060015	Design Electrical Connections (SC1)	S	PED	SL_ME	Hrs	1		103		103	50%
1	02	05	06			IJ05060015	Design Electrical Connections (SC1)	S	PED	SL_MDD	Hrs	4		244		244	50%
1	02	05	06			IJ05060020	Design Assembly (SC1)	S	PED	SL_ME	Hrs	5		514		514	50%
1	02	05	06			IJ05060020	Design Assembly (SC1)	S	PED	SL_MDD	Hrs	20		1,219		1,219	50%
1	02	05	06			IJ05060055	Define Steering Coils, (1ea) (SC1) Support Rqmts	S	PED	SL_PHS	Hrs	1		71		71	50%
1	02	05	06			IJ05060055	Define Steering Coils, (1ea) (SC1) Support Rqmts	S	PED	SL_ME	Hrs	2		205		205	50%
1	02	05	06			IJ05060026	Procure Steering Coils, (1ea) (SC1)	S	PED	SL_MSEG	$$		3,000		3,180	3,180	50%
1	02	05	06			IJ05060065	Design Steering Coils, (1ea) (SC1) Supports	S	PED	SL_ME	Hrs	8		822		822	50%
1	02	05	06			IJ05060065	Design Steering Coils, (1ea) (SC1) Supports	S	PED	SL_MDD	Hrs	32		1,951		1,951	50%
1	02	05	06			IJ05060045	Perf Magnetic Meas Steering Coils, (1ea)	S	PED	SL_EE	Hrs	4		437		437	50%
1	02	05	06			IJ17160005	Install Barrier Wall	S	PED	SL_TMUC	Hrs	16		1,163		1,163	35%
1	02	05	06			IJ17160050	Install Ion chamber/BSOIC electronics	S	PED	SL_CT	Hrs	8		479		479	35%
1	02	05	06			IJ17160045	Install gas	S	PED	SL_SEPM	Hrs	16		972		972	35%
1	02	05	06			IJ17160040	Install Ion chamber/BSOIC cable plant	S	PED	SL_PCEF	Hrs	8		479		479	35%
1	02	05	06			IJ17160030	Install drift tube	S	PED	SL_MFAT	Hrs	24		1,909		1,909	35%
1	02	05	06			IJ17160025	Install stopper	S	PED	SL_MFAT	Hrs	24		1,909		1,909	35%
1	02	05	06			IJ17160020	Remove instrument section	S	PED	SL_MFAT	Hrs	72		5,728		5,728	35%
1	02	05	06			IJ17160015	Vent sectors 20/21	S	PED	SL_MFAT	Hrs	24		1,909		1,909	35%
1	02	05	06			IJ17160032	Network Area	S	PED	SL_MES	Hrs	72		6,321		6,321	35%
1	02	05	06			IJ17160055	Test electronics	S	PED	SL_CE	Hrs	8		875		875	35%
1	02	05	06			IJ17160035	Pumpdown and leak check	S	PED	SL_MFAT	Hrs	48		3,819		3,819	35%
1	02	05	06			IJ17160060	Certify BCS	S	PED	SL_PHS	Hrs	16		1,132		1,132	35%
1	02	05	06			IJ17160037	Align Drift Tubes	S	PED	SL_MES	Hrs	24		2,107		2,107	35%
1	02	05	06			IJ05060075	Procure Steering Coils, (1ea) (SC1) Support Mtrl	S	CON	SL_MSEG	$$		500		545	545	50%
1	02	05	06			IJ05060085	Fab & Assemble Steering Coils,(1ea)(SC1) Supt A	S	CON	SL_MFAT	Hrs	20		1,637		1,637	50%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	**02**	**05**	**07**				**GTL Vacuum Components**					**494**	**40,500**	**40,103**	**44,145**	**84,248**	
1	02	05	07			IJ05070140	Define Special Beam Pump/Spool Supt Rqmts	S	CON	SL_PHS	Hrs	4		291		291	60%
1	02	05	07			IJ05070140	Define Special Beam Pump/Spool Supt Rqmts	S	CON	SL_ME	Hrs	8		846		846	60%
1	02	05	07			IJ05070000	Define Special RF Valve Requirements	S	CON	SL_PHS	Hrs	24		1,747		1,747	60%
1	02	05	07			IJ05070000	Define Special RF Valve Requirements	S	CON	SL_ME	Hrs	24		2,537		2,537	60%
1	02	05	07			IJ05070010	Design Special RF Valve/Spool/Pumping	S	CON	SL_PHS	Hrs	24		1,747		1,747	60%
1	02	05	07			IJ05070010	Design Special RF Valve/Spool/Pumping	S	CON	SL_ME	Hrs	40		4,228		4,228	60%
1	02	05	07			IJ05070010	Design Special RF Valve/Spool/Pumping	S	CON	SL_MDD	Hrs	120		7,529		7,529	60%
1	02	05	07			IJ05070045	Define Special RF Valve Support Requirements	S	CON	SL_PHS	Hrs	2		146		146	60%
1	02	05	07			IJ05070045	Define Special RF Valve Support Requirements	S	CON	SL_ME	Hrs	4		423		423	60%
1	02	05	07			IJ05070022	Procure Pumps/Gauges	S	CON	SL_MSEG	$$		15,000		16,350	16,350	60%
1	02	05	07			IJ05070020	Procure Special RF Valve/Spool	S	CON	SL_MSEG	$$		23,000		25,070	25,070	60%
1	02	05	07			IJ05070060	Design Special RF Valve Supports	S	CON	SL_ME	Hrs	8		846		846	60%
1	02	05	07			IJ05070060	Design Special RF Valve Supports	S	CON	SL_MDD	Hrs	40		2,510		2,510	60%
1	02	05	07			IJ05070146	Design Special Beam Pump/Spool Supports	S	CON	SL_ME	Hrs	24		2,537		2,537	60%
1	02	05	07			IJ05070146	Design Special Beam Pump/Spool Supports	S	CON	SL_MDD	Hrs	40		2,510		2,510	60%
1	02	05	07			IJ05070075	Procure Special RF Valve Support Materials	S	CON	SL_MSEG	$$		500		545	545	60%
1	02	05	07			IJ05070152	Procure Special Beam Pump/Spool Supt Materials	S	CON	SL_MSEG	$$		2,000		2,180	2,180	60%
1	02	05	07			IJ05070085	Fab & Assemble Special RF Valve Support Assembly	S	CON	SL_MFAT	Hrs	20		1,637		1,637	60%
1	02	05	07			IJ05070156	Fab & Assy Special Beam Pump/Spool Supts Assy	S	CON	SL_MFAT	Hrs	20		1,637		1,637	60%
1	02	05	07			IJ05070030	Assemble Special RF Valve/Spool Assembly	S	CON	SL_MFAT	Hrs	24		1,965		1,965	60%
1	02	05	07			IJ05070032	Vacuum Process Valve/Spool Assembly	S	CON	SL_MVE	Hrs	60		6,368		6,368	60%
1	02	05	07			IJ05070035	Lab Tests on Special RF Valve Assembly	S	CON	SL_PHS	Hrs	8		599		599	60%
1	**02**	**05**	**08**				**GTL Supports**					**180**	**7,000**	**13,148**	**7,630**	**20,778**	
1	02	05	08			IJ05080000	Define GTL Supports Requirements	S	PED	SL_ME	Hrs	2		205		205	60%
1	02	05	08			IJ05080000	Define GTL Supports Requirements	S	PED	SL_MDD	Hrs	8		488		488	60%
1	02	05	08			IJ05080010	Design GTL Supports	S	PED	SL_ME	Hrs	10		1,027		1,027	60%
1	02	05	08			IJ05080010	Design GTL Supports	S	PED	SL_MDD	Hrs	80		4,878		4,878	60%
1	02	05	08			IJ05080025	Procure GTL Supports	S	CON	SL_MSEG	$$		7,000		7,630	7,630	60%
1	02	05	08			IJ05080035	Assemble GTL Supports Assembly	S	CON	SL_MFAT	Hrs	80		6,550		6,550	60%
1	**02**	**05**	**09**				**Gun Spectrometer (GS) Assembly**					**2,515**	**123,300**	**196,466**	**134,497**	**330,963**	
1	**02**	**05**	**09**	**01**			**GS Dipole**					**1,433**	**34,000**	**112,881**	**37,160**	**150,041**	
1	02	05	09	01		IJ05090550	Define GS Dipole Chamber Requirements	S	PED	SL_PHS	Hrs	40		2,912		2,912	60%
1	02	05	09	01		IJ05090140	Define GS Dipole Support Requirements	S	CON	SL_ME	Hrs	2		211		211	60%
1	02	05	09	01		IJ05090140	Define GS Dipole Support Requirements	S	CON	SL_MDD	Hrs	8		502		502	60%
1	02	05	09	01		IJ05090100	Define GS Dipole Requirements	S	PED	SL_PHS	Hrs	4		291		291	60%
1	02	05	09	01		IJ05090100	Define GS Dipole Requirements	S	PED	SL_ME	Hrs	4		423		423	60%
1	02	05	09	01		IJ05090146	Design GS Dipole Supports	S	CON	SL_ME	Hrs	10		1,057		1,057	60%
1	02	05	09	01		IJ05090146	Design GS Dipole Supports	S	CON	SL_MDD	Hrs	80		5,019		5,019	60%
1	02	05	09	01		IJ05090104	Perform Magnetic Analysis GS Dipole	S	PED	SL_ME	Hrs	40		4,228		4,228	60%
1	02	05	09	01		IJ05090151	Prep Bid Pak - GS Dipole Support	S	CON	SL_ME	Hrs	4		423		423	60%
1	02	05	09	01		IJ05090106	Design GS Dipole Core	S	CON	SL_ME	Hrs	50		5,286		5,286	60%
1	02	05	09	01		IJ05090106	Design GS Dipole Core	S	CON	SL_MDD	Hrs	160		10,038		10,038	60%
1	02	05	09	01		IJ05090158	Evaluate Proposals -GS Dipole Support	S	CON	SL_ME	Hrs	1		106		106	60%
1	02	05	09	01		IJ05090553	Design GS Dipole Chamber Mover	S	PED	SL_ME	Hrs	40		4,228		4,228	60%
1	02	05	09	01		IJ05090552	Design GS Dipole Chamber	S	CON	SL_ME	Hrs	80		8,457		8,457	60%
1	02	05	09	01		IJ05090552	Design GS Dipole Chamber	S	CON	SL_MDD	Hrs	160		10,038		10,038	60%
1	02	05	09	01		IJ05090161	Vendor Fab GS Dipole Support	S	CON	SL_MSSC	$$		11,000		11,990	11,990	60%
1	02	05	09	01		IJ05090554	Design GS Dipole Chamber Assembly & Mover	S	CON	SL_ME	Hrs	20		2,114		2,114	60%
1	02	05	09	01		IJ05090554	Design GS Dipole Chamber Assembly & Mover	S	CON	SL_MDD	Hrs	100		6,274		6,274	60%
1	02	05	09	01		IJ05090110	Design GS Dipole Coils	S	CON	SL_ME	Hrs	20		2,114		2,114	60%
1	02	05	09	01		IJ05090110	Design GS Dipole Coils	S	CON	SL_MDD	Hrs	80		5,019		5,019	60%
1	02	05	09	01		IJ05090556	Map GS Dipole Chamber Assembly	S	CON	SL_CT	Hrs	40		2,465		2,465	60%
1	02	05	09	01		IJ05090114	Design GS Dipole Electrical Connections	S	CON	SL_ME	Hrs	5		529		529	60%
1	02	05	09	01		IJ05090114	Design GS Dipole Electrical Connections	S	CON	SL_MDD	Hrs	40		2,510		2,510	60%
1	02	05	09	01		IJ05090557	Vacuum Process GS Dipole Chamber Assembly	S	CON	SL_MVE	Hrs	60		6,343		6,343	60%
1	02	05	09	01		IJ05090118	Design GS Dipole Cooling Manifold	S	CON	SL_ME	Hrs	5		529		529	60%
1	02	05	09	01		IJ05090118	Design GS Dipole Cooling Manifold	S	CON	SL_MDD	Hrs	40		2,510		2,510	60%
1	02	05	09	01		IJ05090559	Combine GS Dipole Assembly & Chamber & Mover	S	CON	SL_MFAT	Hrs	10		819		819	60%
1	02	05	09	01		IJ05090122	Design GS Dipole Assembly	S	CON	SL_ME	Hrs	150		15,857		15,857	60%
1	02	05	09	01		IJ05090122	Design GS Dipole Assembly	S	CON	SL_MDD	Hrs	130		8,156		8,156	60%
1	02	05	09	01		IJ05090127	Prep Bid Pak - GS Dipole Assembly	S	CON	SL_ME	Hrs	8		846		846	60%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	05	09	01		IJ05090131	Evaluate Proposals -GS Dipole Assembly	S	CON	SL_ME	Hrs	2		211		211	60%
1	02	05	09	01		IJ05090133	Vendor Fab GS Dipole Assembly	S	CON	SL_MSSC	$$		23,000		25,170	25,170	60%
1	02	05	09	01		IJ05090136	Perform Lab Tests on GS Dipole Assembly	S	CON	SL_MFAT	Hrs	40		3,366		3,366	60%
1	**02**	**05**	**09**	**02**			**GS Current Monitor (CM2)**					**161**	**17,500**	**13,791**	**19,075**	**32,866**	
1	02	05	09	02		IJ05090255	Design Current Monitor (CM2) Supports	S	CON	SL_ME	Hrs	8		846		846	50%
1	02	05	09	02		IJ05090255	Design Current Monitor (CM2) Supports	S	CON	SL_MDD	Hrs	40		2,510		2,510	50%
1	02	05	09	02		IJ05090210	Design Current Monitor (CM2)	S	CON	SL_PHSS	Hrs	1		93		93	50%
1	02	05	09	02		IJ05090210	Design Current Monitor (CM2)	S	CON	SL_ME	Hrs	4		423		423	50%
1	02	05	09	02		IJ05090210	Design Current Monitor (CM2)	S	CON	SL_MDD	Hrs	2		125		125	50%
1	02	05	09	02		IJ05090220	Procure Current Monitor (CM2)	S	CON	SL_MSEG	$$		16,000		17,440	17,440	50%
1	02	05	09	02		IJ05090261	Prep Bid Pak - Current Monitor (CM2) Support	S	CON	SL_ME	Hrs	1		106		106	50%
1	02	05	09	02		IJ05090266	Evaluate Proposals -Current Monitor (CM2) Suppor	S	CON	SL_ME	Hrs	1		106		106	50%
1	02	05	09	02		IJ05090268	Vendor Fab Current Monitor (CM2) Support	S	CON	SL_MSSC	$$		1,500		1,635	1,635	50%
1	02	05	09	02		IJ05090230	Assemble Current Monitor (CM2) Assembly	S	CON	SL_MFAT	Hrs	4		327		327	50%
1	02	05	09	02		IJ05090235	Perform Lab Tests on Current Monitor (CM2) Assem	S	CON	SL_PHS	Hrs	40		2,912		2,912	50%
1	02	05	09	02		IJ05090237	Vacuum Process CM2	S	CON	SL_MVE	Hrs	60		6,343		6,343	50%
1	**02**	**05**	**09**	**03**			**GS BPM (1)**					**187**	**9,500**	**14,461**	**10,355**	**24,816**	
1	02	05	09	03		IJ05090300	Define GS BPM (1ea) Requirements	S	PED	SL_PHSS	Hrs	8		720		720	50%
1	02	05	09	03		IJ05090300	Define GS BPM (1ea) Requirements	S	PED	SL_ME	Hrs	4		411		411	50%
1	02	05	09	03		IJ05090310	Design GS BPM (1ea)	S	PED	SL_ME	Hrs	4		411		411	50%
1	02	05	09	03		IJ05090310	Design GS BPM (1ea)	S	PED	SL_MDD	Hrs	40		2,439		2,439	50%
1	02	05	09	03		IJ05090345	Define GS BPM (1ea) Support Requirements	S	PED	SL_PHSS	Hrs	2		180		180	50%
1	02	05	09	03		IJ05090345	Define GS BPM (1ea) Support Requirements	S	PED	SL_ME	Hrs	2		205		205	50%
1	02	05	09	03		IJ05090316	Prep Bid Pak - GS BPM (1ea)	S	PED	SL_ME	Hrs	4		411		411	50%
1	02	05	09	03		IJ05090355	Design GS BPM (1ea) Supports	S	PED	SL_ME	Hrs	10		1,027		1,027	50%
1	02	05	09	03		IJ05090355	Design GS BPM (1ea) Supports	S	PED	SL_MDD	Hrs	60		3,658		3,658	50%
1	02	05	09	03		IJ05090366	Prep Bid Pak - GS BPM (1ea) Support	S	PED	SL_ME	Hrs	1		103		103	50%
1	02	05	09	03		IJ05090321	Evaluate Proposals -GS BPM (1ea)	S	PED	SL_ME	Hrs	1		103		103	50%
1	02	05	09	03		IJ05090371	Evaluate Proposals -GS BPM (1ea) Support	S	PED	SL_ME	Hrs	1		103		103	50%
1	02	05	09	03		IJ05090373	Vendor Fab GS BPM (1ea) Support	S	CON	SL_MSSC	$$		2,500		2,725	2,725	50%
1	02	05	09	03		IJ05090323	Vendor Fab GS BPM (1ea)	S	CON	SL_MSSC	$$		7,000		7,630	7,630	50%
1	02	05	09	03		IJ05090335	Perform Lab Tests on GS BPM (1ea) Assembly	S	CON	SL_MES	Hrs	10		903		903	50%
1	02	05	09	03		IJ05090335	Perform Lab Tests on GS BPM (1ea) Assembly	S	CON	SL_CT	Hrs	10		616		616	50%
1	02	05	09	03		IJ05090337	Vacuum Process BPMs(1ea)	S	CON	SL_MVE	Hrs	30		3,171		3,171	50%
1	**02**	**05**	**09**	**04**			**GS Faraday Cup/YAG2**					**508**	**37,800**	**37,836**	**41,202**	**79,038**	
1	02	05	09	04		IJ05090530	Define FC/YAG3 Support Rqmts (1ea)	S	PED	SL_PHS	Hrs	4		283		283	60%
1	02	05	09	04		IJ05090500	Define FC/YAG3 Requirements (1ea)	S	PED	SL_PHS	Hrs	4		283		283	60%
1	02	05	09	04		IJ05090435	Define FC/YAG2 Support Rqmts (1ea)	S	PED	SL_PHS	Hrs	4		283		283	60%
1	02	05	09	04		IJ05090400	Define FC/YAG2 Requirements (1ea)	S	PED	SL_PHS	Hrs	4		283		283	60%
1	02	05	09	04		IJ05090410	Design FC/YAG2 (1ea)	S	PED	SL_PHS	Hrs	8		582		582	60%
1	02	05	09	04		IJ05090410	Design FC/YAG2 (1ea)	S	PED	SL_ME	Hrs	20		2,114		2,114	60%
1	02	05	09	04		IJ05090410	Design FC/YAG2 (1ea)	S	PED	SL_MDD	Hrs	88		5,521		5,521	60%
1	02	05	09	04		IJ05090440	Design FC/YAG2 Supports (1ea)	S	PED	SL_ME	Hrs	8		846		846	60%
1	02	05	09	04		IJ05090440	Design FC/YAG2 Supports (1ea)	S	PED	SL_MDD	Hrs	52		3,262		3,262	60%
1	02	05	09	04		IJ05090505	Design FC/YAG3 (1ea)	S	PED	SL_PHS	Hrs	8		582		582	60%
1	02	05	09	04		IJ05090505	Design FC/YAG3 (1ea)	S	PED	SL_ME	Hrs	20		2,114		2,114	60%
1	02	05	09	04		IJ05090505	Design FC/YAG3 (1ea)	S	PED	SL_MDD	Hrs	88		5,521		5,521	60%
1	02	05	09	04		IJ05090535	Design FC/YAG3 Supports (1ea)	S	PED	SL_ME	Hrs	8		846		846	60%
1	02	05	09	04		IJ05090535	Design FC/YAG3 Supports (1ea)	S	PED	SL_MDD	Hrs	52		3,262		3,262	60%
1	02	05	09	04		IJ05090426	Vendor Fab FC/YAG2	S	CON	SL_MSSC	$$		16,500		17,985	17,985	60%
1	02	05	09	04		IJ05090448	Vendor Fab FC/YAG2 Supports	S	CON	SL_MSSC	$$		2,400		2,616	2,616	60%
1	02	05	09	04		IJ05090517	Vendor Fab FC/YAG3	S	CON	SL_MSSC	$$		16,500		17,985	17,985	60%
1	02	05	09	04		IJ05090543	Vendor Fab FC/YAG3 Supports	S	CON	SL_MSSC	$$		2,400		2,616	2,616	60%
1	02	05	09	04		IJ05090519	Perform Lab Tests on FC/YAG3 Assy (1ea)	S	CON	SL_MFAT	Hrs	35		2,865		2,865	60%
1	02	05	09	04		IJ05090519	Perform Lab Tests on FC/YAG3 Assy (1ea)	S	CON	SL_MES	Hrs	35		3,162		3,162	60%
1	02	05	09	04		IJ05090428	Perform Lab Tests on FC/YAG2 Assy (1ea)	S	CON	SL_MFAT	Hrs	35		2,865		2,865	60%
1	02	05	09	04		IJ05090428	Perform Lab Tests on FC/YAG2 Assy (1ea)	S	CON	SL_MES	Hrs	35		3,162		3,162	60%
1	**02**	**05**	**09**	**05**			**Reserved**										
1	**02**	**05**	**09**	**06**			**GS Quadrupoles**					**118**	**22,500**	**9,995**	**24,525**	**34,520**	
1	02	05	09	06		IJ05090640	Define GS Quads Support Requirements(3ea)	S	CON	SL_ME	Hrs	2		211		211	60%
1	02	05	09	06		IJ05090640	Define GS Quads Support Requirements(3ea)	S	CON	SL_MDD	Hrs	4		251		251	60%
1	02	05	09	06		IJ05090626	Procure GS Quads (3ea)	S	CON	SL_MSEG	$$		4,500		4,905	4,905	60%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	05	09	06		IJ05090646	Design GS Quads Supports(3ea)	S	CON	SL_ME	Hrs	2		211		211	60%
1	02	05	09	06		IJ05090646	Design GS Quads Supports(3ea)	S	CON	SL_MDD	Hrs	10		627		627	60%
1	02	05	09	06		IJ05090652	Procure GS Quads Support T-stage (3ea)	S	CON	SL_MSEG	$$		18,000		19,620	19,620	60%
1	02	05	09	06		IJ05090636	Perform Mag Measurements on GS Quads Assy(3ea)	S	CON	SL_MFAT	Hrs	40		3,275		3,275	60%
1	02	05	09	06		IJ05090636	Perform Mag Measurements on GS Quads Assy(3ea)	S	CON	SL_MES	Hrs	60		5,420		5,420	60%
1	**02**	**05**	**09**	**07**			**GS Supports**					**108**	**2,000**	**7,502**	**2,180**	**9,682**	
1	02	05	09	07		IJ05090700	Define GS Support Requirements	S	CON	SL_ME	Hrs	8		846		846	50%
1	02	05	09	07		IJ05090710	Design GS Support	S	CON	SL_MDD	Hrs	80		5,019		5,019	50%
1	02	05	09	07		IJ05090720	Procure GS Support Materials	S	CON	SL_MSEG	$$		2,000		2,180	2,180	50%
1	02	05	09	07		IJ05090730	Assemble GS Support Assembly	S	CON	SL_MFAT	Hrs	20		1,637		1,637	50%
1	**02**	**05**	**10**				**GTL Pumping & Optic Chamber**					**504**	**14,000**	**43,961**	**15,260**	**59,221**	
1	02	05	10			IJ05100005	Define chamber Specs	S	PED	SL_PHSS	Hrs	80		7,205		7,205	60%
1	02	05	10			IJ05100000	Define Physics Specs	S	PED	SL_PHSS	Hrs	10		901		901	60%
1	02	05	10			IJ05100075	Develop chamber Support Structure Engr & Dsn	S	PED	SL_ME	Hrs	60		6,164		6,164	60%
1	02	05	10			IJ05100010	Develop chamber Physics Design	S	PED	SL_PHSS	Hrs	20		1,801		1,801	60%
1	02	05	10			IJ05100081	Procure Support Structure	S	CON	SL_MSEG	$$		11,000		11,990	11,990	60%
1	02	05	10			IJ05100015	Develop chamber Engineering & Design	S	PED	SL_ME	Hrs	60		6,343		6,343	60%
1	02	05	10			IJ05100015	Develop chamber Engineering & Design	S	PED	SL_MDD	Hrs	160		10,038		10,038	60%
1	02	05	10			IJ05100025	Prep Bid Pak - chamber	S	PED	SL_ME	Hrs	4		423		423	60%
1	02	05	10			IJ05100045	Evaluate Vendor Proposals-GTL Pumping&Optic Cham	S	PED	SL_ME	Hrs	10		1,057		1,057	60%
1	02	05	10			IJ05100055	Vendor chamber Production (build to print)	S	CON	SL_MSSC	$$		3,000		3,270	3,270	60%
1	02	05	10			IJ05100070	Conduct Testing & Processing	S	CON	SL_MES	Hrs	40		3,640		3,640	60%
1	02	05	10			IJ05100065	Vacuum Process Chamber	S	CON	SL_MVE	Hrs	60		6,389		6,389	60%
1	**02**	**05**	**11**				**GTL YAG (1ea)**					**219**	**16,100**	**15,779**	**17,565**	**33,344**	
1	02	05	11			IJ05110050	Define OTR/GTL YAG (1ea) Support Requirements	S	PED	SL_PHS	Hrs	4		283		283	60%
1	02	05	11			IJ05110015	Design GTL YAG(1ea)	S	CON	SL_PHS	Hrs	10		728		728	60%
1	02	05	11			IJ05110015	Design GTL YAG(1ea)	S	CON	SL_ME	Hrs	25		2,643		2,643	60%
1	02	05	11			IJ05110015	Design GTL YAG(1ea)	S	CON	SL_MDD	Hrs	96		6,023		6,023	60%
1	02	05	11			IJ05110060	Design OTR/GTL YAG (1ea) Supports	S	CON	SL_ME	Hrs	6		634		634	60%
1	02	05	11			IJ05110060	Design OTR/GTL YAG (1ea) Supports	S	CON	SL_MDD	Hrs	48		3,012		3,012	60%
1	02	05	11			IJ05110029	Vendor Fab GTL YAG1 (1ea)	S	CON	SL_MSSC	$$		13,700		14,933	14,933	60%
1	02	05	11			IJ05110072	Vendor Fab GTL YAG1 (1ea) Supports	S	CON	SL_MSSC	$$		2,400		2,632	2,632	60%
1	02	05	11			IJ05110040	Perform Lab Tests on GTL YAG(1ea) Assembly	S	CON	SL_MFAT	Hrs	30		2,456		2,456	60%
1	**02**	**06**					**Injector Linac Structures**					**3,558**	**30,000**	**304,415**	**32,700**	**337,115**	
1	**02**	**06**	**01**				**L0-1 Structure Assembly**					**964**	**9,000**	**88,359**	**9,810**	**98,169**	
1	02	06	01			IJ06010000	Define L0-1 Specs	S	PED	SL_PHSS	Hrs	24		2,161		2,161	60%
1	02	06	01			IJ06010010	Develop L0-1 Mech Engineering & Dsn / Waveguide	S	PED	SL_ME	Hrs	160		16,726		16,726	60%
1	02	06	01			IJ06010010	Develop L0-1 Mech Engineering & Dsn / Waveguide	S	PED	SL_MDD	Hrs	240		14,891		14,891	60%
1	02	06	01			IJ06010020	Procure L0-1 Material	S	CON	SL_MSEG	$$		9,000		9,810	9,810	60%
1	02	06	01			IJ06010025	Fabrication L0-1	S	CON	SL_MFMS	Hrs	320		32,125		32,125	60%
1	02	06	01			IJ06010030	Integrate L0-1 onto Support Structure	S	CON	SL_MFAT	Hrs	40		3,318		3,318	60%
1	02	06	01			IJ06010040	Perform Vacuum Processing	S	CON	SL_MVE	Hrs	60		6,520		6,520	60%
1	02	06	01			IJ06010045	Perform Waveguide Integration	S	CON	SL_MFAT	Hrs	40		3,366		3,366	60%
1	02	06	01			IJ06010035	Prep for & Perform RF tuning	S	CON	SL_KE	Hrs	40		4,626		4,626	60%
1	02	06	01			IJ06010050	Conduct RF Processing	S	CON	SL_KE	Hrs	40		4,626		4,626	60%
1	**02**	**06**	**02**				**L0-2 Structure Assembly**					**576**	**2,000**	**52,074**	**2,180**	**54,254**	
1	02	06	02			IJ06020000	Define L0-2 Specs	S	PED	SL_PHSS	Hrs	16		1,441		1,441	50%
1	02	06	02			IJ06020005	Develop L0-2 RF Engr/Design/Tuning Plan	S	PED	SL_PHSS	Hrs	40		3,602		3,602	50%
1	02	06	02			IJ06020010	Develop L0-2 Mech Engrg & Design / Waveguide	S	PED	SL_ME	Hrs	60		6,164		6,164	50%
1	02	06	02			IJ06020010	Develop L0-2 Mech Engrg & Design / Waveguide	S	PED	SL_MDD	Hrs	80		4,878		4,878	50%
1	02	06	02			IJ06020020	Procure L0-2 Material	S	CON	SL_MSEG	$$		2,000		2,180	2,180	50%
1	02	06	02			IJ06020025	Fab & Mods L0-2	S	CON	SL_MFMS	Hrs	120		12,047		12,047	50%
1	02	06	02			IJ06020030	Integrate L0-2 onto Support Structure	S	CON	SL_MFAT	Hrs	120		9,824		9,824	50%
1	02	06	02			IJ06020040	Perform Vacuum Processing	S	CON	SL_MVE	Hrs	60		6,343		6,343	50%
1	02	06	02			IJ06020045	Perform Waveguide Integration	S	CON	SL_MFAT	Hrs	40		3,275		3,275	50%
1	02	06	02			IJ06020035	Prep for & Perform RF tuning	S	CON	SL_KE	Hrs	40		4,500		4,500	50%
1	**02**	**06**	**03**				**Major Linac Support**					**140**	**5,000**	**13,871**	**5,450**	**19,321**	
1	02	06	03			IJ06030010	Prep Bid Pak - Major Linac Supports	S	PED	SL_ME	Hrs	40		4,109		4,109	50%
1	02	06	03			IJ06030030	Evaluate Vendor Proposals-Major Linac Supports	S	PED	SL_ME	Hrs	40		4,109		4,109	50%
1	02	06	03			IJ06030040	Vendor Fab, Assy & Test-Major Linac Supports	S	CON	SL_MSSC	$$		5,000		5,450	5,450	50%
1	02	06	03			IJ06030055	Fab & Mods Linac Supports	S	CON	SL_MFMS	Hrs	40		4,016		4,016	50%
1	02	06	03			IJ06030055	Fab & Mods Linac Supports	S	CON	SL_MFAT	Hrs	20		1,637		1,637	50%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	**02**	**06**	**04**				**Linac Solenoid & Supports**					**1,878**	**14,000**	**150,111**	**15,260**	**165,371**	
1	02	06	04			IJ06040000	Define LINAC Solenoid Requirements	S	PED	SL_PHSS	Hrs	16		1,441		1,441	60%
1	02	06	04			IJ06040000	Define LINAC Solenoid Requirements	S	PED	SL_ME	Hrs	8		822		822	60%
1	02	06	04			IJ06040015	Design LINAC Solenoid Core	S	PED	SL_ME	Hrs	80		8,457		8,457	60%
1	02	06	04			IJ06040015	Design LINAC Solenoid Core	S	PED	SL_MDD	Hrs	160		10,038		10,038	60%
1	02	06	04			IJ06040025	Design LINAC Solenoid Coil	S	PED	SL_ME	Hrs	80		8,457		8,457	60%
1	02	06	04			IJ06040025	Design LINAC Solenoid Coil	S	PED	SL_MDD	Hrs	160		10,038		10,038	60%
1	02	06	04			IJ06040035	Design LINAC Solenoid Electrical Connections	S	PED	SL_ME	Hrs	20		2,114		2,114	60%
1	02	06	04			IJ06040035	Design LINAC Solenoid Electrical Connections	S	PED	SL_MDD	Hrs	40		2,510		2,510	60%
1	02	06	04			IJ06040045	Design LINAC Solenoid Cooling Manifold	S	PED	SL_ME	Hrs	20		2,114		2,114	60%
1	02	06	04			IJ06040045	Design LINAC Solenoid Cooling Manifold	S	PED	SL_MDD	Hrs	80		5,019		5,019	60%
1	02	06	04			IJ06040055	Design LINAC Solenoid Assembly	S	PED	SL_ME	Hrs	120		12,685		12,685	60%
1	02	06	04			IJ06040055	Design LINAC Solenoid Assembly	S	PED	SL_MDD	Hrs	160		10,038		10,038	60%
1	02	06	04			IJ06040500	Define LINAC Solenoid Support Requirements	S	CON	SL_ME	Hrs	30		3,171		3,171	60%
1	02	06	04			IJ06040500	Define LINAC Solenoid Support Requirements	S	CON	SL_MDD	Hrs	40		2,510		2,510	60%
1	02	06	04			IJ06040070	Procure LINAC Sol Core Materials	S	CON	SL_MSEG	$$		5,000		5,450	5,450	60%
1	02	06	04			IJ06040515	Design LINAC Solenoid Supports	S	CON	SL_ME	Hrs	40		4,228		4,228	60%
1	02	06	04			IJ06040515	Design LINAC Solenoid Supports	S	CON	SL_MDD	Hrs	160		10,038		10,038	60%
1	02	06	04			IJ06040530	Procure LINAC Sol Support Materials	S	CON	SL_MSEG	$$		4,000		4,360	4,360	60%
1	02	06	04			IJ06040080	Prep Bid Pak - Linac Solenoid	S	CON	SL_ME	Hrs	4		423		423	60%
1	02	06	04			IJ06040076	Fab & Assy LINAC Sol Magnet Materials	S	CON	SL_MFMS	Hrs	40		4,016		4,016	60%
1	02	06	04			IJ06040540	Prep Bid Pak - Linac Solenoid Supports	S	CON	SL_ME	Hrs	4		423		423	60%
1	02	06	04			IJ06040100	Evaluate Vendor Proposals-Linac Solenoid	S	CON	SL_ME	Hrs	8		846		846	60%
1	02	06	04			IJ06040110	Vendor Fab - (build to print)	S	CON	SL_MSSC	$$		3,000		3,270	3,270	60%
1	02	06	04			IJ06040560	Evaluate Vendor Proposals-Linac Solenoid Support	S	CON	SL_ME	Hrs	8		846		846	60%
1	02	06	04			IJ06040570	Vendor Fab - (build to print)	S	CON	SL_MSSC	$$		2,000		2,180	2,180	60%
1	02	06	04			IJ06040120	Fab & Assemble LINAC Sol Magnet Assembly	S	CON	SL_MFAT	Hrs	320		26,198		26,198	60%
1	02	06	04			IJ06040580	Assemble LINAC Sol Support Assembly	S	CON	SL_MFAT	Hrs	80		6,550		6,550	60%
1	02	06	04			IJ06040582	Perf Linac Solenoid Mag Meas & Fiducialization	S	CON	SL_MES	Hrs	40		3,700		3,700	60%
1	02	06	04			IJ06040125	Perform Lab Tests on LINAC Sol Magnet Assembly	S	CON	SL_MFAT	Hrs	160		13,429		13,429	60%
1	**02**	**07**					**L0-1 to L0-2 Section (L0-1TL0-2)**					**1,891**	**111,680**	**154,722**	**121,731**	**276,453**	
1	**02**	**07**	**01**				**L0-1TL0-2 Quadrupoles (2)**					**230**	**18,000**	**17,667**	**19,620**	**37,287**	
1	02	07	01			IJ07010100	Define L0-1TLO-2 Quads Support Requirements	S	CON	SL_ME	Hrs	4		423		423	50%
1	02	07	01			IJ07010100	Define L0-1TLO-2 Quads Support Requirements	S	CON	SL_MDD	Hrs	16		1,004		1,004	50%
1	02	07	01			IJ07010070	Procure L0-1TLO-2 Quads	S	CON	SL_MSEG	$$		3,000		3,270	3,270	50%
1	02	07	01			IJ07010115	Design L0-1TLO-2 Quads Supports	S	CON	SL_ME	Hrs	10		1,057		1,057	50%
1	02	07	01			IJ07010115	Design L0-1TLO-2 Quads Supports	S	CON	SL_MDD	Hrs	80		5,019		5,019	50%
1	02	07	01			IJ07010130	Procure L0-1TLO-2 Quads Support	S	CON	SL_MSEG	$$		15,000		16,350	16,350	50%
1	02	07	01			IJ07010150	Perform Quadrupole Mag Meas & Fiducialization	S	CON	SL_MES	Hrs	40		3,614		3,614	50%
1	02	07	01			IJ07010090	Perform Lab Tests on L0-1TLO-2 Quads Assembly	S	CON	SL_MFAT	Hrs	80		6,550		6,550	50%
1	**02**	**07**	**02**				**L0-1TL0-2 BPMs (2)**					**214**	**18,500**	**15,988**	**20,165**	**36,153**	
1	02	07	02			IJ07020000	Define L0-1TL0-2 BPM (2ea) Physics Requirements	S	PED	SL_PHSS	Hrs	8		720		720	50%
1	02	07	02			IJ07020005	Define L0-1TL0-2 BPM (2ea) Eng Requirements	S	PED	SL_ME	Hrs	4		411		411	50%
1	02	07	02			IJ07020015	Engineer L0-1TL0-2 BPM (2ea)	S	PED	SL_ME	Hrs	8		822		822	50%
1	02	07	02			IJ07020020	Design L0-1TL0-2 BPM (2ea)	S	PED	SL_MDD	Hrs	80		4,878		4,878	50%
1	02	07	02			IJ07020070	Define L0-1TL0-2 BPM (2ea) Support Requirements	S	PED	SL_PHSS	Hrs	2		180		180	50%
1	02	07	02			IJ07020070	Define L0-1TL0-2 BPM (2ea) Support Requirements	S	PED	SL_ME	Hrs	2		205		205	50%
1	02	07	02			IJ07020085	Design L0-1TL0-2 BPM (2ea) Supports	S	PED	SL_ME	Hrs	10		1,027		1,027	50%
1	02	07	02			IJ07020085	Design L0-1TL0-2 BPM (2ea) Supports	S	PED	SL_MDD	Hrs	40		2,439		2,439	50%
1	02	07	02			IJ07020100	Procure L0-1TL0-2 BPM (2ea) Supt	S	CON	SL_MSEG	$$		4,500		4,905	4,905	50%
1	02	07	02			IJ07020030	Procure L0-1TL0-2 BPM (2ea)	S	CON	SL_MSEG	$$		14,000		15,260	15,260	50%
1	02	07	02			IJ07020050	Perform Lab Tests on L0-1TL0-2 BPM (2ea) Assy	S	CON	SL_MES	Hrs	10		903		903	50%
1	02	07	02			IJ07020050	Perform Lab Tests on L0-1TL0-2 BPM (2ea) Assy	S	CON	SL_CT	Hrs	20		1,232		1,232	50%
1	02	07	02			IJ07020060	Vacuum Process BPM (2ea)	S	CON	SL_MVE	Hrs	30		3,171		3,171	50%
1	**02**	**07**	**03**				**Reserved**										
1	**02**	**07**	**04**				**L0-1TL0-2 OTR/YAG (1)**					**219**	**16,100**	**15,483**	**17,549**	**33,032**	
1	02	07	04			IJ07040170	Define L0-1TL0-2 YAG (1ea) Support Requirements	S	PED	SL_PHS	Hrs	4		283		283	60%
1	02	07	04			IJ07040110	Design L0-1TL0-2 YAG(1ea)	S	PED	SL_PHS	Hrs	10		708		708	60%
1	02	07	04			IJ07040110	Design L0-1TL0-2 YAG(1ea)	S	PED	SL_ME	Hrs	25		2,568		2,568	60%
1	02	07	04			IJ07040110	Design L0-1TL0-2 YAG(1ea)	S	PED	SL_MDD	Hrs	96		5,853		5,853	60%
1	02	07	04			IJ07040180	Design L0-1TL0-2 YAG (1ea) Supports	S	PED	SL_ME	Hrs	6		629		629	60%
1	02	07	04			IJ07040180	Design L0-1TL0-2 YAG (1ea) Supports	S	PED	SL_MDD	Hrs	48		2,986		2,986	60%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	07	04			IJ07040150	Vendor Fab L0-1TL0-2 YAG1 (1ea)	S	CON	SL_MSSC	$$		13,700		14,933	14,933	60%
1	02	07	04			IJ07040220	Vendor Fab L0-1TL0-2 YAG1 (1ea) Supports	S	CON	SL_MSSC	$$		2,400		2,616	2,616	60%
1	02	07	04			IJ07040160	Perform Lab Tests on L0-1TL0-2 YAG(1ea) Assembly	S	CON	SL_MFAT	Hrs	30		2,456		2,456	60%
1	**02**	**07**	**05**				**L0-1TL0-2 Linac Steering Coils (4)**					**496**	**25,000**	**36,173**	**27,250**	**63,423**	
1	02	07	05			IJ07050015	Design Coils (4ea) (ACCR)	S	PED	SL_ME	Hrs	20		2,055		2,055	50%
1	02	07	05			IJ07050015	Design Coils (4ea) (ACCR)	S	PED	SL_MDD	Hrs	80		4,878		4,878	50%
1	02	07	05			IJ07050025	Design Electrical Connections (4ea)(ACCR)	S	PED	SL_ME	Hrs	8		822		822	50%
1	02	07	05			IJ07050025	Design Electrical Connections (4ea)(ACCR)	S	PED	SL_MDD	Hrs	40		2,439		2,439	50%
1	02	07	05			IJ07050035	Design Assembly (4ea)(ACCR)	S	PED	SL_ME	Hrs	20		2,055		2,055	50%
1	02	07	05			IJ07050035	Design Assembly (4ea)(ACCR)	S	PED	SL_MDD	Hrs	80		4,878		4,878	50%
1	02	07	05			IJ07050400	Define Steering Coils, (4ea)(ACCR) Support Rqmts	S	PED	SL_PHS	Hrs	8		566		566	50%
1	02	07	05			IJ07050400	Define Steering Coils, (4ea)(ACCR) Support Rqmts	S	PED	SL_ME	Hrs	16		1,644		1,644	50%
1	02	07	05			IJ07050415	Design Steering Coils, (4ea) (ACCR) Supports	S	PED	SL_ME	Hrs	40		4,190		4,190	50%
1	02	07	05			IJ07050415	Design Steering Coils, (4ea) (ACCR) Supports	S	PED	SL_MDD	Hrs	160		9,946		9,946	50%
1	02	07	05			IJ07050050	Procure Steering Coils, (4ea) (ACCR)	S	CON	SL_MSEG	$$		17,000		18,530	18,530	50%
1	02	07	05			IJ07050430	Procure Steering Coils, (4ea)(ACCR) Support	S	CON	SL_MSEG	$$		8,000		8,720	8,720	50%
1	02	07	05			IJ07050080	Perform Magnetic Measmts Steering Coils, (4ea)	S	CON	SL_EE	Hrs	24		2,700		2,700	50%
1	**02**	**07**	**06**				**L0-1TL0-2 Vacuum Components**					**502**	**30,080**	**50,251**	**32,787**	**83,038**	
1	02	07	06			IJ07060003	Develop Vacuum Components Engr & Design	S	PED	SL_ME	Hrs	60		6,164		6,164	60%
1	02	07	06			IJ07060020	Develop Vac Components Supports Engr & Design	S	PED	SL_ME	Hrs	80		8,218		8,218	60%
1	02	07	06			IJ07060026	Prep Bid Pak - Vacuum Components	S	PED	SL_ME	Hrs	16		1,644		1,644	60%
1	02	07	06			IJ07060032	Eval Vendor Prop- Vacuum Components	S	PED	SL_ME	Hrs	6		616		616	60%
1	02	07	06			IJ07060030	Procure Support Structure Materials	S	CON	SL_MSEG	$$		80		87	87	60%
1	02	07	06			IJ07060010	Procure Vacuum Components (build to print)	S	CON	SL_MSEG	$$		30,000		32,700	32,700	60%
1	02	07	06			IJ07060035	Fab Vacuum Components Support Structure	S	CON	SL_MFMS	Hrs	80		8,031		8,031	60%
1	02	07	06			IJ07060015	Vacuum Process Vacuum Components	S	CON	SL_MVE	Hrs	120		12,685		12,685	60%
1	02	07	06			IJ07060040	Integrate Vacuum Components onto Supports	S	CON	SL_MFAT	Hrs	80		6,550		6,550	60%
1	02	07	06			IJ07060045	Conduct Vacuum Components Testing	S	CON	SL_MVE	Hrs	60		6,343		6,343	60%
1	**02**	**07**	**07**				**L0-1TL0-2 Major tube support structure**					**230**	**4,000**	**19,160**	**4,360**	**23,520**	
1	02	07	07			IJ07070000	Develop MinorTube Supports Engineering & Desi	S	PED	SL_ME	Hrs	27		2,774		2,774	60%
1	02	07	07			IJ07070000	Develop MinorTube Supports Engineering & Desi	S	PED	SL_MDD	Hrs	107		6,524		6,524	60%
1	02	07	07			IJ07070010	Prep Bid Pak - L0-1TL0-2 Major Tube Supt	S	PED	SL_ME	Hrs	16		1,644		1,644	60%
1	02	07	07			IJ07070030	Evaluate Vendor Proposals-Major Tube Supports	S	PED	SL_ME	Hrs	80		8,218		8,218	60%
1	02	07	07			IJ07070040	Vendor Fab, Assy & Test	S	CON	SL_MSSC	$$		4,000		4,360	4,360	60%
1	**02**	**08**					**Linac to DL1 (LTDL1)**					**5,115**	**282,100**	**412,801**	**307,597**	**720,398**	
1	**02**	**08**	**01**				**LTDL1 Current Monitors (CM3)**					**172**	**17,000**	**14,863**	**18,530**	**33,393**	
1	02	08	01			IJ08010215	Design Current Monitor (CM3) Supports	S	CON	SL_ME	Hrs	4		423		423	50%
1	02	08	01			IJ08010215	Design Current Monitor (CM3) Supports	S	CON	SL_MDD	Hrs	20		1,255		1,255	50%
1	02	08	01			IJ08010035	Procure Current Monitor (CM3) (build to print)	S	CON	SL_MSEG	$$		16,000		17,440	17,440	50%
1	02	08	01			IJ08010230	Procure Current Monitor (CM3) Support Materials	S	CON	SL_MSEG	$$		1,000		1,090	1,090	50%
1	02	08	01			IJ08010240	Fab & Assemble Current Monitor (CM3) Support Ass	S	CON	SL_MFAT	Hrs	40		3,275		3,275	50%
1	02	08	01			IJ08010045	Assemble Current Monitor (CMs) Assembly	S	CON	SL_MFAT	Hrs	8		655		655	50%
1	02	08	01			IJ08010050	Vacuum Process Current Monitor (CM3)	S	CON	SL_MVE	Hrs	60		6,343		6,343	50%
1	02	08	01			IJ08010055	Perform Lab Tests on Current Monitor (CM3) Assy	S	CON	SL_PHS	Hrs	40		2,912		2,912	50%
1	**02**	**08**	**02**				**LTDL1 BPMs (6ea)**					**522**	**53,000**	**44,182**	**57,770**	**101,952**	
1	02	08	02			IJ08020000	Define LTDL1 BPM (6ea) Physics Requirements	S	PED	SL_PHSS	Hrs	8		720		720	50%
1	02	08	02			IJ08020005	Define LTDL1 BPM (6ea) Engr Requirements	S	PED	SL_ME	Hrs	8		822		822	50%
1	02	08	02			IJ08020015	Engineer LTDL1 BPM (6ea)	S	PED	SL_ME	Hrs	20		2,055		2,055	50%
1	02	08	02			IJ08020020	Design LTDL1 BPM (6ea)	S	PED	SL_MDD	Hrs	120		7,316		7,316	50%
1	02	08	02			IJ08020070	Define LTDL1 BPM (6ea) Support Requirements	S	PED	SL_PHSS	Hrs	4		360		360	50%
1	02	08	02			IJ08020070	Define LTDL1 BPM (6ea) Support Requirements	S	PED	SL_ME	Hrs	4		411		411	50%
1	02	08	02			IJ08020026	Prep Bid Pak - LTDL1 BPM (6ea)	S	PED	SL_ME	Hrs	6		622		622	60%
1	02	08	02			IJ08020085	Design LTDL1 BPM (6ea) Supports	S	PED	SL_ME	Hrs	8		834		834	50%
1	02	08	02			IJ08020085	Design LTDL1 BPM (6ea) Supports	S	PED	SL_MDD	Hrs	40		2,474		2,474	50%
1	02	08	02			IJ08020100	Procure LTDL1 BPM (6ea) Supt	S	CON	SL_MSEG	$$		11,000		11,990	11,990	50%
1	02	08	02			IJ08020031	Eval Vendor Prop- LTDL1 BPM (6ea)	S	CON	SL_ME	Hrs	4		423		423	60%
1	02	08	02			IJ08020030	Procure LTDL1 BPM (6ea)	S	CON	SL_MSEG	$$		42,000		45,780	45,780	50%
1	02	08	02			IJ08020050	Perform Lab Tests on LTDL1 BPM (6ea) Assembly	S	CON	SL_MES	Hrs	60		5,420		5,420	50%
1	02	08	02			IJ08020055	Perform Lab Tests on LTDL1 BPM (6ea) Calibration	S	CON	SL_CT	Hrs	60		3,697		3,697	50%
1	02	08	02			IJ08020060	Vacuum Process BPM (6ea)	S	CON	SL_MVE	Hrs	180		19,028		19,028	50%
1	**02**	**08**	**03**				**LTDL1 OTR(5)/YAG (1)**					**1,290**	**96,600**	**92,976**	**105,294**	**198,270**	
1	02	08	03			IJ08030110	Design LTDL1 OTR(5)/YAG(1)	S	PED	SL_PHS	Hrs	60		4,369		4,369	60%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	08	03			IJ08030110	Design LTDL1 OTR(5)/YAG(1)	S	PED	SL_ME	Hrs	150		15,857		15,857	60%
1	02	08	03			IJ08030110	Design LTDL1 OTR(5)/YAG(1)	S	PED	SL_MDD	Hrs	576		36,138		36,138	60%
1	02	08	03			IJ08030180	Design LTDL1 OTR(5)/YAG(1) Supports	S	PED	SL_ME	Hrs	36		3,806		3,806	60%
1	02	08	03			IJ08030180	Design LTDL1 OTR(5)/YAG(1) Supports	S	PED	SL_MDD	Hrs	288		18,069		18,069	60%
1	02	08	03			IJ08030150	Vendor Fab LTDL1 OTR(5)/YAG(1)	S	CON	SL_MSSC	$$		82,200		89,598	89,598	60%
1	02	08	03			IJ08030220	Vendor Fab LTDL1 OTR(5)/YAG(1) Supports	S	CON	SL_MSSC	$$		14,400		15,696	15,696	60%
1	02	08	03			IJ08030160	Perform Lab Tests on LTDL1 OTR(5)/YAG(1) Assy	S	CON	SL_MFAT	Hrs	180		14,737		14,737	60%
1	**02**	**08**	**04**				**LTDL1 Quadrupoles (6ea)**					**420**	**27,000**	**34,536**	**29,430**	**63,966**	
1	02	08	04			IJ08040090	Define LTDL1 Quads Support Requirements	S	CON	SL_ME	Hrs	20		2,114		2,114	50%
1	02	08	04			IJ08040090	Define LTDL1 Quads Support Requirements	S	CON	SL_MDD	Hrs	40		2,510		2,510	50%
1	02	08	04			IJ08040105	Design LTDL1 Quads Supports	S	CON	SL_ME	Hrs	40		4,228		4,228	50%
1	02	08	04			IJ08040105	Design LTDL1 Quads Supports	S	CON	SL_MDD	Hrs	80		5,019		5,019	50%
1	02	08	04			IJ08040120	Procure LTDL1 Quads Support	S	CON	SL_MSEG	$$		18,000		19,620	19,620	50%
1	02	08	04			IJ08040140	Perform LTDL1Quads Mag Meas & Fiducialization	S	CON	SL_MES	Hrs	120		10,841		10,841	50%
1	02	08	04			IJ08040060	Procure LTDL1 Quads	S	CON	SL_MSEG	$$		9,000		9,810	9,810	50%
1	02	08	04			IJ08040080	Perform Lab Tests on LTDL1 Quads Assembly	S	CON	SL_MFAT	Hrs	120		9,824		9,824	50%
1	**02**	**08**	**05**				**Reserved**										
1	**02**	**08**	**06**				**LTDL1 RF Kicker**					**340**	**18,000**	**34,896**	**19,728**	**54,624**	
1	02	08	06			IJ08060075	Develop RF Kicker Support Structure Engr & Dsn	S	PED	SL_ME	Hrs	40		4,109		4,109	50%
1	02	08	06			IJ08060085	Procure Support Structure Materials	S	CON	SL_MSEG	$$		4,000		4,360	4,360	50%
1	02	08	06			IJ08060090	Fab RF Kicker Support Structure	S	CON	SL_MFMS	Hrs	120		12,047		12,047	50%
1	02	08	06			IJ08060025	Prep Bid Pak - RF Kicker	S	CON	SL_ME	Hrs	20		2,114		2,114	50%
1	02	08	06			IJ08060045	Evaluate Vendor Proposals - RF Kicker	S	CON	SL_ME	Hrs	20		2,114		2,114	50%
1	02	08	06			IJ08060055	Vendor RF Kicker Production (build to print)	S	CON	SL_MSSC	$$		14,000		15,368	15,368	50%
1	02	08	06			IJ08060065	Vacuum Process Kicker	S	CON	SL_MVE	Hrs	60		6,520		6,520	50%
1	02	08	06			IJ08060070	Conduct Test & RF Processing	S	CON	SL_KE	Hrs	40		4,626		4,626	50%
1	02	08	06			IJ08060095	Integrate RF Kicker onto Supports	S	CON	SL_MFAT	Hrs	40		3,366		3,366	50%
1	**02**	**08**	**07**				**LTDL1 Steering Coils (2ea)X-Y**					**406**	**18,000**	**30,372**	**19,620**	**49,992**	
1	02	08	07			IJ08070000	Define Steering Coils,(2ea) (LTDL1) Requirements	S	PED	SL_PHS	Hrs	24		1,698		1,698	50%
1	02	08	07			IJ08070000	Define Steering Coils,(2ea) (LTDL1) Requirements	S	PED	SL_ME	Hrs	10		1,027		1,027	50%
1	02	08	07			IJ08070015	Design Coils (LTDL1) (2ea)	S	CON	SL_ME	Hrs	15		1,586		1,586	50%
1	02	08	07			IJ08070015	Design Coils (LTDL1) (2ea)	S	CON	SL_MDD	Hrs	60		3,764		3,764	50%
1	02	08	07			IJ08070025	Design Electrical Connections (LTDL1)(2ea)	S	CON	SL_ME	Hrs	6		634		634	50%
1	02	08	07			IJ08070025	Design Electrical Connections (LTDL1)(2ea)	S	CON	SL_MDD	Hrs	30		1,882		1,882	50%
1	02	08	07			IJ08070035	Design Assembly (LTDL1)(2ea)	S	CON	SL_ME	Hrs	15		1,586		1,586	50%
1	02	08	07			IJ08070035	Design Assembly (LTDL1)(2ea)	S	CON	SL_MDD	Hrs	60		3,764		3,764	50%
1	02	08	07			IJ08070080	Define Steering Coils,(2ea)(LTDL1) Support Reqmt	S	CON	SL_PHS	Hrs	6		437		437	50%
1	02	08	07			IJ08070080	Define Steering Coils,(2ea)(LTDL1) Support Reqmt	S	CON	SL_ME	Hrs	12		1,269		1,269	50%
1	02	08	07			IJ08070050	Procure Steering Coils,(2ea) (LTDL1)	S	CON	SL_MSEG	$$		12,000		13,080	13,080	50%
1	02	08	07			IJ08070095	Design Steering Coils,(2ea) (LTDL1) Supports	S	CON	SL_ME	Hrs	30		3,171		3,171	50%
1	02	08	07			IJ08070095	Design Steering Coils,(2ea) (LTDL1) Supports	S	CON	SL_MDD	Hrs	120		7,529		7,529	50%
1	02	08	07			IJ08070110	Procure Steering Coils,(2ea)(LTDL1) Supt	S	CON	SL_MSEG	$$		6,000		6,540	6,540	50%
1	02	08	07			IJ08070070	Perform Magnetic Measmts Steering Coils, (2ea)	S	CON	SL_EE	Hrs	18		2,025		2,025	50%
1	**02**	**08**	**08**				**LTDL1 PPS Stopper**					**690**	**10,500**	**58,139**	**11,445**	**69,584**	
1	02	08	08			IJ08080000	Define PPS Stopper Rad Specs	S	PED	SL_PHSS	Hrs	40		3,602		3,602	50%
1	02	08	08			IJ08080005	Develop PPS Stopper Engineering & Design	S	PED	SL_ME	Hrs	60		6,164		6,164	50%
1	02	08	08			IJ08080005	Develop PPS Stopper Engineering & Design	S	PED	SL_MDD	Hrs	120		7,316		7,316	50%
1	02	08	08			IJ08080025	Develop PPS Stopper Supt Structure Engr & Desig	S	PED	SL_ME	Hrs	80		8,457		8,457	50%
1	02	08	08			IJ08080025	Develop PPS Stopper Supt Structure Engr & Desig	S	PED	SL_MDD	Hrs	160		10,038		10,038	50%
1	02	08	08			IJ08080015	Procure PPS Stopper (build to print)	S	CON	SL_MSEG	$$		7,500		8,175	8,175	50%
1	02	08	08			IJ08080020	Vacuum Process PPS Stopper	S	CON	SL_MVE	Hrs	40		4,228		4,228	50%
1	02	08	08			IJ08080035	Procure PPS Support Structure Materials	S	CON	SL_MSEG	$$		3,000		3,270	3,270	50%
1	02	08	08			IJ08080040	Fab PPS Stopper Support Structure	S	CON	SL_MFMS	Hrs	150		15,059		15,059	50%
1	02	08	08			IJ08080045	Integrate / Install PPS Stopper onto Supports	S	CON	SL_MFAT	Hrs	40		3,275		3,275	50%
1	**02**	**08**	**09**				**LTDL1 E/O EO2**					**855**	**38,000**	**67,032**	**41,420**	**108,452**	
1	02	08	09			IJ08090000	Define EO2 Beamline Device Requirements	S	PED	SL_PHS	Hrs	6		425		425	60%
1	02	08	09			IJ08090000	Define EO2 Beamline Device Requirements	S	PED	SL_ME	Hrs	3		308		308	60%
1	02	08	09			IJ08090010	Design EO2 Beamline Device	S	PED	SL_PHS	Hrs	20		1,415		1,415	60%
1	02	08	09			IJ08090010	Design EO2 Beamline Device	S	PED	SL_ME	Hrs	40		4,109		4,109	60%
1	02	08	09			IJ08090010	Design EO2 Beamline Device	S	PED	SL_MDD	Hrs	80		4,878		4,878	60%
1	02	08	09			IJ08090115	Define EO2 Optical Table Requirements	S	PED	SL_PHS	Hrs	8		566		566	60%
1	02	08	09			IJ08090115	Define EO2 Optical Table Requirements	S	PED	SL_ME	Hrs	2		205		205	60%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	08	09			IJ08090065	Define EO2 Beamline Device Support Requirements	S	PED	SL_PHS	Hrs	4		283		283	60%
1	02	08	09			IJ08090065	Define EO2 Beamline Device Support Requirements	S	PED	SL_ME	Hrs	8		822		822	60%
1	02	08	09			IJ08090080	Design EO2 Beamline Device Supports	S	PED	SL_ME	Hrs	16		1,644		1,644	60%
1	02	08	09			IJ08090080	Design EO2 Beamline Device Supports	S	PED	SL_MDD	Hrs	80		4,878		4,878	60%
1	02	08	09			IJ08090130	Design EO2 Optical Table	S	PED	SL_PHS	Hrs	20		1,445		1,445	60%
1	02	08	09			IJ08090130	Design EO2 Optical Table	S	PED	SL_MDD	Hrs	80		4,980		4,980	60%
1	02	08	09			IJ08090095	Procure EO2 Beamline Device Support Materials	S	CON	SL_MSEG	$$		1,000		1,090	1,090	60%
1	02	08	09			IJ08090030	Procure EO2 Beamline Device Materials	S	CON	SL_MSEG	$$		6,000		6,540	6,540	60%
1	02	08	09			IJ08090175	Define EO2 Optical Table Support Requirements	S	CON	SL_PHS	Hrs	2		146		146	60%
1	02	08	09			IJ08090175	Define EO2 Optical Table Support Requirements	S	CON	SL_ME	Hrs	2		211		211	60%
1	02	08	09			IJ08090145	Procure EO2 Optical Table Materials	S	CON	SL_MSEG	$$		30,000		32,700	32,700	60%
1	02	08	09			IJ08090105	Fab & Assemble EO2 Beamline Device Support Assem	S	CON	SL_MFAT	Hrs	40		3,275		3,275	60%
1	02	08	09			IJ08090190	Design EO2 Optical Table Supports	S	CON	SL_ME	Hrs	4		423		423	60%
1	02	08	09			IJ08090190	Design EO2 Optical Table Supports	S	CON	SL_MDD	Hrs	20		1,255		1,255	60%
1	02	08	09			IJ08090205	Procure EO2 Optical Table Support Materials	S	CON	SL_MSEG	$$		1,000		1,090	1,090	60%
1	02	08	09			IJ08090040	Fab & Assemble EO2 Beamline Device Assembly	S	CON	SL_MFMS	Hrs	100		10,039		10,039	60%
1	02	08	09			IJ08090040	Fab & Assemble EO2 Beamline Device Assembly	S	CON	SL_MFAT	Hrs	100		8,187		8,187	60%
1	02	08	09			IJ08090040	Fab & Assemble EO2 Beamline Device Assembly	S	CON	SL_MES	Hrs	35		3,162		3,162	60%
1	02	08	09			IJ08090215	Fab & Assemble EO2 Optical Table Support Assembl	S	CON	SL_MFAT	Hrs	20		1,637		1,637	60%
1	02	08	09			IJ08090155	Fab & Assemble EO2 Optical Table Assembly	S	CON	SL_PHS	Hrs	5		364		364	60%
1	02	08	09			IJ08090155	Fab & Assemble EO2 Optical Table Assembly	S	CON	SL_MFAT	Hrs	40		3,275		3,275	60%
1	02	08	09			IJ08090055	Perform Lab Tests on EO2 Beamline Device Assembl	S	CON	SL_MFAT	Hrs	40		3,275		3,275	60%
1	02	08	09			IJ08090165	Perform Lab Tests on EO2 Optical Table Assembly	S	CON	SL_PHS	Hrs	80		5,825		5,825	60%
1	**02**	**08**	**10**				**LTDL1 Minor Tube Supports**					**420**	**4,000**	**35,805**	**4,360**	**40,165**	
1	02	08	10			IJ08100000	Develop MinorTube Supports Engineering & Desi	S	PED	SL_ME	Hrs	60		6,343		6,343	60%
1	02	08	10			IJ08100000	Develop MinorTube Supports Engineering & Desi	S	PED	SL_MDD	Hrs	200		12,548		12,548	60%
1	02	08	10			IJ08100010	Prepare Bid Package-Major Tube Supports	S	PED	SL_ME	Hrs	80		8,457		8,457	60%
1	02	08	10			IJ08100030	Evaluate Vendor Proposals-Major Tube Supports	S	PED	SL_ME	Hrs	80		8,457		8,457	60%
1	02	08	10			IJ08100040	Vendor Fab, Assy & Test	S	CON	SL_MSSC	$$		4,000		4,360	4,360	60%
1	**02**	**09**					**Dog Leg 1 Bend (DL1)**					**2,599**	**68,100**	**226,777**	**74,229**	**301,006**	
1	**02**	**09**	**01**				**DL1 B01 & B02 Dipoles**					**360**	**17,000**	**31,186**	**18,530**	**49,716**	
1	02	09	01			IJ09010100	Define BO1 & BO2 Dipoles Support Requirements	S	PED	SL_ME	Hrs	2		205		205	50%
1	02	09	01			IJ09010100	Define BO1 & BO2 Dipoles Support Requirements	S	PED	SL_MDD	Hrs	8		488		488	50%
1	02	09	01			IJ09010110	Design BO1 & BO2 Dipoles Supports	S	PED	SL_ME	Hrs	10		1,027		1,027	50%
1	02	09	01			IJ09010110	Design BO1 & BO2 Dipoles Supports	S	PED	SL_MDD	Hrs	80		4,878		4,878	50%
1	02	09	01			IJ09010125	Procure BO1 & BO2 Dipoles Support Materials	S	CON	SL_MSEG	$$		4,000		4,360	4,360	50%
1	02	09	01			IJ09010075	Procure BO1 & BO2 Dipoles Material	S	CON	SL_MSEG	$$		5,000		5,450	5,450	50%
1	02	09	01			IJ09010073	Fab & Assy BO1 & BO2 Dipoles	S	CON	SL_MSSC	$$		8,000		8,720	8,720	50%
1	02	09	01			IJ09010135	Fab & Assemble BO1 & BO2 Dipoles Support Assembl	S	CON	SL_MFMS	Hrs	160		16,062		16,062	50%
1	02	09	01			IJ09010135	Fab & Assemble BO1 & BO2 Dipoles Support Assembl	S	CON	SL_MFAT	Hrs	20		1,637		1,637	50%
1	02	09	01			IJ09010085	Perform Lab Tests on BO1 & BO2 Dipoles Assembly	S	CON	SL_MFAT	Hrs	40		3,275		3,275	50%
1	02	09	01			IJ09010140	Perf BO1 & BO2 Dipoles Mag Meas&Fiducialization	S	CON	SL_MES	Hrs	40		3,614		3,614	50%
1	**02**	**09**	**02**				**DL1 QB Quadrupole**					**524**	**2,500**	**48,801**	**2,725**	**51,526**	
1	02	09	02			IJ09020070	Define DL1 Quads Support Requirements	S	CON	SL_ME	Hrs	20		2,114		2,114	50%
1	02	09	02			IJ09020070	Define DL1 Quads Support Requirements	S	CON	SL_MDD	Hrs	20		1,255		1,255	50%
1	02	09	02			IJ09020080	Design DL1 Quads Supports	S	CON	SL_ME	Hrs	20		2,114		2,114	50%
1	02	09	02			IJ09020080	Design DL1 Quads Supports	S	CON	SL_MDD	Hrs	40		2,510		2,510	50%
1	02	09	02			IJ09020090	Procure DL1 Quads Support Material	S	CON	SL_MSEG	$$		1,000		1,090	1,090	50%
1	02	09	02			IJ09020045	Procure DL1 Quads Material	S	CON	SL_MSEG	$$		1,500		1,635	1,635	50%
1	02	09	02			IJ09020100	Fab & Assemble DL1 Quads Supt Assembly	S	CON	SL_MFMS	Hrs	160		16,062		16,062	50%
1	02	09	02			IJ09020100	Fab & Assemble DL1 Quads Supt Assembly	S	CON	SL_MFAT	Hrs	20		1,637		1,637	50%
1	02	09	02			IJ09020055	Fab & Assemble DL1 Quads Assembly	S	CON	SL_MFMS	Hrs	160		16,062		16,062	50%
1	02	09	02			IJ09020055	Fab & Assemble DL1 Quads Assembly	S	CON	SL_MFAT	Hrs	24		1,965		1,965	50%
1	02	09	02			IJ09020105	Perform DL1 Quads Mag Meas. & Fiducialization	S	CON	SL_MES	Hrs	20		1,807		1,807	50%
1	02	09	02			IJ09020060	Perform Lab Tests on DL1 Quads Assembly	S	CON	SL_MFAT	Hrs	40		3,275		3,275	50%
1	**02**	**09**	**03**				**DL1 Wire Scanner**										
1	**02**	**09**	**04**				**DL1 OTR**					**215**	**16,100**	**15,496**	**17,549**	**33,045**	
1	02	09	04			IJ09040110	Design DL1 OTR	S	PED	SL_PHS	Hrs	10		728		728	60%
1	02	09	04			IJ09040110	Design DL1 OTR	S	PED	SL_ME	Hrs	25		2,643		2,643	60%
1	02	09	04			IJ09040110	Design DL1 OTR	S	PED	SL_MDD	Hrs	96		6,023		6,023	60%
1	02	09	04			IJ09040180	Design DL1 OTR Supports	S	PED	SL_ME	Hrs	6		634		634	60%
1	02	09	04			IJ09040180	Design DL1 OTR Supports	S	PED	SL_MDD	Hrs	48		3,012		3,012	60%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	09	04			IJ09040150	Vendor Fab DL1 OTR	S	CON	SL_MSSC	$$		13,700		14,933	14,933	60%
1	02	09	04			IJ09040220	Vendor Fab DL1 OTR Supports	S	CON	SL_MSSC	$$		2,400		2,616	2,616	60%
1	02	09	04			IJ09040160	Perform Lab Tests on DL1 OTR Assembly	S	CON	SL_MFAT	Hrs	30		2,456		2,456	60%
1	**02**	**09**	**05**				**DL1 Supports**					**360**	**10,000**	**26,883**	**10,900**	**37,783**	
1	02	09	05			IJ09050000	Develop DL1 Engineering & Design	S	CON	SL_ME	Hrs	60		6,343		6,343	50%
1	02	09	05			IJ09050000	Develop DL1 Engineering & Design	S	CON	SL_MDD	Hrs	260		16,312		16,312	50%
1	02	09	05			IJ09050010	Prep Bid Pak - DL1 Supports	S	CON	SL_ME	Hrs	20		2,114		2,114	50%
1	02	09	05			IJ09050030	Evaluate Vendor Proposals-DL1 Supports	S	CON	SL_ME	Hrs	20		2,114		2,114	50%
1	02	09	05			IJ09050040	Vendor Fab - (build to print)	S	CON	SL_MSSC	$$		10,000		10,900	10,900	50%
1	**02**	**09**	**06**				**DL1 Vacuum Chamber**					**1,140**	**22,500**	**104,411**	**24,525**	**128,936**	
1	02	09	06			IJ09060000	Develop DL1 Vacuum Chamber Engineering & Design	S	CON	SL_ME	Hrs	160		16,914		16,914	60%
1	02	09	06			IJ09060000	Develop DL1 Vacuum Chamber Engineering & Design	S	CON	SL_MDD	Hrs	320		20,077		20,077	60%
1	02	09	06			IJ09060055	Dev DL1 Vac Chamber Sprt Structure Engr & Desi	S	CON	SL_ME	Hrs	120		12,685		12,685	60%
1	02	09	06			IJ09060010	Prepare Bid Package - DL1 Vacuum Chamber	S	CON	SL_ME	Hrs	80		8,457		8,457	60%
1	02	09	06			IJ09060030	Evaluate Vendor Proposals DL1 Vacuum Chamber	S	CON	SL_ME	Hrs	80		8,457		8,457	60%
1	02	09	06			IJ09060040	Vendor Fab, Assy & Test DL1 Vacuum Chamber	S	CON	SL_MSSC	$$		20,000		21,800	21,800	60%
1	02	09	06			IJ09060065	Procure Support DL1 Structure Materials	S	CON	SL_MSEG	$$		2,500		2,725	2,725	60%
1	02	09	06			IJ09060070	Fab DL1 Vacuum Chamber Support Structure	S	CON	SL_MFMS	Hrs	180		18,070		18,070	60%
1	02	09	06			IJ09060050	Vacuum Process DL1 Vacuum Chamber	S	CON	SL_MVE	Hrs	80		8,671		8,671	60%
1	02	09	06			IJ09060075	Install DL1 Vac Chamber onto Supports	S	CON	SL_MFAT	Hrs	80		6,733		6,733	60%
1	02	09	06			IJ09060080	Conduct DL1 Vacuum Components Testing	S	CON	SL_MVE	Hrs	40		4,347		4,347	60%
1	**02**	**10**					**DL1 to Linac (DL1TL)**					**4,343**	**88,600**	**394,384**	**96,608**	**490,992**	
1	**02**	**10**	**01**				**DL1TL BPMs (2)**					**410**	**6,000**	**35,078**	**6,540**	**41,618**	
1	02	10	01			IJ10010000	Define DL1TL BPM (2ea) Eng Requirements	S	PED	SL_PHSS	Hrs	4		360		360	50%
1	02	10	01			IJ10010000	Define DL1TL BPM (2ea) Eng Requirements	S	PED	SL_ME	Hrs	4		411		411	50%
1	02	10	01			IJ10010015	Engineer DL1TL BPM (2ea)	S	PED	SL_ME	Hrs	4		411		411	50%
1	02	10	01			IJ10010020	Design DL1TL BPM (2ea)	S	CON	SL_MDD	Hrs	40		2,510		2,510	50%
1	02	10	01			IJ10010070	Define DL1TL BPM (2ea) Support Requirements	S	CON	SL_PHSS	Hrs	2		185		185	50%
1	02	10	01			IJ10010070	Define DL1TL BPM (2ea) Support Requirements	S	CON	SL_ME	Hrs	2		211		211	50%
1	02	10	01			IJ10010030	Procure DL1TL BPM(2ea) Material (build to print)	S	CON	SL_MSEG	$$		4,000		4,360	4,360	50%
1	02	10	01			IJ10010085	Design DL1TL BPM (2ea) Supports	S	CON	SL_ME	Hrs	4		423		423	50%
1	02	10	01			IJ10010085	Design DL1TL BPM (2ea) Supports	S	CON	SL_MDD	Hrs	40		2,510		2,510	50%
1	02	10	01			IJ10010100	Procure DL1TL BPM (2ea) Supt Material (build to	S	CON	SL_MSEG	$$		2,000		2,180	2,180	50%
1	02	10	01			IJ10010110	Fab & Assemble DL1TL BPM (2ea) Support Assy	S	CON	SL_MFAT	Hrs	50		4,094		4,094	50%
1	02	10	01			IJ10010040	Fab & Assemble DL1TL BPM (2ea) Assembly	S	CON	SL_MFMS	Hrs	80		8,031		8,031	50%
1	02	10	01			IJ10010040	Fab & Assemble DL1TL BPM (2ea) Assembly	S	CON	SL_MFAT	Hrs	80		6,550		6,550	50%
1	02	10	01			IJ10010050	Perform Lab Tests on DL1TL BPM (2ea) Assembly	S	CON	SL_MES	Hrs	20		1,807		1,807	50%
1	02	10	01			IJ10010055	Perform Lab Tests on DL1TL BPM (2ea) Calibration	S	CON	SL_CT	Hrs	20		1,232		1,232	50%
1	02	10	01			IJ10010060	Vacuum Process BPM (2ea)	S	CON	SL_MVE	Hrs	60		6,343		6,343	50%
1	**02**	**10**	**02**				**DL1TL Steering Coils (3eaX-Y Assys)**					**652**	**4,500**	**52,304**	**4,905**	**57,209**	
1	02	10	02			IJ10020000	Define Steering Coils,(DL1TL)(3ea) Requirements	S	PED	SL_PHS	Hrs	24		1,698		1,698	50%
1	02	10	02			IJ10020000	Define Steering Coils,(DL1TL)(3ea) Requirements	S	PED	SL_ME	Hrs	16		1,644		1,644	50%
1	02	10	02			IJ10020015	Design Coils (DL1TL)(3ea)	S	CON	SL_ME	Hrs	15		1,586		1,586	50%
1	02	10	02			IJ10020015	Design Coils (DL1TL)(3ea)	S	CON	SL_MDD	Hrs	60		3,764		3,764	50%
1	02	10	02			IJ10020025	Design Electrical Connections (DL1TL)(3ea)	S	CON	SL_ME	Hrs	6		634		634	50%
1	02	10	02			IJ10020025	Design Electrical Connections (DL1TL)(3ea)	S	CON	SL_MDD	Hrs	30		1,882		1,882	50%
1	02	10	02			IJ10020035	Design Assembly (DL1TL)(3ea)	S	CON	SL_ME	Hrs	15		1,586		1,586	50%
1	02	10	02			IJ10020035	Design Assembly (DL1TL)(3ea)	S	CON	SL_MDD	Hrs	60		3,764		3,764	50%
1	02	10	02			IJ10020080	Define Steering Coils,(DL1TL)(3ea)Support Reqmts	S	CON	SL_PHS	Hrs	6		437		437	50%
1	02	10	02			IJ10020080	Define Steering Coils,(DL1TL)(3ea)Support Reqmts	S	CON	SL_ME	Hrs	12		1,269		1,269	50%
1	02	10	02			IJ10020050	Procure Steering Coils,(DL1TL) (3ea) Materials	S	CON	SL_MSEG	$$		3,000		3,270	3,270	50%
1	02	10	02			IJ10020095	Design Steering Coils, (DL1TL)(3ea) Supports	S	CON	SL_ME	Hrs	30		3,171		3,171	50%
1	02	10	02			IJ10020095	Design Steering Coils, (DL1TL)(3ea) Supports	S	CON	SL_MDD	Hrs	120		7,529		7,529	50%
1	02	10	02			IJ10020110	Procure Steering Coils,(DL1TL)(3ea)Support Matls	S	CON	SL_MSEG	$$		1,500		1,635	1,635	50%
1	02	10	02			IJ10020060	Fab & Assemble Steering Coils,(DL1TL)(3ea) Assy	S	CON	SL_MFMS	Hrs	90		9,035		9,035	50%
1	02	10	02			IJ10020060	Fab & Assemble Steering Coils,(DL1TL)(3ea) Assy	S	CON	SL_MFAT	Hrs	60		4,912		4,912	50%
1	02	10	02			IJ10020070	Perform Magnetic Measmts Steering Coils, (3ea)	S	CON	SL_EE	Hrs	18		2,025		2,025	50%
1	02	10	02			IJ10020120	Fab & Assemble Steering Coils(DL1TL)(3ea) Supt	S	CON	SL_MFAT	Hrs	90		7,368		7,368	50%
1	**02**	**10**	**03**				**DL1TL Quadrupoles (2)**					**2,080**	**23,000**	**200,490**	**25,070**	**225,560**	
1	02	10	03			IJ10030040	Define DL1TL Quads Support Requirements	S	CON	SL_ME	Hrs	2		211		211	50%
1	02	10	03			IJ10030040	Define DL1TL Quads Support Requirements	S	CON	SL_MDD	Hrs	2		125		125	50%
1	02	10	03			IJ10030028	Procure DL1TL Quads Material	S	CON	SL_MSEG	$$		3,000		3,270	3,270	50%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	10	03			IJ10030046	Design DL1TL Quads Supports	S	CON	SL_ME	Hrs	8		846		846	50%
1	02	10	03			IJ10030046	Design DL1TL Quads Supports	S	CON	SL_MDD	Hrs	8		502		502	50%
1	02	10	03			IJ10030052	Procure DL1TL Quads Support Materials	S	CON	SL_MSEG	$$		20,000		21,800	21,800	50%
1	02	10	03			IJ10030056	Fab & Assemble DL1TL Quads Support Assembly	S	CON	SL_MFMS	Hrs	800		80,312		80,312	50%
1	02	10	03			IJ10030056	Fab & Assemble DL1TL Quads Support Assembly	S	CON	SL_MFAT	Hrs	100		8,187		8,187	50%
1	02	10	03			IJ10030032	Fab & Assemble DL1TL Quads Assembly	S	CON	SL_MFMS	Hrs	800		80,312		80,312	50%
1	02	10	03			IJ10030060	Perform DL1TL Quadrupole Mag Meas & Fiducial	S	CON	SL_MES	Hrs	40		3,614		3,614	50%
1	02	10	03			IJ10030034	Fab & Assemble DL1TL Quads Assembly	S	CON	SL_MFAT	Hrs	120		9,824		9,824	50%
1	02	10	03			IJ10030036	Perform Lab Tests on DL1TL Quads Assembly	S	CON	SL_MFAT	Hrs	200		16,557		16,557	50%
1	**02**	**10**	**04**				**DL1TL Vacuum Components**					**850**	**22,500**	**78,959**	**24,559**	**103,518**	
1	02	10	04			IJ10040000	Dev Vacuum Components Engr & Design (60%)	S	CON	SL_ME	Hrs	84		8,880		8,880	60%
1	02	10	04			IJ10040000	Dev Vacuum Components Engr & Design (60%)	S	CON	SL_MDD	Hrs	192		12,046		12,046	60%
1	02	10	04			IJ10040070	Procure Support Structure Materials	S	CON	SL_MSEG	$$		2,500		2,725	2,725	60%
1	02	10	04			IJ10040060	Develop Vac Components Supports Engr & Design	S	CON	SL_ME	Hrs	120		12,685		12,685	60%
1	02	10	04			IJ10040015	Prep Bid Pak - SAB Vacuum Components	S	CON	SL_ME	Hrs	4		423		423	60%
1	02	10	04			IJ10040035	Evaluate Vendor Proposals-SAB Vacuum Components	S	CON	SL_ME	Hrs	10		1,057		1,057	60%
1	02	10	04			IJ10040075	Fab Vacuum Components Support Structure	S	CON	SL_MFMS	Hrs	240		24,094		24,094	60%
1	02	10	04			IJ10040045	Vendor SAB Vacuum Components Production	S	CON	SL_MSSC	$$		20,000		21,834	21,834	60%
1	02	10	04			IJ10040055	Vacuum Process Vacuum Components	S	CON	SL_MVE	Hrs	80		8,694		8,694	60%
1	02	10	04			IJ10040080	Install Vacuum Components onto Supports	S	CON	SL_MFAT	Hrs	80		6,733		6,733	60%
1	02	10	04			IJ10040085	Conduct Vacuum Components Testing	S	CON	SL_MVE	Hrs	40		4,347		4,347	60%
1	**02**	**10**	**05**				**DL1TL Current Monitor (CM4)**					**136**	**16,500**	**12,057**	**17,985**	**30,042**	
1	02	10	05			IJ10050075	Design Current Monitor (CM4) Supports	S	CON	SL_ME	Hrs	2		211		211	50%
1	02	10	05			IJ10050075	Design Current Monitor (CM4) Supports	S	CON	SL_MDD	Hrs	10		627		627	50%
1	02	10	05			IJ10050030	Procure Current Monitor (CM4)	S	CON	SL_MSEG	$$		16,000		17,440	17,440	50%
1	02	10	05			IJ10050090	Procure Current Monitor (CM4) Support Materials	S	CON	SL_MSEG	$$		500		545	545	50%
1	02	10	05			IJ10050100	Fab & Assemble Current Monitor (CM4) Supt Assy	S	CON	SL_MFAT	Hrs	20		1,637		1,637	50%
1	02	10	05			IJ10050040	Assemble Current Monitor (CM4) Assembly	S	CON	SL_MFAT	Hrs	4		327		327	50%
1	02	10	05			IJ10050045	Perform Lab Tests on Current Monitor (CM4) Assy	S	CON	SL_PHS	Hrs	40		2,912		2,912	50%
1	02	10	05			IJ10050050	Vacuum Process Current Monitor (CM4)	S	CON	SL_MVE	Hrs	60		6,343		6,343	50%
1	**02**	**10**	**06**				**DL1TL OTR**					**215**	**16,100**	**15,496**	**17,549**	**33,045**	
1	02	10	06			IJ10060110	Design DL1TL OTR	S	PED	SL_PHS	Hrs	10		728		728	60%
1	02	10	06			IJ10060110	Design DL1TL OTR	S	PED	SL_ME	Hrs	25		2,643		2,643	60%
1	02	10	06			IJ10060110	Design DL1TL OTR	S	PED	SL_MDD	Hrs	96		6,023		6,023	60%
1	02	10	06			IJ10060175	Design DL1TL OTR Supports	S	PED	SL_ME	Hrs	6		634		634	60%
1	02	10	06			IJ10060175	Design DL1TL OTR Supports	S	PED	SL_MDD	Hrs	48		3,012		3,012	60%
1	02	10	06			IJ10060145	Vendor Fab DL1TL OTR	S	CON	SL_MSSC	$$		13,700		14,933	14,933	60%
1	02	10	06			IJ10060215	Vendor Fab DL1TL OTR Supports	S	CON	SL_MSSC	$$		2,400		2,616	2,616	60%
1	02	10	06			IJ10060155	Perform Lab Tests on DL1TL OTR Assembly	S	CON	SL_MFAT	Hrs	30		2,456		2,456	60%
1	**02**	**10**	**07**				**Reserved**										
1	**02**	**11**					**Straight Ahead Beamline (SAB)**					**5,763**	**142,600**	**503,412**	**156,252**	**659,664**	
1	**02**	**11**	**01**				**SAB Spectrometer Dipole**					**800**	**5,000**	**63,392**	**5,456**	**68,848**	
1	02	11	01			IJ11010000	Define SAB Spectr. Dipole Requirements	S	PED	SL_PHS	Hrs	8		566		566	60%
1	02	11	01			IJ11010000	Define SAB Spectr. Dipole Requirements	S	PED	SL_ME	Hrs	4		411		411	60%
1	02	11	01			IJ11010010	Perform Magnetic Analysis SAB Spectr. Dipole	S	PED	SL_ME	Hrs	40		4,109		4,109	60%
1	02	11	01			IJ11010140	Define SAB Spectr. Dipole Support Requirements	S	CON	SL_ME	Hrs	2		211		211	60%
1	02	11	01			IJ11010140	Define SAB Spectr. Dipole Support Requirements	S	CON	SL_MDD	Hrs	8		502		502	60%
1	02	11	01			IJ11010015	Design SAB Spectr. Dipole Core	S	CON	SL_ME	Hrs	40		4,228		4,228	60%
1	02	11	01			IJ11010015	Design SAB Spectr. Dipole Core	S	CON	SL_MDD	Hrs	80		5,019		5,019	60%
1	02	11	01			IJ11010155	Design SAB Spectr. Dipole Supports	S	CON	SL_ME	Hrs	10		1,057		1,057	60%
1	02	11	01			IJ11010155	Design SAB Spectr. Dipole Supports	S	CON	SL_MDD	Hrs	80		5,019		5,019	60%
1	02	11	01			IJ11010170	Procure SAB Spectr. Dipole Support Materials	S	CON	SL_MSEG	$$		4,000		4,360	4,360	60%
1	02	11	01			IJ11010025	Design SAB Spectr. Dipole Coils	S	CON	SL_ME	Hrs	20		2,114		2,114	60%
1	02	11	01			IJ11010025	Design SAB Spectr. Dipole Coils	S	CON	SL_MDD	Hrs	80		5,019		5,019	60%
1	02	11	01			IJ11010180	Fab & Assemble SAB Spectr. Dipole Support Assy	S	CON	SL_MFMS	Hrs	20		2,008		2,008	60%
1	02	11	01			IJ11010180	Fab & Assemble SAB Spectr. Dipole Support Assy	S	CON	SL_MFAT	Hrs	20		1,637		1,637	60%
1	02	11	01			IJ11010035	Design SAB Spectr. Dipole Electrical Connections	S	CON	SL_ME	Hrs	5		529		529	60%
1	02	11	01			IJ11010035	Design SAB Spectr. Dipole Electrical Connections	S	CON	SL_MDD	Hrs	40		2,510		2,510	60%
1	02	11	01			IJ11010045	Design SAB Spectr. Dipole Cooling Manifold	S	CON	SL_ME	Hrs	5		529		529	60%
1	02	11	01			IJ11010045	Design SAB Spectr. Dipole Cooling Manifold	S	CON	SL_MDD	Hrs	40		2,510		2,510	60%
1	02	11	01			IJ11010055	Design SAB Spectr. Dipole Assembly	S	CON	SL_ME	Hrs	40		4,228		4,228	60%
1	02	11	01			IJ11010055	Design SAB Spectr. Dipole Assembly	S	CON	SL_MDD	Hrs	80		5,019		5,019	60%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	11	01			IJ11010182	Perf SAB Spect Dipole Mag Meas&Fiducialization	S	CON	SL_MES	Hrs	20		1,807		1,807	60%
1	02	11	01			IJ11010080	Prep Bid Pak - SAB Spectr. Dipole	S	CON	SL_ME	Hrs	4		423		423	60%
1	02	11	01			IJ11010100	Evaluate Vendor Proposals-SAB Spectr. Dipole	S	CON	SL_ME	Hrs	10		1,057		1,057	60%
1	02	11	01			IJ11010110	Vendor SAB Spectr. Dipole Production (build to p	S	CON	SL_MSSC	$$		1,000		1,096	1,096	60%
1	02	11	01			IJ11010120	Fab & Assemble SAB Spectr. Dipole Assembly	S	CON	SL_MFMS	Hrs	40		4,128		4,128	60%
1	02	11	01			IJ11010120	Fab & Assemble SAB Spectr. Dipole Assembly	S	CON	SL_MFAT	Hrs	64		5,386		5,386	60%
1	02	11	01			IJ11010130	Perform Lab Tests on SAB Spectr. Dipole Assembly	S	CON	SL_MFAT	Hrs	40		3,366		3,366	60%
1	**02**	**11**	**02**				**SAB Quadrupoles (3)**					**1,324**	**16,500**	**126,804**	**17,985**	**144,789**	
1	02	11	02			IJ11020040	Define SAB Quads Support Requirements(3ea)	S	CON	SL_ME	Hrs	2		211		211	50%
1	02	11	02			IJ11020040	Define SAB Quads Support Requirements(3ea)	S	CON	SL_MDD	Hrs	2		125		125	50%
1	02	11	02			IJ11020028	Procure SAB Quads Material(3ea)	S	CON	SL_MSEG	$$		4,500		4,905	4,905	50%
1	02	11	02			IJ11020046	Design SAB Quads Supports(3ea)	S	CON	SL_ME	Hrs	24		2,537		2,537	50%
1	02	11	02			IJ11020046	Design SAB Quads Supports(3ea)	S	CON	SL_MDD	Hrs	24		1,506		1,506	50%
1	02	11	02			IJ11020052	Procure SAB Quads Support Materials(3ea)	S	CON	SL_MSEG	$$		12,000		13,080	13,080	50%
1	02	11	02			IJ11020056	Fab & Assemble SAB Quads Support Assy(3ea)	S	CON	SL_MFMS	Hrs	480		48,187		48,187	50%
1	02	11	02			IJ11020056	Fab & Assemble SAB Quads Support Assy(3ea)	S	CON	SL_MFAT	Hrs	60		4,912		4,912	50%
1	02	11	02			IJ11020032	Fab & Assemble SAB Quads Assy(3ea)	S	CON	SL_MFMS	Hrs	480		48,187		48,187	50%
1	02	11	02			IJ11020032	Fab & Assemble SAB Quads Assy(3ea)	S	CON	SL_MFAT	Hrs	72		5,895		5,895	50%
1	02	11	02			IJ11020060	Perform Quadrupole Mag Meas & Fiducialization	S	CON	SL_MES	Hrs	60		5,420		5,420	50%
1	02	11	02			IJ11020036	Perform Lab Tests on SAB Quads Assy(3ea)	S	CON	SL_MFAT	Hrs	120		9,824		9,824	50%
1	**02**	**11**	**03**				**SAB Current Monitor (CM5)**					**136**	**16,500**	**12,057**	**17,985**	**30,042**	
1	02	11	03			IJ11030080	Design Current Monitor (CM5) Supports	S	CON	SL_ME	Hrs	2		211		211	50%
1	02	11	03			IJ11030080	Design Current Monitor (CM5) Supports	S	CON	SL_MDD	Hrs	10		627		627	50%
1	02	11	03			IJ11030035	Procure Current Monitor (CM5) (build to print)	S	CON	SL_MSEG	$$		16,000		17,440	17,440	50%
1	02	11	03			IJ11030095	Procure Current Monitor (CM5) Support Materials	S	CON	SL_MSEG	$$		500		545	545	50%
1	02	11	03			IJ11030105	Fab & Assemble Current Monitor (CM5) Support Ass	S	CON	SL_MFAT	Hrs	20		1,637		1,637	50%
1	02	11	03			IJ11030045	Assemble Current Monitor (CM5) Assembly	S	CON	SL_MFAT	Hrs	4		327		327	50%
1	02	11	03			IJ11030050	Vacuum Process Current Monitor	S	CON	SL_MVE	Hrs	60		6,343		6,343	50%
1	02	11	03			IJ11030055	Perform Lab Tests on Current Monitor (CM5) Assem	S	CON	SL_PHS	Hrs	40		2,912		2,912	50%
1	**02**	**11**	**04**				**SAB BPM (4ea)**					**770**	**12,000**	**66,687**	**13,080**	**79,767**	
1	02	11	04			IJ11040000	Define SAB BPM Physics Requirements(4ea)	S	PED	SL_PHSS	Hrs	4		360		360	50%
1	02	11	04			IJ11040005	Define SAB BPM Engr Requirements(4ea)	S	PED	SL_ME	Hrs	4		411		411	50%
1	02	11	04			IJ11040015	Engineer SAB BPM(4ea)	S	PED	SL_ME	Hrs	8		822		822	50%
1	02	11	04			IJ11040020	Design SAB BPM(4ea)	S	CON	SL_MDD	Hrs	80		5,019		5,019	50%
1	02	11	04			IJ11040070	Define SAB BPM Support Requirements(4ea)	S	CON	SL_PHSS	Hrs	2		185		185	50%
1	02	11	04			IJ11040070	Define SAB BPM Support Requirements(4ea)	S	CON	SL_ME	Hrs	2		211		211	50%
1	02	11	04			IJ11040030	Procure SAB BPM Material (build to print)(4ea)	S	CON	SL_MSEG	$$		8,000		8,720	8,720	50%
1	02	11	04			IJ11040085	Design SAB BPM Supports(4ea)	S	CON	SL_ME	Hrs	10		1,057		1,057	50%
1	02	11	04			IJ11040085	Design SAB BPM Supports(4ea)	S	CON	SL_MDD	Hrs	40		2,510		2,510	50%
1	02	11	04			IJ11040100	Procure SAB BPM Supt Mtrl (build to print)(4ea)	S	CON	SL_MSEG	$$		4,000		4,360	4,360	50%
1	02	11	04			IJ11040110	Fab & Assemble SAB BPM Support Assy(4ea)	S	CON	SL_MFAT	Hrs	100		8,187		8,187	50%
1	02	11	04			IJ11040040	Fab & Assemble SAB BPM Assembly(4ea)	S	CON	SL_MFMS	Hrs	160		16,062		16,062	50%
1	02	11	04			IJ11040040	Fab & Assemble SAB BPM Assembly(4ea)	S	CON	SL_MFAT	Hrs	160		13,099		13,099	50%
1	02	11	04			IJ11040050	Perform Lab Tests on SAB BPM Assembly(4ea)	S	CON	SL_MES	Hrs	40		3,614		3,614	50%
1	02	11	04			IJ11040055	Perform Lab Tests on SAB BPM Calibration(4ea)	S	CON	SL_CT	Hrs	40		2,465		2,465	50%
1	02	11	04			IJ11040060	Vacuum Process BPM(4ea)	S	CON	SL_MVE	Hrs	120		12,685		12,685	50%
1	**02**	**11**	**05**				**SAB YAG**					**215**	**16,100**	**15,496**	**17,549**	**33,045**	
1	02	11	05			IJ11050110	Design SAB YAG	S	PED	SL_PHS	Hrs	10		728		728	60%
1	02	11	05			IJ11050110	Design SAB YAG	S	PED	SL_ME	Hrs	25		2,643		2,643	60%
1	02	11	05			IJ11050110	Design SAB YAG	S	PED	SL_MDD	Hrs	96		6,023		6,023	60%
1	02	11	05			IJ11050180	Design SAB YAG Supports	S	PED	SL_ME	Hrs	6		634		634	60%
1	02	11	05			IJ11050180	Design SAB YAG Supports	S	PED	SL_MDD	Hrs	48		3,012		3,012	60%
1	02	11	05			IJ11050150	Vendor Fab SAB YAG	S	CON	SL_MSSC	$$		13,700		14,933	14,933	60%
1	02	11	05			IJ11050220	Vendor Fab SAB YAG Supports	S	CON	SL_MSSC	$$		2,400		2,616	2,616	60%
1	02	11	05			IJ11050160	Perform Lab Tests on SAB YAG Assembly	S	CON	SL_MFAT	Hrs	30		2,456		2,456	60%
1	**02**	**11**	**06**				**SAB Vacuum Chamber and Components**					**1,054**	**32,500**	**95,677**	**36,080**	**131,757**	
1	02	11	06			IJ11060000	Develop Vacuum Components Engr & Design	S	CON	SL_ME	Hrs	160		16,914		16,914	60%
1	02	11	06			IJ11060000	Develop Vacuum Components Engr & Design	S	CON	SL_MDD	Hrs	320		20,077		20,077	60%
1	02	11	06			IJ11060060	Develop Vac Components Supports Engr & Design	S	CON	SL_ME	Hrs	120		12,685		12,685	60%
1	02	11	06			IJ11060015	Prep Bid Pak - chamber	S	CON	SL_ME	Hrs	4		423		423	60%
1	02	11	06			IJ11060035	Evaluate Vendor Proposals-SAB Vac Chamber	S	CON	SL_ME	Hrs	10		1,057		1,057	60%
1	02	11	06			IJ11060045	Vendor chamber Production (build to print)	S	CON	SL_MSSC	$$		30,000		33,355	33,355	60%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	11	06			IJ11060070	Procure Support Structure Materials	S	CON	SL_MSEG	$$		2,500		2,725	2,725	60%
1	02	11	06			IJ11060075	Fab Vacuum Components Support Structure	S	CON	SL_MFMS	Hrs	240		24,747		24,747	60%
1	02	11	06			IJ11060080	Integrate Vacuum Components onto Supports	S	CON	SL_MFAT	Hrs	80		6,733		6,733	60%
1	02	11	06			IJ11060085	Conduct Vacuum Components Testing	S	CON	SL_MVE	Hrs	40		4,347		4,347	60%
1	02	11	06			IJ11060055	Vacuum Process Vacuum Components	S	CON	SL_MVE	Hrs	80		8,694		8,694	60%
1	**02**	**11**	**07**				**SAB Beam Dump and Shielding**					**796**	**35,000**	**66,483**	**38,150**	**104,633**	
1	02	11	07			IJ11070000	Define Physics Specs	S	PED	SL_PHSS	Hrs	40		3,707		3,707	60%
1	02	11	07			IJ11070005	Define SAB Beam Dump & Shielding Specs	S	PED	SL_PHSS	Hrs	20		1,853		1,853	60%
1	02	11	07			IJ11070010	Develop SAB Beam Dump & Shielding Physics Dsn	S	PED	SL_PHSS	Hrs	240		22,241		22,241	60%
1	02	11	07			IJ11070015	Develop SAB Beam Dump & Shielding Design	S	CON	SL_ME	Hrs	164		17,336		17,336	60%
1	02	11	07			IJ11070015	Develop SAB Beam Dump & Shielding Design	S	CON	SL_MDD	Hrs	320		20,077		20,077	60%
1	02	11	07			IJ11070016	Prep Bid Pak - Beam Dump & Shielding	S	CON	SL_ME	Hrs	8		846		846	60%
1	02	11	07			IJ11070021	Eval Vendor Prop- Beam Dump & Shielding	S	CON	SL_ME	Hrs	4		423		423	60%
1	02	11	07			IJ11070025	Fab/Assy Beam Dump & Shielding, (build to print)	S	CON	SL_MSEG	$$		35,000		38,150	38,150	60%
1	**02**	**11**	**08**				**SAB Supports**					**440**	**7,500**	**38,284**	**8,332**	**46,616**	
1	02	11	08			IJ11080000	Develop SAB Supports Engineering & Design	S	CON	SL_ME	Hrs	80		8,457		8,457	60%
1	02	11	08			IJ11080000	Develop SAB Supports Engineering & Design	S	CON	SL_MDD	Hrs	120		7,529		7,529	60%
1	02	11	08			IJ11080012	Fab SAB Supports	S	CON	SL_MFMS	Hrs	120		12,282		12,282	60%
1	02	11	08			IJ11080012	Fab SAB Supports	S	CON	SL_MFAT	Hrs	120		10,016		10,016	60%
1	02	11	08			IJ11080010	Procure SAB Supports	S	CON	SL_MSEG	$$		7,500		8,332	8,332	60%
1	**02**	**11**	**09**				**SAB Steering Coils (2)**					**228**	**1,500**	**18,532**	**1,635**	**20,167**	
1	02	11	09			IJ11090000	Define Steering Coils, (2ea) (SAB) Requirements	S	PED	SL_PHS	Hrs	8		566		566	50%
1	02	11	09			IJ11090000	Define Steering Coils, (2ea) (SAB) Requirements	S	PED	SL_ME	Hrs	16		1,644		1,644	50%
1	02	11	09			IJ11090010	Design Coils (2ea)(SAB)	S	CON	SL_ME	Hrs	5		529		529	50%
1	02	11	09			IJ11090010	Design Coils (2ea)(SAB)	S	CON	SL_MDD	Hrs	20		1,255		1,255	50%
1	02	11	09			IJ11090020	Design Electrical Connections (2ea)(SAB)	S	CON	SL_ME	Hrs	2		211		211	50%
1	02	11	09			IJ11090020	Design Electrical Connections (2ea)(SAB)	S	CON	SL_MDD	Hrs	10		627		627	50%
1	02	11	09			IJ11090030	Design Assembly (2ea) (SAB)	S	CON	SL_ME	Hrs	5		529		529	50%
1	02	11	09			IJ11090030	Design Assembly (2ea) (SAB)	S	CON	SL_MDD	Hrs	20		1,255		1,255	50%
1	02	11	09			IJ11090075	Define Steering Coils, (2ea) (SAB) Supt Reqmts	S	CON	SL_PHS	Hrs	2		146		146	50%
1	02	11	09			IJ11090075	Define Steering Coils, (2ea) (SAB) Supt Reqmts	S	CON	SL_ME	Hrs	4		423		423	50%
1	02	11	09			IJ11090045	Procure Steering Coils, (2ea) (SAB) Materials	S	CON	SL_MSEG	$$		1,000		1,090	1,090	50%
1	02	11	09			IJ11090090	Design Steering Coils,(2ea) (SAB) Supports	S	CON	SL_ME	Hrs	10		1,057		1,057	50%
1	02	11	09			IJ11090090	Design Steering Coils,(2ea) (SAB) Supports	S	CON	SL_MDD	Hrs	40		2,510		2,510	50%
1	02	11	09			IJ11090105	Procure Steering Coils,(2ea) (SAB) Support Mtrl	S	CON	SL_MSEG	$$		500		545	545	50%
1	02	11	09			IJ11090115	Fab & Assemble Steering Coils,(2ea) (SAB) Supts	S	CON	SL_MFAT	Hrs	30		2,456		2,456	50%
1	02	11	09			IJ11090055	Fab & Assemble Steering Coils, (2ea) (SAB) Assy	S	CON	SL_MFMS	Hrs	30		3,012		3,012	50%
1	02	11	09			IJ11090055	Fab & Assemble Steering Coils, (2ea) (SAB) Assy	S	CON	SL_MFAT	Hrs	20		1,637		1,637	50%
1	02	11	09			IJ11090065	Perform Magnetic Measmts Steering Coils, (2ea)	S	CON	SL_EE	Hrs	6		675		675	50%
1	**02**	**12**					**Injector RF Waveguide Subsystem**					**2,396**	**704,500**	**205,142**	**767,904**	**973,046**	
1	**02**	**12**	**01**				**RF Waveguides**					**2,396**	**704,500**	**205,142**	**767,904**	**973,046**	
1	02	12	01			IJ12010000	Define Physics Specs	S	PED	SL_PHSS	Hrs	80		7,205		7,205	60%
1	02	12	01			IJ12010005	Define RF Waveguide System Specs	S	PED	SL_PHSS	Hrs	80		7,205		7,205	60%
1	02	12	01			IJ12010015	Develop Vacuum Components Engr & Design	S	PED	SL_ME	Hrs	120		12,469		12,469	60%
1	02	12	01			IJ12010015	Develop Vacuum Components Engr & Design	S	PED	SL_MDD	Hrs	320		19,735		19,735	60%
1	02	12	01			IJ12010010	Develop RF Waveguide System Engineering & Dsn	S	PED	SL_ME	Hrs	120		12,467		12,467	60%
1	02	12	01			IJ12010010	Develop RF Waveguide System Engineering & Dsn	S	PED	SL_MDD	Hrs	400		24,664		24,664	60%
1	02	12	01			IJ12010102	Prep Bid Pak - Waveguide Supports Components	S	CON	SL_ME	Hrs	40		4,228		4,228	60%
1	02	12	01			IJ12010150	Prep Bid Pak - Vacuum Components	S	CON	SL_ME	Hrs	40		4,228		4,228	60%
1	02	12	01			IJ12010100	Prep Bid Pak - Waveguide Components	S	CON	SL_ME	Hrs	40		4,228		4,228	60%
1	02	12	01			IJ12010107	Evaluate Vendor Prop Waveguide Supt Components	S	CON	SL_ME	Hrs	16		1,691		1,691	60%
1	02	12	01			IJ12010170	Evaluate Vendor Proposals Vacuum Components	S	CON	SL_ME	Hrs	10		1,057		1,057	60%
1	02	12	01			IJ12010120	Evaluate Vendor Proposals Waveguide Components	S	CON	SL_ME	Hrs	10		1,057		1,057	60%
1	02	12	01			IJ12010109	Vendor Waveguide Supt Components Production	S	CON	SL_MSSC	$$		100,000		109,000	109,000	60%
1	02	12	01			IJ12010180	Vertical Drop Vacuum Components Production	S	CON	SL_MSSC	$$		75,000		81,750	81,750	60%
1	02	12	01			IJ12010130	Vendor Vertical Drop Waveguide Comp Production	S	CON	SL_MSSC	$$		76,125		82,976	82,976	60%
1	02	12	01			IJ12010200	Vertical Drop-Vac Process Waveguide & Vac Comp	S	CON	SL_MVE	Hrs	100		10,571		10,571	60%
1	02	12	01			IJ12010181	Klystron Housing Vacuum Components Production	S	CON	SL_MSSC	$$		75,000		81,750	81,750	60%
1	02	12	01			IJ12010131	Vendor Klystron Housing Waveguide Comp Prodctn	S	CON	SL_MSSC	$$		76,125		82,976	82,976	60%
1	02	12	01			IJ12010210	Conduct RF WG System Comp Testing-Vertical Drop	S	CON	SL_KE	Hrs	30		3,375		3,375	60%
1	02	12	01			IJ12010201	Klys Housing-Vac Process Waveguide & Vac Comp	S	CON	SL_MVE	Hrs	100		10,571		10,571	60%
1	02	12	01			IJ12010182	Injector Housing Vacuum Components Production	S	CON	SL_MSSC	$$		75,000		81,750	81,750	60%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	12	01			IJ12010132	Vendor Injectr Housing Waveguide Comp Production	S	CON	SL_MSSC	$$		76,125		82,976	82,976	60%
1	02	12	01			IJ12010211	Conduct RF WG System Comp Testing-Klys Housing	S	CON	SL_KE	Hrs	30		3,375		3,375	60%
1	02	12	01			IJ12010202	Inject Housing-Vac Process Waveguide & Vac Comp	S	CON	SL_MVE	Hrs	100		10,571		10,571	60%
1	02	12	01			IJ12010183	Transverse Kicker Vacuum Components Production	S	CON	SL_MSSC	$$		75,000		81,750	81,750	60%
1	02	12	01			IJ12010133	Vendor Transverse Kicker Waveguide Comp Prodctn	S	CON	SL_MSSC	$$		76,125		82,976	82,976	60%
1	02	12	01			IJ12010220	Integ RF WG System onto Supports-Vertical Drop	S	CON	SL_MFAT	Hrs	150		12,281		12,281	60%
1	02	12	01			IJ12010221	Integ RF WG System onto Supports-Klys Housing	S	CON	SL_MFAT	Hrs	150		12,281		12,281	60%
1	02	12	01			IJ12010212	Conduct RF WG System Comp Testing-Inject Housing	S	CON	SL_KE	Hrs	30		3,375		3,375	60%
1	02	12	01			IJ12010222	Integ RF WG System onto Supports-Inject Housing	S	CON	SL_MFAT	Hrs	150		12,281		12,281	60%
1	02	12	01			IJ12010203	Transverse Kick-Vac Process Waveguide & Vac Comp	S	CON	SL_MVE	Hrs	100		10,571		10,571	60%
1	02	12	01			IJ12010213	Cond RF WG System Comp Testing-Transverse Kickr	S	CON	SL_KE	Hrs	30		3,375		3,375	60%
1	02	12	01			IJ12010223	Integ RF WG System onto Supports-Transverse Kick	S	CON	SL_MFAT	Hrs	150		12,281		12,281	60%
1	**02**	**12**	**02**				**Reseved**										
1	**02**	**13**					**Injector RF Subsystem**					**14,416**	**588,000**	**1,341,903**	**653,207**	**1,995,110**	
1	**02**	**13**	**01**				**S-Band Low Level System**					**14,416**	**588,000**	**1,341,903**	**653,207**	**1,995,110**	
1	**02**	**13**	**01**	**01**			**Controls Interface & Timing**					**2,260**	**55,000**	**219,166**	**59,950**	**279,116**	
1	02	13	01	01		IJ13010025	Create Layouts	S	PED	SL_MDD	Hrs	200		12,367		12,367	30%
1	02	13	01	01		IJ13010020	Develop Documentation	S	PED	SL_KE	Hrs	40		4,435		4,435	30%
1	02	13	01	01		IJ13010020	Develop Documentation	S	PED	SL_CE	Hrs	40		4,435		4,435	30%
1	02	13	01	01		IJ13010015	Develop S-Band LL Controls Timing Design	S	PED	SL_KE	Hrs	120		13,121		13,121	30%
1	02	13	01	01		IJ13010015	Develop S-Band LL Controls Timing Design	S	PED	SL_CE	Hrs	120		13,121		13,121	30%
1	02	13	01	01		IJ13010030	Prepare for PDR	S	PED	SL_KE	Hrs	8		900		900	30%
1	02	13	01	01		IJ13010030	Prepare for PDR	S	PED	SL_CE	Hrs	8		900		900	30%
1	02	13	01	01		IJ13010110	Design Fiducial Chassis	S	PED	SL_CE	Hrs	160		18,002		18,002	30%
1	02	13	01	01		IJ13010108	Design & Prototype Master Amplifier	S	PED	SL_MSEG	$$		10,000		10,900	10,900	30%
1	02	13	01	01		IJ13010108	Design & Prototype Master Amplifier	S	PED	SL_KT	Hrs	40		2,465		2,465	30%
1	02	13	01	01		IJ13010108	Design & Prototype Master Amplifier	S	PED	SL_KE	Hrs	160		18,002		18,002	30%
1	02	13	01	01		IJ13010106	MTG Modifications	S	PED	SL_CE	Hrs	480		54,005		54,005	30%
1	02	13	01	01		IJ13010104	Countdown Chassis	S	PED	SL_KE	Hrs	160		18,002		18,002	30%
1	02	13	01	01		IJ13010035	Conduct PDR	S	PED	SL_KE	Hrs	4		450		450	30%
1	02	13	01	01		IJ13010120	Generate Procurement Plan	S	CON	SL_KE	Hrs	4		450		450	30%
1	02	13	01	01		IJ13010120	Generate Procurement Plan	S	CON	SL_CE	Hrs	4		450		450	30%
1	02	13	01	01		IJ13010122	Create Test Plan	S	CON	SL_KE	Hrs	20		2,250		2,250	30%
1	02	13	01	01		IJ13010122	Create Test Plan	S	CON	SL_CE	Hrs	20		2,250		2,250	30%
1	02	13	01	01		IJ13010124	Establish Subordinate W.O.'s	S	CON	SL_ME	Hrs	4		423		423	30%
1	02	13	01	01		IJ13010126	Prepare for FDR	S	CON	SL_KE	Hrs	8		900		900	30%
1	02	13	01	01		IJ13010128	Conduct FDR	S	CON	SL_KE	Hrs	4		450		450	30%
1	02	13	01	01		IJ13010146	Fab Master Amplifier	S	CON	SL_MSEG	$$		30,000		32,700	32,700	30%
1	02	13	01	01		IJ13010146	Fab Master Amplifier	S	CON	SL_KT	Hrs	160		9,859		9,859	30%
1	02	13	01	01		IJ13010146	Fab Master Amplifier	S	CON	SL_KE	Hrs	16		1,800		1,800	30%
1	02	13	01	01		IJ13010140	MTG Modifications Fab	S	CON	SL_MSEG	$$		5,000		5,450	5,450	30%
1	02	13	01	01		IJ13010140	MTG Modifications Fab	S	CON	SL_CT	Hrs	80		4,930		4,930	30%
1	02	13	01	01		IJ13010136	Countdown Chassis	S	CON	SL_MSEG	$$		10,000		10,900	10,900	30%
1	02	13	01	01		IJ13010136	Countdown Chassis	S	CON	SL_KT	Hrs	160		9,859		9,859	30%
1	02	13	01	01		IJ13010144	MTG Modifications Test	S	CON	SL_CE	Hrs	80		9,001		9,001	30%
1	02	13	01	01		IJ13010152	System Tests	S	CON	SL_CE	Hrs	40		4,553		4,553	30%
1	02	13	01	01		IJ13010156	Install Modules	S	CON	SL_KT	Hrs	40		2,534		2,534	30%
1	02	13	01	01		IJ13010156	Install Modules	S	CON	SL_KE	Hrs	40		4,626		4,626	30%
1	02	13	01	01		IJ13010156	Install Modules	S	CON	SL_CE	Hrs	40		4,626		4,626	30%
1	**02**	**13**	**01**	**02**			**LLRF Phase Reference System**					**2,762**	**136,000**	**250,807**	**149,230**	**400,037**	
1	02	13	01	02		IJ13010200	System Design	S	PED	SL_KE	Hrs	30		3,282		3,282	30%
1	02	13	01	02		IJ13010200	System Design	S	PED	SL_CE	Hrs	30		3,282		3,282	30%
1	02	13	01	02		IJ13010219	Design & Prototype LCLS Oscillator	S	PED	SL_MSEG	$$		20,000		21,800	21,800	30%
1	02	13	01	02		IJ13010219	Design & Prototype LCLS Oscillator	S	PED	SL_KE	Hrs	430		48,379		48,379	30%
1	02	13	01	02		IJ13010215	Prepare for PDR	S	CON	SL_KE	Hrs	8		900		900	30%
1	02	13	01	02		IJ13010205	Develop Documentation	S	CON	SL_KE	Hrs	80		9,002		9,002	30%
1	02	13	01	02		IJ13010205	Develop Documentation	S	CON	SL_CE	Hrs	40		4,501		4,501	30%
1	02	13	01	02		IJ13010217	Conduct PDR	S	CON	SL_KE	Hrs	4		450		450	30%
1	02	13	01	02		IJ13010225	Design & Prototype Multiplier Chassis	S	CON	SL_MSEG	$$		5,000		5,450	5,450	30%
1	02	13	01	02		IJ13010225	Design & Prototype Multiplier Chassis	S	CON	SL_KE	Hrs	80		9,001		9,001	30%
1	02	13	01	02		IJ13010223	Design & Prototype Laser Timing Stability	S	CON	SL_MSEG	$$		20,000		21,800	21,800	30%
1	02	13	01	02		IJ13010223	Design & Prototype Laser Timing Stability	S	CON	SL_KE	Hrs	480		54,005		54,005	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	13	01	02		IJ13010222	Design Distribution Amplifier Chassis	S	CON	SL_KE	Hrs	200		22,502		22,502	30%
1	02	13	01	02		IJ13010220	Design RF Distribution L0, L1	S	CON	SL_KE	Hrs	80		9,001		9,001	30%
1	02	13	01	02		IJ13010210	Create Layouts	S	CON	SL_MDD	Hrs	200		12,632		12,632	30%
1	02	13	01	02		IJ13010228	Generate Procurement Plan	S	CON	SL_KE	Hrs	4		450		450	30%
1	02	13	01	02		IJ13010230	Create Test Plan	S	CON	SL_KE	Hrs	40		4,500		4,500	30%
1	02	13	01	02		IJ13010232	Establish Subordinate W.O.'s	S	CON	SL_ME	Hrs	4		423		423	30%
1	02	13	01	02		IJ13010234	Prepare for FDR	S	CON	SL_KE	Hrs	8		900		900	30%
1	02	13	01	02		IJ13010236	Conduct FDR	S	CON	SL_KE	Hrs	4		450		450	30%
1	02	13	01	02		IJ13010264	Fab Multiplier Chassis	S	CON	SL_MSEG	$$		5,000		5,450	5,450	30%
1	02	13	01	02		IJ13010264	Fab Multiplier Chassis	S	CON	SL_KT	Hrs	80		4,930		4,930	30%
1	02	13	01	02		IJ13010260	S-20 MDL Modifications	S	CON	SL_MSEG	$$		3,000		3,270	3,270	30%
1	02	13	01	02		IJ13010260	S-20 MDL Modifications	S	CON	SL_KT	Hrs	40		2,465		2,465	30%
1	02	13	01	02		IJ13010256	Fab Laser Phase Timing Stability	S	CON	SL_MSEG	$$		10,000		10,900	10,900	30%
1	02	13	01	02		IJ13010256	Fab Laser Phase Timing Stability	S	CON	SL_KT	Hrs	80		4,930		4,930	30%
1	02	13	01	02		IJ13010248	Fab Distribution Amplifier Chassis	S	CON	SL_MSEG	$$		10,000		10,900	10,900	30%
1	02	13	01	02		IJ13010248	Fab Distribution Amplifier Chassis	S	CON	SL_KT	Hrs	160		9,859		9,859	30%
1	02	13	01	02		IJ13010240	Vendor Fab LCLS Oscillator (3)	S	CON	SL_MSEG	$$		30,000		32,700	32,700	30%
1	02	13	01	02		IJ13010242	Fab LCLS Oscillator	S	CON	SL_KT	Hrs	240		15,002		15,002	30%
1	02	13	01	02		IJ13010276	Install Modules	S	CON	SL_KT	Hrs	160		10,134		10,134	30%
1	02	13	01	02		IJ13010276	Install Modules	S	CON	SL_KE	Hrs	40		4,626		4,626	30%
1	02	13	01	02		IJ13010274	Install Cable Guides	S	CON	SL_PCT	Hrs	80		5,067		5,067	30%
1	02	13	01	02		IJ13010274	Install Cable Guides	S	CON	SL_MSEG	$$		2,000		2,240	2,240	30%
1	02	13	01	02		IJ13010275	Install S-Band RF Cables (31)	S	CON	SL_PCT	Hrs	160		10,134		10,134	30%
1	02	13	01	02		IJ13010275	Install S-Band RF Cables (31)	S	CON	SL_MSEG	$$		31,000		34,720	34,720	30%
1	**02**	**13**	**01**	**03**			**LLRF Monitor & Control System**					**5,238**	**287,000**	**485,104**	**320,210**	**805,314**	
1	02	13	01	03		IJ13010314	Design Solid State Sub Booster	S	PED	SL_MSEG	$$		12,000		13,080	13,080	30%
1	02	13	01	03		IJ13010314	Design Solid State Sub Booster	S	PED	SL_KE	Hrs	1,410		158,639		158,639	30%
1	02	13	01	03		IJ13010300	Define Control Interface	S	PED	SL_KE	Hrs	144		16,201		16,201	30%
1	02	13	01	03		IJ13010300	Define Control Interface	S	PED	SL_CE	Hrs	144		16,201		16,201	30%
1	02	13	01	03		IJ13010307	Prepare for PDR	S	CON	SL_KE	Hrs	8		900		900	30%
1	02	13	01	03		IJ13010305	Create Layouts	S	CON	SL_MDD	Hrs	200		12,744		12,744	30%
1	02	13	01	03		IJ13010302	Develop Documentation	S	CON	SL_KE	Hrs	80		9,142		9,142	30%
1	02	13	01	03		IJ13010308	Conduct PDR	S	CON	SL_KE	Hrs	4		450		450	30%
1	02	13	01	03		IJ13010318	Design & Prototype Optical Interface	S	CON	SL_MSEG	$$		10,000		10,900	10,900	30%
1	02	13	01	03		IJ13010318	Design & Prototype Optical Interface	S	CON	SL_KE	Hrs	160		18,002		18,002	30%
1	02	13	01	03		IJ13010312	Design Modulator Refurbishment	S	CON	SL_CE	Hrs	400		45,004		45,004	30%
1	02	13	01	03		IJ13010311	Design & Prototype DAC & SAM Breakout	S	CON	SL_MSEG	$$		4,000		4,360	4,360	30%
1	02	13	01	03		IJ13010311	Design & Prototype DAC & SAM Breakout	S	CON	SL_KE	Hrs	160		18,002		18,002	30%
1	02	13	01	03		IJ13010310	Design & Prototype S-Band Phase Measurment	S	CON	SL_MSEG	$$		15,000		16,350	16,350	30%
1	02	13	01	03		IJ13010310	Design & Prototype S-Band Phase Measurment	S	CON	SL_KE	Hrs	480		54,005		54,005	30%
1	02	13	01	03		IJ13010330	Generate Procurement Plan	S	CON	SL_KE	Hrs	4		450		450	30%
1	02	13	01	03		IJ13010332	Create Test Plan	S	CON	SL_KE	Hrs	40		4,500		4,500	30%
1	02	13	01	03		IJ13010334	Establish Subordinate W.O.'s	S	CON	SL_ME	Hrs	4		423		423	30%
1	02	13	01	03		IJ13010336	Prepare for FDR	S	CON	SL_KE	Hrs	8		925		925	30%
1	02	13	01	03		IJ13010338	Conduct FDR	S	CON	SL_KE	Hrs	4		463		463	30%
1	02	13	01	03		IJ13010374	Modify IPA Chassis	S	CON	SL_MSEG	$$		2,000		2,240	2,240	30%
1	02	13	01	03		IJ13010374	Modify IPA Chassis	S	CON	SL_KT	Hrs	60		3,800		3,800	30%
1	02	13	01	03		IJ13010352	Procure Bunch Length Monitor Electronics	S	CON	SL_MSEG	$$		20,000		22,400	22,400	30%
1	02	13	01	03		IJ13010350	Procure Dual Power Meter SCP	S	CON	SL_MSEG	$$		20,000		22,400	22,400	30%
1	02	13	01	03		IJ13010348	Procure Monitor Scope SCP	S	CON	SL_MSEG	$$		20,000		22,400	22,400	30%
1	02	13	01	03		IJ13010344	Procure SS Subbooster Amplitude Control	S	CON	SL_MSEG	$$		10,000		11,200	11,200	30%
1	02	13	01	03		IJ13010346	Eval Vendor Prop- Modulator Thyratron Parts	S	CON	SL_KE	Hrs	8		925		925	30%
1	02	13	01	03		IJ13010342	Vendor Fab Modulator Thyratron Parts	S	CON	SL_MSEG	$$		48,000		53,760	53,760	30%
1	02	13	01	03		IJ13010390	Recable RF	S	CON	SL_MSEG	$$		1,000		1,120	1,120	30%
1	02	13	01	03		IJ13010390	Recable RF	S	CON	SL_KT	Hrs	40		2,534		2,534	30%
1	02	13	01	03		IJ13010384	Monitor Scope SCP Interface	S	CON	SL_PCT	Hrs	40		2,534		2,534	30%
1	02	13	01	03		IJ13010384	Monitor Scope SCP Interface	S	CON	SL_MSEG	$$		5,000		5,600	5,600	30%
1	02	13	01	03		IJ13010382	Modulator Control Interface Cables	S	CON	SL_KT	Hrs	40		2,534		2,534	30%
1	02	13	01	03		IJ13010370	Fab SS Subbooster Amplifier	S	CON	SL_MSEG	$$		72,000		80,640	80,640	30%
1	02	13	01	03		IJ13010370	Fab SS Subbooster Amplifier	S	CON	SL_KT	Hrs	200		12,668		12,668	30%
1	02	13	01	03		IJ13010366	Refurbish Modulator	S	CON	SL_CT	Hrs	320		20,269		20,269	30%
1	02	13	01	03		IJ13010360	Fab Dac Sam Breakout Units (6)	S	CON	SL_MSEG	$$		6,000		6,720	6,720	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	13	01	03		IJ13010360	Fab Dac Sam Breakout Units (6)	S	CON	SL_KT	Hrs	120		7,601		7,601	30%
1	02	13	01	03		IJ13010356	Fab S-Band Units (12)	S	CON	SL_MSEG	$$		36,000		40,320	40,320	30%
1	02	13	01	03		IJ13010356	Fab S-Band Units (12)	S	CON	SL_KT	Hrs	480		30,403		30,403	30%
1	02	13	01	03		IJ13010389	Install Cables	S	CON	SL_PCT	Hrs	80		5,067		5,067	30%
1	02	13	01	03		IJ13010389	Install Cables	S	CON	SL_MSEG	$$		6,000		6,720	6,720	30%
1	02	13	01	03		IJ13010372	Integration SS Subbooster Amplifier	S	CON	SL_KT	Hrs	200		12,712		12,712	30%
1	02	13	01	03		IJ13010368	Klystron Change to Source Tube	S	CON	SL_KT	Hrs	160		10,261		10,261	30%
1	02	13	01	03		IJ13010391	Install Modules	S	CON	SL_KT	Hrs	160		10,398		10,398	30%
1	02	13	01	03		IJ13010391	Install Modules	S	CON	SL_KE	Hrs	40		4,747		4,747	30%
1	02	13	01	03		IJ13010392	Install Mod Control Interace	S	CON	SL_KT	Hrs	40		2,600		2,600	30%
1	**02**	**13**	**01**	**04**			**Beam Phase Monitor Cavity**					**2,040**	**110,000**	**196,261**	**123,817**	**320,078**	
1	02	13	01	04		IJ13010400	Define Beamline Component	S	PED	SL_PHSS	Hrs	74		6,858		6,858	30%
1	02	13	01	04		IJ13010400	Define Beamline Component	S	PED	SL_KE	Hrs	148		16,651		16,651	30%
1	02	13	01	04		IJ13010412	Prepare for PDR	S	CON	SL_KE	Hrs	8		900		900	30%
1	02	13	01	04		IJ13010410	Create Layouts	S	CON	SL_MDD	Hrs	400		25,740		25,740	30%
1	02	13	01	04		IJ13010408	Develop Documentation	S	CON	SL_KE	Hrs	80		9,233		9,233	30%
1	02	13	01	04		IJ13010414	Conduct PDR	S	CON	SL_KE	Hrs	4		450		450	30%
1	02	13	01	04		IJ13010415	Beam Phase Length Detector	S	CON	SL_PHSS	Hrs	400		38,037		38,037	30%
1	02	13	01	04		IJ13010415	Beam Phase Length Detector	S	CON	SL_MSEG	$$		80,000		89,437	89,437	30%
1	02	13	01	04		IJ13010415	Beam Phase Length Detector	S	CON	SL_KE	Hrs	400		46,178		46,178	30%
1	02	13	01	04		IJ13010416	Generate Procurement Plan	S	CON	SL_KE	Hrs	4		463		463	30%
1	02	13	01	04		IJ13010418	Create Test Plan	S	CON	SL_KE	Hrs	40		4,626		4,626	30%
1	02	13	01	04		IJ13010420	Establish Subordinate W.O.'s	S	CON	SL_ME	Hrs	4		435		435	30%
1	02	13	01	04		IJ13010422	Prepare for FDR	S	CON	SL_KE	Hrs	8		925		925	30%
1	02	13	01	04		IJ13010424	Conduct FDR	S	CON	SL_KE	Hrs	4		463		463	30%
1	02	13	01	04		IJ13010430	Fab Beam Line Components	S	CON	SL_MSEG	$$		30,000		34,380	34,380	30%
1	02	13	01	04		IJ13010430	Fab Beam Line Components	S	CON	SL_MFMS	Hrs	120		12,663		12,663	30%
1	02	13	01	04		IJ13010430	Fab Beam Line Components	S	CON	SL_KT	Hrs	80		5,182		5,182	30%
1	02	13	01	04		IJ13010436	Cold Test Components	S	CON	SL_KE	Hrs	40		4,747		4,747	30%
1	02	13	01	04		IJ13010442	Install Modules	S	CON	SL_MFAT	Hrs	50		4,318		4,318	30%
1	02	13	01	04		IJ13010442	Install Modules	S	CON	SL_KE	Hrs	104		12,342		12,342	30%
1	02	13	01	04		IJ13010439	Bake Beamline Components	S	CON	SL_MFAT	Hrs	40		3,454		3,454	30%
1	02	13	01	04		IJ13010448	Install Cables	S	CON	SL_KT	Hrs	16		1,040		1,040	30%
1	02	13	01	04		IJ13010450	Install LCW	S	CON	SL_TMUP	Hrs	16		1,556		1,556	30%
1	**02**	**13**	**01**	**05**			**RF System S/W Development / Docs**					**2,116**	**-**	**190,565**	**-**	**190,565**	
1	02	13	01	05		IJ13010528	RF Feedback Measurements/Algorithm Development	S	PED	SL_KE	Hrs	1,000		112,510		112,510	30%
1	02	13	01	05		IJ13010502	Develop Specification	S	CON	SL_KE	Hrs	80		9,253		9,253	30%
1	02	13	01	05		IJ13010510	Prepare for PDR	S	CON	SL_KE	Hrs	8		925		925	30%
1	02	13	01	05		IJ13010506	Create Layouts	S	CON	SL_MDD	Hrs	1,000		64,638		64,638	30%
1	02	13	01	05		IJ13010512	Conduct PDR	S	CON	SL_KE	Hrs	4		463		463	30%
1	02	13	01	05		IJ13010516	Create Test Plan	S	CON	SL_KE	Hrs	20		2,313		2,313	30%
1	02	13	01	05		IJ13010522	Conduct FDR	S	CON	SL_KE	Hrs	4		463		463	30%
1	**02**	**13**	**02**				**Reserved**										
1	**02**	**13**	**02**	**01**			**Reserved**										
1	**02**	**13**	**02**	**02**			**Reserved**										
1	**02**	**13**	**02**	**03**			**Reserved**										
1	**02**	**14**					**Cathode Processing (CP) Station**					**2,225**	**141,400**	**169,343**	**156,226**	**325,569**	
1	**02**	**14**	**01**				**CP Cathode Assembly & Supports**					**233**	**400**	**17,153**	**436**	**17,589**	
1	02	14	01			IJ14010000	Define CP Cathode Assembly Requirements	S	CON	SL_PHS	Hrs	4		291		291	60%
1	02	14	01			IJ14010000	Define CP Cathode Assembly Requirements	S	CON	SL_ME	Hrs	4		423		423	60%
1	02	14	01			IJ14010000	Define CP Cathode Assembly Requirements	S	CON	SL_MDD	Hrs	8		502		502	60%
1	02	14	01			IJ14010020	Develop CP Cathode Assembly Design	S	CON	SL_PHS	Hrs	10		728		728	60%
1	02	14	01			IJ14010020	Develop CP Cathode Assembly Design	S	CON	SL_ME	Hrs	20		2,114		2,114	60%
1	02	14	01			IJ14010020	Develop CP Cathode Assembly Design	S	CON	SL_MDD	Hrs	80		5,019		5,019	60%
1	02	14	01			IJ14010030	Develop CP Cathode Support Design	S	CON	SL_ME	Hrs	5		529		529	60%
1	02	14	01			IJ14010030	Develop CP Cathode Support Design	S	CON	SL_MDD	Hrs	42		2,635		2,635	60%
1	02	14	01			IJ14010050	Procure CP Cathode Materials	S	CON	SL_MSEG	$$		200		218	218	60%
1	02	14	01			IJ14010060	Procure CP Cathode Support Materials	S	CON	SL_MSEG	$$		200		218	218	60%
1	02	14	01			IJ14010070	Fab & Assemble CP Cathode Assembly	S	CON	SL_MFAT	Hrs	40		3,275		3,275	60%
1	02	14	01			IJ14010080	Fab & Assemble CP Cathode Support Assembly	S	CON	SL_MFAT	Hrs	20		1,637		1,637	60%
1	**02**	**14**	**02**				**CP Load Lock**					**359**	**65,000**	**28,690**	**70,850**	**99,540**	
1	02	14	02			IJ14020000	Define Cathode Clamping Requirements	S	CON	SL_PHS	Hrs	2		146		146	60%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	14	02			IJ14020000	Define Cathode Clamping Requirements	S	CON	SL_ME	Hrs	5		529		529	60%
1	02	14	02			IJ14020000	Define Cathode Clamping Requirements	S	CON	SL_MDD	Hrs	10		627		627	60%
1	02	14	02			IJ14020010	Define Cathode Transfer Requirements	S	CON	SL_PHS	Hrs	2		146		146	60%
1	02	14	02			IJ14020010	Define Cathode Transfer Requirements	S	CON	SL_ME	Hrs	10		1,057		1,057	60%
1	02	14	02			IJ14020010	Define Cathode Transfer Requirements	S	CON	SL_MDD	Hrs	20		1,255		1,255	60%
1	02	14	02			IJ14020030	Develop CP Load Lock Design	S	CON	SL_ME	Hrs	20		2,114		2,114	60%
1	02	14	02			IJ14020030	Develop CP Load Lock Design	S	CON	SL_MDD	Hrs	80		5,019		5,019	60%
1	02	14	02			IJ14020041	Prep Bid Pak - CP Load Lock Materials	S	CON	SL_ME	Hrs	8		846		846	60%
1	02	14	02			IJ14020045	Eval Vendor Prop- CP Load Lock Materials	S	CON	SL_ME	Hrs	2		211		211	60%
1	02	14	02			IJ14020050	Vendor Fab CP Load Lock Materials	S	CON	SL_MSEG	$$		65,000		70,850	70,850	60%
1	02	14	02			IJ14020060	Fab & Assemble CP Load Lock	S	CON	SL_MFAT	Hrs	200		16,740		16,740	60%
1	**02**	**14**	**03**				**CP Load Lock Supports**					**132**	**1,000**	**10,071**	**1,090**	**11,161**	
1	02	14	03			IJ14030000	Define Load Lock Supports Requirements	S	CON	SL_ME	Hrs	1		106		106	30%
1	02	14	03			IJ14030000	Define Load Lock Supports Requirements	S	CON	SL_MDD	Hrs	4		251		251	30%
1	02	14	03			IJ14030020	Develop CP Load Lock Support Design	S	CON	SL_ME	Hrs	5		529		529	30%
1	02	14	03			IJ14030020	Develop CP Load Lock Support Design	S	CON	SL_MDD	Hrs	42		2,635		2,635	30%
1	02	14	03			IJ14030040	Procure CP Load Lock Support Materials	S	CON	SL_MSEG	$$		1,000		1,090	1,090	30%
1	02	14	03			IJ14030050	Fab & Assemble CP Load Lock Support	S	CON	SL_MFAT	Hrs	80		6,550		6,550	30%
1	**02**	**14**	**04**				**CP Station**					**1,465**	**70,000**	**110,772**	**78,400**	**189,172**	
1	02	14	04			IJ14040000	Define Cathode Processing Requirements	S	CON	SL_PHS	Hrs	10		728		728	60%
1	02	14	04			IJ14040000	Define Cathode Processing Requirements	S	CON	SL_ME	Hrs	20		2,114		2,114	60%
1	02	14	04			IJ14040000	Define Cathode Processing Requirements	S	CON	SL_MDD	Hrs	40		2,510		2,510	60%
1	02	14	04			IJ14040010	Define Cathode Transfer Requirements	S	CON	SL_PHS	Hrs	10		728		728	60%
1	02	14	04			IJ14040010	Define Cathode Transfer Requirements	S	CON	SL_ME	Hrs	20		2,114		2,114	60%
1	02	14	04			IJ14040010	Define Cathode Transfer Requirements	S	CON	SL_MDD	Hrs	35		2,196		2,196	60%
1	02	14	04			IJ14040030	Develop CP Station Chamber Design	S	CON	SL_PHS	Hrs	50		3,641		3,641	60%
1	02	14	04			IJ14040030	Develop CP Station Chamber Design	S	CON	SL_ME	Hrs	150		15,857		15,857	60%
1	02	14	04			IJ14040030	Develop CP Station Chamber Design	S	CON	SL_MDD	Hrs	750		47,055		47,055	60%
1	02	14	04			IJ14040040	Develop CP Station Support Design	S	CON	SL_PHS	Hrs	10		728		728	60%
1	02	14	04			IJ14040040	Develop CP Station Support Design	S	CON	SL_ME	Hrs	80		8,457		8,457	60%
1	02	14	04			IJ14040051	Prep Bid Pak - CP Station Chamber Materials	S	CON	SL_ME	Hrs	8		862		862	60%
1	02	14	04			IJ14040055	Eval Vendor Prop- CP Station Chamber Materials	S	CON	SL_ME	Hrs	2		217		217	60%
1	02	14	04			IJ14040060	Vendor Fab CP Station Chamber Materials	S	CON	SL_MSEG	$$		65,000		72,800	72,800	60%
1	02	14	04			IJ14040070	Procure CP Station Support Materials	S	CON	SL_MSEG	$$		5,000		5,600	5,600	60%
1	02	14	04			IJ14040080	Fab & Assemble Chamber Assembly	S	CON	SL_MFAT	Hrs	200		16,832		16,832	60%
1	02	14	04			IJ14040090	Fab & Assemble Supports	S	CON	SL_MFAT	Hrs	80		6,733		6,733	60%
1	**02**	**14**	**05**				**Cathode Lab Infrastructure**					**36**	**5,000**	**2,657**	**5,450**	**8,107**	
1	02	14	05			IJ14050000	Define CP Lab Infrastructure Requirements	S	CON	SL_PHS	Hrs	16		1,165		1,165	60%
1	02	14	05			IJ14050020	Develop CP Lab Infrastructure Design	S	CON	SL_PHS	Hrs	16		1,165		1,165	60%
1	02	14	05			IJ14050040	Procure CP Lab Infrastructure Materials	S	CON	SL_MSEG	$$		5,000		5,450	5,450	60%
1	02	14	05			IJ14050050	Assemble CP Lab Infrastructure	S	CON	SL_MFAT	Hrs	4		327		327	60%
1	**02**	**15**					**Injector Laser Heater Subsystem**					**2,412**	**343,168**	**197,781**	**389,083**	**586,864**	
1	**02**	**15**	**01**				**System Design & Optimization**					**100**	**-**	**10,324**	**-**	**10,324**	
1	02	15	01			IJ15010015	Laser Heater System Design Review	S	CON	SL_PHS	Hrs	20		1,536		1,536	35%
1	02	15	01			IJ15010015	Laser Heater System Design Review	S	CON	SL_OE	Hrs	10		1,187		1,187	35%
1	02	15	01			IJ15010015	Laser Heater System Design Review	S	CON	SL_ME	Hrs	20		2,230		2,230	35%
1	02	15	01			IJ15010020	Laser Heater System Design Modifications	S	CON	SL_PHS	Hrs	10		768		768	35%
1	02	15	01			IJ15010020	Laser Heater System Design Modifications	S	CON	SL_OE	Hrs	20		2,373		2,373	35%
1	02	15	01			IJ15010020	Laser Heater System Design Modifications	S	CON	SL_ME	Hrs	20		2,230		2,230	35%
1	**02**	**15**	**02**				**Beam Conditioning Optics (Laser Bay)**					**210**	**17,519**	**15,961**	**20,147**	**36,108**	
1	02	15	02			IJ15020005	Design Beam Conditioning	S	CON	SL_PHS	Hrs	10		768		768	30%
1	02	15	02			IJ15020005	Design Beam Conditioning	S	CON	SL_OE	Hrs	40		4,747		4,747	30%
1	02	15	02			IJ15020005	Design Beam Conditioning	S	CON	SL_MDD	Hrs	40		2,647		2,647	30%
1	02	15	02			IJ15020015	Define Beam Conditioning Components Specs	S	CON	SL_OT	Hrs	40		2,600		2,600	30%
1	02	15	02			IJ15020035	Procure Optics safety equipment	S	CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	02	15	02			IJ15020030	Procure Path length adjustor breadboard & Comps	S	CON	SL_MSEG	$$		4,472		5,143	5,143	30%
1	02	15	02			IJ15020025	Procure First telescope optics	S	CON	SL_MSEG	$$		2,466		2,836	2,836	30%
1	02	15	02			IJ15020020	Procure Compressor breadboard and components	S	CON	SL_MSEG	$$		8,581		9,868	9,868	30%
1	02	15	02			IJ15020040	Install and Test Beam Conditioning optics	S	CON	SL_OT	Hrs	80		5,199		5,199	30%
1	**02**	**15**	**03**				**Transport Optics (Bay to Tunnel)**					**300**	**39,076**	**22,577**	**44,981**	**67,558**	
1	02	15	03			IJ15030005	Design Transport optics	S	CON	SL_PHS	Hrs	10		768		768	30%
1	02	15	03			IJ15030005	Design Transport optics	S	CON	SL_OE	Hrs	40		4,747		4,747	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	15	03			IJ15030005	Design Transport optics	S	CON	SL_MDD	Hrs	40		2,647		2,647	30%
1	02	15	03			IJ15030040	Design enclosures,laser beam tubes & supports	S	CON	SL_OE	Hrs	10		1,187		1,187	30%
1	02	15	03			IJ15030040	Design enclosures,laser beam tubes & supports	S	CON	SL_MDD	Hrs	80		5,294		5,294	30%
1	02	15	03			IJ15030015	Define Transport System Optics Specs	S	CON	SL_OT	Hrs	40		2,600		2,600	30%
1	02	15	03			IJ15030030	Procure Optics launch table in tunnel	S	CON	SL_MSEG	$$		11,659		13,408	13,408	30%
1	02	15	03			IJ15030025	Procure Reducing telescope	S	CON	SL_MSEG	$$		1,592		1,831	1,831	30%
1	02	15	03			IJ15030020	Procure Relay optics transport system	S	CON	SL_MSEG	$$		17,075		19,636	19,636	30%
1	02	15	03			IJ15030045	Procure enclosures,beam tubes & supports	S	CON	SL_MSEG	$$		8,750		10,106	10,106	30%
1	02	15	03			IJ15030035	Transport optics installation, alignment & test	S	CON	SL_OT	Hrs	80		5,334		5,334	30%
1	**02**	**15**	**04**				**Chicane**					**1,338**	**20,000**	**112,688**	**22,400**	**135,088**	
1	02	15	04			IJ15040005	Define Bend Magnet specifications	S	CON	SL_PHS	Hrs	48		3,593		3,593	35%
1	02	15	04			IJ15040060	Design Beampipe and RF transition	S	CON	SL_PHS	Hrs	40		2,994		2,994	35%
1	02	15	04			IJ15040060	Design Beampipe and RF transition	S	CON	SL_ME	Hrs	10		1,087		1,087	35%
1	02	15	04			IJ15040060	Design Beampipe and RF transition	S	CON	SL_MDD	Hrs	40		2,580		2,580	35%
1	02	15	04			IJ15040010	Design Bend Magnets	S	CON	SL_ME	Hrs	230		24,994		24,994	35%
1	02	15	04			IJ15040010	Design Bend Magnets	S	CON	SL_MDD	Hrs	450		29,021		29,021	35%
1	02	15	04			IJ15040070	Fabricate Beampipe	S	CON	SL_MFMS	Hrs	160		16,512		16,512	35%
1	02	15	04			IJ15040030	Design Magnet Strongback	S	CON	SL_ME	Hrs	12		1,304		1,304	35%
1	02	15	04			IJ15040030	Design Magnet Strongback	S	CON	SL_MDD	Hrs	88		5,675		5,675	35%
1	02	15	04			IJ15040015	Procure magnet	S	CON	SL_MSEG	$$		16,000		17,920	17,920	35%
1	02	15	04			IJ15040032	Procure Magnet strongback	S	CON	SL_MSEG	$$		4,000		4,480	4,480	35%
1	02	15	04			IJ15040035	Fabricate Magnet strongback	S	CON	SL_MFMS	Hrs	160		16,512		16,512	35%
1	02	15	04			IJ15040020	Perform Magnet Measurements	S	CON	SL_MFAT	Hrs	80		6,733		6,733	35%
1	02	15	04			IJ15040040	Assemble Magnets on Strongback	S	CON	SL_MFAT	Hrs	20		1,683		1,683	35%
1	**02**	**15**	**05**				**Undulator**					**228**	**240,000**	**17,931**	**270,996**	**288,927**	
1	02	15	05			IJ15050005	Define Undulator specifications	S	CON	SL_PHS	Hrs	40		2,994		2,994	35%
1	02	15	05			IJ15050010	Undulator design review	S	CON	SL_PHS	Hrs	20		1,497		1,497	35%
1	02	15	05			IJ15050011	Prep Bid Pak - Undulator	S	CON	SL_MDD	Hrs	20		1,290		1,290	35%
1	02	15	05			IJ15050011	Prep Bid Pak - Undulator	S	CON	SL_ADMN	Hrs	20		1,201		1,201	35%
1	02	15	05			IJ15050015	Evaluate Vendor Proposals - Undulator	S	CON	SL_PHS	Hrs	8		599		599	35%
1	02	15	05			IJ15050020	Fab/Procure Undulator	S	CON	SL_MSEG	$$		240,000		270,996	270,996	35%
1	02	15	05			IJ15050035	Perform Magnetic measurements and QA	S	CON	SL_PHS	Hrs	20		1,536		1,536	35%
1	02	15	05			IJ15050035	Perform Magnetic measurements and QA	S	CON	SL_MFAT	Hrs	80		6,908		6,908	35%
1	02	15	05			IJ15050035	Perform Magnetic measurements and QA	S	CON	SL_MES	Hrs	20		1,906		1,906	35%
1	**02**	**15**	**06**				**Photon Beam Diagnostics**					**236**	**26,573**	**18,300**	**30,559**	**48,859**	
1	02	15	06			IJ15060005	Design Diagnostics	S	CON	SL_PHS	Hrs	10		768		768	30%
1	02	15	06			IJ15060005	Design Diagnostics	S	CON	SL_OE	Hrs	40		4,747		4,747	30%
1	02	15	06			IJ15060005	Design Diagnostics	S	CON	SL_MDD	Hrs	40		2,647		2,647	30%
1	02	15	06			IJ15060040	Design Supports	S	CON	SL_OE	Hrs	10		1,187		1,187	30%
1	02	15	06			IJ15060040	Design Supports	S	CON	SL_MDD	Hrs	40		2,647		2,647	30%
1	02	15	06			IJ15060015	Prepare Diagnostics spec and purchase	S	CON	SL_OT	Hrs	16		1,040		1,040	30%
1	02	15	06			IJ15060035	Procure Timing diode + oscilloscope	S	CON	SL_MSEG	$$		11,335		13,035	13,035	30%
1	02	15	06			IJ15060030	Procure optics for photon diagnostics	S	CON	SL_MSEG	$$		4,168		4,793	4,793	30%
1	02	15	06			IJ15060025	Procure Molectron power meter	S	CON	SL_MSEG	$$		1,070		1,231	1,231	30%
1	02	15	06			IJ15060020	Procure Spiricon camera	S	CON	SL_MSEG	$$		5,000		5,750	5,750	30%
1	02	15	06			IJ15060045	Fabricate Supports	S	CON	SL_MSSC	$$		5,000		5,750	5,750	30%
1	02	15	06			IJ15060050	Install and test Photon beam diagnostics	S	CON	SL_OT	Hrs	80		5,264		5,264	30%
1	**02**	**15**	**07**				**Reserved**										
1	**02**	**15**	**08**				**Reserved**										
1	**02**	**16**					**Injector Protection & Pwr Conv Subsystem**					**7,763**	**466,020**	**721,584**	**509,303**	**1,230,887**	
1	**02**	**16**	**01**				**Personnel Protection Subsystem (PPS)**					**1,520**	**79,293**	**121,714**	**86,430**	**208,144**	
1	02	16	01			IJ1601_006	Conduct Conceptual Design Review - Laser	S	PED	SL_CE	Hrs	8		875		875	30%
1	02	16	01			IJ1601_002	Initial Laser Room PPS Requirements	S	PED	SL_CE	Hrs	40		4,374		4,374	30%
1	02	16	01			IJ1601_004	Finalize Laser Rm PPS Specification Requirements	S	PED	SL_CE	Hrs	8		875		875	30%
1	02	16	01			IJ16010005	Finalize Specification Requirements - PPS	S	PED	SL_CE	Hrs	8		875		875	30%
1	02	16	01			IJ16010010	Conduct Design Review - PPS	S	PED	SL_CE	Hrs	8		875		875	30%
1	02	16	01			IJ1601_012	PPS Design Engineering (Laser)	S	PED	SL_CE	Hrs	77		8,505		8,505	30%
1	02	16	01			IJ1601_012	PPS Design Engineering (Laser)	S	PED	SL_CCA	Hrs	75		4,825		4,825	30%
1	02	16	01			IJ1601_016	PPS Design Drafting (Laser)	S	PED	SL_CT	Hrs	160		9,713		9,713	30%
1	02	16	01			IJ16010015	Conduct SLAC Citizen Committee Review	S	PED	SL_CE	Hrs	80		8,933		8,933	30%
1	02	16	01			IJ16010055	Design PPS Hardware	S	CON	SL_ME	Hrs	40		4,228		4,228	30%
1	02	16	01			IJ16010038	PPS Design Engineering	S	PED	SL_CE	Hrs	200		22,502		22,502	30%

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												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	16	01			IJ16010038	PPS Design Engineering	S	PED	SL_CCA	Hrs	100		6,553		6,553	30%
1	02	16	01			IJ1601_018	Conduct Design Review (Laser)	S	CON	SL_CE	Hrs	8		900		900	30%
1	02	16	01			IJ1601_098	Procure 4 pr Armored	S	CON	SL_MSEG	$$		380		414	414	30%
1	02	16	01			IJ1601_096	Procure 12 pr Armored	S	CON	SL_MSEG	$$		240		262	262	30%
1	02	16	01			IJ1601_094	Procure 50 pr Armored	S	CON	SL_MSEG	$$		340		371	371	30%
1	02	16	01			IJ1601_090	Procure PANELVIEW TOUCH PANEL	S	CON	SL_MSEG	$$		1,500		1,635	1,635	30%
1	02	16	01			IJ1601_088	Procure PROCESSOR 1756-L55M13	S	CON	SL_MSEG	$$		4,300		4,687	4,687	30%
1	02	16	01			IJ1601_082	Procure CLX ETHERNET/IP-1756-ENBT	S	CON	SL_MSEG	$$		1,560		1,700	1,700	30%
1	02	16	01			IJ1601_080	Procure DIGITAL OUTPUT 1756-OB16D	S	CON	SL_MSEG	$$		660		719	719	30%
1	02	16	01			IJ1601_078	Procure DIGITAL INPUT 1754-IB16D	S	CON	SL_MSEG	$$		490		534	534	30%
1	02	16	01			IJ1601_076	Procure BRIDGE MODULE 1756-CNB	S	CON	SL_MSEG	$$		1,175		1,281	1,281	30%
1	02	16	01			IJ1601_074	Procure 85-265VAC AT 10A 1756-PB72	S	CON	SL_MSEG	$$		740		807	807	30%
1	02	16	01			IJ1601_072	Procure 7 SLOT CONTROLOGIX CHASSIS	S	CON	SL_MSEG	$$		291		317	317	30%
1	02	16	01			IJ1601_030	Procure ENTRY MODULE & DOOR HARDWARE	S	CON	SL_MSEG	$$		3,000		3,270	3,270	30%
1	02	16	01			IJ1601_028	Procure CLEAN & LOAD LOCK ROOM HARDWARE	S	CON	SL_MSEG	$$		1,900		2,071	2,071	30%
1	02	16	01			IJ16010040	PPS Design Drafting	S	PED	SL_CT	Hrs	224		13,803		13,803	30%
1	02	16	01			IJ16010210	Procure Cable,TBD Hazards Intf.	S	CON	SL_MSEG	$$		2,000		2,180	2,180	30%
1	02	16	01			IJ16010205	Procure 4 pr Cable (4000ft)	S	CON	SL_MSEG	$$		1,520		1,657	1,657	30%
1	02	16	01			IJ16010200	Procure 50 pr Cable (400ft)	S	CON	SL_MSEG	$$		1,360		1,482	1,482	30%
1	02	16	01			IJ16010195	Procure 12 pr Cable (400ft)	S	CON	SL_MSEG	$$		480		523	523	30%
1	02	16	01			IJ16010190	Procure Cable, Multi-Cond, PA Sys to X-connects	S	CON	SL_MSEG	$$		240		262	262	30%
1	02	16	01			IJ16010185	Procure Cable, 36 PR Arm, Logic Pnl to Cntrl Con	S	CON	SL_MSEG	$$		800		872	872	30%
1	02	16	01			IJ16010180	Procure VME Cable, Panel to SAM (BSOIC R/O)	S	CON	SL_MSEG	$$		200		218	218	30%
1	02	16	01			IJ16010175	Procure VME Cable, Panel to LDIM	S	CON	SL_MSEG	$$		800		872	872	30%
1	02	16	01			IJ16010170	Procure VME Cable, Panel to IDOM	S	CON	SL_MSEG	$$		200		218	218	30%
1	02	16	01			IJ16010165	Procure VME Module, SAM	S	CON	SL_MSEG	$$		3,777		4,117	4,117	30%
1	02	16	01			IJ16010160	Procure VME Module, LDIM	S	CON	SL_MSEG	$$		3,000		3,270	3,270	30%
1	02	16	01			IJ16010155	Procure VME Module, IDOM	S	CON	SL_MSEG	$$		1,250		1,363	1,363	30%
1	02	16	01			IJ16010140	Procure ENTRY MODULE HARDWARE	S	CON	SL_MSEG	$$		4,835		5,270	5,270	30%
1	02	16	01			IJ16010135	Procure TUNNEL HARDWARE	S	CON	SL_MSEG	$$		4,980		5,428	5,428	30%
1	02	16	01			IJ16010130	Procure PANEL VIEW TOUCH PANEL	S	CON	SL_MSEG	$$		1,500		1,635	1,635	30%
1	02	16	01			IJ16010125	Procure PROCESSOR 1756-L55M13 (3)	S	CON	SL_MSEG	$$		12,900		14,061	14,061	30%
1	02	16	01			IJ16010120	Procure FIBER REPEATER 1786RPFS (3)	S	CON	SL_MSEG	$$		1,440		1,570	1,570	30%
1	02	16	01			IJ16010115	Procure CN MODR REP ADAPT 1786RPA (3)	S	CON	SL_MSEG	$$		2,760		3,008	3,008	30%
1	02	16	01			IJ16010110	Procure CLX ETHERNET/IP-1756-ENBT	S	CON	SL_MSEG	$$		1,560		1,700	1,700	30%
1	02	16	01			IJ16010105	Procure DIGITAL OUTPUT 1756-OB16D (4)	S	CON	SL_MSEG	$$		2,640		2,878	2,878	30%
1	02	16	01			IJ16010100	Procure DIGITAL INPUT 1754-IB16D (5)	S	CON	SL_MSEG	$$		2,450		2,671	2,671	30%
1	02	16	01			IJ16010095	Procure BRIDGE MODULE 1756-CNB (3)	S	CON	SL_MSEG	$$		3,525		3,842	3,842	30%
1	02	16	01			IJ16010090	Procure 85-265VAC at 10A1756-PB72 (3)	S	CON	SL_MSEG	$$		2,220		2,420	2,420	30%
1	02	16	01			IJ16010085	Procure 7 SLOT CONTROLOGIX CHASSIS(2)	S	CON	SL_MSEG	$$		800		872	872	30%
1	02	16	01			IJ16010080	Procure 4 SLOT CONTROLOGIX CHASSIS	S	CON	SL_MSEG	$$		280		305	305	30%
1	02	16	01			IJ16010075	Procure RSVIEW32	S	CON	SL_MSEG	$$		2,200		2,398	2,398	30%
1	02	16	01			IJ16010070	Procure RSLOGIX5K Software	S	CON	SL_MSEG	$$		3,000		3,270	3,270	30%
1	02	16	01			IJ1601_102	Fab and Pre Assemble Laser Comp (as required)	S	CON	SL_PCEF	Hrs	228		14,049		14,049	30%
1	02	16	01			IJ1601_106	Conduct Design Review	S	CON	SL_CE	Hrs	8		900		900	30%
1	02	16	01			IJ1601_108	Conduct SLAC Citizen Committee Review's	S	CON	SL_CE	Hrs	8		900		900	30%
1	02	16	01			IJ1601_110	Perform Pre-Install Qual Test on Laser PPS	S	CON	SL_CT	Hrs	80		4,930		4,930	30%
1	02	16	01			IJ16010060	Fab PPS Hardware	S	CON	SL_MFAT	Hrs	160		13,099		13,099	30%
1	**02**	**16**	**02**				**Reserved**										
1	**02**	**16**	**03**				**Machine Protection Subsystem (MPS)**					**186**	**44,477**	**15,662**	**49,815**	**65,477**	
1	02	16	03			IJ16030030	MPS Design Drafting	S	CON	SL_CCA	Hrs	64		4,194		4,194	30%
1	02	16	03			IJ16030265	Conduct Design Review	S	CON	SL_CE	Hrs	8		900		900	30%
1	02	16	03			IJ16030080	Procure PIC Hardware	S	CON	SL_MSEG	$$		17,000		19,040	19,040	30%
1	02	16	03			IJ16030079	Procure PIC Electronics	S	CON	SL_MSEG	$$		8,100		9,072	9,072	30%
1	02	16	03			IJ16030076	Procure Chassis	S	CON	SL_MSEG	$$		700		784	784	30%
1	02	16	03			IJ16030072	Procure RTD, TC Panel Meters, TRP	S	CON	SL_MSEG	$$		1,800		2,016	2,016	30%
1	02	16	03			IJ16030068	Procure VME - SAM (3)	S	CON	SL_MSEG	$$		11,331		12,691	12,691	30%
1	02	16	03			IJ16030064	Procure Connectors	S	CON	SL_MSEG	$$		856		959	959	30%
1	02	16	03			IJ16030060	Procure TC Cable	S	CON	SL_MSEG	$$		4,690		5,253	5,253	30%
1	02	16	03			IJ16030005	Finalize Specification Requirements - MPS	S	CON	SL_CE	Hrs	8		925		925	30%
1	02	16	03			IJ16030010	Conduct Design Review	S	CON	SL_CE	Hrs	8		925		925	30%
1	02	16	03			IJ16030081	Fab MPS Equipment	S	CON	SL_CT	Hrs	50		3,167		3,167	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	16	03			IJ16030270	Conduct SLAC Citizen Committee Review	S	CON	SL_CE	Hrs	8		925		925	30%
1	02	16	03			IJ16030280	Perform Pre-Install Qual Test on Injector MPS	S	CON	SL_CE	Hrs	40		4,626		4,626	30%
1	**02**	**16**	**04**				**Injector Power Conversion**					**6,057**	**342,250**	**584,208**	**373,058**	**957,266**	
1	**02**	**16**	**04**	**01**			**Beamline Pwr Supplies - (Dipole Type)**					**4,408**	**68,599**	**456,679**	**74,778**	**531,457**	
1	02	16	04	01		IJ1604_050	Finalize Power Conv Requirements Definition	S	PED	SL_PCE	Hrs	40		4,374		4,374	30%
1	02	16	04	01		IJ1604_000	Finalize Power Conv Requirements Definition	S	PED	SL_PCE	Hrs	40		4,374		4,374	30%
1	02	16	04	01		IJ1604_001	Design power supplies (18 different types)	S	PED	SL_PCE	Hrs	3,168		360,174		360,174	30%
1	02	16	04	01		IJ1604_002	Write documentation	S	PED	SL_PCCA	Hrs	720		47,702		47,702	30%
1	02	16	04	01		IJ1604_060	Conduct Overall Pwr Conv Dsn Rev - (Trim Type)	S	PED	SL_PCE	Hrs	16		1,800		1,800	30%
1	02	16	04	01		IJ1604_065	Conduct ES&H Review - (Trim Type)	S	CON	SL_PCE	Hrs	8		900		900	30%
1	02	16	04	01		IJ1604_075	Prep Bid Pak - Power Supplies - (Trim Type)	S	CON	SL_PCE	Hrs	40		4,500		4,500	30%
1	02	16	04	01		IJ1604_015	Conduct Overall Pwr Conv Dsn Rev - (Dipole Type)	S	CON	SL_PCE	Hrs	16		1,800		1,800	30%
1	02	16	04	01		IJ1604_020	Conduct ES&H Review - (Dipole Type)	S	CON	SL_PCE	Hrs	8		900		900	30%
1	02	16	04	01		IJ1604_030	Prep Bid Pak - Power Supplies - (Dipole Type)	S	CON	SL_PCE	Hrs	40		4,500		4,500	30%
1	**02**	**16**	**04**	**01**	**01**		**10kw Power Supply - (Solenoid 1)**					**64**	**12,234**	**5,296**	**13,336**	**18,632**	
1	02	16	04	01	01	IJ16040165	Conduct Design Review	S	PED	SL_PCE	Hrs	8		875		875	30%
1	02	16	04	01	01	IJ16040124	Procure AC Breaker and Panel	S	CON	SL_MSEG	$$		400		436	436	30%
1	02	16	04	01	01	IJ16040122	Procure Interlock Hardware	S	CON	SL_MSEG	$$		20		22	22	30%
1	02	16	04	01	01	IJ16040120	Procure Klixon Run Safe Box	S	CON	SL_MSEG	$$		1,500		1,635	1,635	30%
1	02	16	04	01	01	IJ16040118	Procure Lugs, Splices, Etc.	S	CON	SL_MSEG	$$		20		22	22	30%
1	02	16	04	01	01	IJ16040116	Procure 2/C 18AWG Interlock	S	CON	SL_MSEG	$$		20		22	22	30%
1	02	16	04	01	01	IJ16040114	Procure 1/C #600kcmil	S	CON	SL_MSEG	$$		520		567	567	30%
1	02	16	04	01	01	IJ16040112	Procure Controller	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	01	01	IJ16040110	Procure Transductors	S	CON	SL_MSEG	$$		1,730		1,886	1,886	30%
1	02	16	04	01	01	IJ16040108	Procure Power Supply	S	CON	SL_MSEG	$$		6,224		6,784	6,784	30%
1	02	16	04	01	01	IJ16040175	Perform Solenoid 1 PS 10KW Pre-Install Qual Test	S	CON	SL_PCE	Hrs	16		1,800		1,800	30%
1	02	16	04	01	01	IJ16040175	Perform Solenoid 1 PS 10KW Pre-Install Qual Test	S	CON	SL_PCCA	Hrs	40		2,621		2,621	30%
1	**02**	**16**	**04**	**01**	**02**		**30kw Power Supply - (Solenoid 2)**					**64**	**15,197**	**5,296**	**16,566**	**21,862**	
1	02	16	04	01	02	IJ16040284	Conduct Design Review	S	PED	SL_PCE	Hrs	8		875		875	30%
1	02	16	04	01	02	IJ16040252	Procure AC Breaker and Panel	S	CON	SL_MSEG	$$		500		545	545	30%
1	02	16	04	01	02	IJ16040248	Procure Interlock Hardware	S	CON	SL_MSEG	$$		20		22	22	30%
1	02	16	04	01	02	IJ16040244	Procure Klixon Run Safe Box	S	CON	SL_MSEG	$$		1,500		1,635	1,635	30%
1	02	16	04	01	02	IJ16040240	Procure Lugs, Splices, Etc.	S	CON	SL_MSEG	$$		20		22	22	30%
1	02	16	04	01	02	IJ16040236	Procure 2/C 18AWG Interlock	S	CON	SL_MSEG	$$		20		22	22	30%
1	02	16	04	01	02	IJ16040232	Procure 1/C #750kcmil	S	CON	SL_MSEG	$$		1,150		1,254	1,254	30%
1	02	16	04	01	02	IJ16040228	Procure Controller	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	01	02	IJ16040224	Procure Transductors	S	CON	SL_MSEG	$$		1,730		1,886	1,886	30%
1	02	16	04	01	02	IJ16040205	Procure Power Supply	S	CON	SL_MSEG	$$		8,457		9,218	9,218	30%
1	02	16	04	01	02	IJ16040288	Perform Solenoid 2 PS 15KW Pre-Install Qual Test	S	CON	SL_PCE	Hrs	16		1,800		1,800	30%
1	02	16	04	01	02	IJ16040288	Perform Solenoid 2 PS 15KW Pre-Install Qual Test	S	CON	SL_PCCA	Hrs	40		2,621		2,621	30%
1	**02**	**16**	**04**	**01**	**03**		**Reserved**										
1	**02**	**16**	**04**	**01**	**04**		**15kw Power Supply - (B1-2)**					**64**	**14,467**	**5,321**	**15,770**	**21,091**	
1	02	16	04	01	04	IJ16040440	Procure AC Breaker and Panel	S	CON	SL_MSEG	$$		400		436	436	30%
1	02	16	04	01	04	IJ16040436	Procure Interlock Hardware	S	CON	SL_MSEG	$$		20		22	22	30%
1	02	16	04	01	04	IJ16040432	Procure Klixon Run Safe Box	S	CON	SL_MSEG	$$		1,500		1,635	1,635	30%
1	02	16	04	01	04	IJ16040428	Procure Lugs, Splices, Etc.	S	CON	SL_MSEG	$$		20		22	22	30%
1	02	16	04	01	04	IJ16040424	Procure 2/C 18AWG Interlock	S	CON	SL_MSEG	$$		20		22	22	30%
1	02	16	04	01	04	IJ16040420	Procure 1/C #600kcmil	S	CON	SL_MSEG	$$		520		567	567	30%
1	02	16	04	01	04	IJ16040416	Procure Controller	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	01	04	IJ16040412	Procure Transductors	S	CON	SL_MSEG	$$		1,730		1,886	1,886	30%
1	02	16	04	01	04	IJ16040408	Procure Power Supply	S	CON	SL_MSEG	$$		8,457		9,218	9,218	30%
1	02	16	04	01	04	IJ16040484	Conduct Design Review	S	CON	SL_PCE	Hrs	8		900		900	30%
1	02	16	04	01	04	IJ16040488	Perform BX011-BX02 PS 15KW Pre-Install Qual Test	S	CON	SL_PCE	Hrs	16		1,800		1,800	30%
1	02	16	04	01	04	IJ16040488	Perform BX011-BX02 PS 15KW Pre-Install Qual Test	S	CON	SL_PCCA	Hrs	40		2,621		2,621	30%
1	**02**	**16**	**04**	**01**	**05**		**15kw Power Supply - (B3 Spect)**					**64**	**14,467**	**5,321**	**15,770**	**21,091**	
1	02	16	04	01	05	IJ16040540	Procure AC Breaker and Panel	S	CON	SL_MSEG	$$		400		436	436	30%
1	02	16	04	01	05	IJ16040536	Procure Interlock Hardware	S	CON	SL_MSEG	$$		20		22	22	30%
1	02	16	04	01	05	IJ16040532	Procure Klixon Run Safe Box	S	CON	SL_MSEG	$$		1,500		1,635	1,635	30%
1	02	16	04	01	05	IJ16040528	Procure Lugs, Splices, Etc.	S	CON	SL_MSEG	$$		20		22	22	30%
1	02	16	04	01	05	IJ16040524	Procure 2/C 18AWG Interlock	S	CON	SL_MSEG	$$		20		22	22	30%
1	02	16	04	01	05	IJ16040520	Procure 1/C #600kcmil	S	CON	SL_MSEG	$$		520		567	567	30%
1	02	16	04	01	05	IJ16040516	Procure Controller	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	16	04	01	05	IJ16040512	Procure Transductors	S	CON	SL_MSEG	$$		1,730		1,886	1,886	30%
1	02	16	04	01	05	IJ16040508	Procure Power Supply	S	CON	SL_MSEG	$$		8,457		9,218	9,218	30%
1	02	16	04	01	05	IJ16040582	Conduct Design Review	S	CON	SL_PCE	Hrs	8		900		900	30%
1	02	16	04	01	05	IJ16040588	Perform BXS Spect PS 15KW Pre-Install Qual Test	S	CON	SL_PCE	Hrs	16		1,800		1,800	30%
1	02	16	04	01	05	IJ16040588	Perform BXS Spect PS 15KW Pre-Install Qual Test	S	CON	SL_PCCA	Hrs	40		2,621		2,621	30%
1	**02**	**16**	**04**	**01**	**06**		**10kw Power Supply - (New)**					**56**	**12,234**	**4,421**	**13,336**	**17,757**	
1	02	16	04	01	06	IJ16041240	Procure AC Breaker and Panel	S	CON	SL_MSEG	$$		400		436	436	30%
1	02	16	04	01	06	IJ16041236	Procure Interlock Hardware	S	CON	SL_MSEG	$$		20		22	22	30%
1	02	16	04	01	06	IJ16041232	Procure Klixon Run Safe Box	S	CON	SL_MSEG	$$		1,500		1,635	1,635	30%
1	02	16	04	01	06	IJ16041228	Procure Lugs, Splices, Etc.	S	CON	SL_MSEG	$$		20		22	22	30%
1	02	16	04	01	06	IJ16041224	Procure 2/C 18AWG Interlock	S	CON	SL_MSEG	$$		20		22	22	30%
1	02	16	04	01	06	IJ16041220	Procure 1/C #600kcmil	S	CON	SL_MSEG	$$		520		567	567	30%
1	02	16	04	01	06	IJ16041216	Procure Controller	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	01	06	IJ16041212	Procure Transductors	S	CON	SL_MSEG	$$		1,730		1,886	1,886	30%
1	02	16	04	01	06	IJ16041208	Procure Power Supply	S	CON	SL_MSEG	$$		6,224		6,784	6,784	30%
1	02	16	04	01	06	IJ16041262	Perform Wiggler PS 10KW Pre-Install Qual	S	CON	SL_PCE	Hrs	16		1,800		1,800	30%
1	02	16	04	01	06	IJ16041262	Perform Wiggler PS 10KW Pre-Install Qual	S	CON	SL_PCCA	Hrs	40		2,621		2,621	30%
1	**02**	**16**	**04**	**02**			**Beamline Pwr Supplies - (Trim Type)**					**256**	**157,016**	**21,184**	**171,148**	**192,332**	
1	**02**	**16**	**04**	**02**	**01**		**12Amp Power Supply - (MCOR_1)**					**64**	**45,894**	**5,296**	**50,025**	**55,321**	
1	02	16	04	02	01	IJ16040684	Conduct Design Review	S	PED	SL_PCE	Hrs	8		875		875	30%
1	02	16	04	02	01	IJ16040681	Procure 12Amp Modules - YSC5	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	01	IJ16040679	Procure 12Amp Modules - XSC5	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	01	IJ16040677	Procure 12Amp Modules - YSC4	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	01	IJ16040675	Procure 12Amp Modules - XSC4	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	01	IJ16040673	Procure 12Amp Modules - YSC3	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	01	IJ16040670	Procure 12Amp Modules - XSC3	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	01	IJ16040664	Procure AC Breaker and Panel	S	CON	SL_MSEG	$$		400		436	436	30%
1	02	16	04	02	01	IJ16040660	Procure Lugs, Splices, Etc. (16 units)	S	CON	SL_MSEG	$$		160		174	174	30%
1	02	16	04	02	01	IJ16040652	Procure 2/C #8 (15 units)	S	CON	SL_MSEG	$$		120		131	131	30%
1	02	16	04	02	01	IJ16040648	Procure 12Amp Modules - QG01-03	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	01	IJ16040644	Procure 12Amp Modules - SQ01	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	01	IJ16040641	Procure 12Amp Modules - XSC3	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	01	IJ16040640	Procure 12Amp Modules - CQ1	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	01	IJ16040636	Procure 12Amp Modules - YSC2	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	01	IJ16040633	Procure 12Amp Modules - XSC2	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	01	IJ16040632	Procure 12Amp Modules - YSC1	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	01	IJ16040628	Procure 12Amp Modules - XSC1	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	01	IJ16040624	Procure 12Amp Modules - YCS0	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	01	IJ16040621	Procure Cooling Unit	S	CON	SL_MSEG	$$		350		382	382	30%
1	02	16	04	02	01	IJ16040620	Procure 12Amp Modules - XSC0	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	01	IJ16040617	Procure Output Interface	S	CON	SL_MSEG	$$		600		654	654	30%
1	02	16	04	02	01	IJ16040616	Procure MCOR Controller Card (SAM DAC)	S	CON	SL_MSEG	$$		400		436	436	30%
1	02	16	04	02	01	IJ16040613	Procure SAM/DAC Cable	S	CON	SL_MSEG	$$		100		109	109	30%
1	02	16	04	02	01	IJ16040612	Procure MCOR Chassis	S	CON	SL_MSEG	$$		2,100		2,289	2,289	30%
1	02	16	04	02	01	IJ16040609	Procure Digital Analog Converter(VMIC 4132)	S	CON	SL_MSEG	$$		2,863		3,121	3,121	30%
1	02	16	04	02	01	IJ16040608	Procure MCOR Bulk Power Supply	S	CON	SL_MSEG	$$		6,224		6,784	6,784	30%
1	02	16	04	02	01	IJ16040605	Procure Smart Analog Monitor (VMIC 3122)	S	CON	SL_MSEG	$$		3,777		4,117	4,117	30%
1	02	16	04	02	01	IJ16040688	Perform MCOR_1 Pre-Install Qual Test	S	CON	SL_PCE	Hrs	16		1,800		1,800	30%
1	02	16	04	02	01	IJ16040688	Perform MCOR_1 Pre-Install Qual Test	S	CON	SL_PCCA	Hrs	40		2,621		2,621	30%
1	**02**	**16**	**04**	**02**	**02**		**30Amp Power Supply - (MCOR_2)**					**64**	**46,834**	**5,296**	**51,049**	**56,345**	
1	02	16	04	02	02	IJ16040704	Conduct Design Panel	S	PED	SL_PCE	Hrs	8		875		875	30%
1	02	16	04	02	02	IJ16040794	Procure 12Amp Modules - QE04	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	02	IJ16040789	Procure 12Amp Modules - QE03	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	02	IJ16040788	Procure AC Breaker and Panel	S	CON	SL_MSEG	$$		400		436	436	30%
1	02	16	04	02	02	IJ16040785	Procure 12Amp Modules - QE02	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	02	IJ16040784	Procure Lugs, Splices, Etc. (16 units)	S	CON	SL_MSEG	$$		160		174	174	30%
1	02	16	04	02	02	IJ16040781	Procure 12Amp Modules - QE01	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	02	IJ16040780	Procure 2/C 18AWG Interlock (16 units)	S	CON	SL_MSEG	$$		160		174	174	30%
1	02	16	04	02	02	IJ16040776	Procure 2/C #8 (16units)	S	CON	SL_MSEG	$$		500		545	545	30%
1	02	16	04	02	02	IJ16040772	Procure 12Amp Modules - QA02	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	02	IJ16040768	Procure 12Amp Modules - QA01	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	02	IJ16040764	Procure 12Amp Modules - YCS10	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	16	04	02	02	IJ16040760	Procure 12Amp Modules - XSC10	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	02	IJ16040756	Procure 12Amp Modules - YSC9	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	02	IJ16040752	Procure 12Amp Modules - XSC9	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	02	IJ16040748	Procure 12Amp Modules - YSC8	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	02	IJ16040744	Procure 12Amp Modules - XSC8	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	02	IJ16040740	Procure 12Amp Modules - YSC7	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	02	IJ16040736	Procure 12Amp Modules - XSC7	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	02	IJ16040732	Procure 12Amp Modules - YSC6	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	02	IJ16040728	Procure 12Amp Modules - XSC6	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	02	IJ16040724	Procure MCOR Controller Card (SAM DAC)	S	CON	SL_MSEG	$$		1,000		1,090	1,090	30%
1	02	16	04	02	02	IJ16040721	Procure Cooling Unit	S	CON	SL_MSEG	$$		350		382	382	30%
1	02	16	04	02	02	IJ16040717	Procure Output Interface	S	CON	SL_MSEG	$$		400		436	436	30%
1	02	16	04	02	02	IJ16040713	Procure SAM/DAC Cable	S	CON	SL_MSEG	$$		100		109	109	30%
1	02	16	04	02	02	IJ16040712	Procure MCOR Chassis	S	CON	SL_MSEG	$$		2,100		2,289	2,289	30%
1	02	16	04	02	02	IJ16040709	Procure Digital Analog Converter (VMIC 4132)	S	CON	SL_MSEG	$$		2,863		3,121	3,121	30%
1	02	16	04	02	02	IJ16040708	Procure MCOR Bulk Power Supply	S	CON	SL_MSEG	$$		6,224		6,784	6,784	30%
1	02	16	04	02	02	IJ16040705	Procure Smart Analog Monitor (VMIC 3122)	S	CON	SL_MSEG	$$		3,777		4,117	4,117	30%
1	02	16	04	02	02	IJ16040725	Perform MCOR_2 Pre-Install Qual Test	S	CON	SL_PCE	Hrs	16		1,800		1,800	30%
1	02	16	04	02	02	IJ16040725	Perform MCOR_2 Pre-Install Qual Test	S	CON	SL_PCCA	Hrs	40		2,621		2,621	30%
1	**02**	**16**	**04**	**02**	**03**		**30Amp Power Supply - (MCOR_3)**					**64**	**27,769**	**5,296**	**30,268**	**35,564**	
1	02	16	04	02	03	IJ16040884	Conduct Design Review	S	PED	SL_PCE	Hrs	8		875		875	30%
1	02	16	04	02	03	IJ16040860	Procure AC Breaker and Panel	S	CON	SL_MSEG	$$		400		436	436	30%
1	02	16	04	02	03	IJ16040856	Procure Lugs, Splices, Etc. (2 units)	S	CON	SL_MSEG	$$		40		44	44	30%
1	02	16	04	02	03	IJ16040852	Procure 2/C 18AWG Interlock (2 units)	S	CON	SL_MSEG	$$		40		44	44	30%
1	02	16	04	02	03	IJ16040848	Procure 2/C #8 (2 units)	S	CON	SL_MSEG	$$		125		136	136	30%
1	02	16	04	02	03	IJ16040831	Procure MCOR 30 Amp Modules - BXG,50V/30A MCOR	S	CON	SL_MSEG	$$		2,070		2,256	2,256	30%
1	02	16	04	02	03	IJ16040829	Procure MCOR 30 Amp Modules - XSC4,50V/30A MCOR	S	CON	SL_MSEG	$$		2,070		2,256	2,256	30%
1	02	16	04	02	03	IJ16040827	Procure MCOR 30 Amp Modules - XSC03,50V/30A MCOR	S	CON	SL_MSEG	$$		2,070		2,256	2,256	30%
1	02	16	04	02	03	IJ16040824	Procure MCOR 30 Amp Modules - XSC02,50V/30A MCOR	S	CON	SL_MSEG	$$		2,070		2,256	2,256	30%
1	02	16	04	02	03	IJ16040821	Procure Cooling Unit	S	CON	SL_MSEG	$$		350		382	382	30%
1	02	16	04	02	03	IJ16040820	Procure MCOR 30 Amp Modules - XSC1,50V/30A MCOR	S	CON	SL_MSEG	$$		2,070		2,256	2,256	30%
1	02	16	04	02	03	IJ16040817	Procure Output Interface	S	CON	SL_MSEG	$$		400		436	436	30%
1	02	16	04	02	03	IJ16040816	Procure MCOR Controller Card (SAM DAC)	S	CON	SL_MSEG	$$		1,000		1,090	1,090	30%
1	02	16	04	02	03	IJ16040813	Procure SAM/DAC Cable	S	CON	SL_MSEG	$$		100		109	109	30%
1	02	16	04	02	03	IJ16040812	Procure MCOR Chassis	S	CON	SL_MSEG	$$		2,100		2,289	2,289	30%
1	02	16	04	02	03	IJ16040809	Procure Digital Analog Converter (VMIC 4132)	S	CON	SL_MSEG	$$		2,863		3,121	3,121	30%
1	02	16	04	02	03	IJ16040808	Procure MCOR Bulk Power Supply	S	CON	SL_MSEG	$$		6,224		6,784	6,784	30%
1	02	16	04	02	03	IJ16040805	Procure Smart Analog Monitor (VMIC 3122)	S	CON	SL_MSEG	$$		3,777		4,117	4,117	30%
1	02	16	04	02	03	IJ16040888	Perform MCOR_3 Pre-Install Qual Test	S	CON	SL_PCE	Hrs	16		1,800		1,800	30%
1	02	16	04	02	03	IJ16040888	Perform MCOR_3 Pre-Install Qual Test	S	CON	SL_PCCA	Hrs	40		2,621		2,621	30%
1	**02**	**16**	**04**	**02**	**04**		**30Amp Power Supply - (MCOR_4)**					**64**	**36,519**	**5,296**	**39,806**	**45,102**	
1	02	16	04	02	04	IJ16040984	Conduct Design Review	S	PED	SL_PCE	Hrs	8		875		875	30%
1	02	16	04	02	04	IJ16040968	Procure AC Breaker and Panel	S	CON	SL_MSEG	$$		400		436	436	30%
1	02	16	04	02	04	IJ16040964	Procure Lugs, Splices, Etc. (10 units)	S	CON	SL_MSEG	$$		180		196	196	30%
1	02	16	04	02	04	IJ16040956	Procure 2/C #8 (10 units)	S	CON	SL_MSEG	$$		1,125		1,226	1,226	30%
1	02	16	04	02	04	IJ16040955	Procure 12Amp Modules - XSC11	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	04	IJ16040952	Procure 12Amp Modules - YCS11	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	04	IJ16040948	Procure 12Amp Modules - QS03	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	04	IJ16040944	Procure 12Amp Modules - QS02	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	04	IJ16040940	Procure 12Amp Modules - QS01	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	04	IJ16040936	Procure 12Amp Modules - QM04	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	04	IJ16040932	Procure 12Amp Modules - QM03	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	04	IJ16040928	Procure 12Amp Modules - QM02	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	04	IJ16040924	Procure 12Amp Modules - QM01	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	04	IJ16040921	Procure Cooling Unit	S	CON	SL_MSEG	$$		350		382	382	30%
1	02	16	04	02	04	IJ16040920	Procure 12Amp Modules - QB	S	CON	SL_MSEG	$$		1,800		1,962	1,962	30%
1	02	16	04	02	04	IJ16040917	Procure Output Interface	S	CON	SL_MSEG	$$		400		436	436	30%
1	02	16	04	02	04	IJ16040916	Procure MCOR Controller Card (SAM DAC)	S	CON	SL_MSEG	$$		1,000		1,090	1,090	30%
1	02	16	04	02	04	IJ16040913	Procure SAM/DAC Cable	S	CON	SL_MSEG	$$		100		109	109	30%
1	02	16	04	02	04	IJ16040912	Procure MCOR Chassis	S	CON	SL_MSEG	$$		2,100		2,289	2,289	30%
1	02	16	04	02	04	IJ16040909	Procure Digital Analog Converter (VMIC 4132)	S	CON	SL_MSEG	$$		2,863		3,121	3,121	30%
1	02	16	04	02	04	IJ16040908	Procure MCOR Bulk Power Supply	S	CON	SL_MSEG	$$		6,224		6,784	6,784	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	16	04	02	04	IJ16040905	Procure Smart Analog Monitor (VMIC 3122)	S	CON	SL_MSEG	$$		3,777		4,117	4,117	30%
1	02	16	04	02	04	IJ16040988	Perform MCOR_4 Pre-Install Qual Test	S	CON	SL_PCE	Hrs	16		1,800		1,800	30%
1	02	16	04	02	04	IJ16040988	Perform MCOR_4 Pre-Install Qual Test	S	CON	SL_PCCA	Hrs	40		2,621		2,621	30%
1	**02**	**16**	**04**	**03**			**Controls & Power Supply - Misc Hdwr**					**1,393**	**116,635**	**106,345**	**127,132**	**233,477**	
1	02	16	04	03		IJ16041100	Engineering (Layouts/Raceways/Supports)	S	PED	SL_PCE	Hrs	240		27,002		27,002	30%
1	02	16	04	03		IJ16041104	Captar Documents	S	PED	SL_PCCA	Hrs	80		5,242		5,242	30%
1	02	16	04	03		IJ16041102	System Drawings	S	PED	SL_PCCA	Hrs	360		23,591		23,591	30%
1	02	16	04	03		IJ16041203	Prep Bid Pak - Cableplant Install(DC.I&C)-S20	S	PED	SL_PCE	Hrs	48		5,400		5,400	30%
1	02	16	04	03		IJ16041163	Prep Bid Pak - Double Bay Racks	S	PED	SL_PCE	Hrs	8		900		900	30%
1	02	16	04	03		IJ16041153	Prep Bid Pak - Single Bay Racks (DC/I&C)	S	PED	SL_PCE	Hrs	8		900		900	30%
1	02	16	04	03		IJ16041106	Conduct Design Review - BL Pwr Supply Misc Hdwr	S	PED	SL_PCE	Hrs	8		900		900	30%
1	02	16	04	03		IJ16041108	Conduct SLAC Citizen Committee Review	S	PED	SL_PCE	Hrs	8		900		900	30%
1	02	16	04	03		IJ16041173	Procure Power Supply for 24V Distribution	S	CON	SL_MSEG	$$		5,000		5,450	5,450	30%
1	02	16	04	03		IJ16041172	Procure Hardware for 24V Distribution	S	CON	SL_MSEG	$$		20,000		21,800	21,800	30%
1	02	16	04	03		IJ16041171	Procure GP Patch System	S	CON	SL_MSEG	$$		20,000		21,800	21,800	30%
1	02	16	04	03		IJ16041149	Procure Conduits for Linac penetrations, 4	S	CON	SL_MSEG	$$		1,200		1,308	1,308	30%
1	02	16	04	03		IJ16041147	Procure Gnd Jumpers (DC&IC)	S	CON	SL_MSEG	$$		216		235	235	30%
1	02	16	04	03		IJ16041145	Procure Cable Tray Grounding (DC&IC, $1.8/	S	CON	SL_MSEG	$$		540		589	589	30%
1	02	16	04	03		IJ16041143	Procure Trapeze Cable Tray Supports (DC&IC	S	CON	SL_MSEG	$$		2,000		2,180	2,180	30%
1	02	16	04	03		IJ16041141	Procure Cable Tray Fittings (DC&IC)	S	CON	SL_MSEG	$$		3,000		3,270	3,270	30%
1	02	16	04	03		IJ16041138	Procure Rack Hardware (Double Rack)	S	CON	SL_MSEG	$$		400		436	436	30%
1	02	16	04	03		IJ16041136	Procure Rack Hardware (Single Rack)	S	CON	SL_MSEG	$$		200		218	218	30%
1	02	16	04	03		IJ16041134	Procure Rack Cooling Fans	S	CON	SL_MSEG	$$		2,400		2,616	2,616	30%
1	02	16	04	03		IJ16041132	Procure Breaker Lock-outs	S	CON	SL_MSEG	$$		400		436	436	30%
1	02	16	04	03		IJ16041130	Procure AC Wire	S	CON	SL_MSEG	$$		500		545	545	30%
1	02	16	04	03		IJ16041128	Procure Blank Panels (9)	S	CON	SL_MSEG	$$		900		981	981	30%
1	02	16	04	03		IJ16041126	Procure Neutral/Ground Pnl. (9)	S	CON	SL_MSEG	$$		3,300		3,597	3,597	30%
1	02	16	04	03		IJ16041124	Procure Circuit Breaker Panels (9)	S	CON	SL_MSEG	$$		387		422	422	30%
1	02	16	04	03		IJ16041122	Procure 3 Phase Dist Bus (9)	S	CON	SL_MSEG	$$		2,992		3,261	3,261	30%
1	02	16	04	03		IJ16041120	Procure PS Hubble Plug (36)	S	CON	SL_MSEG	$$		2,300		2,507	2,507	30%
1	02	16	04	03		IJ16041118	Procure AC Breakers (36)	S	CON	SL_MSEG	$$		3,200		3,488	3,488	30%
1	02	16	04	03		IJ16041267	Evaluate Prop-Cableplant Install(DC.I&C)-S20	S	CON	SL_PCE	Hrs	24		2,700		2,700	30%
1	02	16	04	03		IJ16041167	Evaluate Proposals - Double Bay Racks	S	CON	SL_PCE	Hrs	8		900		900	30%
1	02	16	04	03		IJ16041157	Evaluate Proposals - Single Bay Racks (DC/	S	CON	SL_PCE	Hrs	8		900		900	30%
1	02	16	04	03		IJ16041169	Vendor Fab/Assy - Double Bay Racks	S	CON	SL_MSSC	$$		22,500		24,525	24,525	30%
1	02	16	04	03		IJ16041159	Vendor Fab/Assy - Single Bay Racks	S	CON	SL_MSSC	$$		25,200		27,468	27,468	30%
1	02	16	04	03		IJ16041315	Integ Rack/Crate Mount Cntrls&Intra-Cables - S20	S	CON	SL_PCEF	Hrs	270		16,637		16,637	30%
1	02	16	04	03		IJ16041305	Integ Rack Mount Pwr Supplies&Intra Cables - S20	S	CON	SL_PCEF	Hrs	68		4,190		4,190	30%
1	02	16	04	03		IJ16041300	Integ Rack Rack HW & Internal AC Wiring - S20	S	CON	SL_PCEF	Hrs	135		8,319		8,319	30%
1	02	16	04	03		IJ16041320	Perform Pre-Install Testing Controls - S20	S	CON	SL_CCA	Hrs	120		7,864		7,864	30%
1	**02**	**16**	**04**	**04**			**Reserved**										
1	**02**	**17**					**Injector Installation & Alignment**					**10,282**	**67,650**	**908,245**	**73,739**	**981,984**	
1	**02**	**17**	**01**				**Injector Infrastructure Installation**					**6,818**	**67,650**	**634,370**	**73,739**	**708,109**	
1	02	17	01			IJ17010012	ED&I Engineering, Develop Installation Plan	S	CON	SL_MES	Hrs	320		28,909		28,909	35%
1	02	17	01			IJ17010006	Design Local Network	S	CON	SL_MES	Hrs	80		7,227		7,227	35%
1	02	17	01			IJ17010020	Procure Alignment Parts	S	CON	SL_MSEG	$$		43,000		46,870	46,870	35%
1	02	17	01			IJ17010007	Install Local Network	S	CON	SL_MES	Hrs	40		3,614		3,614	35%
1	02	17	01			IJ17010008	Measure Network	S	CON	SL_MES	Hrs	160		14,454		14,454	35%
1	02	17	01			IJ17010009	Re-Measure Network	S	CON	SL_MES	Hrs	160		14,454		14,454	35%
1	02	17	01			IJ17010103	UTR Support for Cable Plant	S	CON	SL_PCCA	Hrs	320		20,970		20,970	35%
1	02	17	01			IJ17010102	Engineering Support for Cable Plant	S	CON	SL_PCE	Hrs	120		13,501		13,501	35%
1	02	17	01			IJ17010010	Evaluate Data	S	CON	SL_MES	Hrs	160		14,454		14,454	35%
1	02	17	01			IJ17010011	Quality Control of Network	S	CON	SL_MES	Hrs	80		7,227		7,227	35%
1	02	17	01			IJ17010030	Compute Layout Parameters	S	CON	SL_MES	Hrs	40		3,614		3,614	35%
1	02	17	01			IJ17010025	Mark Floor Support Bolts	S	CON	SL_MES	Hrs	80		7,227		7,227	35%
1	02	17	01			IJ17010015	Quality Control of Support Bolts	S	CON	SL_MES	Hrs	40		3,614		3,614	35%
1	02	17	01			IJ17010017	Fiducialize Components	S	CON	SL_MES	Hrs	800		72,272		72,272	35%
1	02	17	01			IJ17010023	Pre-Align Supports	S	CON	SL_MES	Hrs	40		3,614		3,614	35%
1	02	17	01			IJ17010024	Align Gun	S	CON	SL_MES	Hrs	40		3,614		3,614	35%
1	02	17	01			IJ17010026	Align Dipoles & Quads	S	CON	SL_MES	Hrs	160		14,454		14,454	35%
1	02	17	01			IJ17010135	Install Thermocouples (60)/Isoplanes	S	CON	SL_MSEG	$$		24,650		26,869	26,869	35%
1	02	17	01			IJ17010115	Install LCW systems	S	CON	SL_TMUP	Hrs	240		22,283		22,283	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	17	01			IJ17010110	Install Cableplant, Integ Cntrls&Pwr Conv Racks	S	CON	SL_TMUE	Hrs	3,506		339,882		339,882	35%
1	02	17	01			IJ17010027	Align Diagnostics	S	CON	SL_MES	Hrs	160		14,454		14,454	35%
1	02	17	01			IJ17010028	QC of Gun, Dipoles, Quads, & Diagnostics	S	CON	SL_MES	Hrs	80		7,328		7,328	35%
1	02	17	01			IJ17010140	Align Systems	S	CON	SL_MES	Hrs	120		11,144		11,144	35%
1	02	17	01			IJ17010145	Pump Down and Leak Check	S	CON	SL_MFAT	Hrs	72		6,060		6,060	35%
1	**02**	**17**	**02**				**Reserved**										
1	**02**	**17**	**03**				**Injector Lasers Install & Align**					**400**	**-**	**31,166**	**-**	**31,166**	
1	02	17	03			IJ17030120	Install EO optical paths	S	CON	SL_MFAT	Hrs	80		6,733		6,733	35%
1	02	17	03			IJ17030105	Install Laser Bay Optical Tables/Alignment Laser	S	CON	SL_OT	Hrs	40		2,534		2,534	35%
1	02	17	03			IJ17030115	Install laser heater optical path	S	CON	SL_MFAT	Hrs	80		6,733		6,733	35%
1	02	17	03			IJ17030110	Install vertical optical paths	S	CON	SL_MFAT	Hrs	80		6,733		6,733	35%
1	02	17	03			IJ17030125	Install Synch Light Tube/Light Path for Strk Cam	S	CON	SL_OT	Hrs	80		5,067		5,067	35%
1	02	17	03			IJ17030125	Install Synch Light Tube/Light Path for Strk Cam	S	CON	SL_MFAT	Hrs	40		3,366		3,366	35%
1	**02**	**17**	**04**				**RF Gun & Load Lock Install & Align**					**296**	**-**	**23,791**	**-**	**23,791**	
1	02	17	04			IJ17040165	Install Gun E-Spect Support Assy	S	CON	SL_TMUI	Hrs	16		1,217		1,217	35%
1	02	17	04			IJ17040155	Install Faraday Cups Supt Assy	S	CON	SL_TMUI	Hrs	8		609		609	35%
1	02	17	04			IJ17040145	Install BPMs Supt Assy	S	CON	SL_MFAT	Hrs	8		655		655	35%
1	02	17	04			IJ17040135	Install Corrector Supt Assembly	S	CON	SL_TMUI	Hrs	16		1,217		1,217	35%
1	02	17	04			IJ17040105	Install RF Gun Support Assy	S	CON	SL_TMUI	Hrs	48		3,652		3,652	35%
1	02	17	04			IJ17040160	Install Faraday Cups Assy	S	CON	SL_MFAT	Hrs	16		1,310		1,310	35%
1	02	17	04			IJ17040140	Install Corrector Assembly	S	CON	SL_MFAT	Hrs	16		1,310		1,310	35%
1	02	17	04			IJ17040175	Install Dipoles Supt Assembly Ready for Install	S	CON	SL_TMUI	Hrs	8		609		609	35%
1	02	17	04			IJ17040150	Install BPMs Assy	S	CON	SL_MFAT	Hrs	8		655		655	35%
1	02	17	04			IJ17040125	Install Gun Sol Support Assembly	S	CON	SL_TMUI	Hrs	24		1,826		1,826	35%
1	02	17	04			IJ17040130	Install Gun Solenoid	S	CON	SL_MFAT	Hrs	24		2,020		2,020	35%
1	02	17	04			IJ17040110	Install RF Gun Assembly	S	CON	SL_MFAT	Hrs	48		4,040		4,040	35%
1	02	17	04			IJ17040180	Install Dipoles Assembly	S	CON	SL_MFAT	Hrs	8		673		673	35%
1	02	17	04			IJ17040115	Install Load Lock Support Assy	S	CON	SL_TMUI	Hrs	24		1,926		1,926	35%
1	02	17	04			IJ17040120	Install Gun Load Lock Assembly	S	CON	SL_MFAT	Hrs	24		2,072		2,072	35%
1	**02**	**17**	**05**				**Gun to Linac Section (GTL) Install & Align**					**264**	**-**	**20,976**	**-**	**20,976**	
1	02	17	05			IJ17050175	Install GS Dump Shielding	S	CON	SL_TMUI	Hrs	16		1,217		1,217	35%
1	02	17	05			IJ17050155	Install GS BPM (2)	S	CON	SL_MFAT	Hrs	8		655		655	35%
1	02	17	05			IJ17050130	Install GTL Steering Coils	S	CON	SL_TMUI	Hrs	8		609		609	35%
1	02	17	05			IJ17050125	Install GTL RF Phase Cavity	S	CON	SL_MFAT	Hrs	32		2,620		2,620	35%
1	02	17	05			IJ17050170	Install GS Quad (3)	S	CON	SL_TMUI	Hrs	24		1,826		1,826	35%
1	02	17	05			IJ17050165	Install GS Quad Supports (3)	S	CON	SL_TMUI	Hrs	16		1,217		1,217	35%
1	02	17	05			IJ17050145	Install GS Dipole	S	CON	SL_TMUI	Hrs	16		1,217		1,217	35%
1	02	17	05			IJ17050105	Install GTL BPMs	S	CON	SL_MFAT	Hrs	32		2,620		2,620	35%
1	02	17	05			IJ17050160	Install GS Faraday Cup/YAG2	S	CON	SL_MFAT	Hrs	16		1,310		1,310	35%
1	02	17	05			IJ17050150	Install GS Current Monitor (CM2)	S	CON	SL_MFAT	Hrs	8		655		655	35%
1	02	17	05			IJ17050120	Install GTL E/O (EO1) BL Monitor/Opt Tables	S	CON	SL_MFAT	Hrs	16		1,310		1,310	35%
1	02	17	05			IJ17050115	Install GTL Current Monitors (CM1)	S	CON	SL_MFAT	Hrs	8		655		655	35%
1	02	17	05			IJ17050110	Install GTL YAG1	S	CON	SL_MFAT	Hrs	16		1,310		1,310	35%
1	02	17	05			IJ17050140	Install GS Supports	S	CON	SL_TMUI	Hrs	16		1,252		1,252	35%
1	02	17	05			IJ17050135	Install GTL Vacuum Components	S	CON	SL_TMUI	Hrs	32		2,503		2,503	35%
1	**02**	**17**	**06**				**Injector Linac Structures Install & Align**					**352**	**-**	**28,589**	**-**	**28,589**	
1	02	17	06			IJ17060135	Install Plumbing	S	CON	SL_MFAT	Hrs	120		9,824		9,824	35%
1	02	17	06			IJ17060120	Install Loads	S	CON	SL_MFAT	Hrs	16		1,310		1,310	35%
1	02	17	06			IJ17060105	Install supports	S	CON	SL_TMUI	Hrs	72		5,478		5,478	35%
1	02	17	06			IJ17060115	Install LO-2 structure	S	CON	SL_MFAT	Hrs	24		2,020		2,020	35%
1	02	17	06			IJ17060125	Install Linac Solenoid Support	S	CON	SL_TMUI	Hrs	24		1,877		1,877	35%
1	02	17	06			IJ17060130	Install Linac Solenoid	S	CON	SL_MFAT	Hrs	48		4,040		4,040	35%
1	02	17	06			IJ17060110	Install LO-1 structure	S	CON	SL_MFAT	Hrs	24		2,020		2,020	35%
1	02	17	06			IJ17060111	AVAIL: LO-1 structures installed	S	CON	SL_MFAT	Hrs	24		2,020		2,020	35%
1	**02**	**17**	**07**				**L0-1 to L0-2 Section (L0-1TL0-2) Install & Align**					**136**	**-**	**10,991**	**-**	**10,991**	
1	02	17	07			IJ17070120	Install Steering Coil (4)	S	CON	SL_TMUI	Hrs	16		1,217		1,217	35%
1	02	17	07			IJ17070115	Install BPM (2)	S	CON	SL_MFAT	Hrs	16		1,310		1,310	35%
1	02	17	07			IJ17070140	Install tube support structure	S	CON	SL_MFAT	Hrs	24		1,965		1,965	35%
1	02	17	07			IJ17070135	Install Current Monitor (1)	S	CON	SL_MFAT	Hrs	8		655		655	35%
1	02	17	07			IJ17070105	Install RF Phase Cavity	S	CON	SL_TMUI	Hrs	16		1,217		1,217	35%
1	02	17	07			IJ17070125	Install YAG (1)	S	CON	SL_MFAT	Hrs	8		655		655	35%
1	02	17	07			IJ17070110	Install Quads	S	CON	SL_TMUI	Hrs	16		1,217		1,217	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	17	07			IJ17070130	Install Vacuum components	S	CON	SL_MFAT	Hrs	16		1,310		1,310	35%
1	02	17	07			IJ17070145	Final Alignment	S	CON	SL_MES	Hrs	16		1,445		1,445	35%
1	**02**	**17**	**08**				**Linac to DL1 (LTDL1) Install & Align**					**260**	**-**	**20,642**	**-**	**20,642**	
1	02	17	08			IJ17080110	Install supports to VACV N	S	CON	SL_TMUI	Hrs	24		1,826		1,826	35%
1	02	17	08			IJ17080115	Install Quads (4)	S	CON	SL_TMUI	Hrs	32		2,435		2,435	35%
1	02	17	08			IJ17080130	Install Current Monitors	S	CON	SL_MFAT	Hrs	8		655		655	35%
1	02	17	08			IJ17080133	Install EO2	S	CON	SL_MFAT	Hrs	8		655		655	35%
1	02	17	08			IJ17082185	Install Current Monitor	S	CON	SL_MFAT	Hrs	8		655		655	35%
1	02	17	08			IJ17082180	Install BPM (6)	S	CON	SL_MFAT	Hrs	8		655		655	35%
1	02	17	08			IJ17082175	Install OTR (2)	S	CON	SL_MFAT	Hrs	8		655		655	35%
1	02	17	08			IJ17082170	Install Steering Coil (3)	S	CON	SL_TMUI	Hrs	12		913		913	35%
1	02	17	08			IJ17082165	Install BPM	S	CON	SL_MFAT	Hrs	8		655		655	35%
1	02	17	08			IJ17082160	Install Quads (2)	S	CON	SL_TMUI	Hrs	16		1,217		1,217	35%
1	02	17	08			IJ17082150	Install PPS Stopper	S	CON	SL_TMUI	Hrs	16		1,217		1,217	35%
1	02	17	08			IJ17080132	Install Steering Coil (1)	S	CON	SL_MFAT	Hrs	8		655		655	35%
1	02	17	08			IJ17080131	Install BPMs (4)	S	CON	SL_MFAT	Hrs	8		655		655	35%
1	02	17	08			IJ17082145	Install supports	S	CON	SL_TMUI	Hrs	24		1,826		1,826	35%
1	02	17	08			IJ17080135	Final Alignment	S	CON	SL_MFAT	Hrs	40		3,275		3,275	35%
1	02	17	08			IJ17080120	Install RF Kicker	S	CON	SL_MFAT	Hrs	32		2,693		2,693	35%
1	**02**	**17**	**09**				**Dog Leg 1 Bend (DL1) Install & Align**					**172**	**-**	**13,738**	**-**	**13,738**	
1	02	17	09			IJ17090140	Install Toroid	S	CON	SL_MFAT	Hrs	8		673		673	35%
1	02	17	09			IJ17090135	Install OTR (1)	S	CON	SL_MFAT	Hrs	8		673		673	35%
1	02	17	09			IJ17090130	Install Steering Coil (1)	S	CON	SL_TMUI	Hrs	4		313		313	35%
1	02	17	09			IJ17090125	Install BPM (1)	S	CON	SL_MFAT	Hrs	8		673		673	35%
1	02	17	09			IJ17090120	Install Quads (3)	S	CON	SL_TMUI	Hrs	24		1,877		1,877	35%
1	02	17	09			IJ17090110	Install Dipoles (2) (B01-B02)	S	CON	SL_TMUI	Hrs	48		3,755		3,755	35%
1	02	17	09			IJ17090103	AVAIL: DL1 Vacuum Chamber installed	S	CON	SL_MFAT	Hrs	8		673		673	35%
1	02	17	09			IJ17090102	Install DL1 Vacuum Chamber	S	CON	SL_MFAT	Hrs	8		673		673	35%
1	02	17	09			IJ17090105	Install supports	S	CON	SL_TMUI	Hrs	48		3,755		3,755	35%
1	02	17	09			IJ17090105	Install supports	S	CON	SL_MFAT	Hrs	8		673		673	35%
1	**02**	**17**	**10**				**DL1 to Linac (DL1TL) Install & Align**					**136**	**-**	**11,018**	**-**	**11,018**	
1	02	17	10			IJ17100110	Install Quads (2)	S	CON	SL_TMUI	Hrs	16		1,252		1,252	35%
1	02	17	10			IJ17100105	Install supports	S	CON	SL_TMUI	Hrs	48		3,755		3,755	35%
1	02	17	10			IJ17100130	Install Current Monitor (1)	S	CON	SL_MFAT	Hrs	8		673		673	35%
1	02	17	10			IJ17100125	Install OTR (1)	S	CON	SL_MFAT	Hrs	8		673		673	35%
1	02	17	10			IJ17100120	Install Steering Coil (2)	S	CON	SL_TMUI	Hrs	8		626		626	35%
1	02	17	10			IJ17100115	Install BPM (1)	S	CON	SL_MFAT	Hrs	8		673		673	35%
1	02	17	10			IJ17100135	Final Alignment	S	CON	SL_MFAT	Hrs	40		3,366		3,366	35%
1	**02**	**17**	**11**				**Straight Ahead Beamline (SAB) Install & Align**					**144**	**-**	**11,453**	**-**	**11,453**	
1	02	17	11			IJ17110141	Install Steering Coils (2)	S	CON	SL_TMUI	Hrs	8		626		626	35%
1	02	17	11			IJ17110140	Install SAB Supports	S	CON	SL_TMUI	Hrs	36		2,816		2,816	35%
1	02	17	11			IJ17110135	Install SAB Beam Dump and Shielding	S	CON	SL_TMUI	Hrs	36		2,816		2,816	35%
1	02	17	11			IJ17110130	Install SAB Vacuum Chamber and Components	S	CON	SL_MFAT	Hrs	8		673		673	35%
1	02	17	11			IJ17110125	Install SAB OTR/YAG (1)	S	CON	SL_MFAT	Hrs	8		673		673	35%
1	02	17	11			IJ17110120	Install SAB BPM (1)	S	CON	SL_MFAT	Hrs	8		673		673	35%
1	02	17	11			IJ17110115	Install SAB Current Monitor (1)	S	CON	SL_MFAT	Hrs	8		673		673	35%
1	02	17	11			IJ17110110	Install SAB Quadrupoles (3)	S	CON	SL_TMUI	Hrs	24		1,877		1,877	35%
1	02	17	11			IJ17110105	Install SAB Spectrometer Dipole	S	CON	SL_TMUI	Hrs	8		626		626	35%
1	**02**	**17**	**12**				**Injector RF Waveguide System Install & Align**					**560**	**-**	**46,168**	**-**	**46,168**	
1	02	17	12			IJ17120005	Install Vertical Drop Waveguide	S	CON	SL_MFAT	Hrs	140		11,462		11,462	35%
1	02	17	12			IJ17120006	Install Klystron Housing Waveguide	S	CON	SL_MFAT	Hrs	140		11,462		11,462	35%
1	02	17	12			IJ17120007	Install Injector Housing Waveguide	S	CON	SL_MFAT	Hrs	140		11,462		11,462	35%
1	02	17	12			IJ17120008	Install Transverse Kicker Waveguide	S	CON	SL_MFAT	Hrs	140		11,782		11,782	35%
1	**02**	**17**	**13**				**Reserved**										
1	**02**	**17**	**14**				**Cathode and Load Lock Install & Align**					**168**	**-**	**13,642**	**-**	**13,642**	
1	02	17	14			IJ17140110	Install CP Load Lock Supports Ready for Install	S	CON	SL_TMUI	Hrs	48		3,652		3,652	35%
1	02	17	14			IJ17140105	Install CP Cathode Assembly	S	CON	SL_MFAT	Hrs	48		3,930		3,930	35%
1	02	17	14			IJ17140115	Install CP Load Lock	S	CON	SL_MFAT	Hrs	24		2,020		2,020	35%
1	02	17	14			IJ17140120	Install CP Station	S	CON	SL_MFAT	Hrs	48		4,040		4,040	35%
1	**02**	**17**	**15**				**Injector Laser Heater Subsystem Install & Align**					**172**	**-**	**14,663**	**-**	**14,663**	
1	02	17	15			IJ17150120	Install Beampipe	S	CON	SL_MFAT	Hrs	40		3,366		3,366	35%
1	02	17	15			IJ17150125	Install Undulator	S	CON	SL_MFAT	Hrs	80		6,908		6,908	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	02	17	15			IJ17150110	Install Magnet Supports	S	CON	SL_TMUI	Hrs	24		1,926		1,926	35%
1	02	17	15			IJ17150115	Install Photon Diagnostics Supports	S	CON	SL_MFAT	Hrs	8		691		691	35%
1	02	17	15			IJ17150105	Install Enclosures,Tubes&Supports	S	CON	SL_MFAT	Hrs	20		1,772		1,772	35%
1	**02**	**17**	**16**				**Reserved**										
1	**02**	**17**	**17**				**Power Conversion Subsystem Installation**					**404**	**-**	**27,038**	**-**	**27,038**	
1	02	17	17			IJ17170095	Install Injector B3 Spect PS 15KW	S	CON	SL_TMUE	Hrs	4		385		385	35%
1	02	17	17			IJ17170085	Install Injector B1-2 PS 15KW	S	CON	SL_TMUE	Hrs	4		385		385	35%
1	02	17	17			IJ17170075	Install Injector B0.5 Spect PS 2KW	S	CON	SL_TMUE	Hrs	4		385		385	35%
1	02	17	17			IJ17170065	Install Injector Solenoid 2PS 30KW	S	CON	SL_TMUE	Hrs	4		385		385	35%
1	02	17	17			IJ17170055	Install Injector Solenoid 1PS 15KW	S	CON	SL_TMUE	Hrs	4		385		385	35%
1	02	17	17			IJ17170045	Install Wiggler PS 15KW	S	CON	SL_TMUE	Hrs	4		385		385	35%
1	02	17	17			IJ17170035	Install Injector MCOR 4	S	CON	SL_TMUE	Hrs	4		385		385	35%
1	02	17	17			IJ17170025	Install Injector MCOR 3	S	CON	SL_TMUE	Hrs	4		385		385	35%
1	02	17	17			IJ17170015	Install Injector MCOR 2	S	CON	SL_TMUE	Hrs	4		385		385	35%
1	02	17	17			IJ17170005	Install Injector MCOR 1	S	CON	SL_TMUE	Hrs	4		385		385	35%
1	02	17	17			IJ17170125	Install Laser Room PPS	S	CON	SL_TMUE	Hrs	4		385		385	35%
1	02	17	17			IJ17170115	Install Injector PPS Equipment	S	CON	SL_CT	Hrs	276		17,482		17,482	35%
1	02	17	17			IJ17170105	Install Injector MPS Equipment	S	CON	SL_CT	Hrs	84		5,321		5,321	35%
1	**03**						**LINAC SYSTEM**					**180,429**	**8,365,757**	**16,555,959**	**9,387,202**	**25,943,161**	
1	**03**	**01**					**System Management & Integration**					**25,653**	**54,000**	**2,682,573**	**68,880**	**2,751,453**	
1	**03**	**01**	**01**				**Linac Mechanical Integration**					**16,778**	**-**	**1,715,817**	**-**	**1,715,817**	
1	**03**	**01**	**01**	**01**			**L01 System Integration**					**2,184**	**-**	**223,345**	**-**	**223,345**	
1	03	01	01	01		LN01010110	Model S-Band Reconfiguration - L01	S	PED	SL_ME	Hrs	40		4,109		4,109	10%
1	03	01	01	01		LN01010110	Model S-Band Reconfiguration - L01	S	PED	SL_MDD	Hrs	100		6,097		6,097	10%
1	03	01	01	01		LN01010114	Collect System Component Designs	S	PED	SL_ME	Hrs	8		822		822	10%
1	03	01	01	01		LN01010114	Collect System Component Designs	S	PED	SL_MDD	Hrs	40		2,439		2,439	10%
1	03	01	01	01		LN01010116	Define/ Develop L01 System Assembly Model	S	PED	SL_ME	Hrs	150		15,410		15,410	10%
1	03	01	01	01		LN01010116	Define/ Develop L01 System Assembly Model	S	PED	SL_MDD	Hrs	200		12,194		12,194	10%
1	03	01	01	01		LN01010108	Write System ICD - L01	S	PED	SL_ME	Hrs	20		2,055		2,055	10%
1	03	01	01	01		LN01010118	Write Installation Plan - L01	S	PED	SL_ME	Hrs	24		2,466		2,466	10%
1	03	01	01	01		LN01010120	Revise Linac Sector Schematic	S	PED	SL_ME	Hrs	8		822		822	10%
1	03	01	01	01		LN01010120	Revise Linac Sector Schematic	S	PED	SL_MDD	Hrs	40		2,439		2,439	10%
1	03	01	01	01		LN01010122	Make Linac Vacuum Schematic	S	PED	SL_ME	Hrs	8		822		822	10%
1	03	01	01	01		LN01010122	Make Linac Vacuum Schematic	S	PED	SL_MDD	Hrs	40		2,439		2,439	10%
1	03	01	01	01		LN01010124	Prepare for PDR - L01	S	PED	SL_ME	Hrs	8		822		822	10%
1	03	01	01	01		LN01010126	Conduct L01 System PDR	S	PED	SL_ME	Hrs	8		822		822	10%
1	03	01	01	01		LN01010128	Generate Detailed Procurement Plan	S	PED	SL_ME	Hrs	4		411		411	10%
1	03	01	01	01		LN01010130	Create RF Cold Test Plan	S	PED	SL_KE	Hrs	24		2,624		2,624	10%
1	03	01	01	01		LN01010132	Establish Subordinate Work Orders	S	PED	SL_ME	Hrs	3		308		308	10%
1	03	01	01	01		LN01010140	L01 System PED Support to Components	S	PED	SL_ME	Hrs	147		15,539		15,539	10%
1	03	01	01	01		LN01010140	L01 System PED Support to Components	S	PED	SL_KE	Hrs	147		16,539		16,539	10%
1	03	01	01	01		LN01010140	L01 System PED Support to Components	S	PED	SL_CE	Hrs	147		16,539		16,539	10%
1	03	01	01	01		LN01010134	Prepare for FDR - L01	S	PED	SL_ME	Hrs	8		846		846	10%
1	03	01	01	01		LN01010136	Conduct L01 System FDR	S	PED	SL_ME	Hrs	8		846		846	10%
1	03	01	01	01		LN01010142	L01 System CONST Support to Components	S	CON	SL_ME	Hrs	410		45,701		45,701	10%
1	03	01	01	01		LN01010142	L01 System CONST Support to Components	S	CON	SL_KE	Hrs	296		35,117		35,117	10%
1	03	01	01	01		LN01010142	L01 System CONST Support to Components	S	CON	SL_CE	Hrs	296		35,117		35,117	10%
1	**03**	**01**	**01**	**02**			**BC1 System Integration**					**2,780**	**-**	**288,610**	**-**	**288,610**	
1	03	01	01	02		LN01010210	Model S-Band Reconfiguration - BC1	S	PED	SL_ME	Hrs	40		4,109		4,109	10%
1	03	01	01	02		LN01010210	Model S-Band Reconfiguration - BC1	S	PED	SL_MDD	Hrs	100		6,097		6,097	10%
1	03	01	01	02		LN01010214	Collect System Component Designs	S	PED	SL_ME	Hrs	8		822		822	10%
1	03	01	01	02		LN01010214	Collect System Component Designs	S	PED	SL_MDD	Hrs	40		2,439		2,439	10%
1	03	01	01	02		LN01010216	Define/Develop BC1 System Assembly Model	S	PED	SL_ME	Hrs	150		15,410		15,410	10%
1	03	01	01	02		LN01010216	Define/Develop BC1 System Assembly Model	S	PED	SL_MDD	Hrs	200		12,194		12,194	10%
1	03	01	01	02		LN01010208	Write System ICD - BC1	S	PED	SL_ME	Hrs	40		4,109		4,109	10%
1	03	01	01	02		LN01010218	Write Installation Plan - BC1	S	PED	SL_ME	Hrs	24		2,466		2,466	10%
1	03	01	01	02		LN01010220	Revise Linac Sector Schematic	S	PED	SL_ME	Hrs	8		822		822	10%
1	03	01	01	02		LN01010220	Revise Linac Sector Schematic	S	PED	SL_MDD	Hrs	40		2,439		2,439	10%
1	03	01	01	02		LN01010222	Make Linac Vacuum Schematic	S	PED	SL_ME	Hrs	8		822		822	10%
1	03	01	01	02		LN01010222	Make Linac Vacuum Schematic	S	PED	SL_MDD	Hrs	40		2,439		2,439	10%
1	03	01	01	02		LN01010224	Prepare for PDR - BC1	S	PED	SL_ME	Hrs	8		822		822	10%
1	03	01	01	02		LN01010226	Conduct BC1 System PDR	S	PED	SL_ME	Hrs	8		822		822	10%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	01	01	02		LN01010228	Generate Detailed Procurement Plan	S	PED	SL_ME	Hrs	4		411		411	10%
1	03	01	01	02		LN01010230	Create Cold Test Plan	S	PED	SL_KE	Hrs	24		2,624		2,624	10%
1	03	01	01	02		LN01010232	Establish Subordinate Work Orders	S	PED	SL_ME	Hrs	8		822		822	10%
1	03	01	01	02		LN01010240	BC1 System PED Support to Components	S	CON	SL_ME	Hrs	296		31,290		31,290	10%
1	03	01	01	02		LN01010240	BC1 System PED Support to Components	S	CON	SL_KE	Hrs	147		16,539		16,539	10%
1	03	01	01	02		LN01010240	BC1 System PED Support to Components	S	CON	SL_CE	Hrs	147		16,539		16,539	10%
1	03	01	01	02		LN01010234	Prepare for FDR - BC1	S	PED	SL_ME	Hrs	24		2,537		2,537	10%
1	03	01	01	02		LN01010236	Conduct BC1 System FDR	S	PED	SL_ME	Hrs	8		846		846	10%
1	03	01	01	02		LN01010242	BC1 System CONST Support to Components	S	CON	SL_ME	Hrs	816		90,956		90,956	10%
1	03	01	01	02		LN01010242	BC1 System CONST Support to Components	S	CON	SL_KE	Hrs	296		35,117		35,117	10%
1	03	01	01	02		LN01010242	BC1 System CONST Support to Components	S	CON	SL_CE	Hrs	296		35,117		35,117	10%
1	**03**	**01**	**01**	**03**			**L02 System Integration**					**2,321**	**-**	**229,599**	**-**	**229,599**	
1	03	01	01	03		LN01010310	Model S-Band Reconfiguration - L02	S	PED	SL_ME	Hrs	8		822		822	10%
1	03	01	01	03		LN01010310	Model S-Band Reconfiguration - L02	S	PED	SL_MDD	Hrs	100		6,097		6,097	10%
1	03	01	01	03		LN01010314	Collect System Component Designs	S	PED	SL_ME	Hrs	4		411		411	10%
1	03	01	01	03		LN01010314	Collect System Component Designs	S	PED	SL_MDD	Hrs	40		2,439		2,439	10%
1	03	01	01	03		LN01010316	Define/Develop L02 System Assembly Model	S	PED	SL_ME	Hrs	150		15,468		15,468	10%
1	03	01	01	03		LN01010316	Define/Develop L02 System Assembly Model	S	PED	SL_MDD	Hrs	400		24,480		24,480	10%
1	03	01	01	03		LN01010308	Write System ICD - L02	S	PED	SL_ME	Hrs	20		2,055		2,055	10%
1	03	01	01	03		LN01010340	L02 System PED Support to Components	S	PED	SL_ME	Hrs	147		15,554		15,554	10%
1	03	01	01	03		LN01010340	L02 System PED Support to Components	S	PED	SL_KE	Hrs	147		16,554		16,554	10%
1	03	01	01	03		LN01010340	L02 System PED Support to Components	S	PED	SL_CE	Hrs	147		16,554		16,554	10%
1	03	01	01	03		LN01010318	Write Installation Plan - L02	S	CON	SL_ME	Hrs	8		846		846	10%
1	03	01	01	03		LN01010320	Revise Linac Sector Schematic	S	PED	SL_ME	Hrs	4		423		423	10%
1	03	01	01	03		LN01010320	Revise Linac Sector Schematic	S	PED	SL_MDD	Hrs	40		2,510		2,510	10%
1	03	01	01	03		LN01010322	Make Linac Vacuum Schematic	S	PED	SL_ME	Hrs	4		423		423	10%
1	03	01	01	03		LN01010322	Make Linac Vacuum Schematic	S	PED	SL_MDD	Hrs	40		2,510		2,510	10%
1	03	01	01	03		LN01010324	Prepare for PDR - L02	S	PED	SL_ME	Hrs	8		846		846	10%
1	03	01	01	03		LN01010326	Conduct L02 System PDR	S	PED	SL_ME	Hrs	8		846		846	10%
1	03	01	01	03		LN01010328	Generate Detailed Procurement Plan	S	CON	SL_ME	Hrs	4		423		423	10%
1	03	01	01	03		LN01010330	Create Cold Test Plan	S	PED	SL_KE	Hrs	16		1,800		1,800	10%
1	03	01	01	03		LN01010332	Establish Subordinate Work Orders	S	CON	SL_ME	Hrs	8		846		846	10%
1	03	01	01	03		LN01010334	Prepare for FDR - L02	S	PED	SL_ME	Hrs	8		846		846	10%
1	03	01	01	03		LN01010336	Conduct L02 System FDR	S	PED	SL_ME	Hrs	8		846		846	10%
1	03	01	01	03		LN01010342	L02 System CONST Support to Components	S	CON	SL_ME	Hrs	410		45,726		45,726	10%
1	03	01	01	03		LN01010342	L02 System CONST Support to Components	S	CON	SL_KE	Hrs	296		35,137		35,137	10%
1	03	01	01	03		LN01010342	L02 System CONST Support to Components	S	CON	SL_CE	Hrs	296		35,137		35,137	10%
1	**03**	**01**	**01**	**04**			**BC2 System Integration**					**2,834**	**-**	**287,691**	**-**	**287,691**	
1	03	01	01	04		LN01010410	Model S-Band Reconfiguration - BC2	S	PED	SL_ME	Hrs	4		411		411	10%
1	03	01	01	04		LN01010410	Model S-Band Reconfiguration - BC2	S	PED	SL_MDD	Hrs	80		4,878		4,878	10%
1	03	01	01	04		LN01010414	Collect System Component Designs	S	PED	SL_ME	Hrs	4		411		411	10%
1	03	01	01	04		LN01010414	Collect System Component Designs	S	PED	SL_MDD	Hrs	40		2,439		2,439	10%
1	03	01	01	04		LN01010416	Define/Develop BC2 System Assembly Model	S	PED	SL_ME	Hrs	150		15,410		15,410	10%
1	03	01	01	04		LN01010416	Define/Develop BC2 System Assembly Model	S	PED	SL_MDD	Hrs	400		24,388		24,388	10%
1	03	01	01	04		LN01010408	Write System ICD - BC2	S	PED	SL_ME	Hrs	20		2,055		2,055	10%
1	03	01	01	04		LN01010418	Write Installation Plan - BC2	S	PED	SL_ME	Hrs	10		1,051		1,051	10%
1	03	01	01	04		LN01010440	BC2 System PED Support to Components	S	CON	SL_ME	Hrs	296		31,290		31,290	10%
1	03	01	01	04		LN01010440	BC2 System PED Support to Components	S	CON	SL_KE	Hrs	147		16,539		16,539	10%
1	03	01	01	04		LN01010440	BC2 System PED Support to Components	S	CON	SL_CE	Hrs	147		16,539		16,539	10%
1	03	01	01	04		LN01010420	Revise Linac Sector Schematic	S	PED	SL_ME	Hrs	4		423		423	10%
1	03	01	01	04		LN01010420	Revise Linac Sector Schematic	S	PED	SL_MDD	Hrs	30		1,882		1,882	10%
1	03	01	01	04		LN01010422	Make Linac Vacuum Schematic	S	PED	SL_ME	Hrs	4		423		423	10%
1	03	01	01	04		LN01010422	Make Linac Vacuum Schematic	S	PED	SL_MDD	Hrs	30		1,882		1,882	10%
1	03	01	01	04		LN01010424	Prepare for PDR - BC2	S	PED	SL_ME	Hrs	8		846		846	10%
1	03	01	01	04		LN01010426	Conduct BC2 System PDR	S	PED	SL_ME	Hrs	8		846		846	10%
1	03	01	01	04		LN01010428	Generate Detailed Procurement Plan	S	CON	SL_ME	Hrs	4		423		423	10%
1	03	01	01	04		LN01010430	Create Cold Test Plan	S	PED	SL_KE	Hrs	20		2,250		2,250	10%
1	03	01	01	04		LN01010432	Establish Subordinate Work Orders	S	CON	SL_ME	Hrs	4		423		423	10%
1	03	01	01	04		LN01010434	Prepare for FDR - BC2	S	PED	SL_ME	Hrs	8		846		846	10%
1	03	01	01	04		LN01010436	Conduct BC2 System FDR	S	PED	SL_ME	Hrs	8		846		846	10%
1	03	01	01	04		LN01010442	BC2 System CONST Support to Components	S	CON	SL_ME	Hrs	816		90,956		90,956	10%
1	03	01	01	04		LN01010442	BC2 System CONST Support to Components	S	CON	SL_KE	Hrs	296		35,117		35,117	10%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	01	01	04		LN01010442	BC2 System CONST Support to Components	S	CON	SL_CE	Hrs	296		35,117		35,117	10%
1	**03**	**01**	**01**	**05**			**L03 System Integration**					**2,048**	**-**	**209,625**	**-**	**209,625**	
1	03	01	01	05		LN01010510	Model S-Band Reconfiguration - L03	S	PED	SL_ME	Hrs	4		411		411	10%
1	03	01	01	05		LN01010510	Model S-Band Reconfiguration - L03	S	PED	SL_MDD	Hrs	80		4,878		4,878	10%
1	03	01	01	05		LN01010514	Collect System Component Designs	S	PED	SL_ME	Hrs	4		411		411	10%
1	03	01	01	05		LN01010514	Collect System Component Designs	S	PED	SL_MDD	Hrs	40		2,439		2,439	10%
1	03	01	01	05		LN01010516	Define/Develop L03 System Assembly Model	S	PED	SL_ME	Hrs	150		15,410		15,410	10%
1	03	01	01	05		LN01010516	Define/Develop L03 System Assembly Model	S	PED	SL_MDD	Hrs	200		12,194		12,194	10%
1	03	01	01	05		LN01010508	Write System ICD - L03	S	PED	SL_ME	Hrs	20		2,055		2,055	10%
1	03	01	01	05		LN01010518	Write Installation Plan - L03	S	PED	SL_ME	Hrs	16		1,675		1,675	10%
1	03	01	01	05		LN01010540	L03 System PED Support to Components	S	PED	SL_ME	Hrs	196		20,719		20,719	10%
1	03	01	01	05		LN01010540	L03 System PED Support to Components	S	PED	SL_KE	Hrs	98		11,026		11,026	10%
1	03	01	01	05		LN01010540	L03 System PED Support to Components	S	PED	SL_CE	Hrs	98		11,026		11,026	10%
1	03	01	01	05		LN01010520	Revise Linac Sector Schematic	S	PED	SL_ME	Hrs	4		423		423	10%
1	03	01	01	05		LN01010520	Revise Linac Sector Schematic	S	PED	SL_MDD	Hrs	40		2,510		2,510	10%
1	03	01	01	05		LN01010522	Make Linac Vacuum Schematic	S	PED	SL_ME	Hrs	4		423		423	10%
1	03	01	01	05		LN01010522	Make Linac Vacuum Schematic	S	PED	SL_MDD	Hrs	40		2,510		2,510	10%
1	03	01	01	05		LN01010524	Prepare for PDR - L03	S	PED	SL_ME	Hrs	8		846		846	10%
1	03	01	01	05		LN01010526	Conduct L03 System PDR	S	PED	SL_ME	Hrs	8		846		846	10%
1	03	01	01	05		LN01010528	Generate Detailed Procurement Plan	S	CON	SL_ME	Hrs	4		423		423	10%
1	03	01	01	05		LN01010530	Create Cold Test Plan	S	PED	SL_KE	Hrs	12		1,350		1,350	10%
1	03	01	01	05		LN01010532	Establish Subordinate Work Orders	S	CON	SL_ME	Hrs	4		423		423	10%
1	03	01	01	05		LN01010534	Prepare for FDR - L03	S	PED	SL_ME	Hrs	8		846		846	10%
1	03	01	01	05		LN01010536	Conduct L03 System FDR	S	PED	SL_ME	Hrs	8		846		846	10%
1	03	01	01	05		LN01010542	L03 System CONST Support to Components	S	CON	SL_ME	Hrs	410		45,701		45,701	10%
1	03	01	01	05		LN01010542	L03 System CONST Support to Components	S	CON	SL_KE	Hrs	296		35,117		35,117	10%
1	03	01	01	05		LN01010542	L03 System CONST Support to Components	S	CON	SL_CE	Hrs	296		35,117		35,117	10%
1	**03**	**01**	**01**	**06**			**LTU System Integration**					**1,816**	**-**	**185,475**	**-**	**185,475**	
1	03	01	01	06		LN01010612	Generate Removal Document List - FFTB to LT	S	PED	SL_ME	Hrs	20		2,055		2,055	30%
1	03	01	01	06		LN01010612	Generate Removal Document List - FFTB to LT	S	PED	SL_MDD	Hrs	20		1,219		1,219	30%
1	03	01	01	06		LN01010614	Collect System Component Designs	S	PED	SL_ME	Hrs	50		5,137		5,137	30%
1	03	01	01	06		LN01010614	Collect System Component Designs	S	PED	SL_MDD	Hrs	20		1,219		1,219	30%
1	03	01	01	06		LN01010616	Define/Develop LTU System Assembly Model	S	PED	SL_ME	Hrs	200		20,546		20,546	30%
1	03	01	01	06		LN01010616	Define/Develop LTU System Assembly Model	S	PED	SL_MDD	Hrs	250		15,243		15,243	30%
1	03	01	01	06		LN01010608	Write System ICD - L03	S	PED	SL_ME	Hrs	40		4,109		4,109	30%
1	03	01	01	06		LN01010618	Write Installation Plan - LTU	S	PED	SL_ME	Hrs	6		616		616	30%
1	03	01	01	06		LN01010620	Create LTU Schematic	S	PED	SL_ME	Hrs	5		514		514	30%
1	03	01	01	06		LN01010620	Create LTU Schematic	S	PED	SL_MDD	Hrs	20		1,219		1,219	30%
1	03	01	01	06		LN01010622	Create LTU Vacuum Schematic	S	PED	SL_ME	Hrs	10		1,027		1,027	30%
1	03	01	01	06		LN01010622	Create LTU Vacuum Schematic	S	PED	SL_MDD	Hrs	20		1,219		1,219	30%
1	03	01	01	06		LN01010624	Prepare for PDR - LTU	S	PED	SL_ME	Hrs	12		1,233		1,233	30%
1	03	01	01	06		LN01010624	Prepare for PDR - LTU	S	PED	SL_MDD	Hrs	12		732		732	30%
1	03	01	01	06		LN01010626	Conduct LTU System PDR	S	PED	SL_ME	Hrs	1		103		103	30%
1	03	01	01	06		LN01010628	Generate Detailed Procurement Plan	S	PED	SL_ME	Hrs	2		205		205	30%
1	03	01	01	06		LN01010630	Create Test Plan	S	PED	SL_ME	Hrs	4		423		423	30%
1	03	01	01	06		LN01010640	LTU System PED Support to Components	S	PED	SL_ME	Hrs	147		15,539		15,539	30%
1	03	01	01	06		LN01010640	LTU System PED Support to Components	S	PED	SL_KE	Hrs	147		16,539		16,539	30%
1	03	01	01	06		LN01010640	LTU System PED Support to Components	S	PED	SL_CE	Hrs	147		16,539		16,539	30%
1	03	01	01	06		LN01010632	Establish Subordinate Work Orders	S	PED	SL_ME	Hrs	1		106		106	30%
1	03	01	01	06		LN01010634	Prepare for FDR - LTU	S	PED	SL_ME	Hrs	6		634		634	30%
1	03	01	01	06		LN01010634	Prepare for FDR - LTU	S	PED	SL_MDD	Hrs	6		376		376	30%
1	03	01	01	06		LN01010636	Conduct LTU System FDR	S	PED	SL_ME	Hrs	1		106		106	30%
1	03	01	01	06		LN01010642	LTU System CONST Support to Components	S	CON	SL_ME	Hrs	77		8,583		8,583	30%
1	03	01	01	06		LN01010642	LTU System CONST Support to Components	S	CON	SL_KE	Hrs	296		35,117		35,117	30%
1	03	01	01	06		LN01010642	LTU System CONST Support to Components	S	CON	SL_CE	Hrs	296		35,117		35,117	30%
1	**03**	**01**	**01**	**07**			**E-Dump System Integration**					**2,795**	**-**	**291,472**	**-**	**291,472**	
1	03	01	01	07		LN01010714	Collect System Component Designs	S	PED	SL_ME	Hrs	50		5,137		5,137	25%
1	03	01	01	07		LN01010714	Collect System Component Designs	S	PED	SL_MDD	Hrs	50		3,049		3,049	25%
1	03	01	01	07		LN01010716	Define/Develop E-Dump System Assembly Model	S	PED	SL_ME	Hrs	200		20,546		20,546	25%
1	03	01	01	07		LN01010716	Define/Develop E-Dump System Assembly Model	S	PED	SL_MDD	Hrs	250		15,243		15,243	25%
1	03	01	01	07		LN01010708	Write System ICD - E-Dump	S	PED	SL_ME	Hrs	40		4,109		4,109	25%
1	03	01	01	07		LN01010718	Write Installation Plan - E-Dump	S	PED	SL_ME	Hrs	30		3,082		3,082	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	01	01	07		LN01010722	Create E-Dump Vacuum Schematic	S	PED	SL_ME	Hrs	24		2,466		2,466	25%
1	03	01	01	07		LN01010722	Create E-Dump Vacuum Schematic	S	PED	SL_MDD	Hrs	80		4,878		4,878	25%
1	03	01	01	07		LN01010724	Prepare for PDR - E-Dump	S	PED	SL_ME	Hrs	6		634		634	25%
1	03	01	01	07		LN01010724	Prepare for PDR - E-Dump	S	PED	SL_MDD	Hrs	6		376		376	25%
1	03	01	01	07		LN01010740	E-Dump System PED Support to Components	S	PED	SL_ME	Hrs	295		31,184		31,184	25%
1	03	01	01	07		LN01010740	E-Dump System PED Support to Components	S	PED	SL_KE	Hrs	147		16,539		16,539	25%
1	03	01	01	07		LN01010740	E-Dump System PED Support to Components	S	PED	SL_CE	Hrs	147		16,539		16,539	25%
1	03	01	01	07		LN01010726	Conduct E-Dump System PDR	S	PED	SL_ME	Hrs	1		106		106	25%
1	03	01	01	07		LN01010728	Generate Detailed Procurement Plan	S	PED	SL_ME	Hrs	10		1,057		1,057	25%
1	03	01	01	07		LN01010730	Create Test Plan	S	PED	SL_KE	Hrs	30		3,375		3,375	25%
1	03	01	01	07		LN01010732	Establish Subordinate Work Orders	S	PED	SL_ME	Hrs	8		846		846	25%
1	03	01	01	07		LN01010734	Prepare for FDR - E-Dump	S	PED	SL_ME	Hrs	6		634		634	25%
1	03	01	01	07		LN01010734	Prepare for FDR - E-Dump	S	PED	SL_MDD	Hrs	6		376		376	25%
1	03	01	01	07		LN01010736	Conduct E-Dump System FDR	S	PED	SL_ME	Hrs	1		106		106	25%
1	03	01	01	07		LN01010742	E-Dump System CONST Support to Components	S	CON	SL_ME	Hrs	816		90,956		90,956	25%
1	03	01	01	07		LN01010742	E-Dump System CONST Support to Components	S	CON	SL_KE	Hrs	296		35,117		35,117	25%
1	03	01	01	07		LN01010742	E-Dump System CONST Support to Components	S	CON	SL_CE	Hrs	296		35,117		35,117	25%
1	**03**	**01**	**02**				**Reserved**										
1	**03**	**01**	**02**	**01**			**Reserved**										
1	**03**	**01**	**02**	**02**			**Reserved**										
1	**03**	**01**	**02**	**03**			**Reserved**										
1	**03**	**01**	**03**				**Travel**					**-**	**54,000**	**-**	**68,880**	**68,880**	
1	03	01	03			LN0103A01	Travel - PED	S	PED	SL_MSTR	$$		2,000		2,400	2,400	10%
1	03	01	03			LN0103A02	Travel - PED	S	PED	SL_MSTR	$$		2,000		2,400	2,400	10%
1	03	01	03			LN0103A03	Travel - PED	S	PED	SL_MSTR	$$		2,000		2,400	2,400	10%
1	03	01	03			LN0103A04	Travel - PED	S	PED	SL_MSTR	$$		2,000		2,460	2,460	10%
1	03	01	03			LN0103A05	Travel - PED	S	PED	SL_MSTR	$$		2,000		2,460	2,460	10%
1	03	01	03			LN0103A06	Travel - PED	S	PED	SL_MSTR	$$		2,000		2,460	2,460	10%
1	03	01	03			LN0103A07	Travel - PED	S	PED	SL_MSTR	$$		2,000		2,460	2,460	10%
1	03	01	03			LN0103A08	Travel - PED	S	PED	SL_MSTR	$$		2,000		2,460	2,460	10%
1	03	01	03			LN0103A09	Travel - PED	S	PED	SL_MSTR	$$		2,000		2,460	2,460	10%
1	03	01	03			LN0103B01	Travel - CONST	S	CON	SL_MSTR	$$		2,000		2,540	2,540	10%
1	03	01	03			LN0103B02	Travel - CONST	S	CON	SL_MSTR	$$		2,000		2,540	2,540	10%
1	03	01	03			LN0103B03	Travel - CONST	S	CON	SL_MSTR	$$		2,000		2,540	2,540	10%
1	03	01	03			LN0103B04	Travel - CONST	S	CON	SL_MSTR	$$		2,000		2,540	2,540	10%
1	03	01	03			LN0103B05	Travel - CONST	S	CON	SL_MSTR	$$		2,000		2,540	2,540	10%
1	03	01	03			LN0103B06	Travel - CONST	S	CON	SL_MSTR	$$		2,000		2,540	2,540	10%
1	03	01	03			LN0103B07	Travel - CONST	S	CON	SL_MSTR	$$		2,000		2,600	2,600	10%
1	03	01	03			LN0103B08	Travel - CONST	S	CON	SL_MSTR	$$		2,000		2,600	2,600	10%
1	03	01	03			LN0103B09	Travel - CONST	S	CON	SL_MSTR	$$		2,000		2,600	2,600	10%
1	03	01	03			LN0103B10	Travel - CONST	S	CON	SL_MSTR	$$		2,000		2,600	2,600	10%
1	03	01	03			LN0103B11	Travel - CONST	S	CON	SL_MSTR	$$		2,000		2,600	2,600	10%
1	03	01	03			LN0103B12	Travel - CONST	S	CON	SL_MSTR	$$		2,000		2,600	2,600	10%
1	03	01	03			LN0103B13	Travel - CONST	S	CON	SL_MSTR	$$		2,000		2,680	2,680	10%
1	03	01	03			LN0103B14	Travel - CONST	S	CON	SL_MSTR	$$		2,000		2,680	2,680	10%
1	03	01	03			LN0103B15	Travel - CONST	S	CON	SL_MSTR	$$		2,000		2,680	2,680	10%
1	03	01	03			LN0103B16	Travel - CONST	S	CON	SL_MSTR	$$		2,000		2,680	2,680	10%
1	03	01	03			LN0103B17	Travel - CONST	S	CON	SL_MSTR	$$		2,000		2,680	2,680	10%
1	03	01	03			LN0103B18	Travel - CONST	S	CON	SL_MSTR	$$		2,000		2,680	2,680	10%
1	**03**	**01**	**04**				**Linac Management**					**8,875**	**-**	**966,756**	**-**	**966,756**	
1	03	01	04			LN010400	Linac System Management Effort - PED	S	PED	SL_TSM	Hrs	2,639		276,299		276,299	10%
1	03	01	04			LN01040065	Create General Assembly Tree	S	PED	SL_ME	Hrs	16		1,644		1,644	10%
1	03	01	04			LN01040095	Linac Stage & Storage Management	S	CON	SL_ME	Hrs	200		21,438		21,438	10%
1	03	01	04			LN01040090	Linac Testing & Post-Process Management	S	CON	SL_ME	Hrs	600		64,314		64,314	10%
1	03	01	04			LN01040085	Linac Procurement Management	S	CON	SL_ME	Hrs	200		21,438		21,438	10%
1	03	01	04			LN01040115	Back Check Component Spec vs Optics Requirements	S	PED	SL_ME	Hrs	40		4,228		4,228	10%
1	03	01	04			LN010402	Linac System Management Effort - CONST	S	CON	SL_TSM	Hrs	5,180		577,395		577,395	10%
1	**03**	**02**					**Linac Controls & Power Conversion Subsystem**					**39,836**	**3,089,737**	**3,524,472**	**3,475,412**	**6,999,884**	
1	**03**	**02**	**01**				**Personnel Protection System (PPS)**					**3,518**	**228,720**	**322,257**	**258,254**	**580,511**	
1	03	02	01			LN02010000	Finalize PPS LTU & Halls BSOIC Spec Requirements		PED	SL_CP	Hrs	40		3,639		3,639	20%
1	03	02	01			LN02010000	Finalize PPS LTU & Halls BSOIC Spec Requirements		PED	SL_CE	Hrs	40		4,500		4,500	20%
1	03	02	01			LN02010010	PPS BSOIC Design Engineering		PED	SL_CT	Hrs	160		9,885		9,885	20%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	01			LN02010010	PPS BSOIC Design Engineering		PED	SL_CP	Hrs	160		14,594		14,594	20%
1	03	02	01			LN02010010	PPS BSOIC Design Engineering		PED	SL_CE	Hrs	160		18,050		18,050	20%
1	03	02	01			LN02010010	PPS BSOIC Design Engineering		PED	SL_CCA	Hrs	160		10,513		10,513	20%
1	03	02	01			LN02010025	PPS BSOIC Design Drafting		PED	SL_CCA	Hrs	40		2,621		2,621	20%
1	03	02	01			LN02010030	Conduct PPS BSOIC Design Review		PED	SL_CP	Hrs	8		728		728	20%
1	03	02	01			LN02010030	Conduct PPS BSOIC Design Review		PED	SL_CE	Hrs	8		900		900	20%
1	03	02	01			LN02010200	Finalize PPS PLC specification requirements		PED	SL_CE	Hrs	120		13,501		13,501	20%
1	03	02	01			LN02010300	Finalize PPS Keybank, Annunciator & Gate(s) Spec		PED	SL_CE	Hrs	16		1,800		1,800	20%
1	03	02	01			LN02010215	PPS PLC Access Control Design S/W Engineering		CON	SL_CP	Hrs	90		8,574		8,574	20%
1	03	02	01			LN02010210	PPS PLC Access Control Design Engineering		CON	SL_CT	Hrs	111		7,162		7,162	20%
1	03	02	01			LN02010210	PPS PLC Access Control Design Engineering		CON	SL_CE	Hrs	165		19,440		19,440	20%
1	03	02	01			LN02010210	PPS PLC Access Control Design Engineering		CON	SL_CCA	Hrs	56		3,842		3,842	20%
1	03	02	01			LN02010310	PPS Design Keybank, Annunciator, Gate Engineeri		PED	SL_CCA	Hrs	120		7,999		7,999	20%
1	03	02	01			LN02010220	PPS PLC Access Control System Design Drafting		PED	SL_CCA	Hrs	40		2,647		2,647	20%
1	03	02	01			LN02010055	Prep Bid Pak - BSOIC Rad Monitor ADM-600 Series		CON	SL_CE	Hrs	8		925		925	20%
1	03	02	01			LN02010045	Procure PPS BSOIC Mounting Hardware/Material		CON	SL_MSEG	$$		800		896	896	20%
1	03	02	01			LN02010090	Fab/Assy - BSOIC Mounting Hardware (15)		CON	SL_MFMS	Hrs	1,200		123,840		123,840	20%
1	03	02	01			LN02010225	PPS Design Keybank, Annunciator, Gate Engineerin		CON	SL_CT	Hrs	120		7,601		7,601	20%
1	03	02	01			LN02010075	Evaluate Proposals - BSOIC Rad Monitor ADM-600 S		CON	SL_CE	Hrs	20		2,313		2,313	20%
1	03	02	01			LN02010315	PPS Access Control Mazes/Gates Designs (7)		CON	SL_MDD	Hrs	40		2,580		2,580	20%
1	03	02	01			LN02010315	PPS Access Control Mazes/Gates Designs (7)		CON	SL_CT	Hrs	8		507		507	20%
1	03	02	01			LN02010320	PLC Access Control Gates Electronics Drafting		CON	SL_CCA	Hrs	16		1,078		1,078	20%
1	03	02	01			LN02010345	Procure Cable PPS Maze/Gate Cableplant		CON	SL_MSEG	$$		2,000		2,240	2,240	20%
1	03	02	01			LN02010335	Procure PPS Maze/Gate Hdwr/Matl/Switch/Latch/Sol		CON	SL_MSEG	$$		920		1,030	1,030	20%
1	03	02	01			LN02010085	Vendor Fab/Assy - BSOIC Rad Monitor ADM-600 Seri		CON	SL_MSEG	$$		140,000		157,967	157,967	20%
1	03	02	01			LN02010375	Evaluate Proposals - Mazes/Gates Access Control		CON	SL_CE	Hrs	40		4,626		4,626	20%
1	03	02	01			LN02010230	Conduct PLC Access Control Design Review		PED	SL_CE	Hrs	24		2,776		2,776	20%
1	03	02	01			LN02010388	Write Software to Integrate PPS		CON	SL_CP	Hrs	120		11,222		11,222	20%
1	03	02	01			LN02010245	Prep Bid Pak - PLC Access Cntrl Sys Electronics		CON	SL_CE	Hrs	8		925		925	20%
1	03	02	01			LN02010382	Vendor Fab/Assy - Mazes/Gates Access Cntrl Gates		CON	SL_MSEG	$$		35,000		39,418	39,418	20%
1	03	02	01			LN02010340	Fab/PreAssy PPS Maze/Gate Hdwr/Matl/Switch/Latch		CON	SL_CT	Hrs	40		2,534		2,534	20%
1	03	02	01			LN02010265	Evaluate Proposals - PLC Access Cntrl Sys Electr		CON	SL_CE	Hrs	8		925		925	20%
1	03	02	01			LN02010390	Write Documentation		CON	SL_CP	Hrs	40		3,741		3,741	20%
1	03	02	01			LN02010272	Vendor Fab/Assy - PLC Access Cntrl Sys Electroni		CON	SL_MSEG	$$		50,000		56,703	56,703	20%
1	03	02	01			LN02010392	Perform Point to Point Checkout		CON	SL_CP	Hrs	40		3,741		3,741	20%
1	03	02	01			LN02010394	Integrate PPS Hardware and Software		CON	SL_CP	Hrs	40		3,838		3,838	20%
1	03	02	01			LN02010394	Integrate PPS Hardware and Software		CON	SL_CE	Hrs	40		4,747		4,747	20%
1	03	02	01			LN02010100	Fab and Pre Assemble Components (as required)		CON	SL_CT	Hrs	12		780		780	20%
1	03	02	01			LN02010110	Perform PPS BSOIC Pre-Installation Qual Test		CON	SL_CT	Hrs	40		2,600		2,600	20%
1	03	02	01			LN02010276	Fab and Pre Assemble Components (as required)		CON	SL_CT	Hrs	120		7,799		7,799	20%
1	03	02	01			LN02010280	Perform Pre-Installation Qual Test on Linac PPS		CON	SL_CCA	Hrs	40		2,764		2,764	20%
1	**03**	**02**	**02**				**Beam Containment System (BCS)**					**411**	**11,300**	**38,218**	**12,656**	**50,874**	
1	03	02	02			LN02020000	Finalize BCS LTU & Halls Spec Requirements		PED	SL_CP	Hrs	24		2,183		2,183	20%
1	03	02	02			LN02020000	Finalize BCS LTU & Halls Spec Requirements		PED	SL_CE	Hrs	24		2,700		2,700	20%
1	03	02	02			LN02020010	BCS LTU & Halls PLIC/LION System Drafting		PED	SL_CCA	Hrs	40		2,621		2,621	20%
1	03	02	02			LN02020015	Conduct BCS LTU & Halls System Design Review		PED	SL_CP	Hrs	8		728		728	20%
1	03	02	02			LN02020015	Conduct BCS LTU & Halls System Design Review		PED	SL_CE	Hrs	8		900		900	20%
1	03	02	02			LN02020110	Write Software to Integrate BCS		CON	SL_CP	Hrs	120		11,222		11,222	20%
1	03	02	02			LN02020045	Procure BCS PLIC/LION Cableplant Heliax, Andre		CON	SL_MSEG	$$		10,000		11,200	11,200	20%
1	03	02	02			LN02020040	Procure BCS PLIC/LION Gas Bottle(s) & Bottle(s		CON	SL_MSEG	$$		250		280	280	20%
1	03	02	02			LN02020035	Procure Gas System - BCS PLIC/LION Regulators/Fi		CON	SL_MSEG	$$		250		280	280	20%
1	03	02	02			LN02020030	Procure BCS PLIC/LION System HV Power Supply Cha		CON	SL_MSEG	$$		800		896	896	20%
1	03	02	02			LN02020115	Write Documentation		CON	SL_CP	Hrs	40		3,741		3,741	20%
1	03	02	02			LN02020120	Perform Point to Point Checkout		CON	SL_CP	Hrs	40		3,741		3,741	20%
1	03	02	02			LN02020125	Integrate BCS Hardware and Software		CON	SL_CP	Hrs	40		3,741		3,741	20%
1	03	02	02			LN02020125	Integrate BCS Hardware and Software		CON	SL_CE	Hrs	40		4,626		4,626	20%
1	03	02	02			LN02020060	Prep Bid Pak - BCS PLIC/LION Cableplant		CON	SL_CE	Hrs	2		237		237	20%
1	03	02	02			LN02020080	Evaluate Proposals - BCS PLIC/LION Cableplant		CON	SL_CE	Hrs	1		119		119	20%
1	03	02	02			LN02020100	Perform Pre-Installation Qual Test on BCS LTU		CON	SL_CCA	Hrs	24		1,659		1,659	20%
1	**03**	**02**	**03**				**Machine Protection System (MPS)**					**749**	**38,840**	**63,667**	**43,500**	**107,167**	
1	03	02	03			LN02030000	Finalize Specification Requirements		PED	SL_CP	Hrs	8		728		728	20%
1	03	02	03			LN02030000	Finalize Specification Requirements		PED	SL_CE	Hrs	8		900		900	20%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	03			LN02030010	MPS Design Engineering		PED	SL_CCA	Hrs	80		5,242		5,242	20%
1	03	02	03			LN02030020	PIC's & TC's Design		PED	SL_CCA	Hrs	40		2,621		2,621	20%
1	03	02	03			LN02030015	MPS Design Drafting		PED	SL_CCA	Hrs	80		5,242		5,242	20%
1	03	02	03			LN02030025	PIC's & TC's Drafting		PED	SL_CCA	Hrs	48		3,145		3,145	20%
1	03	02	03			LN02030030	Conduct Design Review - MPS		PED	SL_CP	Hrs	8		728		728	20%
1	03	02	03			LN02030030	Conduct Design Review - MPS		PED	SL_CE	Hrs	8		900		900	20%
1	03	02	03			LN02030105	Procure Cable TC Reference Plane material		CON	SL_MSEG	$$		920		1,030	1,030	20%
1	03	02	03			LN02030095	Procure TC Reference Plane material (as required		CON	SL_MSEG	$$		920		1,030	1,030	20%
1	03	02	03			LN02030050	Prep Bid Pak - PIC Modules		CON	SL_CE	Hrs	8		925		925	20%
1	03	02	03			LN02030055	Prep Assy Pak - TC Reference Planes Modules		CON	SL_CE	Hrs	8		925		925	20%
1	03	02	03			LN02030130	Fab Cable,4/C, HV P.S. to X-connects (HV Enable)		CON	SL_PCEF	Hrs	2		127		127	20%
1	03	02	03			LN02030125	Fab Cable,8/C, HV P.S. to X-connects (P.S. Statu		CON	SL_PCEF	Hrs	2		127		127	20%
1	03	02	03			LN02030120	Fab Cable,1553, PIC Module Chain to VME A.P. Cra		CON	SL_PCEF	Hrs	3		190		190	20%
1	03	02	03			LN02030115	Fab Cable, Coax, HV P.S. to PIC Detector (6)		CON	SL_PCEF	Hrs	6		380		380	20%
1	03	02	03			LN02030110	Fab Cable, Coax, PIC Module to PIC Detector (6)		CON	SL_PCEF	Hrs	6		380		380	20%
1	03	02	03			LN02030100	Fab and Pre Assemble TC Ref. Planes (as required		CON	SL_PCEF	Hrs	40		2,534		2,534	20%
1	03	02	03			LN02030245	Evaluate Proposals - BSOIC		CON	SL_CE	Hrs	40		4,626		4,626	20%
1	03	02	03			LN02030135	Fab and Pre Assemble PIC Components (as reqd)		CON	SL_PCEF	Hrs	10		633		633	20%
1	03	02	03			LN02030255	Vendor Fab/Assy - BSOIC		CON	SL_MSEG	$$		25,000		28,000	28,000	20%
1	03	02	03			LN02030075	Evaluate Proposals - PIC Modules		CON	SL_CE	Hrs	40		4,626		4,626	20%
1	03	02	03			LN02030085	Vendor Fab/Assy - PIC Modules		CON	SL_MSEG	$$		12,000		13,440	13,440	20%
1	03	02	03			LN02030300	Write Software to Integrate MPS		CON	SL_CP	Hrs	120		11,222		11,222	20%
1	03	02	03			LN02030305	Write Documentation		CON	SL_CP	Hrs	40		3,741		3,741	20%
1	03	02	03			LN02030145	Perform Pre-Installation Qual Test on Linac MPS		CON	SL_CCA	Hrs	24		1,617		1,617	20%
1	03	02	03			LN02030310	Perform Point to Point Checkout		CON	SL_CP	Hrs	40		3,741		3,741	20%
1	03	02	03			LN02030315	Integrate MPS Hardware and Software		CON	SL_CP	Hrs	40		3,741		3,741	20%
1	03	02	03			LN02030315	Integrate MPS Hardware and Software		CON	SL_CE	Hrs	40		4,626		4,626	20%
1	**03**	**02**	**04**				**Linac Power Conversion Subsystem**					**10,867**	**1,061,789**	**864,283**	**1,202,532**	**2,066,815**	
1	**03**	**02**	**04**	**01**			**Beamline Power Supplies - (Dipole Type)**					**2,448**	**136,581**	**246,350**	**155,389**	**401,739**	
1	03	02	04	01		LN0204_010	Finalize Power Conv Reqmts Definition (Dipole)		PED	SL_PCE	Hrs	40		4,500		4,500	30%
1	03	02	04	01		LN0204_020	Dev Engrg for 43 instances of existing 18 types		CON	SL_PCE	Hrs	1,720		196,130		196,130	30%
1	03	02	04	01		LN0204_025	Create System Drawings		CON	SL_PCCA	Hrs	688		45,720		45,720	30%
1	**03**	**02**	**04**	**01**	**01**		**30kw Pwr Supply - (B11-14)**					**-**	**14,937**	**-**	**16,729**	**16,729**	
1	03	02	04	01	01	LN02040120	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,680	1,680	30%
1	03	02	04	01	01	LN02040118	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		179	179	30%
1	03	02	04	01	01	LN02040116	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		22	22	30%
1	03	02	04	01	01	LN02040114	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,120	1,120	30%
1	03	02	04	01	01	LN02040108	Procure Controller		CON	SL_MSEG	$$		2,000		2,240	2,240	30%
1	03	02	04	01	01	LN02040106	Procure Transductors		CON	SL_MSEG	$$		1,800		2,016	2,016	30%
1	03	02	04	01	01	LN02040104	Procure Power Supply - (Dipole Type)		CON	SL_MSEG	$$		8,457		9,472	9,472	30%
1	**03**	**02**	**04**	**01**	**02**		**Power Supply - (B21-26)**					**-**	**23,394**	**-**	**26,903**	**26,903**	
1	03	02	04	01	02	LN02040644	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	01	02	LN02040642	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	01	02	LN02040640	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	01	02	LN02040638	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	01	02	LN02040632	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	01	02	LN02040630	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	01	02	LN02040604	Procure Power Supply - (Dipole Type)		CON	SL_MSEG	$$		16,914		19,451	19,451	30%
1	**03**	**02**	**04**	**01**	**03**		**78kw Pwr Supply - (B31-34)**					**-**	**23,394**	**-**	**26,903**	**26,903**	
1	03	02	04	01	03	LN02041544	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	01	03	LN02041542	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	01	03	LN02041540	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	01	03	LN02041538	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	01	03	LN02041532	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	01	03	LN02041530	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	01	03	LN02041504	Procure Power Supply - (Dipole Type)		CON	SL_MSEG	$$		16,914		19,451	19,451	30%
1	**03**	**02**	**04**	**01**	**04**		**Reserved**										
1	**03**	**02**	**04**	**01**	**05**		**Power Supply - (BY1)**					**-**	**10,482**	**-**	**12,054**	**12,054**	
1	03	02	04	01	05	LN02043444	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	01	05	LN02043442	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	01	05	LN02043440	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	01	05	LN02043438	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	04	01	05	LN02043432	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	01	05	LN02043430	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	01	05	LN02043418	Procure Power Supply - (Dipole Type)		CON	SL_MSEG	$$		4,002		4,602	4,602	30%
1	**03**	**02**	**04**	**01**	**06**		**Kicker (BYBKIK)**					**-**	**40,980**	**-**	**45,897**	**45,897**	
1	03	02	04	01	06	LN02043528	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		179	179	30%
1	03	02	04	01	06	LN02043526	Procure - 2/C Cable		CON	SL_MSEG	$$		20		22	22	30%
1	03	02	04	01	06	LN02043524	Procure - 1/C Cable ($4/ft x 1250ft)		CON	SL_MSEG	$$		5,000		5,600	5,600	30%
1	03	02	04	01	06	LN02043522	Procure Kicker Rack		CON	SL_MSEG	$$		1,800		2,016	2,016	30%
1	03	02	04	01	06	LN02043520	Procure Controller (PLC)		CON	SL_MSEG	$$		4,000		4,480	4,480	30%
1	03	02	04	01	06	LN02043512	Fab & Assy- Power Supply - (Dipole Type)		CON	SL_MSEG	$$		30,000		33,600	33,600	30%
1	**03**	**02**	**04**	**01**	**07**		**Reserved**										
1	**03**	**02**	**04**	**01**	**08**		**78kw Pwr Supply - (Dump Bend)**					**-**	**23,394**	**-**	**26,903**	**26,903**	
1	03	02	04	01	08	LN02048044	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	01	08	LN02048042	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	01	08	LN02048040	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	01	08	LN02048038	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	01	08	LN02048032	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	01	08	LN02048030	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	01	08	LN02048018	Procure Power Supply - (Dipole Type)		CON	SL_MSEG	$$		16,914		19,451	19,451	30%
1	**03**	**02**	**04**	**01**	**09**		**Reserved**										
1	**03**	**02**	**04**	**02**			**Beamline Power Supplies - (Quad Type)**					**52**	**351,141**	**5,721**	**403,101**	**408,822**	
1	03	02	04	02		LN0204_060	Finalize Power Conv Reqmts Definition (Quad)		PED	SL_PCE	Hrs	24		2,700		2,700	30%
1	03	02	04	02		LN0204_075	Conduct ES&H Review - (Quad Type)		PED	SL_PCE	Hrs	24		2,700		2,700	30%
1	**03**	**02**	**04**	**02**	**01**		**2kw Power Supply - (SEC-23)**					**-**	**11,537**	**-**	**13,268**	**13,268**	
1	03	02	04	02	01	LN02040220	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	01	LN02040218	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	01	LN02040216	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	01	LN02040214	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	01	LN02040211	Procure Load Switch Box		CON	SL_MSEG	$$		3,000		3,450	3,450	30%
1	03	02	04	02	01	LN02040208	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	01	LN02040206	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	01	LN02040204	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		2,057		2,366	2,366	30%
1	**03**	**02**	**04**	**02**	**02**		**2kw Power Supply - (SEC-24)**					**-**	**11,537**	**-**	**13,268**	**13,268**	
1	03	02	04	02	02	LN02040320	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	02	LN02040318	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	02	LN02040316	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	02	LN02040314	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	02	LN02040311	Procure Load Switch Box		CON	SL_MSEG	$$		3,000		3,450	3,450	30%
1	03	02	04	02	02	LN02040308	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	02	LN02040306	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	02	LN02040304	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		2,057		2,366	2,366	30%
1	**03**	**02**	**04**	**02**	**03**		**2kw Power Supply - (SEC-25)**					**-**	**11,537**	**-**	**13,268**	**13,268**	
1	03	02	04	02	03	LN02041020	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	03	LN02041018	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	03	LN02041016	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	03	LN02041014	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	03	LN02041011	Procure Load Switch Box		CON	SL_MSEG	$$		3,000		3,450	3,450	30%
1	03	02	04	02	03	LN02041008	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	03	LN02041006	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	03	LN02041004	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		2,057		2,366	2,366	30%
1	**03**	**02**	**04**	**02**	**04**		**2kw Power Supply - (SEC-26)**					**-**	**11,537**	**-**	**13,268**	**13,268**	
1	03	02	04	02	04	LN02041120	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	04	LN02041118	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	04	LN02041116	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	04	LN02041114	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	04	LN02041111	Procure Load Switch Box		CON	SL_MSEG	$$		3,000		3,450	3,450	30%
1	03	02	04	02	04	LN02041108	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	04	LN02041106	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	04	LN02041104	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		2,057		2,366	2,366	30%
1	**03**	**02**	**04**	**02**	**05**		**2kw Power Supply - (SEC-27)**					**-**	**11,537**	**-**	**13,268**	**13,268**	
1	03	02	04	02	05	LN02041220	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	05	LN02041218	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	04	02	05	LN02041216	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	05	LN02041214	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	05	LN02041211	Procure Load Switch Box		CON	SL_MSEG	$$		3,000		3,450	3,450	30%
1	03	02	04	02	05	LN02041208	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	05	LN02041206	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	05	LN02041204	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		2,057		2,366	2,366	30%
1	**03**	**02**	**04**	**02**	**06**		**2kw Power Supply - (SEC-28)**					**-**	**11,537**	**-**	**13,268**	**13,268**	
1	03	02	04	02	06	LN02041320	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	06	LN02041318	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	06	LN02041316	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	06	LN02041314	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	06	LN02041311	Procure Load Switch Box		CON	SL_MSEG	$$		3,000		3,450	3,450	30%
1	03	02	04	02	06	LN02041308	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	06	LN02041306	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	06	LN02041304	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		2,057		2,366	2,366	30%
1	**03**	**02**	**04**	**02**	**07**		**2kw Power Supply - (SEC-29)**					**-**	**11,537**	**-**	**13,268**	**13,268**	
1	03	02	04	02	07	LN02041420	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	07	LN02041418	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	07	LN02041416	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	07	LN02041414	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	07	LN02041411	Procure Load Switch Box		CON	SL_MSEG	$$		3,000		3,450	3,450	30%
1	03	02	04	02	07	LN02041408	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	07	LN02041406	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	07	LN02041404	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		2,057		2,366	2,366	30%
1	**03**	**02**	**04**	**02**	**08**		**10kw Power Supply - (Q24701)**					**-**	**10,482**	**-**	**12,054**	**12,054**	
1	03	02	04	02	08	LN02040420	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	08	LN02040418	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	08	LN02040416	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	08	LN02040414	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	08	LN02040408	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	08	LN02040406	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	08	LN02040404	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		4,002		4,602	4,602	30%
1	**03**	**02**	**04**	**02**	**09**		**10kw Power Supply - (QM21)**					**-**	**12,704**	**-**	**14,228**	**14,228**	
1	03	02	04	02	09	LN02040520	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,680	1,680	30%
1	03	02	04	02	09	LN02040518	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		179	179	30%
1	03	02	04	02	09	LN02040516	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		22	22	30%
1	03	02	04	02	09	LN02040514	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,120	1,120	30%
1	03	02	04	02	09	LN02040508	Procure Controller		CON	SL_MSEG	$$		2,000		2,240	2,240	30%
1	03	02	04	02	09	LN02040506	Procure Transductors		CON	SL_MSEG	$$		1,800		2,016	2,016	30%
1	03	02	04	02	09	LN02040504	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		6,224		6,971	6,971	30%
1	**03**	**02**	**04**	**02**	**10**		**Reserved**										
1	**03**	**02**	**04**	**02**	**11**		**10kw Power Supply - (Q24901)**					**-**	**11,204**	**-**	**12,885**	**12,885**	
1	03	02	04	02	11	LN02040818	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	11	LN02040816	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	11	LN02040814	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	11	LN02040808	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	11	LN02040806	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	11	LN02040804	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		6,224		7,158	7,158	30%
1	**03**	**02**	**04**	**02**	**12**		**10kw Power Supply - (QM22)**					**-**	**11,204**	**-**	**12,548**	**12,548**	
1	03	02	04	02	12	LN02040918	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		179	179	30%
1	03	02	04	02	12	LN02040916	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		22	22	30%
1	03	02	04	02	12	LN02040914	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,120	1,120	30%
1	03	02	04	02	12	LN02040908	Procure Controller		CON	SL_MSEG	$$		2,000		2,240	2,240	30%
1	03	02	04	02	12	LN02040906	Procure Transductors		CON	SL_MSEG	$$		1,800		2,016	2,016	30%
1	03	02	04	02	12	LN02040904	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		6,224		6,971	6,971	30%
1	**03**	**02**	**04**	**02**	**13**		**Power Supply - (QVM1)**					**-**	**10,482**	**-**	**12,054**	**12,054**	
1	03	02	04	02	13	LN02041620	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	13	LN02041618	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	13	LN02041616	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	13	LN02041614	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	13	LN02041608	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	13	LN02041606	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	04	02	13	LN02041604	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		4,002		4,602	4,602	30%
1	**03**	**02**	**04**	**02**	**14**		**Power Supply - (QVM2)**					**-**	**10,482**	**-**	**12,054**	**12,054**	
1	03	02	04	02	14	LN02041720	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	14	LN02041718	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	14	LN02041716	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	14	LN02041714	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	14	LN02041708	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	14	LN02041706	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	14	LN02041704	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		4,002		4,602	4,602	30%
1	**03**	**02**	**04**	**02**	**15**		**Power Supply - (QVM3)**					**-**	**10,482**	**-**	**12,054**	**12,054**	
1	03	02	04	02	15	LN02041820	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	15	LN02041818	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	15	LN02041816	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	15	LN02041814	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	15	LN02041808	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	15	LN02041806	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	15	LN02041804	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		4,002		4,602	4,602	30%
1	**03**	**02**	**04**	**02**	**16**		**Power Supply - (QVM4)**					**-**	**10,482**	**-**	**12,054**	**12,054**	
1	03	02	04	02	16	LN02041920	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	16	LN02041918	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	16	LN02041916	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	16	LN02041914	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	16	LN02041908	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	16	LN02041906	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	16	LN02041904	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		4,002		4,602	4,602	30%
1	**03**	**02**	**04**	**02**	**17**		**Power Supply - (QVB1)**					**-**	**10,482**	**-**	**12,054**	**12,054**	
1	03	02	04	02	17	LN02042020	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	17	LN02042018	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	17	LN02042016	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	17	LN02042014	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	17	LN02042008	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	17	LN02042006	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	17	LN02042004	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		4,002		4,602	4,602	30%
1	**03**	**02**	**04**	**02**	**18**		**Power Supply - (QDL1)**					**-**	**10,482**	**-**	**12,054**	**12,054**	
1	03	02	04	02	18	LN02042120	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	18	LN02042118	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	18	LN02042116	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	18	LN02042114	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	18	LN02042108	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	18	LN02042106	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	18	LN02042104	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		4,002		4,602	4,602	30%
1	**03**	**02**	**04**	**02**	**19**		**Power Supply - (QE31)**					**-**	**9,245**	**-**	**10,632**	**10,632**	
1	03	02	04	02	19	LN02042420	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	19	LN02042418	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	19	LN02042416	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	19	LN02042414	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	19	LN02042408	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	19	LN02042406	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	19	LN02042404	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		2,765		3,180	3,180	30%
1	**03**	**02**	**04**	**02**	**20**		**Power Supply - (QEM1)**					**-**	**12,704**	**-**	**14,610**	**14,610**	
1	03	02	04	02	20	LN02042520	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	20	LN02042518	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	20	LN02042516	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	20	LN02042514	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	20	LN02042508	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	20	LN02042506	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	20	LN02042504	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		6,224		7,158	7,158	30%
1	**03**	**02**	**04**	**02**	**21**		**Power Supply - (QEM2)**					**-**	**12,704**	**-**	**14,610**	**14,610**	
1	03	02	04	02	21	LN02042620	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	21	LN02042618	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	21	LN02042616	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	21	LN02042614	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	04	02	21	LN02042608	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	21	LN02042606	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	21	LN02042604	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		6,224		7,158	7,158	30%
1	**03**	**02**	**04**	**02**	**22**		**Power Supply - (QEM3)**					**-**	**12,704**	**-**	**14,610**	**14,610**	
1	03	02	04	02	22	LN02042720	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	22	LN02042718	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	22	LN02042716	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	22	LN02042714	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	22	LN02042708	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	22	LN02042706	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	22	LN02042704	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		6,224		7,158	7,158	30%
1	**03**	**02**	**04**	**02**	**23**		**Power Supply - (QEM4)**					**4**	**12,704**	**321**	**14,610**	**14,931**	
1	03	02	04	02	23	LN02042820	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	23	LN02042818	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	23	LN02042816	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	23	LN02042814	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	23	LN02042808	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	23	LN02042806	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	23	LN02042804	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		6,224		7,158	7,158	30%
1	03	02	04	02	23	LN02042832	Integrate Magnet Interlock		CON	SL_TMUI	Hrs	4		321		321	30%
1	**03**	**02**	**04**	**02**	**24**		**Power Supply - (QTm1)**					**-**	**12,704**	**-**	**14,610**	**14,610**	
1	03	02	04	02	24	LN02042220	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	24	LN02042218	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	24	LN02042216	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	24	LN02042214	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	24	LN02042208	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	24	LN02042206	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	24	LN02042204	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		6,224		7,158	7,158	30%
1	**03**	**02**	**04**	**02**	**25**		**Power Supply - (QTm2)**					**-**	**12,704**	**-**	**14,610**	**14,610**	
1	03	02	04	02	25	LN02042320	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	25	LN02042318	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	25	LN02042316	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	25	LN02042314	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	25	LN02042308	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	25	LN02042306	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	25	LN02042304	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		6,224		7,158	7,158	30%
1	**03**	**02**	**04**	**02**	**26**		**Power Supply - (QUM1)**					**-**	**12,704**	**-**	**14,610**	**14,610**	
1	03	02	04	02	26	LN02042920	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	26	LN02042918	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	26	LN02042916	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	26	LN02042914	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	26	LN02042908	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	26	LN02042906	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	26	LN02042904	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		6,224		7,158	7,158	30%
1	**03**	**02**	**04**	**02**	**27**		**Power Supply - (QUM2)**					**-**	**12,704**	**-**	**14,610**	**14,610**	
1	03	02	04	02	27	LN02043020	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	27	LN02043018	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	27	LN02043016	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	27	LN02043014	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	27	LN02043008	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	27	LN02043006	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	27	LN02043004	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		6,224		7,158	7,158	30%
1	**03**	**02**	**04**	**02**	**28**		**Power Supply - (QUM3)**					**-**	**12,704**	**-**	**14,610**	**14,610**	
1	03	02	04	02	28	LN02043120	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	28	LN02043118	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	28	LN02043116	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	28	LN02043114	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	28	LN02043108	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	28	LN02043106	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	28	LN02043104	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		6,224		7,158	7,158	30%
1	**03**	**02**	**04**	**02**	**29**		**Power Supply - (QUM4)**					**-**	**12,704**	**-**	**14,610**	**14,610**	
1	03	02	04	02	29	LN02043220	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	04	02	29	LN02043218	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	29	LN02043216	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	29	LN02043214	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	29	LN02043208	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	29	LN02043206	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	29	LN02043204	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		6,224		7,158	7,158	30%
1	**03**	**02**	**04**	**02**	**30**		**Power Supply - (QDMP)**					**-**	**8,537**	**-**	**9,818**	**9,818**	
1	03	02	04	02	30	LN02043360	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	30	LN02043350	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	30	LN02043340	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	30	LN02043330	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	30	LN02043300	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	30	LN02043290	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	30	LN02043280	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		2,057		2,366	2,366	30%
1	**03**	**02**	**04**	**02**	**31**		**Power Supply - (QUE1)**					**-**	**8,537**	**-**	**9,818**	**9,818**	
1	03	02	04	02	31	LN02045435	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	31	LN02045430	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	31	LN02045425	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	31	LN02045420	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	31	LN02045415	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	31	LN02045410	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	31	LN02045405	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		2,057		2,366	2,366	30%
1	**03**	**02**	**04**	**02**	**32**		**Power Supply - (QUE2)**					**-**	**8,537**	**-**	**9,818**	**9,818**	
1	03	02	04	02	32	LN02045535	Procure Klixon Run Safe Box & Hdwr		CON	SL_MSEG	$$		1,500		1,725	1,725	30%
1	03	02	04	02	32	LN02045530	Procure Cable - Lugs, Splices, Etc.		CON	SL_MSEG	$$		160		184	184	30%
1	03	02	04	02	32	LN02045525	Procure - 2/C 18AWG Interlock Cable		CON	SL_MSEG	$$		20		23	23	30%
1	03	02	04	02	32	LN02045520	Procure - 1/C Cable		CON	SL_MSEG	$$		1,000		1,150	1,150	30%
1	03	02	04	02	32	LN02045515	Procure Controller		CON	SL_MSEG	$$		2,000		2,300	2,300	30%
1	03	02	04	02	32	LN02045510	Procure Transductors		CON	SL_MSEG	$$		1,800		2,070	2,070	30%
1	03	02	04	02	32	LN02045505	Procure Power Supply - (Quad Type)		CON	SL_MSEG	$$		2,057		2,366	2,366	30%
1	**03**	**02**	**04**	**03**			**Beamline Power Supplies - (Trim Type)**					**256**	**325,980**	**23,522**	**366,185**	**389,707**	
1	03	02	04	03		LN0204_110	Finalize Power Conv Reqmts Definition (Trim)		PED	SL_PCE	Hrs	40		4,500		4,500	30%
1	**03**	**02**	**04**	**03**	**01**		**12Amp Power Supply - (MCOR_1)**					**12**	**36,390**	**1,188**	**40,756**	**41,944**	
1	03	02	04	03	01	LN02043728	Procure Cable - Lugs, Splices, Etc. (8ea)		CON	SL_MSEG	$$		320		358	358	30%
1	03	02	04	03	01	LN02043724	Procure - 2/C #8 Cable (8ea)		CON	SL_MSEG	$$		960		1,075	1,075	30%
1	03	02	04	03	01	LN02043720	Procure MCOR 12 Amp Modules (7ea)		CON	SL_MSEG	$$		20,160		22,579	22,579	30%
1	03	02	04	03	01	LN02043718	Procure Cooling Unit		CON	SL_MSEG	$$		350		392	392	30%
1	03	02	04	03	01	LN02043716	Procure Output Interface		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	01	LN02043714	Procure Cable - SAM/DAC		CON	SL_MSEG	$$		100		112	112	30%
1	03	02	04	03	01	LN02043712	Procure Digital Analog Converter		CON	SL_MSEG	$$		2,200		2,464	2,464	30%
1	03	02	04	03	01	LN02043710	Procure Smart Analog Monitor		CON	SL_MSEG	$$		2,500		2,800	2,800	30%
1	03	02	04	03	01	LN02043708	Procure MCOR Controller Card (SAM DAC)		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	01	LN02043706	Procure MCOR Chassis		CON	SL_MSEG	$$		2,100		2,352	2,352	30%
1	03	02	04	03	01	LN02043704	Procure MCOR Bulk Power Supply		CON	SL_MSEG	$$		6,500		7,280	7,280	30%
1	03	02	04	03	01	LN02043738	Integrate Cables		CON	SL_TMUE	Hrs	12		1,188		1,188	30%
1	**03**	**02**	**04**	**03**	**02**		**30Amp Power Supply - (MCOR_2)**					**12**	**36,230**	**1,188**	**40,578**	**41,766**	
1	03	02	04	03	02	LN02043828	Procure Cable - Lugs, Splices, Etc. (7ea)		CON	SL_MSEG	$$		280		314	314	30%
1	03	02	04	03	02	LN02043824	Procure - 2/C #8 Cable (7ea)		CON	SL_MSEG	$$		840		941	941	30%
1	03	02	04	03	02	LN02043820	Procure MCOR 30 Amp Modules (7ea)		CON	SL_MSEG	$$		20,160		22,579	22,579	30%
1	03	02	04	03	02	LN02043818	Procure Cooling Unit		CON	SL_MSEG	$$		350		392	392	30%
1	03	02	04	03	02	LN02043816	Procure Output Interface		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	02	LN02043814	Procure Cable - SAM/DAC		CON	SL_MSEG	$$		100		112	112	30%
1	03	02	04	03	02	LN02043812	Procure Digital Analog Converter		CON	SL_MSEG	$$		2,200		2,464	2,464	30%
1	03	02	04	03	02	LN02043810	Procure Smart Analog Monitor		CON	SL_MSEG	$$		2,500		2,800	2,800	30%
1	03	02	04	03	02	LN02043808	Procure MCOR Controller Card (SAM DAC)		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	02	LN02043806	Procure MCOR Chassis		CON	SL_MSEG	$$		2,100		2,352	2,352	30%
1	03	02	04	03	02	LN02043804	Procure MCOR Bulk Power Supply		CON	SL_MSEG	$$		6,500		7,280	7,280	30%
1	03	02	04	03	02	LN02043838	Integrate Cables		CON	SL_TMUE	Hrs	12		1,188		1,188	30%
1	**03**	**02**	**04**	**03**	**03**		**30Amp Power Supply - (MCOR_3)**					**12**	**36,230**	**1,219**	**41,665**	**42,884**	
1	03	02	04	03	03	LN02043928	Procure Cable - Lugs, Splices, Etc. (7ea)		CON	SL_MSEG	$$		280		322	322	30%
1	03	02	04	03	03	LN02043924	Procure - 2/C #8 Cable (7ea)		CON	SL_MSEG	$$		840		966	966	30%
1	03	02	04	03	03	LN02043920	Procure MCOR 30 Amp Modules (7ea)		CON	SL_MSEG	$$		20,160		23,184	23,184	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	04	03	03	LN02043918	Procure Cooling Unit		CON	SL_MSEG	$$		350		403	403	30%
1	03	02	04	03	03	LN02043916	Procure Output Interface		CON	SL_MSEG	$$		600		690	690	30%
1	03	02	04	03	03	LN02043914	Procure Cable - SAM/DAC		CON	SL_MSEG	$$		100		115	115	30%
1	03	02	04	03	03	LN02043912	Procure Digital Analog Converter		CON	SL_MSEG	$$		2,200		2,530	2,530	30%
1	03	02	04	03	03	LN02043910	Procure Smart Analog Monitor		CON	SL_MSEG	$$		2,500		2,875	2,875	30%
1	03	02	04	03	03	LN02043908	Procure MCOR Controller Card (SAM DAC)		CON	SL_MSEG	$$		600		690	690	30%
1	03	02	04	03	03	LN02043906	Procure MCOR Chassis		CON	SL_MSEG	$$		2,100		2,415	2,415	30%
1	03	02	04	03	03	LN02043904	Procure MCOR Bulk Power Supply		CON	SL_MSEG	$$		6,500		7,475	7,475	30%
1	03	02	04	03	03	LN02043938	Integrate Cables		CON	SL_TMUE	Hrs	12		1,219		1,219	30%
1	**03**	**02**	**04**	**03**	**04**		**30Amp Power Supply - (MCOR_4)**					**12**	**36,230**	**1,188**	**40,578**	**41,766**	
1	03	02	04	03	04	LN02044028	Procure Cable - Lugs, Splices, Etc. (7ea)		CON	SL_MSEG	$$		280		314	314	30%
1	03	02	04	03	04	LN02044024	Procure - 2/C #8 Cable (7ea)		CON	SL_MSEG	$$		840		941	941	30%
1	03	02	04	03	04	LN02044020	Procure MCOR 30 Amp Modules (7ea)		CON	SL_MSEG	$$		20,160		22,579	22,579	30%
1	03	02	04	03	04	LN02044018	Procure Cooling Unit		CON	SL_MSEG	$$		350		392	392	30%
1	03	02	04	03	04	LN02044016	Procure Output Interface		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	04	LN02044014	Procure Cable - SAM/DAC		CON	SL_MSEG	$$		100		112	112	30%
1	03	02	04	03	04	LN02044012	Procure Digital Analog Converter		CON	SL_MSEG	$$		2,200		2,464	2,464	30%
1	03	02	04	03	04	LN02044010	Procure Smart Analog Monitor		CON	SL_MSEG	$$		2,500		2,800	2,800	30%
1	03	02	04	03	04	LN02044008	Procure MCOR Controller Card (SAM DAC)		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	04	LN02044006	Procure MCOR Chassis		CON	SL_MSEG	$$		2,100		2,352	2,352	30%
1	03	02	04	03	04	LN02044004	Procure MCOR Bulk Power Supply		CON	SL_MSEG	$$		6,500		7,280	7,280	30%
1	03	02	04	03	04	LN02044038	Integrate Cables		CON	SL_TMUE	Hrs	12		1,188		1,188	30%
1	**03**	**02**	**04**	**03**	**05**		**Reserved**										
1	**03**	**02**	**04**	**03**	**06**		**Reserved**										
1	**03**	**02**	**04**	**03**	**07**		**Reserved**										
1	**03**	**02**	**04**	**03**	**08**		**Reserved**										
1	**03**	**02**	**04**	**03**	**09**		**Reserved**										
1	**03**	**02**	**04**	**03**	**10**		**Power Supply - (MCOR_LTU1)**					**12**	**30,150**	**1,188**	**33,768**	**34,956**	
1	03	02	04	03	10	LN02044628	Procure Cable - Lugs, Splices, Etc. (5ea)		CON	SL_MSEG	$$		200		224	224	30%
1	03	02	04	03	10	LN02044624	Procure - 2/C #8 Cable (5ea)		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	10	LN02044620	Procure MCOR 12 Amp Modules (5ea)		CON	SL_MSEG	$$		14,400		16,128	16,128	30%
1	03	02	04	03	10	LN02044618	Procure Cooling Unit		CON	SL_MSEG	$$		350		392	392	30%
1	03	02	04	03	10	LN02044616	Procure Output Interface		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	10	LN02044614	Procure Cable - SAM/DAC		CON	SL_MSEG	$$		100		112	112	30%
1	03	02	04	03	10	LN02044612	Procure Digital Analog Converter		CON	SL_MSEG	$$		2,200		2,464	2,464	30%
1	03	02	04	03	10	LN02044610	Procure Smart Analog Monitor		CON	SL_MSEG	$$		2,500		2,800	2,800	30%
1	03	02	04	03	10	LN02044608	Procure MCOR Controller Card (VME)		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	10	LN02044606	Procure MCOR Chassis		CON	SL_MSEG	$$		2,100		2,352	2,352	30%
1	03	02	04	03	10	LN02044604	Procure MCOR Bulk Power Supply		CON	SL_MSEG	$$		6,500		7,280	7,280	30%
1	03	02	04	03	10	LN02044638	Integrate Cables		CON	SL_TMUE	Hrs	12		1,188		1,188	30%
1	**03**	**02**	**04**	**03**	**11**		**Power Supply - (MCOR_LTU2)**					**12**	**30,150**	**1,188**	**33,768**	**34,956**	
1	03	02	04	03	11	LN02044728	Procure Cable - Lugs, Splices, Etc. (5ea)		CON	SL_MSEG	$$		200		224	224	30%
1	03	02	04	03	11	LN02044724	Procure - 2/C #8 Cable (5ea)		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	11	LN02044720	Procure MCOR 12 Amp Modules (5ea)		CON	SL_MSEG	$$		14,400		16,128	16,128	30%
1	03	02	04	03	11	LN02044718	Procure Cooling Unit		CON	SL_MSEG	$$		350		392	392	30%
1	03	02	04	03	11	LN02044716	Procure Output Interface		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	11	LN02044714	Procure Cable - SAM/DAC		CON	SL_MSEG	$$		100		112	112	30%
1	03	02	04	03	11	LN02044712	Procure Digital Analog Converter		CON	SL_MSEG	$$		2,200		2,464	2,464	30%
1	03	02	04	03	11	LN02044710	Procure Smart Analog Monitor		CON	SL_MSEG	$$		2,500		2,800	2,800	30%
1	03	02	04	03	11	LN02044708	Procure MCOR Controller Card (VME)		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	11	LN02044706	Procure MCOR Chassis		CON	SL_MSEG	$$		2,100		2,352	2,352	30%
1	03	02	04	03	11	LN02044704	Procure MCOR Bulk Power Supply		CON	SL_MSEG	$$		6,500		7,280	7,280	30%
1	03	02	04	03	11	LN02044738	Integrate Cables		CON	SL_TMUE	Hrs	12		1,188		1,188	30%
1	**03**	**02**	**04**	**03**	**12**		**Power Supply - (MCOR_LTU3)**					**12**	**30,150**	**1,188**	**33,768**	**34,956**	
1	03	02	04	03	12	LN02044828	Procure Cable - Lugs, Splices, Etc. (5ea)		CON	SL_MSEG	$$		200		224	224	30%
1	03	02	04	03	12	LN02044824	Procure - 2/C #8 Cable (5ea)		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	12	LN02044820	Procure MCOR 12 Amp Modules (5ea)		CON	SL_MSEG	$$		14,400		16,128	16,128	30%
1	03	02	04	03	12	LN02044818	Procure Cooling Unit		CON	SL_MSEG	$$		350		392	392	30%
1	03	02	04	03	12	LN02044816	Procure Output Interface		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	12	LN02044814	Procure Cable - SAM/DAC		CON	SL_MSEG	$$		100		112	112	30%
1	03	02	04	03	12	LN02044812	Procure Digital Analog Converter		CON	SL_MSEG	$$		2,200		2,464	2,464	30%
1	03	02	04	03	12	LN02044810	Procure Smart Analog Monitor		CON	SL_MSEG	$$		2,500		2,800	2,800	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	04	03	12	LN02044808	Procure MCOR Controller Card (VME)		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	12	LN02044806	Procure MCOR Chassis		CON	SL_MSEG	$$		2,100		2,352	2,352	30%
1	03	02	04	03	12	LN02044804	Procure MCOR Bulk Power Supply		CON	SL_MSEG	$$		6,500		7,280	7,280	30%
1	03	02	04	03	12	LN02044838	Integrate Cables		CON	SL_TMUE	Hrs	12		1,188		1,188	30%
1	**03**	**02**	**04**	**03**	**13**		**Power Supply - (MCOR_LTU4)**					**108**	**30,150**	**8,299**	**33,768**	**42,067**	
1	03	02	04	03	13	LN02044928	Procure Cable - Lugs, Splices, Etc. (5ea)		CON	SL_MSEG	$$		200		224	224	30%
1	03	02	04	03	13	LN02044924	Procure - 2/C #8 Cable (5ea)		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	13	LN02044920	Procure MCOR 12 Amp Modules (5ea)		CON	SL_MSEG	$$		14,400		16,128	16,128	30%
1	03	02	04	03	13	LN02044918	Procure Cooling Unit		CON	SL_MSEG	$$		350		392	392	30%
1	03	02	04	03	13	LN02044916	Procure Output Interface		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	13	LN02044914	Procure Cable - SAM/DAC		CON	SL_MSEG	$$		100		112	112	30%
1	03	02	04	03	13	LN02044912	Procure Digital Analog Converter		CON	SL_MSEG	$$		2,200		2,464	2,464	30%
1	03	02	04	03	13	LN02044910	Procure Smart Analog Monitor		CON	SL_MSEG	$$		2,500		2,800	2,800	30%
1	03	02	04	03	13	LN02044908	Procure MCOR Controller Card (VME)		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	13	LN02044906	Procure MCOR Chassis		CON	SL_MSEG	$$		2,100		2,352	2,352	30%
1	03	02	04	03	13	LN02044904	Procure MCOR Bulk Power Supply		CON	SL_MSEG	$$		6,500		7,280	7,280	30%
1	03	02	04	03	13	LN02044930	Assemble Pwr Supply, Transductor & Control		CON	SL_PCT	Hrs	32		2,027		2,027	30%
1	03	02	04	03	13	LN02044930	Assemble Pwr Supply, Transductor & Control		CON	SL_PCE	Hrs	16		1,851		1,851	30%
1	03	02	04	03	13	LN02044930	Assemble Pwr Supply, Transductor & Control		CON	SL_PCCA	Hrs	48		3,233		3,233	30%
1	03	02	04	03	13	LN02044938	Integrate Cables		CON	SL_TMUE	Hrs	12		1,188		1,188	30%
1	**03**	**02**	**04**	**03**	**14**		**Power Supply - (MCOR_LTU5)**					**12**	**30,150**	**1,188**	**33,768**	**34,956**	
1	03	02	04	03	14	LN02045028	Procure Cable - Lugs, Splices, Etc. (5ea)		CON	SL_MSEG	$$		200		224	224	30%
1	03	02	04	03	14	LN02045024	Procure - 2/C #8 Cable (5ea)		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	14	LN02045020	Procure MCOR 12 Amp Modules (5ea)		CON	SL_MSEG	$$		14,400		16,128	16,128	30%
1	03	02	04	03	14	LN02045018	Procure Cooling Unit		CON	SL_MSEG	$$		350		392	392	30%
1	03	02	04	03	14	LN02045016	Procure Output Interface		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	14	LN02045014	Procure Cable - SAM/DAC		CON	SL_MSEG	$$		100		112	112	30%
1	03	02	04	03	14	LN02045012	Procure Digital Analog Converter		CON	SL_MSEG	$$		2,200		2,464	2,464	30%
1	03	02	04	03	14	LN02045010	Procure Smart Analog Monitor		CON	SL_MSEG	$$		2,500		2,800	2,800	30%
1	03	02	04	03	14	LN02045008	Procure MCOR Controller Card (VME)		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	14	LN02045006	Procure MCOR Chassis		CON	SL_MSEG	$$		2,100		2,352	2,352	30%
1	03	02	04	03	14	LN02045004	Procure MCOR Bulk Power Supply		CON	SL_MSEG	$$		6,500		7,280	7,280	30%
1	03	02	04	03	14	LN02045038	Integrate Cables		CON	SL_TMUE	Hrs	12		1,188		1,188	30%
1	**03**	**02**	**04**	**03**	**15**		**Power Supply - (MCOR_LTU6)**					**12**	**30,150**	**1,188**	**33,768**	**34,956**	
1	03	02	04	03	15	LN02045128	Procure Cable - Lugs, Splices, Etc. (5ea)		CON	SL_MSEG	$$		200		224	224	30%
1	03	02	04	03	15	LN02045124	Procure - 2/C #8 Cable (5ea)		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	15	LN02045120	Procure MCOR 12 Amp Modules (5ea)		CON	SL_MSEG	$$		14,400		16,128	16,128	30%
1	03	02	04	03	15	LN02045118	Procure Cooling Unit		CON	SL_MSEG	$$		350		392	392	30%
1	03	02	04	03	15	LN02045116	Procure Output Interface		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	15	LN02045114	Procure Cable - SAM/DAC		CON	SL_MSEG	$$		100		112	112	30%
1	03	02	04	03	15	LN02045112	Procure Digital Analog Converter		CON	SL_MSEG	$$		2,200		2,464	2,464	30%
1	03	02	04	03	15	LN02045110	Procure Smart Analog Monitor		CON	SL_MSEG	$$		2,500		2,800	2,800	30%
1	03	02	04	03	15	LN02045108	Procure MCOR Controller Card (VME)		CON	SL_MSEG	$$		600		672	672	30%
1	03	02	04	03	15	LN02045106	Procure MCOR Chassis		CON	SL_MSEG	$$		2,100		2,352	2,352	30%
1	03	02	04	03	15	LN02045104	Procure MCOR Bulk Power Supply		CON	SL_MSEG	$$		6,500		7,280	7,280	30%
1	03	02	04	03	15	LN02045138	Integrate Cables		CON	SL_TMUE	Hrs	12		1,188		1,188	30%
1	**03**	**02**	**04**	**04**			**Controls & Power Supply**					**8,111**	**248,087**	**588,690**	**277,857**	**866,547**	
1	03	02	04	04		LN0204_202	Engineering (Layouts/Raceways/Supports)		PED	SL_ME	Hrs	20		2,114		2,114	10%
1	03	02	04	04		LN0204_202	Engineering (Layouts/Raceways/Supports)		PED	SL_CE	Hrs	240		27,002		27,002	10%
1	03	02	04	04		LN0204_202	Engineering (Layouts/Raceways/Supports)		PED	SL_CCA	Hrs	480		31,454		31,454	10%
1	03	02	04	04		LN0204_204	Cableplant/Rack System Drafting (Bid Doc's)		PED	SL_CCA	Hrs	720		47,182		47,182	10%
1	03	02	04	04		LN0204_206	Captar Liason, Documents & Data Entry (Bid Doc's		PED	SL_CT	Hrs	120		7,394		7,394	10%
1	03	02	04	04		LN0204_206	Captar Liason, Documents & Data Entry (Bid Doc's		PED	SL_CCA	Hrs	120		7,864		7,864	10%
1	03	02	04	04		LN0204_208	Conduct SLAC Citizen Committee Reviews		PED	SL_CE	Hrs	24		2,700		2,700	10%
1	03	02	04	04		LN0204_209	Conduct Design Review - Linac and Hall Racks/Tra		PED	SL_CE	Hrs	8		900		900	10%
1	03	02	04	04		LN0204_410	Prep Bid Pak - Linac Cableplant Installation-all		CON	SL_PCE	Hrs	48		5,400		5,400	10%
1	03	02	04	04		LN0204_382	Prep Bid Pak - Cable Tray Material- Tray and Div		CON	SL_PCE	Hrs	24		2,700		2,700	10%
1	03	02	04	04		LN0204_318	Prep Bid Pak - Double Bay Racks		CON	SL_PCE	Hrs	8		900		900	10%
1	03	02	04	04		LN0204_266	Prep Bid Pak - Single Bay Racks (DC/I&C)		CON	SL_PCE	Hrs	8		900		900	10%
1	03	02	04	04		LN0204_210	Write Software to Integrate		CON	SL_CP	Hrs	984		91,130		91,130	20%
1	03	02	04	04		LN0204_390	Evaluate Proposals - Cable Tray Material- Tray a		CON	SL_PCE	Hrs	6		675		675	10%
1	03	02	04	04		LN0204_326	Evaluate Proposals - Double Bay Racks		CON	SL_PCE	Hrs	8		900		900	10%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	04	04		LN0204_274	Evaluate Proposals - Single Bay Racks (DC/I&C)		CON	SL_PCE	Hrs	8		900		900	10%
1	03	02	04	04		LN0204_418	Evaluate Proposals - Linac Cableplant Instl Cntr		CON	SL_PCE	Hrs	24		2,700		2,700	10%
1	03	02	04	04		LN0204_404	Procure Gnd Jumpers (DC&IC)		CON	SL_MSEG	$$		2,160		2,419	2,419	10%
1	03	02	04	04		LN0204_402	Procure Cable Tray Grounding (DC&IC, $1.8/ft)		CON	SL_MSEG	$$		5,400		6,048	6,048	10%
1	03	02	04	04		LN0204_400	Procure Trapeze Cable Tray Supports (DC&IC) 300		CON	SL_MSEG	$$		27,000		30,240	30,240	10%
1	03	02	04	04		LN0204_398	Procure Cable Tray Fittings (DC&IC)		CON	SL_MSEG	$$		9,000		10,080	10,080	10%
1	03	02	04	04		LN0204_260	Procure Rack Hardware (Double Rack)		CON	SL_MSEG	$$		650		728	728	10%
1	03	02	04	04		LN0204_256	Procure Rack Hardware (Single Rack)		CON	SL_MSEG	$$		650		728	728	10%
1	03	02	04	04		LN0204_252	Procure Rack Cooling Fans		CON	SL_MSEG	$$		3,600		4,032	4,032	10%
1	03	02	04	04		LN0204_248	Procure Breaker Lock-outs		CON	SL_MSEG	$$		600		672	672	10%
1	03	02	04	04		LN0204_244	Procure AC Wire		CON	SL_MSEG	$$		750		840	840	10%
1	03	02	04	04		LN0204_240	Procure Blank Panels (27)		CON	SL_MSEG	$$		2,100		2,352	2,352	10%
1	03	02	04	04		LN0204_236	Procure Neutral/Ground Pnl. (27)		CON	SL_MSEG	$$		9,990		11,189	11,189	10%
1	03	02	04	04		LN0204_232	Procure Circuit Breaker Panels (27)		CON	SL_MSEG	$$		1,161		1,300	1,300	10%
1	03	02	04	04		LN0204_228	Procure 3 Phase Dist Bus (27)		CON	SL_MSEG	$$		8,235		9,223	9,223	10%
1	03	02	04	04		LN0204_224	Procure PS Hubble Plug (80)		CON	SL_MSEG	$$		5,175		5,796	5,796	10%
1	03	02	04	04		LN0204_222	Procure AC Breakers (108)		CON	SL_MSEG	$$		9,600		10,752	10,752	10%
1	03	02	04	04		LN0204_394	Vendor Fab - Cable Tray Material		CON	SL_MSEG	$$		82,016		91,858	91,858	10%
1	03	02	04	04		LN0204_330	Vendor Fab/Assy - Double Bay Racks		CON	SL_MSEG	$$		32,000		35,840	35,840	10%
1	03	02	04	04		LN0204_278	Vendor Fab/Assy - Single Bay Racks		CON	SL_MSEG	$$		48,000		53,760	53,760	10%
1	03	02	04	04		LN0204_336	Integrate Rack Hardware & Internal AC Wiring-S1		CON	SL_PCEF	Hrs	216		13,681		13,681	10%
1	03	02	04	04		LN0204_284	Integrate Rack Hardware & Internal AC Wiring-S1		CON	SL_PCEF	Hrs	146		9,248		9,248	10%
1	03	02	04	04		LN0204_352	Integrate Rack Hardware & Internal AC Wiring-S2		CON	SL_PCEF	Hrs	146		9,248		9,248	10%
1	03	02	04	04		LN0204_296	Integrate Rack Hardware & Internal AC Wiring-S2		CON	SL_PCEF	Hrs	90		5,701		5,701	10%
1	03	02	04	04		LN0204_368	Integrate Rack Hardware & Internal AC Wiring-S3		CON	SL_PCEF	Hrs	59		3,737		3,737	10%
1	03	02	04	04		LN0204_338	Integrate Rack-Mnted Pwr Supplies & Intra-Cables		CON	SL_PCEF	Hrs	450		28,503		28,503	10%
1	03	02	04	04		LN0204_212	Write Documentation		CON	SL_CP	Hrs	40		3,741		3,741	20%
1	03	02	04	04		LN0204_286	Integrate Rack-Mnted Pwr Supplies & Intra-Cables		CON	SL_PCEF	Hrs	405		25,653		25,653	10%
1	03	02	04	04		LN0204_214	Perform Point to Point Checkout		CON	SL_CP	Hrs	394		36,847		36,847	20%
1	03	02	04	04		LN0204_308	Integrate Rack Hardware & Internal AC Wiring-S3		CON	SL_PCEF	Hrs	81		5,131		5,131	10%
1	03	02	04	04		LN0204_340	Perform Pre-install Testing Power Supplies-Set 1		CON	SL_CCA	Hrs	180		12,125		12,125	10%
1	03	02	04	04		LN0204_216	Integrate Hardware and Software		CON	SL_CP	Hrs	46		4,302		4,302	20%
1	03	02	04	04		LN0204_216	Integrate Hardware and Software		CON	SL_CE	Hrs	40		4,626		4,626	20%
1	03	02	04	04		LN0204_358	Integrate Rack/Crate-Mnted Controls & Intra-Cbls		CON	SL_PCEF	Hrs	270		17,351		17,351	10%
1	03	02	04	04		LN0204_342	Integrate Rack/Crate-Mnted Controls & Intra-Cbls		CON	SL_PCEF	Hrs	270		17,154		17,154	10%
1	03	02	04	04		LN0204_300	Integrate Rack/Crate-Mnted Controls & Intra-Cbls		CON	SL_PCEF	Hrs	180		11,436		11,436	10%
1	03	02	04	04		LN0204_288	Integrate Rack/Crate-Mnted Controls & Intra-Cbls		CON	SL_PCEF	Hrs	270		17,102		17,102	10%
1	03	02	04	04		LN0204_344	Perform Pre-install Testing Controls - Set 1		CON	SL_CCA	Hrs	120		8,083		8,083	10%
1	03	02	04	04		LN0204_374	Integrate Rack/Crate-Mnted Controls & Intra-Cbls		CON	SL_PCEF	Hrs	270		17,436		17,436	10%
1	03	02	04	04		LN0204_360	Perform Pre-install Testing Controls - Set 2		CON	SL_CCA	Hrs	80		5,529		5,529	10%
1	03	02	04	04		LN0204_376	Perform Pre-install Testing Controls - Set 3		CON	SL_CCA	Hrs	60		4,147		4,147	10%
1	03	02	04	04		LN0204_354	Integrate Rack-Mnted Pwr Supplies & Intra-Cables		CON	SL_PCEF	Hrs	360		23,396		23,396	10%
1	03	02	04	04		LN0204_298	Integrate Rack-Mnted Pwr Supplies & Intra-Cables		CON	SL_PCEF	Hrs	270		17,547		17,547	10%
1	03	02	04	04		LN0204_356	Perform Pre-install Testing Power Supplies-Set 2		CON	SL_CCA	Hrs	120		8,293		8,293	10%
1	03	02	04	04		LN0204_312	Integrate Rack/Crate-Mnted Controls & Intra-Cbls		CON	SL_PCEF	Hrs	146		9,489		9,489	10%
1	03	02	04	04		LN0204_370	Integrate Rack-Mnted Pwr Supplies & Intra-Cables		CON	SL_PCEF	Hrs	216		14,038		14,038	10%
1	03	02	04	04		LN0204_310	Integrate Rack-Mnted Pwr Supplies & Intra-Cables		CON	SL_PCEF	Hrs	216		14,038		14,038	10%
1	03	02	04	04		LN0204_372	Perform Pre-install Testing Power Supplies-Set 3		CON	SL_CCA	Hrs	120		8,293		8,293	10%
1	**03**	**02**	**05**				**Controls - LLRF**					**5,359**	**24,771**	**501,400**	**27,744**	**529,144**	
1	03	02	05			LN02050000	Finalize Specification Requirements		PED	SL_CE	Hrs	48		5,400		5,400	30%
1	03	02	05			LN02050230	Define LLRF Bn Lnth Mon Cntrls Reqmts @ Sec24/30		PED	SL_PHS	Hrs	21		1,529		1,529	30%
1	03	02	05			LN02050230	Define LLRF Bn Lnth Mon Cntrls Reqmts @ Sec24/30		PED	SL_CP	Hrs	84		7,641		7,641	30%
1	03	02	05			LN02050230	Define LLRF Bn Lnth Mon Cntrls Reqmts @ Sec24/30		PED	SL_CE	Hrs	84		9,451		9,451	30%
1	03	02	05			LN02050100	Define LLRF BP Mon Cntrls Reqmts @ Sec24/30		PED	SL_CP	Hrs	84		7,641		7,641	30%
1	03	02	05			LN02050100	Define LLRF BP Mon Cntrls Reqmts @ Sec24/30		PED	SL_CE	Hrs	84		9,451		9,451	30%
1	03	02	05			LN02050030	RF Controls Coordination & Documentation		PED	SL_CCA	Hrs	120		7,864		7,864	30%
1	03	02	05			LN02050015	Intitial Controls Design		PED	SL_CE	Hrs	320		36,003		36,003	30%
1	03	02	05			LN02050020	RF Controls Hardware Design		PED	SL_CE	Hrs	320		36,003		36,003	30%
1	03	02	05			LN02050025	RF Controls Software Design		PED	SL_CP	Hrs	360		32,749		32,749	30%
1	03	02	05			LN02050035	LLRF Controls Design Review		PED	SL_CE	Hrs	16		1,800		1,800	30%
1	03	02	05			LN02050240	Design LLRF BL Mon Cntrls @ Sec24/30		PED	SL_CP	Hrs	336		30,566		30,566	30%
1	03	02	05			LN02050240	Design LLRF BL Mon Cntrls @ Sec24/30		PED	SL_CE	Hrs	168		18,902		18,902	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	05			LN02050110	Design LLRF BP Mon Cntrls @ Sec24/30		PED	SL_CP	Hrs	336		30,566		30,566	30%
1	03	02	05			LN02050110	Design LLRF BP Mon Cntrls @ Sec24/30		PED	SL_CE	Hrs	168		18,902		18,902	30%
1	03	02	05			LN02050245	Design Review		PED	SL_PHS	Hrs	2		146		146	30%
1	03	02	05			LN02050245	Design Review		PED	SL_ME	Hrs	2		211		211	30%
1	03	02	05			LN02050245	Design Review		PED	SL_CP	Hrs	15		1,365		1,365	30%
1	03	02	05			LN02050245	Design Review		PED	SL_CE	Hrs	20		2,250		2,250	30%
1	03	02	05			LN02050115	Design Review		PED	SL_CP	Hrs	15		1,365		1,365	30%
1	03	02	05			LN02050115	Design Review		PED	SL_CE	Hrs	20		2,250		2,250	30%
1	03	02	05			LN02050250	Design Modifications		PED	SL_PCEF	Hrs	80		4,930		4,930	30%
1	03	02	05			LN02050250	Design Modifications		PED	SL_CP	Hrs	160		14,555		14,555	30%
1	03	02	05			LN02050250	Design Modifications		PED	SL_CE	Hrs	80		9,001		9,001	30%
1	03	02	05			LN02050120	Design Modifications		PED	SL_PCEF	Hrs	168		10,380		10,380	30%
1	03	02	05			LN02050120	Design Modifications		PED	SL_CP	Hrs	336		30,648		30,648	30%
1	03	02	05			LN02050120	Design Modifications		PED	SL_CE	Hrs	168		18,952		18,952	30%
1	03	02	05			LN02050275	Write Software - Bnch Lngth Mon Cntrls @Sec24/30		CON	SL_CP	Hrs	438		40,794		40,794	30%
1	03	02	05			LN02050260	Procure LLRF BL Mon Cntrls hardware		CON	SL_MSEG	$$		3,000		3,360	3,360	30%
1	03	02	05			LN02050210	Write Docs - BP Mon Cntrls @ Sec24/30		CON	SL_CP	Hrs	20		1,870		1,870	30%
1	03	02	05			LN02050210	Write Docs - BP Mon Cntrls @ Sec24/30		CON	SL_CE	Hrs	20		2,313		2,313	30%
1	03	02	05			LN02050205	Write Software - BP Mon Cntrls @ Sec24/30		CON	SL_CP	Hrs	40		3,741		3,741	30%
1	03	02	05			LN02050190	Procure VME Cable to 2 PAU channels		CON	SL_MSEG	$$		266		298	298	30%
1	03	02	05			LN02050185	Procure VME Module - PAU (2)		CON	SL_MSEG	$$		3,500		3,920	3,920	30%
1	03	02	05			LN02050180	Procure 1:2 Fanouts to change 2 triggers to 4		CON	SL_MSEG	$$		200		224	224	30%
1	03	02	05			LN02050175	Procure VME Cable to 2 STB channels to trigge		CON	SL_MSEG	$$		133		149	149	30%
1	03	02	05			LN02050170	Procure VME Module - STB (1) for triggers		CON	SL_MSEG	$$		3,500		3,920	3,920	30%
1	03	02	05			LN02050165	Procure VME Cable to 2 GADC channels for BL M		CON	SL_MSEG	$$		133		149	149	30%
1	03	02	05			LN02050160	Procure VME Module - GADC LRS 2249W (1)		CON	SL_MSEG	$$		3,500		3,920	3,920	30%
1	03	02	05			LN02050155	Procure VME Cable to 2 SAM channels of BP Mon		CON	SL_MSEG	$$		133		149	149	30%
1	03	02	05			LN02050150	Procure VME Module - SAM (1) for beam phase mon		CON	SL_MSEG	$$		3,777		4,230	4,230	30%
1	03	02	05			LN02050145	Procure VME Cable to 2 DAC channels of BP Mon		CON	SL_MSEG	$$		133		149	149	30%
1	03	02	05			LN02050140	Procure VME Module - DAC(1) -beam phase monitor		CON	SL_MSEG	$$		2,863		3,207	3,207	30%
1	03	02	05			LN02050135	Procure VME Cable to 2 GADC channels BP Mon		CON	SL_MSEG	$$		133		149	149	30%
1	03	02	05			LN02050130	Procure VME Module - GADC LRS 2249W (1)		CON	SL_MSEG	$$		3,500		3,920	3,920	30%
1	03	02	05			LN02050212	Perform Point to Point Checkout		CON	SL_CP	Hrs	200		18,704		18,704	30%
1	03	02	05			LN02050212	Perform Point to Point Checkout		CON	SL_CCA	Hrs	200		13,472		13,472	30%
1	03	02	05			LN02050280	Write Docs - Bnch Lngth Mon Cntrls @ Sec24/30		CON	SL_CP	Hrs	40		3,741		3,741	30%
1	03	02	05			LN02050280	Write Docs - Bnch Lngth Mon Cntrls @ Sec24/30		CON	SL_CE	Hrs	10		1,157		1,157	30%
1	03	02	05			LN02050270	Assemble parts for LLRF BL Mon Cntrls @ Sec24/30		CON	SL_PCEF	Hrs	168		10,641		10,641	30%
1	03	02	05			LN02050200	Assemble parts for LLRF BP Mon Cntrls @ Sec24/30		CON	SL_PCEF	Hrs	168		10,641		10,641	30%
1	03	02	05			LN02050285	Integrate Software & Hardware		CON	SL_CP	Hrs	40		3,741		3,741	30%
1	03	02	05			LN02050285	Integrate Software & Hardware		CON	SL_CE	Hrs	20		2,313		2,313	30%
1	03	02	05			LN02050215	Integrate Software & Hardware		CON	SL_CP	Hrs	40		3,741		3,741	30%
1	03	02	05			LN02050215	Integrate Software & Hardware		CON	SL_CE	Hrs	20		2,313		2,313	30%
1	03	02	05			LN02050290	Integrate with SLC Timing System		CON	SL_CP	Hrs	160		14,963		14,963	30%
1	03	02	05			LN02050290	Integrate with SLC Timing System		CON	SL_CE	Hrs	40		4,626		4,626	30%
1	03	02	05			LN02050220	Integrate with SLC Timing System		CON	SL_CP	Hrs	80		7,482		7,482	30%
1	03	02	05			LN02050220	Integrate with SLC Timing System		CON	SL_CE	Hrs	40		4,626		4,626	30%
1	**03**	**02**	**06**				**Controls - E-Beam Diagnostic**					**16,283**	**1,030,332**	**1,491,367**	**1,153,969**	**2,645,336**	
1	**03**	**02**	**06**	**01**			**Controls - Wire Scanners**					**2,490**	**189,000**	**223,970**	**211,680**	**435,650**	
1	03	02	06	01		LN02060100	Receive System Requirements		PED	SL_CP	Hrs	8		728		728	50%
1	03	02	06	01		LN02060100	Receive System Requirements		PED	SL_CE	Hrs	8		900		900	50%
1	03	02	06	01		LN02060101	Define wire scanner Reqmts		PED	SL_CP	Hrs	120		10,916		10,916	50%
1	03	02	06	01		LN02060101	Define wire scanner Reqmts		PED	SL_CE	Hrs	120		13,501		13,501	50%
1	03	02	06	01		LN02060102	Review & Accept Requirements		PED	SL_CE	Hrs	1		113		113	50%
1	03	02	06	01		LN02060105	Design wire scanners		PED	SL_CP	Hrs	240		21,833		21,833	50%
1	03	02	06	01		LN02060105	Design wire scanners		PED	SL_CE	Hrs	232		26,102		26,102	50%
1	03	02	06	01		LN02060110	Design Review - Wire Scanners		PED	SL_CT	Hrs	16		986		986	50%
1	03	02	06	01		LN02060110	Design Review - Wire Scanners		PED	SL_CP	Hrs	16		1,456		1,456	50%
1	03	02	06	01		LN02060110	Design Review - Wire Scanners		PED	SL_CE	Hrs	1		113		113	50%
1	03	02	06	01		LN02060110	Design Review - Wire Scanners		PED	SL_CCA	Hrs	16		1,048		1,048	50%
1	03	02	06	01		LN02060107	Design Modifications - Wire Scanners		PED	SL_CP	Hrs	80		7,278		7,278	50%
1	03	02	06	01		LN02060107	Design Modifications - Wire Scanners		PED	SL_CE	Hrs	80		9,001		9,001	50%
1	03	02	06	01		LN02060112	Update Component Data Base		PED	SL_CCA	Hrs	16		1,048		1,048	50%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	06	01		LN02060114	Prepare for Prelim Design Review (PDR)		PED	SL_CE	Hrs	8		900		900	50%
1	03	02	06	01		LN02060116	Conduct Prelim Design Review (PDR) - Scanner Cnt		PED	SL_CE	Hrs	8		900		900	50%
1	03	02	06	01		LN02060118	Generate Detailed Procurement Plan		CON	SL_CE	Hrs	4		450		450	50%
1	03	02	06	01		LN02060120	Establish Subordinate Work Orders		CON	SL_CE	Hrs	4		450		450	50%
1	03	02	06	01		LN02060122	Prepare for Final Desgin Review (FDR)		PED	SL_CE	Hrs	8		900		900	50%
1	03	02	06	01		LN02060124	Conduct Final Design Review (FDR) - Scanner Cntr		PED	SL_CE	Hrs	8		900		900	50%
1	03	02	06	01		LN02060176	Write Software - Wire Scanners		CON	SL_CP	Hrs	160		14,963		14,963	50%
1	03	02	06	01		LN02060166	Procure SINGLE-COND P.S. TO REST. CH.		CON	SL_MSEG	$$		1,500		1,680	1,680	50%
1	03	02	06	01		LN02060164	Procure VME Cable (36/C)16 Chnl Dist To SAM		CON	SL_MSEG	$$		3,800		4,256	4,256	50%
1	03	02	06	01		LN02060162	Procure MULTI-COND (12/C) REST. CH. TO WIRE SCAN		CON	SL_MSEG	$$		7,600		8,512	8,512	50%
1	03	02	06	01		LN02060160	Procure MULTI-COND (12/C) REST. CH. TO SMC MODUL		CON	SL_MSEG	$$		3,325		3,724	3,724	50%
1	03	02	06	01		LN02060158	Procure MULTI-COND (4PR) DATRONIC TO LVDT 1250'		CON	SL_MSEG	$$		1,090		1,221	1,221	50%
1	03	02	06	01		LN02060156	Procure RG58 to PMT 1250'		CON	SL_MSEG	$$		5,500		6,160	6,160	50%
1	03	02	06	01		LN02060154	Procure Photo-multiplier Tube Electronics Assem.		CON	SL_MSEG	$$		4,750		5,320	5,320	50%
1	03	02	06	01		LN02060152	Procure HV P.S., 8 CH. BEAMSTRAHLUNG CH. (5)		CON	SL_MSEG	$$		15,000		16,800	16,800	50%
1	03	02	06	01		LN02060150	Procure 16 Channel Interface Chassis (5)		CON	SL_MSEG	$$		5,000		5,600	5,600	50%
1	03	02	06	01		LN02060148	Procure VME Module - Stepper Motor Controller		CON	SL_MSEG	$$		30,400		34,048	34,048	50%
1	03	02	06	01		LN02060146	Procure VME Module - VMIC4132 (DAC) (5ea)		CON	SL_MSEG	$$		14,250		15,960	15,960	50%
1	03	02	06	01		LN02060144	Procure VME Module - PDGG (5ea)		CON	SL_MSEG	$$		7,500		8,400	8,400	50%
1	03	02	06	01		LN02060142	Procure VME Module - GADC (5ea)		CON	SL_MSEG	$$		13,900		15,568	15,568	50%
1	03	02	06	01		LN02060140	Procure VME Module - VMIC 3122 (SAM) (5ea)		CON	SL_MSEG	$$		18,885		21,151	21,151	50%
1	03	02	06	01		LN02060138	Procure 10 Channel Resistor Interface Chassis		CON	SL_MSEG	$$		10,000		11,200	11,200	50%
1	03	02	06	01		LN02060136	Procure LVDT Unit (20)		CON	SL_MSEG	$$		12,000		13,440	13,440	50%
1	03	02	06	01		LN02060134	Procure LVDT PCB (10)		CON	SL_MSEG	$$		11,000		12,320	12,320	50%
1	03	02	06	01		LN02060132	Procure DATRONICS Controller (MN 10k-1) (5)		CON	SL_MSEG	$$		17,500		19,600	19,600	50%
1	03	02	06	01		LN02060130	Procure Power Supply EMI 20v@50A (5)		CON	SL_MSEG	$$		6,000		6,720	6,720	50%
1	03	02	06	01		LN02060178	Write Documentation - Wire Scanners		CON	SL_CP	Hrs	100		9,352		9,352	50%
1	03	02	06	01		LN02060178	Write Documentation - Wire Scanners		CON	SL_CE	Hrs	20		2,313		2,313	50%
1	03	02	06	01		LN02060170	Lab Wire Assembly (19)		CON	SL_CT	Hrs	480		30,403		30,403	50%
1	03	02	06	01		LN02060170	Lab Wire Assembly (19)		CON	SL_CE	Hrs	80		9,253		9,253	50%
1	03	02	06	01		LN02060174	Perform Quality Control		CON	SL_CT	Hrs	80		5,067		5,067	50%
1	03	02	06	01		LN02060179	Assemble Wire Scanners Controls		CON	SL_CT	Hrs	8		507		507	50%
1	03	02	06	01		LN02060179	Assemble Wire Scanners Controls		CON	SL_CCA	Hrs	8		539		539	50%
1	03	02	06	01		LN02060180	Perform Point to Point Checkout		CON	SL_CP	Hrs	200		18,704		18,704	50%
1	03	02	06	01		LN02060181	Integrate Hardware and Software		CON	SL_CP	Hrs	200		18,704		18,704	50%
1	03	02	06	01		LN02060181	Integrate Hardware and Software		CON	SL_CCA	Hrs	80		5,389		5,389	50%
1	03	02	06	01		LN02060184	Perform Pre-Installation Functional Testing		CON	SL_CE	Hrs	80		9,253		9,253	50%
1	**03**	**02**	**06**	**02**			**Controls - BPMs**					**4,774**	**550,675**	**433,934**	**616,755**	**1,050,689**	
1	03	02	06	02		LN02062100	Receive System Requirements		PED	SL_CP	Hrs	8		728		728	30%
1	03	02	06	02		LN02062100	Receive System Requirements		PED	SL_CE	Hrs	8		900		900	30%
1	03	02	06	02		LN02062102	Review & Accept Requirements		PED	SL_CE	Hrs	1		113		113	30%
1	03	02	06	02		LN02062106	Perform Design & Coordination		CON	SL_CCA	Hrs	80		5,242		5,242	30%
1	03	02	06	02		LN02062108	Develop Software Design		PED	SL_CP	Hrs	80		7,278		7,278	30%
1	03	02	06	02		LN02062110	Conduct Engineering Review		PED	SL_CE	Hrs	16		1,800		1,800	30%
1	03	02	06	02		LN02062112	Update Component Data Base		PED	SL_CCA	Hrs	8		524		524	30%
1	03	02	06	02		LN02062114	Prepare for Prelim Design Review (PDR)		PED	SL_CE	Hrs	24		2,700		2,700	30%
1	03	02	06	02		LN02062116	Conduct Prelim Design Review (PDR) - BPMs		PED	SL_CE	Hrs	8		900		900	30%
1	03	02	06	02		LN02062118	Generate Detailed Procurement Plan		CON	SL_CE	Hrs	4		450		450	30%
1	03	02	06	02		LN02062120	Establish Subordinate Work Orders		CON	SL_CE	Hrs	4		450		450	30%
1	03	02	06	02		LN02062122	Prepare for Final Desgin Review (FDR)		PED	SL_CE	Hrs	8		900		900	30%
1	03	02	06	02		LN02062124	Conduct Final Design Review (FDR) - BPMs		PED	SL_CE	Hrs	8		900		900	30%
1	03	02	06	02		LN02062400	Receive System Requirements		PED	SL_CP	Hrs	8		728		728	30%
1	03	02	06	02		LN02062400	Receive System Requirements		PED	SL_CE	Hrs	8		900		900	30%
1	03	02	06	02		LN02062402	Review & Accept Requirements		PED	SL_CE	Hrs	1		113		113	30%
1	03	02	06	02		LN02062404	Perform Engineering Design & Analysis		CON	SL_CE	Hrs	472		53,105		53,105	30%
1	03	02	06	02		LN02062200	Receive System Requirements		PED	SL_CP	Hrs	8		728		728	30%
1	03	02	06	02		LN02062200	Receive System Requirements		PED	SL_CE	Hrs	8		900		900	30%
1	03	02	06	02		LN02062202	Review & Accept Requirements		PED	SL_CE	Hrs	1		113		113	30%
1	03	02	06	02		LN02062204	Perform Engineering Design & Analysis		CON	SL_KE	Hrs	200		22,502		22,502	30%
1	03	02	06	02		LN02062204	Perform Engineering Design & Analysis		CON	SL_CE	Hrs	400		45,004		45,004	30%
1	03	02	06	02		LN02062406	Perform Design & Coordination		CON	SL_CCA	Hrs	300		19,659		19,659	30%
1	03	02	06	02		LN02062408	Develop Software Design		PED	SL_CP	Hrs	40		3,639		3,639	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	06	02		LN02062410	Conduct Engineering Review		PED	SL_CE	Hrs	16		1,800		1,800	30%
1	03	02	06	02		LN02062412	Update Component Data Base		PED	SL_CCA	Hrs	8		524		524	30%
1	03	02	06	02		LN02062414	Prepare for Prelim Design Review (PDR)		PED	SL_CE	Hrs	8		900		900	30%
1	03	02	06	02		LN02062416	Conduct Prelim Design Review (PDR) - BPMs		PED	SL_CE	Hrs	8		900		900	30%
1	03	02	06	02		LN02062418	Generate Detailed Procurement Plan		CON	SL_CE	Hrs	4		450		450	30%
1	03	02	06	02		LN02062206	Perform Design & Coordination		CON	SL_CCA	Hrs	400		26,510		26,510	30%
1	03	02	06	02		LN02062420	Establish Subordinate Work Orders		CON	SL_CE	Hrs	4		450		450	30%
1	03	02	06	02		LN02062422	Prepare for Final Desgin Review (FDR)		PED	SL_CE	Hrs	8		900		900	30%
1	03	02	06	02		LN02062424	Conduct Final Design Review (FDR) - BPMs		PED	SL_CE	Hrs	8		900		900	30%
1	03	02	06	02		LN02062436	Lab Wire Assembly (4 + LIU Quads)		CON	SL_MSEG	$$		11,486		12,864	12,864	30%
1	03	02	06	02		LN02062436	Lab Wire Assembly (4 + LIU Quads)		CON	SL_CT	Hrs	262		16,595		16,595	30%
1	03	02	06	02		LN02062136	Lab Wire Assembly (4 + LIU Quads)		CON	SL_MSEG	$$		11,486		12,864	12,864	30%
1	03	02	06	02		LN02062136	Lab Wire Assembly (4 + LIU Quads)		CON	SL_CT	Hrs	262		16,595		16,595	30%
1	03	02	06	02		LN02062134	Procure Pigtail Cables		CON	SL_MSEG	$$		1,200		1,344	1,344	30%
1	03	02	06	02		LN02062132	Procure LH Cables		CON	SL_MSEG	$$		81,510		91,291	91,291	30%
1	03	02	06	02		LN02062128	Procure Boards & Parts		CON	SL_MSEG	$$		430,000		481,600	481,600	30%
1	03	02	06	02		LN02062300	Receive System Requirements		PED	SL_CP	Hrs	8		748		748	30%
1	03	02	06	02		LN02062300	Receive System Requirements		PED	SL_CE	Hrs	8		925		925	30%
1	03	02	06	02		LN02062302	Review & Accept Requirements		PED	SL_CE	Hrs	1		116		116	30%
1	03	02	06	02		LN02062304	Perform Engineering Design & Analysis		CON	SL_CE	Hrs	472		54,592		54,592	30%
1	03	02	06	02		LN02062438	Perform Quality Control		CON	SL_CT	Hrs	16		1,013		1,013	30%
1	03	02	06	02		LN02062138	Perform Quality Control		CON	SL_CT	Hrs	16		1,013		1,013	30%
1	03	02	06	02		LN02062440	Write Software - BC1 BPMs		CON	SL_CP	Hrs	40		3,741		3,741	30%
1	03	02	06	02		LN02062208	Develop Software Design		PED	SL_CP	Hrs	40		3,741		3,741	30%
1	03	02	06	02		LN02062140	Write Software - Standard BPMs		CON	SL_CP	Hrs	40		3,741		3,741	30%
1	03	02	06	02		LN02062442	Write Documentation- BC1 BPMs		CON	SL_CP	Hrs	8		748		748	30%
1	03	02	06	02		LN02062442	Write Documentation- BC1 BPMs		CON	SL_CE	Hrs	8		925		925	30%
1	03	02	06	02		LN02062210	Conduct Engineering Review		CON	SL_CE	Hrs	16		1,851		1,851	30%
1	03	02	06	02		LN02062142	Write Documentation- Standard BPMs		CON	SL_CP	Hrs	8		748		748	30%
1	03	02	06	02		LN02062142	Write Documentation- Standard BPMs		CON	SL_CE	Hrs	8		925		925	30%
1	03	02	06	02		LN02062212	Update Component Data Base		PED	SL_CCA	Hrs	8		539		539	30%
1	03	02	06	02		LN02062214	Prepare for Prelim Design Review (PDR)		CON	SL_CE	Hrs	8		925		925	30%
1	03	02	06	02		LN02062216	Conduct Prelim Design Review (PDR) - BPMs		PED	SL_CE	Hrs	8		925		925	30%
1	03	02	06	02		LN02062444	Perform Point to Point Checkout		CON	SL_CP	Hrs	20		1,870		1,870	30%
1	03	02	06	02		LN02062144	Perform Point to Point Checkout		CON	SL_CP	Hrs	20		1,870		1,870	30%
1	03	02	06	02		LN02062218	Generate Detailed Procurement Plan		CON	SL_CE	Hrs	4		463		463	30%
1	03	02	06	02		LN02062220	Establish Subordinate Work Orders		CON	SL_CE	Hrs	4		463		463	30%
1	03	02	06	02		LN02062222	Prepare for Final Desgin Review (FDR)		CON	SL_CE	Hrs	8		925		925	30%
1	03	02	06	02		LN02062224	Conduct Final Design Review (FDR) - BPMs		PED	SL_CE	Hrs	8		925		925	30%
1	03	02	06	02		LN02062446	Perform Pre-Installation Functional Testing		CON	SL_CE	Hrs	80		9,253		9,253	30%
1	03	02	06	02		LN02062230	Lab Wire Assembly (8)		CON	SL_MSEG	$$		3,507		3,928	3,928	30%
1	03	02	06	02		LN02062230	Lab Wire Assembly (8)		CON	SL_CT	Hrs	24		1,520		1,520	30%
1	03	02	06	02		LN02062232	Perform Quality Control		CON	SL_CT	Hrs	8		507		507	30%
1	03	02	06	02		LN02062148	Perform Pre-Installation Functional Testing		CON	SL_CE	Hrs	80		9,253		9,253	30%
1	03	02	06	02		LN02062234	Write Software - RF BPMs		CON	SL_CP	Hrs	160		14,963		14,963	30%
1	03	02	06	02		LN02062306	Perform Design & Coordination		CON	SL_CCA	Hrs	300		20,208		20,208	30%
1	03	02	06	02		LN02062236	Write Documentation- RF BPMs		CON	SL_CP	Hrs	8		748		748	30%
1	03	02	06	02		LN02062236	Write Documentation- RF BPMs		CON	SL_CE	Hrs	8		925		925	30%
1	03	02	06	02		LN02062308	Develop Software Design		PED	SL_CP	Hrs	40		3,741		3,741	30%
1	03	02	06	02		LN02062238	Perform Point to Point Checkout		CON	SL_CP	Hrs	20		1,870		1,870	30%
1	03	02	06	02		LN02062242	Perform Pre-Installation Functional Testing		CON	SL_CE	Hrs	80		9,253		9,253	30%
1	03	02	06	02		LN02062310	Conduct Engineering Review		CON	SL_CE	Hrs	16		1,851		1,851	30%
1	03	02	06	02		LN02062312	Update Component Data Base		CON	SL_CCA	Hrs	8		539		539	30%
1	03	02	06	02		LN02062314	Prepare for Prelim Design Review (PDR)		CON	SL_CE	Hrs	8		925		925	30%
1	03	02	06	02		LN02062316	Conduct Prelim Design Review (PDR) - BPMs		PED	SL_CE	Hrs	8		925		925	30%
1	03	02	06	02		LN02062318	Generate Detailed Procurement Plan		CON	SL_CE	Hrs	4		463		463	30%
1	03	02	06	02		LN02062320	Establish Subordinate Work Orders		CON	SL_CE	Hrs	4		463		463	30%
1	03	02	06	02		LN02062322	Prepare for Final Desgin Review (FDR)		CON	SL_CE	Hrs	8		925		925	30%
1	03	02	06	02		LN02062324	Conduct Final Design Review (FDR) - BPMs		PED	SL_CE	Hrs	8		925		925	30%
1	03	02	06	02		LN02062336	Lab Wire Assembly (4)		CON	SL_MSEG	$$		11,486		12,864	12,864	30%
1	03	02	06	02		LN02062336	Lab Wire Assembly (4)		CON	SL_CT	Hrs	262		16,595		16,595	30%
1	03	02	06	02		LN02062338	Perform Quality Control		CON	SL_CT	Hrs	16		1,013		1,013	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	06	02		LN02062340	Write Software - LTU BPMs		CON	SL_CP	Hrs	40		3,741		3,741	30%
1	03	02	06	02		LN02062342	Write Documentation- LTU BPMs		CON	SL_CP	Hrs	8		748		748	30%
1	03	02	06	02		LN02062342	Write Documentation- LTU BPMs		CON	SL_CE	Hrs	8		925		925	30%
1	03	02	06	02		LN02062344	Perform Point to Point Checkout		CON	SL_CP	Hrs	20		1,870		1,870	30%
1	03	02	06	02		LN02062346	Perform Pre-Installation Functional Testing		CON	SL_CE	Hrs	80		9,253		9,253	30%
1	**03**	**02**	**06**	**03**			**Controls - Toroids**					**625**	**40,520**	**58,135**	**45,381**	**103,516**	
1	03	02	06	03		LN02060300	Receive System Requirements		PED	SL_CP	Hrs	8		728		728	20%
1	03	02	06	03		LN02060300	Receive System Requirements		PED	SL_CE	Hrs	8		900		900	20%
1	03	02	06	03		LN02060302	Review & Accept Requirements		PED	SL_CE	Hrs	1		113		113	20%
1	03	02	06	03		LN02060304	Perform Engineering Design & Analysis		CON	SL_CE	Hrs	112		12,601		12,601	20%
1	03	02	06	03		LN02060306	Perform Design & Coordination		CON	SL_CCA	Hrs	80		5,242		5,242	20%
1	03	02	06	03		LN02060308	Develop Software Design		PED	SL_CP	Hrs	100		9,097		9,097	20%
1	03	02	06	03		LN02060310	Conduct Engineering Review		PED	SL_CE	Hrs	16		1,800		1,800	20%
1	03	02	06	03		LN02060312	Update Component Data Base		PED	SL_CCA	Hrs	8		524		524	20%
1	03	02	06	03		LN02060314	Prepare for Prelim Design Review (PDR)		PED	SL_CP	Hrs	8		728		728	20%
1	03	02	06	03		LN02060314	Prepare for Prelim Design Review (PDR)		PED	SL_CE	Hrs	8		900		900	20%
1	03	02	06	03		LN02060316	Conduct Prelim Design Review (PDR) - Toroid		PED	SL_CP	Hrs	8		728		728	20%
1	03	02	06	03		LN02060316	Conduct Prelim Design Review (PDR) - Toroid		PED	SL_CE	Hrs	8		900		900	20%
1	03	02	06	03		LN02060318	Generate Detailed Procurement Plan		CON	SL_CE	Hrs	8		900		900	20%
1	03	02	06	03		LN02060320	Establish Subordinate Work Orders		CON	SL_CE	Hrs	4		450		450	20%
1	03	02	06	03		LN02060322	Prepare for Final Desgin Review (FDR)		PED	SL_CP	Hrs	8		728		728	20%
1	03	02	06	03		LN02060322	Prepare for Final Desgin Review (FDR)		PED	SL_CE	Hrs	8		900		900	20%
1	03	02	06	03		LN02060324	Conduct Final Design Review (FDR) - Toroids		PED	SL_CP	Hrs	8		728		728	20%
1	03	02	06	03		LN02060324	Conduct Final Design Review (FDR) - Toroids		PED	SL_CE	Hrs	8		900		900	20%
1	03	02	06	03		LN02060350	Procure RG58, TCM to TCM PreAmp (1ea Toroid)		CON	SL_MSEG	$$		1,260		1,411	1,411	20%
1	03	02	06	03		LN02060348	Procure 2/c power, TCM to TCM PreAmp (1 each tor		CON	SL_MSEG	$$		1,260		1,411	1,411	20%
1	03	02	06	03		LN02060346	Procure RG22, TCM to TCM PreAmp (2)		CON	SL_MSEG	$$		2,520		2,822	2,822	20%
1	03	02	06	03		LN02060344	Procure RG214, TCM PreAmp to Toroid (1)		CON	SL_MSEG	$$		630		706	706	20%
1	03	02	06	03		LN02060342	Procure RG22, TCM PreAmp to Toroid (1 each toroi		CON	SL_MSEG	$$		570		638	638	20%
1	03	02	06	03		LN02060340	Procure Adapter Box, RG22 to Twinax (2 each toro		CON	SL_MSEG	$$		860		963	963	20%
1	03	02	06	03		LN02060338	Procure Platforms (6)		CON	SL_MSEG	$$		300		336	336	20%
1	03	02	06	03		LN02060336	Procure Steel Covers (6)		CON	SL_MSEG	$$		1,200		1,344	1,344	20%
1	03	02	06	03		LN02060334	Procure Lead Shielding (12 Bricks/Unit) (6)		CON	SL_MSEG	$$		720		806	806	20%
1	03	02	06	03		LN02060332	Procure TCM PreAmps (6)		CON	SL_MSEG	$$		18,000		20,160	20,160	20%
1	03	02	06	03		LN02060330	Procure VME Module - TCM (6)		CON	SL_MSEG	$$		13,200		14,784	14,784	20%
1	03	02	06	03		LN02060352	Lab Wire Assembly (9)		CON	SL_CT	Hrs	40		2,534		2,534	20%
1	03	02	06	03		LN02060354	Lab Wire Assembly (9)		CON	SL_CT	Hrs	24		1,520		1,520	20%
1	03	02	06	03		LN02060354	Lab Wire Assembly (9)		CON	SL_CE	Hrs	24		2,776		2,776	20%
1	03	02	06	03		LN02060356	Perform Quality Control		CON	SL_CT	Hrs	8		507		507	20%
1	03	02	06	03		LN02060358	Write Software - Toroids		CON	SL_CP	Hrs	40		3,741		3,741	20%
1	03	02	06	03		LN02060360	Write Documentation - Toroids		CON	SL_CP	Hrs	8		748		748	20%
1	03	02	06	03		LN02060360	Write Documentation - Toroids		CON	SL_CE	Hrs	8		925		925	20%
1	03	02	06	03		LN02060362	Perform Point to Point Checkout		CON	SL_CP	Hrs	40		3,741		3,741	20%
1	03	02	06	03		LN02060364	Perform Pre-Installation Functional Testing		CON	SL_CE	Hrs	24		2,776		2,776	20%
1	**03**	**02**	**06**	**04**			**Controls - Stoppers**					**705**	**12,800**	**65,255**	**14,336**	**79,591**	
1	03	02	06	04		LN02060400	Receive System Requirements		PED	SL_CP	Hrs	24		2,183		2,183	20%
1	03	02	06	04		LN02060400	Receive System Requirements		PED	SL_CE	Hrs	24		2,700		2,700	20%
1	03	02	06	04		LN02060402	Review & Accept Requirements		PED	SL_CE	Hrs	1		113		113	20%
1	03	02	06	04		LN02060404	Perform Engineering Design & Analysis		CON	SL_CE	Hrs	80		9,001		9,001	20%
1	03	02	06	04		LN02060406	Perform Design & Coordination		CON	SL_CCA	Hrs	120		7,864		7,864	20%
1	03	02	06	04		LN02060408	Develop Software Design		PED	SL_CP	Hrs	40		3,639		3,639	20%
1	03	02	06	04		LN02060410	Conduct Engineering Review		PED	SL_CE	Hrs	16		1,800		1,800	20%
1	03	02	06	04		LN02060412	Update Component Data Base		PED	SL_CCA	Hrs	8		524		524	20%
1	03	02	06	04		LN02060414	Prepare for Prelim Design Review (PDR)		PED	SL_CP	Hrs	8		728		728	20%
1	03	02	06	04		LN02060414	Prepare for Prelim Design Review (PDR)		PED	SL_CE	Hrs	8		900		900	20%
1	03	02	06	04		LN02060416	Conduct Prelim Design Review (PDR) - Stoppers		PED	SL_CP	Hrs	8		728		728	20%
1	03	02	06	04		LN02060416	Conduct Prelim Design Review (PDR) - Stoppers		PED	SL_CE	Hrs	8		900		900	20%
1	03	02	06	04		LN02060418	Generate Detailed Procurement Plan		CON	SL_CE	Hrs	4		450		450	20%
1	03	02	06	04		LN02060420	Establish Subordinate Work Orders		CON	SL_CE	Hrs	4		450		450	20%
1	03	02	06	04		LN02060422	Prepare for Final Desgin Review (FDR)		PED	SL_CP	Hrs	24		2,183		2,183	20%
1	03	02	06	04		LN02060422	Prepare for Final Desgin Review (FDR)		PED	SL_CE	Hrs	8		900		900	20%
1	03	02	06	04		LN02060424	Conduct Final Design Review (FDR) - Stoppers		PED	SL_CP	Hrs	8		728		728	20%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	06	04		LN02060424	Conduct Final Design Review (FDR) - Stoppers		PED	SL_CE	Hrs	24		2,700		2,700	20%
1	03	02	06	04		LN02060430	Procure Stopper Controls Hdwr/Eq		CON	SL_MSEG	$$		12,800		14,336	14,336	20%
1	03	02	06	04		LN02060432	Lab Wire Assembly (2/4)		CON	SL_CT	Hrs	24		1,520		1,520	20%
1	03	02	06	04		LN02060434	Lab Wire Assembly (2/4)		CON	SL_CE	Hrs	8		925		925	20%
1	03	02	06	04		LN02060436	Perform Quality Control		CON	SL_CT	Hrs	8		507		507	20%
1	03	02	06	04		LN02060438	Write Software - Stoppers		CON	SL_CP	Hrs	160		14,963		14,963	20%
1	03	02	06	04		LN02060440	Write Documentation - Stoppers		CON	SL_CP	Hrs	20		1,870		1,870	20%
1	03	02	06	04		LN02060440	Write Documentation - Stoppers		CON	SL_CE	Hrs	20		2,313		2,313	20%
1	03	02	06	04		LN02060442	Perform Point to Point Checkout		CON	SL_CP	Hrs	40		3,741		3,741	20%
1	03	02	06	04		LN02060446	Perform Pre-Installation Functional Testing		CON	SL_CE	Hrs	8		925		925	20%
1	**03**	**02**	**06**	**05**			**Controls - Profile Monitors**					**673**	**173,993**	**58,303**	**194,872**	**253,175**	
1	03	02	06	05		LN02060500	Receive System Requirements		PED	SL_CP	Hrs	8		728		728	20%
1	03	02	06	05		LN02060500	Receive System Requirements		PED	SL_CE	Hrs	8		900		900	20%
1	03	02	06	05		LN02060502	Review & Accept Requirements		PED	SL_CE	Hrs	1		113		113	20%
1	03	02	06	05		LN02060504	Perform Engineering Design & Analysis		CON	SL_CE	Hrs	120		13,501		13,501	20%
1	03	02	06	05		LN02060506	Perform Design & Coordination		CON	SL_CCA	Hrs	200		13,106		13,106	20%
1	03	02	06	05		LN02060508	Develop Software Design		PED	SL_CP	Hrs	40		3,639		3,639	20%
1	03	02	06	05		LN02060510	Conduct Engineering Review		PED	SL_CE	Hrs	16		1,800		1,800	20%
1	03	02	06	05		LN02060512	Update Component Data Base		PED	SL_CCA	Hrs	8		524		524	20%
1	03	02	06	05		LN02060514	Prepare for Prelim Design Review (PDR)		PED	SL_CP	Hrs	8		728		728	20%
1	03	02	06	05		LN02060514	Prepare for Prelim Design Review (PDR)		PED	SL_CE	Hrs	8		900		900	20%
1	03	02	06	05		LN02060516	Conduct Prelim Design Review (PDR) - Profile Mon		PED	SL_CP	Hrs	8		728		728	20%
1	03	02	06	05		LN02060516	Conduct Prelim Design Review (PDR) - Profile Mon		PED	SL_CE	Hrs	8		900		900	20%
1	03	02	06	05		LN02060518	Generate Detailed Procurement Plan		CON	SL_CE	Hrs	4		450		450	20%
1	03	02	06	05		LN02060520	Establish Subordinate Work Orders		CON	SL_CE	Hrs	4		450		450	20%
1	03	02	06	05		LN02060522	Prepare for Final Desgin Review (FDR)		PED	SL_CP	Hrs	8		728		728	20%
1	03	02	06	05		LN02060522	Prepare for Final Desgin Review (FDR)		PED	SL_CE	Hrs	8		900		900	20%
1	03	02	06	05		LN02060524	Conduct Final Design Review (FDR) - Profile Mon		PED	SL_CP	Hrs	8		728		728	20%
1	03	02	06	05		LN02060524	Conduct Final Design Review (FDR) - Profile Mon		PED	SL_CE	Hrs	8		900		900	20%
1	03	02	06	05		LN02060554	Procure VME Cable - IDOM (20)		CON	SL_MSEG	$$		4,000		4,480	4,480	20%
1	03	02	06	05		LN02060552	Procure VME Cable - IDIM (20)		CON	SL_MSEG	$$		4,000		4,480	4,480	20%
1	03	02	06	05		LN02060550	Procure Multi-conductor (3C/16GA-AC POWER) (20)		CON	SL_MSEG	$$		5,310		5,947	5,947	20%
1	03	02	06	05		LN02060548	Procure Multi-conductor (21C/16GA-CONT&STAT) (20		CON	SL_MSEG	$$		15,510		17,371	17,371	20%
1	03	02	06	05		LN02060546	Procure RG59, coax-video (20)		CON	SL_MSEG	$$		5,510		6,171	6,171	20%
1	03	02	06	05		LN02060544	Procure Profile Monitor Camera/Electronics (20)		CON	SL_MSEG	$$		60,000		67,200	67,200	20%
1	03	02	06	05		LN02060542	Procure Profile Monitor Chassis (10)		CON	SL_MSEG	$$		45,000		50,400	50,400	20%
1	03	02	06	05		LN02060540	Procure Profile Monitor Lamp Units (20)		CON	SL_MSEG	$$		4,000		4,480	4,480	20%
1	03	02	06	05		LN02060538	Procure 16 Channel Interface Chassis (2)		CON	SL_MSEG	$$		2,000		2,240	2,240	20%
1	03	02	06	05		LN02060536	Procure Video Modulator Chassis (20)		CON	SL_MSEG	$$		20,000		22,400	22,400	20%
1	03	02	06	05		LN02060534	Procure VME Module - XVME-220 (32 Ch IDOM) (2ea)		CON	SL_MSEG	$$		2,900		3,248	3,248	20%
1	03	02	06	05		LN02060532	Procure VME Module - XVME-212 (32 Ch IDIM) (2ea)		CON	SL_MSEG	$$		2,900		3,248	3,248	20%
1	03	02	06	05		LN02060530	Procure VME Module - VMIC4132 (32 Ch DAC) (1ea)		CON	SL_MSEG	$$		2,863		3,207	3,207	20%
1	03	02	06	05		LN02060556	Procure VME Cable - DAC (1)		CON	SL_CT	Hrs	40		2,534		2,534	20%
1	03	02	06	05		LN02060558	Wire Profile Monitor in Lab (4)		CON	SL_CT	Hrs	40		2,534		2,534	20%
1	03	02	06	05		LN02060560	Perform Quality Control		CON	SL_CT	Hrs	8		507		507	20%
1	03	02	06	05		LN02060560	Perform Quality Control		CON	SL_CE	Hrs	8		925		925	20%
1	03	02	06	05		LN02060562	Write Software - Profile Monitors		CON	SL_CP	Hrs	40		3,741		3,741	20%
1	03	02	06	05		LN02060564	Write Documentation - Profile Monitors		CON	SL_CP	Hrs	8		748		748	20%
1	03	02	06	05		LN02060564	Write Documentation - Profile Monitors		CON	SL_CE	Hrs	8		925		925	20%
1	03	02	06	05		LN02060566	Perform Point to Point Checkout		CON	SL_CP	Hrs	40		3,741		3,741	20%
1	03	02	06	05		LN02060570	Perform Pre-Installation Functional Testing		CON	SL_CE	Hrs	8		925		925	20%
1	**03**	**02**	**06**	**06**			**Controls - E/O Diagnostics**					**2,025**	**24,987**	**184,778**	**27,985**	**212,763**	
1	03	02	06	06		LN02060600	Receive System Requirements		PED	SL_CP	Hrs	8		728		728	55%
1	03	02	06	06		LN02060600	Receive System Requirements		PED	SL_CE	Hrs	8		900		900	55%
1	03	02	06	06		LN02060602	Review & Accept Requirements		PED	SL_CE	Hrs	1		113		113	55%
1	03	02	06	06		LN02060604	Perform Engineering Design & Analysis		CON	SL_CE	Hrs	400		45,004		45,004	55%
1	03	02	06	06		LN02060606	Perform Design & Coordination		CON	SL_CCA	Hrs	400		26,212		26,212	55%
1	03	02	06	06		LN02060608	Develop Software Design		PED	SL_CP	Hrs	800		73,286		73,286	55%
1	03	02	06	06		LN02060610	Conduct Engineering Review		CON	SL_CP	Hrs	8		748		748	55%
1	03	02	06	06		LN02060610	Conduct Engineering Review		CON	SL_CE	Hrs	16		1,851		1,851	55%
1	03	02	06	06		LN02060612	Update Component Data Base		CON	SL_CCA	Hrs	8		539		539	55%
1	03	02	06	06		LN02060614	Prepare for Prelim Design Review (PDR)		CON	SL_CP	Hrs	8		748		748	55%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	06	06		LN02060614	Prepare for Prelim Design Review (PDR)		CON	SL_CE	Hrs	8		925		925	55%
1	03	02	06	06		LN02060616	Conduct Prelim Design Review (PDR) - E/O Diag		PED	SL_CP	Hrs	8		748		748	55%
1	03	02	06	06		LN02060616	Conduct Prelim Design Review (PDR) - E/O Diag		PED	SL_CE	Hrs	8		925		925	55%
1	03	02	06	06		LN02060618	Generate Detailed Procurement Plan		CON	SL_CE	Hrs	4		463		463	55%
1	03	02	06	06		LN02060620	Establish Subordinate Work Orders		CON	SL_CE	Hrs	4		463		463	55%
1	03	02	06	06		LN02060622	Prepare for Final Desgin Review (FDR)		CON	SL_CP	Hrs	8		748		748	55%
1	03	02	06	06		LN02060622	Prepare for Final Desgin Review (FDR)		CON	SL_CE	Hrs	8		925		925	55%
1	03	02	06	06		LN02060624	Conduct Final Design Review (FDR) - E/O Diag		PED	SL_CP	Hrs	8		748		748	55%
1	03	02	06	06		LN02060624	Conduct Final Design Review (FDR) - E/O Diag		PED	SL_CE	Hrs	8		925		925	55%
1	03	02	06	06		LN02060640	Lab Wire Assembly (1/2)		CON	SL_CT	Hrs	40		2,534		2,534	55%
1	03	02	06	06		LN02060639	Procure coaxial cables (8ea)		CON	SL_MSEG	$$		500		560	560	55%
1	03	02	06	06		LN02060638	Procure Multi-Cond. cable (4PR)		CON	SL_MSEG	$$		520		582	582	55%
1	03	02	06	06		LN02060636	Procure Actuator/Attenuator Interface panel		CON	SL_MSEG	$$		3,000		3,360	3,360	55%
1	03	02	06	06		LN02060635	Procure VME Cable - IDOM/SAM (2ea)		CON	SL_MSEG	$$		400		448	448	55%
1	03	02	06	06		LN02060634	Procure VME Module - Stepper Motor (4ea)		CON	SL_MSEG	$$		8,000		8,960	8,960	55%
1	03	02	06	06		LN02060633	Procure VME Module - VMIC-3122 (SAM) (1ea)		CON	SL_MSEG	$$		3,777		4,230	4,230	55%
1	03	02	06	06		LN02060632	Procure VME Module - XVME-212 (IDOM) (1ea)		CON	SL_MSEG	$$		790		885	885	55%
1	03	02	06	06		LN02060628	Procure Profile Monitor, Camera and Electronics		CON	SL_MSEG	$$		8,000		8,960	8,960	55%
1	03	02	06	06		LN02060642	Perform Quality Control		CON	SL_CT	Hrs	8		507		507	55%
1	03	02	06	06		LN02060644	Write Software - E/O Diagnostics		CON	SL_CP	Hrs	160		14,963		14,963	55%
1	03	02	06	06		LN02060646	Write Documentation - E/O Diagnostics		CON	SL_CP	Hrs	20		1,870		1,870	55%
1	03	02	06	06		LN02060646	Write Documentation - E/O Diagnostics		CON	SL_CE	Hrs	20		2,313		2,313	55%
1	03	02	06	06		LN02060648	Perform Point to Point Checkout		CON	SL_CP	Hrs	40		3,741		3,741	55%
1	03	02	06	06		LN02060652	Perform Pre-Installation Functional Testing		CON	SL_CE	Hrs	16		1,851		1,851	55%
1	**03**	**02**	**06**	**07**			**Controls - Bunch Length Monitors**					**761**	**7,800**	**69,464**	**8,736**	**78,200**	
1	03	02	06	07		LN02060700	Receive System Requirements		PED	SL_CP	Hrs	8		728		728	15%
1	03	02	06	07		LN02060700	Receive System Requirements		PED	SL_CE	Hrs	8		900		900	15%
1	03	02	06	07		LN02060702	Review & Accept Requirements		PED	SL_CP	Hrs	8		728		728	15%
1	03	02	06	07		LN02060702	Review & Accept Requirements		PED	SL_CE	Hrs	1		113		113	15%
1	03	02	06	07		LN02060704	Perform Engineering Design & Analysis		CON	SL_CE	Hrs	80		9,001		9,001	15%
1	03	02	06	07		LN02060706	Perform Design & Coordination		CON	SL_CCA	Hrs	120		7,864		7,864	15%
1	03	02	06	07		LN02060708	Develop Software Design		PED	SL_CP	Hrs	160		14,555		14,555	15%
1	03	02	06	07		LN02060710	Conduct Engineering Review		PED	SL_CE	Hrs	16		1,800		1,800	15%
1	03	02	06	07		LN02060712	Update Component Data Base		PED	SL_CCA	Hrs	8		524		524	15%
1	03	02	06	07		LN02060714	Prepare for Prelim Design Review (PDR)		PED	SL_CP	Hrs	8		728		728	15%
1	03	02	06	07		LN02060714	Prepare for Prelim Design Review (PDR)		PED	SL_CE	Hrs	8		900		900	15%
1	03	02	06	07		LN02060716	Conduct Prelim Design Review (PDR) - Bnch Length		PED	SL_CP	Hrs	8		728		728	15%
1	03	02	06	07		LN02060716	Conduct Prelim Design Review (PDR) - Bnch Length		PED	SL_CE	Hrs	8		900		900	15%
1	03	02	06	07		LN02060718	Generate Detailed Procurement Plan		CON	SL_CE	Hrs	4		450		450	15%
1	03	02	06	07		LN02060720	Establish Subordinate Work Orders		CON	SL_CE	Hrs	4		450		450	15%
1	03	02	06	07		LN02060722	Prepare for Final Desgin Review (FDR)		PED	SL_CP	Hrs	8		728		728	15%
1	03	02	06	07		LN02060722	Prepare for Final Desgin Review (FDR)		PED	SL_CE	Hrs	8		900		900	15%
1	03	02	06	07		LN02060724	Conduct Final Design Review (FDR) - Bunch Length		PED	SL_CP	Hrs	8		728		728	15%
1	03	02	06	07		LN02060724	Conduct Final Design Review (FDR) - Bunch Length		PED	SL_CE	Hrs	8		900		900	15%
1	03	02	06	07		LN02060730	Lab Wire Assembly (4)		CON	SL_CT	Hrs	24		1,520		1,520	15%
1	03	02	06	07		LN02060728	Procure BLM Controls Hdwr/Eq		CON	SL_MSEG	$$		7,800		8,736	8,736	15%
1	03	02	06	07		LN02060732	Perform Quality Control		CON	SL_CT	Hrs	8		507		507	15%
1	03	02	06	07		LN02060734	Write Software - BLM Diagnostics		CON	SL_CP	Hrs	160		14,963		14,963	50%
1	03	02	06	07		LN02060736	Write Documentation - BLM Diagnostics		CON	SL_CP	Hrs	20		1,870		1,870	50%
1	03	02	06	07		LN02060736	Write Documentation - BLM Diagnostics		CON	SL_CE	Hrs	20		2,313		2,313	50%
1	03	02	06	07		LN02060738	Perform Point to Point Checkout		CON	SL_CP	Hrs	40		3,741		3,741	50%
1	03	02	06	07		LN02060742	Perform Pre-Installation Functional Testing		CON	SL_CE	Hrs	8		925		925	15%
1	**03**	**02**	**06**	**08**			**Controls - Beam Loss Monitors**					**501**	**1,000**	**47,132**	**1,120**	**48,252**	
1	03	02	06	08		LN02060800	Receive System Requirements		PED	SL_CP	Hrs	8		748		748	15%
1	03	02	06	08		LN02060800	Receive System Requirements		PED	SL_CE	Hrs	8		925		925	15%
1	03	02	06	08		LN02060802	Review & Accept Requirements		PED	SL_CE	Hrs	1		116		116	15%
1	03	02	06	08		LN02060804	Perform Engineering Design & Analysis		CON	SL_CE	Hrs	20		2,313		2,313	15%
1	03	02	06	08		LN02060806	Perform Design & Coordination		CON	SL_CCA	Hrs	40		2,694		2,694	15%
1	03	02	06	08		LN02060808	Develop Software Design		PED	SL_CP	Hrs	40		3,741		3,741	15%
1	03	02	06	08		LN02060810	Conduct Engineering Review		CON	SL_CP	Hrs	8		748		748	15%
1	03	02	06	08		LN02060810	Conduct Engineering Review		CON	SL_CE	Hrs	16		1,851		1,851	15%
1	03	02	06	08		LN02060812	Update Component Data Base		CON	SL_CCA	Hrs	8		539		539	15%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	06	08		LN02060814	Prepare for Prelim Design Review (PDR)		CON	SL_CP	Hrs	8		748		748	15%
1	03	02	06	08		LN02060814	Prepare for Prelim Design Review (PDR)		CON	SL_CE	Hrs	8		925		925	15%
1	03	02	06	08		LN02060816	Conduct Prelim Design Review (PDR) - Beam Loss		PED	SL_CP	Hrs	8		748		748	15%
1	03	02	06	08		LN02060816	Conduct Prelim Design Review (PDR) - Beam Loss		PED	SL_CE	Hrs	8		925		925	15%
1	03	02	06	08		LN02060818	Generate Detailed Procurement Plan		CON	SL_CE	Hrs	4		463		463	15%
1	03	02	06	08		LN02060820	Establish Subordinate Work Orders		CON	SL_CE	Hrs	4		463		463	15%
1	03	02	06	08		LN02060822	Prepare for Final Desgin Review (FDR)		CON	SL_CP	Hrs	8		748		748	15%
1	03	02	06	08		LN02060822	Prepare for Final Desgin Review (FDR)		CON	SL_CE	Hrs	8		925		925	15%
1	03	02	06	08		LN02060824	Conduct Final Design Review (FDR) - Beam Loss		PED	SL_CP	Hrs	8		748		748	15%
1	03	02	06	08		LN02060824	Conduct Final Design Review (FDR) - Beam Loss		PED	SL_CE	Hrs	8		925		925	15%
1	03	02	06	08		LN02060830	Lab Wire Assembly (2)		CON	SL_CT	Hrs	24		1,520		1,520	15%
1	03	02	06	08		LN02060828	Procure BLM Controls Hdwr/Eq		CON	SL_MSEG	$$		1,000		1,120	1,120	15%
1	03	02	06	08		LN02060832	Perform Quality Control		CON	SL_CT	Hrs	8		507		507	15%
1	03	02	06	08		LN02060834	Write Software - Bm Lss Mon Diagnostics		CON	SL_CP	Hrs	160		14,963		14,963	15%
1	03	02	06	08		LN02060836	Write Documentation - Bm Lss Mon Diagnostics		CON	SL_CP	Hrs	20		1,870		1,870	15%
1	03	02	06	08		LN02060836	Write Documentation - Bm Lss Mon Diagnostics		CON	SL_CE	Hrs	20		2,313		2,313	15%
1	03	02	06	08		LN02060838	Perform Point to Point Checkout		CON	SL_CP	Hrs	40		3,741		3,741	15%
1	03	02	06	08		LN02060842	Perform Pre-Installation Functional Testing		CON	SL_CE	Hrs	8		925		925	15%
1	**03**	**02**	**06**	**09**			**Controls - Single Beam Dump**					**629**	**9,600**	**60,246**	**10,752**	**70,998**	
1	03	02	06	09		LN02060900	Receive System Requirements		PED	SL_CP	Hrs	8		748		748	15%
1	03	02	06	09		LN02060900	Receive System Requirements		PED	SL_CE	Hrs	8		925		925	15%
1	03	02	06	09		LN02060902	Review & Accept Requirements		PED	SL_CP	Hrs	8		748		748	15%
1	03	02	06	09		LN02060902	Review & Accept Requirements		PED	SL_CE	Hrs	1		116		116	15%
1	03	02	06	09		LN02060904	Perform Engineering Design & Analysis		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	03	02	06	09		LN02060906	Perform Design & Coordination		CON	SL_CCA	Hrs	20		1,347		1,347	15%
1	03	02	06	09		LN02060908	Develop Software Design		PED	SL_CP	Hrs	160		14,963		14,963	15%
1	03	02	06	09		LN02060910	Conduct Engineering Review		CON	SL_CE	Hrs	16		1,851		1,851	15%
1	03	02	06	09		LN02060912	Update Component Data Base		CON	SL_CCA	Hrs	8		539		539	15%
1	03	02	06	09		LN02060914	Prepare for Prelim Design Review (PDR)		CON	SL_CP	Hrs	8		748		748	15%
1	03	02	06	09		LN02060914	Prepare for Prelim Design Review (PDR)		CON	SL_CE	Hrs	8		925		925	15%
1	03	02	06	09		LN02060916	Conduct Prelim Design Review (PDR) - Single Dump		PED	SL_CP	Hrs	8		748		748	15%
1	03	02	06	09		LN02060916	Conduct Prelim Design Review (PDR) - Single Dump		PED	SL_CE	Hrs	8		925		925	15%
1	03	02	06	09		LN02060918	Generate Detailed Procurement Plan		CON	SL_CE	Hrs	4		463		463	15%
1	03	02	06	09		LN02060920	Establish Subordinate Work Orders		CON	SL_CE	Hrs	4		463		463	15%
1	03	02	06	09		LN02060922	Prepare for Final Desgin Review (FDR)		CON	SL_CP	Hrs	8		748		748	15%
1	03	02	06	09		LN02060922	Prepare for Final Desgin Review (FDR)		CON	SL_CE	Hrs	8		925		925	15%
1	03	02	06	09		LN02060924	Conduct Final Design Review (FDR) - Single Dump		PED	SL_CP	Hrs	8		748		748	15%
1	03	02	06	09		LN02060924	Conduct Final Design Review (FDR) - Single Dump		PED	SL_CE	Hrs	8		925		925	15%
1	03	02	06	09		LN02060934	Lab Wire Assembly (1)		CON	SL_CT	Hrs	24		1,520		1,520	15%
1	03	02	06	09		LN02060932	Procure Profile Monitor Chassis (1)		CON	SL_MSEG	$$		4,400		4,928	4,928	15%
1	03	02	06	09		LN02060930	Procure IDOM Module (1)		CON	SL_MSEG	$$		1,250		1,400	1,400	15%
1	03	02	06	09		LN02060928	Procure VME Module - XVME-212 (IDIM) (2ea)		CON	SL_MSEG	$$		3,950		4,424	4,424	15%
1	03	02	06	09		LN02060936	Perform Quality Control		CON	SL_CT	Hrs	8		507		507	15%
1	03	02	06	09		LN02060938	Write Software - Single Beam Dump		CON	SL_CP	Hrs	160		14,963		14,963	15%
1	03	02	06	09		LN02060940	Write Documentation - Single Beam Dump		CON	SL_CP	Hrs	20		1,870		1,870	15%
1	03	02	06	09		LN02060940	Write Documentation - Single Beam Dump		CON	SL_CE	Hrs	20		2,313		2,313	15%
1	03	02	06	09		LN02060942	Perform Point to Point Checkout		CON	SL_CP	Hrs	40		3,741		3,741	15%
1	03	02	06	09		LN02060946	Perform Pre-Installation Functional Testing		CON	SL_CE	Hrs	16		1,851		1,851	15%
1	**03**	**02**	**06**	**10**			**Controls - E Beam Dump**					**761**	**-**	**70,683**	**-**	**70,683**	
1	03	02	06	10		LN02061000	Receive System Requirements		PED	SL_CP	Hrs	8		748		748	15%
1	03	02	06	10		LN02061000	Receive System Requirements		PED	SL_CE	Hrs	8		925		925	15%
1	03	02	06	10		LN02061002	Review & Accept Requirements		PED	SL_CP	Hrs	8		748		748	15%
1	03	02	06	10		LN02061002	Review & Accept Requirements		PED	SL_CE	Hrs	1		116		116	15%
1	03	02	06	10		LN02061004	Perform Engineering Design & Analysis		CON	SL_CE	Hrs	80		9,253		9,253	15%
1	03	02	06	10		LN02061006	Perform Design & Coordination		CON	SL_CCA	Hrs	120		8,083		8,083	15%
1	03	02	06	10		LN02061008	Develop Software Design		PED	SL_CP	Hrs	160		14,963		14,963	15%
1	03	02	06	10		LN02061010	Conduct Engineering Review		CON	SL_CE	Hrs	16		1,851		1,851	15%
1	03	02	06	10		LN02061012	Update Component Data Base		CON	SL_CCA	Hrs	8		539		539	15%
1	03	02	06	10		LN02061014	Prepare for Prelim Design Review (PDR)		CON	SL_CP	Hrs	8		748		748	15%
1	03	02	06	10		LN02061014	Prepare for Prelim Design Review (PDR)		CON	SL_CE	Hrs	8		925		925	15%
1	03	02	06	10		LN02061016	Conduct Prelim Design Review (PDR) - E Bm Dump		PED	SL_CP	Hrs	8		748		748	15%
1	03	02	06	10		LN02061016	Conduct Prelim Design Review (PDR) - E Bm Dump		PED	SL_CE	Hrs	8		925		925	15%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	06	10		LN02061018	Generate Detailed Procurement Plan		CON	SL_CE	Hrs	4		463		463	15%
1	03	02	06	10		LN02061020	Establish Subordinate Work Orders		CON	SL_CE	Hrs	4		463		463	15%
1	03	02	06	10		LN02061022	Prepare for Final Desgin Review (FDR)		CON	SL_CP	Hrs	8		748		748	15%
1	03	02	06	10		LN02061022	Prepare for Final Desgin Review (FDR)		CON	SL_CE	Hrs	8		925		925	15%
1	03	02	06	10		LN02061024	Conduct Final Design Review (FDR) - E Bm Dump		PED	SL_CP	Hrs	8		748		748	15%
1	03	02	06	10		LN02061024	Conduct Final Design Review (FDR) - E Bm Dump		PED	SL_CE	Hrs	8		925		925	15%
1	03	02	06	10		LN02061030	Lab Wire Assembly (1)		CON	SL_CT	Hrs	24		1,520		1,520	15%
1	03	02	06	10		LN02061032	Perform Quality Control		CON	SL_CT	Hrs	8		507		507	15%
1	03	02	06	10		LN02061034	Write Software - E Beam Dump		CON	SL_CP	Hrs	160		14,963		14,963	15%
1	03	02	06	10		LN02061036	Write Documentation - E Beam Dump		CON	SL_CP	Hrs	20		1,870		1,870	15%
1	03	02	06	10		LN02061036	Write Documentation - E Beam Dump		CON	SL_CE	Hrs	20		2,313		2,313	15%
1	03	02	06	10		LN02061038	Perform Point to Point Checkout		CON	SL_CP	Hrs	40		3,741		3,741	15%
1	03	02	06	10		LN02061042	Perform Pre-Installation Functional Testing		CON	SL_CE	Hrs	8		925		925	15%
1	**03**	**02**	**06**	**11**			**Controls - Protection Collimator**					**761**	**19,957**	**71,342**	**22,352**	**93,694**	
1	03	02	06	11		LN02061100	Receive System Requirements		PED	SL_CP	Hrs	8		728		728	15%
1	03	02	06	11		LN02061100	Receive System Requirements		PED	SL_CE	Hrs	8		900		900	15%
1	03	02	06	11		LN02061102	Review & Accept Requirements		PED	SL_CP	Hrs	8		728		728	15%
1	03	02	06	11		LN02061102	Review & Accept Requirements		PED	SL_CE	Hrs	1		113		113	15%
1	03	02	06	11		LN02061104	Perform Engineering Design & Analysis		CON	SL_CE	Hrs	120		13,501		13,501	15%
1	03	02	06	11		LN02061106	Perform Design & Coordination		CON	SL_CCA	Hrs	80		5,242		5,242	15%
1	03	02	06	11		LN02061108	Develop Software Design		PED	SL_CP	Hrs	160		14,555		14,555	15%
1	03	02	06	11		LN02061110	Conduct Engineering Review		PED	SL_CE	Hrs	16		1,800		1,800	15%
1	03	02	06	11		LN02061112	Update Component Data Base		PED	SL_CCA	Hrs	8		524		524	15%
1	03	02	06	11		LN02061114	Prepare for Prelim Design Review (PDR)		PED	SL_CP	Hrs	8		728		728	15%
1	03	02	06	11		LN02061114	Prepare for Prelim Design Review (PDR)		PED	SL_CE	Hrs	8		900		900	15%
1	03	02	06	11		LN02061116	Conduct Prelim Design Review (PDR) - Prot Collim		PED	SL_CP	Hrs	8		728		728	15%
1	03	02	06	11		LN02061116	Conduct Prelim Design Review (PDR) - Prot Collim		PED	SL_CE	Hrs	8		900		900	15%
1	03	02	06	11		LN02061118	Generate Detailed Procurement Plan		CON	SL_CE	Hrs	4		450		450	15%
1	03	02	06	11		LN02061120	Establish Subordinate Work Orders		CON	SL_CE	Hrs	4		450		450	15%
1	03	02	06	11		LN02061122	Prepare for Final Desgin Review (FDR)		PED	SL_CP	Hrs	8		728		728	15%
1	03	02	06	11		LN02061122	Prepare for Final Desgin Review (FDR)		PED	SL_CE	Hrs	8		900		900	15%
1	03	02	06	11		LN02061124	Conduct Final Design Review (FDR) - Prot Collim		PED	SL_CP	Hrs	8		728		728	15%
1	03	02	06	11		LN02061124	Conduct Final Design Review (FDR) - Prot Collim		PED	SL_CE	Hrs	8		900		900	15%
1	03	02	06	11		LN02061162	Lab Wire Assembly (6)		CON	SL_CT	Hrs	24		1,520		1,520	15%
1	03	02	06	11		LN02061160	Procure VME Cable (36/C)16 Chnl Dist Ch. To SA		CON	SL_MSEG	$$		200		224	224	15%
1	03	02	06	11		LN02061158	Procure VME Cable (36/C)16 Chnl STPR Ch. To MM		CON	SL_MSEG	$$		200		224	224	15%
1	03	02	06	11		LN02061156	Procure VME Cable (36/C)16 Chnl Dist To IDIM		CON	SL_MSEG	$$		190		213	213	15%
1	03	02	06	11		LN02061154	Procure MULTI-COND (12/C) REST. CH. TO COLLIMATO		CON	SL_MSEG	$$		400		448	448	15%
1	03	02	06	11		LN02061152	Procure MULTI-COND (12/C) REST. CH. TO 16 Ch. St		CON	SL_MSEG	$$		170		190	190	15%
1	03	02	06	11		LN02061150	Procure MULTI-COND (2/C) DATRONIC TO16 CHNL DIST		CON	SL_MSEG	$$		130		146	146	15%
1	03	02	06	11		LN02061148	Procure MULTI-COND (4PR) DATRONIC TO LVDT		CON	SL_MSEG	$$		1,090		1,221	1,221	15%
1	03	02	06	11		LN02061146	Procure Power supply 30V@100A (1)		CON	SL_MSEG	$$		250		280	280	15%
1	03	02	06	11		LN02061144	Procure LVDT UNIT (2)		CON	SL_MSEG	$$		1,100		1,232	1,232	15%
1	03	02	06	11		LN02061142	Procure LVDT PCB -2 CHNLS (1)		CON	SL_MSEG	$$		550		616	616	15%
1	03	02	06	11		LN02061140	Procure VME Module - VMIC 3122 (SAM) (1ea)		CON	SL_MSEG	$$		3,777		4,230	4,230	15%
1	03	02	06	11		LN02061138	Procure VME Module - IDIM (1)		CON	SL_MSEG	$$		1,000		1,120	1,120	15%
1	03	02	06	11		LN02061136	Procure VME Module - MMC (1)		CON	SL_MSEG	$$		1,400		1,568	1,568	15%
1	03	02	06	11		LN02061134	Procure 16 Channel Interface Chassis (1)		CON	SL_MSEG	$$		1,000		1,120	1,120	15%
1	03	02	06	11		LN02061132	Procure 16 Channel Stepper Motor Controller Ch.		CON	SL_MSEG	$$		2,500		2,800	2,800	15%
1	03	02	06	11		LN02061130	Procure 10 Channel Resistor Interface Chassis		CON	SL_MSEG	$$		2,500		2,800	2,800	15%
1	03	02	06	11		LN02061128	Procure DATRONICS Controller (MN 10k-1, 7 slots)		CON	SL_MSEG	$$		3,500		3,920	3,920	15%
1	03	02	06	11		LN02061164	Perform Quality Control		CON	SL_CT	Hrs	8		507		507	15%
1	03	02	06	11		LN02061166	Write Software - Prot Collimator		CON	SL_CP	Hrs	160		14,963		14,963	15%
1	03	02	06	11		LN02061168	Write Documentation - Prot Collimator		CON	SL_CP	Hrs	20		1,870		1,870	15%
1	03	02	06	11		LN02061168	Write Documentation - Prot Collimator		CON	SL_CE	Hrs	20		2,313		2,313	15%
1	03	02	06	11		LN02061170	Perform Point to Point Checkout		CON	SL_CP	Hrs	40		3,741		3,741	15%
1	03	02	06	11		LN02061174	Perform Pre-Installation Functional Testing		CON	SL_CE	Hrs	8		925		925	15%
1	**03**	**02**	**06**	**12**			**Controls - Movable Collimator**					**825**	**-**	**78,190**	**-**	**78,190**	
1	03	02	06	12		LN02061200	Receive System Requirements		PED	SL_CP	Hrs	8		728		728	15%
1	03	02	06	12		LN02061200	Receive System Requirements		PED	SL_CE	Hrs	8		900		900	15%
1	03	02	06	12		LN02061202	Review & Accept Requirements		PED	SL_CE	Hrs	1		113		113	15%
1	03	02	06	12		LN02061204	Perform Engineering Design & Analysis		CON	SL_CE	Hrs	80		9,228		9,228	15%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	06	12		LN02061206	Perform Design & Coordination		CON	SL_CCA	Hrs	120		8,083		8,083	15%
1	03	02	06	12		LN02061208	Develop Software Design		PED	SL_CP	Hrs	160		14,963		14,963	15%
1	03	02	06	12		LN02061210	Conduct Engineering Review		CON	SL_CE	Hrs	16		1,851		1,851	15%
1	03	02	06	12		LN02061212	Update Component Data Base		CON	SL_CCA	Hrs	8		539		539	15%
1	03	02	06	12		LN02061214	Prepare for Prelim Design Review (PDR)		CON	SL_CP	Hrs	8		748		748	15%
1	03	02	06	12		LN02061214	Prepare for Prelim Design Review (PDR)		CON	SL_CE	Hrs	8		925		925	15%
1	03	02	06	12		LN02061216	Conduct Prelim Design Review (PDR) - Move Collim		PED	SL_CP	Hrs	8		748		748	15%
1	03	02	06	12		LN02061216	Conduct Prelim Design Review (PDR) - Move Collim		PED	SL_CE	Hrs	8		925		925	15%
1	03	02	06	12		LN02061218	Generate Detailed Procurement Plan		CON	SL_CE	Hrs	4		463		463	15%
1	03	02	06	12		LN02061220	Establish Subordinate Work Orders		CON	SL_CE	Hrs	4		463		463	15%
1	03	02	06	12		LN02061222	Prepare for Final Desgin Review (FDR)		CON	SL_CP	Hrs	8		748		748	15%
1	03	02	06	12		LN02061222	Prepare for Final Desgin Review (FDR)		CON	SL_CE	Hrs	8		925		925	15%
1	03	02	06	12		LN02061224	Conduct Final Design Review (FDR) - Move Collim		PED	SL_CP	Hrs	8		748		748	15%
1	03	02	06	12		LN02061224	Conduct Final Design Review (FDR) - Move Collim		PED	SL_CE	Hrs	8		925		925	15%
1	03	02	06	12		LN02061230	Lab Wire Assembly (7)		CON	SL_CT	Hrs	24		1,520		1,520	15%
1	03	02	06	12		LN02061232	Perform Quality Control		CON	SL_CT	Hrs	8		507		507	15%
1	03	02	06	12		LN02061234	Write Software - Movable Collimator		CON	SL_CP	Hrs	160		14,963		14,963	15%
1	03	02	06	12		LN02061236	Write Documentation - Movable Collimator		CON	SL_CP	Hrs	20		1,870		1,870	15%
1	03	02	06	12		LN02061236	Write Documentation - Movable Collimator		CON	SL_CE	Hrs	20		2,313		2,313	15%
1	03	02	06	12		LN02061238	Perform Point to Point Checkout		CON	SL_CP	Hrs	40		3,741		3,741	15%
1	03	02	06	12		LN02061242	Perform Pre-Installation Functional Testing		CON	SL_CE	Hrs	80		9,253		9,253	15%
1	**03**	**02**	**06**	**13**			**Controls - X-Band Accel Structure**					**753**	**-**	**69,935**	**-**	**69,935**	
1	03	02	06	13		LN02061300	Receive System Requirements		PED	SL_CP	Hrs	8		748		748	15%
1	03	02	06	13		LN02061300	Receive System Requirements		PED	SL_CE	Hrs	8		925		925	15%
1	03	02	06	13		LN02061302	Review & Accept Requirements		PED	SL_CE	Hrs	1		116		116	15%
1	03	02	06	13		LN02061304	Perform Engineering Design & Analysis		CON	SL_CE	Hrs	80		9,253		9,253	15%
1	03	02	06	13		LN02061306	Perform Design & Coordination		CON	SL_CCA	Hrs	120		8,083		8,083	15%
1	03	02	06	13		LN02061308	Develop Software Design		PED	SL_CP	Hrs	160		14,963		14,963	15%
1	03	02	06	13		LN02061310	Conduct Engineering Review		CON	SL_CE	Hrs	16		1,851		1,851	15%
1	03	02	06	13		LN02061312	Update Component Data Base		CON	SL_CCA	Hrs	8		539		539	15%
1	03	02	06	13		LN02061314	Prepare for Prelim Design Review (PDR)		CON	SL_CP	Hrs	8		748		748	15%
1	03	02	06	13		LN02061314	Prepare for Prelim Design Review (PDR)		CON	SL_CE	Hrs	8		925		925	15%
1	03	02	06	13		LN02061316	Conduct Prelim Design Review (PDR) - X Band Accl		PED	SL_CP	Hrs	8		748		748	15%
1	03	02	06	13		LN02061316	Conduct Prelim Design Review (PDR) - X Band Accl		PED	SL_CE	Hrs	8		925		925	15%
1	03	02	06	13		LN02061318	Generate Detailed Procurement Plan		CON	SL_CE	Hrs	4		463		463	15%
1	03	02	06	13		LN02061320	Establish Subordinate Work Orders		CON	SL_CE	Hrs	4		463		463	15%
1	03	02	06	13		LN02061322	Prepare for Final Desgin Review (FDR)		CON	SL_CP	Hrs	8		748		748	15%
1	03	02	06	13		LN02061322	Prepare for Final Desgin Review (FDR)		CON	SL_CE	Hrs	8		925		925	15%
1	03	02	06	13		LN02061324	Conduct Final Design Review (FDR) - X-Band Accel		PED	SL_CP	Hrs	8		748		748	15%
1	03	02	06	13		LN02061324	Conduct Final Design Review (FDR) - X-Band Accel		PED	SL_CE	Hrs	8		925		925	15%
1	03	02	06	13		LN02061334	Write Software - X Band Accel Structure		CON	SL_CP	Hrs	160		14,963		14,963	15%
1	03	02	06	13		LN02061330	Lab Wire Assembly (1)		CON	SL_CT	Hrs	24		1,520		1,520	15%
1	03	02	06	13		LN02061336	Write Documentation - X Band Accel Structure		CON	SL_CP	Hrs	20		1,870		1,870	15%
1	03	02	06	13		LN02061336	Write Documentation - X Band Accel Structure		CON	SL_CE	Hrs	20		2,313		2,313	15%
1	03	02	06	13		LN02061332	Perform Quality Control		CON	SL_CT	Hrs	8		507		507	15%
1	03	02	06	13		LN02061338	Perform Point to Point Checkout		CON	SL_CP	Hrs	40		3,741		3,741	15%
1	03	02	06	13		LN02061342	Perform Pre-Installation Functional Testing		CON	SL_CE	Hrs	8		925		925	15%
1	**03**	**02**	**07**				**Reserved**										
1	**03**	**02**	**08**				**Controls - Timing**					**256**	**72,000**	**28,827**	**80,640**	**109,467**	
1	03	02	08			LN02080000	Finalize Linac Timing Subsystem Requirements		PED	SL_CE	Hrs	40		4,500		4,500	20%
1	03	02	08			LN02080010	Linac Timing Subsystem Design		PED	SL_CE	Hrs	200		22,502		22,502	20%
1	03	02	08			LN02080025	Prep Bid Pak - Linac Timing Modules		CON	SL_CE	Hrs	8		900		900	20%
1	03	02	08			LN02080045	Evaluate Vendor Proposals		CON	SL_CE	Hrs	8		925		925	20%
1	03	02	08			LN02080060	Vendor Fab & Assy - Timing modules (SLC to VME)		CON	SL_MSEG	$$		72,000		80,640	80,640	20%
1	**03**	**02**	**09**				**Controls - Vacuum**					**845**	**174,110**	**77,276**	**195,003**	**272,279**	
1	**03**	**02**	**09**	**01**			**Controls - Vacuum Instrumentation & Interlocks**					**845**	**54,110**	**77,276**	**60,603**	**137,879**	
1	03	02	09	01		LN02090000	Receive System Requirements		PED	SL_CP	Hrs	8		728		728	15%
1	03	02	09	01		LN02090000	Receive System Requirements		PED	SL_CE	Hrs	8		900		900	15%
1	03	02	09	01		LN02090005	Review & Accept Requirements		PED	SL_CE	Hrs	1		113		113	15%
1	03	02	09	01		LN02090010	Perform Engineering Design & Analysis		CON	SL_CE	Hrs	120		13,501		13,501	15%
1	03	02	09	01		LN02090015	Perform Design & Coordination		CON	SL_CCA	Hrs	200		13,106		13,106	15%
1	03	02	09	01		LN02090020	Develop Software Design		PED	SL_CP	Hrs	40		3,639		3,639	15%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	09	01		LN02090025	Conduct Engineering Review		PED	SL_CE	Hrs	16		1,800		1,800	15%
1	03	02	09	01		LN02090030	Update Component Data Base		PED	SL_CCA	Hrs	8		524		524	15%
1	03	02	09	01		LN02090035	Prepare for Prelim Design Review (PDR)		PED	SL_CP	Hrs	8		728		728	15%
1	03	02	09	01		LN02090035	Prepare for Prelim Design Review (PDR)		PED	SL_CE	Hrs	24		2,700		2,700	15%
1	03	02	09	01		LN02090040	Conduct Prelim Design Review (PDR) - Vac Cntrls		PED	SL_CP	Hrs	8		728		728	15%
1	03	02	09	01		LN02090040	Conduct Prelim Design Review (PDR) - Vac Cntrls		PED	SL_CE	Hrs	8		900		900	15%
1	03	02	09	01		LN02090045	Generate Detailed Procurement Plan		CON	SL_CE	Hrs	8		900		900	15%
1	03	02	09	01		LN02090050	Establish Subordinate Work Orders		CON	SL_CE	Hrs	8		900		900	15%
1	03	02	09	01		LN02090055	Prepare for Final Design Review (FDR)		PED	SL_CP	Hrs	8		728		728	15%
1	03	02	09	01		LN02090055	Prepare for Final Design Review (FDR)		PED	SL_CE	Hrs	12		1,350		1,350	15%
1	03	02	09	01		LN02090060	Conduct Final Design Review (FDR) - Vac Cntrls		PED	SL_CP	Hrs	8		728		728	15%
1	03	02	09	01		LN02090060	Conduct Final Design Review (FDR) - Vac Cntrls		PED	SL_CE	Hrs	8		900		900	15%
1	03	02	09	01		LN02090195	Procure VME Cable - SAM (8)		CON	SL_MSEG	$$		1,600		1,792	1,792	15%
1	03	02	09	01		LN02090190	Procure VME Cable - IDOM (16)		CON	SL_MSEG	$$		3,600		4,032	4,032	15%
1	03	02	09	01		LN02090185	Procure VME Cable - IDIM (16)		CON	SL_MSEG	$$		3,600		4,032	4,032	15%
1	03	02	09	01		LN02090180	Procure Valve Gas Panel & Pneu lines(4)		CON	SL_MSEG	$$		4,800		5,376	5,376	15%
1	03	02	09	01		LN02090175	Procure HV Cable (Type-C) (20)		CON	SL_MSEG	$$		4,300		4,816	4,816	15%
1	03	02	09	01		LN02090170	Procure 9C16, Valve cable (18)		CON	SL_MSEG	$$		1,102		1,234	1,234	15%
1	03	02	09	01		LN02090165	Procure Vacuum Interlock Chassis (4)		CON	SL_MSEG	$$		8,000		8,960	8,960	15%
1	03	02	09	01		LN02090160	Procure 16 Channel Interface Chassis (4)		CON	SL_MSEG	$$		4,000		4,480	4,480	15%
1	03	02	09	01		LN02090155	Procure VME Module - VMIVME-2536 Digital I/O (4		CON	SL_MSEG	$$		8,000		8,960	8,960	15%
1	03	02	09	01		LN02090150	Procure VME Module - VMIC 3122 (SAM) (4ea)		CON	SL_MSEG	$$		15,108		16,921	16,921	15%
1	03	02	09	01		LN02090118	Prep Bid Pak - Vacuum Gauge Chassis (4)		CON	SL_CE	Hrs	8		925		925	15%
1	03	02	09	01		LN02090098	Prep Bid Pak - Vacuum Gauge Chassis (4)		CON	SL_CE	Hrs	8		925		925	15%
1	03	02	09	01		LN02090078	Prep Bid Pak - Vacuum Valve Chassis (4)		CON	SL_CE	Hrs	8		925		925	15%
1	03	02	09	01		LN02090126	Evaluate Vendor Proposals - Vacuum Gauge Chassis		CON	SL_CE	Hrs	8		925		925	15%
1	03	02	09	01		LN02090106	Evaluate Vendor Proposals - Vacuum Gauge Chassis		CON	SL_CE	Hrs	8		925		925	15%
1	03	02	09	01		LN02090086	Evaluate Vendor Proposals - Vac Valve Chassis		CON	SL_CE	Hrs	8		925		925	15%
1	03	02	09	01		LN02090205	Wire Vacuum Valve Local/Remote Box in Lab (4)		CON	SL_CT	Hrs	40		2,534		2,534	15%
1	03	02	09	01		LN02090210	Perform Quality Control		CON	SL_CT	Hrs	8		507		507	15%
1	03	02	09	01		LN02090215	Write Software - Vac Controls		CON	SL_CP	Hrs	160		14,963		14,963	15%
1	03	02	09	01		LN02090220	Write Documentation - Vac Controls		CON	SL_CP	Hrs	20		1,870		1,870	15%
1	03	02	09	01		LN02090220	Write Documentation - Vac Controls		CON	SL_CE	Hrs	20		2,313		2,313	15%
1	03	02	09	01		LN02090225	Perform Point to Point Checkout		CON	SL_CP	Hrs	40		3,741		3,741	15%
1	03	02	09	01		LN02090230	Perform Pre-Installation Functional Testing		CON	SL_CE	Hrs	8		925		925	15%
1	**03**	**02**	**09**	**02**			**Controls - Vacuum Pump Power Supplies**					**-**	**120,000**	**-**	**134,400**	**134,400**	
1	03	02	09	02		LN02090130	Vendor Fab & Assy Vacuum Pump 4 Ch. Chassis (4)		CON	SL_MSEG	$$		40,000		44,800	44,800	15%
1	03	02	09	02		LN02090110	Vendor Fab & Assy - Vacuum Gauge Chassis (4)		CON	SL_MSEG	$$		40,000		44,800	44,800	15%
1	03	02	09	02		LN02090090	Vendor Fab & Assy - Vacuum Valve Chassis (4)		CON	SL_MSEG	$$		40,000		44,800	44,800	15%
1	**03**	**02**	**10**				**Software & Controls Infrastructure**					**1,548**	**447,875**	**137,177**	**501,114**	**638,291**	
1	**03**	**02**	**10**	**01**			**Reserved**										
1	**03**	**02**	**10**	**02**			**Reserved**										
1	**03**	**02**	**10**	**03**			**Reserved**										
1	**03**	**02**	**10**	**04**			**Data Communications**					**372**	**46,275**	**25,456**	**51,322**	**76,778**	
1	03	02	10	04		LN02100400	Supervise Equipment Installation		CON	SL_CCA	Hrs	135		8,847		8,847	55%
1	03	02	10	04		LN02100410	SEM Install Wall Board		CON	SL_TMUC	Hrs	3		224		224	55%
1	03	02	10	04		LN02100415	SEM Install Two 20 A Circuits		CON	SL_TMUE	Hrs	24		2,311		2,311	55%
1	03	02	10	04		LN02100425	Procure Singlemode Fiber		CON	SL_MSEG	$$		16,875		18,394	18,394	55%
1	03	02	10	04		LN02100430	Fiber Cabling Installation		CON	SL_CCA	Hrs	96		6,396		6,396	55%
1	03	02	10	04		LN02100435	Fiber Termination		CON	SL_MSEG	$$		5,400		6,048	6,048	55%
1	03	02	10	04		LN02100445	Cabling Installation in Ground & Sub Ground Loc		CON	SL_CCA	Hrs	48		3,233		3,233	55%
1	03	02	10	04		LN02100450	Cable Termination		CON	SL_CCA	Hrs	48		3,233		3,233	55%
1	03	02	10	04		LN02100465	Procure Cisco 3550-24 Hubs (6ea)		CON	SL_MSEG	$$		24,000		26,880	26,880	55%
1	03	02	10	04		LN02100470	Hub Installation & Data Circuit Activiation		CON	SL_CCA	Hrs	18		1,212		1,212	55%
1	**03**	**02**	**10**	**05**			**Computers**					**1,176**	**401,600**	**111,721**	**449,792**	**561,513**	
1	03	02	10	05		LN02100504	Design VME Crates, Control & Support Modules		PED	SL_CCA	Hrs	120		7,864		7,864	55%
1	03	02	10	05		LN02100502	Provide Hardware Engineer & Systems Integ Sup		PED	SL_CE	Hrs	712		81,378		81,378	55%
1	03	02	10	05		LN02100550	Prep Bid Pak -VME Crates/Cntrl/Supt Chassis		CON	SL_CCA	Hrs	16		1,048		1,048	55%
1	03	02	10	05		LN02100530	Prep Bid Pak - VME Crates for BPMs		CON	SL_CCA	Hrs	16		1,048		1,048	55%
1	03	02	10	05		LN02100510	Prep Bid Pak - VME Crates/IOCs/Interface Chassis		CON	SL_CCA	Hrs	16		1,048		1,048	55%
1	03	02	10	05		LN02100558	Evaluate Vendors Proposals		CON	SL_CCA	Hrs	16		1,048		1,048	55%
1	03	02	10	05		LN02100538	Evaluate Vendors Proposals		CON	SL_CCA	Hrs	16		1,048		1,048	55%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	02	10	05		LN02100518	Evaluate Vendors Proposals		CON	SL_CCA	Hrs	16		1,048		1,048	55%
1	03	02	10	05		LN02100630	Procure VME System I/O Distribution Cableplant		CON	SL_MSEG	$$		4,500		5,040	5,040	55%
1	03	02	10	05		LN02100620	Procure Cableplant		CON	SL_MSEG	$$		1,200		1,344	1,344	55%
1	03	02	10	05		LN02100562	Vendor Fab & Assy -VME Crates/Cntrl/Supt Chassis		CON	SL_MSEG	$$		47,900		53,648	53,648	55%
1	03	02	10	05		LN02100542	Vendor Fab & Assy - VME Crates for BPMs		CON	SL_MSEG	$$		273,000		305,760	305,760	55%
1	03	02	10	05		LN02100522	Vendor Fab/Assy VME Crates/IOCs/Interface Chssis		CON	SL_MSEG	$$		75,000		84,000	84,000	55%
1	03	02	10	05		LN02100640	Assemble and Integrate Equipment		CON	SL_CCA	Hrs	120		8,083		8,083	55%
1	03	02	10	05		LN02100645	Conduct Pre-Install Testing		CON	SL_CT	Hrs	128		8,108		8,108	55%
1	**03**	**03**					**Linac Magnets & Supports**					**17,146**	**1,274,200**	**1,493,034**	**1,438,810**	**2,931,844**	
1	**03**	**03**	**01**				**Bend Magnet (BX1_BC1)**					**941**	**157,500**	**77,898**	**173,400**	**251,298**	
1	03	03	01			LN03010000	Define Magnet Requirements		CON	SL_ME	Hrs	50		5,286		5,286	25%
1	03	03	01			LN03010005	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	40		4,228		4,228	25%
1	03	03	01			LN03010010	Review/Accept Reqmts, Update ICD & DB entries		CON	SL_ME	Hrs	8		846		846	25%
1	03	03	01			LN03010015	Develop Preliminary Design - Magnet		CON	SL_ME	Hrs	120		12,685		12,685	25%
1	03	03	01			LN03010015	Develop Preliminary Design - Magnet		CON	SL_MDD	Hrs	40		2,510		2,510	25%
1	03	03	01			LN03010025	Develop Preliminary Dsn - Magnet Field Analysis		CON	SL_PHS	Hrs	40		2,912		2,912	25%
1	03	03	01			LN03010030	Conduct Preliminary Design Review (PDR)		CON	SL_ME	Hrs	8		846		846	25%
1	03	03	01			LN03010030	Conduct Preliminary Design Review (PDR)		CON	SL_MDD	Hrs	4		251		251	25%
1	03	03	01			LN03010040	Develop Final Design - Magnets		CON	SL_ME	Hrs	40		4,228		4,228	25%
1	03	03	01			LN03010040	Develop Final Design - Magnets		CON	SL_MDD	Hrs	200		12,548		12,548	25%
1	03	03	01			LN03010050	Conduct Final Design Review (FDR)		CON	SL_ME	Hrs	8		846		846	25%
1	03	03	01			LN03010050	Conduct Final Design Review (FDR)		CON	SL_MDD	Hrs	8		502		502	25%
1	03	03	01			LN03010060	Develop Magnetic Measurement Plan		CON	SL_ME	Hrs	30		3,171		3,171	25%
1	03	03	01			LN03010070	Prep Bid Pak - Magnets		CON	SL_ME	Hrs	8		846		846	25%
1	03	03	01			LN03010070	Prep Bid Pak - Magnets		CON	SL_MDD	Hrs	4		251		251	25%
1	03	03	01			LN03010095	Evaluate Vendor Proposals - Magnets		CON	SL_ME	Hrs	8		846		846	25%
1	03	03	01			LN03010105	Vendor Fab 1st Lot - Magnets		CON	SL_MSEG	$$		100,000		109,000	109,000	25%
1	03	03	01			LN03010245	Define Magnet Support Requirements		CON	SL_ME	Hrs	8		869		869	25%
1	03	03	01			LN03010235	Perform Magnet Pre-Instlation Qual		CON	SL_ME	Hrs	8		869		869	25%
1	03	03	01			LN03010250	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	4		435		435	25%
1	03	03	01			LN03010255	Review/Accept Reqmts, Update ICD & DB entries		CON	SL_ME	Hrs	4		435		435	25%
1	03	03	01			LN03010260	Develop Preliminary Design - Magnet Supports		CON	SL_ME	Hrs	8		869		869	25%
1	03	03	01			LN03010260	Develop Preliminary Design - Magnet Supports		CON	SL_MDD	Hrs	75		4,837		4,837	25%
1	03	03	01			LN03010270	Conduct Preliminary Design Review (PDR)		CON	SL_ME	Hrs	4		435		435	25%
1	03	03	01			LN03010270	Conduct Preliminary Design Review (PDR)		CON	SL_MDD	Hrs	4		258		258	25%
1	03	03	01			LN03010280	Develop Final Design - Magnet Supports		CON	SL_ME	Hrs	8		869		869	25%
1	03	03	01			LN03010280	Develop Final Design - Magnet Supports		CON	SL_MDD	Hrs	100		6,449		6,449	25%
1	03	03	01			LN03010290	Conduct Final Design Review (FDR)		CON	SL_ME	Hrs	4		435		435	25%
1	03	03	01			LN03010290	Conduct Final Design Review (FDR)		CON	SL_MDD	Hrs	4		258		258	25%
1	03	03	01			LN03010360	Procure Misc Materials - Magnet Supports		CON	SL_MSEG	$$		7,500		8,400	8,400	25%
1	03	03	01			LN03010305	Prep Bid Pak - Magnet Supports		CON	SL_ME	Hrs	2		217		217	25%
1	03	03	01			LN03010305	Prep Bid Pak - Magnet Supports		CON	SL_MDD	Hrs	4		258		258	25%
1	03	03	01			LN03010330	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	4		435		435	25%
1	03	03	01			LN03010340	Vendor Fab 1st Lot - Supts		CON	SL_MSEG	$$		50,000		56,000	56,000	25%
1	03	03	01			LN03010385	Assemble Magnet Supports		CON	SL_MFAT	Hrs	80		6,733		6,733	25%
1	03	03	01			LN03010395	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	4		435		435	25%
1	**03**	**03**	**02**				**Bend Magnet (BX3_LTU)**					**1,942**	**30,000**	**169,673**	**34,500**	**204,173**	
1	03	03	02			LN03020000	Define Magnet Requirements		PED	SL_ME	Hrs	25		2,643		2,643	15%
1	03	03	02			LN03020245	Define Magnet Support Requirements		PED	SL_ME	Hrs	8		846		846	15%
1	03	03	02			LN03020005	Create ICD & Update LCLS Database		PED	SL_ME	Hrs	40		4,323		4,323	15%
1	03	03	02			LN03020250	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	4		435		435	15%
1	03	03	02			LN03020260	Develop Preliminary Design - Magnet Supports		PED	SL_ME	Hrs	10		1,087		1,087	15%
1	03	03	02			LN03020260	Develop Preliminary Design - Magnet Supports		PED	SL_MDD	Hrs	50		3,225		3,225	15%
1	03	03	02			LN03020605	Develop Magnet Safety Cover Design		CON	SL_ME	Hrs	16		1,739		1,739	15%
1	03	03	02			LN03020605	Develop Magnet Safety Cover Design		CON	SL_MDD	Hrs	160		10,318		10,318	15%
1	03	03	02			LN03020270	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	8		869		869	15%
1	03	03	02			LN03020270	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	8		516		516	15%
1	03	03	02			LN03020280	Develop Final Design - Magnet Supports		PED	SL_ME	Hrs	10		1,087		1,087	15%
1	03	03	02			LN03020280	Develop Final Design - Magnet Supports		PED	SL_MDD	Hrs	30		1,935		1,935	15%
1	03	03	02			LN03020015	Develop Preliminary Design - Magnet		PED	SL_ME	Hrs	40		4,347		4,347	15%
1	03	03	02			LN03020015	Develop Preliminary Design - Magnet		PED	SL_MDD	Hrs	20		1,290		1,290	15%
1	03	03	02			LN03020290	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	8		869		869	15%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	03	02			LN03020290	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	8		516		516	15%
1	03	03	02			LN03020025	Develop Preliminary Dsn - Magnet Field Analysis		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	03	03	02			LN03020030	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	8		869		869	15%
1	03	03	02			LN03020030	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	4		258		258	15%
1	03	03	02			LN03020040	Develop Final Design - Magnets		PED	SL_ME	Hrs	10		1,087		1,087	15%
1	03	03	02			LN03020040	Develop Final Design - Magnets		PED	SL_MDD	Hrs	40		2,580		2,580	15%
1	03	03	02			LN03020050	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	8		869		869	15%
1	03	03	02			LN03020050	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	8		516		516	15%
1	03	03	02			LN03020060	Develop Magnetic Measurement Plan		CON	SL_ME	Hrs	4		435		435	15%
1	03	03	02			LN03020635	Refurbish Reusable Safety Covers (5ea)		CON	SL_MFAT	Hrs	625		53,969		53,969	15%
1	03	03	02			LN03020305	Prep Bid Pak - Magnet Supports		CON	SL_ME	Hrs	2		223		223	15%
1	03	03	02			LN03020305	Prep Bid Pak - Magnet Supports		CON	SL_MDD	Hrs	4		265		265	15%
1	03	03	02			LN03020130	Procure Misc Materials - Magnets		CON	SL_MSEG	$$		10,000		11,500	11,500	15%
1	03	03	02			LN03020135	Disassemble Magnet		CON	SL_MFMS	Hrs	75		7,941		7,941	15%
1	03	03	02			LN03020135	Disassemble Magnet		CON	SL_MFAT	Hrs	75		6,476		6,476	15%
1	03	03	02			LN03020330	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	4		446		446	15%
1	03	03	02			LN03020340	Vendor Fab 1st Lot - Supts		CON	SL_MSEG	$$		15,000		17,250	17,250	15%
1	03	03	02			LN03020145	Refurbish Magnet Coils		CON	SL_MFMS	Hrs	100		10,588		10,588	15%
1	03	03	02			LN03020150	Assemble Magnets		CON	SL_MFAT	Hrs	150		12,953		12,953	15%
1	03	03	02			LN03020160	Prep for and Paint Magnets (as required)		CON	SL_MFAT	Hrs	100		8,635		8,635	15%
1	03	03	02			LN03020360	Procure Misc Materials - Magnet Supports		CON	SL_MSEG	$$		5,000		5,750	5,750	15%
1	03	03	02			LN03020175	Perform Magnetic Measurement (as required)		CON	SL_MES	Hrs	80		7,622		7,622	15%
1	03	03	02			LN03020365	Fabricate Magnet Supports		CON	SL_MFMS	Hrs	24		2,541		2,541	15%
1	03	03	02			LN03020380	Perform QC & Inspection on Magnets Supts		CON	SL_MES	Hrs	24		2,287		2,287	15%
1	03	03	02			LN03020385	Assemble Magnet Supports		CON	SL_MFAT	Hrs	96		8,290		8,290	15%
1	03	03	02			LN03020235	Perform Magnet Pre-Instlation Qual		CON	SL_ME	Hrs	8		892		892	15%
1	03	03	02			LN03020395	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	8		892		892	15%
1	**03**	**03**	**03**				**Bend Magnet (BX2_BC2)**					**953**	**260,000**	**78,528**	**291,156**	**369,684**	
1	03	03	03			LN03030000	Define Magnet Requirements		CON	SL_ME	Hrs	50		5,286		5,286	25%
1	03	03	03			LN03030245	Define Magnet Support Requirements		CON	SL_ME	Hrs	8		846		846	25%
1	03	03	03			LN03030005	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	40		4,228		4,228	25%
1	03	03	03			LN03030250	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	4		423		423	25%
1	03	03	03			LN03030260	Develop Preliminary Design - Magnet Supports		CON	SL_ME	Hrs	6		634		634	25%
1	03	03	03			LN03030260	Develop Preliminary Design - Magnet Supports		CON	SL_MDD	Hrs	69		4,329		4,329	25%
1	03	03	03			LN03030270	Conduct Preliminary Design Review (PDR)		CON	SL_ME	Hrs	4		423		423	25%
1	03	03	03			LN03030270	Conduct Preliminary Design Review (PDR)		CON	SL_MDD	Hrs	4		251		251	25%
1	03	03	03			LN03030280	Develop Final Design - Magnet Supports		CON	SL_ME	Hrs	10		1,057		1,057	25%
1	03	03	03			LN03030280	Develop Final Design - Magnet Supports		CON	SL_MDD	Hrs	90		5,647		5,647	25%
1	03	03	03			LN03030015	Develop Preliminary Design - Magnet		CON	SL_ME	Hrs	120		12,685		12,685	25%
1	03	03	03			LN03030015	Develop Preliminary Design - Magnet		CON	SL_MDD	Hrs	40		2,510		2,510	25%
1	03	03	03			LN03030290	Conduct Final Design Review (FDR)		CON	SL_ME	Hrs	4		423		423	25%
1	03	03	03			LN03030290	Conduct Final Design Review (FDR)		CON	SL_MDD	Hrs	4		251		251	25%
1	03	03	03			LN03030305	Prep Bid Pak - Magnet Supports		CON	SL_ME	Hrs	2		211		211	25%
1	03	03	03			LN03030305	Prep Bid Pak - Magnet Supports		CON	SL_MDD	Hrs	4		251		251	25%
1	03	03	03			LN03030025	Develop Preliminary Dsn - Magnet Field Analysis		CON	SL_PHS	Hrs	40		2,912		2,912	25%
1	03	03	03			LN03030330	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	4		423		423	25%
1	03	03	03			LN03030030	Conduct Preliminary Design Review (PDR)		CON	SL_ME	Hrs	8		846		846	25%
1	03	03	03			LN03030030	Conduct Preliminary Design Review (PDR)		CON	SL_MDD	Hrs	4		251		251	25%
1	03	03	03			LN03030040	Develop Final Design - Magnets		CON	SL_ME	Hrs	40		4,228		4,228	25%
1	03	03	03			LN03030040	Develop Final Design - Magnets		CON	SL_MDD	Hrs	200		12,548		12,548	25%
1	03	03	03			LN03030050	Conduct Final Design Review (FDR)		CON	SL_ME	Hrs	8		846		846	25%
1	03	03	03			LN03030050	Conduct Final Design Review (FDR)		CON	SL_MDD	Hrs	8		502		502	25%
1	03	03	03			LN03030060	Develop Magnetic Measurement Plan		CON	SL_ME	Hrs	30		3,171		3,171	25%
1	03	03	03			LN03030070	Prep Bid Pak - Magnets		CON	SL_ME	Hrs	8		846		846	25%
1	03	03	03			LN03030070	Prep Bid Pak - Magnets		CON	SL_MDD	Hrs	4		251		251	25%
1	03	03	03			LN03030095	Evaluate Vendor Proposals - Magnets		CON	SL_ME	Hrs	8		846		846	25%
1	03	03	03			LN03030105	Vendor Fab 1st Lot - Magnets		CON	SL_MSEG	$$		175,000		195,956	195,956	25%
1	03	03	03			LN03030235	Perform Magnet Pre-Instlation Qual		CON	SL_ME	Hrs	8		869		869	25%
1	03	03	03			LN03030360	Procure Misc Materials - Magnet Supports		CON	SL_MSEG	$$		10,000		11,200	11,200	25%
1	03	03	03			LN03030340	Vendor Fab 1st Lot - Supts		CON	SL_MSEG	$$		75,000		84,000	84,000	25%
1	03	03	03			LN03030385	Assemble Magnet Supports		CON	SL_MFAT	Hrs	120		10,099		10,099	25%
1	03	03	03			LN03030395	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	4		435		435	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	**03**	**03**	**04**				**Bend Magnet (BY_LTU)**					**1,352**	**116,000**	**113,274**	**133,130**	**246,404**	
1	03	03	04			LN03040000	Define Magnet Requirements		PED	SL_ME	Hrs	100		10,784		10,784	25%
1	03	03	04			LN03040605	Develop Magnet Safety Cover Design		CON	SL_ME	Hrs	16		1,739		1,739	25%
1	03	03	04			LN03040605	Develop Magnet Safety Cover Design		CON	SL_MDD	Hrs	160		10,318		10,318	25%
1	03	03	04			LN03040245	Define Magnet Support Requirements		PED	SL_ME	Hrs	8		869		869	25%
1	03	03	04			LN03040005	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	40		4,347		4,347	25%
1	03	03	04			LN03040250	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	4		435		435	25%
1	03	03	04			LN03040260	Develop Preliminary Design - Magnet Supports		PED	SL_ME	Hrs	24		2,608		2,608	25%
1	03	03	04			LN03040260	Develop Preliminary Design - Magnet Supports		PED	SL_MDD	Hrs	80		5,159		5,159	25%
1	03	03	04			LN03040270	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	8		869		869	25%
1	03	03	04			LN03040270	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	8		516		516	25%
1	03	03	04			LN03040280	Develop Final Design - Magnet Supports		PED	SL_ME	Hrs	16		1,739		1,739	25%
1	03	03	04			LN03040280	Develop Final Design - Magnet Supports		PED	SL_MDD	Hrs	60		3,869		3,869	25%
1	03	03	04			LN03040015	Develop Preliminary Design - Magnet		PED	SL_ME	Hrs	150		16,301		16,301	25%
1	03	03	04			LN03040015	Develop Preliminary Design - Magnet		PED	SL_MDD	Hrs	40		2,580		2,580	25%
1	03	03	04			LN03040290	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	8		869		869	25%
1	03	03	04			LN03040290	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	8		516		516	25%
1	03	03	04			LN03040025	Develop Preliminary Dsn - Magnet Field Analysis		CON	SL_PHS	Hrs	60		4,491		4,491	25%
1	03	03	04			LN03040030	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	8		869		869	25%
1	03	03	04			LN03040030	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	4		258		258	25%
1	03	03	04			LN03040040	Develop Final Design - Magnets		PED	SL_ME	Hrs	40		4,347		4,347	25%
1	03	03	04			LN03040040	Develop Final Design - Magnets		PED	SL_MDD	Hrs	300		19,347		19,347	25%
1	03	03	04			LN03040615	Procure Magnet Safety Cover (2ea)		CON	SL_MSEG	$$		7,000		7,840	7,840	25%
1	03	03	04			LN03040050	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	8		869		869	25%
1	03	03	04			LN03040050	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	8		516		516	25%
1	03	03	04			LN03040060	Develop Magnetic Measurement Plan		CON	SL_ME	Hrs	40		4,347		4,347	25%
1	03	03	04			LN03040360	Procure Misc Materials - Magnet Supports		CON	SL_MSEG	$$		2,000		2,240	2,240	25%
1	03	03	04			LN03040365	Fabricate Magnet Supports		CON	SL_MFMS	Hrs	24		2,477		2,477	25%
1	03	03	04			LN03040305	Prep Bid Pak - Magnet Supports		CON	SL_ME	Hrs	2		223		223	25%
1	03	03	04			LN03040305	Prep Bid Pak - Magnet Supports		CON	SL_MDD	Hrs	4		265		265	25%
1	03	03	04			LN03040070	Prep Bid Pak - Magnets		CON	SL_ME	Hrs	8		892		892	25%
1	03	03	04			LN03040070	Prep Bid Pak - Magnets		CON	SL_MDD	Hrs	4		265		265	25%
1	03	03	04			LN03040330	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	4		446		446	25%
1	03	03	04			LN03040095	Evaluate Vendor Proposals - Magnets		CON	SL_ME	Hrs	8		892		892	25%
1	03	03	04			LN03040105	Vendor Fab 1st Lot - Magnets		CON	SL_MSEG	$$		100,000		115,000	115,000	25%
1	03	03	04			LN03040340	Vendor Fab 1st Lot - Supts		CON	SL_MSEG	$$		7,000		8,050	8,050	25%
1	03	03	04			LN03040235	Perform Magnet Pre-Instlation Qual		CON	SL_ME	Hrs	8		892		892	25%
1	03	03	04			LN03040380	Perform QC & Inspection on Magnets Supts		CON	SL_MES	Hrs	24		2,287		2,287	25%
1	03	03	04			LN03040385	Assemble Magnet Supports		CON	SL_MFAT	Hrs	60		5,181		5,181	25%
1	03	03	04			LN03040395	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	8		892		892	25%
1	**03**	**03**	**05**				**Quad Magnet (Quad_LTU)**					**3,392**	**306,000**	**295,346**	**344,621**	**639,967**	
1	03	03	05			LN03050000	Define Magnet Requirements		PED	SL_ME	Hrs	50		5,434		5,434	15%
1	03	03	05			LN03050605	Develop Magnet Safety Cover Design		PED	SL_ME	Hrs	16		1,739		1,739	15%
1	03	03	05			LN03050605	Develop Magnet Safety Cover Design		PED	SL_MDD	Hrs	160		10,318		10,318	15%
1	03	03	05			LN03050245	Define Magnet Support Requirements		PED	SL_ME	Hrs	8		869		869	15%
1	03	03	05			LN03050005	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	40		4,347		4,347	15%
1	03	03	05			LN03050250	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	8		869		869	15%
1	03	03	05			LN03050260	Develop Preliminary Design - Magnet Supports		PED	SL_ME	Hrs	24		2,608		2,608	15%
1	03	03	05			LN03050260	Develop Preliminary Design - Magnet Supports		PED	SL_MDD	Hrs	80		5,159		5,159	15%
1	03	03	05			LN03050270	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	8		869		869	15%
1	03	03	05			LN03050270	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	8		516		516	15%
1	03	03	05			LN03050015	Develop Preliminary Design - Magnet		PED	SL_ME	Hrs	8		869		869	15%
1	03	03	05			LN03050015	Develop Preliminary Design - Magnet		PED	SL_MDD	Hrs	32		2,064		2,064	15%
1	03	03	05			LN03050280	Develop Final Design - Magnet Supports		PED	SL_ME	Hrs	16		1,739		1,739	15%
1	03	03	05			LN03050280	Develop Final Design - Magnet Supports		PED	SL_MDD	Hrs	60		3,869		3,869	15%
1	03	03	05			LN03050025	Develop Preliminary Dsn - Magnet Field Analysis		PED	SL_PHS	Hrs	8		599		599	15%
1	03	03	05			LN03050030	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	8		869		869	15%
1	03	03	05			LN03050030	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	4		258		258	15%
1	03	03	05			LN03050040	Develop Final Design - Magnets		PED	SL_ME	Hrs	40		4,347		4,347	15%
1	03	03	05			LN03050040	Develop Final Design - Magnets		PED	SL_MDD	Hrs	200		12,898		12,898	15%
1	03	03	05			LN03050290	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	8		869		869	15%
1	03	03	05			LN03050290	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	8		516		516	15%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	03	05			LN03050360	Procure Misc Materials - Magnet Supports		CON	SL_MSEG	$$		15,000		16,800	16,800	15%
1	03	03	05			LN03050050	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	8		869		869	15%
1	03	03	05			LN03050050	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	8		516		516	15%
1	03	03	05			LN03050060	Develop Magnetic Measurement Plan		CON	SL_ME	Hrs	8		869		869	15%
1	03	03	05			LN03050135	Disassemble Magnet		CON	SL_MFMS	Hrs	75		7,740		7,740	15%
1	03	03	05			LN03050135	Disassemble Magnet		CON	SL_MFAT	Hrs	75		6,312		6,312	15%
1	03	03	05			LN03050070	Prep Bid Pak - Magnets		CON	SL_ME	Hrs	8		869		869	15%
1	03	03	05			LN03050070	Prep Bid Pak - Magnets		CON	SL_MDD	Hrs	4		258		258	15%
1	03	03	05			LN03050095	Evaluate Vendor Proposals - Magnets		CON	SL_ME	Hrs	8		869		869	15%
1	03	03	05			LN03050105	Vendor Fab 1st Lot - Magnets		CON	SL_MSEG	$$		190,000		213,133	213,133	15%
1	03	03	05			LN03050615	Prep Bid Pak - Magnet Safety Covers		CON	SL_ME	Hrs	8		869		869	15%
1	03	03	05			LN03050365	Fabricate Magnet Supports		CON	SL_MFMS	Hrs	120		12,384		12,384	15%
1	03	03	05			LN03050635	Evaluate Vendor Proposals		CON	SL_ME	Hrs	8		869		869	15%
1	03	03	05			LN03050705	Vendor Fab & Assy - Magnet Safety Cover (15ea)		CON	SL_MSEG	$$		56,000		62,938	62,938	15%
1	03	03	05			LN03050145	Refurbish Magnet Coils		CON	SL_MFMS	Hrs	200		20,640		20,640	15%
1	03	03	05			LN03050380	Perform QC & Inspection on Magnets Supts		CON	SL_MES	Hrs	120		11,144		11,144	15%
1	03	03	05			LN03050150	Assemble Magnets		CON	SL_MFAT	Hrs	200		16,832		16,832	15%
1	03	03	05			LN03050385	Assemble Magnet Supports		CON	SL_MFAT	Hrs	250		21,164		21,164	15%
1	03	03	05			LN03050160	Prep for and Paint Magnets (as required)		CON	SL_MFAT	Hrs	100		8,434		8,434	15%
1	03	03	05			LN03050305	Prep Bid Pak - Magnet Supports		CON	SL_ME	Hrs	8		892		892	15%
1	03	03	05			LN03050305	Prep Bid Pak - Magnet Supports		CON	SL_MDD	Hrs	4		265		265	15%
1	03	03	05			LN03050175	Perform Magnetic Measurement (as required)		CON	SL_MES	Hrs	150		14,292		14,292	15%
1	03	03	05			LN03050330	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	4		446		446	15%
1	03	03	05			LN03050340	Vendor Fab 1st Lot - Supts		CON	SL_MSEG	$$		45,000		51,750	51,750	15%
1	03	03	05			LN03050725	Refurbish Reusable Safety Covers (25ea)		CON	SL_MFAT	Hrs	1,200		103,620		103,620	15%
1	03	03	05			LN03050395	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	24		2,676		2,676	15%
1	03	03	05			LN03050235	Perform Magnet Pre-Instlation Qual		CON	SL_ME	Hrs	8		892		892	15%
1	**03**	**03**	**06**				**Reserved**										
1	**03**	**03**	**07**				**Quad Magnet (QE)**					**1,310**	**15,000**	**119,167**	**16,800**	**135,967**	
1	03	03	07			LN03070000	Define Magnet Requirements		PED	SL_ME	Hrs	20		2,114		2,114	10%
1	03	03	07			LN03070005	Create ICD & Update LCLS Database		PED	SL_ME	Hrs	40		4,228		4,228	10%
1	03	03	07			LN03070015	Develop Preliminary Design - Magnet		PED	SL_ME	Hrs	2		211		211	10%
1	03	03	07			LN03070015	Develop Preliminary Design - Magnet		PED	SL_MDD	Hrs	14		878		878	10%
1	03	03	07			LN03070030	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	8		846		846	10%
1	03	03	07			LN03070030	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	4		251		251	10%
1	03	03	07			LN03070040	Develop Final Design - Magnets		PED	SL_ME	Hrs	2		211		211	10%
1	03	03	07			LN03070040	Develop Final Design - Magnets		PED	SL_MDD	Hrs	14		878		878	10%
1	03	03	07			LN03070050	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	8		846		846	10%
1	03	03	07			LN03070050	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	8		502		502	10%
1	03	03	07			LN03070060	Develop Magnetic Measurement Plan		PED	SL_ME	Hrs	60		6,343		6,343	10%
1	03	03	07			LN03070180	Procure Misc Materials - Magnets		CON	SL_MSEG	$$		15,000		16,800	16,800	10%
1	03	03	07			LN03070195	Fab Magnet Coils		CON	SL_MFAT	Hrs	600		50,496		50,496	10%
1	03	03	07			LN03070190	Fab Magnet Core		CON	SL_MFMS	Hrs	200		20,640		20,640	10%
1	03	03	07			LN03070185	Fab Tooling		CON	SL_MFMS	Hrs	100		10,320		10,320	10%
1	03	03	07			LN03070205	Prep for and Paint Magnets (as required)		CON	SL_MFAT	Hrs	30		2,525		2,525	10%
1	03	03	07			LN03070210	Assemble Magnets		CON	SL_MFAT	Hrs	80		6,733		6,733	10%
1	03	03	07			LN03070215	Perform Magnet Fiducialization (as required)		CON	SL_MES	Hrs	40		3,715		3,715	10%
1	03	03	07			LN03070220	Perform QC & Inspection - Magnets		CON	SL_MES	Hrs	40		3,715		3,715	10%
1	03	03	07			LN03070225	Perform Magnetic Measurement (as required)		CON	SL_MES	Hrs	40		3,715		3,715	10%
1	**03**	**03**	**08**				**Corrector Magnet (Type 4)**					**223**	**57,700**	**19,404**	**64,498**	**83,902**	
1	03	03	08			LN03080000	Define Magnet Requirements		PED	SL_ME	Hrs	10		1,057		1,057	0%
1	03	03	08			LN03080605	Develop Magnet Safety Cover Design		PED	SL_ME	Hrs	5		529		529	0%
1	03	03	08			LN03080605	Develop Magnet Safety Cover Design		PED	SL_MDD	Hrs	50		3,137		3,137	0%
1	03	03	08			LN03080005	Create ICD & Update LCLS Database		PED	SL_ME	Hrs	40		4,228		4,228	0%
1	03	03	08			LN03080015	Develop Preliminary Design - Magnet		PED	SL_ME	Hrs	2		211		211	0%
1	03	03	08			LN03080015	Develop Preliminary Design - Magnet		PED	SL_MDD	Hrs	6		376		376	0%
1	03	03	08			LN03080030	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	8		846		846	0%
1	03	03	08			LN03080030	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	4		251		251	0%
1	03	03	08			LN03080040	Develop Final Design - Magnets		PED	SL_ME	Hrs	2		211		211	0%
1	03	03	08			LN03080040	Develop Final Design - Magnets		PED	SL_MDD	Hrs	6		376		376	0%
1	03	03	08			LN03080050	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	8		846		846	0%
1	03	03	08			LN03080050	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	8		502		502	0%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	03	08			LN03080615	Procure Magnet Safety Cover (42ea)		CON	SL_MSEG	$$		4,200		4,578	4,578	0%
1	03	03	08			LN03080070	Prep Bid Pak - Magnets		CON	SL_ME	Hrs	8		846		846	0%
1	03	03	08			LN03080070	Prep Bid Pak - Magnets		CON	SL_MDD	Hrs	2		125		125	0%
1	03	03	08			LN03080095	Evaluate Vendor Proposals - Magnets		CON	SL_ME	Hrs	8		846		846	0%
1	03	03	08			LN03080130	Procure Misc Materials - Magnets		CON	SL_MSEG	$$		500		560	560	0%
1	03	03	08			LN03080105	Vendor Fab 1st Lot - Magnets		CON	SL_MSEG	$$		53,000		59,360	59,360	0%
1	03	03	08			LN03080135	Disassemble Magnet		CON	SL_MFAT	Hrs	20		1,683		1,683	0%
1	03	03	08			LN03080145	Refurbish Magnet Coils		CON	SL_MFMS	Hrs	16		1,651		1,651	0%
1	03	03	08			LN03080150	Assemble Magnets		CON	SL_MFAT	Hrs	20		1,683		1,683	0%
1	**03**	**03**	**09**				**Bend Magnet (BYD_LTU)**					**1,529**	**174,000**	**128,287**	**199,785**	**328,072**	
1	03	03	09			LN03090000	Define Magnet Requirements		PED	SL_ME	Hrs	100		10,867		10,867	25%
1	03	03	09			LN03090605	Develop Magnet Safety Cover Design		PED	SL_ME	Hrs	16		1,739		1,739	25%
1	03	03	09			LN03090605	Develop Magnet Safety Cover Design		PED	SL_MDD	Hrs	160		10,318		10,318	25%
1	03	03	09			LN03090245	Define Magnet Support Requirements		PED	SL_ME	Hrs	12		1,304		1,304	25%
1	03	03	09			LN03090005	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	40		4,347		4,347	25%
1	03	03	09			LN03090250	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	6		652		652	25%
1	03	03	09			LN03090260	Develop Preliminary Design - Magnet Supports		PED	SL_ME	Hrs	36		3,912		3,912	25%
1	03	03	09			LN03090260	Develop Preliminary Design - Magnet Supports		PED	SL_MDD	Hrs	120		7,739		7,739	25%
1	03	03	09			LN03090015	Develop Preliminary Design - Magnet		PED	SL_ME	Hrs	150		16,301		16,301	25%
1	03	03	09			LN03090015	Develop Preliminary Design - Magnet		PED	SL_MDD	Hrs	40		2,580		2,580	25%
1	03	03	09			LN03090270	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	12		1,304		1,304	25%
1	03	03	09			LN03090270	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	12		774		774	25%
1	03	03	09			LN03090280	Develop Final Design - Magnet Supports		PED	SL_ME	Hrs	24		2,608		2,608	25%
1	03	03	09			LN03090280	Develop Final Design - Magnet Supports		PED	SL_MDD	Hrs	90		5,804		5,804	25%
1	03	03	09			LN03090025	Develop Preliminary Dsn - Magnet Field Analysis		PED	SL_PHS	Hrs	60		4,491		4,491	25%
1	03	03	09			LN03090290	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	12		1,304		1,304	25%
1	03	03	09			LN03090290	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	12		774		774	25%
1	03	03	09			LN03090030	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	8		869		869	25%
1	03	03	09			LN03090030	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	4		258		258	25%
1	03	03	09			LN03090040	Develop Final Design - Magnets		PED	SL_ME	Hrs	40		4,347		4,347	25%
1	03	03	09			LN03090040	Develop Final Design - Magnets		PED	SL_MDD	Hrs	300		19,347		19,347	25%
1	03	03	09			LN03090615	Procure Magnet Safety Cover Material		CON	SL_MSEG	$$		10,500		11,760	11,760	25%
1	03	03	09			LN03090050	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	8		869		869	25%
1	03	03	09			LN03090050	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	8		516		516	25%
1	03	03	09			LN03090060	Develop Magnetic Measurement Plan		CON	SL_ME	Hrs	40		4,347		4,347	25%
1	03	03	09			LN03090305	Prep Bid Pak - Magnet Supports		CON	SL_ME	Hrs	3		334		334	25%
1	03	03	09			LN03090305	Prep Bid Pak - Magnet Supports		CON	SL_MDD	Hrs	6		397		397	25%
1	03	03	09			LN03090070	Prep Bid Pak - Magnets		CON	SL_ME	Hrs	8		892		892	25%
1	03	03	09			LN03090070	Prep Bid Pak - Magnets		CON	SL_MDD	Hrs	4		265		265	25%
1	03	03	09			LN03090330	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	4		446		446	25%
1	03	03	09			LN03090095	Evaluate Vendor Proposals - Magnets		CON	SL_ME	Hrs	8		892		892	25%
1	03	03	09			LN03090340	Vendor Fab 1st Lot - Supts		CON	SL_MSEG	$$		10,500		12,075	12,075	25%
1	03	03	09			LN03090105	Vendor Fab 1st Lot - Magnets		CON	SL_MSEG	$$		150,000		172,500	172,500	25%
1	03	03	09			LN03090360	Procure Misc Materials - Magnet Supports		CON	SL_MSEG	$$		3,000		3,450	3,450	25%
1	03	03	09			LN03090235	Perform Magnet Pre-Instlation Qual		CON	SL_ME	Hrs	12		1,338		1,338	25%
1	03	03	09			LN03090365	Fabricate Magnet Supports		CON	SL_MFMS	Hrs	36		3,812		3,812	25%
1	03	03	09			LN03090380	Perform QC & Inspection on Magnets Supts		CON	SL_MES	Hrs	36		3,430		3,430	25%
1	03	03	09			LN03090385	Assemble Magnet Supports		CON	SL_MFAT	Hrs	90		7,772		7,772	25%
1	03	03	09			LN03090395	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	12		1,338		1,338	25%
1	**03**	**03**	**10**				**Quad Magnet (QA)**					**268**	**6,000**	**22,840**	**6,720**	**29,560**	
1	03	03	10			LN03100000	Define Magnet Requirements		PED	SL_ME	Hrs	8		846		846	60%
1	03	03	10			LN03100245	Define Magnet Support Requirements		PED	SL_ME	Hrs	8		846		846	60%
1	03	03	10			LN03100005	Create ICD & Update LCLS Database		PED	SL_ME	Hrs	8		846		846	60%
1	03	03	10			LN03100250	Create ICD & Update LCLS Database		PED	SL_ME	Hrs	4		423		423	60%
1	03	03	10			LN03100260	Develop Preliminary Design - Magnet Supports		PED	SL_ME	Hrs	8		846		846	60%
1	03	03	10			LN03100260	Develop Preliminary Design - Magnet Supports		PED	SL_MDD	Hrs	40		2,510		2,510	60%
1	03	03	10			LN03100270	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	4		423		423	60%
1	03	03	10			LN03100270	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	4		251		251	60%
1	03	03	10			LN03100280	Develop Final Design - Magnet Supports		PED	SL_ME	Hrs	8		846		846	60%
1	03	03	10			LN03100280	Develop Final Design - Magnet Supports		PED	SL_MDD	Hrs	20		1,255		1,255	60%
1	03	03	10			LN03100290	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	4		423		423	60%
1	03	03	10			LN03100290	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	4		251		251	60%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	03	10			LN03100305	Prep Bid Pak - Magnet Supports		CON	SL_ME	Hrs	2		211		211	60%
1	03	03	10			LN03100305	Prep Bid Pak - Magnet Supports		CON	SL_MDD	Hrs	4		251		251	60%
1	03	03	10			LN03100330	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	4		423		423	60%
1	03	03	10			LN03100015	Develop Preliminary Design - Magnet		PED	SL_MDD	Hrs	4		251		251	60%
1	03	03	10			LN03100040	Develop Final Design - Magnets		PED	SL_ME	Hrs	2		211		211	60%
1	03	03	10			LN03100040	Develop Final Design - Magnets		PED	SL_MDD	Hrs	20		1,255		1,255	60%
1	03	03	10			LN03100050	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	8		846		846	60%
1	03	03	10			LN03100050	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	8		502		502	60%
1	03	03	10			LN03100060	Develop Magnetic Measurement Plan		PED	SL_ME	Hrs	8		846		846	60%
1	03	03	10			LN03100360	Procure Misc Materials - Magnet Supports		CON	SL_MSEG	$$		500		560	560	60%
1	03	03	10			LN03100130	Procure Misc Materials - Magnets		CON	SL_MSEG	$$		500		560	560	60%
1	03	03	10			LN03100340	Vendor Fab 1st Lot - Supts		CON	SL_MSEG	$$		5,000		5,600	5,600	60%
1	03	03	10			LN03100385	Assemble Magnet Supports		CON	SL_MFAT	Hrs	16		1,347		1,347	60%
1	03	03	10			LN03100135	Disassemble Magnet		CON	SL_MFMS	Hrs	8		826		826	60%
1	03	03	10			LN03100145	Refurbish Magnet Coils		CON	SL_MFMS	Hrs	4		413		413	60%
1	03	03	10			LN03100150	Assemble Magnets		CON	SL_MFAT	Hrs	8		673		673	60%
1	03	03	10			LN03100175	Perform Magnetic Measurement (as required)		CON	SL_MES	Hrs	40		3,715		3,715	60%
1	03	03	10			LN03100395	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	4		435		435	60%
1	03	03	10			LN03100235	Perform Magnet Pre-Instlation Qual		CON	SL_ME	Hrs	8		869		869	60%
1	**03**	**03**	**11**				**Bend Magnet (BYPM_LTU)**					**2,508**	**99,500**	**230,386**	**114,425**	**344,811**	
1	03	03	11			LN03110000	Define Magnet Requirements		PED	SL_ME	Hrs	100		10,867		10,867	35%
1	03	03	11			LN03110605	Develop Magnet Safety Cover Design		PED	SL_ME	Hrs	16		1,776		1,776	35%
1	03	03	11			LN03110605	Develop Magnet Safety Cover Design		PED	SL_MDD	Hrs	160		10,540		10,540	35%
1	03	03	11			LN03110245	Define Magnet Support Requirements		PED	SL_ME	Hrs	8		869		869	35%
1	03	03	11			LN03110005	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	40		4,381		4,381	35%
1	03	03	11			LN03110250	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	4		435		435	35%
1	03	03	11			LN03110260	Develop Preliminary Design - Magnet Supports		PED	SL_ME	Hrs	24		2,642		2,642	35%
1	03	03	11			LN03110260	Develop Preliminary Design - Magnet Supports		PED	SL_MDD	Hrs	80		5,226		5,226	35%
1	03	03	11			LN03110270	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	8		892		892	35%
1	03	03	11			LN03110270	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	8		529		529	35%
1	03	03	11			LN03110280	Develop Final Design - Magnet Supports		PED	SL_ME	Hrs	16		1,784		1,784	35%
1	03	03	11			LN03110280	Develop Final Design - Magnet Supports		PED	SL_MDD	Hrs	60		3,970		3,970	35%
1	03	03	11			LN03110015	Develop Preliminary Design - Magnet		PED	SL_ME	Hrs	150		16,724		16,724	35%
1	03	03	11			LN03110015	Develop Preliminary Design - Magnet		PED	SL_MDD	Hrs	40		2,647		2,647	35%
1	03	03	11			LN03110290	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	8		892		892	35%
1	03	03	11			LN03110290	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	8		529		529	35%
1	03	03	11			LN03110360	Procure Misc Materials - Magnet Supports		CON	SL_MSEG	$$		2,000		2,300	2,300	35%
1	03	03	11			LN03110305	Prep Bid Pak - Magnet Supports		CON	SL_ME	Hrs	2		223		223	35%
1	03	03	11			LN03110305	Prep Bid Pak - Magnet Supports		CON	SL_MDD	Hrs	4		265		265	35%
1	03	03	11			LN03110330	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	4		446		446	35%
1	03	03	11			LN03110340	Vendor Fab 1st Lot - Supts		CON	SL_MSEG	$$		7,000		8,050	8,050	35%
1	03	03	11			LN03110025	Develop Preliminary Dsn - Magnet Field Analysis		PED	SL_PHS	Hrs	60		4,608		4,608	35%
1	03	03	11			LN03110030	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	8		892		892	35%
1	03	03	11			LN03110030	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	4		265		265	35%
1	03	03	11			LN03110365	Fabricate Magnet Supports		CON	SL_MFMS	Hrs	24		2,541		2,541	35%
1	03	03	11			LN03110040	Develop Final Design - Magnets		PED	SL_ME	Hrs	40		4,460		4,460	35%
1	03	03	11			LN03110040	Develop Final Design - Magnets		PED	SL_MDD	Hrs	300		19,851		19,851	35%
1	03	03	11			LN03110615	Procure Magnet Safety Cover Material		CON	SL_MSEG	$$		10,500		12,075	12,075	35%
1	03	03	11			LN03110380	Perform QC & Inspection on Magnets Supts		CON	SL_MES	Hrs	24		2,287		2,287	35%
1	03	03	11			LN03110050	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	8		892		892	35%
1	03	03	11			LN03110050	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	8		529		529	35%
1	03	03	11			LN03110385	Assemble Magnet Supports		CON	SL_MFAT	Hrs	60		5,181		5,181	35%
1	03	03	11			LN03110060	Develop Magnetic Measurement Plan		CON	SL_ME	Hrs	40		4,460		4,460	35%
1	03	03	11			LN03110170	Prep Bid Pak - Misc Materials - Magnets		CON	SL_ME	Hrs	8		892		892	35%
1	03	03	11			LN03110395	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	8		892		892	35%
1	03	03	11			LN03110178	Evaluate Vendor Proposals - Misc Mtrls - Magnets		CON	SL_ME	Hrs	8		892		892	35%
1	03	03	11			LN03110182	Vendor Fab & Assy - Misc Materials - Magnets		CON	SL_MSEG	$$		80,000		92,000	92,000	35%
1	03	03	11			LN03110190	Fab Tooling		CON	SL_MFMS	Hrs	100		10,588		10,588	35%
1	03	03	11			LN03110192	Fab Magnet Core		CON	SL_MFMS	Hrs	500		52,940		52,940	35%
1	03	03	11			LN03110205	Prep for and Paint Magnets (as required)		CON	SL_MFAT	Hrs	100		8,635		8,635	35%
1	03	03	11			LN03110210	Assemble Magnets		CON	SL_MFAT	Hrs	150		12,953		12,953	35%
1	03	03	11			LN03110215	Perform Magnet Fiducialization (as required)		CON	SL_MES	Hrs	40		3,811		3,811	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	03	11			LN03110220	Perform QC & Inspection - Magnets		CON	SL_MES	Hrs	150		14,534		14,534	35%
1	03	03	11			LN03110225	Perform Magnetic Measurement (as required)		CON	SL_MES	Hrs	120		11,731		11,731	35%
1	03	03	11			LN03110235	Perform Magnet Pre-Instlation Qual		CON	SL_ME	Hrs	8		915		915	35%
1	**03**	**03**	**12**				**Bend Magnet (BYKIK_LTU)**					**2,212**	**32,500**	**197,824**	**36,775**	**234,599**	
1	03	03	12			LN03120000	Define Magnet Requirements		PED	SL_ME	Hrs	100		10,784		10,784	35%
1	03	03	12			LN03120605	Develop Magnet Safety Cover Design		PED	SL_ME	Hrs	16		1,739		1,739	35%
1	03	03	12			LN03120605	Develop Magnet Safety Cover Design		PED	SL_MDD	Hrs	160		10,318		10,318	35%
1	03	03	12			LN03120245	Define Magnet Support Requirements		PED	SL_ME	Hrs	8		869		869	35%
1	03	03	12			LN03120005	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	40		4,347		4,347	35%
1	03	03	12			LN03120250	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	4		435		435	35%
1	03	03	12			LN03120260	Develop Preliminary Design - Magnet Supports		PED	SL_ME	Hrs	24		2,608		2,608	35%
1	03	03	12			LN03120260	Develop Preliminary Design - Magnet Supports		PED	SL_MDD	Hrs	80		5,159		5,159	35%
1	03	03	12			LN03120270	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	8		869		869	35%
1	03	03	12			LN03120270	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	8		516		516	35%
1	03	03	12			LN03120280	Develop Final Design - Magnet Supports		PED	SL_ME	Hrs	16		1,739		1,739	35%
1	03	03	12			LN03120280	Develop Final Design - Magnet Supports		PED	SL_MDD	Hrs	60		3,869		3,869	35%
1	03	03	12			LN03120015	Develop Preliminary Design - Magnet		PED	SL_PCE	Hrs	120		13,879		13,879	35%
1	03	03	12			LN03120015	Develop Preliminary Design - Magnet		PED	SL_ME	Hrs	20		2,173		2,173	35%
1	03	03	12			LN03120015	Develop Preliminary Design - Magnet		PED	SL_MDD	Hrs	40		2,580		2,580	35%
1	03	03	12			LN03120290	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	8		869		869	35%
1	03	03	12			LN03120290	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	8		516		516	35%
1	03	03	12			LN03120025	Develop Preliminary Dsn - Magnet Field Analysis		PED	SL_PHS	Hrs	60		4,491		4,491	35%
1	03	03	12			LN03120030	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	8		869		869	35%
1	03	03	12			LN03120030	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	4		258		258	35%
1	03	03	12			LN03120040	Develop Final Design - Magnets		PED	SL_PCE	Hrs	120		13,879		13,879	35%
1	03	03	12			LN03120040	Develop Final Design - Magnets		PED	SL_ME	Hrs	40		4,347		4,347	35%
1	03	03	12			LN03120040	Develop Final Design - Magnets		PED	SL_MDD	Hrs	300		19,347		19,347	35%
1	03	03	12			LN03120050	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	8		869		869	35%
1	03	03	12			LN03120050	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	8		516		516	35%
1	03	03	12			LN03120060	Develop Magnetic Measurement Plan		CON	SL_ME	Hrs	40		4,347		4,347	35%
1	03	03	12			LN03120180	Procure Misc Materials - Magnets		CON	SL_MSEG	$$		20,000		22,400	22,400	35%
1	03	03	12			LN03120185	Fab Tooling		CON	SL_MFMS	Hrs	150		15,480		15,480	35%
1	03	03	12			LN03120190	Fab Magnet Core		CON	SL_MFMS	Hrs	200		20,640		20,640	35%
1	03	03	12			LN03120195	Fab Magnet Coils		CON	SL_MFAT	Hrs	200		16,832		16,832	35%
1	03	03	12			LN03120205	Prep for and Paint Magnets (as required)		CON	SL_MFAT	Hrs	40		3,366		3,366	35%
1	03	03	12			LN03120210	Assemble Magnets		CON	SL_MFAT	Hrs	40		3,366		3,366	35%
1	03	03	12			LN03120215	Perform Magnet Fiducialization (as required)		CON	SL_MES	Hrs	40		3,715		3,715	35%
1	03	03	12			LN03120220	Perform QC & Inspection - Magnets		CON	SL_MES	Hrs	60		5,695		5,695	35%
1	03	03	12			LN03120615	Procure Magnet Safety Cover (1ea)		CON	SL_MSEG	$$		3,500		4,025	4,025	35%
1	03	03	12			LN03120305	Prep Bid Pak - Magnet Supports		CON	SL_ME	Hrs	2		223		223	35%
1	03	03	12			LN03120305	Prep Bid Pak - Magnet Supports		CON	SL_MDD	Hrs	4		265		265	35%
1	03	03	12			LN03120330	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	4		446		446	35%
1	03	03	12			LN03120340	Vendor Fab 1st Lot - Supts		CON	SL_MSEG	$$		7,000		8,050	8,050	35%
1	03	03	12			LN03120225	Perform Magnetic Measurement (as required)		CON	SL_MES	Hrs	40		3,811		3,811	35%
1	03	03	12			LN03120235	Perform Magnet Pre-Instlation Qual		CON	SL_ME	Hrs	8		892		892	35%
1	03	03	12			LN03120360	Procure Misc Materials - Magnet Supports		CON	SL_MSEG	$$		2,000		2,300	2,300	35%
1	03	03	12			LN03120365	Fabricate Magnet Supports		CON	SL_MFMS	Hrs	24		2,541		2,541	35%
1	03	03	12			LN03120380	Perform QC & Inspection on Magnets Supts		CON	SL_MES	Hrs	24		2,287		2,287	35%
1	03	03	12			LN03120385	Assemble Magnet Supports		CON	SL_MFAT	Hrs	60		5,181		5,181	35%
1	03	03	12			LN03120395	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	8		892		892	35%
1	**03**	**03**	**13**				**Bend Magnet (BYW_LTU)**					**516**	**20,000**	**40,407**	**23,000**	**63,407**	
1	03	03	13			LN03130605	Develop Magnet Safety Cover Design		PED	SL_ME	Hrs	16		1,739		1,739	45%
1	03	03	13			LN03130605	Develop Magnet Safety Cover Design		PED	SL_MDD	Hrs	160		10,318		10,318	45%
1	03	03	13			LN03130245	Define Magnet Support Requirements		PED	SL_ME	Hrs	8		869		869	45%
1	03	03	13			LN03130250	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	4		435		435	45%
1	03	03	13			LN03130260	Develop Preliminary Design - Magnet Supports		PED	SL_ME	Hrs	24		2,608		2,608	45%
1	03	03	13			LN03130260	Develop Preliminary Design - Magnet Supports		PED	SL_MDD	Hrs	80		5,159		5,159	45%
1	03	03	13			LN03130270	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	8		869		869	45%
1	03	03	13			LN03130270	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	8		516		516	45%
1	03	03	13			LN03130280	Develop Final Design - Magnet Supports		PED	SL_ME	Hrs	16		1,739		1,739	45%
1	03	03	13			LN03130280	Develop Final Design - Magnet Supports		PED	SL_MDD	Hrs	60		3,869		3,869	45%
1	03	03	13			LN03130290	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	8		869		869	45%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	03	13			LN03130290	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	8		516		516	45%
1	03	03	13			LN03130615	Procure Magnet Safety Cover (4ea)		CON	SL_MSEG	$$		14,000		16,100	16,100	45%
1	03	03	13			LN03130360	Procure Misc Materials - Magnet Supports		CON	SL_MSEG	$$		1,000		1,150	1,150	45%
1	03	03	13			LN03130340	Procure Magnet Supports		CON	SL_MSEG	$$		5,000		5,750	5,750	45%
1	03	03	13			LN03130365	Fabricate Magnet Supports		CON	SL_MFMS	Hrs	24		2,541		2,541	45%
1	03	03	13			LN03130380	Perform QC & Inspection on Magnets Supts		CON	SL_MES	Hrs	24		2,287		2,287	45%
1	03	03	13			LN03130385	Assemble Magnet Supports		CON	SL_MFAT	Hrs	60		5,181		5,181	45%
1	03	03	13			LN03130395	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	8		892		892	45%
1	**03**	**04**					**Linac Vacuum Subsystem**					**13,610**	**1,188,220**	**1,289,806**	**1,339,984**	**2,629,790**	
1	**03**	**04**	**01**				**Reserved**										
1	**03**	**04**	**02**				**Linac Beamline Vacuum System**					**2,712**	**51,250**	**261,362**	**57,400**	**318,762**	
1	03	04	02			LN04020000	Define Linac BL Vac Sys Requirements		PED	SL_ME	Hrs	24		2,537		2,537	25%
1	03	04	02			LN04020005	Create ICD & Update LCLS Database		PED	SL_ME	Hrs	8		846		846	25%
1	03	04	02			LN04020010	Review & Accept Requirements, ICD & DB Entries		PED	SL_ME	Hrs	24		2,537		2,537	25%
1	03	04	02			LN04020015	Develop Preliminary Vacuum System Design		PED	SL_ME	Hrs	120		12,685		12,685	25%
1	03	04	02			LN04020020	Develop Prelim Component Layouts, Details & Supp		PED	SL_MDD	Hrs	120		7,529		7,529	25%
1	03	04	02			LN04020025	Conduct Prelim Design Review (PDR) - BL Vac Sys		PED	SL_ME	Hrs	8		846		846	25%
1	03	04	02			LN04020030	Develop Final Design		PED	SL_MDD	Hrs	240		15,058		15,058	25%
1	03	04	02			LN04020035	Conduct Final Design Review (FDR) - BL Vac Sys		PED	SL_ME	Hrs	8		846		846	25%
1	03	04	02			LN04020290	Procure Misc Materials - Vacuum Supports		CON	SL_MSEG	$$		28,000		31,360	31,360	25%
1	03	04	02			LN04020205	Procure Bellows Material		CON	SL_MSEG	$$		3,000		3,360	3,360	25%
1	03	04	02			LN04020200	Procure Bellows Modules		CON	SL_MSEG	$$		8,250		9,240	9,240	25%
1	03	04	02			LN04020150	Prep Bid Pak - BL Vacuum Bellows Module		CON	SL_ME	Hrs	40		4,347		4,347	25%
1	03	04	02			LN04020100	Procure Vacuum Chamber Materials		CON	SL_MSEG	$$		12,000		13,440	13,440	25%
1	03	04	02			LN04020045	Develop Vacuum Post-Processing Plan		CON	SL_ME	Hrs	40		4,347		4,347	25%
1	03	04	02			LN04020050	Prep Bid Pak - Linac Beamline Vacuum System		CON	SL_ME	Hrs	40		4,347		4,347	25%
1	03	04	02			LN04020170	Evaluate Vendor Proposals		CON	SL_ME	Hrs	40		4,347		4,347	25%
1	03	04	02			LN04020070	Evaluate Vendor Proposals		CON	SL_ME	Hrs	40		4,347		4,347	25%
1	03	04	02			LN04020295	Fab Vacuum Support		CON	SL_MFMS	Hrs	320		33,024		33,024	25%
1	03	04	02			LN04020105	Fab Vacuum Chamber		CON	SL_MFMS	Hrs	320		33,024		33,024	25%
1	03	04	02			LN04020300	Assemble Beamline Vacuum Supports		CON	SL_MFAT	Hrs	320		26,931		26,931	25%
1	03	04	02			LN04020110	Vacuum Chamber QA		CON	SL_MFMS	Hrs	40		4,128		4,128	25%
1	03	04	02			LN04020210	Bellows Fabrication		CON	SL_MFMS	Hrs	80		8,256		8,256	25%
1	03	04	02			LN04020115	Prep for, Clean & Plate Vacuum Equipment		CON	SL_MFPC	Hrs	120		19,771		19,771	25%
1	03	04	02			LN04020215	Bellows QA		CON	SL_MFMS	Hrs	16		1,651		1,651	25%
1	03	04	02			LN04020220	Bellows Cleaning/Plating		CON	SL_MFPC	Hrs	32		5,272		5,272	25%
1	03	04	02			LN04020120	Vacuum Chamber Welding		CON	SL_MFMS	Hrs	200		20,640		20,640	25%
1	03	04	02			LN04020225	Bellows Welding		CON	SL_MFMS	Hrs	32		3,302		3,302	25%
1	03	04	02			LN04020230	Bellows Vacuum Processing		CON	SL_MFAT	Hrs	120		10,099		10,099	25%
1	03	04	02			LN04020125	Process Vacuum Chamber		CON	SL_MFAT	Hrs	240		20,198		20,198	25%
1	03	04	02			LN04020130	Perform QC and Inspection		CON	SL_MES	Hrs	40		3,715		3,715	25%
1	03	04	02			LN04020135	Prep for & Deliver to "Pre-Install Qual Test"		CON	SL_MFAT	Hrs	40		3,366		3,366	25%
1	03	04	02			LN04020140	Perform Pre-Installation Qual Test		CON	SL_MFAT	Hrs	40		3,366		3,366	25%
1	**03**	**04**	**03**				**BC1 Vacuum System**					**2,080**	**112,370**	**190,325**	**125,854**	**316,179**	
1	03	04	03			LN04030000	Define BC1 Vac Sys Requirements		PED	SL_ME	Hrs	40		4,109		4,109	25%
1	03	04	03			LN04030015	Develop Preliminary Vacuum System Design		PED	SL_ME	Hrs	100		10,273		10,273	25%
1	03	04	03			LN04030015	Develop Preliminary Vacuum System Design		PED	SL_MDD	Hrs	300		18,291		18,291	25%
1	03	04	03			LN04030020	Conduct Prelim Design Review (PDR) - BC1 Vac Sys		PED	SL_ME	Hrs	40		4,109		4,109	25%
1	03	04	03			LN04030020	Conduct Prelim Design Review (PDR) - BC1 Vac Sys		PED	SL_MDD	Hrs	40		2,439		2,439	25%
1	03	04	03			LN04030025	Develop Final Design		PED	SL_ME	Hrs	100		10,356		10,356	25%
1	03	04	03			LN04030025	Develop Final Design		PED	SL_MDD	Hrs	300		18,440		18,440	25%
1	03	04	03			LN04030030	Conduct Final Design Review (FDR) - BC1 Vac Sys		PED	SL_ME	Hrs	20		2,114		2,114	25%
1	03	04	03			LN04030030	Conduct Final Design Review (FDR) - BC1 Vac Sys		PED	SL_MDD	Hrs	20		1,255		1,255	25%
1	03	04	03			LN04030040	Develop Vacuum Post-Processing Plan		PED	SL_ME	Hrs	40		4,228		4,228	25%
1	03	04	03			LN04030075	Vendor Fab & Assy - Vacuum Chamber Materials		CON	SL_MSEG	$$		112,370		125,854	125,854	25%
1	03	04	03			LN04030100	Fab Vacuum Chamber		CON	SL_MFMS	Hrs	480		49,536		49,536	25%
1	03	04	03			LN04030105	Vacuum Chamber QA		CON	SL_MES	Hrs	120		11,144		11,144	25%
1	03	04	03			LN04030110	Prep for, Clean & Plate Vacuum Equipment		CON	SL_MFPC	Hrs	120		19,771		19,771	25%
1	03	04	03			LN04030115	Vacuum Chamber Welding		CON	SL_MFMS	Hrs	120		12,384		12,384	25%
1	03	04	03			LN04030120	Process Vacuum Chamber		CON	SL_MFAT	Hrs	80		6,733		6,733	25%
1	03	04	03			LN04030125	Perform QC and Inspection		CON	SL_MES	Hrs	80		7,430		7,430	25%
1	03	04	03			LN04030130	Prep for & Deliver to "Pre-Install Qual Test"		CON	SL_MFAT	Hrs	40		3,366		3,366	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	04	03			LN04030135	Perform Pre-Installation Qual Test		CON	SL_ME	Hrs	40		4,347		4,347	25%
1	**03**	**04**	**04**				**BC2 Vacuum System**					**1,896**	**150,000**	**183,179**	**172,500**	**355,679**	
1	03	04	04			LN04040000	Define BC2 Vac Sys Requirements		PED	SL_ME	Hrs	40		4,228		4,228	25%
1	03	04	04			LN04040005	Create ICD & Update LCLS Database		PED	SL_ME	Hrs	8		846		846	25%
1	03	04	04			LN04040010	Review & Accept Requirements, ICD & DB Entries		PED	SL_ME	Hrs	8		846		846	25%
1	03	04	04			LN04040015	Develop Preliminary Vacuum System Design		PED	SL_ME	Hrs	100		10,571		10,571	25%
1	03	04	04			LN04040015	Develop Preliminary Vacuum System Design		PED	SL_MDD	Hrs	200		12,548		12,548	25%
1	03	04	04			LN04040020	Conduct Prelim Design Review (PDR) - BC2 Vac Sys		PED	SL_ME	Hrs	40		4,228		4,228	25%
1	03	04	04			LN04040020	Conduct Prelim Design Review (PDR) - BC2 Vac Sys		PED	SL_MDD	Hrs	40		2,510		2,510	25%
1	03	04	04			LN04040025	Develop Final Design		PED	SL_ME	Hrs	100		10,571		10,571	25%
1	03	04	04			LN04040025	Develop Final Design		PED	SL_MDD	Hrs	200		12,548		12,548	25%
1	03	04	04			LN04040030	Conduct Final Design Review (FDR) - BC2 Vac Sys		PED	SL_ME	Hrs	20		2,114		2,114	25%
1	03	04	04			LN04040030	Conduct Final Design Review (FDR) - BC2 Vac Sys		PED	SL_MDD	Hrs	20		1,255		1,255	25%
1	03	04	04			LN04040040	Develop Vacuum Post-Processing Plan		PED	SL_ME	Hrs	40		4,228		4,228	25%
1	03	04	04			LN04040075	Vendor Fab & Assy - Vacuum Chamber Materials		CON	SL_MSEG	$$		150,000		172,500	172,500	25%
1	03	04	04			LN04040100	Fab Vacuum Chamber		CON	SL_MFMS	Hrs	480		50,822		50,822	25%
1	03	04	04			LN04040105	Vacuum Chamber QA		CON	SL_MES	Hrs	120		11,434		11,434	25%
1	03	04	04			LN04040110	Prep for, Clean & Plate Vacuum Equipment		CON	SL_MFPC	Hrs	120		20,286		20,286	25%
1	03	04	04			LN04040115	Vacuum Chamber Welding		CON	SL_MFMS	Hrs	120		12,706		12,706	25%
1	03	04	04			LN04040120	Process Vacuum Chamber		CON	SL_MFAT	Hrs	80		6,908		6,908	25%
1	03	04	04			LN04040125	Perform QC and Inspection		CON	SL_MES	Hrs	80		7,622		7,622	25%
1	03	04	04			LN04040130	Prep for & Deliver to "Pre-Install Qual Test"		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	03	04	04			LN04040135	Perform Pre-Installation Qual Test		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	**03**	**04**	**05**				**Linac to Undulator (LTU) Vacuum System**					**4,102**	**321,600**	**383,490**	**364,570**	**748,060**	
1	03	04	05			LN04050000	Define LTU Vac Sys Requirements		PED	SL_ME	Hrs	24		2,608		2,608	30%
1	03	04	05			LN04050003	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	8		869		869	30%
1	03	04	05			LN04050005	Review & Accept Requirements, ICD & DB Entries		PED	SL_ME	Hrs	8		869		869	30%
1	03	04	05			LN04050015	Develop Preliminary Vac Sys Supports Design		CON	SL_ME	Hrs	24		2,608		2,608	30%
1	03	04	05			LN04050015	Develop Preliminary Vac Sys Supports Design		CON	SL_MDD	Hrs	160		10,318		10,318	30%
1	03	04	05			LN04050010	Develop Preliminary Vacuum System Design		CON	SL_ME	Hrs	320		34,774		34,774	30%
1	03	04	05			LN04050010	Develop Preliminary Vacuum System Design		CON	SL_MDD	Hrs	600		38,694		38,694	30%
1	03	04	05			LN04050020	Conduct Prelim Design Review (PDR) - LTU Vac Sys		PED	SL_ME	Hrs	16		1,739		1,739	30%
1	03	04	05			LN04050020	Conduct Prelim Design Review (PDR) - LTU Vac Sys		PED	SL_MDD	Hrs	8		516		516	30%
1	03	04	05			LN04050025	Develop Final Design		PED	SL_ME	Hrs	90		9,780		9,780	30%
1	03	04	05			LN04050025	Develop Final Design		PED	SL_MDD	Hrs	300		19,347		19,347	30%
1	03	04	05			LN04050030	Conduct Final Design Review (FDR) - LTU Vac Sys		PED	SL_ME	Hrs	8		869		869	30%
1	03	04	05			LN04050030	Conduct Final Design Review (FDR) - LTU Vac Sys		PED	SL_MDD	Hrs	8		516		516	30%
1	03	04	05			LN04050206	Procure Materials for Vacuum Supports		CON	SL_MTRL	$$		60,000		67,200	67,200	30%
1	03	04	05			LN04050205	Procure Misc Materials - Vacuum Supports		CON	SL_MFMS	Hrs	8		826		826	30%
1	03	04	05			LN04050040	Develop Vacuum Post-Processing Plan		CON	SL_ME	Hrs	100		10,867		10,867	30%
1	03	04	05			LN04050210	Fab Vacuum Support		CON	SL_MFMS	Hrs	320		33,249		33,249	30%
1	03	04	05			LN04050045	Prep Bid Pak - Vacuum Equipment		CON	SL_ME	Hrs	40		4,347		4,347	30%
1	03	04	05			LN04050045	Prep Bid Pak - Vacuum Equipment		CON	SL_MDD	Hrs	40		2,580		2,580	30%
1	03	04	05			LN04050100	Procure Vacuum Chamber Material		CON	SL_MSEG	$$		5,600		6,272	6,272	30%
1	03	04	05			LN04050075	Vendor Fab & Assy - Vacuum Equipment		CON	SL_MSEG	$$		256,000		291,098	291,098	30%
1	03	04	05			LN04050105	Fab Vacuum Chamber		CON	SL_MFMS	Hrs	320		33,635		33,635	30%
1	03	04	05			LN04050215	Assemble LTU Vacuum Supports		CON	SL_MFAT	Hrs	320		27,466		27,466	30%
1	03	04	05			LN04050115	Prep for, Clean & Plate Vacuum Equipment		CON	SL_MFPC	Hrs	240		40,572		40,572	30%
1	03	04	05			LN04050120	Vacuum Chamber Welding		CON	SL_MFMS	Hrs	300		31,764		31,764	30%
1	03	04	05			LN04050125	Process Vacuum Chamber		CON	SL_MFAT	Hrs	240		20,724		20,724	30%
1	03	04	05			LN04050130	Perform QC and Inspection		CON	SL_MES	Hrs	240		22,867		22,867	30%
1	03	04	05			LN04050135	Prep for & Deliver to "Pre-Install Qual Test"		CON	SL_MFAT	Hrs	240		20,724		20,724	30%
1	03	04	05			LN04050140	Perform Pre-Installation Qual Test		CON	SL_MFAT	Hrs	120		10,362		10,362	30%
1	**03**	**04**	**06**				**Dumpline Vacuum System**					**2,820**	**553,000**	**271,450**	**619,660**	**891,110**	
1	03	04	06			LN04060000	Define Dumpline Vac Sys Requirements		PED	SL_ME	Hrs	24		2,608		2,608	30%
1	03	04	06			LN04060003	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	20		2,173		2,173	30%
1	03	04	06			LN04060007	Review & Accept Requirements, ICD & DB Entries		PED	SL_ME	Hrs	8		869		869	30%
1	03	04	06			LN04060013	Define Requirements LTU Vac Sys Supports		PED	SL_ME	Hrs	24		2,608		2,608	30%
1	03	04	06			LN04060010	Develop Preliminary Vacuum System Design		CON	SL_ME	Hrs	80		8,694		8,694	30%
1	03	04	06			LN04060010	Develop Preliminary Vacuum System Design		CON	SL_MDD	Hrs	120		7,739		7,739	30%
1	03	04	06			LN04060017	Develop Prelim Design LTU Vacuum Sys Supports		PED	SL_ME	Hrs	80		8,694		8,694	30%
1	03	04	06			LN04060017	Develop Prelim Design LTU Vacuum Sys Supports		PED	SL_MDD	Hrs	120		7,739		7,739	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	04	06			LN04060020	Conduct Prelim Design Review (PDR) - D/L Vac Sys		PED	SL_ME	Hrs	8		869		869	30%
1	03	04	06			LN04060020	Conduct Prelim Design Review (PDR) - D/L Vac Sys		PED	SL_MDD	Hrs	8		516		516	30%
1	03	04	06			LN04060025	Develop Final Design		PED	SL_ME	Hrs	100		10,867		10,867	30%
1	03	04	06			LN04060025	Develop Final Design		PED	SL_MDD	Hrs	300		19,347		19,347	30%
1	03	04	06			LN04060030	Conduct Final Design Review (FDR) - D/L Vac Sys		PED	SL_ME	Hrs	8		869		869	30%
1	03	04	06			LN04060030	Conduct Final Design Review (FDR) - D/L Vac Sys		PED	SL_MDD	Hrs	8		516		516	30%
1	03	04	06			LN04060100	Procure Vacuum Components		CON	SL_MSEG	$$		543,000		608,160	608,160	30%
1	03	04	06			LN04060040	Develop Vacuum Post-Processing Plan		CON	SL_ME	Hrs	40		4,347		4,347	30%
1	03	04	06			LN04060150	Prep Bid Pak - Vacuum Supports		CON	SL_ME	Hrs	16		1,784		1,784	30%
1	03	04	06			LN04060045	Prep Bid Pak - Dumpline Vacuum System		CON	SL_ME	Hrs	40		4,460		4,460	30%
1	03	04	06			LN04060045	Prep Bid Pak - Dumpline Vacuum System		CON	SL_MDD	Hrs	20		1,323		1,323	30%
1	03	04	06			LN04060105	Fab Vacuum Chamber		CON	SL_MFMS	Hrs	320		33,882		33,882	30%
1	03	04	06			LN04060065	Evaluate Vendor Proposals		CON	SL_ME	Hrs	20		2,230		2,230	30%
1	03	04	06			LN04060170	Evaluate Vendor Proposals - UHV Components		CON	SL_ME	Hrs	32		3,568		3,568	30%
1	03	04	06			LN04060115	Prep for, Clean & Plate Vacuum Equipment		CON	SL_MFPC	Hrs	160		27,048		27,048	30%
1	03	04	06			LN04060200	Procure Misc Materials - Vacuum Supports		CON	SL_MTRL	$$		10,000		11,500	11,500	30%
1	03	04	06			LN04060120	Vacuum Chamber Welding		CON	SL_MFMS	Hrs	240		25,411		25,411	30%
1	03	04	06			LN04060205	Fab Vacuum Support		CON	SL_MFMS	Hrs	200		21,176		21,176	30%
1	03	04	06			LN04060125	Process Vacuum Chamber		CON	SL_MFAT	Hrs	240		20,724		20,724	30%
1	03	04	06			LN04060210	Assemble DL Vacuum Supports		CON	SL_MFAT	Hrs	360		31,086		31,086	30%
1	03	04	06			LN04060210	Assemble DL Vacuum Supports		CON	SL_MES	Hrs	40		3,811		3,811	30%
1	03	04	06			LN04060130	Perform QC and Inspection		CON	SL_ME	Hrs	24		2,676		2,676	30%
1	03	04	06			LN04060135	Prep for & Deliver to "Pre-Install Qual Test"		CON	SL_MFAT	Hrs	80		6,908		6,908	30%
1	03	04	06			LN04060140	Perform Pre-Installation Qual Test		CON	SL_MFAT	Hrs	80		6,908		6,908	30%
1	**03**	**05**					**Linac Electron Diagnostics**					**16,147**	**660,100**	**1,399,731**	**739,859**	**2,139,590**	
1	**03**	**05**	**01**				**Wire Scanners (15)**					**1,428**	**194,500**	**120,095**	**217,840**	**337,935**	
1	03	05	01			LN05010005	Review & Accept Requirements		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	01			LN05010010	Write ICD - Wire Scanner		CON	SL_ME	Hrs	16		1,691		1,691	25%
1	03	05	01			LN05010015	Collect Area Specific Requirements		PED	SL_ME	Hrs	8		846		846	25%
1	03	05	01			LN05010015	Collect Area Specific Requirements		PED	SL_MDD	Hrs	16		1,004		1,004	25%
1	03	05	01			LN05010020	Evaluate Existing Design Documentation		CON	SL_ME	Hrs	8		846		846	25%
1	03	05	01			LN05010020	Evaluate Existing Design Documentation		CON	SL_MDD	Hrs	24		1,506		1,506	25%
1	03	05	01			LN05010025	Produce Common Layout		PED	SL_MDD	Hrs	160		10,038		10,038	25%
1	03	05	01			LN05010030	Develop General Specifications / Analysis		PED	SL_ME	Hrs	16		1,691		1,691	25%
1	03	05	01			LN05010035	Create / Remodel / Revise Dsn Documentation		PED	SL_MDD	Hrs	80		5,019		5,019	25%
1	03	05	01			LN05010040	Make Simplified Models		PED	SL_MDD	Hrs	4		251		251	25%
1	03	05	01			LN05010045	Release Final Model To Server		PED	SL_MDD	Hrs	4		251		251	25%
1	03	05	01			LN05010050	Update Component Data Base		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	01			LN05010055	Write Component Traveler		CON	SL_ME	Hrs	16		1,691		1,691	25%
1	03	05	01			LN05010060	Prepare for PDR - Wire Scanners		PED	SL_ME	Hrs	8		846		846	25%
1	03	05	01			LN05010065	Conduct Wire Scanners PDR		PED	SL_ME	Hrs	8		846		846	25%
1	03	05	01			LN05010070	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	16		1,691		1,691	25%
1	03	05	01			LN05010075	Establish Subordinate Work Orders		CON	SL_ME	Hrs	8		846		846	25%
1	03	05	01			LN05010080	Prepare for FDR - Wire Scanners		PED	SL_ME	Hrs	8		846		846	25%
1	03	05	01			LN05010080	Prepare for FDR - Wire Scanners		PED	SL_MDD	Hrs	8		502		502	25%
1	03	05	01			LN05010230	Define Diagnostics Support Requirements		PED	SL_ME	Hrs	4		435		435	25%
1	03	05	01			LN05010155	Procure Misc Materials - Wire Scanners		CON	SL_MSEG	$$		6,500		7,280	7,280	25%
1	03	05	01			LN05010100	Prep Bid Pak - Wire Scanner		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	01			LN05010100	Prep Bid Pak - Wire Scanner		CON	SL_MDD	Hrs	8		516		516	25%
1	03	05	01			LN05010235	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	01			LN05010240	Develop Preliminary Design - Diagnostic Supports		PED	SL_ME	Hrs	8		869		869	25%
1	03	05	01			LN05010240	Develop Preliminary Design - Diagnostic Supports		PED	SL_MDD	Hrs	40		2,580		2,580	25%
1	03	05	01			LN05010250	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	2		217		217	25%
1	03	05	01			LN05010250	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	2		129		129	25%
1	03	05	01			LN05010260	Develop Final Design - Diagnostics Supports		PED	SL_ME	Hrs	8		869		869	25%
1	03	05	01			LN05010260	Develop Final Design - Diagnostics Supports		PED	SL_MDD	Hrs	40		2,580		2,580	25%
1	03	05	01			LN05010270	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	2		217		217	25%
1	03	05	01			LN05010270	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	2		129		129	25%
1	03	05	01			LN05010340	Procure Misc Materials - Diagnostics Supports		CON	SL_MSEG	$$		6,000		6,720	6,720	25%
1	03	05	01			LN05010285	Prep Bid Pak - Diagnostics Supports		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	01			LN05010285	Prep Bid Pak - Diagnostics Supports		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	01			LN05010125	Evaluate Vendor Proposals		CON	SL_ME	Hrs	24		2,608		2,608	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	05	01			LN05010135	Vendor Fab 1st Lot		CON	SL_MSEG	$$		75,000		84,000	84,000	25%
1	03	05	01			LN05010310	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	01			LN05010320	Vendor Fab 1st Lot - Supports		CON	SL_MSEG	$$		16,000		17,920	17,920	25%
1	03	05	01			LN05010145	Vendor Fab Remaining Lot		CON	SL_MSEG	$$		75,000		84,000	84,000	25%
1	03	05	01			LN05010330	Vendor Fab Remaining Lot - Supports		CON	SL_MSEG	$$		16,000		17,920	17,920	25%
1	03	05	01			LN05010160	Component Fab & Assembly - Wire Scanners		CON	SL_MFPC	Hrs	24		3,954		3,954	25%
1	03	05	01			LN05010160	Component Fab & Assembly - Wire Scanners		CON	SL_MFMS	Hrs	40		4,128		4,128	25%
1	03	05	01			LN05010160	Component Fab & Assembly - Wire Scanners		CON	SL_MFAT	Hrs	420		35,347		35,347	25%
1	03	05	01			LN05010360	Perform QC & Inspection - Diagnostic Supports		CON	SL_MES	Hrs	24		2,229		2,229	25%
1	03	05	01			LN05010365	Assemble Supports		CON	SL_MFAT	Hrs	60		5,050		5,050	25%
1	03	05	01			LN05010375	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	01			LN05010175	Perform QC / Metrology		CON	SL_MES	Hrs	60		5,572		5,572	25%
1	03	05	01			LN05010180	Perform Functional Testing - Wire Scanners		CON	SL_CCA	Hrs	60		4,042		4,042	25%
1	03	05	01			LN05010195	Post Process & Test		CON	SL_MFAT	Hrs	100		8,416		8,416	25%
1	03	05	01			LN05010190	Load Component Data Base		CON	SL_ME	Hrs	16		1,739		1,739	25%
1	03	05	01			LN05010185	Collect Component Performance Data		CON	SL_ME	Hrs	40		4,347		4,347	25%
1	**03**	**05**	**02**				**Beam Position Monitors**					**2,688**	**46,400**	**237,246**	**52,268**	**289,514**	
1	**03**	**05**	**02**	**01**			**BPMs - Linac Standard (6ea)**					**516**	**5,000**	**42,721**	**5,600**	**48,321**	
1	03	05	02	01		LN05020100	Receive BPM Requirements		PED	SL_ME	Hrs	1		106		106	25%
1	03	05	02	01		LN05020102	Review & Accept Requirements		PED	SL_ME	Hrs	1		106		106	25%
1	03	05	02	01		LN05020104	Write ICD - Beam Path Monitor		CON	SL_ME	Hrs	8		846		846	25%
1	03	05	02	01		LN05020106	Collect Area Specific Requirements		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	02	01		LN05020106	Collect Area Specific Requirements		PED	SL_MDD	Hrs	4		251		251	25%
1	03	05	02	01		LN05020108	Evaluate Existing Design Documentation		CON	SL_ME	Hrs	4		423		423	25%
1	03	05	02	01		LN05020108	Evaluate Existing Design Documentation		CON	SL_MDD	Hrs	24		1,506		1,506	25%
1	03	05	02	01		LN05020110	Produce Common Layout		PED	SL_MDD	Hrs	16		1,004		1,004	25%
1	03	05	02	01		LN05020112	Develop General Specifications / Analysis		PED	SL_ME	Hrs	8		846		846	25%
1	03	05	02	01		LN05020114	Create / Remodel / Revise Dsn Documentation		PED	SL_MDD	Hrs	160		10,038		10,038	25%
1	03	05	02	01		LN05020116	Make Simplified Models		PED	SL_MDD	Hrs	8		502		502	25%
1	03	05	02	01		LN05020118	Release Final Model To Server		PED	SL_MDD	Hrs	4		251		251	25%
1	03	05	02	01		LN05020120	Update Component Data Base		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	02	01		LN05020122	Write Component Traveler		CON	SL_ME	Hrs	4		423		423	25%
1	03	05	02	01		LN05020124	Prepare for PDR - BPMs		PED	SL_ME	Hrs	2		211		211	25%
1	03	05	02	01		LN05020126	Conduct Prelim Design Review (PDR) - BPMs		PED	SL_ME	Hrs	2		211		211	25%
1	03	05	02	01		LN05020128	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	4		423		423	25%
1	03	05	02	01		LN05020130	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		423		423	25%
1	03	05	02	01		LN05020132	Prepare for FDR - BPMs		PED	SL_ME	Hrs	2		211		211	25%
1	03	05	02	01		LN05020134	Conduct Final Design Review (FDR) - BPMs		PED	SL_ME	Hrs	2		211		211	25%
1	03	05	02	01		LN05020140	Procure Component Material - BPMs		CON	SL_MSEG	$$		5,000		5,600	5,600	25%
1	03	05	02	01		LN05020142	Component Fab & Assembly - BPMs		CON	SL_MFPC	Hrs	8		1,318		1,318	25%
1	03	05	02	01		LN05020142	Component Fab & Assembly - BPMs		CON	SL_MFMS	Hrs	120		12,384		12,384	25%
1	03	05	02	01		LN05020142	Component Fab & Assembly - BPMs		CON	SL_MFAT	Hrs	80		6,733		6,733	25%
1	03	05	02	01		LN05020144	Perform QC / Metrology		CON	SL_MES	Hrs	4		371		371	25%
1	03	05	02	01		LN05020146	Perform Functional Testing - BPMs		CON	SL_CCA	Hrs	16		1,078		1,078	25%
1	03	05	02	01		LN05020154	Post Process & Test		CON	SL_MFAT	Hrs	16		1,347		1,347	25%
1	03	05	02	01		LN05020152	Load Component Data Base		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	02	01		LN05020150	Collect Component Performance Data		CON	SL_ME	Hrs	4		435		435	25%
1	**03**	**05**	**02**	**02**			**BPMs - RF (8ea)**					**696**	**26,400**	**56,552**	**29,568**	**86,120**	
1	03	05	02	02		LN05020200	Receive RF BPM Requirements		PED	SL_ME	Hrs	2		211		211	55%
1	03	05	02	02		LN05020202	Review & Accept Requirements		PED	SL_ME	Hrs	2		211		211	55%
1	03	05	02	02		LN05020204	Write ICD - Beam Path Monitor		CON	SL_ME	Hrs	8		846		846	55%
1	03	05	02	02		LN05020206	Collect Area Specific Requirements		PED	SL_ME	Hrs	4		423		423	55%
1	03	05	02	02		LN05020206	Collect Area Specific Requirements		PED	SL_MDD	Hrs	4		251		251	55%
1	03	05	02	02		LN05020208	Evaluate Existing Design Documentation		CON	SL_ME	Hrs	4		423		423	55%
1	03	05	02	02		LN05020208	Evaluate Existing Design Documentation		CON	SL_MDD	Hrs	16		1,004		1,004	55%
1	03	05	02	02		LN05020210	Produce Common Layout		PED	SL_MDD	Hrs	24		1,506		1,506	55%
1	03	05	02	02		LN05020212	Develop General Specifications / Analysis		PED	SL_ME	Hrs	8		846		846	55%
1	03	05	02	02		LN05020214	Create / Remodel / Revise Dsn Documentation		PED	SL_MDD	Hrs	160		10,038		10,038	55%
1	03	05	02	02		LN05020216	Make Simplified Models		PED	SL_MDD	Hrs	4		251		251	55%
1	03	05	02	02		LN05020218	Release Final Model To Server		PED	SL_MDD	Hrs	4		251		251	55%
1	03	05	02	02		LN05020220	Update Component Data Base		PED	SL_ME	Hrs	2		211		211	55%
1	03	05	02	02		LN05020222	Write Component Traveler		CON	SL_ME	Hrs	8		846		846	55%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	05	02	02		LN05020224	Prepare for PDR - RF BPMs		PED	SL_ME	Hrs	2		211		211	55%
1	03	05	02	02		LN05020226	Conduct RF BPMs PDR		PED	SL_ME	Hrs	2		211		211	55%
1	03	05	02	02		LN05020228	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	4		423		423	55%
1	03	05	02	02		LN05020230	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		423		423	55%
1	03	05	02	02		LN05020232	Prepare for FDR - RF BPMs		PED	SL_ME	Hrs	2		211		211	55%
1	03	05	02	02		LN05020234	Conduct RF BPMs FDR		PED	SL_ME	Hrs	2		211		211	55%
1	03	05	02	02		LN05020258	Define Diagnostics Support Requirements		PED	SL_ME	Hrs	4		423		423	55%
1	03	05	02	02		LN05020260	Create ICD & Update LCLS Database		PED	SL_ME	Hrs	4		423		423	55%
1	03	05	02	02		LN05020262	Develop Preliminary Design - Diagnostic Supports		PED	SL_ME	Hrs	8		858		858	55%
1	03	05	02	02		LN05020262	Develop Preliminary Design - Diagnostic Supports		PED	SL_MDD	Hrs	16		1,018		1,018	55%
1	03	05	02	02		LN05020264	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	2		217		217	55%
1	03	05	02	02		LN05020264	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	2		129		129	55%
1	03	05	02	02		LN05020266	Develop Final Design - Diagnostics Supports		PED	SL_ME	Hrs	8		869		869	55%
1	03	05	02	02		LN05020266	Develop Final Design - Diagnostics Supports		PED	SL_MDD	Hrs	40		2,580		2,580	55%
1	03	05	02	02		LN05020268	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	2		217		217	55%
1	03	05	02	02		LN05020268	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	2		129		129	55%
1	03	05	02	02		LN05020272	Prep Bid Pak - Diagnostics Supports		CON	SL_ME	Hrs	2		217		217	55%
1	03	05	02	02		LN05020272	Prep Bid Pak - Diagnostics Supports		CON	SL_MDD	Hrs	4		258		258	55%
1	03	05	02	02		LN05020280	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	8		869		869	55%
1	03	05	02	02		LN05020288	Procure Misc Materials - Diagnostics Supports		CON	SL_MSEG	$$		400		448	448	55%
1	03	05	02	02		LN05020240	Procure Component Material - RF BPMs		CON	SL_MSEG	$$		20,000		22,400	22,400	55%
1	03	05	02	02		LN05020284	Vendor Fab 1st Lot - Supports		CON	SL_MSEG	$$		6,000		6,720	6,720	55%
1	03	05	02	02		LN05020296	Perform QC & Inspection - Diagnostic Supports		CON	SL_MES	Hrs	8		743		743	55%
1	03	05	02	02		LN05020297	Assemble Supports		CON	SL_MFAT	Hrs	16		1,347		1,347	55%
1	03	05	02	02		LN05020298	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	2		217		217	55%
1	03	05	02	02		LN05020242	Component Fab & Assembly - RF BPMs		CON	SL_MFPC	Hrs	24		3,954		3,954	55%
1	03	05	02	02		LN05020242	Component Fab & Assembly - RF BPMs		CON	SL_MFAT	Hrs	200		16,832		16,832	55%
1	03	05	02	02		LN05020244	Perform QC / Metrology		CON	SL_MES	Hrs	8		743		743	55%
1	03	05	02	02		LN05020246	Perform Functional Testing - RF BPMs		CON	SL_CCA	Hrs	32		2,156		2,156	55%
1	03	05	02	02		LN05020252	Post Process & Test		CON	SL_MFAT	Hrs	32		2,693		2,693	55%
1	03	05	02	02		LN05020250	Load Component Data Base		CON	SL_ME	Hrs	2		217		217	55%
1	03	05	02	02		LN05020248	Collect Component Performance Data		CON	SL_ME	Hrs	4		435		435	55%
1	**03**	**05**	**02**	**03**			**BPMs - FFTB (9ea)**					**797**	**10,000**	**76,134**	**11,500**	**87,634**	
1	03	05	02	03		LN05020300	Receive BPM Requirements		PED	SL_ME	Hrs	1		109		109	25%
1	03	05	02	03		LN05020302	Review & Accept Requirements		PED	SL_ME	Hrs	4		435		435	25%
1	03	05	02	03		LN05020304	Write ICD - Beam Path Monitor		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	02	03		LN05020306	Collect Area Specific Requirements		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	02	03		LN05020306	Collect Area Specific Requirements		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	02	03		LN05020308	Evaluate Existing Design Documentation		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	02	03		LN05020308	Evaluate Existing Design Documentation		CON	SL_MDD	Hrs	24		1,548		1,548	25%
1	03	05	02	03		LN05020310	Produce Common Layout		PED	SL_MDD	Hrs	24		1,548		1,548	25%
1	03	05	02	03		LN05020312	Develop General Specifications / Analysis		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	02	03		LN05020314	Create / Remodel / Revise Dsn Documentation		CON	SL_MDD	Hrs	120		7,739		7,739	25%
1	03	05	02	03		LN05020316	Make Simplified Models		CON	SL_MDD	Hrs	8		516		516	25%
1	03	05	02	03		LN05020318	Release Final Model To Server		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	02	03		LN05020320	Update Component Data Base		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	02	03		LN05020322	Write Component Traveler		CON	SL_ME	Hrs	16		1,739		1,739	25%
1	03	05	02	03		LN05020324	Prepare for PDR - BPMs		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	02	03		LN05020324	Prepare for PDR - BPMs		CON	SL_MDD	Hrs	2		129		129	25%
1	03	05	02	03		LN05020326	Conduct Prelim Design Review (PDR) - FFTB BPMs		PED	SL_ME	Hrs	2		217		217	25%
1	03	05	02	03		LN05020326	Conduct Prelim Design Review (PDR) - FFTB BPMs		PED	SL_MDD	Hrs	2		129		129	25%
1	03	05	02	03		LN05020328	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	02	03		LN05020330	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	02	03		LN05020332	Prepare for FDR - BPMs		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	02	03		LN05020334	Conduct Final Design Review (FDR) - FFTB BPMs		PED	SL_ME	Hrs	2		217		217	25%
1	03	05	02	03		LN05020340	Procure Component Material - BPMs		CON	SL_MSEG	$$		10,000		11,500	11,500	25%
1	03	05	02	03		LN05020342	Component Fab & Assembly - BPMs		CON	SL_MFPC	Hrs	40		6,762		6,762	25%
1	03	05	02	03		LN05020342	Component Fab & Assembly - BPMs		CON	SL_MFMS	Hrs	320		33,882		33,882	25%
1	03	05	02	03		LN05020342	Component Fab & Assembly - BPMs		CON	SL_MFAT	Hrs	80		6,908		6,908	25%
1	03	05	02	03		LN05020344	Perform QC / Metrology		CON	SL_MES	Hrs	32		3,049		3,049	25%
1	03	05	02	03		LN05020346	Perform Functional Testing - BPMs		CON	SL_CCA	Hrs	16		1,106		1,106	25%
1	03	05	02	03		LN05020352	Post Process & Test		CON	SL_MFAT	Hrs	40		3,454		3,454	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	05	02	03		LN05020350	Load Component Data Base		CON	SL_ME	Hrs	8		892		892	25%
1	03	05	02	03		LN05020348	Collect Component Performance Data		CON	SL_ME	Hrs	8		892		892	25%
1	**03**	**05**	**02**	**04**			**BPMs - High Resolution BC1 (3ea)**					**679**	**5,000**	**61,839**	**5,600**	**67,439**	
1	03	05	02	04		LN05020400	Receive BPM Requirements		PED	SL_ME	Hrs	1		106		106	55%
1	03	05	02	04		LN05020402	Review & Accept Requirements		PED	SL_ME	Hrs	4		423		423	55%
1	03	05	02	04		LN05020404	Write ICD - Beam Path Monitor		CON	SL_ME	Hrs	2		211		211	55%
1	03	05	02	04		LN05020406	Collect Area Specific Requirements		PED	SL_ME	Hrs	4		423		423	55%
1	03	05	02	04		LN05020406	Collect Area Specific Requirements		PED	SL_MDD	Hrs	8		502		502	55%
1	03	05	02	04		LN05020410	Evaluate Existing Design Documentation		CON	SL_ME	Hrs	8		846		846	55%
1	03	05	02	04		LN05020410	Evaluate Existing Design Documentation		CON	SL_MDD	Hrs	16		1,004		1,004	55%
1	03	05	02	04		LN05020414	Produce Common Layout		PED	SL_MDD	Hrs	40		2,510		2,510	55%
1	03	05	02	04		LN05020416	Develop General Specifications / Analysis		PED	SL_ME	Hrs	16		1,691		1,691	55%
1	03	05	02	04		LN05020418	Create / Remodel / Revise Dsn Documentation		PED	SL_MDD	Hrs	80		5,019		5,019	55%
1	03	05	02	04		LN05020420	Make Simplified Models		PED	SL_MDD	Hrs	4		251		251	55%
1	03	05	02	04		LN05020422	Release Final Model To Server		PED	SL_MDD	Hrs	4		251		251	55%
1	03	05	02	04		LN05020424	Update Component Data Base		PED	SL_ME	Hrs	4		423		423	55%
1	03	05	02	04		LN05020426	Write Component Traveler		CON	SL_ME	Hrs	8		846		846	55%
1	03	05	02	04		LN05020428	Prepare for PDR - BPMs		PED	SL_ME	Hrs	2		211		211	55%
1	03	05	02	04		LN05020428	Prepare for PDR - BPMs		PED	SL_MDD	Hrs	2		125		125	55%
1	03	05	02	04		LN05020432	Conduct BPMs PDR		PED	SL_ME	Hrs	2		211		211	55%
1	03	05	02	04		LN05020432	Conduct BPMs PDR		PED	SL_MDD	Hrs	2		125		125	55%
1	03	05	02	04		LN05020436	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	4		423		423	55%
1	03	05	02	04		LN05020438	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		423		423	55%
1	03	05	02	04		LN05020440	Prepare for FDR - BPMs		PED	SL_ME	Hrs	2		211		211	55%
1	03	05	02	04		LN05020440	Prepare for FDR - BPMs		PED	SL_MDD	Hrs	2		125		125	55%
1	03	05	02	04		LN05020444	Conduct BPMs FDR		PED	SL_ME	Hrs	2		211		211	55%
1	03	05	02	04		LN05020444	Conduct BPMs FDR		PED	SL_MDD	Hrs	2		125		125	55%
1	03	05	02	04		LN05020452	Procure Component Material - BPMs		CON	SL_MSEG	$$		5,000		5,600	5,600	55%
1	03	05	02	04		LN05020454	Component Fab & Assembly - BPMs		CON	SL_MFPC	Hrs	24		3,954		3,954	55%
1	03	05	02	04		LN05020454	Component Fab & Assembly - BPMs		CON	SL_MFMS	Hrs	240		24,768		24,768	55%
1	03	05	02	04		LN05020454	Component Fab & Assembly - BPMs		CON	SL_MFAT	Hrs	120		10,099		10,099	55%
1	03	05	02	04		LN05020462	Perform QC / Metrology		CON	SL_MES	Hrs	16		1,486		1,486	55%
1	03	05	02	04		LN05020464	Perform Functional Testing - BPMs		CON	SL_CCA	Hrs	16		1,078		1,078	55%
1	03	05	02	04		LN05020466	Collect Component Performance Data		CON	SL_ME	Hrs	8		869		869	55%
1	03	05	02	04		LN05020468	Load Component Data Base		CON	SL_ME	Hrs	8		869		869	55%
1	03	05	02	04		LN05020470	Post Process & Test		CON	SL_MFAT	Hrs	24		2,020		2,020	55%
1	**03**	**05**	**03**				**Toroids (9ea) Beam Charge**					**1,030**	**10,800**	**93,871**	**12,096**	**105,967**	
1	03	05	03			LN05030000	Receive Toroid Requirements		PED	SL_ME	Hrs	2		211		211	25%
1	03	05	03			LN05030005	Review & Accept Requirements		PED	SL_ME	Hrs	2		211		211	25%
1	03	05	03			LN05030010	Write ICD - Toroid		CON	SL_ME	Hrs	8		846		846	25%
1	03	05	03			LN05030015	Collect Area Specific Requirements		PED	SL_ME	Hrs	8		846		846	25%
1	03	05	03			LN05030015	Collect Area Specific Requirements		PED	SL_MDD	Hrs	8		502		502	25%
1	03	05	03			LN05030020	Evaluate Existing Design Documentation		CON	SL_ME	Hrs	8		846		846	25%
1	03	05	03			LN05030020	Evaluate Existing Design Documentation		CON	SL_MDD	Hrs	24		1,506		1,506	25%
1	03	05	03			LN05030025	Produce Common Layout		PED	SL_MDD	Hrs	40		2,510		2,510	25%
1	03	05	03			LN05030030	Develop General Specifications / Analysis		PED	SL_ME	Hrs	8		846		846	25%
1	03	05	03			LN05030035	Create / Remodel / Revise Dsn Documentation		PED	SL_MDD	Hrs	80		5,019		5,019	25%
1	03	05	03			LN05030040	Make Simplified Models		PED	SL_MDD	Hrs	24		1,506		1,506	25%
1	03	05	03			LN05030045	Release Final Model To Server		PED	SL_MDD	Hrs	8		502		502	25%
1	03	05	03			LN05030050	Update Component Data Base		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	03			LN05030055	Write Component Traveler		CON	SL_ME	Hrs	24		2,537		2,537	25%
1	03	05	03			LN05030060	Prepare for PDR - Toroids		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	03			LN05030065	Conduct Toroids PDR		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	03			LN05030070	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	8		846		846	25%
1	03	05	03			LN05030075	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		423		423	25%
1	03	05	03			LN05030080	Prepare for FDR - Toroids		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	03			LN05030085	Conduct Toroids FDR		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	03			LN05030145	Define Diagnostics Support Requirements		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	03			LN05030150	Create ICD & Update LCLS Database		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	03			LN05030155	Develop Preliminary Design - Diagnostic Supports		PED	SL_ME	Hrs	8		846		846	25%
1	03	05	03			LN05030155	Develop Preliminary Design - Diagnostic Supports		PED	SL_MDD	Hrs	16		1,004		1,004	25%
1	03	05	03			LN05030165	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	2		211		211	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	05	03			LN05030165	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	2		125		125	25%
1	03	05	03			LN05030175	Develop Final Design - Diagnostics Supports		PED	SL_ME	Hrs	8		846		846	25%
1	03	05	03			LN05030175	Develop Final Design - Diagnostics Supports		PED	SL_MDD	Hrs	40		2,510		2,510	25%
1	03	05	03			LN05030185	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	2		211		211	25%
1	03	05	03			LN05030185	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	2		125		125	25%
1	03	05	03			LN05030200	Prep Bid Pak - Diagnostics Supports		CON	SL_ME	Hrs	2		211		211	25%
1	03	05	03			LN05030200	Prep Bid Pak - Diagnostics Supports		CON	SL_MDD	Hrs	4		251		251	25%
1	03	05	03			LN05030225	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	8		846		846	25%
1	03	05	03			LN05030255	Procure Misc Materials - Diagnostics Supports		CON	SL_MSEG	$$		450		504	504	25%
1	03	05	03			LN05030100	Procure Component Material - Toroids		CON	SL_MSEG	$$		6,750		7,560	7,560	25%
1	03	05	03			LN05030235	Vendor Fab 1st Lot - Supports		CON	SL_MSEG	$$		3,600		4,032	4,032	25%
1	03	05	03			LN05030275	Perform QC & Inspection - Diagnostic Supports		CON	SL_MES	Hrs	8		743		743	25%
1	03	05	03			LN05030280	Assemble Supports		CON	SL_MFAT	Hrs	36		3,030		3,030	25%
1	03	05	03			LN05030290	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	03			LN05030105	Component Fab & Assembly - Toroids		CON	SL_MFPC	Hrs	54		8,897		8,897	25%
1	03	05	03			LN05030105	Component Fab & Assembly - Toroids		CON	SL_MFMS	Hrs	288		29,722		29,722	25%
1	03	05	03			LN05030105	Component Fab & Assembly - Toroids		CON	SL_MFAT	Hrs	160		13,466		13,466	25%
1	03	05	03			LN05030115	Perform Functional Testing - Toroids		CON	SL_CCA	Hrs	36		2,425		2,425	25%
1	03	05	03			LN05030130	Post Process & Test		CON	SL_MFAT	Hrs	54		4,545		4,545	25%
1	03	05	03			LN05030125	Load Component Data Base		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	03			LN05030120	Collect Component Performance Data		CON	SL_ME	Hrs	8		869		869	25%
1	**03**	**05**	**04**				**Stoppers TU Dump (2ea)**					**1,161**	**8,200**	**102,260**	**9,184**	**111,444**	
1	03	05	04			LN05040000	Receive Stopper Requirements		PED	SL_ME	Hrs	1		106		106	35%
1	03	05	04			LN05040005	Review & Accept Requirements		PED	SL_ME	Hrs	4		423		423	35%
1	03	05	04			LN05040010	Write ICD - Stopper		CON	SL_ME	Hrs	8		846		846	35%
1	03	05	04			LN05040015	Collect Area Specific Requirements		PED	SL_ME	Hrs	16		1,691		1,691	35%
1	03	05	04			LN05040015	Collect Area Specific Requirements		PED	SL_MDD	Hrs	16		1,004		1,004	35%
1	03	05	04			LN05040020	Evaluate Existing Design Documentation		CON	SL_ME	Hrs	8		846		846	35%
1	03	05	04			LN05040020	Evaluate Existing Design Documentation		CON	SL_MDD	Hrs	60		3,764		3,764	35%
1	03	05	04			LN05040025	Produce Common Layout		PED	SL_MDD	Hrs	60		3,764		3,764	35%
1	03	05	04			LN05040030	Develop General Specifications / Analysis		PED	SL_ME	Hrs	8		846		846	35%
1	03	05	04			LN05040035	Create / Remodel / Revise Dsn Documentation		PED	SL_MDD	Hrs	160		10,038		10,038	35%
1	03	05	04			LN05040040	Make Simplified Models		PED	SL_MDD	Hrs	8		502		502	35%
1	03	05	04			LN05040045	Release Final Model To Server		PED	SL_MDD	Hrs	4		251		251	35%
1	03	05	04			LN05040050	Update Component Data Base		PED	SL_ME	Hrs	2		211		211	35%
1	03	05	04			LN05040055	Write Component Traveler		CON	SL_ME	Hrs	8		846		846	35%
1	03	05	04			LN05040060	Prepare for PDR - Stoppers		PED	SL_ME	Hrs	2		211		211	35%
1	03	05	04			LN05040060	Prepare for PDR - Stoppers		PED	SL_MDD	Hrs	2		125		125	35%
1	03	05	04			LN05040070	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	8		846		846	35%
1	03	05	04			LN05040075	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		423		423	35%
1	03	05	04			LN05040080	Prepare for FDR - Stoppers		PED	SL_ME	Hrs	4		423		423	35%
1	03	05	04			LN05040085	Conduct Stoppers FDR		PED	SL_ME	Hrs	4		423		423	35%
1	03	05	04			LN05040140	Define Diagnostics Support Requirements		PED	SL_ME	Hrs	4		423		423	35%
1	03	05	04			LN05040145	Create ICD & Update LCLS Database		PED	SL_ME	Hrs	4		423		423	35%
1	03	05	04			LN05040150	Develop Preliminary Design - Diagnostic Supports		PED	SL_ME	Hrs	4		431		431	35%
1	03	05	04			LN05040150	Develop Preliminary Design - Diagnostic Supports		PED	SL_MDD	Hrs	24		1,535		1,535	35%
1	03	05	04			LN05040100	Procure Component Material - Stoppers		CON	SL_MSEG	$$		6,000		6,720	6,720	35%
1	03	05	04			LN05040160	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	2		217		217	35%
1	03	05	04			LN05040160	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	2		129		129	35%
1	03	05	04			LN05040170	Develop Final Design - Diagnostics Supports		PED	SL_ME	Hrs	8		869		869	35%
1	03	05	04			LN05040170	Develop Final Design - Diagnostics Supports		PED	SL_MDD	Hrs	40		2,580		2,580	35%
1	03	05	04			LN05040180	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	2		217		217	35%
1	03	05	04			LN05040180	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	2		129		129	35%
1	03	05	04			LN05040105	Component Fab & Assembly - Stoppers		CON	SL_MFPC	Hrs	40		6,590		6,590	35%
1	03	05	04			LN05040105	Component Fab & Assembly - Stoppers		CON	SL_MFMS	Hrs	320		33,024		33,024	35%
1	03	05	04			LN05040105	Component Fab & Assembly - Stoppers		CON	SL_MFAT	Hrs	160		13,466		13,466	35%
1	03	05	04			LN05040250	Procure Misc Materials - Diagnostics Supports		CON	SL_MSEG	$$		200		224	224	35%
1	03	05	04			LN05040195	Prep Bid Pak - Diagnostics Supports		CON	SL_ME	Hrs	2		217		217	35%
1	03	05	04			LN05040195	Prep Bid Pak - Diagnostics Supports		CON	SL_MDD	Hrs	4		258		258	35%
1	03	05	04			LN05040220	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	8		869		869	35%
1	03	05	04			LN05040230	Vendor Fab 1st Lot - Supports		CON	SL_MSEG	$$		2,000		2,240	2,240	35%
1	03	05	04			LN05040270	Perform QC & Inspection - Diagnostic Supports		CON	SL_MES	Hrs	8		743		743	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	05	04			LN05040275	Assemble Supports		CON	SL_MFAT	Hrs	32		2,693		2,693	35%
1	03	05	04			LN05040285	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	4		435		435	35%
1	03	05	04			LN05040110	Perform QC / Metrology		CON	SL_MES	Hrs	32		2,972		2,972	35%
1	03	05	04			LN05040115	Perform Functional Testing - Stoppers		CON	SL_MFAT	Hrs	16		1,347		1,347	35%
1	03	05	04			LN05040120	Collect Component Performance Data		CON	SL_ME	Hrs	8		869		869	35%
1	03	05	04			LN05040125	Load Component Data Base		CON	SL_ME	Hrs	8		869		869	35%
1	03	05	04			LN05040130	Post Process & Test		CON	SL_MFAT	Hrs	40		3,366		3,366	35%
1	**03**	**05**	**05**				**Profile Monitors (6/4/1 ea)**					**1,286**	**124,000**	**106,787**	**138,880**	**245,667**	
1	03	05	05			LN05050000	Receive Profile Monitor Requirements		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	05			LN05050005	Review & Accept Requirements		PED	SL_ME	Hrs	8		846		846	25%
1	03	05	05			LN05050010	Write ICD - Profile Monitor		CON	SL_ME	Hrs	16		1,691		1,691	25%
1	03	05	05			LN05050015	Collect Area Specific Requirements		PED	SL_ME	Hrs	16		1,691		1,691	25%
1	03	05	05			LN05050015	Collect Area Specific Requirements		PED	SL_MDD	Hrs	24		1,506		1,506	25%
1	03	05	05			LN05050020	Evaluate Existing Design Documentation		CON	SL_ME	Hrs	8		846		846	25%
1	03	05	05			LN05050020	Evaluate Existing Design Documentation		CON	SL_MDD	Hrs	40		2,510		2,510	25%
1	03	05	05			LN05050025	Produce Common Layout		PED	SL_MDD	Hrs	40		2,510		2,510	25%
1	03	05	05			LN05050030	Develop General Specifications / Analysis		PED	SL_ME	Hrs	16		1,691		1,691	25%
1	03	05	05			LN05050035	Create / Remodel / Revise Dsn Documentation		PED	SL_MDD	Hrs	80		5,019		5,019	25%
1	03	05	05			LN05050040	Design Phosphor Screen Option		PED	SL_ME	Hrs	16		1,691		1,691	25%
1	03	05	05			LN05050040	Design Phosphor Screen Option		PED	SL_MDD	Hrs	40		2,510		2,510	25%
1	03	05	05			LN05050050	Design OTR Screen Option		PED	SL_ME	Hrs	16		1,691		1,691	25%
1	03	05	05			LN05050050	Design OTR Screen Option		PED	SL_MDD	Hrs	40		2,510		2,510	25%
1	03	05	05			LN05050060	Make Simplified Models		PED	SL_MDD	Hrs	24		1,506		1,506	25%
1	03	05	05			LN05050065	Release Final Model To Server		PED	SL_MDD	Hrs	16		1,004		1,004	25%
1	03	05	05			LN05050070	Update Component Data Base		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	05			LN05050075	Write Component Traveler		CON	SL_ME	Hrs	8		846		846	25%
1	03	05	05			LN05050080	Prepare for PDR - Profile Monitors		PED	SL_ME	Hrs	8		846		846	25%
1	03	05	05			LN05050085	Conduct Profile Monitors PDR		PED	SL_ME	Hrs	8		846		846	25%
1	03	05	05			LN05050090	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	4		423		423	25%
1	03	05	05			LN05050095	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		423		423	25%
1	03	05	05			LN05050100	Prepare for FDR - Profile Monitors		PED	SL_ME	Hrs	8		846		846	25%
1	03	05	05			LN05050105	Conduct Profile Monitors FDR		PED	SL_ME	Hrs	8		846		846	25%
1	03	05	05			LN05050245	Define Diagnostics Support Requirements		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	05			LN05050115	Prep Bid Pak - Profile Monitor		CON	SL_ME	Hrs	8		846		846	25%
1	03	05	05			LN05050115	Prep Bid Pak - Profile Monitor		CON	SL_MDD	Hrs	16		1,004		1,004	25%
1	03	05	05			LN05050250	Create ICD & Update LCLS Database		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	05			LN05050255	Develop Preliminary Design - Diagnostic Supports		PED	SL_ME	Hrs	8		846		846	25%
1	03	05	05			LN05050255	Develop Preliminary Design - Diagnostic Supports		PED	SL_MDD	Hrs	40		2,510		2,510	25%
1	03	05	05			LN05050265	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	2		211		211	25%
1	03	05	05			LN05050265	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	2		125		125	25%
1	03	05	05			LN05050275	Develop Final Design - Diagnostics Supports		PED	SL_ME	Hrs	8		859		859	25%
1	03	05	05			LN05050275	Develop Final Design - Diagnostics Supports		PED	SL_MDD	Hrs	80		5,101		5,101	25%
1	03	05	05			LN05050175	Procure Component Material - Profile Monitors		CON	SL_MSEG	$$		2,000		2,240	2,240	25%
1	03	05	05			LN05050140	Evaluate Vendor Proposals		CON	SL_ME	Hrs	32		3,477		3,477	25%
1	03	05	05			LN05050285	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	2		217		217	25%
1	03	05	05			LN05050285	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	2		129		129	25%
1	03	05	05			LN05050150	Vendor Fab 1st Lot		CON	SL_MSEG	$$		50,000		56,000	56,000	25%
1	03	05	05			LN05050355	Procure Misc Materials - Diagnostics Supports		CON	SL_MSEG	$$		3,000		3,360	3,360	25%
1	03	05	05			LN05050300	Prep Bid Pak - Diagnostics Supports		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	05			LN05050300	Prep Bid Pak - Diagnostics Supports		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	05			LN05050180	Component Fab & Assembly - Profile Monitors		CON	SL_MFPC	Hrs	24		3,954		3,954	25%
1	03	05	05			LN05050180	Component Fab & Assembly - Profile Monitors		CON	SL_MFMS	Hrs	40		4,128		4,128	25%
1	03	05	05			LN05050180	Component Fab & Assembly - Profile Monitors		CON	SL_MFAT	Hrs	240		20,198		20,198	25%
1	03	05	05			LN05050375	Perform QC & Inspection - Diagnostic Supports		CON	SL_MES	Hrs	8		743		743	25%
1	03	05	05			LN05050325	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	05			LN05050335	Vendor Fab 1st Lot - Supports		CON	SL_MSEG	$$		19,000		21,280	21,280	25%
1	03	05	05			LN05050160	Vendor Fab Remaining Lot		CON	SL_MSEG	$$		50,000		56,000	56,000	25%
1	03	05	05			LN05050380	Assemble Supports		CON	SL_MFAT	Hrs	160		13,466		13,466	25%
1	03	05	05			LN05050200	Perform QC / Metrology		CON	SL_MES	Hrs	32		2,972		2,972	25%
1	03	05	05			LN05050390	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	05			LN05050205	Perform Functional Testing - Profile Monitors		CON	SL_CCA	Hrs	40		2,694		2,694	25%
1	03	05	05			LN05050220	Post Process & Test		CON	SL_MFAT	Hrs	40		3,366		3,366	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	05	05			LN05050215	Load Component Data Base		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	05			LN05050210	Collect Component Performance Data		CON	SL_ME	Hrs	8		869		869	25%
1	**03**	**05**	**06**				**E/O Bunch Length Monitors (1ea)**					**1,442**	**60,000**	**120,176**	**67,200**	**187,376**	
1	03	05	06			LN05060000	Receive E/O Monitors Requirements		PED	SL_ME	Hrs	8		846		846	95%
1	03	05	06			LN05060005	Review & Accept Requirements		PED	SL_ME	Hrs	8		846		846	95%
1	03	05	06			LN05060010	Write ICD - E/O Monitor		CON	SL_ME	Hrs	8		846		846	95%
1	03	05	06			LN05060015	Collect Area Specific Requirements		PED	SL_ME	Hrs	10		1,057		1,057	95%
1	03	05	06			LN05060015	Collect Area Specific Requirements		PED	SL_MDD	Hrs	24		1,506		1,506	95%
1	03	05	06			LN05060020	Evaluate Existing Design Documentation		CON	SL_ME	Hrs	16		1,691		1,691	95%
1	03	05	06			LN05060020	Evaluate Existing Design Documentation		CON	SL_MDD	Hrs	24		1,506		1,506	95%
1	03	05	06			LN05060025	Produce Common Layout		PED	SL_MDD	Hrs	160		10,038		10,038	95%
1	03	05	06			LN05060030	Develop General Specifications / Analysis		PED	SL_ME	Hrs	24		2,537		2,537	95%
1	03	05	06			LN05060035	Create / Remodel / Revise Dsn Documentation		PED	SL_ME	Hrs	80		8,495		8,495	95%
1	03	05	06			LN05060035	Create / Remodel / Revise Dsn Documentation		PED	SL_MDD	Hrs	320		20,168		20,168	95%
1	03	05	06			LN05060040	Make Simplified Models		CON	SL_MDD	Hrs	16		1,032		1,032	95%
1	03	05	06			LN05060045	Release Final Model To Server		CON	SL_MDD	Hrs	8		516		516	95%
1	03	05	06			LN05060050	Update Component Data Base		CON	SL_ME	Hrs	4		435		435	95%
1	03	05	06			LN05060055	Write Component Traveler		CON	SL_ME	Hrs	8		869		869	95%
1	03	05	06			LN05060060	Prepare for PDR - E/O Monitors		CON	SL_ME	Hrs	8		869		869	95%
1	03	05	06			LN05060060	Prepare for PDR - E/O Monitors		CON	SL_MDD	Hrs	8		516		516	95%
1	03	05	06			LN05060065	Conduct E/O Monitors PDR		CON	SL_ME	Hrs	4		435		435	95%
1	03	05	06			LN05060065	Conduct E/O Monitors PDR		CON	SL_MDD	Hrs	4		258		258	95%
1	03	05	06			LN05060070	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	4		435		435	95%
1	03	05	06			LN05060075	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		435		435	95%
1	03	05	06			LN05060080	Prepare for FDR - E/O Monitors		CON	SL_ME	Hrs	2		217		217	95%
1	03	05	06			LN05060080	Prepare for FDR - E/O Monitors		CON	SL_MDD	Hrs	2		129		129	95%
1	03	05	06			LN05060085	Conduct E/O Monitors FDR		CON	SL_ME	Hrs	2		217		217	95%
1	03	05	06			LN05060085	Conduct E/O Monitors FDR		CON	SL_MDD	Hrs	2		129		129	95%
1	03	05	06			LN05060120	Prep Bid Pak - Misc Equip/Comp - E/O Mon		CON	SL_ME	Hrs	8		869		869	95%
1	03	05	06			LN05060120	Prep Bid Pak - Misc Equip/Comp - E/O Mon		CON	SL_MDD	Hrs	16		1,032		1,032	95%
1	03	05	06			LN05060095	Prep Bid Pak - Profile Monitor		CON	SL_ME	Hrs	8		869		869	95%
1	03	05	06			LN05060095	Prep Bid Pak - Profile Monitor		CON	SL_MDD	Hrs	16		1,032		1,032	95%
1	03	05	06			LN05060140	Evaluate Vendor Proposals		CON	SL_ME	Hrs	16		1,739		1,739	95%
1	03	05	06			LN05060106	Evaluate Vendor Proposals		CON	SL_ME	Hrs	16		1,739		1,739	95%
1	03	05	06			LN05060170	Vendor Fab & Assy - Misc Equip/Comp - E/O Mon		CON	SL_MSEG	$$		50,000		56,000	56,000	95%
1	03	05	06			LN05060110	Vendor Fab 1st Lot		CON	SL_MSEG	$$		5,000		5,600	5,600	95%
1	03	05	06			LN05060114	Vendor Fab Remaining Lot		CON	SL_MSEG	$$		5,000		5,600	5,600	95%
1	03	05	06			LN05060180	Component Fab & Assembly - E/O Monitors		CON	SL_MFPC	Hrs	20		3,295		3,295	95%
1	03	05	06			LN05060180	Component Fab & Assembly - E/O Monitors		CON	SL_MFMS	Hrs	160		16,512		16,512	95%
1	03	05	06			LN05060180	Component Fab & Assembly - E/O Monitors		CON	SL_MFAT	Hrs	40		3,366		3,366	95%
1	03	05	06			LN05060185	E/O Laser Optics Assembly and Test		CON	SL_PHS	Hrs	120		9,091		9,091	95%
1	03	05	06			LN05060190	E/O Laser Optics Assembly		CON	SL_MFMS	Hrs	80		8,470		8,470	95%
1	03	05	06			LN05060195	E/O Laser Optics Fabrication		CON	SL_MFAT	Hrs	40		3,454		3,454	95%
1	03	05	06			LN05060200	Perform QC / Metrology		CON	SL_MES	Hrs	8		762		762	95%
1	03	05	06			LN05060205	Perform Functional Testing - E/O Monitors		CON	SL_CCA	Hrs	40		2,764		2,764	95%
1	03	05	06			LN05060210	Collect Component Performance Data		CON	SL_ME	Hrs	24		2,676		2,676	95%
1	03	05	06			LN05060215	Load Component Data Base		CON	SL_ME	Hrs	8		892		892	95%
1	03	05	06			LN05060220	Post Process & Test		CON	SL_MFAT	Hrs	40		3,454		3,454	95%
1	03	05	06			LN05060225	Prepare for Post-Test FDR - E/O Monitor		CON	SL_ME	Hrs	8		892		892	95%
1	03	05	06			LN05060225	Prepare for Post-Test FDR - E/O Monitor		CON	SL_MDD	Hrs	8		529		529	95%
1	03	05	06			LN05060230	Conduct Post-Test E/O Monitor FDR		PED	SL_ME	Hrs	4		446		446	95%
1	03	05	06			LN05060230	Conduct Post-Test E/O Monitor FDR		PED	SL_MDD	Hrs	4		265		265	95%
1	**03**	**05**	**07**				**Bunch Length Monitors (4ea)**					**782**	**9,050**	**71,450**	**10,136**	**81,586**	
1	03	05	07			LN05070000	Receive Bunch Length Monitor Requirements		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	07			LN05070005	Review & Accept Requirements		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	07			LN05070010	Write ICD - Bunch Length Monitor		CON	SL_ME	Hrs	8		846		846	25%
1	03	05	07			LN05070015	Collect Area Specific Requirements		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	07			LN05070015	Collect Area Specific Requirements		PED	SL_MDD	Hrs	8		502		502	25%
1	03	05	07			LN05070020	Evaluate Existing Design Documentation		CON	SL_ME	Hrs	8		846		846	25%
1	03	05	07			LN05070020	Evaluate Existing Design Documentation		CON	SL_MDD	Hrs	16		1,004		1,004	25%
1	03	05	07			LN05070025	Produce Common Layout		PED	SL_MDD	Hrs	24		1,506		1,506	25%
1	03	05	07			LN05070030	Develop General Specifications / Analysis		PED	SL_ME	Hrs	16		1,691		1,691	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	05	07			LN05070035	Create / Remodel / Revise Dsn Documentation		PED	SL_MDD	Hrs	160		10,038		10,038	25%
1	03	05	07			LN05070040	Make Simplified Models		PED	SL_MDD	Hrs	16		1,004		1,004	25%
1	03	05	07			LN05070045	Release Final Model To Server		PED	SL_MDD	Hrs	4		251		251	25%
1	03	05	07			LN05070050	Update Component Data Base		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	07			LN05070055	Write Component Traveler		CON	SL_ME	Hrs	8		846		846	25%
1	03	05	07			LN05070060	Prepare for PDR - Bunch Length Monitors		PED	SL_ME	Hrs	2		211		211	25%
1	03	05	07			LN05070065	Conduct B/L Monitors PDR		PED	SL_ME	Hrs	2		211		211	25%
1	03	05	07			LN05070070	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	4		423		423	25%
1	03	05	07			LN05070075	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		423		423	25%
1	03	05	07			LN05070080	Prepare for FDR - Bunch Length Monitors		PED	SL_ME	Hrs	2		211		211	25%
1	03	05	07			LN05070085	Conduct B/L Monitors FDR		PED	SL_ME	Hrs	2		211		211	25%
1	03	05	07			LN05070140	Define Diagnostics Support Requirements		PED	SL_ME	Hrs	2		211		211	25%
1	03	05	07			LN05070145	Create ICD & Update LCLS Database		PED	SL_ME	Hrs	2		211		211	25%
1	03	05	07			LN05070150	Develop Preliminary Design - Diagnostic Supports		PED	SL_ME	Hrs	2		211		211	25%
1	03	05	07			LN05070150	Develop Preliminary Design - Diagnostic Supports		PED	SL_MDD	Hrs	24		1,506		1,506	25%
1	03	05	07			LN05070160	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	2		211		211	25%
1	03	05	07			LN05070160	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	2		125		125	25%
1	03	05	07			LN05070170	Develop Final Design - Diagnostics Supports		PED	SL_ME	Hrs	4		432		432	25%
1	03	05	07			LN05070170	Develop Final Design - Diagnostics Supports		PED	SL_MDD	Hrs	24		1,537		1,537	25%
1	03	05	07			LN05070100	Procure Component Material - Bunch Length Mon		CON	SL_MSEG	$$		5,000		5,600	5,600	25%
1	03	05	07			LN05070180	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	2		217		217	25%
1	03	05	07			LN05070180	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	2		129		129	25%
1	03	05	07			LN05070250	Procure Misc Materials - Diagnostics Supports		CON	SL_MSEG	$$		450		504	504	25%
1	03	05	07			LN05070195	Prep Bid Pak - Diagnostics Supports		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	07			LN05070195	Prep Bid Pak - Diagnostics Supports		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	07			LN05070105	Component Fab & Assembly - Bunch Length Monit		CON	SL_MFPC	Hrs	100		16,476		16,476	25%
1	03	05	07			LN05070105	Component Fab & Assembly - Bunch Length Monit		CON	SL_MFMS	Hrs	16		1,651		1,651	25%
1	03	05	07			LN05070105	Component Fab & Assembly - Bunch Length Monit		CON	SL_MFAT	Hrs	150		12,624		12,624	25%
1	03	05	07			LN05070220	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	07			LN05070230	Vendor Fab 1st Lot - Supports		CON	SL_MSEG	$$		3,600		4,032	4,032	25%
1	03	05	07			LN05070110	Perform QC / Metrology		CON	SL_MES	Hrs	16		1,486		1,486	25%
1	03	05	07			LN05070270	Perform QC & Inspection - Diagnostic Supports		CON	SL_MES	Hrs	8		743		743	25%
1	03	05	07			LN05070275	Assemble Supports		CON	SL_MFAT	Hrs	36		3,030		3,030	25%
1	03	05	07			LN05070285	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	07			LN05070115	Perform Functional Testing - Bunch Length Mon		CON	SL_CE	Hrs	16		1,851		1,851	25%
1	03	05	07			LN05070130	Post Process & Test		CON	SL_MFAT	Hrs	40		3,366		3,366	25%
1	03	05	07			LN05070125	Load Component Data Base		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	07			LN05070120	Collect Component Performance Data		CON	SL_ME	Hrs	8		869		869	25%
1	**03**	**05**	**08**				**Beam Loss Monitors**					**1,838**	**15,600**	**175,295**	**17,622**	**192,917**	
1	**03**	**05**	**08**	**01**			**Beam Loss Monitors (10 PIC)**					**602**	**6,550**	**50,657**	**7,336**	**57,993**	
1	03	05	08	01		LN05080100	Receive Beam Loss Monitor Requirements		PED	SL_ME	Hrs	2		217		217	15%
1	03	05	08	01		LN05080102	Review & Accept Requirements		PED	SL_ME	Hrs	2		217		217	15%
1	03	05	08	01		LN05080104	Write ICD - Beam Loss Monitor		CON	SL_ME	Hrs	8		869		869	15%
1	03	05	08	01		LN05080106	Collect Area Specific Requirements		CON	SL_ME	Hrs	4		435		435	15%
1	03	05	08	01		LN05080106	Collect Area Specific Requirements		CON	SL_MDD	Hrs	8		516		516	15%
1	03	05	08	01		LN05080108	Evaluate Existing Design Documentation		CON	SL_ME	Hrs	8		869		869	15%
1	03	05	08	01		LN05080108	Evaluate Existing Design Documentation		CON	SL_MDD	Hrs	40		2,580		2,580	15%
1	03	05	08	01		LN05080110	Produce Common Layout		PED	SL_MDD	Hrs	40		2,580		2,580	15%
1	03	05	08	01		LN05080112	Develop General Specifications / Analysis		CON	SL_ME	Hrs	16		1,739		1,739	15%
1	03	05	08	01		LN05080114	Revise Design Documentation		PED	SL_MDD	Hrs	80		5,159		5,159	15%
1	03	05	08	01		LN05080116	Make Simplified Models		CON	SL_MDD	Hrs	4		258		258	15%
1	03	05	08	01		LN05080118	Release Final Model To Server		CON	SL_MDD	Hrs	4		258		258	15%
1	03	05	08	01		LN05080120	Update Component Data Base		CON	SL_ME	Hrs	4		435		435	15%
1	03	05	08	01		LN05080122	Write Component Traveler		CON	SL_ME	Hrs	8		869		869	15%
1	03	05	08	01		LN05080124	Prepare for PDR - Beam Loss Monitors		CON	SL_ME	Hrs	2		217		217	15%
1	03	05	08	01		LN05080124	Prepare for PDR - Beam Loss Monitors		CON	SL_MDD	Hrs	2		129		129	15%
1	03	05	08	01		LN05080126	Conduct Beam Loss Monitors PDR		CON	SL_ME	Hrs	8		869		869	15%
1	03	05	08	01		LN05080128	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	4		435		435	15%
1	03	05	08	01		LN05080130	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		435		435	15%
1	03	05	08	01		LN05080132	Prepare for FDR - Beam Loss Monitors		CON	SL_ME	Hrs	2		217		217	15%
1	03	05	08	01		LN05080132	Prepare for FDR - Beam Loss Monitors		CON	SL_MDD	Hrs	2		129		129	15%
1	03	05	08	01		LN05080134	Conduct Beam Loss Monitors FDR		CON	SL_ME	Hrs	2		217		217	15%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	05	08	01		LN05080158	Define Diagnostics Support Requirements		PED	SL_ME	Hrs	4		435		435	15%
1	03	05	08	01		LN05080140	Procure Component Material - Beam Loss Monitors		CON	SL_MSEG	$$		2,500		2,800	2,800	15%
1	03	05	08	01		LN05080160	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	4		435		435	15%
1	03	05	08	01		LN05080162	Develop Preliminary Design - Diagnostic Supports		PED	SL_ME	Hrs	8		869		869	15%
1	03	05	08	01		LN05080162	Develop Preliminary Design - Diagnostic Supports		PED	SL_MDD	Hrs	24		1,548		1,548	15%
1	03	05	08	01		LN05080164	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	2		217		217	15%
1	03	05	08	01		LN05080164	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	2		129		129	15%
1	03	05	08	01		LN05080166	Develop Final Design - Diagnostics Supports		PED	SL_ME	Hrs	8		869		869	15%
1	03	05	08	01		LN05080166	Develop Final Design - Diagnostics Supports		PED	SL_MDD	Hrs	40		2,580		2,580	15%
1	03	05	08	01		LN05080142	Component Fab & Assembly - Beam Loss Monitors		CON	SL_MFMS	Hrs	100		10,320		10,320	15%
1	03	05	08	01		LN05080142	Component Fab & Assembly - Beam Loss Monitors		CON	SL_MFAT	Hrs	40		3,366		3,366	15%
1	03	05	08	01		LN05080168	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	2		217		217	15%
1	03	05	08	01		LN05080168	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	2		129		129	15%
1	03	05	08	01		LN05080172	Prep Bid Pak - Diagnostics Supports		CON	SL_ME	Hrs	2		217		217	15%
1	03	05	08	01		LN05080172	Prep Bid Pak - Diagnostics Supports		CON	SL_MDD	Hrs	4		258		258	15%
1	03	05	08	01		LN05080180	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	8		869		869	15%
1	03	05	08	01		LN05080188	Procure Misc Materials - Diagnostics Supports		CON	SL_MSEG	$$		450		504	504	15%
1	03	05	08	01		LN05080184	Vendor Fab 1st Lot - Supports		CON	SL_MSEG	$$		3,600		4,032	4,032	15%
1	03	05	08	01		LN05080196	Perform QC & Inspection - Diagnostic Supports		CON	SL_MES	Hrs	8		743		743	15%
1	03	05	08	01		LN05080197	Assemble Supports		CON	SL_MFAT	Hrs	40		3,366		3,366	15%
1	03	05	08	01		LN05080198	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	4		435		435	15%
1	03	05	08	01		LN05080144	Perform QC / Metrology		CON	SL_MES	Hrs	16		1,486		1,486	15%
1	03	05	08	01		LN05080146	Perform Functional Testing - Beam Loss Monito		CON	SL_CCA	Hrs	12		808		808	15%
1	03	05	08	01		LN05080152	Post Process & Test		CON	SL_MFAT	Hrs	10		842		842	15%
1	03	05	08	01		LN05080150	Load Component Data Base		CON	SL_ME	Hrs	4		435		435	15%
1	03	05	08	01		LN05080148	Collect Component Performance Data		CON	SL_ME	Hrs	4		435		435	15%
1	**03**	**05**	**08**	**02**			**Beam Loss Monitors (2 PLIC)**					**1,236**	**9,050**	**124,638**	**10,286**	**134,924**	
1	03	05	08	02		LN05080200	Receive Beam Loss Monitor Requirements		PED	SL_ME	Hrs	2		217		217	15%
1	03	05	08	02		LN05080202	Review & Accept Requirements		PED	SL_ME	Hrs	2		217		217	15%
1	03	05	08	02		LN05080204	Write ICD - Beam Loss Monitor		CON	SL_ME	Hrs	8		869		869	15%
1	03	05	08	02		LN05080206	Collect Area Specific Requirements		CON	SL_ME	Hrs	16		1,739		1,739	15%
1	03	05	08	02		LN05080206	Collect Area Specific Requirements		CON	SL_MDD	Hrs	8		516		516	15%
1	03	05	08	02		LN05080208	Evaluate Existing Design Documentation		CON	SL_ME	Hrs	8		869		869	15%
1	03	05	08	02		LN05080208	Evaluate Existing Design Documentation		CON	SL_MDD	Hrs	24		1,548		1,548	15%
1	03	05	08	02		LN05080210	Produce Common Layout		PED	SL_MDD	Hrs	40		2,580		2,580	15%
1	03	05	08	02		LN05080212	Develop General Specifications / Analysis		CON	SL_ME	Hrs	8		869		869	15%
1	03	05	08	02		LN05080214	Revise Design Documentation		PED	SL_MDD	Hrs	40		2,580		2,580	15%
1	03	05	08	02		LN05080216	Make Simplified Models		CON	SL_MDD	Hrs	8		516		516	15%
1	03	05	08	02		LN05080218	Release Final Model To Server		CON	SL_MDD	Hrs	4		258		258	15%
1	03	05	08	02		LN05080220	Update Component Data Base		CON	SL_ME	Hrs	4		435		435	15%
1	03	05	08	02		LN05080222	Write Component Traveler		CON	SL_ME	Hrs	8		869		869	15%
1	03	05	08	02		LN05080224	Prepare for PDR - Beam Loss Monitors		CON	SL_ME	Hrs	2		217		217	15%
1	03	05	08	02		LN05080224	Prepare for PDR - Beam Loss Monitors		CON	SL_MDD	Hrs	2		129		129	15%
1	03	05	08	02		LN05080226	Conduct Beam Loss Monitors PDR		CON	SL_ME	Hrs	8		869		869	15%
1	03	05	08	02		LN05080228	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	4		435		435	15%
1	03	05	08	02		LN05080230	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		435		435	15%
1	03	05	08	02		LN05080232	Prepare for FDR - Beam Loss Monitors		CON	SL_ME	Hrs	2		217		217	15%
1	03	05	08	02		LN05080232	Prepare for FDR - Beam Loss Monitors		CON	SL_MDD	Hrs	2		129		129	15%
1	03	05	08	02		LN05080234	Conduct Beam Loss Monitors FDR		CON	SL_ME	Hrs	2		217		217	15%
1	03	05	08	02		LN05080256	Define Diagnostics Support Requirements		PED	SL_ME	Hrs	4		435		435	15%
1	03	05	08	02		LN05080258	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	4		435		435	15%
1	03	05	08	02		LN05080260	Develop Preliminary Design - Diagnostic Supports		PED	SL_ME	Hrs	8		869		869	15%
1	03	05	08	02		LN05080260	Develop Preliminary Design - Diagnostic Supports		PED	SL_MDD	Hrs	24		1,548		1,548	15%
1	03	05	08	02		LN05080262	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	2		217		217	15%
1	03	05	08	02		LN05080262	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	2		129		129	15%
1	03	05	08	02		LN05080264	Develop Final Design - Diagnostics Supports		PED	SL_ME	Hrs	8		869		869	15%
1	03	05	08	02		LN05080264	Develop Final Design - Diagnostics Supports		PED	SL_MDD	Hrs	24		1,548		1,548	15%
1	03	05	08	02		LN05080266	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	2		217		217	15%
1	03	05	08	02		LN05080266	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	2		129		129	15%
1	03	05	08	02		LN05080270	Prep Bid Pak - Diagnostics Supports		CON	SL_ME	Hrs	2		217		217	15%
1	03	05	08	02		LN05080270	Prep Bid Pak - Diagnostics Supports		CON	SL_MDD	Hrs	4		258		258	15%
1	03	05	08	02		LN05080278	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	8		869		869	15%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	05	08	02		LN05080286	Procure Misc Materials - Diagnostics Supports		CON	SL_MSEG	$$		450		504	504	15%
1	03	05	08	02		LN05080282	Vendor Fab 1st Lot - Supports		CON	SL_MSEG	$$		3,600		4,032	4,032	15%
1	03	05	08	02		LN05080294	Perform QC & Inspection - Diagnostic Supports		CON	SL_MES	Hrs	8		743		743	15%
1	03	05	08	02		LN05080296	Assemble Supports		CON	SL_MFAT	Hrs	36		3,030		3,030	15%
1	03	05	08	02		LN05080298	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	4		435		435	15%
1	03	05	08	02		LN05080240	Procure Component Material - Beam Loss Monitors		CON	SL_MSEG	$$		5,000		5,750	5,750	15%
1	03	05	08	02		LN05080242	Component Fab & Assembly - Beam Loss Monitors		CON	SL_MFPC	Hrs	100		16,905		16,905	15%
1	03	05	08	02		LN05080242	Component Fab & Assembly - Beam Loss Monitors		CON	SL_MFMS	Hrs	550		58,234		58,234	15%
1	03	05	08	02		LN05080242	Component Fab & Assembly - Beam Loss Monitors		CON	SL_MFAT	Hrs	150		12,953		12,953	15%
1	03	05	08	02		LN05080244	Perform QC / Metrology		CON	SL_MES	Hrs	16		1,524		1,524	15%
1	03	05	08	02		LN05080246	Perform Functional Testing - Beam Loss Monito		CON	SL_CCA	Hrs	16		1,106		1,106	15%
1	03	05	08	02		LN05080248	Collect Component Performance Data		CON	SL_ME	Hrs	8		892		892	15%
1	03	05	08	02		LN05080250	Load Component Data Base		CON	SL_ME	Hrs	8		892		892	15%
1	03	05	08	02		LN05080252	Post Process & Test		CON	SL_MFAT	Hrs	40		3,454		3,454	15%
1	**03**	**05**	**09**				**Single Beam Dump (1ea)**					**594**	**8,950**	**50,263**	**10,113**	**60,376**	
1	03	05	09			LN05090000	Receive Single Beam Dump Requirements		PED	SL_ME	Hrs	4		435		435	35%
1	03	05	09			LN05090005	Review & Accept Requirements		PED	SL_ME	Hrs	4		435		435	35%
1	03	05	09			LN05090010	Write ICD - Single Beam Dump		CON	SL_ME	Hrs	8		869		869	35%
1	03	05	09			LN05090015	Collect Area Specific Requirements		CON	SL_ME	Hrs	8		869		869	35%
1	03	05	09			LN05090015	Collect Area Specific Requirements		CON	SL_MDD	Hrs	32		2,064		2,064	35%
1	03	05	09			LN05090020	Evaluate Existing Design Documentation		CON	SL_ME	Hrs	8		869		869	35%
1	03	05	09			LN05090020	Evaluate Existing Design Documentation		CON	SL_MDD	Hrs	24		1,548		1,548	35%
1	03	05	09			LN05090025	Produce Common Layout		PED	SL_MDD	Hrs	60		3,869		3,869	35%
1	03	05	09			LN05090030	Develop General Specifications / Analysis		CON	SL_ME	Hrs	16		1,739		1,739	35%
1	03	05	09			LN05090035	Create / Remodel / Revise Dsn Documentation		CON	SL_MDD	Hrs	60		3,869		3,869	35%
1	03	05	09			LN05090040	Make Simplified Models		CON	SL_MDD	Hrs	16		1,032		1,032	35%
1	03	05	09			LN05090045	Release Final Model To Server		CON	SL_MDD	Hrs	4		258		258	35%
1	03	05	09			LN05090050	Update Component Data Base		CON	SL_ME	Hrs	4		435		435	35%
1	03	05	09			LN05090055	Write Component Traveler		CON	SL_ME	Hrs	8		869		869	35%
1	03	05	09			LN05090060	Prepare for PDR - Single Beam Dump		CON	SL_ME	Hrs	2		217		217	35%
1	03	05	09			LN05090060	Prepare for PDR - Single Beam Dump		CON	SL_MDD	Hrs	4		258		258	35%
1	03	05	09			LN05090065	Conduct Single Beam Dump PDR		PED	SL_ME	Hrs	2		217		217	35%
1	03	05	09			LN05090065	Conduct Single Beam Dump PDR		PED	SL_MDD	Hrs	2		129		129	35%
1	03	05	09			LN05090070	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	4		435		435	35%
1	03	05	09			LN05090075	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		435		435	35%
1	03	05	09			LN05090080	Prepare for FDR - Single Beam Dump		CON	SL_ME	Hrs	2		217		217	35%
1	03	05	09			LN05090080	Prepare for FDR - Single Beam Dump		CON	SL_MDD	Hrs	4		258		258	35%
1	03	05	09			LN05090085	Conduct Single Beam Dump FDR		PED	SL_ME	Hrs	2		217		217	35%
1	03	05	09			LN05090085	Conduct Single Beam Dump FDR		PED	SL_MDD	Hrs	2		129		129	35%
1	03	05	09			LN05090140	Define Diagnostics Support Requirements		PED	SL_ME	Hrs	4		435		435	35%
1	03	05	09			LN05090145	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	4		435		435	35%
1	03	05	09			LN05090150	Develop Preliminary Design - Diagnostic Supports		PED	SL_ME	Hrs	8		869		869	35%
1	03	05	09			LN05090150	Develop Preliminary Design - Diagnostic Supports		PED	SL_MDD	Hrs	16		1,032		1,032	35%
1	03	05	09			LN05090160	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	2		217		217	35%
1	03	05	09			LN05090160	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	2		129		129	35%
1	03	05	09			LN05090170	Develop Final Design - Diagnostics Supports		PED	SL_ME	Hrs	8		869		869	35%
1	03	05	09			LN05090170	Develop Final Design - Diagnostics Supports		PED	SL_MDD	Hrs	40		2,580		2,580	35%
1	03	05	09			LN05090180	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	2		217		217	35%
1	03	05	09			LN05090180	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	2		129		129	35%
1	03	05	09			LN05090100	Procure Component Material - Single Beam Dump		CON	SL_MSEG	$$		6,000		6,720	6,720	35%
1	03	05	09			LN05090105	Component Fab & Assembly - Single Beam Dump		CON	SL_MFPC	Hrs	16		2,636		2,636	35%
1	03	05	09			LN05090105	Component Fab & Assembly - Single Beam Dump		CON	SL_MFMS	Hrs	16		1,651		1,651	35%
1	03	05	09			LN05090105	Component Fab & Assembly - Single Beam Dump		CON	SL_MFAT	Hrs	40		3,366		3,366	35%
1	03	05	09			LN05090110	Perform QC / Metrology		CON	SL_MES	Hrs	16		1,486		1,486	35%
1	03	05	09			LN05090115	Perform Functional Testing - Single Beam Dump		CON	SL_ME	Hrs	16		1,739		1,739	35%
1	03	05	09			LN05090120	Collect Component Performance Data		CON	SL_ME	Hrs	8		869		869	35%
1	03	05	09			LN05090125	Load Component Data Base		CON	SL_ME	Hrs	8		869		869	35%
1	03	05	09			LN05090130	Post Process & Test		CON	SL_MFAT	Hrs	40		3,366		3,366	35%
1	03	05	09			LN05090195	Prep Bid Pak - Diagnostics Supports		CON	SL_ME	Hrs	2		223		223	35%
1	03	05	09			LN05090195	Prep Bid Pak - Diagnostics Supports		CON	SL_MDD	Hrs	4		265		265	35%
1	03	05	09			LN05090220	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	8		892		892	35%
1	03	05	09			LN05090250	Procure Misc Materials - Diagnostics Supports		CON	SL_MSEG	$$		450		518	518	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	05	09			LN05090230	Vendor Fab 1st Lot - Supports		CON	SL_MSEG	$$		2,500		2,875	2,875	35%
1	03	05	09			LN05090270	Perform QC & Inspection - Diagnostic Supports		CON	SL_MES	Hrs	8		762		762	35%
1	03	05	09			LN05090275	Assemble Supports		CON	SL_MFAT	Hrs	36		3,109		3,109	35%
1	03	05	09			LN05090285	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	4		446		446	35%
1	**03**	**05**	**10**				**Electron Beam Dump (1ea)**					**814**	**12,950**	**67,690**	**14,504**	**82,194**	
1	03	05	10			LN05100000	Receive Electron Beam Dump Requirements		PED	SL_ME	Hrs	4		435		435	25%
1	03	05	10			LN05100005	Review & Accept Requirements		PED	SL_ME	Hrs	4		435		435	25%
1	03	05	10			LN05100010	Write ICD - Electron Beam Dump		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	10			LN05100015	Collect Area Specific Requirements		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	10			LN05100015	Collect Area Specific Requirements		CON	SL_MDD	Hrs	32		2,064		2,064	25%
1	03	05	10			LN05100020	Evaluate Existing Design Documentation		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	10			LN05100020	Evaluate Existing Design Documentation		CON	SL_MDD	Hrs	40		2,580		2,580	25%
1	03	05	10			LN05100025	Produce Common Layout		PED	SL_MDD	Hrs	40		2,580		2,580	25%
1	03	05	10			LN05100030	Develop General Specifications / Analysis		CON	SL_ME	Hrs	16		1,739		1,739	25%
1	03	05	10			LN05100035	Create / Remodel / Revise Dsn Documentation		CON	SL_MDD	Hrs	160		10,318		10,318	25%
1	03	05	10			LN05100040	Make Simplified Models		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	10			LN05100045	Release Final Model To Server		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	10			LN05100050	Update Component Data Base		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	10			LN05100055	Write Component Traveler		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	10			LN05100060	Prepare for PDR - Electron Beam Dump		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	10			LN05100060	Prepare for PDR - Electron Beam Dump		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	10			LN05100065	Conduct Electron Beam Dump PDR		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	10			LN05100065	Conduct Electron Beam Dump PDR		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	10			LN05100070	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	10			LN05100075	Establish Subordinate Work Orders		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	10			LN05100080	Prepare for FDR - Electron Beam Dump		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	10			LN05100080	Prepare for FDR - Electron Beam Dump		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	10			LN05100085	Conduct Electron Beam Dump FDR		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	10			LN05100085	Conduct Electron Beam Dump FDR		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	10			LN05100140	Define Diagnostics Support Requirements		PED	SL_ME	Hrs	4		435		435	25%
1	03	05	10			LN05100100	Procure Component Material - Electron Beam Dump		CON	SL_MSEG	$$		10,000		11,200	11,200	25%
1	03	05	10			LN05100145	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	10			LN05100150	Develop Preliminary Design - Diagnostic Supports		PED	SL_ME	Hrs	8		869		869	25%
1	03	05	10			LN05100150	Develop Preliminary Design - Diagnostic Supports		PED	SL_MDD	Hrs	16		1,032		1,032	25%
1	03	05	10			LN05100160	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	2		217		217	25%
1	03	05	10			LN05100160	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	2		129		129	25%
1	03	05	10			LN05100170	Develop Final Design - Diagnostics Supports		PED	SL_ME	Hrs	8		869		869	25%
1	03	05	10			LN05100170	Develop Final Design - Diagnostics Supports		PED	SL_MDD	Hrs	40		2,580		2,580	25%
1	03	05	10			LN05100180	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	2		217		217	25%
1	03	05	10			LN05100180	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	2		129		129	25%
1	03	05	10			LN05100250	Procure Misc Materials - Diagnostics Supports		CON	SL_MSEG	$$		450		504	504	25%
1	03	05	10			LN05100195	Prep Bid Pak - Diagnostics Supports		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	10			LN05100195	Prep Bid Pak - Diagnostics Supports		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	10			LN05100220	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	10			LN05100230	Vendor Fab 1st Lot - Supports		CON	SL_MSEG	$$		2,500		2,800	2,800	25%
1	03	05	10			LN05100270	Perform QC & Inspection - Diagnostic Supports		CON	SL_MES	Hrs	8		743		743	25%
1	03	05	10			LN05100275	Assemble Supports		CON	SL_MFAT	Hrs	36		3,030		3,030	25%
1	03	05	10			LN05100105	Component Fab & Assembly - Electron Beam Dump		CON	SL_MFPC	Hrs	24		3,954		3,954	25%
1	03	05	10			LN05100105	Component Fab & Assembly - Electron Beam Dump		CON	SL_MFMS	Hrs	24		2,477		2,477	25%
1	03	05	10			LN05100105	Component Fab & Assembly - Electron Beam Dump		CON	SL_MFAT	Hrs	160		13,466		13,466	25%
1	03	05	10			LN05100285	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	10			LN05100110	Perform QC / Metrology		CON	SL_MES	Hrs	16		1,486		1,486	25%
1	03	05	10			LN05100115	Perform Functional Testing - Electron Beam Du		CON	SL_ME	Hrs	16		1,739		1,739	25%
1	03	05	10			LN05100120	Collect Component Performance Data		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	10			LN05100125	Load Component Data Base		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	10			LN05100130	Post Process & Test		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	**03**	**05**	**11**				**Protection Collimators (4ea)**					**1,062**	**58,200**	**89,999**	**65,184**	**155,183**	
1	03	05	11			LN05110000	Receive Protection Collimator Requirements		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	11			LN05110005	Review & Accept Requirements		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	11			LN05110010	Write ICD - Protection Collimator		CON	SL_ME	Hrs	8		846		846	25%
1	03	05	11			LN05110015	Collect Area Specific Requirements		PED	SL_ME	Hrs	8		846		846	25%
1	03	05	11			LN05110015	Collect Area Specific Requirements		PED	SL_MDD	Hrs	16		1,004		1,004	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	05	11			LN05110020	Evaluate Existing Design Documentation		CON	SL_ME	Hrs	8		846		846	25%
1	03	05	11			LN05110020	Evaluate Existing Design Documentation		CON	SL_MDD	Hrs	24		1,506		1,506	25%
1	03	05	11			LN05110025	Produce Common Layout		PED	SL_MDD	Hrs	40		2,510		2,510	25%
1	03	05	11			LN05110030	Develop General Specifications / Analysis		PED	SL_ME	Hrs	8		846		846	25%
1	03	05	11			LN05110035	Create / Remodel / Revise Dsn Documentation		PED	SL_MDD	Hrs	160		10,038		10,038	25%
1	03	05	11			LN05110040	Make Simplified Models		PED	SL_MDD	Hrs	8		502		502	25%
1	03	05	11			LN05110045	Release Final Model To Server		PED	SL_MDD	Hrs	8		502		502	25%
1	03	05	11			LN05110050	Update Component Data Base		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	11			LN05110055	Write Component Traveler		CON	SL_ME	Hrs	16		1,691		1,691	25%
1	03	05	11			LN05110060	Prepare for PDR - Protection Collimators		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	11			LN05110060	Prepare for PDR - Protection Collimators		PED	SL_MDD	Hrs	4		251		251	25%
1	03	05	11			LN05110065	Conduct Protection Collimator PDR		PED	SL_ME	Hrs	2		211		211	25%
1	03	05	11			LN05110065	Conduct Protection Collimator PDR		PED	SL_MDD	Hrs	2		125		125	25%
1	03	05	11			LN05110070	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	4		423		423	25%
1	03	05	11			LN05110075	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		423		423	25%
1	03	05	11			LN05110080	Prepare for FDR - Protection Collimators		PED	SL_ME	Hrs	8		846		846	25%
1	03	05	11			LN05110085	Conduct Protection Collimator FDR		PED	SL_ME	Hrs	2		211		211	25%
1	03	05	11			LN05110085	Conduct Protection Collimator FDR		PED	SL_MDD	Hrs	2		125		125	25%
1	03	05	11			LN05110235	Define Diagnostics Support Requirements		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	11			LN05110100	Prep Bid Pak - Protection Collimator		CON	SL_ME	Hrs	8		846		846	25%
1	03	05	11			LN05110100	Prep Bid Pak - Protection Collimator		CON	SL_MDD	Hrs	16		1,004		1,004	25%
1	03	05	11			LN05110240	Create ICD & Update LCLS Database		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	11			LN05110245	Develop Preliminary Design - Diagnostic Supports		PED	SL_ME	Hrs	16		1,701		1,701	25%
1	03	05	11			LN05110245	Develop Preliminary Design - Diagnostic Supports		PED	SL_MDD	Hrs	60		3,785		3,785	25%
1	03	05	11			LN05110160	Procure Component Material - Protection Collimat		CON	SL_MSEG	$$		5,000		5,600	5,600	25%
1	03	05	11			LN05110255	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	2		217		217	25%
1	03	05	11			LN05110255	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	2		129		129	25%
1	03	05	11			LN05110265	Develop Final Design - Diagnostics Supports		PED	SL_ME	Hrs	8		869		869	25%
1	03	05	11			LN05110265	Develop Final Design - Diagnostics Supports		PED	SL_MDD	Hrs	40		2,580		2,580	25%
1	03	05	11			LN05110125	Evaluate Vendor Proposals		CON	SL_ME	Hrs	16		1,739		1,739	25%
1	03	05	11			LN05110275	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	2		217		217	25%
1	03	05	11			LN05110275	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	2		129		129	25%
1	03	05	11			LN05110345	Procure Misc Materials - Diagnostics Supports		CON	SL_MSEG	$$		1,200		1,344	1,344	25%
1	03	05	11			LN05110290	Prep Bid Pak - Diagnostics Supports		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	11			LN05110290	Prep Bid Pak - Diagnostics Supports		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	11			LN05110135	Vendor Fab 1st Lot		CON	SL_MSEG	$$		40,000		44,800	44,800	25%
1	03	05	11			LN05110315	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	11			LN05110165	Component Fab & Assembly - Protection Collimat		CON	SL_MFPC	Hrs	40		6,590		6,590	25%
1	03	05	11			LN05110165	Component Fab & Assembly - Protection Collimat		CON	SL_MFMS	Hrs	80		8,256		8,256	25%
1	03	05	11			LN05110165	Component Fab & Assembly - Protection Collimat		CON	SL_MFAT	Hrs	240		20,198		20,198	25%
1	03	05	11			LN05110325	Vendor Fab 1st Lot - Supports		CON	SL_MSEG	$$		12,000		13,440	13,440	25%
1	03	05	11			LN05110185	Perform QC / Metrology		CON	SL_MES	Hrs	40		3,715		3,715	25%
1	03	05	11			LN05110365	Perform QC & Inspection - Diagnostic Supports		CON	SL_MES	Hrs	8		743		743	25%
1	03	05	11			LN05110190	Perform Functional Testing - Protection Colli		CON	SL_CCA	Hrs	16		1,078		1,078	25%
1	03	05	11			LN05110370	Assemble Supports		CON	SL_MFAT	Hrs	36		3,030		3,030	25%
1	03	05	11			LN05110205	Post Process & Test		CON	SL_MFAT	Hrs	40		3,366		3,366	25%
1	03	05	11			LN05110200	Load Component Data Base		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	11			LN05110195	Collect Component Performance Data		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	11			LN05110380	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	4		435		435	25%
1	**03**	**05**	**12**				**Movable Collimators (6ea)**					**1,420**	**88,200**	**113,747**	**98,784**	**212,531**	
1	03	05	12			LN05120000	Receive Movable Collimator Requirements		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	12			LN05120005	Review & Accept Requirements		PED	SL_ME	Hrs	4		423		423	25%
1	03	05	12			LN05120010	Write ICD - Movable Collimator		CON	SL_ME	Hrs	24		2,537		2,537	25%
1	03	05	12			LN05120015	Collect Area Specific Requirements		PED	SL_ME	Hrs	8		860		860	25%
1	03	05	12			LN05120015	Collect Area Specific Requirements		PED	SL_MDD	Hrs	32		2,041		2,041	25%
1	03	05	12			LN05120020	Evaluate Existing Design Documentation		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	12			LN05120020	Evaluate Existing Design Documentation		CON	SL_MDD	Hrs	40		2,580		2,580	25%
1	03	05	12			LN05120025	Produce Common Layout		PED	SL_MDD	Hrs	80		5,159		5,159	25%
1	03	05	12			LN05120030	Develop General Specifications / Analysis		CON	SL_ME	Hrs	16		1,739		1,739	25%
1	03	05	12			LN05120035	Create / Remodel / Revise Dsn Documentation		CON	SL_MDD	Hrs	420		27,086		27,086	25%
1	03	05	12			LN05120040	Make Simplified Models		CON	SL_MDD	Hrs	24		1,548		1,548	25%
1	03	05	12			LN05120045	Release Final Model To Server		CON	SL_MDD	Hrs	8		516		516	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	05	12			LN05120050	Update Component Data Base		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	12			LN05120055	Write Component Traveler		CON	SL_ME	Hrs	24		2,608		2,608	25%
1	03	05	12			LN05120060	Prepare for PDR - Movable Collimators		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	12			LN05120060	Prepare for PDR - Movable Collimators		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	12			LN05120065	Conduct Prelim Dsn Review - Movable Collimator		PED	SL_ME	Hrs	2		217		217	25%
1	03	05	12			LN05120065	Conduct Prelim Dsn Review - Movable Collimator		PED	SL_MDD	Hrs	2		129		129	25%
1	03	05	12			LN05120070	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	12			LN05120075	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	12			LN05120080	Prepare for FDR - Movable Collimators		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	12			LN05120080	Prepare for FDR - Movable Collimators		CON	SL_MDD	Hrs	2		129		129	25%
1	03	05	12			LN05120085	Conduct Final Dsn Review - Movable Collimator		PED	SL_ME	Hrs	2		217		217	25%
1	03	05	12			LN05120085	Conduct Final Dsn Review - Movable Collimator		PED	SL_MDD	Hrs	2		129		129	25%
1	03	05	12			LN05120210	Define Diagnostics Support Requirements		PED	SL_ME	Hrs	4		435		435	25%
1	03	05	12			LN05120095	Prep Bid Pak - Movable Collimator		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	12			LN05120095	Prep Bid Pak - Movable Collimator		CON	SL_MDD	Hrs	16		1,032		1,032	25%
1	03	05	12			LN05120215	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	12			LN05120220	Develop Preliminary Design - Diagnostic Supports		PED	SL_ME	Hrs	8		869		869	25%
1	03	05	12			LN05120220	Develop Preliminary Design - Diagnostic Supports		PED	SL_MDD	Hrs	16		1,032		1,032	25%
1	03	05	12			LN05120230	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	2		217		217	25%
1	03	05	12			LN05120230	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	2		129		129	25%
1	03	05	12			LN05120240	Develop Final Design - Diagnostics Supports		PED	SL_ME	Hrs	8		869		869	25%
1	03	05	12			LN05120240	Develop Final Design - Diagnostics Supports		PED	SL_MDD	Hrs	40		2,580		2,580	25%
1	03	05	12			LN05120155	Procure Component Material - Movable Collimator		CON	SL_MSEG	$$		7,000		7,840	7,840	25%
1	03	05	12			LN05120250	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	2		217		217	25%
1	03	05	12			LN05120250	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	2		129		129	25%
1	03	05	12			LN05120320	Procure Misc Materials - Diagnostics Supports		CON	SL_MSEG	$$		700		784	784	25%
1	03	05	12			LN05120265	Prep Bid Pak - Diagnostics Supports		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	12			LN05120265	Prep Bid Pak - Diagnostics Supports		CON	SL_MDD	Hrs	8		516		516	25%
1	03	05	12			LN05120120	Evaluate Vendor Proposals		CON	SL_ME	Hrs	16		1,739		1,739	25%
1	03	05	12			LN05120130	Vendor Fab 1st Lot		CON	SL_MSEG	$$		70,000		78,400	78,400	25%
1	03	05	12			LN05120290	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	12			LN05120160	Component Fab & Assembly - Movable Collimator		CON	SL_MFPC	Hrs	24		3,954		3,954	25%
1	03	05	12			LN05120160	Component Fab & Assembly - Movable Collimator		CON	SL_MFMS	Hrs	80		8,256		8,256	25%
1	03	05	12			LN05120160	Component Fab & Assembly - Movable Collimator		CON	SL_MFAT	Hrs	160		13,466		13,466	25%
1	03	05	12			LN05120300	Vendor Fab 1st Lot - Supports		CON	SL_MSEG	$$		10,500		11,760	11,760	25%
1	03	05	12			LN05120340	Perform QC & Inspection - Diagnostic Supports		CON	SL_MES	Hrs	8		743		743	25%
1	03	05	12			LN05120345	Assemble Supports		CON	SL_MFAT	Hrs	120		10,099		10,099	25%
1	03	05	12			LN05120355	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	12			LN05120180	Perform QC / Metrology		CON	SL_MES	Hrs	56		5,201		5,201	25%
1	03	05	12			LN05120185	Perform Functional Testing - Movable Collimat		CON	SL_CCA	Hrs	40		2,694		2,694	25%
1	03	05	12			LN05120190	Collect Component Performance Data		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	12			LN05120193	Load Component Data Base		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	12			LN05120196	Post Process & Test		CON	SL_MFAT	Hrs	40		3,366		3,366	25%
1	**03**	**05**	**13**				**Safety Dump**					**602**	**23,250**	**50,852**	**26,048**	**76,900**	
1	03	05	13			LN05130000	Receive Single Beam Dump Requirements		PED	SL_ME	Hrs	4		435		435	25%
1	03	05	13			LN05130005	Review & Accept Requirements		PED	SL_ME	Hrs	4		435		435	25%
1	03	05	13			LN05130010	Write ICD - Single Beam Dump		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	13			LN05130015	Collect Area Specific Requirements		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	13			LN05130015	Collect Area Specific Requirements		CON	SL_MDD	Hrs	32		2,064		2,064	25%
1	03	05	13			LN05130025	Evaluate Existing Design Documentation		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	13			LN05130025	Evaluate Existing Design Documentation		CON	SL_MDD	Hrs	16		1,032		1,032	25%
1	03	05	13			LN05130035	Produce Common Layout		PED	SL_MDD	Hrs	16		1,032		1,032	25%
1	03	05	13			LN05130040	Develop General Specifications / Analysis		CON	SL_ME	Hrs	16		1,739		1,739	25%
1	03	05	13			LN05130045	Create / Remodel / Revise Dsn Documentation		CON	SL_MDD	Hrs	80		5,159		5,159	25%
1	03	05	13			LN05130050	Make Simplified Models		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	13			LN05130055	Release Final Model To Server		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	13			LN05130060	Update Component Data Base		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	13			LN05130065	Write Component Traveler		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	13			LN05130070	Prepare for PDR - Single Beam Dump		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	13			LN05130070	Prepare for PDR - Single Beam Dump		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	13			LN05130080	Conduct Single Beam Dump PDR		PED	SL_ME	Hrs	2		217		217	25%
1	03	05	13			LN05130080	Conduct Single Beam Dump PDR		PED	SL_MDD	Hrs	2		129		129	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	05	13			LN05130090	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	13			LN05130095	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	13			LN05130100	Prepare for FDR - Single Beam Dump		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	13			LN05130100	Prepare for FDR - Single Beam Dump		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	13			LN05130110	Conduct Single Beam Dump FDR		PED	SL_ME	Hrs	2		217		217	25%
1	03	05	13			LN05130110	Conduct Single Beam Dump FDR		PED	SL_MDD	Hrs	2		129		129	25%
1	03	05	13			LN05130240	Define Diagnostics Support Requirements		PED	SL_ME	Hrs	4		435		435	25%
1	03	05	13			LN05130185	Procure Component Material - Single Beam Dump		CON	SL_MSEG	$$		1,000		1,120	1,120	25%
1	03	05	13			LN05130130	Prep Bid Pak - Safety Dump		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	13			LN05130130	Prep Bid Pak - Safety Dump		CON	SL_MDD	Hrs	4		258		258	25%
1	03	05	13			LN05130245	Create ICD & Update LCLS Database		CON	SL_ME	Hrs	4		435		435	25%
1	03	05	13			LN05130250	Develop Preliminary Design - Diagnostic Supports		PED	SL_ME	Hrs	8		869		869	25%
1	03	05	13			LN05130250	Develop Preliminary Design - Diagnostic Supports		PED	SL_MDD	Hrs	16		1,032		1,032	25%
1	03	05	13			LN05130260	Conduct Preliminary Design Review (PDR)		PED	SL_ME	Hrs	2		217		217	25%
1	03	05	13			LN05130260	Conduct Preliminary Design Review (PDR)		PED	SL_MDD	Hrs	2		129		129	25%
1	03	05	13			LN05130270	Develop Final Design - Diagnostics Supports		PED	SL_ME	Hrs	8		869		869	25%
1	03	05	13			LN05130270	Develop Final Design - Diagnostics Supports		PED	SL_MDD	Hrs	40		2,580		2,580	25%
1	03	05	13			LN05130280	Conduct Final Design Review (FDR)		PED	SL_ME	Hrs	2		217		217	25%
1	03	05	13			LN05130280	Conduct Final Design Review (FDR)		PED	SL_MDD	Hrs	2		129		129	25%
1	03	05	13			LN05130295	Prep Bid Pak - Diagnostics Supports		CON	SL_ME	Hrs	2		217		217	25%
1	03	05	13			LN05130295	Prep Bid Pak - Diagnostics Supports		CON	SL_MDD	Hrs	8		516		516	25%
1	03	05	13			LN05130155	Evaluate Vendor Proposals		CON	SL_ME	Hrs	16		1,739		1,739	25%
1	03	05	13			LN05130165	Vendor Fab 1st Lot		CON	SL_MSEG	$$		20,000		22,400	22,400	25%
1	03	05	13			LN05130320	Evaluate Vendor Proposals - Supports		CON	SL_ME	Hrs	8		869		869	25%
1	03	05	13			LN05130190	Component Fab & Assembly - Single Beam Dump		CON	SL_MFMS	Hrs	24		2,477		2,477	25%
1	03	05	13			LN05130190	Component Fab & Assembly - Single Beam Dump		CON	SL_MFAT	Hrs	80		6,733		6,733	25%
1	03	05	13			LN05130330	Vendor Fab 1st Lot - Supports		CON	SL_MSEG	$$		2,000		2,240	2,240	25%
1	03	05	13			LN05130210	Perform QC / Metrology		CON	SL_MES	Hrs	16		1,515		1,515	25%
1	03	05	13			LN05130220	Collect Component Performance Data		CON	SL_ME	Hrs	8		892		892	25%
1	03	05	13			LN05130225	Load Component Data Base		CON	SL_ME	Hrs	8		892		892	25%
1	03	05	13			LN05130230	Post Process & Test		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	03	05	13			LN05130350	Procure Misc Materials - Diagnostics Supports		CON	SL_MSEG	$$		250		288	288	25%
1	03	05	13			LN05130370	Perform QC & Inspection - Diagnostic Supports		CON	SL_MES	Hrs	8		762		762	25%
1	03	05	13			LN05130375	Assemble Supports		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	03	05	13			LN05130385	Perform Pre-Installation Qualification - Support		CON	SL_ME	Hrs	8		892		892	25%
1	**03**	**06**					**Linac RF Subsystem**					**20,622**	**1,447,500**	**1,980,358**	**1,590,054**	**3,570,412**	
1	**03**	**06**	**01**				**Reserved**										
1	**03**	**06**	**02**				**S-Band High Power System**					**3,040**	**470,500**	**288,468**	**513,385**	**801,853**	
1	03	06	02			LN06020000	Review Waveguide Design Reqmts		PED	SL_KE	Hrs	24		2,700		2,700	25%
1	03	06	02			LN06020005	Design S-Band Waveguide		PED	SL_ME	Hrs	48		5,074		5,074	25%
1	03	06	02			LN06020005	Design S-Band Waveguide		PED	SL_MDD	Hrs	480		30,115		30,115	25%
1	03	06	02			LN06010000	Design Typical LLRF Coupling Linac Replacement		PED	SL_KE	Hrs	8		900		900	25%
1	03	06	02			LN06010005	Prepare for Final Desgin Review (FDR)		PED	SL_KE	Hrs	8		900		900	25%
1	03	06	02			LN06010010	Conduct S-Band Low Level FDR		PED	SL_KE	Hrs	8		900		900	25%
1	03	06	02			LN06010020	Generate Detailed Procurement Plan		CON	SL_KE	Hrs	4		450		450	25%
1	03	06	02			LN06020010	Design WG Supports		PED	SL_MDD	Hrs	40		2,510		2,510	25%
1	03	06	02			LN06020025	Prepare for Prelim Design Review (PDR)		PED	SL_ME	Hrs	8		846		846	25%
1	03	06	02			LN06020030	Conduct Prelim Design Rev - S-Band HP WG System		PED	SL_ME	Hrs	8		846		846	25%
1	03	06	02			LN06020035	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	4		423		423	25%
1	03	06	02			LN06020040	Create Cold Test Plan		PED	SL_ME	Hrs	40		4,228		4,228	25%
1	03	06	02			LN06020045	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		423		423	25%
1	03	06	02			LN06020050	Prepare for Final Desgin Review (FDR)		PED	SL_ME	Hrs	8		846		846	25%
1	03	06	02			LN06020055	Conduct Final Design Rev - S-Band HP WG System		PED	SL_ME	Hrs	8		846		846	25%
1	03	06	02			LN06020065	Prep Bid Pak - Skarpass Flanges		CON	SL_ME	Hrs	8		846		846	25%
1	03	06	02			LN06020115	Procure Waveguide Cooling		CON	SL_MSEG	$$		12,500		13,625	13,625	25%
1	03	06	02			LN06020096	Evaluate Vendor Proposals		CON	SL_ME	Hrs	40		4,228		4,228	25%
1	03	06	02			LN06020068	Evaluate Vendor Proposals		CON	SL_ME	Hrs	40		4,228		4,228	25%
1	03	06	02			LN06020100	Vendor Fab & Assy - S-Band Waveguide		CON	SL_MSEG	$$		375,000		408,750	408,750	25%
1	03	06	02			LN06020072	Vendor Fab - Skarpass Flanges		CON	SL_MSEG	$$		65,000		70,850	70,850	25%
1	03	06	02			LN06020135	Fab & Cold Test - Cold Test Hardware		CON	SL_MFMS	Hrs	80		8,046		8,046	25%
1	03	06	02			LN06020135	Fab & Cold Test - Cold Test Hardware		CON	SL_KE	Hrs	40		4,509		4,509	25%
1	03	06	02			LN06020140	Fab & Cold Test - Waveguide Straights		CON	SL_MFPC	Hrs	20		3,270		3,270	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	06	02			LN06020140	Fab & Cold Test - Waveguide Straights		CON	SL_MFMS	Hrs	480		49,154		49,154	25%
1	03	06	02			LN06020140	Fab & Cold Test - Waveguide Straights		CON	SL_KE	Hrs	40		4,591		4,591	25%
1	03	06	02			LN06020125	Procure Assembly Hardware		CON	SL_MSEG	$$		17,000		19,040	19,040	25%
1	03	06	02			LN06010025	Procure Coupler Connectors		CON	SL_MSEG	$$		1,000		1,120	1,120	25%
1	03	06	02			LN06020145	Fab & Cold Test - Waveguide Components		CON	SL_MFPC	Hrs	100		16,476		16,476	25%
1	03	06	02			LN06020145	Fab & Cold Test - Waveguide Components		CON	SL_MFMS	Hrs	720		74,304		74,304	25%
1	03	06	02			LN06020145	Fab & Cold Test - Waveguide Components		CON	SL_MFAT	Hrs	500		42,080		42,080	25%
1	03	06	02			LN06020145	Fab & Cold Test - Waveguide Components		CON	SL_KT	Hrs	40		2,534		2,534	25%
1	03	06	02			LN06020145	Fab & Cold Test - Waveguide Components		CON	SL_KE	Hrs	40		4,626		4,626	25%
1	03	06	02			LN06010030	Cold Test & Fab - S-Band Low Level Equipment		CON	SL_KE	Hrs	8		925		925	25%
1	03	06	02			LN06020150	Fab & Test - Waveguide Supports		CON	SL_MFMS	Hrs	30		3,096		3,096	25%
1	03	06	02			LN06020160	Load Component Data Base		CON	SL_ME	Hrs	8		869		869	25%
1	03	06	02			LN06020155	Collect Component Performance Data		CON	SL_ME	Hrs	8		869		869	25%
1	03	06	02			LN06020165	Receive System / Sub Assemblies		CON	SL_ME	Hrs	8		869		869	25%
1	03	06	02			LN06020170	Post Process Waveguide		CON	SL_MFAT	Hrs	130		10,941		10,941	25%
1	**03**	**06**	**03**				**S-Band Structures**					**408**	**-**	**37,397**	**-**	**37,397**	
1	03	06	03			LN06030005	RF Evaluation of 9.5ft Structures & Strongbacks		CON	SL_KE	Hrs	20		2,313		2,313	10%
1	03	06	03			LN06030010	Design Strongback Girder Supports		CON	SL_MDD	Hrs	40		2,580		2,580	10%
1	03	06	03			LN06030020	Design TV Section Supports		CON	SL_MDD	Hrs	80		5,159		5,159	10%
1	03	06	03			LN06030025	Prepare for Prelim Design Review (PDR)		CON	SL_ME	Hrs	8		869		869	10%
1	03	06	03			LN06030030	Conduct Prelim Design Review (PDR) - S Bnd Struc		CON	SL_ME	Hrs	8		869		869	10%
1	03	06	03			LN06030035	Generate Detailed Procurement Plan		CON	SL_ME	Hrs	4		435		435	10%
1	03	06	03			LN06030040	Create Cold Test Plan		CON	SL_KE	Hrs	8		925		925	10%
1	03	06	03			LN06030045	Establish Subordinate Work Orders		CON	SL_ME	Hrs	8		869		869	10%
1	03	06	03			LN06030050	Prepare for Final Desgin Review (FDR)		CON	SL_ME	Hrs	8		869		869	10%
1	03	06	03			LN06030055	Conduct Final Design Review (FDR) - S Bnd Struc		CON	SL_ME	Hrs	8		869		869	10%
1	03	06	03			LN06030075	Bead Pull Structures		CON	SL_KT	Hrs	40		2,534		2,534	10%
1	03	06	03			LN06030075	Bead Pull Structures		CON	SL_KE	Hrs	40		4,626		4,626	10%
1	03	06	03			LN06030090	Fabricate 9.5ft Supports		CON	SL_MFPC	Hrs	24		3,954		3,954	10%
1	03	06	03			LN06030090	Fabricate 9.5ft Supports		CON	SL_MFMS	Hrs	24		2,477		2,477	10%
1	03	06	03			LN06030090	Fabricate 9.5ft Supports		CON	SL_MFAT	Hrs	24		2,020		2,020	10%
1	03	06	03			LN06030100	Collect Component Performance Data		CON	SL_KE	Hrs	8		925		925	10%
1	03	06	03			LN06030105	Load Component Data Base		CON	SL_ME	Hrs	8		869		869	10%
1	03	06	03			LN06030110	Receive System / Sub Assemblies		CON	SL_ME	Hrs	8		869		869	10%
1	03	06	03			LN06030115	Post Process 9.5 ft Structures		CON	SL_MFAT	Hrs	40		3,366		3,366	10%
1	**03**	**06**	**04**				**X-Band Low Level System**					**652**	**178,000**	**61,010**	**195,108**	**256,118**	
1	03	06	04			LN06040002	Review & Accept Requirements		PED	SL_KE	Hrs	8		875		875	40%
1	03	06	04			LN06040004	Write X-Band LLRF ICD		PED	SL_KE	Hrs	20		2,187		2,187	40%
1	03	06	04			LN06040008	Design X-Band LLRF System		PED	SL_KE	Hrs	128		13,996		13,996	40%
1	03	06	04			LN06040010	Conduct Prelim Dsign Review (PDR) - X Bnd LL Sys		PED	SL_KE	Hrs	32		3,499		3,499	40%
1	03	06	04			LN06040012	Design X-Band LLRF System		PED	SL_KE	Hrs	128		14,401		14,401	40%
1	03	06	04			LN06040014	Conduct Final Design Review (FDR) - X Bnd LL Sys		PED	SL_KE	Hrs	32		3,600		3,600	40%
1	03	06	04			LN06040196	Procure X-Band Drive Monitoring		CON	SL_MSEG	$$		5,000		5,465	5,465	40%
1	03	06	04			LN06040192	Procure X-Band Chassis		CON	SL_MSEG	$$		2,000		2,186	2,186	40%
1	03	06	04			LN06040188	Procure X-Band Strpline Couplers		CON	SL_MSEG	$$		4,000		4,372	4,372	40%
1	03	06	04			LN06040184	Procure X-Band RF Cables		CON	SL_MSEG	$$		2,000		2,186	2,186	40%
1	03	06	04			LN06040180	Procure X-Band 4 X Multiplier		CON	SL_MSEG	$$		10,000		10,930	10,930	40%
1	03	06	04			LN06040164	Prep Bid Pak - X-Band Phase & Amp Dectector		PED	SL_KE	Hrs	8		900		900	40%
1	03	06	04			LN06040140	Prep Bid Pak - X-Band TWT Driver		PED	SL_KE	Hrs	8		900		900	40%
1	03	06	04			LN06040018	Prep Bid Pak - X-Band Analyzer		PED	SL_KE	Hrs	8		900		900	40%
1	03	06	04			LN06040172	Evaluate Vendor Proposals		CON	SL_KE	Hrs	8		900		900	40%
1	03	06	04			LN06040148	Evaluate Vendor Proposals		CON	SL_KE	Hrs	8		900		900	40%
1	03	06	04			LN06040026	Evaluate Vendor Proposals		CON	SL_KE	Hrs	8		900		900	40%
1	03	06	04			LN06040176	Vendor Fab & Assy - X-Band Phase & Amp Dectector		CON	SL_MSEG	$$		25,000		27,414	27,414	40%
1	03	06	04			LN06040152	Vendor Fab & Assy - X-Band TWT Driver		CON	SL_MSEG	$$		30,000		32,897	32,897	40%
1	03	06	04			LN06040030	Vendor Fab & Assy - X-Band Analyzer		CON	SL_MSEG	$$		100,000		109,658	109,658	40%
1	03	06	04			LN06040200	Assemble X-Band LLRF Equipment		CON	SL_KT	Hrs	120		7,601		7,601	40%
1	03	06	04			LN06040205	Test X-Band LLRF Equipment		CON	SL_KT	Hrs	120		7,601		7,601	40%
1	03	06	04			LN06040210	Collect Component Performance Data		CON	SL_KE	Hrs	8		925		925	40%
1	03	06	04			LN06040215	Load Component Data Base		CON	SL_KE	Hrs	8		925		925	40%
1	**03**	**06**	**05**				**X-Band High Power System**					**4,168**	**309,000**	**437,827**	**337,291**	**775,118**	
1	**03**	**06**	**05**	**01**			**X-Band HP Klystron**					**2,388**	**181,500**	**269,135**	**197,835**	**466,970**	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	06	05	01		LN06051005	Review & Accept Requirements		PED	SL_KE	Hrs	8		875		875	35%
1	03	06	05	01		LN06051010	Write Klystron ICD		PED	SL_KE	Hrs	16		1,749		1,749	35%
1	03	06	05	01		LN06051056	Engineer Klystron System Window		PED	SL_KE	Hrs	40		4,374		4,374	35%
1	03	06	05	01		LN06051030	Design Klystron Gallery Tank		PED	SL_KE	Hrs	80		8,747		8,747	35%
1	03	06	05	01		LN06051025	Design Kylstron Mount		PED	SL_KE	Hrs	200		21,900		21,900	35%
1	03	06	05	01		LN06051020	Modify Klystron Design		PED	SL_KE	Hrs	16		1,749		1,749	35%
1	03	06	05	01		LN06051058	Design Klystron System Window		PED	SL_MDD	Hrs	120		7,316		7,316	35%
1	03	06	05	01		LN06051035	Conduct Prelim Design Review (PDR) - X Bnd HP Ky		PED	SL_KE	Hrs	8		900		900	35%
1	03	06	05	01		LN06051045	Create Cold Test Plan		CON	SL_KE	Hrs	40		4,500		4,500	35%
1	03	06	05	01		LN06051050	Establish Subordinate Work Orders		CON	SL_KE	Hrs	4		450		450	35%
1	03	06	05	01		LN06051052	Conduct Final Design Review (FDR) - X Bnd HP Ky		CON	SL_KE	Hrs	8		900		900	35%
1	03	06	05	01		LN06051078	Procure Mounting Support		CON	SL_MSEG	$$		6,500		7,085	7,085	35%
1	03	06	05	01		LN06051062	Prep Bid Pak - X-Band Klystron		CON	SL_MDD	Hrs	16		1,004		1,004	35%
1	03	06	05	01		LN06051070	Evaluate Vendor Proposals - Klystron System		CON	SL_MDD	Hrs	16		1,004		1,004	35%
1	03	06	05	01		LN06051074	Vendor Fab & Assy - X-Band Klystrons		CON	SL_MSEG	$$		175,000		190,750	190,750	35%
1	03	06	05	01		LN06051125	Fab & Asemble Mounting Support		CON	SL_KT	Hrs	40		2,465		2,465	35%
1	03	06	05	01		LN06051130	Fab & Assemble System Window		CON	SL_MFAT	Hrs	120		9,824		9,824	35%
1	03	06	05	01		LN06051120	Fab & Assemble X-Band Klystron		CON	SL_MFPC	Hrs	800		131,450		131,450	35%
1	03	06	05	01		LN06051120	Fab & Assemble X-Band Klystron		CON	SL_KT	Hrs	280		17,687		17,687	35%
1	03	06	05	01		LN06051120	Fab & Assemble X-Band Klystron		CON	SL_KE	Hrs	160		18,455		18,455	35%
1	03	06	05	01		LN06051120	Fab & Assemble X-Band Klystron		CON	SL_KCA	Hrs	200		13,435		13,435	35%
1	03	06	05	01		LN06051135	Test System Window		CON	SL_MFAT	Hrs	80		6,714		6,714	35%
1	03	06	05	01		LN06051150	Collect Component Performance Data		CON	SL_KE	Hrs	8		925		925	35%
1	03	06	05	01		LN06051155	Load Component Data Base		CON	SL_KE	Hrs	8		925		925	35%
1	03	06	05	01		LN06051165	Dress Klystron		CON	SL_KT	Hrs	40		2,534		2,534	35%
1	03	06	05	01		LN06051170	Test Klystron System		CON	SL_KE	Hrs	80		9,253		9,253	35%
1	**03**	**06**	**05**	**02**			**X-Band HP Modulator**					**720**	**83,500**	**61,525**	**91,496**	**153,021**	
1	03	06	05	02		LN06052005	Review & Accept Requirements		PED	SL_KE	Hrs	20		2,187		2,187	30%
1	03	06	05	02		LN06052010	Write Modulator ICD		PED	SL_KE	Hrs	16		1,749		1,749	30%
1	03	06	05	02		LN06052020	Design Modulator		PED	SL_KE	Hrs	80		9,001		9,001	30%
1	03	06	05	02		LN06052025	Modulator Documentation		PED	SL_MDD	Hrs	120		7,529		7,529	30%
1	03	06	05	02		LN06052030	Conduct Prelim Dsign Review (PDR) - X Bnd HP Mod		PED	SL_KE	Hrs	8		900		900	30%
1	03	06	05	02		LN06052040	Create Cold Test Plan		CON	SL_KE	Hrs	40		4,500		4,500	30%
1	03	06	05	02		LN06052045	Establish Subordinate Work Orders		CON	SL_KE	Hrs	4		450		450	30%
1	03	06	05	02		LN06052050	Conduct Final Design Review (FDR) - X Bnd HP Mod		CON	SL_KE	Hrs	16		1,800		1,800	30%
1	03	06	05	02		LN06052140	Procure Power Supply Cabling		CON	SL_MSEG	$$		5,000		5,479	5,479	30%
1	03	06	05	02		LN06052130	Procure Magnet Power Supply		CON	SL_MSEG	$$		28,000		30,682	30,682	30%
1	03	06	05	02		LN06052120	Procure HV Connectors		CON	SL_MSEG	$$		2,000		2,192	2,192	30%
1	03	06	05	02		LN06052110	Procure Interlocks		CON	SL_MSEG	$$		3,000		3,287	3,287	30%
1	03	06	05	02		LN06052100	Procure Toroid & Misc		CON	SL_MSEG	$$		3,000		3,287	3,287	30%
1	03	06	05	02		LN06052090	Procure Heater Isolation		CON	SL_MSEG	$$		4,000		4,383	4,383	30%
1	03	06	05	02		LN06052080	Procure Cap Divider		CON	SL_MSEG	$$		2,500		2,739	2,739	30%
1	03	06	05	02		LN06052070	Procure Pulsed Transformer		CON	SL_MSEG	$$		20,000		21,915	21,915	30%
1	03	06	05	02		LN06052060	Procure Tank		CON	SL_MSEG	$$		16,000		17,532	17,532	30%
1	03	06	05	02		LN06052260	Assemble Tank		CON	SL_KT	Hrs	40		2,534		2,534	30%
1	03	06	05	02		LN06052265	Assemble Modulator Assembly		CON	SL_KT	Hrs	120		7,601		7,601	30%
1	03	06	05	02		LN06052265	Assemble Modulator Assembly		CON	SL_KE	Hrs	40		4,626		4,626	30%
1	03	06	05	02		LN06052270	Test Modulator Assembly		CON	SL_KT	Hrs	120		7,601		7,601	30%
1	03	06	05	02		LN06052270	Test Modulator Assembly		CON	SL_KE	Hrs	80		9,253		9,253	30%
1	03	06	05	02		LN06052290	Collect Component Performance Data		CON	SL_KE	Hrs	8		925		925	30%
1	03	06	05	02		LN06052295	Load Component Data Base		CON	SL_ME	Hrs	8		869		869	30%
1	**03**	**06**	**05**	**03**			**X-Band HP Waveguide System**					**1,060**	**44,000**	**107,167**	**47,960**	**155,127**	
1	03	06	05	03		LN06053005	Review & Accept Requirements		CON	SL_KE	Hrs	8		900		900	25%
1	03	06	05	03		LN06053010	Write HP Waveguide System ICD		CON	SL_KE	Hrs	16		1,800		1,800	25%
1	03	06	05	03		LN06053020	Design WG System		CON	SL_KE	Hrs	160		18,002		18,002	25%
1	03	06	05	03		LN06053025	Design WG System Supports		CON	SL_ME	Hrs	120		12,685		12,685	25%
1	03	06	05	03		LN06053030	Conduct Prelim Design Review (PDR) - S Band WG		CON	SL_KE	Hrs	8		900		900	25%
1	03	06	05	03		LN06053040	Create Cold Test Plan		CON	SL_KE	Hrs	40		4,500		4,500	25%
1	03	06	05	03		LN06053045	Establish Subordinate Work Orders		CON	SL_KE	Hrs	4		450		450	25%
1	03	06	05	03		LN06053050	Conduct Final Design Review (FDR) - S Band WG		CON	SL_KE	Hrs	8		900		900	25%
1	03	06	05	03		LN06053090	Procure Waveguide Supports		CON	SL_MSEG	$$		3,000		3,270	3,270	25%
1	03	06	05	03		LN06053080	Procure ION Pump Power Supply		CON	SL_MSEG	$$		12,000		13,080	13,080	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	06	05	03		LN06053070	Procure ION Guage Controller		CON	SL_MSEG	$$		3,000		3,270	3,270	25%
1	03	06	05	03		LN06053060	Procure ION Pumps (8 EA)		CON	SL_MSEG	$$		12,000		13,080	13,080	25%
1	03	06	05	03		LN06053100	Fab & Test Cold Test Hardware		CON	SL_MDD	Hrs	20		1,255		1,255	25%
1	03	06	05	03		LN06053100	Fab & Test Cold Test Hardware		CON	SL_KE	Hrs	20		2,250		2,250	25%
1	03	06	05	03		LN06053105	Fab, Cold Test & Tune Broadwall Coupler		CON	SL_MFMS	Hrs	80		8,031		8,031	25%
1	03	06	05	03		LN06053105	Fab, Cold Test & Tune Broadwall Coupler		CON	SL_KE	Hrs	40		4,500		4,500	25%
1	03	06	05	03		LN06053110	Fab, Cold Test & Tune Mode Convertor		CON	SL_MFMS	Hrs	40		4,016		4,016	25%
1	03	06	05	03		LN06053110	Fab, Cold Test & Tune Mode Convertor		CON	SL_KT	Hrs	40		2,465		2,465	25%
1	03	06	05	03		LN06053110	Fab, Cold Test & Tune Mode Convertor		CON	SL_KE	Hrs	20		2,250		2,250	25%
1	03	06	05	03		LN06053115	Fab, Cold Test & Tune Circular Waveguide (WR 293		CON	SL_MFMS	Hrs	100		10,039		10,039	25%
1	03	06	05	03		LN06053115	Fab, Cold Test & Tune Circular Waveguide (WR 293		CON	SL_KT	Hrs	40		2,465		2,465	25%
1	03	06	05	03		LN06053115	Fab, Cold Test & Tune Circular Waveguide (WR 293		CON	SL_KE	Hrs	20		2,250		2,250	25%
1	03	06	05	03		LN06053120	Fab, Cold Test & Tune WR90 Waveguide		CON	SL_MFMS	Hrs	40		4,016		4,016	25%
1	03	06	05	03		LN06053120	Fab, Cold Test & Tune WR90 Waveguide		CON	SL_KT	Hrs	40		2,465		2,465	25%
1	03	06	05	03		LN06053120	Fab, Cold Test & Tune WR90 Waveguide		CON	SL_KE	Hrs	20		2,250		2,250	25%
1	03	06	05	03		LN06053125	Waveguide Supports		CON	SL_MFMS	Hrs	80		8,031		8,031	25%
1	03	06	05	03		LN06053130	Assemble System		CON	SL_MSEG	$$		14,000		15,260	15,260	25%
1	03	06	05	03		LN06053130	Assemble System		CON	SL_KE	Hrs	80		9,001		9,001	25%
1	03	06	05	03		LN06053135	Collect Component Performance Data		CON	SL_KE	Hrs	8		900		900	25%
1	03	06	05	03		LN06053140	Load Component Data Base		CON	SL_ME	Hrs	8		846		846	25%
1	**03**	**06**	**06**				**X-Band Structures**					**3,230**	**74,000**	**285,151**	**80,660**	**365,811**	
1	03	06	06			LN06060000	Review & Accept Requirements		CON	SL_KE	Hrs	16		1,800		1,800	35%
1	03	06	06			LN06060005	Write Structure ICD		CON	SL_KE	Hrs	20		2,250		2,250	35%
1	03	06	06			LN06060012	Design Input Waveguide		CON	SL_ME	Hrs	20		2,114		2,114	35%
1	03	06	06			LN06060012	Design Input Waveguide		CON	SL_MDD	Hrs	60		3,764		3,764	35%
1	03	06	06			LN06060015	Design Structure Supports		CON	SL_ME	Hrs	10		1,057		1,057	35%
1	03	06	06			LN06060015	Design Structure Supports		CON	SL_MDD	Hrs	240		15,058		15,058	35%
1	03	06	06			LN06060020	Design Collimators		CON	SL_ME	Hrs	16		1,691		1,691	35%
1	03	06	06			LN06060020	Design Collimators		CON	SL_MDD	Hrs	40		2,510		2,510	35%
1	03	06	06			LN06060025	Design Removal Mechanism		CON	SL_ME	Hrs	80		8,457		8,457	35%
1	03	06	06			LN06060025	Design Removal Mechanism		CON	SL_MDD	Hrs	200		12,548		12,548	35%
1	03	06	06			LN06060030	Conduct Fnl Dsn Rev - X-Band Bunch Comp Sys		CON	SL_KE	Hrs	16		1,800		1,800	35%
1	03	06	06			LN06060085	Fab Structure Removal Mechanism		CON	SL_MFMS	Hrs	120		12,047		12,047	35%
1	03	06	06			LN06060085	Fab Structure Removal Mechanism		CON	SL_MFAT	Hrs	40		3,275		3,275	35%
1	03	06	06			LN06060080	Fab Structure Supports		CON	SL_MFMS	Hrs	100		10,039		10,039	35%
1	03	06	06			LN06060080	Fab Structure Supports		CON	SL_MFAT	Hrs	100		8,187		8,187	35%
1	03	06	06			LN06060070	Fab Collimators		CON	SL_MFPC	Hrs	20		3,206		3,206	35%
1	03	06	06			LN06060070	Fab Collimators		CON	SL_MFMS	Hrs	80		8,031		8,031	35%
1	03	06	06			LN06060070	Fab Collimators		CON	SL_MFAT	Hrs	40		3,275		3,275	35%
1	03	06	06			LN06060065	Fab, Cold Test & Tune WR90 Low Power Loads		CON	SL_MFMS	Hrs	80		8,031		8,031	35%
1	03	06	06			LN06060065	Fab, Cold Test & Tune WR90 Low Power Loads		CON	SL_KT	Hrs	8		493		493	35%
1	03	06	06			LN06060065	Fab, Cold Test & Tune WR90 Low Power Loads		CON	SL_KE	Hrs	16		1,800		1,800	35%
1	03	06	06			LN06060060	Fab, Cold Test & Tune WR 90 Tee		CON	SL_MFMS	Hrs	80		8,031		8,031	35%
1	03	06	06			LN06060060	Fab, Cold Test & Tune WR 90 Tee		CON	SL_KT	Hrs	40		2,465		2,465	35%
1	03	06	06			LN06060060	Fab, Cold Test & Tune WR 90 Tee		CON	SL_KE	Hrs	32		3,600		3,600	35%
1	03	06	06			LN06060040	Procure Valves and Misc Hdwr		CON	SL_MSEG	$$		74,000		80,660	80,660	35%
1	03	06	06			LN06060090	Assemble X-Band Structures		CON	SL_MFAT	Hrs	300		24,561		24,561	35%
1	03	06	06			LN06060090	Assemble X-Band Structures		CON	SL_ME	Hrs	40		4,228		4,228	35%
1	03	06	06			LN06060092	Cold Test & Tune Structure (Shop)		CON	SL_MFMS	Hrs	600		60,234		60,234	35%
1	03	06	06			LN06060092	Cold Test & Tune Structure (Shop)		CON	SL_KT	Hrs	400		24,648		24,648	35%
1	03	06	06			LN06060092	Cold Test & Tune Structure (Shop)		CON	SL_KE	Hrs	200		22,502		22,502	35%
1	03	06	06			LN06060095	Test X-Band Structure System		CON	SL_KE	Hrs	160		18,289		18,289	35%
1	03	06	06			LN06060105	Collect Component Performance Data		CON	SL_KE	Hrs	8		925		925	35%
1	03	06	06			LN06060110	Load Component Data Base		CON	SL_ME	Hrs	8		869		869	35%
1	03	06	06			LN06060115	Post Process & Test		CON	SL_MFAT	Hrs	40		3,366		3,366	35%
1	**03**	**06**	**07**				**RF Distribution System**					**9,124**	**416,000**	**870,505**	**463,610**	**1,334,115**	
1	**03**	**06**	**07**	**01**			**Modulator Refurbishment**					**406**	**72,000**	**31,884**	**80,640**	**112,524**	
1	03	06	07	01		LN06070102	Create Design Documentation		CON	SL_KE	Hrs	50		5,626		5,626	30%
1	03	06	07	01		LN06070110	Generate Detailed Procurement Plan		CON	SL_KE	Hrs	4		450		450	30%
1	03	06	07	01		LN06070112	Create Test Plan		CON	SL_KE	Hrs	40		4,500		4,500	30%
1	03	06	07	01		LN06070114	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		423		423	30%
1	03	06	07	01		LN06070116	Prepare for Final Desgin Review (FDR)		CON	SL_KE	Hrs	8		900		900	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	06	07	01		LN06070118	Conduct Final Design Review (FDR) - Mod Refurb		CON	SL_KE	Hrs	4		450		450	30%
1	03	06	07	01		LN06070124	Prep Bid Pak - Thyratron & Parts		CON	SL_KE	Hrs	8		900		900	30%
1	03	06	07	01		LN06070132	Evaluate Vendor Proposals - Thyratron & Parts		CON	SL_KE	Hrs	8		900		900	30%
1	03	06	07	01		LN06070136	Vendor Fab & Assy - Thyratron & Parts		CON	SL_MSEG	$$		72,000		80,640	80,640	30%
1	03	06	07	01		LN06070140	Refurbish Existing Modulators (7ea)		CON	SL_CT	Hrs	280		17,735		17,735	30%
1	**03**	**06**	**07**	**02**			**Solid State Sub Booster**					**460**	**90,000**	**31,963**	**98,100**	**130,063**	
1	03	06	07	02		LN06070200	Generate Detailed Procurement Plan		CON	SL_KE	Hrs	4		450		450	35%
1	03	06	07	02		LN06070205	Create Test Plan		CON	SL_KE	Hrs	40		4,500		4,500	35%
1	03	06	07	02		LN06070210	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		423		423	35%
1	03	06	07	02		LN06070215	Prepare for Final Design Review (FDR)		CON	SL_KE	Hrs	8		900		900	35%
1	03	06	07	02		LN06070220	Conduct Final Design Review (FDR) - SS SubBoost		CON	SL_KE	Hrs	4		450		450	35%
1	03	06	07	02		LN06070235	Procure Amplitude Control Electronics		CON	SL_MSEG	$$		45,000		49,050	49,050	35%
1	03	06	07	02		LN06070230	Procure Phase Control Electronics		CON	SL_MSEG	$$		45,000		49,050	49,050	35%
1	03	06	07	02		LN06070240	Fab & Test Amplifier		CON	SL_KT	Hrs	200		12,572		12,572	35%
1	03	06	07	02		LN06070245	Assemble & Test Sub Booster Systems		CON	SL_KT	Hrs	200		12,668		12,668	35%
1	**03**	**06**	**07**	**03**			**IPA Modifications**					**140**	**3,000**	**11,790**	**3,360**	**15,150**	
1	03	06	07	03		LN06070310	Generate Detailed Procurement Plan		CON	SL_KE	Hrs	4		450		450	25%
1	03	06	07	03		LN06070312	Create Test Plan		CON	SL_KE	Hrs	40		4,500		4,500	25%
1	03	06	07	03		LN06070314	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		423		423	25%
1	03	06	07	03		LN06070316	Prepare for Final Desgin Review (FDR)		CON	SL_KE	Hrs	8		900		900	25%
1	03	06	07	03		LN06070318	Conduct Final Design Review (FDR) - IPA Mods		CON	SL_KE	Hrs	4		450		450	25%
1	03	06	07	03		LN06070326	Modify & Test IPA Chasis		CON	SL_MSEG	$$		3,000		3,360	3,360	25%
1	03	06	07	03		LN06070326	Modify & Test IPA Chasis		CON	SL_KT	Hrs	80		5,067		5,067	25%
1	**03**	**06**	**07**	**04**			**Klystron Controls Interfaces**					**262**	**6,000**	**22,555**	**6,720**	**29,275**	
1	03	06	07	04		LN06070402	Create Design Documentation		CON	SL_KE	Hrs	50		5,626		5,626	35%
1	03	06	07	04		LN06070404	Create Draft Layouts		CON	SL_MDD	Hrs	20		1,255		1,255	35%
1	03	06	07	04		LN06070406	Prepare for Prelim Design Review (PDR)		CON	SL_KE	Hrs	8		900		900	35%
1	03	06	07	04		LN06070408	Conduct Prelim Design Review (PDR) - Cntrols I/F		CON	SL_KE	Hrs	4		450		450	35%
1	03	06	07	04		LN06070410	Generate Detailed Procurement Plan		CON	SL_KE	Hrs	4		450		450	35%
1	03	06	07	04		LN06070412	Create Test Plan		CON	SL_KE	Hrs	40		4,500		4,500	35%
1	03	06	07	04		LN06070414	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		423		423	35%
1	03	06	07	04		LN06070416	Prepare for Final Desgin Review (FDR)		CON	SL_KE	Hrs	8		900		900	35%
1	03	06	07	04		LN06070418	Conduct Final Design Review (FDR) - Cntrols I/F		CON	SL_KE	Hrs	4		450		450	35%
1	03	06	07	04		LN06070426	Fab Cables		CON	SL_KT	Hrs	40		2,534		2,534	35%
1	03	06	07	04		LN06070428	Klystron Controls Interface Installation		CON	SL_MSEG	$$		6,000		6,720	6,720	35%
1	03	06	07	04		LN06070428	Klystron Controls Interface Installation		CON	SL_CT	Hrs	80		5,067		5,067	35%
1	**03**	**06**	**07**	**05**			**Bunch Length Electronics**					**582**	**30,000**	**53,845**	**33,600**	**87,445**	
1	03	06	07	05		LN06070502	Create Design Documentation		CON	SL_KE	Hrs	250		28,915		28,915	55%
1	03	06	07	05		LN06070504	Create Draft Layouts		CON	SL_MDD	Hrs	140		9,029		9,029	55%
1	03	06	07	05		LN06070506	Prepare for Prelim Design Review (PDR)		CON	SL_KE	Hrs	8		925		925	55%
1	03	06	07	05		LN06070508	Conduct Prelim Design Review (PDR) - Bm Phs Elec		CON	SL_KE	Hrs	4		463		463	55%
1	03	06	07	05		LN06070510	Generate Detailed Procurement Plan		CON	SL_KE	Hrs	4		463		463	55%
1	03	06	07	05		LN06070512	Create Test Plan		CON	SL_KE	Hrs	40		4,626		4,626	55%
1	03	06	07	05		LN06070514	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		435		435	55%
1	03	06	07	05		LN06070516	Prepare for Final Desgin Review (FDR)		CON	SL_KE	Hrs	8		925		925	55%
1	03	06	07	05		LN06070518	Conduct Final Design Review (FDR) - Bnc Lth Elec		CON	SL_KE	Hrs	4		463		463	55%
1	03	06	07	05		LN06070525	Fab & Test Bunch Length Electronics		CON	SL_MSEG	$$		30,000		33,600	33,600	55%
1	03	06	07	05		LN06070525	Fab & Test Bunch Length Electronics		CON	SL_KT	Hrs	120		7,601		7,601	55%
1	**03**	**06**	**07**	**06**			**RF Phase Measurements**					**1,658**	**70,000**	**175,933**	**76,900**	**252,833**	
1	03	06	07	06		LN06070600	Review & Accept Requirements		CON	SL_KE	Hrs	16		1,800		1,800	45%
1	03	06	07	06		LN06070601	Design X-Band Phase Chasis		CON	SL_KE	Hrs	200		22,821		22,821	45%
1	03	06	07	06		LN06070602	Create Design Documentation		CON	SL_KE	Hrs	250		28,128		28,128	45%
1	03	06	07	06		LN06070604	Create Draft Layouts		CON	SL_MDD	Hrs	140		8,784		8,784	45%
1	03	06	07	06		LN06070606	Prepare for Prelim Design Review (PDR)		CON	SL_KE	Hrs	8		900		900	45%
1	03	06	07	06		LN06070608	Conduct Prelim Design Review (PDR) - RF Phas Mea		CON	SL_KE	Hrs	4		450		450	45%
1	03	06	07	06		LN06070609	Procure, Fab & Test X-Band Chasis Prototype		CON	SL_MSEG	$$		20,000		21,800	21,800	45%
1	03	06	07	06		LN06070609	Procure, Fab & Test X-Band Chasis Prototype		CON	SL_KE	Hrs	450		50,630		50,630	45%
1	03	06	07	06		LN06070610	Procure,Procure, Fab & Test X-Band PAD Prototype		CON	SL_MSEG	$$		30,000		32,700	32,700	45%
1	03	06	07	06		LN06070610	Procure,Procure, Fab & Test X-Band PAD Prototype		CON	SL_KE	Hrs	450		50,630		50,630	45%
1	03	06	07	06		LN06070611	Generate Detailed Procurement Plan		CON	SL_KE	Hrs	4		450		450	45%
1	03	06	07	06		LN06070612	Create Test Plan		CON	SL_KE	Hrs	40		4,500		4,500	45%
1	03	06	07	06		LN06070614	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		423		423	45%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	06	07	06		LN06070616	Prepare for Final Desgin Review (FDR)		CON	SL_KE	Hrs	8		900		900	45%
1	03	06	07	06		LN06070618	Conduct Final Design Review (FDR) - RF Phas Mea		CON	SL_KE	Hrs	4		450		450	45%
1	03	06	07	06		LN06070638	Procure, Fab & Test X-Band Chasis		CON	SL_MSEG	$$		20,000		22,400	22,400	45%
1	03	06	07	06		LN06070638	Procure, Fab & Test X-Band Chasis		CON	SL_KT	Hrs	80		5,067		5,067	45%
1	**03**	**06**	**07**	**07**			**RF Distribution L2 & L3**					**1,798**	**75,000**	**151,286**	**85,890**	**237,176**	
1	03	06	07	07		LN06070700	Review & Accept Requirements		CON	SL_KE	Hrs	16		1,851		1,851	45%
1	03	06	07	07		LN06070701	Design RF Distribution System		CON	SL_KE	Hrs	40		4,626		4,626	45%
1	03	06	07	07		LN06070702	Create Design Documentation		CON	SL_KE	Hrs	10		1,157		1,157	45%
1	03	06	07	07		LN06070704	Create Draft Layouts		CON	SL_MDD	Hrs	40		2,580		2,580	45%
1	03	06	07	07		LN06070706	Prepare for Prelim Design Review (PDR)		CON	SL_KE	Hrs	8		925		925	45%
1	03	06	07	07		LN06070708	Conduct Prelim Design Review (PDR) - RF Dist		CON	SL_KE	Hrs	4		463		463	45%
1	03	06	07	07		LN06070710	Design RF Dist PRL Coaxial Water System		CON	SL_MDD	Hrs	80		5,159		5,159	45%
1	03	06	07	07		LN06070710	Design RF Dist PRL Coaxial Water System		CON	SL_KE	Hrs	20		2,313		2,313	45%
1	03	06	07	07		LN06070709	Controls Configuration Assessment		CON	SL_CE	Hrs	40		4,626		4,626	45%
1	03	06	07	07		LN06070711	Proc, Fab & Test 2W Distribution Amp - Prototype		CON	SL_MSEG	$$		12,000		13,440	13,440	45%
1	03	06	07	07		LN06070711	Proc, Fab & Test 2W Distribution Amp - Prototype		CON	SL_KE	Hrs	480		55,517		55,517	45%
1	03	06	07	07		LN06070712	Generate Detailed Procurement Plan		CON	SL_KE	Hrs	4		463		463	45%
1	03	06	07	07		LN06070713	Create Test Plan		CON	SL_KE	Hrs	40		4,747		4,747	45%
1	03	06	07	07		LN06070714	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		446		446	45%
1	03	06	07	07		LN06070716	Prepare for Final Desgin Review (FDR)		CON	SL_KE	Hrs	8		949		949	45%
1	03	06	07	07		LN06070718	Conduct Final Design Review (FDR) - RF Dist		CON	SL_KE	Hrs	4		475		475	45%
1	03	06	07	07		LN06070744	Procure & Install Control Cables		CON	SL_PCT	Hrs	160		10,398		10,398	45%
1	03	06	07	07		LN06070744	Procure & Install Control Cables		CON	SL_MSEG	$$		5,000		5,750	5,750	45%
1	03	06	07	07		LN06070740	Procure & Install Coaxial Water Lines		CON	SL_PCT	Hrs	80		5,199		5,199	45%
1	03	06	07	07		LN06070740	Procure & Install Coaxial Water Lines		CON	SL_MSEG	$$		8,000		9,200	9,200	45%
1	03	06	07	07		LN06070736	Procure & Install 1km Cable Guides		CON	SL_PCT	Hrs	160		10,398		10,398	45%
1	03	06	07	07		LN06070736	Procure & Install 1km Cable Guides		CON	SL_MSEG	$$		10,000		11,500	11,500	45%
1	03	06	07	07		LN06070732	Procure & Install 1km 1/2 Superflex		CON	SL_PCT	Hrs	80		5,199		5,199	45%
1	03	06	07	07		LN06070732	Procure & Install 1km 1/2 Superflex		CON	SL_MSEG	$$		20,000		23,000	23,000	45%
1	03	06	07	07		LN06070730	Procure, Fab & Test 2W Distribution Amp (10)		CON	SL_MSEG	$$		20,000		23,000	23,000	45%
1	03	06	07	07		LN06070730	Procure, Fab & Test 2W Distribution Amp (10)		CON	SL_KT	Hrs	400		25,996		25,996	45%
1	03	06	07	07		LN06070748	Install Cooling System		CON	SL_PCT	Hrs	40		2,600		2,600	45%
1	03	06	07	07		LN06070756	2W Distribution Amp Install (10)		CON	SL_PCT	Hrs	80		5,199		5,199	45%
1	**03**	**06**	**07**	**08**			**RF Fiber Optics Electronics System**					**1,518**	**70,000**	**146,830**	**78,400**	**225,230**	
1	03	06	07	08		LN06070800	Review & Accept Requirements		CON	SL_KE	Hrs	16		1,851		1,851	45%
1	03	06	07	08		LN06070801	Design Fiber Optic Electronics		CON	SL_KE	Hrs	20		2,313		2,313	45%
1	03	06	07	08		LN06070801	Design Fiber Optic Electronics		CON	SL_CE	Hrs	20		2,313		2,313	45%
1	03	06	07	08		LN06070804	Create Draft Layouts		CON	SL_MDD	Hrs	20		1,290		1,290	45%
1	03	06	07	08		LN06070802	Create Design Documentation		CON	SL_KE	Hrs	50		5,783		5,783	45%
1	03	06	07	08		LN06070806	Prepare for Prelim Design Review (PDR)		CON	SL_KE	Hrs	8		925		925	45%
1	03	06	07	08		LN06070808	Conduct Prelim Design Review (PDR) - RF Elec		CON	SL_KE	Hrs	4		463		463	45%
1	03	06	07	08		LN06070810	Generate Detailed Procurement Plan		CON	SL_KE	Hrs	4		463		463	45%
1	03	06	07	08		LN06070812	Create Test Plan		CON	SL_KE	Hrs	40		4,626		4,626	45%
1	03	06	07	08		LN06070814	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		435		435	45%
1	03	06	07	08		LN06070815	Fab & Test RF FO Electronics Prototype		CON	SL_MSEG	$$		12,000		13,440	13,440	45%
1	03	06	07	08		LN06070815	Fab & Test RF FO Electronics Prototype		CON	SL_CE	Hrs	640		74,022		74,022	45%
1	03	06	07	08		LN06070816	Prepare for Final Desgin Review (FDR)		CON	SL_KE	Hrs	8		925		925	45%
1	03	06	07	08		LN06070818	Conduct Final Design Review (FDR) - RF Elec		CON	SL_KE	Hrs	4		463		463	45%
1	03	06	07	08		LN06070828	Fab & Test RF FO Electronics		CON	SL_MSEG	$$		30,000		33,600	33,600	45%
1	03	06	07	08		LN06070828	Fab & Test RF FO Electronics		CON	SL_CT	Hrs	480		30,403		30,403	45%
1	03	06	07	08		LN06070832	Fiber Optics System Installation		CON	SL_TMUE	Hrs	160		15,840		15,840	45%
1	03	06	07	08		LN06070832	Fiber Optics System Installation		CON	SL_MSEG	$$		28,000		31,360	31,360	45%
1	03	06	07	08		LN06070836	Perform RF Electronics Testing		CON	SL_CE	Hrs	40		4,715		4,715	45%
1	**03**	**06**	**07**	**09**			**RF Stability**					**2,300**	**-**	**244,419**	**-**	**244,419**	
1	03	06	07	09		LN06070900	Review & Accept Requirements		CON	SL_KE	Hrs	16		1,851		1,851	65%
1	03	06	07	09		LN06070901	Design Stability Algorithms		CON	SL_PHSS	Hrs	50		4,764		4,764	65%
1	03	06	07	09		LN06070901	Design Stability Algorithms		CON	SL_KE	Hrs	50		5,783		5,783	65%
1	03	06	07	09		LN06070901	Design Stability Algorithms		CON	SL_CE	Hrs	50		5,783		5,783	65%
1	03	06	07	09		LN06070902	Create Design Documentation		CON	SL_KE	Hrs	10		1,157		1,157	65%
1	03	06	07	09		LN06070904	Create Draft Layouts		CON	SL_MDD	Hrs	20		1,290		1,290	65%
1	03	06	07	09		LN06070906	Prepare for Prelim Design Review (PDR)		CON	SL_PHS	Hrs	8		599		599	65%
1	03	06	07	09		LN06070906	Prepare for Prelim Design Review (PDR)		CON	SL_KE	Hrs	8		925		925	65%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	06	07	09		LN06070906	Prepare for Prelim Design Review (PDR)		CON	SL_CE	Hrs	8		925		925	65%
1	03	06	07	09		LN06070908	Conduct Prelim Design Review (PDR) - RF Stbility		CON	SL_KE	Hrs	4		463		463	65%
1	03	06	07	09		LN06070910	Generate Detailed Procurement Plan		CON	SL_KE	Hrs	4		463		463	65%
1	03	06	07	09		LN06070912	Create Test Plan		CON	SL_KE	Hrs	40		4,626		4,626	65%
1	03	06	07	09		LN06070914	Establish Subordinate Work Orders		CON	SL_ME	Hrs	4		435		435	65%
1	03	06	07	09		LN06070915	Prepare for Final Desgin Review (FDR)		CON	SL_PHS	Hrs	8		599		599	65%
1	03	06	07	09		LN06070915	Prepare for Final Desgin Review (FDR)		CON	SL_KE	Hrs	8		925		925	65%
1	03	06	07	09		LN06070915	Prepare for Final Desgin Review (FDR)		CON	SL_CE	Hrs	8		925		925	65%
1	03	06	07	09		LN06070916	Conduct Final Design Review (FDR) - RF Stability		CON	SL_KE	Hrs	4		463		463	65%
1	03	06	07	09		LN06070918	RF Feedback Setup		CON	SL_PHSS	Hrs	1,000		95,952		95,952	65%
1	03	06	07	09		LN06070917	RF Feedback Measurements		CON	SL_KE	Hrs	1,000		116,491		116,491	65%
1	**03**	**07**					**Linac Installation & Alignment**					**47,415**	**652,000**	**4,185,985**	**734,203**	**4,920,188**	
1	**03**	**07**	**01**				**Linac L01 System Installation & Alignment**					**4,334**	**207,000**	**381,631**	**231,840**	**613,471**	
1	03	07	01			LN07010035	Develop De-Installation Plan for Existing Equip		CON	SL_PCE	Hrs	40		4,500		4,500	30%
1	03	07	01			LN07010035	Develop De-Installation Plan for Existing Equip		CON	SL_ME	Hrs	40		4,228		4,228	30%
1	03	07	01			LN07010035	Develop De-Installation Plan for Existing Equip		CON	SL_CE	Hrs	40		4,500		4,500	30%
1	03	07	01			LN07010025	Procure Installation & Alignment Tooling		CON	SL_MSEG	$$		200,000		224,000	224,000	30%
1	03	07	01			LN07010015	Procure Installation Hardware		CON	SL_MSEG	$$		2,000		2,240	2,240	30%
1	03	07	01			LN07010030	Kit New Components for Installation		CON	SL_MFAT	Hrs	40		3,366		3,366	30%
1	03	07	01			LN07010030	Kit New Components for Installation		CON	SL_ME	Hrs	20		2,173		2,173	30%
1	03	07	01			LN07010040	De-install Existing Components		CON	SL_TMUE	Hrs	250		24,750		24,750	30%
1	03	07	01			LN07010040	De-install Existing Components		CON	SL_PCCA	Hrs	60		4,042		4,042	30%
1	03	07	01			LN07010040	De-install Existing Components		CON	SL_MFAT	Hrs	250		21,040		21,040	30%
1	03	07	01			LN07010040	De-install Existing Components		CON	SL_ME	Hrs	40		4,347		4,347	30%
1	03	07	01			LN07010055	Establish Alignment Coordinates for B/L Equip		CON	SL_MFAT	Hrs	8		673		673	30%
1	03	07	01			LN07010055	Establish Alignment Coordinates for B/L Equip		CON	SL_MES	Hrs	24		2,229		2,229	30%
1	03	07	01			LN07010055	Establish Alignment Coordinates for B/L Equip		CON	SL_ME	Hrs	4		435		435	30%
1	03	07	01			LN07010045	Determine Disposition of De-installed Components		CON	SL_MFAT	Hrs	200		16,832		16,832	30%
1	03	07	01			LN07010045	Determine Disposition of De-installed Components		CON	SL_ME	Hrs	5		543		543	30%
1	03	07	01			LN07010200	Install S-Band RF Components		CON	SL_MFAT	Hrs	80		6,733		6,733	30%
1	03	07	01			LN07010200	Install S-Band RF Components		CON	SL_KT	Hrs	10		633		633	30%
1	03	07	01			LN07010200	Install S-Band RF Components		CON	SL_KE	Hrs	10		1,157		1,157	30%
1	03	07	01			LN07010100	Install All Racks, Cables, Trays & Test		CON	SL_TMUE	Hrs	1,500		150,350		150,350	30%
1	03	07	01			LN07010100	Install All Racks, Cables, Trays & Test		CON	SL_PCT	Hrs	32		2,052		2,052	30%
1	03	07	01			LN07010100	Install All Racks, Cables, Trays & Test		CON	SL_PCE	Hrs	40		4,684		4,684	30%
1	03	07	01			LN07010100	Install All Racks, Cables, Trays & Test		CON	SL_PCCA	Hrs	40		2,728		2,728	30%
1	03	07	01			LN07010100	Install All Racks, Cables, Trays & Test		CON	SL_CT	Hrs	24		1,539		1,539	30%
1	03	07	01			LN07010100	Install All Racks, Cables, Trays & Test		CON	SL_CE	Hrs	45		5,270		5,270	30%
1	03	07	01			LN07010100	Install All Racks, Cables, Trays & Test		CON	SL_CCA	Hrs	360		24,552		24,552	30%
1	03	07	01			LN07010050	Prep for & Move De-installed Equip to Storage		CON	SL_TMUI	Hrs	60		4,693		4,693	30%
1	03	07	01			LN07010050	Prep for & Move De-installed Equip to Storage		CON	SL_SEL	Hrs	180		8,683		8,683	30%
1	03	07	01			LN07010050	Prep for & Move De-installed Equip to Storage		CON	SL_MSEG	$$		5,000		5,600	5,600	30%
1	03	07	01			LN07010205	Install Beamline Components		CON	SL_MFAT	Hrs	360		30,560		30,560	30%
1	03	07	01			LN07010205	Install Beamline Components		CON	SL_ME	Hrs	5		548		548	30%
1	03	07	01			LN07010225	Interconnect Vacuum System & Test		CON	SL_MFAT	Hrs	75		6,476		6,476	30%
1	03	07	01			LN07010225	Interconnect Vacuum System & Test		CON	SL_ME	Hrs	10		1,115		1,115	30%
1	03	07	01			LN07010225	Interconnect Vacuum System & Test		CON	SL_CT	Hrs	120		7,799		7,799	30%
1	03	07	01			LN07010225	Interconnect Vacuum System & Test		CON	SL_CE	Hrs	2		237		237	30%
1	03	07	01			LN07010225	Interconnect Vacuum System & Test		CON	SL_CCA	Hrs	8		553		553	30%
1	03	07	01			LN07010210	Align Beamline Components to Coordinate System		CON	SL_MFAT	Hrs	8		691		691	30%
1	03	07	01			LN07010210	Align Beamline Components to Coordinate System		CON	SL_MES	Hrs	24		2,287		2,287	30%
1	03	07	01			LN07010230	Perform Magnet Power Test		CON	SL_CT	Hrs	40		2,600		2,600	30%
1	03	07	01			LN07010230	Perform Magnet Power Test		CON	SL_CE	Hrs	4		475		475	30%
1	03	07	01			LN07010230	Perform Magnet Power Test		CON	SL_CCA	Hrs	12		829		829	30%
1	03	07	01			LN07010215	Magnet Power Interconnect & Test		CON	SL_CT	Hrs	40		2,600		2,600	30%
1	03	07	01			LN07010215	Magnet Power Interconnect & Test		CON	SL_CE	Hrs	5		593		593	30%
1	03	07	01			LN07010215	Magnet Power Interconnect & Test		CON	SL_CCA	Hrs	15		1,037		1,037	30%
1	03	07	01			LN07010235	Perform Diagnostics Controls Test		CON	SL_CT	Hrs	40		2,600		2,600	30%
1	03	07	01			LN07010235	Perform Diagnostics Controls Test		CON	SL_CE	Hrs	4		475		475	30%
1	03	07	01			LN07010235	Perform Diagnostics Controls Test		CON	SL_CCA	Hrs	12		829		829	30%
1	03	07	01			LN07010240	Test & Tune S Band RF Equipment		CON	SL_KT	Hrs	24		1,560		1,560	30%
1	03	07	01			LN07010240	Test & Tune S Band RF Equipment		CON	SL_KE	Hrs	24		2,848		2,848	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	07	01			LN07010220	Controls Interconnect & Test		CON	SL_CT	Hrs	40		2,600		2,600	30%
1	03	07	01			LN07010220	Controls Interconnect & Test		CON	SL_CE	Hrs	5		593		593	30%
1	03	07	01			LN07010220	Controls Interconnect & Test		CON	SL_CCA	Hrs	15		1,037		1,037	30%
1	03	07	01			LN07010245	Coordinate & Check Installation		CON	SL_MFAT	Hrs	20		1,727		1,727	30%
1	03	07	01			LN07010245	Coordinate & Check Installation		CON	SL_ME	Hrs	20		2,230		2,230	30%
1	**03**	**07**	**02**				**Linac BC1 System Installation & Alignment**					**8,056**	**13,000**	**682,528**	**14,560**	**697,088**	
1	03	07	02			LN07020035	Develop De-Installation Plan for Existing Equip		CON	SL_PCE	Hrs	40		4,500		4,500	30%
1	03	07	02			LN07020035	Develop De-Installation Plan for Existing Equip		CON	SL_ME	Hrs	80		8,457		8,457	30%
1	03	07	02			LN07020035	Develop De-Installation Plan for Existing Equip		CON	SL_CE	Hrs	40		4,500		4,500	30%
1	03	07	02			LN07020245	Install X-Band RF Components-Gallery		CON	SL_MFAT	Hrs	480		39,360		39,360	30%
1	03	07	02			LN07020245	Install X-Band RF Components-Gallery		CON	SL_KT	Hrs	240		14,812		14,812	30%
1	03	07	02			LN07020245	Install X-Band RF Components-Gallery		CON	SL_KE	Hrs	80		9,015		9,015	30%
1	03	07	02			LN07020025	Procure Installation Tooling		CON	SL_MSEG	$$		4,000		4,480	4,480	30%
1	03	07	02			LN07020015	Procure Installation Hardware		CON	SL_MSEG	$$		4,000		4,480	4,480	30%
1	03	07	02			LN07020207	Install Subbooster		CON	SL_KT	Hrs	240		15,202		15,202	30%
1	03	07	02			LN07020030	Kit New Components for Installation		CON	SL_MFAT	Hrs	80		6,733		6,733	30%
1	03	07	02			LN07020030	Kit New Components for Installation		CON	SL_ME	Hrs	40		4,347		4,347	30%
1	03	07	02			LN07020040	De-install Existing Components		CON	SL_TMUE	Hrs	250		24,750		24,750	30%
1	03	07	02			LN07020040	De-install Existing Components		CON	SL_PCCA	Hrs	60		4,042		4,042	30%
1	03	07	02			LN07020040	De-install Existing Components		CON	SL_MFAT	Hrs	500		42,080		42,080	30%
1	03	07	02			LN07020040	De-install Existing Components		CON	SL_ME	Hrs	80		8,694		8,694	30%
1	03	07	02			LN07020246	Install X-Band RF Components-Tunnel		CON	SL_MFAT	Hrs	480		40,397		40,397	30%
1	03	07	02			LN07020246	Install X-Band RF Components-Tunnel		CON	SL_KT	Hrs	240		15,202		15,202	30%
1	03	07	02			LN07020246	Install X-Band RF Components-Tunnel		CON	SL_KE	Hrs	80		9,253		9,253	30%
1	03	07	02			LN07020055	Establish Alignment Coordinates for B/L Equip		CON	SL_MFAT	Hrs	16		1,347		1,347	30%
1	03	07	02			LN07020055	Establish Alignment Coordinates for B/L Equip		CON	SL_MES	Hrs	48		4,458		4,458	30%
1	03	07	02			LN07020055	Establish Alignment Coordinates for B/L Equip		CON	SL_ME	Hrs	8		869		869	30%
1	03	07	02			LN07020045	Determine Disposition of De-installed Components		CON	SL_MFAT	Hrs	400		33,664		33,664	30%
1	03	07	02			LN07020045	Determine Disposition of De-installed Components		CON	SL_ME	Hrs	10		1,087		1,087	30%
1	03	07	02			LN07020200	Install S-Band RF Components		CON	SL_KT	Hrs	20		1,267		1,267	30%
1	03	07	02			LN07020200	Install S-Band RF Components		CON	SL_KE	Hrs	20		2,313		2,313	30%
1	03	07	02			LN07020100	Install All Racks, Cables, Trays & Test		CON	SL_TMUE	Hrs	1,500		148,500		148,500	30%
1	03	07	02			LN07020100	Install All Racks, Cables, Trays & Test		CON	SL_PCT	Hrs	16		1,013		1,013	30%
1	03	07	02			LN07020100	Install All Racks, Cables, Trays & Test		CON	SL_PCE	Hrs	20		2,313		2,313	30%
1	03	07	02			LN07020100	Install All Racks, Cables, Trays & Test		CON	SL_PCCA	Hrs	20		1,347		1,347	30%
1	03	07	02			LN07020100	Install All Racks, Cables, Trays & Test		CON	SL_CT	Hrs	24		1,520		1,520	30%
1	03	07	02			LN07020100	Install All Racks, Cables, Trays & Test		CON	SL_CE	Hrs	45		5,205		5,205	30%
1	03	07	02			LN07020100	Install All Racks, Cables, Trays & Test		CON	SL_CCA	Hrs	360		24,250		24,250	30%
1	03	07	02			LN07020205	Install Beamline Components		CON	SL_MFAT	Hrs	720		60,595		60,595	30%
1	03	07	02			LN07020205	Install Beamline Components		CON	SL_ME	Hrs	10		1,087		1,087	30%
1	03	07	02			LN07020250	Test & Tune X Band RF Equipment		CON	SL_KT	Hrs	120		7,621		7,621	30%
1	03	07	02			LN07020250	Test & Tune X Band RF Equipment		CON	SL_KE	Hrs	160		18,554		18,554	30%
1	03	07	02			LN07020050	Prep for & Move De-installed Equip to Storage		CON	SL_TMUI	Hrs	120		9,386		9,386	30%
1	03	07	02			LN07020050	Prep for & Move De-installed Equip to Storage		CON	SL_SEL	Hrs	180		8,683		8,683	30%
1	03	07	02			LN07020050	Prep for & Move De-installed Equip to Storage		CON	SL_MSEG	$$		5,000		5,600	5,600	30%
1	03	07	02			LN07020210	Align Beamline Components to Coordinate System		CON	SL_MFAT	Hrs	16		1,347		1,347	30%
1	03	07	02			LN07020210	Align Beamline Components to Coordinate System		CON	SL_MES	Hrs	48		4,458		4,458	30%
1	03	07	02			LN07020215	Magnet Power Interconnect & Test		CON	SL_CT	Hrs	80		5,155		5,155	30%
1	03	07	02			LN07020215	Magnet Power Interconnect & Test		CON	SL_CE	Hrs	10		1,177		1,177	30%
1	03	07	02			LN07020215	Magnet Power Interconnect & Test		CON	SL_CCA	Hrs	30		2,056		2,056	30%
1	03	07	02			LN07020255	Coordinate & Check Installation		CON	SL_MFAT	Hrs	40		3,454		3,454	30%
1	03	07	02			LN07020255	Coordinate & Check Installation		CON	SL_ME	Hrs	40		4,460		4,460	30%
1	03	07	02			LN07020220	Controls Interconnect & Test		CON	SL_CT	Hrs	80		5,199		5,199	30%
1	03	07	02			LN07020220	Controls Interconnect & Test		CON	SL_CE	Hrs	10		1,187		1,187	30%
1	03	07	02			LN07020220	Controls Interconnect & Test		CON	SL_CCA	Hrs	30		2,073		2,073	30%
1	03	07	02			LN07020225	Interconnect Vacuum System & Test		CON	SL_MFAT	Hrs	150		12,953		12,953	30%
1	03	07	02			LN07020225	Interconnect Vacuum System & Test		CON	SL_ME	Hrs	20		2,230		2,230	30%
1	03	07	02			LN07020225	Interconnect Vacuum System & Test		CON	SL_CT	Hrs	240		15,598		15,598	30%
1	03	07	02			LN07020225	Interconnect Vacuum System & Test		CON	SL_CE	Hrs	4		475		475	30%
1	03	07	02			LN07020225	Interconnect Vacuum System & Test		CON	SL_CCA	Hrs	15		1,037		1,037	30%
1	03	07	02			LN07020230	Perform Magnet Power Test		CON	SL_CT	Hrs	80		5,199		5,199	30%
1	03	07	02			LN07020230	Perform Magnet Power Test		CON	SL_CE	Hrs	8		949		949	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	07	02			LN07020230	Perform Magnet Power Test		CON	SL_CCA	Hrs	24		1,659		1,659	30%
1	03	07	02			LN07020235	Perform Diagnostics Controls Test		CON	SL_CT	Hrs	80		5,199		5,199	30%
1	03	07	02			LN07020235	Perform Diagnostics Controls Test		CON	SL_CE	Hrs	8		949		949	30%
1	03	07	02			LN07020235	Perform Diagnostics Controls Test		CON	SL_CCA	Hrs	24		1,659		1,659	30%
1	03	07	02			LN07020240	Test & Tune S Band RF Equipment		CON	SL_KT	Hrs	48		3,120		3,120	30%
1	03	07	02			LN07020240	Test & Tune S Band RF Equipment		CON	SL_KE	Hrs	48		5,696		5,696	30%
1	03	07	02			LN07020241	AVAIL: In-tunnel Installation Completed		CON	SL_KT	Hrs	48		3,120		3,120	30%
1	03	07	02			LN07020241	AVAIL: In-tunnel Installation Completed		CON	SL_KE	Hrs	48		5,696		5,696	30%
1	**03**	**07**	**03**				**Linac L02 System Installation & Alignment**					**4,269**	**9,000**	**382,622**	**10,284**	**392,906**	
1	03	07	03			LN07030035	Develop De-Installation Plan for Existing Equip		CON	SL_PCE	Hrs	40		4,626		4,626	30%
1	03	07	03			LN07030035	Develop De-Installation Plan for Existing Equip		CON	SL_ME	Hrs	40		4,347		4,347	30%
1	03	07	03			LN07030035	Develop De-Installation Plan for Existing Equip		CON	SL_CE	Hrs	40		4,626		4,626	30%
1	03	07	03			LN07030025	Procure Installation Tooling		CON	SL_MSEG	$$		2,000		2,267	2,267	30%
1	03	07	03			LN07030015	Procure Installation Hardware		CON	SL_MSEG	$$		2,000		2,267	2,267	30%
1	03	07	03			LN07030030	Kit New Components for Installation		CON	SL_MFAT	Hrs	40		3,454		3,454	30%
1	03	07	03			LN07030030	Kit New Components for Installation		CON	SL_ME	Hrs	20		2,230		2,230	30%
1	03	07	03			LN07030040	De-install Existing Components		CON	SL_TMUE	Hrs	250		25,393		25,393	30%
1	03	07	03			LN07030040	De-install Existing Components		CON	SL_PCCA	Hrs	60		4,147		4,147	30%
1	03	07	03			LN07030040	De-install Existing Components		CON	SL_MFAT	Hrs	250		21,588		21,588	30%
1	03	07	03			LN07030040	De-install Existing Components		CON	SL_ME	Hrs	40		4,460		4,460	30%
1	03	07	03			LN07030055	Establish Alignment Coordinates for B/L Equip		CON	SL_MFAT	Hrs	8		691		691	30%
1	03	07	03			LN07030055	Establish Alignment Coordinates for B/L Equip		CON	SL_MES	Hrs	24		2,287		2,287	30%
1	03	07	03			LN07030055	Establish Alignment Coordinates for B/L Equip		CON	SL_ME	Hrs	4		446		446	30%
1	03	07	03			LN07030045	Determine Disposition of De-installed Components		CON	SL_MFAT	Hrs	200		17,270		17,270	30%
1	03	07	03			LN07030045	Determine Disposition of De-installed Components		CON	SL_ME	Hrs	5		557		557	30%
1	03	07	03			LN07030200	Install S-Band RF Components		CON	SL_KT	Hrs	10		650		650	30%
1	03	07	03			LN07030200	Install S-Band RF Components		CON	SL_KE	Hrs	10		1,187		1,187	30%
1	03	07	03			LN07030100	Install All Racks, Cables, Trays & Test		CON	SL_TMUE	Hrs	1,500		152,355		152,355	30%
1	03	07	03			LN07030100	Install All Racks, Cables, Trays & Test		CON	SL_PCT	Hrs	32		2,080		2,080	30%
1	03	07	03			LN07030100	Install All Racks, Cables, Trays & Test		CON	SL_PCE	Hrs	40		4,747		4,747	30%
1	03	07	03			LN07030100	Install All Racks, Cables, Trays & Test		CON	SL_PCCA	Hrs	40		2,764		2,764	30%
1	03	07	03			LN07030100	Install All Racks, Cables, Trays & Test		CON	SL_CT	Hrs	24		1,560		1,560	30%
1	03	07	03			LN07030100	Install All Racks, Cables, Trays & Test		CON	SL_CE	Hrs	45		5,340		5,340	30%
1	03	07	03			LN07030100	Install All Racks, Cables, Trays & Test		CON	SL_CCA	Hrs	360		24,880		24,880	30%
1	03	07	03			LN07030205	Install Beamline Components		CON	SL_MFAT	Hrs	360		31,086		31,086	30%
1	03	07	03			LN07030205	Install Beamline Components		CON	SL_ME	Hrs	5		557		557	30%
1	03	07	03			LN07030050	Prep for & Move De-installed Equip to Storage		CON	SL_TMUI	Hrs	60		4,815		4,815	30%
1	03	07	03			LN07030050	Prep for & Move De-installed Equip to Storage		CON	SL_SEL	Hrs	180		8,908		8,908	30%
1	03	07	03			LN07030050	Prep for & Move De-installed Equip to Storage		CON	SL_MSEG	$$		5,000		5,750	5,750	30%
1	03	07	03			LN07030225	Interconnect Vacuum System & Test		CON	SL_MFAT	Hrs	75		6,476		6,476	30%
1	03	07	03			LN07030225	Interconnect Vacuum System & Test		CON	SL_ME	Hrs	10		1,115		1,115	30%
1	03	07	03			LN07030225	Interconnect Vacuum System & Test		CON	SL_CT	Hrs	120		7,799		7,799	30%
1	03	07	03			LN07030225	Interconnect Vacuum System & Test		CON	SL_CE	Hrs	2		237		237	30%
1	03	07	03			LN07030225	Interconnect Vacuum System & Test		CON	SL_CCA	Hrs	8		553		553	30%
1	03	07	03			LN07030210	Align Beamline Components to Coordinate System		CON	SL_MFAT	Hrs	8		691		691	30%
1	03	07	03			LN07030210	Align Beamline Components to Coordinate System		CON	SL_MES	Hrs	24		2,287		2,287	30%
1	03	07	03			LN07030230	Perform Magnet Power Test		CON	SL_CT	Hrs	40		2,600		2,600	30%
1	03	07	03			LN07030230	Perform Magnet Power Test		CON	SL_CE	Hrs	4		475		475	30%
1	03	07	03			LN07030230	Perform Magnet Power Test		CON	SL_CCA	Hrs	12		829		829	30%
1	03	07	03			LN07030215	Magnet Power Interconnect & Test		CON	SL_CT	Hrs	40		2,600		2,600	30%
1	03	07	03			LN07030215	Magnet Power Interconnect & Test		CON	SL_CE	Hrs	5		593		593	30%
1	03	07	03			LN07030215	Magnet Power Interconnect & Test		CON	SL_CCA	Hrs	15		1,037		1,037	30%
1	03	07	03			LN07030235	Perform Diagnostics Controls Test		CON	SL_CT	Hrs	40		2,600		2,600	30%
1	03	07	03			LN07030235	Perform Diagnostics Controls Test		CON	SL_CE	Hrs	4		475		475	30%
1	03	07	03			LN07030235	Perform Diagnostics Controls Test		CON	SL_CCA	Hrs	12		829		829	30%
1	03	07	03			LN07030240	Test & Tune S Band RF Equipment		CON	SL_KT	Hrs	24		1,560		1,560	30%
1	03	07	03			LN07030240	Test & Tune S Band RF Equipment		CON	SL_KE	Hrs	24		2,848		2,848	30%
1	03	07	03			LN07030220	Controls Interconnect & Test		CON	SL_CT	Hrs	40		2,600		2,600	30%
1	03	07	03			LN07030220	Controls Interconnect & Test		CON	SL_CE	Hrs	20		2,373		2,373	30%
1	03	07	03			LN07030220	Controls Interconnect & Test		CON	SL_CCA	Hrs	15		1,037		1,037	30%
1	03	07	03			LN07030245	Coordinate & Check Installation		CON	SL_MFAT	Hrs	20		1,727		1,727	30%
1	03	07	03			LN07030245	Coordinate & Check Installation		CON	SL_ME	Hrs	20		2,230		2,230	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	**03**	**07**	**04**				**Linac BC2 System Installation & Alignment**					**7,820**	**9,000**	**682,970**	**10,284**	**693,254**	
1	03	07	04			LN07040035	Develop De-Installation Plan for Existing Equip		CON	SL_PCE	Hrs	40		4,626		4,626	30%
1	03	07	04			LN07040035	Develop De-Installation Plan for Existing Equip		CON	SL_ME	Hrs	120		13,040		13,040	30%
1	03	07	04			LN07040035	Develop De-Installation Plan for Existing Equip		CON	SL_CE	Hrs	40		4,626		4,626	30%
1	03	07	04			LN07040025	Procure Installation Tooling		CON	SL_MSEG	$$		2,000		2,267	2,267	30%
1	03	07	04			LN07040015	Procure Installation Hardware		CON	SL_MSEG	$$		2,000		2,267	2,267	30%
1	03	07	04			LN07040030	Kit New Components for Installation		CON	SL_MFAT	Hrs	120		10,362		10,362	30%
1	03	07	04			LN07040030	Kit New Components for Installation		CON	SL_ME	Hrs	60		6,689		6,689	30%
1	03	07	04			LN07040040	De-install Existing Components		CON	SL_TMUE	Hrs	250		25,393		25,393	30%
1	03	07	04			LN07040040	De-install Existing Components		CON	SL_PCCA	Hrs	120		8,293		8,293	30%
1	03	07	04			LN07040040	De-install Existing Components		CON	SL_MFAT	Hrs	750		64,763		64,763	30%
1	03	07	04			LN07040040	De-install Existing Components		CON	SL_ME	Hrs	120		13,379		13,379	30%
1	03	07	04			LN07040055	Establish Alignment Coordinates for B/L Equip		CON	SL_MFAT	Hrs	24		2,072		2,072	30%
1	03	07	04			LN07040055	Establish Alignment Coordinates for B/L Equip		CON	SL_MES	Hrs	72		6,860		6,860	30%
1	03	07	04			LN07040055	Establish Alignment Coordinates for B/L Equip		CON	SL_ME	Hrs	12		1,338		1,338	30%
1	03	07	04			LN07040045	Determine Disposition of De-installed Components		CON	SL_MFAT	Hrs	600		51,810		51,810	30%
1	03	07	04			LN07040045	Determine Disposition of De-installed Components		CON	SL_ME	Hrs	15		1,672		1,672	30%
1	03	07	04			LN07040200	Install S-Band RF Components		CON	SL_KT	Hrs	30		1,950		1,950	30%
1	03	07	04			LN07040200	Install S-Band RF Components		CON	SL_KE	Hrs	30		3,560		3,560	30%
1	03	07	04			LN07040100	Install All Racks, Cables, Trays & Test		CON	SL_TMUE	Hrs	1,500		152,355		152,355	30%
1	03	07	04			LN07040100	Install All Racks, Cables, Trays & Test		CON	SL_PCT	Hrs	112		7,279		7,279	30%
1	03	07	04			LN07040100	Install All Racks, Cables, Trays & Test		CON	SL_PCE	Hrs	140		16,614		16,614	30%
1	03	07	04			LN07040100	Install All Racks, Cables, Trays & Test		CON	SL_PCCA	Hrs	140		9,675		9,675	30%
1	03	07	04			LN07040100	Install All Racks, Cables, Trays & Test		CON	SL_CT	Hrs	24		1,560		1,560	30%
1	03	07	04			LN07040100	Install All Racks, Cables, Trays & Test		CON	SL_CE	Hrs	45		5,340		5,340	30%
1	03	07	04			LN07040100	Install All Racks, Cables, Trays & Test		CON	SL_CCA	Hrs	360		24,880		24,880	30%
1	03	07	04			LN07040205	Install Beamline Components		CON	SL_MFAT	Hrs	1,080		93,258		93,258	30%
1	03	07	04			LN07040205	Install Beamline Components		CON	SL_ME	Hrs	15		1,672		1,672	30%
1	03	07	04			LN07040050	Prep for & Move De-installed Equip to Storage		CON	SL_TMUI	Hrs	120		9,630		9,630	30%
1	03	07	04			LN07040050	Prep for & Move De-installed Equip to Storage		CON	SL_SEL	Hrs	180		8,908		8,908	30%
1	03	07	04			LN07040050	Prep for & Move De-installed Equip to Storage		CON	SL_MSEG	$$		5,000		5,750	5,750	30%
1	03	07	04			LN07040225	Interconnect Vacuum System & Test		CON	SL_MFAT	Hrs	225		19,429		19,429	30%
1	03	07	04			LN07040225	Interconnect Vacuum System & Test		CON	SL_ME	Hrs	30		3,345		3,345	30%
1	03	07	04			LN07040225	Interconnect Vacuum System & Test		CON	SL_CT	Hrs	360		23,396		23,396	30%
1	03	07	04			LN07040225	Interconnect Vacuum System & Test		CON	SL_CE	Hrs	6		712		712	30%
1	03	07	04			LN07040225	Interconnect Vacuum System & Test		CON	SL_CCA	Hrs	24		1,659		1,659	30%
1	03	07	04			LN07040210	Align Beamline Components to Coordinate System		CON	SL_MFAT	Hrs	24		2,072		2,072	30%
1	03	07	04			LN07040210	Align Beamline Components to Coordinate System		CON	SL_MES	Hrs	72		6,860		6,860	30%
1	03	07	04			LN07040230	Perform Magnet Power Test		CON	SL_CT	Hrs	120		7,799		7,799	30%
1	03	07	04			LN07040230	Perform Magnet Power Test		CON	SL_CE	Hrs	12		1,424		1,424	30%
1	03	07	04			LN07040230	Perform Magnet Power Test		CON	SL_CCA	Hrs	36		2,488		2,488	30%
1	03	07	04			LN07040215	Magnet Power Interconnect & Test		CON	SL_CT	Hrs	120		7,799		7,799	30%
1	03	07	04			LN07040215	Magnet Power Interconnect & Test		CON	SL_CE	Hrs	15		1,780		1,780	30%
1	03	07	04			LN07040215	Magnet Power Interconnect & Test		CON	SL_CCA	Hrs	45		3,110		3,110	30%
1	03	07	04			LN07040235	Perform Diagnostics Controls Test		CON	SL_CT	Hrs	120		7,799		7,799	30%
1	03	07	04			LN07040235	Perform Diagnostics Controls Test		CON	SL_CE	Hrs	12		1,424		1,424	30%
1	03	07	04			LN07040235	Perform Diagnostics Controls Test		CON	SL_CCA	Hrs	36		2,488		2,488	30%
1	03	07	04			LN07040240	Test & Tune S Band RF Equipment		CON	SL_KT	Hrs	72		4,679		4,679	30%
1	03	07	04			LN07040240	Test & Tune S Band RF Equipment		CON	SL_KE	Hrs	72		8,544		8,544	30%
1	03	07	04			LN07040220	Controls Interconnect & Test		CON	SL_CT	Hrs	120		7,799		7,799	30%
1	03	07	04			LN07040220	Controls Interconnect & Test		CON	SL_CE	Hrs	15		1,780		1,780	30%
1	03	07	04			LN07040220	Controls Interconnect & Test		CON	SL_CCA	Hrs	45		3,110		3,110	30%
1	03	07	04			LN07040245	Coordinate & Check Installation		CON	SL_MFAT	Hrs	60		5,181		5,181	30%
1	03	07	04			LN07040245	Coordinate & Check Installation		CON	SL_ME	Hrs	60		6,689		6,689	30%
1	**03**	**07**	**05**				**Linac L03 System Installation & Alignment**					**6,852**	**14,000**	**611,005**	**16,034**	**627,039**	
1	03	07	05			LN07050035	Develop De-Installation Plan for Existing Equip		CON	SL_PCE	Hrs	60		6,940		6,940	30%
1	03	07	05			LN07050035	Develop De-Installation Plan for Existing Equip		CON	SL_ME	Hrs	60		6,520		6,520	30%
1	03	07	05			LN07050035	Develop De-Installation Plan for Existing Equip		CON	SL_CE	Hrs	60		6,940		6,940	30%
1	03	07	05			LN07050025	Procure Installation Tooling		CON	SL_MSEG	$$		2,000		2,267	2,267	30%
1	03	07	05			LN07050015	Procure Installation Hardware		CON	SL_MSEG	$$		2,000		2,267	2,267	30%
1	03	07	05			LN07050030	Kit New Components for Installation		CON	SL_MFAT	Hrs	60		5,181		5,181	30%
1	03	07	05			LN07050030	Kit New Components for Installation		CON	SL_ME	Hrs	30		3,345		3,345	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	07	05			LN07050055	Establish Alignment Coordinates for B/L Equip		CON	SL_MFAT	Hrs	12		1,036		1,036	30%
1	03	07	05			LN07050055	Establish Alignment Coordinates for B/L Equip		CON	SL_MES	Hrs	36		3,430		3,430	30%
1	03	07	05			LN07050055	Establish Alignment Coordinates for B/L Equip		CON	SL_ME	Hrs	6		669		669	30%
1	03	07	05			LN07050040	De-install Existing Components		CON	SL_TMUE	Hrs	400		40,628		40,628	30%
1	03	07	05			LN07050040	De-install Existing Components		CON	SL_PCCA	Hrs	240		16,586		16,586	30%
1	03	07	05			LN07050040	De-install Existing Components		CON	SL_MFAT	Hrs	375		32,381		32,381	30%
1	03	07	05			LN07050040	De-install Existing Components		CON	SL_ME	Hrs	60		6,689		6,689	30%
1	03	07	05			LN07050045	Determine Disposition of De-installed Components		CON	SL_MFAT	Hrs	300		25,905		25,905	30%
1	03	07	05			LN07050045	Determine Disposition of De-installed Components		CON	SL_ME	Hrs	8		892		892	30%
1	03	07	05			LN07050100	Install All Racks, Cables, Trays & Test		CON	SL_TMUE	Hrs	2,300		233,611		233,611	30%
1	03	07	05			LN07050100	Install All Racks, Cables, Trays & Test		CON	SL_PCT	Hrs	96		6,239		6,239	30%
1	03	07	05			LN07050100	Install All Racks, Cables, Trays & Test		CON	SL_PCE	Hrs	120		14,240		14,240	30%
1	03	07	05			LN07050100	Install All Racks, Cables, Trays & Test		CON	SL_PCCA	Hrs	120		8,293		8,293	30%
1	03	07	05			LN07050100	Install All Racks, Cables, Trays & Test		CON	SL_CT	Hrs	60		3,899		3,899	30%
1	03	07	05			LN07050100	Install All Racks, Cables, Trays & Test		CON	SL_CE	Hrs	60		7,120		7,120	30%
1	03	07	05			LN07050100	Install All Racks, Cables, Trays & Test		CON	SL_CCA	Hrs	480		33,173		33,173	30%
1	03	07	05			LN07050050	Prep for & Move De-installed Equip to Storage		CON	SL_TMUI	Hrs	240		19,260		19,260	30%
1	03	07	05			LN07050050	Prep for & Move De-installed Equip to Storage		CON	SL_SEL	Hrs	240		11,878		11,878	30%
1	03	07	05			LN07050050	Prep for & Move De-installed Equip to Storage		CON	SL_MSEG	$$		10,000		11,500	11,500	30%
1	03	07	05			LN07050205	Install Beamline Components		CON	SL_MFAT	Hrs	540		46,629		46,629	30%
1	03	07	05			LN07050205	Install Beamline Components		CON	SL_ME	Hrs	8		892		892	30%
1	03	07	05			LN07050200	Install S-Band RF Components		CON	SL_KT	Hrs	15		975		975	30%
1	03	07	05			LN07050200	Install S-Band RF Components		CON	SL_KE	Hrs	15		1,780		1,780	30%
1	03	07	05			LN07050210	Align Beamline Components to Coordinate System		CON	SL_MFAT	Hrs	12		1,036		1,036	30%
1	03	07	05			LN07050210	Align Beamline Components to Coordinate System		CON	SL_MES	Hrs	36		3,430		3,430	30%
1	03	07	05			LN07050215	Magnet Power Interconnect & Test		CON	SL_CT	Hrs	60		3,899		3,899	30%
1	03	07	05			LN07050215	Magnet Power Interconnect & Test		CON	SL_CE	Hrs	6		712		712	30%
1	03	07	05			LN07050215	Magnet Power Interconnect & Test		CON	SL_CCA	Hrs	24		1,659		1,659	30%
1	03	07	05			LN07050225	Interconnect Vacuum System & Test		CON	SL_MFAT	Hrs	113		9,758		9,758	30%
1	03	07	05			LN07050225	Interconnect Vacuum System & Test		CON	SL_ME	Hrs	15		1,672		1,672	30%
1	03	07	05			LN07050225	Interconnect Vacuum System & Test		CON	SL_CT	Hrs	180		11,698		11,698	30%
1	03	07	05			LN07050225	Interconnect Vacuum System & Test		CON	SL_CE	Hrs	5		593		593	30%
1	03	07	05			LN07050225	Interconnect Vacuum System & Test		CON	SL_CCA	Hrs	10		691		691	30%
1	03	07	05			LN07050220	Controls Interconnect & Test		CON	SL_CT	Hrs	60		3,899		3,899	30%
1	03	07	05			LN07050220	Controls Interconnect & Test		CON	SL_CE	Hrs	6		712		712	30%
1	03	07	05			LN07050220	Controls Interconnect & Test		CON	SL_CCA	Hrs	24		1,659		1,659	30%
1	03	07	05			LN07050230	Perform Magnet Power Test		CON	SL_CT	Hrs	60		3,899		3,899	30%
1	03	07	05			LN07050230	Perform Magnet Power Test		CON	SL_CE	Hrs	8		949		949	30%
1	03	07	05			LN07050230	Perform Magnet Power Test		CON	SL_CCA	Hrs	16		1,106		1,106	30%
1	03	07	05			LN07050235	Perform Diagnostics Controls Test		CON	SL_CT	Hrs	60		3,899		3,899	30%
1	03	07	05			LN07050235	Perform Diagnostics Controls Test		CON	SL_CE	Hrs	8		949		949	30%
1	03	07	05			LN07050235	Perform Diagnostics Controls Test		CON	SL_CCA	Hrs	16		1,106		1,106	30%
1	03	07	05			LN07050240	Test & Tune S Band RF Equipment		CON	SL_KT	Hrs	36		2,340		2,340	30%
1	03	07	05			LN07050240	Test & Tune S Band RF Equipment		CON	SL_KE	Hrs	36		4,272		4,272	30%
1	03	07	05			LN07050245	Coordinate & Check Installation		CON	SL_MFAT	Hrs	30		2,591		2,591	30%
1	03	07	05			LN07050245	Coordinate & Check Installation		CON	SL_ME	Hrs	30		3,345		3,345	30%
1	**03**	**07**	**06**				**Linac LTU System Installation & Alignment**					**10,352**	**225,000**	**916,931**	**254,859**	**1,171,790**	
1	03	07	06			LN07060035	Develop De-Installation Plan for Existing Equip		CON	SL_PCE	Hrs	100		11,566		11,566	30%
1	03	07	06			LN07060035	Develop De-Installation Plan for Existing Equip		CON	SL_ME	Hrs	80		8,694		8,694	30%
1	03	07	06			LN07060035	Develop De-Installation Plan for Existing Equip		CON	SL_CE	Hrs	100		11,566		11,566	30%
1	03	07	06			LN07060000	Establish & Maintain Component Storage Facility		CON	SL_MSEG	$$		25,000		28,357	28,357	30%
1	03	07	06			LN07060025	Procure Installation Tooling		CON	SL_MSEG	$$		75,000		85,251	85,251	30%
1	03	07	06			LN07060015	Procure Installation Hardware		CON	SL_MSEG	$$		75,000		85,251	85,251	30%
1	03	07	06			LN07060045	De-install Existing Components		CON	SL_TMUE	Hrs	800		79,200		79,200	30%
1	03	07	06			LN07060045	De-install Existing Components		CON	SL_PCCA	Hrs	400		26,944		26,944	30%
1	03	07	06			LN07060045	De-install Existing Components		CON	SL_MFAT	Hrs	600		50,496		50,496	30%
1	03	07	06			LN07060045	De-install Existing Components		CON	SL_ME	Hrs	80		8,694		8,694	30%
1	03	07	06			LN07060050	Determine Disposition of De-installed Components		CON	SL_MFAT	Hrs	360		30,298		30,298	30%
1	03	07	06			LN07060050	Determine Disposition of De-installed Components		CON	SL_ME	Hrs	40		4,347		4,347	30%
1	03	07	06			LN07060055	Prep for & Move De-installed Equip to Storage		CON	SL_TMUI	Hrs	480		37,546		37,546	30%
1	03	07	06			LN07060055	Prep for & Move De-installed Equip to Storage		CON	SL_SEL	Hrs	320		15,437		15,437	30%
1	03	07	06			LN07060055	Prep for & Move De-installed Equip to Storage		CON	SL_MSEG	$$		50,000		56,000	56,000	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	07	06			LN07060030	Kit New Components for Installation		CON	SL_MFAT	Hrs	600		51,810		51,810	30%
1	03	07	06			LN07060030	Kit New Components for Installation		CON	SL_ME	Hrs	320		35,677		35,677	30%
1	03	07	06			LN07060065	Establish Alignment Coordinates for B/L Equip		CON	SL_MFAT	Hrs	240		20,724		20,724	30%
1	03	07	06			LN07060065	Establish Alignment Coordinates for B/L Equip		CON	SL_MES	Hrs	288		27,441		27,441	30%
1	03	07	06			LN07060065	Establish Alignment Coordinates for B/L Equip		CON	SL_ME	Hrs	120		13,379		13,379	30%
1	03	07	06			LN07060200	Install Beamline Components		CON	SL_MFAT	Hrs	600		51,810		51,810	30%
1	03	07	06			LN07060200	Install Beamline Components		CON	SL_ME	Hrs	60		6,689		6,689	30%
1	03	07	06			LN07060100	Install All Racks, Cables, Trays & Test		CON	SL_TMUE	Hrs	1,500		152,355		152,355	30%
1	03	07	06			LN07060100	Install All Racks, Cables, Trays & Test		CON	SL_PCT	Hrs	216		14,038		14,038	30%
1	03	07	06			LN07060100	Install All Racks, Cables, Trays & Test		CON	SL_PCE	Hrs	540		64,082		64,082	30%
1	03	07	06			LN07060100	Install All Racks, Cables, Trays & Test		CON	SL_PCCA	Hrs	540		37,319		37,319	30%
1	03	07	06			LN07060100	Install All Racks, Cables, Trays & Test		CON	SL_CT	Hrs	60		3,899		3,899	30%
1	03	07	06			LN07060100	Install All Racks, Cables, Trays & Test		CON	SL_CE	Hrs	60		7,120		7,120	30%
1	03	07	06			LN07060100	Install All Racks, Cables, Trays & Test		CON	SL_CCA	Hrs	360		24,880		24,880	30%
1	03	07	06			LN07060210	Align Beamline Components to Coordinate System		CON	SL_MFAT	Hrs	240		20,724		20,724	30%
1	03	07	06			LN07060210	Align Beamline Components to Coordinate System		CON	SL_MES	Hrs	240		22,867		22,867	30%
1	03	07	06			LN07060215	Magnet Power Interconnect & Test		CON	SL_CT	Hrs	120		7,799		7,799	30%
1	03	07	06			LN07060215	Magnet Power Interconnect & Test		CON	SL_CE	Hrs	10		1,187		1,187	30%
1	03	07	06			LN07060215	Magnet Power Interconnect & Test		CON	SL_CCA	Hrs	30		2,073		2,073	30%
1	03	07	06			LN07060220	Controls Interconnect & Test		CON	SL_CT	Hrs	120		7,799		7,799	30%
1	03	07	06			LN07060220	Controls Interconnect & Test		CON	SL_CE	Hrs	10		1,187		1,187	30%
1	03	07	06			LN07060220	Controls Interconnect & Test		CON	SL_CCA	Hrs	30		2,073		2,073	30%
1	03	07	06			LN07060225	Interconnect Vacuum System & Test		CON	SL_MFAT	Hrs	120		10,362		10,362	30%
1	03	07	06			LN07060225	Interconnect Vacuum System & Test		CON	SL_ME	Hrs	40		4,460		4,460	30%
1	03	07	06			LN07060225	Interconnect Vacuum System & Test		CON	SL_CT	Hrs	120		7,799		7,799	30%
1	03	07	06			LN07060225	Interconnect Vacuum System & Test		CON	SL_CE	Hrs	10		1,187		1,187	30%
1	03	07	06			LN07060225	Interconnect Vacuum System & Test		CON	SL_CCA	Hrs	30		2,073		2,073	30%
1	03	07	06			LN07060230	Perform Magnet Power Test		CON	SL_CT	Hrs	80		5,199		5,199	30%
1	03	07	06			LN07060230	Perform Magnet Power Test		CON	SL_CE	Hrs	8		949		949	30%
1	03	07	06			LN07060230	Perform Magnet Power Test		CON	SL_CCA	Hrs	16		1,106		1,106	30%
1	03	07	06			LN07060235	Perform Diagnostics Controls Test		CON	SL_CT	Hrs	80		5,199		5,199	30%
1	03	07	06			LN07060235	Perform Diagnostics Controls Test		CON	SL_CE	Hrs	8		949		949	30%
1	03	07	06			LN07060235	Perform Diagnostics Controls Test		CON	SL_CCA	Hrs	16		1,106		1,106	30%
1	03	07	06			LN07060245	Coordinate & Check Installation		CON	SL_MFAT	Hrs	120		10,362		10,362	30%
1	03	07	06			LN07060245	Coordinate & Check Installation		CON	SL_ME	Hrs	40		4,460		4,460	30%
1	**03**	**07**	**07**				**Linac E-Dump System Installation & Alignment**					**5,732**	**175,000**	**528,298**	**196,342**	**724,640**	
1	03	07	07			LN07070000	Establish & Maintain Component Storage Facility		CON	SL_MSEG	$$		25,000		28,000	28,000	30%
1	03	07	07			LN07070025	Procure Installation Tooling		CON	SL_MSEG	$$		75,000		84,171	84,171	30%
1	03	07	07			LN07070015	Procure Installation Hardware		CON	SL_MSEG	$$		75,000		84,171	84,171	30%
1	03	07	07			LN07070030	Kit New Components for Installation		CON	SL_MFAT	Hrs	600		51,810		51,810	30%
1	03	07	07			LN07070030	Kit New Components for Installation		CON	SL_ME	Hrs	320		35,677		35,677	30%
1	03	07	07			LN07070040	Establish Alignment Coordinates for B/L Equip		CON	SL_MFAT	Hrs	240		21,262		21,262	30%
1	03	07	07			LN07070040	Establish Alignment Coordinates for B/L Equip		CON	SL_MES	Hrs	288		28,155		28,155	30%
1	03	07	07			LN07070040	Establish Alignment Coordinates for B/L Equip		CON	SL_ME	Hrs	120		13,727		13,727	30%
1	03	07	07			LN07070100	Install All Racks, Cables, Trays & Test		CON	SL_TMUE	Hrs	1,500		156,315		156,315	30%
1	03	07	07			LN07070100	Install All Racks, Cables, Trays & Test		CON	SL_PCT	Hrs	16		1,067		1,067	30%
1	03	07	07			LN07070100	Install All Racks, Cables, Trays & Test		CON	SL_PCE	Hrs	20		2,435		2,435	30%
1	03	07	07			LN07070100	Install All Racks, Cables, Trays & Test		CON	SL_PCCA	Hrs	20		1,418		1,418	30%
1	03	07	07			LN07070100	Install All Racks, Cables, Trays & Test		CON	SL_CT	Hrs	400		26,672		26,672	30%
1	03	07	07			LN07070100	Install All Racks, Cables, Trays & Test		CON	SL_CE	Hrs	12		1,461		1,461	30%
1	03	07	07			LN07070100	Install All Racks, Cables, Trays & Test		CON	SL_CCA	Hrs	48		3,404		3,404	30%
1	03	07	07			LN07070200	Install Beamline Components		CON	SL_MFAT	Hrs	600		53,154		53,154	30%
1	03	07	07			LN07070200	Install Beamline Components		CON	SL_ME	Hrs	60		6,863		6,863	30%
1	03	07	07			LN07070210	Align Beamline Components to Coordinate System		CON	SL_MFAT	Hrs	240		21,262		21,262	30%
1	03	07	07			LN07070210	Align Beamline Components to Coordinate System		CON	SL_MES	Hrs	240		23,462		23,462	30%
1	03	07	07			LN07070215	Magnet Power Interconnect & Test		CON	SL_CT	Hrs	120		8,002		8,002	30%
1	03	07	07			LN07070215	Magnet Power Interconnect & Test		CON	SL_CE	Hrs	10		1,218		1,218	30%
1	03	07	07			LN07070215	Magnet Power Interconnect & Test		CON	SL_CCA	Hrs	30		2,127		2,127	30%
1	03	07	07			LN07070220	Controls Interconnect & Test		CON	SL_CT	Hrs	120		8,002		8,002	30%
1	03	07	07			LN07070220	Controls Interconnect & Test		CON	SL_CE	Hrs	10		1,218		1,218	30%
1	03	07	07			LN07070220	Controls Interconnect & Test		CON	SL_CCA	Hrs	30		2,127		2,127	30%
1	03	07	07			LN07070225	Interconnect Vacuum System & Test		CON	SL_MFAT	Hrs	120		10,631		10,631	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	03	07	07			LN07070225	Interconnect Vacuum System & Test		CON	SL_ME	Hrs	40		4,576		4,576	30%
1	03	07	07			LN07070225	Interconnect Vacuum System & Test		CON	SL_CT	Hrs	120		8,002		8,002	30%
1	03	07	07			LN07070225	Interconnect Vacuum System & Test		CON	SL_CE	Hrs	10		1,218		1,218	30%
1	03	07	07			LN07070225	Interconnect Vacuum System & Test		CON	SL_CCA	Hrs	30		2,127		2,127	30%
1	03	07	07			LN07070230	Perform Magnet Power Test		CON	SL_CT	Hrs	80		5,334		5,334	30%
1	03	07	07			LN07070230	Perform Magnet Power Test		CON	SL_CE	Hrs	8		974		974	30%
1	03	07	07			LN07070230	Perform Magnet Power Test		CON	SL_CCA	Hrs	16		1,135		1,135	30%
1	03	07	07			LN07070235	Perform Diagnostics Controls Test		CON	SL_CT	Hrs	80		5,334		5,334	30%
1	03	07	07			LN07070235	Perform Diagnostics Controls Test		CON	SL_CE	Hrs	24		2,922		2,922	30%
1	03	07	07			LN07070245	Coordinate & Check Installation		CON	SL_MFAT	Hrs	120		10,631		10,631	30%
1	03	07	07			LN07070245	Coordinate & Check Installation		CON	SL_ME	Hrs	40		4,576		4,576	30%
1	**04**						**UNDULATOR SYSTEM**					**156,373**	**28,398,232**	**13,250,485**	**30,553,184**	**43,803,669**	
1	**04**	**01**					**Undulator System Management & Integration**					**49,184**	**580,628**	**4,332,947**	**674,653**	**5,007,600**	
1	**04**	**01**	**01**				**Undulator System Management**					**49,184**	**275,000**	**4,332,947**	**292,890**	**4,625,837**	
1	**04**	**01**	**01**	**01**			**Undulator System Management - Technical**					**36,051**	**-**	**3,174,982**	**-**	**3,174,982**	
1	04	01	01	01		UN11_00090	Diagnostics Engineering Oversight (PED)		PED	AN_PM	Hrs	1,329		113,152		113,152	30%
1	04	01	01	01		UN11_00070	Vacuum Engineering Oversight (PED)		PED	AN_PM	Hrs	1,329		113,152		113,152	30%
1	04	01	01	01		UN11_00050	Undulator Magnet & Support Engr Oversight (PED		PED	AN_PM	Hrs	3,192		271,770		271,770	30%
1	04	01	01	01		UN11_00030	Controls System Engineering Oversight (PED)		PED	AN_PM	Hrs	1,596		135,885		135,885	30%
1	04	01	01	01		UN11_00005	Project Management - FY04 (PED)		PED	AN_PM	Hrs	1,208		101,025		101,025	30%
1	04	01	01	01		UN11_00170	Oversee Quality Assurance - FY04 (PED)		PED	AN_ADMN	Hrs	324		27,096		27,096	30%
1	04	01	01	01		UN11_00020	Oversee Engineering and Integration - FY04 (PED)		PED	AN_PM	Hrs	344		28,769		28,769	30%
1	04	01	01	01		UN11_00175	Oversee Quality Assurance - FY05 (PED)		CON	AN_ADMN	Hrs	1,235		106,272		106,272	30%
1	04	01	01	01		UN11_00025	Oversee Engineering and Integration - FY05 (PED)		CON	AN_PM	Hrs	1,976		170,035		170,035	30%
1	04	01	01	01		UN11_00010	Project Management - FY05 (PED)		CON	AN_PM	Hrs	1,976		170,035		170,035	30%
1	04	01	01	01		UN11_00290	Oversee Quality Assurance (CNST)		CON	AN_ADMN	Hrs	2,376		212,930		212,930	30%
1	04	01	01	01		UN11_00260	Diagnostics Engineering Oversight (CNST)		CON	AN_PM	Hrs	1,841		165,682		165,682	30%
1	04	01	01	01		UN11_00250	Vacuum Engineering Oversight (CNST)		CON	AN_PM	Hrs	1,841		165,682		165,682	30%
1	04	01	01	01		UN11_00240	Undulator Magnet & Support Engr Oversight (CNS		CON	AN_PM	Hrs	4,424		398,142		398,142	30%
1	04	01	01	01		UN11_00230	Controls System Engineering Oversight (CNST)		CON	AN_PM	Hrs	2,212		199,071		199,071	30%
1	04	01	01	01		UN11_00220	Oversee Engineering and Integration (CNST)		CON	AN_PM	Hrs	4,424		398,142		398,142	30%
1	04	01	01	01		UN11_00200	Project Management (CNST)		CON	AN_PM	Hrs	4,424		398,142		398,142	30%
1	**04**	**01**	**01**	**02**			**ANL Project Support**					**13,133**	**275,000**	**1,157,965**	**292,890**	**1,450,855**	
1	04	01	01	02		UN11_00420	ANL Division - PMCS Support (PED)		PED	AN_ADMN	Hrs	798		67,943		67,943	30%
1	04	01	01	02		UN11_00400	Monitor Budget, Schedule and Contracts (PED)		PED	AN_ADMN	Hrs	3,192		271,770		271,770	30%
1	04	01	01	02		UN11_00530	ANL Indirect Cost Allocation - FY04		PED	AN_MSXX	$$		9,000		9,000	9,000	30%
1	04	01	01	02		UN11_00440	ANL Division - Website Support (PED)		PED	AN_ADMN	Hrs	319		27,189		27,189	30%
1	04	01	01	02		UN11_00540	ANL Indirect Cost Allocation - FY05		PED	AN_MSXX	$$		45,000		46,350	46,350	30%
1	04	01	01	02		UN11_00460	Provide Administrative Support (PED)		CON	AN_ADMN	Hrs	593		51,028		51,028	30%
1	04	01	01	02		UN11_00550	ANL Indirect Cost Allocation - FY06		CON	AN_MSXX	$$		113,000		119,780	119,780	30%
1	04	01	01	02		UN11_00520	ANL Division - Website Support (CNST)		CON	AN_ADMN	Hrs	715		64,076		64,076	30%
1	04	01	01	02		UN11_00500	ANL Division - PMCS Support (CNST)		CON	AN_ADMN	Hrs	1,904		171,352		171,352	30%
1	04	01	01	02		UN11_00300	Provide Administrative Support (CNST)		CON	AN_ADMN	Hrs	1,188		106,465		106,465	30%
1	04	01	01	02		UN11_00270	Monitor Budget, Schedule and Contracts (CNST)		CON	AN_ADMN	Hrs	4,424		398,142		398,142	30%
1	04	01	01	02		UN11_00560	ANL Indirect Cost Allocation - FY07		CON	AN_MSXX	$$		106,000		115,540	115,540	30%
1	04	01	01	02		UN11_00570	ANL Indirect Cost Allocation - FY08		CON	AN_MSXX	$$		2,000		2,220	2,220	30%
1	**04**	**01**	**02**				**Undulator System Materials & Supplies**					**-**	**248,297**	**-**	**320,887**	**320,887**	
1	**04**	**01**	**02**	**01**			**Undulator System M&S - General**					**-**	**113,460**	**-**	**134,625**	**134,625**	
1	04	01	02	01		UN12_00030	CPUs and Software - FY04 (PED)		PED	AN_MSEG	$$		9,757		9,757	9,757	30%
1	04	01	02	01		UN12_00020	Tele/Video Conferencing - FY04 (PED)		PED	AN_MSEG	$$		445		445	445	30%
1	04	01	02	01		UN12_00010	Office Supplies and Misc Materials FY04 (PED)		PED	AN_MSCS	$$		2,655		2,655	2,655	30%
1	04	01	02	01		UN12_00040	Shipping and Storage (PED)		CON	AN_MSTR	$$		22,500		30,600	30,600	30%
1	04	01	02	01		UN12_00035	CPUs and Software - FY05 (PED)		PED	AN_MSEG	$$		12,350		12,721	12,721	30%
1	04	01	02	01		UN12_00025	Tele/Video Conferencing - FY05 (PED)		PED	AN_MSEG	$$		1,976		2,035	2,035	30%
1	04	01	02	01		UN12_00015	Office Supplies and Misc Materials - FY05 (PED		CON	AN_MSCS	$$		3,952		4,071	4,071	30%
1	04	01	02	01		UN12_00080	Shipping and Storage (CNST)		CON	AN_MSTR	$$		22,500		32,074	32,074	30%
1	04	01	02	01		UN12_00070	CPUs and Software (CNST)		CON	AN_MSEG	$$		25,000		26,971	26,971	30%
1	04	01	02	01		UN12_00060	Tele/Video Conferencing (CNST)		CON	AN_MSEG	$$		4,000		4,315	4,315	30%
1	04	01	02	01		UN12_00050	Office Supplies and Misc Materials (CNST)		CON	AN_MSCS	$$		8,325		8,981	8,981	30%
1	**04**	**01**	**02**	**02**			**Undulator System Travel**					**-**	**134,837**	**-**	**186,262**	**186,262**	
1	04	01	02	02		UN501_0040	Travel End-Of-Undulator - FY04 (PED)		PED	AN_MSTR	$$		1,162		1,541	1,541	30%
1	04	01	02	02		UN12_00120	Foreign Travel - FY04 (PED)		PED	AN_MSTR	$$		12,500		16,500	16,500	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	01	02	02		UN12_00100	Domestic Travel - FY04 (PED)		PED	AN_MSTR	$$		8,892		11,894	11,894	30%
1	04	01	02	02		UN41_00030	Travel Bellows - FY04 (PED)		PED	AN_MSTR	$$		761		1,005	1,005	30%
1	04	01	02	02		UN501_0090	Travel Radiation-Detection-Monitor		PED	AN_MSTR	$$		2,771		3,769	3,769	30%
1	04	01	02	02		UN501_0020	Travel Low-Power-Diagnostics		PED	AN_MSTR	$$		12,607		17,230	17,230	30%
1	04	01	02	02		UN41_00035	Travel Bellows - FY05 (PED)		PED	AN_MSTR	$$		2,251		3,061	3,061	30%
1	04	01	02	02		UN41_00020	Travel Undulator Chamber		PED	AN_MSTR	$$		6,945		9,703	9,703	30%
1	04	01	02	02		UN33_00120	Travel: Undulator Magnet Poles		PED	AN_MSTR	$$		4,000		5,461	5,461	30%
1	04	01	02	02		UN12_00125	Foreign Travel - FY05 (PED)		PED	AN_MSTR	$$		5,434		7,390	7,390	30%
1	04	01	02	02		UN501_0050	Travel RFBPM		PED	AN_MSTR	$$		3,306		4,496	4,496	30%
1	04	01	02	02		UN501_0045	Travel End-Of-Undulator - FY05 (PED)		PED	AN_MSTR	$$		2,238		3,044	3,044	30%
1	04	01	02	02		UN501_0080	Travel Cherenkov Detector		PED	AN_MSTR	$$		2,397		3,260	3,260	30%
1	04	01	02	02		UN41_00080	Travel Baking System		PED	AN_MSTR	$$		1,736		2,364	2,364	30%
1	04	01	02	02		UN41_00070	Travel Exit Section		PED	AN_MSTR	$$		4,300		5,848	5,848	30%
1	04	01	02	02		UN12_00110	Domestic Travel - FY05 (PED)		PED	AN_MSTR	$$		11,160		15,386	15,386	30%
1	04	01	02	02		UN501_0030	Travel High-Power-Diagnostics		PED	AN_MSTR	$$		10,830		15,106	15,106	30%
1	04	01	02	02		UN41_00050	Travel LDB		PED	AN_MSTR	$$		3,472		4,859	4,859	30%
1	04	01	02	02		UN501_0110	Travel Suppl Shielding		PED	AN_MSTR	$$		3,075		4,304	4,304	30%
1	04	01	02	02		UN12_00140	Foreign Travel (CNST)		CON	AN_MSTR	$$		12,500		17,819	17,819	30%
1	04	01	02	02		UN12_00130	Domestic Travel (CNST)		CON	AN_MSTR	$$		22,500		32,222	32,222	30%
1	**04**	**01**	**03**				**Undulator System Reviews and Workshops**					**-**	**57,331**	**-**	**60,876**	**60,876**	
1	04	01	03			UNUN_00240	Review Undulator System 1		PED	AN_MSCS	$$		1,778		1,778	1,778	30%
1	04	01	03			UNUN_00450	FY04 Workshops and Meetings		PED	AN_MSCS	$$		1,775		1,775	1,775	30%
1	04	01	03			UNUN_00260	Review Undulator System 2		PED	AN_MSCS	$$		1,778		1,778	1,778	30%
1	04	01	03			UNUN_00460	FY05 Workshops and Meetings		PED	AN_MSCS	$$		2,500		2,575	2,575	30%
1	04	01	03			UNUN_00270	Review Undulator System 3		CON	AN_MSCS	$$		6,000		6,180	6,180	30%
1	04	01	03			UNUN_00280	Review Undulator System 4		CON	AN_MSCS	$$		6,000		6,180	6,180	30%
1	04	01	03			UNUN_00470	FY06 Workshops and Meetings		CON	AN_MSCS	$$		2,500		2,650	2,650	30%
1	04	01	03			UNUN_00290	Review Undulator System 5		CON	AN_MSCS	$$		6,000		6,360	6,360	30%
1	04	01	03			UNUN_00300	Review Undulator System 6		CON	AN_MSCS	$$		6,000		6,360	6,360	30%
1	04	01	03			UNUN_00480	FY07 Workshops and Meetings		CON	AN_MSCS	$$		2,500		2,725	2,725	30%
1	04	01	03			UNUN_00310	Review Undulator System 7		CON	AN_MSCS	$$		6,000		6,540	6,540	30%
1	04	01	03			UNUN_00320	Review Undulator System 8		CON	AN_MSCS	$$		6,000		6,540	6,540	30%
1	04	01	03			UNUN_00490	FY08 Workshops and Meetings		CON	AN_MSCS	$$		2,500		2,775	2,775	30%
1	04	01	03			UNUN_00330	Review Undulator System 9		CON	AN_MSCS	$$		6,000		6,660	6,660	30%
1	**04**	**02**					**Controls**					**10,785**	**3,451,218**	**911,761**	**3,614,856**	**4,526,617**	
1	**04**	**02**	**01**				**Controls Management and Integration**					**422**	**5,000**	**37,687**	**5,150**	**42,837**	
1	**04**	**02**	**01**	**01**			**Reserved**										
1	**04**	**02**	**01**	**02**			**Reserved**										
1	**04**	**02**	**01**	**03**			**Software Interface with SLAC**					**422**	**5,000**	**37,687**	**5,150**	**42,837**	
1	04	02	01	03		UN21_00146	Develop software interface		PED	AN_CE	Hrs	104		9,274		9,274	30%
1	04	02	01	03		UN21_00142	Develop timing interface		PED	AN_CE	Hrs	121		10,805		10,805	30%
1	04	02	01	03		UN21_00140	Advise on overall controls system integration		PED	AN_CE	Hrs	181		16,140		16,140	30%
1	04	02	01	03		UN21_00150	Specify commercial software required		PED	AN_CP	Hrs	16		1,468		1,468	30%
1	04	02	01	03		UN21_00155	Procure commercial software		CON	AN_MSEG	$$		5,000		5,150	5,150	30%
1	**04**	**02**	**01**	**04**			**Reserved**										
1	**04**	**02**	**02**				**Motion**					**4,142**	**1,440,286**	**351,308**	**1,517,035**	**1,868,343**	
1	**04**	**02**	**02**	**01**			**Fine Motion**					**1,662**	**840,500**	**142,224**	**890,330**	**1,032,554**	
1	**04**	**02**	**02**	**01**	**01**		**Motion Interface**					**136**	**218,000**	**11,276**	**230,990**	**242,266**	
1	04	02	02	01	01	UN22_00010	Specify prototype motor interface		PED	AN_CE	Hrs	24		2,202		2,202	30%
1	04	02	02	01	01	UN22_00020	Procure prototype motor interfaces		CON	AN_MSEG	$$		3,000		3,090	3,090	30%
1	04	02	02	01	01	UN22_00020	Procure prototype motor interfaces		CON	AN_CE	Hrs	4		367		367	30%
1	04	02	02	01	01	UN22_00030	Receive prototype motor interfaces		CON	AN_CE	Hrs	8		734		734	30%
1	04	02	02	01	01	UN22_00050	Write QA procedure for Motor interface		CON	AN_CE	Hrs	12		1,101		1,101	30%
1	04	02	02	01	01	UN22_00060	Prepare Bid Package for Motor interface		CON	AN_CE	Hrs	24		2,202		2,202	30%
1	04	02	02	01	01	UN22_00100	Evaluate Proposal for Motor interface		CON	AN_CE	Hrs	16		1,509		1,509	30%
1	04	02	02	01	01	UN22_00130	Receive production motor interface		CON	AN_MSEG	$$		215,000		227,900	227,900	30%
1	04	02	02	01	01	UN22_00130	Receive production motor interface		CON	AN_CE	Hrs	8		755		755	30%
1	04	02	02	01	01	UN22_00140	QA Test motor interface		CON	AN_CT	Hrs	40		2,406		2,406	30%
1	**04**	**02**	**02**	**01**	**02**		**Encoder Interface**					**132**	**261,000**	**10,909**	**276,570**	**287,479**	
1	04	02	02	01	02	UN22_00150	Specify prototype encoder interface		PED	AN_CE	Hrs	24		2,202		2,202	30%
1	04	02	02	01	02	UN22_00160	Procure prototype encoder interface		CON	AN_MSEG	$$		3,000		3,090	3,090	30%
1	04	02	02	01	02	UN22_00170	Receive prototype encoder interface		CON	AN_CE	Hrs	8		734		734	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	02	02	01	02	UN22_00190	Write QA procedure for Encoder interface		CON	AN_CE	Hrs	12		1,101		1,101	30%
1	04	02	02	01	02	UN22_00200	Prepare Bid Package for Encoder interface		CON	AN_CE	Hrs	24		2,202		2,202	30%
1	04	02	02	01	02	UN22_00240	Evaluate Proposal for Encoder interface		CON	AN_CE	Hrs	16		1,509		1,509	30%
1	04	02	02	01	02	UN22_00270	Receive production encoder interface		CON	AN_MSEG	$$		258,000		273,480	273,480	30%
1	04	02	02	01	02	UN22_00270	Receive production encoder interface		CON	AN_CE	Hrs	8		755		755	30%
1	04	02	02	01	02	UN22_00280	QA Test encoder interface		CON	AN_CT	Hrs	40		2,406		2,406	30%
1	**04**	**02**	**02**	**01**	**03**		**Motor Driver**					**120**	**109,500**	**9,808**	**116,010**	**125,818**	
1	04	02	02	01	03	UN22_00290	Specify prototype motor driver		PED	AN_CE	Hrs	16		1,468		1,468	30%
1	04	02	02	01	03	UN22_00300	Procure prototype motor driver		CON	AN_MSEG	$$		2,000		2,060	2,060	30%
1	04	02	02	01	03	UN22_00310	Receive prototype motor driver		CON	AN_CE	Hrs	8		734		734	30%
1	04	02	02	01	03	UN22_00330	Write QA procedure for motor driver		CON	AN_CE	Hrs	8		734		734	30%
1	04	02	02	01	03	UN22_00340	Prepare Bid Package for motor driver		CON	AN_CE	Hrs	24		2,202		2,202	30%
1	04	02	02	01	03	UN22_00380	Evaluate Proposal for motor driver		CON	AN_CE	Hrs	16		1,509		1,509	30%
1	04	02	02	01	03	UN22_00410	Receive production motor driver		CON	AN_MSEG	$$		107,500		113,950	113,950	30%
1	04	02	02	01	03	UN22_00410	Receive production motor driver		CON	AN_CE	Hrs	8		755		755	30%
1	04	02	02	01	03	UN22_00420	QA Motor Driver		CON	AN_CT	Hrs	40		2,406		2,406	30%
1	**04**	**02**	**02**	**01**	**04**		**Cabling**					**224**	**217,000**	**18,020**	**229,960**	**247,980**	
1	04	02	02	01	04	UN22_00440	Design encoder signal cables		PED	AN_CE	Hrs	16		1,468		1,468	35%
1	04	02	02	01	04	UN22_00430	Design motor drive cables		PED	AN_CE	Hrs	16		1,468		1,468	35%
1	04	02	02	01	04	UN22_00460	Specify connectors		PED	AN_CE	Hrs	8		734		734	35%
1	04	02	02	01	04	UN22_00450	Specify cables		PED	AN_CE	Hrs	8		734		734	35%
1	04	02	02	01	04	UN22_00470	Procure prototype parts		CON	AN_MSEG	$$		2,000		2,060	2,060	35%
1	04	02	02	01	04	UN22_00480	Receive prototype parts		CON	AN_CE	Hrs	8		734		734	35%
1	04	02	02	01	04	UN22_00490	Assemble prototype cables		CON	AN_CT	Hrs	24		1,404		1,404	35%
1	04	02	02	01	04	UN22_00500	Test prototype cables		CON	AN_CT	Hrs	16		936		936	35%
1	04	02	02	01	04	UN22_00520	Specify production cables		PED	AN_CE	Hrs	32		2,936		2,936	35%
1	04	02	02	01	04	UN22_00530	Write QA procedure for production cables		CON	AN_CE	Hrs	8		734		734	35%
1	04	02	02	01	04	UN22_00540	Prepare Bid Package for production cables		CON	AN_CE	Hrs	24		2,202		2,202	35%
1	04	02	02	01	04	UN22_00580	Evaluate Proposal for production cables		CON	AN_CE	Hrs	16		1,509		1,509	35%
1	04	02	02	01	04	UN22_00610	Receive production cables		CON	AN_MSEG	$$		215,000		227,900	227,900	35%
1	04	02	02	01	04	UN22_00610	Receive production cables		CON	AN_CE	Hrs	8		755		755	35%
1	04	02	02	01	04	UN22_00620	QA Test production cables		CON	AN_CT	Hrs	40		2,406		2,406	35%
1	**04**	**02**	**02**	**01**	**05**		**Integrate components**					**1,050**	**35,000**	**92,211**	**36,800**	**129,011**	
1	04	02	02	01	05	UN22_00630	Write control Software Requirements Spec.		CON	AN_CE	Hrs	16		1,468		1,468	35%
1	04	02	02	01	05	UN22_00640	Design control software		PED	AN_CP	Hrs	40		3,670		3,670	35%
1	04	02	02	01	05	UN22_00650	Write testing Software Requirements Spec.		CON	AN_CP	Hrs	16		1,468		1,468	35%
1	04	02	02	01	05	UN22_00680	Procure commercial software		CON	AN_MSEG	$$		5,000		5,150	5,150	35%
1	04	02	02	01	05	UN22_00700	Write control software		CON	AN_CP	Hrs	438		40,191		40,191	35%
1	04	02	02	01	05	UN22_00710	Test control software		CON	AN_CE	Hrs	40		3,670		3,670	35%
1	04	02	02	01	05	UN22_00760	Design prototype test setup		PED	AN_CE	Hrs	40		3,670		3,670	35%
1	04	02	02	01	05	UN22_00770	Prepare for design review		CON	AN_CE	Hrs	24		2,202		2,202	35%
1	04	02	02	01	05	UN22_00780	Conduct design review		PED	AN_CP	Hrs	80		7,341		7,341	35%
1	04	02	02	01	05	UN22_00800	Procure integration components for prototype (		CON	AN_MSEG	$$		5,000		5,150	5,150	35%
1	04	02	02	01	05	UN22_00810	Receive integration components for prototype		CON	AN_CT	Hrs	8		468		468	35%
1	04	02	02	01	05	UN22_00820	Assemble prototype		CON	AN_CT	Hrs	40		2,340		2,340	35%
1	04	02	02	01	05	UN22_00840	Write integrated test procedure		CON	AN_CE	Hrs	12		1,101		1,101	35%
1	04	02	02	01	05	UN22_00850	Assemble test setup		CON	AN_CT	Hrs	16		936		936	35%
1	04	02	02	01	05	UN22_00860	Perform prototype testing		CON	AN_CT	Hrs	16		936		936	35%
1	04	02	02	01	05	UN22_00860	Perform prototype testing		CON	AN_CP	Hrs	40		3,670		3,670	35%
1	04	02	02	01	05	UN22_00880	Write validation procedure		CON	AN_CE	Hrs	12		1,101		1,101	35%
1	04	02	02	01	05	UN22_00890	Design installation layout and plan		PED	AN_CE	Hrs	40		3,670		3,670	35%
1	04	02	02	01	05	UN22_00900	Procure production integration components		CON	AN_MSEG	$$		25,000		26,500	26,500	35%
1	04	02	02	01	05	UN22_00910	Receive production integration components		CON	AN_CT	Hrs	16		962		962	35%
1	04	02	02	01	05	UN22_00920	QA Test production integration components		CON	AN_CT	Hrs	40		2,406		2,406	35%
1	04	02	02	01	05	UN22_00920	QA Test production integration components		CON	AN_CP	Hrs	116		10,941		10,941	35%
1	**04**	**02**	**02**	**02**			**Phase Corrector Motion**					**1,004**	**139,000**	**84,059**	**147,040**	**231,099**	
1	**04**	**02**	**02**	**02**	**01**		**Motor Interface**					**132**	**89,000**	**10,909**	**94,250**	**105,159**	
1	04	02	02	02	01	UN22_00960	Specify prototype motor interface		PED	AN_CE	Hrs	24		2,202		2,202	35%
1	04	02	02	02	01	UN22_00970	Procure prototype motor interfaces		CON	AN_MSEG	$$		3,000		3,090	3,090	35%
1	04	02	02	02	01	UN22_00980	Receive prototype motor interfaces		CON	AN_CE	Hrs	8		734		734	35%
1	04	02	02	02	01	UN22_01000	Write QA procedure for Motor interface		CON	AN_CE	Hrs	12		1,101		1,101	35%
1	04	02	02	02	01	UN22_01010	Prepare Bid Package for motor interface		CON	AN_CE	Hrs	24		2,202		2,202	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	02	02	02	01	UN22_01050	Evaluate Proposal for motor interface		CON	AN_CE	Hrs	16		1,509		1,509	35%
1	04	02	02	02	01	UN22_01080	Receive production motor interface		CON	AN_MSEG	$$		86,000		91,160	91,160	35%
1	04	02	02	02	01	UN22_01080	Receive production motor interface		CON	AN_CE	Hrs	8		755		755	35%
1	04	02	02	02	01	UN22_01090	QA Test motor interface		CON	AN_CT	Hrs	40		2,406		2,406	35%
1	**04**	**02**	**02**	**02**	**02**		**Reserved**										
1	**04**	**02**	**02**	**02**	**03**		**Reserved**										
1	**04**	**02**	**02**	**02**	**04**		**Cabling**					**224**	**35,000**	**18,020**	**37,040**	**55,060**	
1	04	02	02	02	04	UN22_01380	Design motor drive cables		PED	AN_CE	Hrs	16		1,468		1,468	35%
1	04	02	02	02	04	UN22_01390	Design encoder signal cables		PED	AN_CE	Hrs	16		1,468		1,468	35%
1	04	02	02	02	04	UN22_01410	Specify connectors		PED	AN_CE	Hrs	8		734		734	35%
1	04	02	02	02	04	UN22_01400	Specify cables		PED	AN_CE	Hrs	8		734		734	35%
1	04	02	02	02	04	UN22_01420	Procure prototype parts		CON	AN_MSEG	$$		2,000		2,060	2,060	35%
1	04	02	02	02	04	UN22_01430	Receive prototype parts		CON	AN_CE	Hrs	8		734		734	35%
1	04	02	02	02	04	UN22_01440	Assemble prototype cables		CON	AN_CT	Hrs	24		1,404		1,404	35%
1	04	02	02	02	04	UN22_01450	Test prototype cables		CON	AN_CT	Hrs	16		936		936	35%
1	04	02	02	02	04	UN22_01470	Specify production cables		PED	AN_CE	Hrs	32		2,936		2,936	35%
1	04	02	02	02	04	UN22_01480	Write QA procedure for production cables		CON	AN_CE	Hrs	8		734		734	35%
1	04	02	02	02	04	UN22_01490	Prepare Bid Package for production cables		CON	AN_CE	Hrs	24		2,202		2,202	35%
1	04	02	02	02	04	UN22_01530	Evaluate Proposal for production cables		CON	AN_CE	Hrs	16		1,509		1,509	35%
1	04	02	02	02	04	UN22_01560	Receive production cables		CON	AN_MSEG	$$		33,000		34,980	34,980	35%
1	04	02	02	02	04	UN22_01560	Receive production cables		CON	AN_CE	Hrs	8		755		755	35%
1	04	02	02	02	04	UN22_01570	QA Test production cables		CON	AN_CT	Hrs	40		2,406		2,406	35%
1	**04**	**02**	**02**	**02**	**05**		**Integrate components**					**648**	**15,000**	**55,130**	**15,750**	**70,880**	
1	04	02	02	02	05	UN22_01580	Write control Software Requirements Spec.		CON	AN_CE	Hrs	24		2,202		2,202	27%
1	04	02	02	02	05	UN22_01590	Design control software		PED	AN_CP	Hrs	64		5,873		5,873	27%
1	04	02	02	02	05	UN22_01650	Write control software		CON	AN_CP	Hrs	120		11,011		11,011	27%
1	04	02	02	02	05	UN22_01660	Test control software		CON	AN_CE	Hrs	40		3,670		3,670	27%
1	04	02	02	02	05	UN22_01710	Design prototype test setup		PED	AN_CE	Hrs	40		3,670		3,670	27%
1	04	02	02	02	05	UN22_01720	Prepare for design review - hardware		CON	AN_CE	Hrs	24		2,202		2,202	27%
1	04	02	02	02	05	UN22_01730	Prepare for design review - software		CON	AN_CP	Hrs	80		7,341		7,341	27%
1	04	02	02	02	05	UN22_01750	Procure integration components for prototype (		CON	AN_MSEG	$$		5,000		5,150	5,150	27%
1	04	02	02	02	05	UN22_01760	Receive integration components for prototype		CON	AN_CT	Hrs	8		468		468	27%
1	04	02	02	02	05	UN22_01770	Assemble prototype		CON	AN_CT	Hrs	40		2,340		2,340	27%
1	04	02	02	02	05	UN22_01790	Write integrated test procedure		CON	AN_CE	Hrs	12		1,101		1,101	27%
1	04	02	02	02	05	UN22_01800	Assemble test setup		CON	AN_CT	Hrs	16		936		936	27%
1	04	02	02	02	05	UN22_01810	Perform prototype testing		CON	AN_CT	Hrs	16		936		936	27%
1	04	02	02	02	05	UN22_01810	Perform prototype testing		CON	AN_CP	Hrs	16		1,468		1,468	27%
1	04	02	02	02	05	UN22_01830	Write validation procedure		CON	AN_CE	Hrs	12		1,101		1,101	27%
1	04	02	02	02	05	UN22_01840	Design installation layout and plan		PED	AN_CE	Hrs	40		3,670		3,670	27%
1	04	02	02	02	05	UN22_01850	Procure production integration components		CON	AN_MSEG	$$		10,000		10,600	10,600	27%
1	04	02	02	02	05	UN22_01860	Receive production integration components		CON	AN_CT	Hrs	16		962		962	27%
1	04	02	02	02	05	UN22_01870	QA Test production integration components		CON	AN_CT	Hrs	40		2,406		2,406	27%
1	04	02	02	02	05	UN22_01870	QA Test production integration components		CON	AN_CP	Hrs	40		3,773		3,773	27%
1	**04**	**02**	**02**	**03**			**Reserved**										
1	**04**	**02**	**02**	**04**			**Reserved**										
1	**04**	**02**	**02**	**05**			**Reserved**										
1	**04**	**02**	**02**	**06**			**Scanning Wire Motion**					**488**	**295,286**	**43,740**	**304,595**	**348,335**	
1	**04**	**02**	**02**	**06**	**01**		**Motor Interface**					**24**	**-**	**2,202**	**-**	**2,202**	
1	04	02	02	06	01	UN22_02860	Specify prototype motor interface		PED	AN_CE	Hrs	24		2,202		2,202	27%
1	**04**	**02**	**02**	**06**	**02**		**Reserved**										
1	**04**	**02**	**02**	**06**	**03**		**Reserved**										
1	**04**	**02**	**02**	**06**	**04**		**Reserved**										
1	**04**	**02**	**02**	**06**	**05**		**Integrate components**					**464**	**295,286**	**41,538**	**304,595**	**346,133**	
1	04	02	02	06	05	UNSL_0001	REQD: 11 SWA Assemblies from SLAC		CON	AN_MSXX	$$		280,286		288,695	288,695	27%
1	04	02	02	06	05	UN22_03430	Write control software		CON	AN_CP	Hrs	320		29,363		29,363	27%
1	04	02	02	06	05	UN22_03590	Perform prototype testing		CON	AN_CT	Hrs	16		936		936	27%
1	04	02	02	06	05	UN22_03590	Perform prototype testing		CON	AN_CP	Hrs	60		5,506		5,506	27%
1	04	02	02	06	05	UN22_03610	Write validation procedure		CON	AN_CE	Hrs	12		1,101		1,101	27%
1	04	02	02	06	05	UN22_03620	Design installation layout and plan		PED	AN_CE	Hrs	40		3,670		3,670	27%
1	04	02	02	06	05	UN22_03630	Procure production integration components		CON	AN_MSEG	$$		15,000		15,900	15,900	27%
1	04	02	02	06	05	UN22_03640	Receive production integration components		CON	AN_CT	Hrs	16		962		962	27%
1	**04**	**02**	**02**	**07**			**Macroscopic Motion**					**988**	**165,500**	**81,285**	**175,070**	**256,355**	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	**04**	**02**	**02**	**07**	**01**		**Motor Interface**					**132**	**33,000**	**10,909**	**34,890**	**45,799**	
1	04	02	02	07	01	UN22_03690	Specify prototype motor interface		PED	AN_CE	Hrs	24		2,202		2,202	30%
1	04	02	02	07	01	UN22_03700	Procure prototype motor interfaces		CON	AN_MSEG	$$		3,000		3,090	3,090	30%
1	04	02	02	07	01	UN22_03710	Receive prototype motor interfaces		CON	AN_CE	Hrs	8		734		734	30%
1	04	02	02	07	01	UN22_03730	Write QA procedure for Motor interface		CON	AN_CE	Hrs	12		1,101		1,101	30%
1	04	02	02	07	01	UN22_03740	Prepare Bid Package for motor interface		CON	AN_CE	Hrs	24		2,202		2,202	30%
1	04	02	02	07	01	UN22_03780	Evaluate Proposal for motor interface		CON	AN_CE	Hrs	16		1,509		1,509	30%
1	04	02	02	07	01	UN22_03810	Receive production motor interface		CON	AN_MSEG	$$		30,000		31,800	31,800	30%
1	04	02	02	07	01	UN22_03810	Receive production motor interface		CON	AN_CE	Hrs	8		755		755	30%
1	04	02	02	07	01	UN22_03820	QA Test motor interface		CON	AN_CT	Hrs	40		2,406		2,406	30%
1	**04**	**02**	**02**	**07**	**02**		**Reserved**										
1	**04**	**02**	**02**	**07**	**03**		**Motor Driver**					**124**	**71,500**	**10,175**	**75,730**	**85,905**	
1	04	02	02	07	03	UN22_03970	Specify prototype motor driver		PED	AN_CE	Hrs	16		1,468		1,468	30%
1	04	02	02	07	03	UN22_03980	Procure prototype motor driver		CON	AN_MSEG	$$		2,000		2,060	2,060	30%
1	04	02	02	07	03	UN22_03990	Receive prototype motor driver		CON	AN_CE	Hrs	8		734		734	30%
1	04	02	02	07	03	UN22_04010	Write QA Procedure for Motor Driver		CON	AN_CE	Hrs	12		1,101		1,101	30%
1	04	02	02	07	03	UN22_04020	Prepare Bid Pkg for Driver Interface		CON	AN_CE	Hrs	24		2,202		2,202	30%
1	04	02	02	07	03	UN22_04083	Evaluate Proposal for Driver Interface		CON	AN_CE	Hrs	16		1,509		1,509	30%
1	04	02	02	07	03	UN22_04090	Receive production motor driver		CON	AN_MSEG	$$		69,500		73,670	73,670	30%
1	04	02	02	07	03	UN22_04090	Receive production motor driver		CON	AN_CE	Hrs	8		755		755	30%
1	04	02	02	07	03	UN22_04100	QA Motor Driver		CON	AN_CT	Hrs	40		2,406		2,406	30%
1	**04**	**02**	**02**	**07**	**04**		**Cabling**					**208**	**46,000**	**16,552**	**48,700**	**65,252**	
1	04	02	02	07	04	UN22_04110	Design motor drive cables		PED	AN_CE	Hrs	16		1,468		1,468	35%
1	04	02	02	07	04	UN22_04140	Specify connectors		PED	AN_CE	Hrs	8		734		734	35%
1	04	02	02	07	04	UN22_04130	Specify cables		PED	AN_CE	Hrs	8		734		734	35%
1	04	02	02	07	04	UN22_04150	Procure prototype parts		CON	AN_MSEG	$$		2,000		2,060	2,060	35%
1	04	02	02	07	04	UN22_04160	Receive prototype parts		CON	AN_CE	Hrs	8		734		734	35%
1	04	02	02	07	04	UN22_04170	Assemble prototype cables		CON	AN_CT	Hrs	24		1,404		1,404	35%
1	04	02	02	07	04	UN22_04180	Test prototype cables		CON	AN_CT	Hrs	16		936		936	35%
1	04	02	02	07	04	UN22_04200	Specify production cables		PED	AN_CE	Hrs	32		2,936		2,936	35%
1	04	02	02	07	04	UN22_04210	Write QA procedure for production cables		CON	AN_CE	Hrs	8		734		734	35%
1	04	02	02	07	04	UN22_04220	Prepare Bid Package for production cables		CON	AN_CE	Hrs	24		2,202		2,202	35%
1	04	02	02	07	04	UN22_04260	Evaluate Proposal for production cables		CON	AN_CE	Hrs	16		1,509		1,509	35%
1	04	02	02	07	04	UN22_04290	Receive production cables		CON	AN_MSEG	$$		44,000		46,640	46,640	35%
1	04	02	02	07	04	UN22_04290	Receive production cables		CON	AN_CE	Hrs	8		755		755	35%
1	04	02	02	07	04	UN22_04300	QA Test production cables		CON	AN_CT	Hrs	40		2,406		2,406	35%
1	**04**	**02**	**02**	**07**	**05**		**Integrate components**					**524**	**15,000**	**43,649**	**15,750**	**59,399**	
1	04	02	02	07	05	UN22_04310	Write control Software Requirements Spec.		CON	AN_CE	Hrs	16		1,468		1,468	30%
1	04	02	02	07	05	UN22_04320	Design control software		PED	AN_CP	Hrs	40		3,670		3,670	30%
1	04	02	02	07	05	UN22_04380	Write control software		CON	AN_CP	Hrs	108		9,910		9,910	30%
1	04	02	02	07	05	UN22_04440	Design prototype test setup		PED	AN_CE	Hrs	40		3,670		3,670	30%
1	04	02	02	07	05	UN22_04450	Prepare for design review - hardware		CON	AN_CE	Hrs	24		2,202		2,202	30%
1	04	02	02	07	05	UN22_04460	Prepare for design review - software		CON	AN_CP	Hrs	80		7,341		7,341	30%
1	04	02	02	07	05	UN22_04480	Procure integration components for prototype (		CON	AN_MSEG	$$		5,000		5,150	5,150	30%
1	04	02	02	07	05	UN22_04490	Receive integration components for prototype		CON	AN_CT	Hrs	8		468		468	30%
1	04	02	02	07	05	UN22_04500	Assemble prototype		CON	AN_CT	Hrs	40		2,340		2,340	30%
1	04	02	02	07	05	UN22_04520	Write integrated test procedure		CON	AN_CE	Hrs	12		1,101		1,101	30%
1	04	02	02	07	05	UN22_04530	Assemble test setup		CON	AN_CT	Hrs	16		936		936	30%
1	04	02	02	07	05	UN22_04540	Perform prototype testing		CON	AN_CT	Hrs	16		936		936	30%
1	04	02	02	07	05	UN22_04540	Perform prototype testing		CON	AN_CP	Hrs	16		1,468		1,468	30%
1	04	02	02	07	05	UN22_04560	Write validation procedure		CON	AN_CE	Hrs	12		1,101		1,101	30%
1	04	02	02	07	05	UN22_04570	Design installation layout and plan		PED	AN_CE	Hrs	40		3,670		3,670	30%
1	04	02	02	07	05	UN22_04580	Procure production integration components		CON	AN_MSEG	$$		10,000		10,600	10,600	30%
1	04	02	02	07	05	UN22_04590	Receive production integration components		CON	AN_CT	Hrs	16		962		962	30%
1	04	02	02	07	05	UN22_04600	QA Test production integration components		CON	AN_CT	Hrs	40		2,406		2,406	30%
1	**04**	**02**	**03**				**Signal Analysis**					**2,252**	**1,403,092**	**194,715**	**1,453,960**	**1,648,675**	
1	**04**	**02**	**03**	**01**			**RFBPM**					**1,100**	**554,178**	**95,628**	**578,678**	**674,306**	
1	**04**	**02**	**03**	**01**	**01**		**Reserved**										
1	**04**	**02**	**03**	**01**	**02**		**Signal Acquisition**					**128**	**47,500**	**10,538**	**50,050**	**60,588**	
1	04	02	03	01	02	UN23_00120	Specify prototype A/D interface		PED	AN_CE	Hrs	12		1,101		1,101	40%
1	04	02	03	01	02	UN23_00130	Procure prototype A/D interfaces		CON	AN_MSEG	$$		10,000		10,300	10,300	40%
1	04	02	03	01	02	UN23_00140	Receive prototype A/D interfaces		CON	AN_CE	Hrs	8		753		753	40%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	02	03	01	02	UN23_00150	Assemble prototype		CON	AN_CT	Hrs	12		722		722	40%
1	04	02	03	01	02	UN23_00160	Prototype testing		CON	AN_CT	Hrs	12		722		722	40%
1	04	02	03	01	02	UN23_00160	Prototype testing		CON	AN_CP	Hrs	12		1,132		1,132	40%
1	04	02	03	01	02	UN23_00180	Write QA procedure for A/D interface		CON	AN_CE	Hrs	12		1,132		1,132	40%
1	04	02	03	01	02	UN23_00190	Prepare Bid Package for A/D interface		CON	AN_CE	Hrs	16		1,509		1,509	40%
1	04	02	03	01	02	UN23_00230	Evaluate Proposal for A/D interface		CON	AN_CE	Hrs	16		1,509		1,509	40%
1	04	02	03	01	02	UN23_00260	Receive production A/D interface		CON	AN_MSEG	$$		37,500		39,750	39,750	40%
1	04	02	03	01	02	UN23_00260	Receive production A/D interface		CON	AN_CE	Hrs	8		755		755	40%
1	04	02	03	01	02	UN23_00270	QA Test A/D interface		CON	AN_CT	Hrs	20		1,203		1,203	40%
1	**04**	**02**	**03**	**01**	**03**		**Timing interface**					**160**	**-**	**15,065**	**-**	**15,065**	
1	04	02	03	01	03	UN23_00280	Design timing electronics		PED	AN_CE	Hrs	80		7,519		7,519	45%
1	04	02	03	01	03	UN23_00281	Prepare for Design Review		CON	AN_CE	Hrs	40		3,773		3,773	45%
1	04	02	03	01	03	UN23_00290	Conduct Timing I/F Design Review		PED	AN_CE	Hrs	40		3,773		3,773	45%
1	**04**	**02**	**03**	**01**	**04**		**Cabling**					**176**	**55,000**	**14,090**	**58,150**	**72,240**	
1	04	02	03	01	04	UN23_00480	Specify cables		PED	AN_CE	Hrs	16		1,468		1,468	35%
1	04	02	03	01	04	UN23_00500	Procure prototype parts		CON	AN_MSEG	$$		5,000		5,150	5,150	35%
1	04	02	03	01	04	UN23_00510	Receive prototype parts		CON	AN_CE	Hrs	8		747		747	35%
1	04	02	03	01	04	UN23_00520	Assemble prototype cables		CON	AN_CT	Hrs	24		1,443		1,443	35%
1	04	02	03	01	04	UN23_00530	Test prototype cables		CON	AN_CT	Hrs	24		1,443		1,443	35%
1	04	02	03	01	04	UN23_00550	Specify production cables		PED	AN_CE	Hrs	24		2,264		2,264	35%
1	04	02	03	01	04	UN23_00560	Write QA procedure for production cables		CON	AN_CE	Hrs	16		1,509		1,509	35%
1	04	02	03	01	04	UN23_00570	Prepare Bid Package for production cables		CON	AN_CE	Hrs	16		1,509		1,509	35%
1	04	02	03	01	04	UN23_00610	Evaluate Proposal for production cables		CON	AN_CE	Hrs	16		1,509		1,509	35%
1	04	02	03	01	04	UN23_00640	Receive production cables		CON	AN_MSEG	$$		50,000		53,000	53,000	35%
1	04	02	03	01	04	UN23_00640	Receive production cables		CON	AN_CE	Hrs	8		755		755	35%
1	04	02	03	01	04	UN23_00650	QA Test production cables		CON	AN_CT	Hrs	24		1,443		1,443	35%
1	**04**	**02**	**03**	**01**	**05**		**Integrate components**					**636**	**451,678**	**55,935**	**470,478**	**526,413**	
1	04	02	03	01	05	UNSL_0004	REQD: 76 Timing Boards From SLAC		CON	AN_MSXX	$$		125,973		129,752	129,752	45%
1	04	02	03	01	05	UNSL_0003	REQD: 33 BPM Assembly From SLAC		CON	AN_MSXX	$$		150,705		155,226	155,226	45%
1	04	02	03	01	05	UN23_00660	Write control Software Requirements Spec.		CON	AN_CE	Hrs	40		3,706		3,706	45%
1	04	02	03	01	05	UN23_00670	Design control software		PED	AN_CP	Hrs	80		7,546		7,546	45%
1	04	02	03	01	05	UN23_00680	Write testing Software Requirements Spec.		CON	AN_CE	Hrs	24		2,264		2,264	45%
1	04	02	03	01	05	UN23_00690	Design testing software		PED	AN_CP	Hrs	16		1,509		1,509	45%
1	04	02	03	01	05	UN23_00700	Specify commercial software required		PED	AN_CP	Hrs	8		755		755	45%
1	04	02	03	01	05	UN23_00710	Procure commercial software		CON	AN_MSEG	$$		5,000		5,300	5,300	45%
1	04	02	03	01	05	UN23_00720	Receive commercial software		CON	AN_CP	Hrs	8		755		755	45%
1	04	02	03	01	05	UN23_00730	Write control software		CON	AN_CP	Hrs	80		7,546		7,546	45%
1	04	02	03	01	05	UN23_00740	Test control software		CON	AN_CE	Hrs	40		3,773		3,773	45%
1	04	02	03	01	05	UN23_00790	Design prototype test setup		PED	AN_CE	Hrs	40		3,773		3,773	45%
1	04	02	03	01	05	UN23_00800	Prepare for design review		CON	AN_CE	Hrs	24		2,264		2,264	45%
1	04	02	03	01	05	UN23_00820	Conduct design review		PED	AN_CE	Hrs	16		1,509		1,509	45%
1	04	02	03	01	05	UN23_00830	Procure integration components for prototype (		CON	AN_MSEG	$$		5,000		5,300	5,300	45%
1	04	02	03	01	05	UN23_00840	Receive integration components for prototype		CON	AN_CT	Hrs	8		481		481	45%
1	04	02	03	01	05	UN23_00850	Assemble prototype		CON	AN_CT	Hrs	40		2,406		2,406	45%
1	04	02	03	01	05	UN23_00870	Write integrated test procedure		CON	AN_CE	Hrs	8		755		755	45%
1	04	02	03	01	05	UN23_00880	Assemble test setup		CON	AN_CT	Hrs	8		481		481	45%
1	04	02	03	01	05	UN23_00890	Perform prototype testing		CON	AN_CT	Hrs	8		481		481	45%
1	04	02	03	01	05	UN23_00890	Perform prototype testing		CON	AN_CP	Hrs	8		755		755	45%
1	04	02	03	01	05	UN23_00910	Write validation procedure		CON	AN_CE	Hrs	12		1,132		1,132	45%
1	04	02	03	01	05	UN23_00920	Design installation layout and plan		CON	AN_CE	Hrs	40		3,773		3,773	45%
1	04	02	03	01	05	UN23_00921	Prepare Bid Pkg for production integration com		CON	AN_CE	Hrs	16		1,509		1,509	45%
1	04	02	03	01	05	UN23_00925	Evaluate Prop for production integration comp		CON	AN_CE	Hrs	16		1,509		1,509	45%
1	04	02	03	01	05	UN23_00940	Receive production integration components		CON	AN_MSEG	$$		165,000		174,900	174,900	45%
1	04	02	03	01	05	UN23_00940	Receive production integration components		CON	AN_CT	Hrs	16		962		962	45%
1	04	02	03	01	05	UN23_00950	QA Test production integration components		CON	AN_CT	Hrs	40		2,449		2,449	45%
1	04	02	03	01	05	UN23_00950	QA Test production integration components		CON	AN_CP	Hrs	40		3,842		3,842	45%
1	**04**	**02**	**03**	**02**			**Charge Monitor**					**612**	**307,550**	**53,081**	**317,227**	**370,308**	
1	**04**	**02**	**03**	**02**	**01**		**Reserved**										
1	**04**	**02**	**03**	**02**	**02**		**Reserved**										
1	**04**	**02**	**03**	**02**	**03**		**Integrate components**					**612**	**307,550**	**53,081**	**317,227**	**370,308**	
1	04	02	03	02	03	UNSL_0005	REQD: 2 Charge Monitors From SLAC		CON	AN_MSXX	$$		292,550		301,327	301,327	30%
1	04	02	03	02	03	UN23_01290	Write control Software Requirements Spec.		CON	AN_CE	Hrs	40		3,670		3,670	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	02	03	02	03	UN23_01300	Design control software		PED	AN_CP	Hrs	80		7,341		7,341	30%
1	04	02	03	02	03	UN23_01360	Write control software		CON	AN_CP	Hrs	80		7,341		7,341	30%
1	04	02	03	02	03	UN23_01370	Test control software		CON	AN_CE	Hrs	40		3,742		3,742	30%
1	04	02	03	02	03	UN23_01420	Design prototype test setup		PED	AN_CE	Hrs	40		3,773		3,773	30%
1	04	02	03	02	03	UN23_01430	Prepare for design review		CON	AN_CE	Hrs	24		2,264		2,264	30%
1	04	02	03	02	03	UN23_01450	Conduct design review		PED	AN_CE	Hrs	16		1,509		1,509	30%
1	04	02	03	02	03	UN23_01460	Procure integration components for prototype (		CON	AN_MSEG	$$		5,000		5,300	5,300	30%
1	04	02	03	02	03	UN23_01470	Receive integration components for prototype		CON	AN_CT	Hrs	8		481		481	30%
1	04	02	03	02	03	UN23_01480	Assemble prototype		CON	AN_CT	Hrs	40		2,406		2,406	30%
1	04	02	03	02	03	UN23_01500	Write integrated test procedure		CON	AN_CE	Hrs	8		755		755	30%
1	04	02	03	02	03	UN23_01510	Assemble test setup		CON	AN_CT	Hrs	8		481		481	30%
1	04	02	03	02	03	UN23_01520	Perform prototype testing		CON	AN_CT	Hrs	8		481		481	30%
1	04	02	03	02	03	UN23_01520	Perform prototype testing		CON	AN_CP	Hrs	40		3,773		3,773	30%
1	04	02	03	02	03	UN23_01540	Write validation procedure		CON	AN_CE	Hrs	12		1,132		1,132	30%
1	04	02	03	02	03	UN23_01550	Design installation layout and plan		CON	AN_CE	Hrs	40		3,773		3,773	30%
1	04	02	03	02	03	UN23_01551	Prepare Bid Package for product integration co		CON	AN_CE	Hrs	16		1,509		1,509	30%
1	04	02	03	02	03	UN23_01555	Evaluate Proposal for product integration comp		CON	AN_CE	Hrs	16		1,509		1,509	30%
1	04	02	03	02	03	UN23_01570	Receive production integration components		CON	AN_MSEG	$$		10,000		10,600	10,600	30%
1	04	02	03	02	03	UN23_01570	Receive production integration components		CON	AN_CT	Hrs	16		962		962	30%
1	04	02	03	02	03	UN23_01580	QA Test production integration components		CON	AN_CT	Hrs	40		2,406		2,406	30%
1	04	02	03	02	03	UN23_01580	QA Test production integration components		CON	AN_CP	Hrs	40		3,773		3,773	30%
1	**04**	**02**	**03**	**03**			**Scanning Wire**					**540**	**541,364**	**46,006**	**558,055**	**604,061**	
1	**04**	**02**	**03**	**03**	**01**		**Reserved**										
1	**04**	**02**	**03**	**03**	**02**		**Reserved**										
1	**04**	**02**	**03**	**03**	**03**		**Reserved**										
1	**04**	**02**	**03**	**03**	**04**		**Reserved**										
1	**04**	**02**	**03**	**03**	**05**		**Reserved**										
1	**04**	**02**	**03**	**03**	**06**		**Integrate components**					**540**	**541,364**	**46,006**	**558,055**	**604,061**	
1	04	02	03	03	06	UNSL_0002	REQD: 11 SWA Analog Electronics From SLAC		CON	AN_MSXX	$$		521,364		537,005	537,005	35%
1	04	02	03	03	06	UN23_02380	Design control software		PED	AN_CP	Hrs	80		7,341		7,341	35%
1	04	02	03	03	06	UN23_02440	Write control software		CON	AN_CP	Hrs	80		7,341		7,341	35%
1	04	02	03	03	06	UN23_02450	Test control software		CON	AN_CE	Hrs	40		3,670		3,670	35%
1	04	02	03	03	06	UN23_02500	Design prototype test setup		PED	AN_CE	Hrs	40		3,670		3,670	35%
1	04	02	03	03	06	UN23_02510	Prepare for design review		CON	AN_CE	Hrs	24		2,202		2,202	35%
1	04	02	03	03	06	UN23_02530	Conduct design review		PED	AN_CE	Hrs	16		1,468		1,468	35%
1	04	02	03	03	06	UN23_02540	Procure integration components for prototype (		CON	AN_MSEG	$$		5,000		5,150	5,150	35%
1	04	02	03	03	06	UN23_02550	Receive integration components for prototype		CON	AN_CT	Hrs	8		468		468	35%
1	04	02	03	03	06	UN23_02560	Assemble prototype		CON	AN_CT	Hrs	40		2,340		2,340	35%
1	04	02	03	03	06	UN23_02580	Write integrated test procedure		CON	AN_CE	Hrs	8		734		734	35%
1	04	02	03	03	06	UN23_02590	Assemble test setup		CON	AN_CT	Hrs	8		472		472	35%
1	04	02	03	03	06	UN23_02600	Perform prototype testing		CON	AN_CT	Hrs	8		481		481	35%
1	04	02	03	03	06	UN23_02600	Perform prototype testing		CON	AN_CP	Hrs	8		755		755	35%
1	04	02	03	03	06	UN23_02620	Write validation procedure		CON	AN_CE	Hrs	12		1,132		1,132	35%
1	04	02	03	03	06	UN23_02630	Design installation layout and plan		CON	AN_CE	Hrs	40		3,773		3,773	35%
1	04	02	03	03	06	UN23_02631	Prepare Bid Package for product integration co		CON	AN_CE	Hrs	16		1,509		1,509	35%
1	04	02	03	03	06	UN23_02635	Evaluate Proposal for product integration comp		CON	AN_CE	Hrs	16		1,509		1,509	35%
1	04	02	03	03	06	UN23_02660	QA Test production integration components		CON	AN_CT	Hrs	40		2,406		2,406	35%
1	04	02	03	03	06	UN23_02660	QA Test production integration components		CON	AN_CP	Hrs	40		3,773		3,773	35%
1	04	02	03	03	06	UN23_02650	Receive production integration components		CON	AN_MSEG	$$		15,000		15,900	15,900	35%
1	04	02	03	03	06	UN23_02650	Receive production integration components		CON	AN_CT	Hrs	16		962		962	35%
1	**04**	**02**	**04**				**Video**					**1,872**	**423,340**	**153,577**	**447,781**	**601,358**	
1	**04**	**02**	**04**	**01**			**OTR Monitor**					**1,050**	**367,590**	**85,432**	**388,686**	**474,118**	
1	**04**	**02**	**04**	**01**	**01**		**Camera**					**124**	**196,500**	**9,350**	**207,840**	**217,190**	
1	04	02	04	01	01	UN24_00010	Specify prototype Camera		PED	AN_CE	Hrs	12		1,101		1,101	25%
1	04	02	04	01	01	UN24_00020	Procure prototype Camera		CON	AN_MSEG	$$		15,000		15,450	15,450	25%
1	04	02	04	01	01	UN24_00030	Receive prototype Camera		CON	AN_CE	Hrs	8		734		734	25%
1	04	02	04	01	01	UN24_00040	Assemble prototype		CON	AN_CT	Hrs	16		936		936	25%
1	04	02	04	01	01	UN24_00050	Prototype testing		CON	AN_CT	Hrs	24		1,404		1,404	25%
1	04	02	04	01	01	UN24_00070	Write QA procedure for Camera		CON	AN_CE	Hrs	8		734		734	25%
1	04	02	04	01	01	UN24_00080	Prepare Bid Package for Camera		CON	AN_CE	Hrs	8		734		734	25%
1	04	02	04	01	01	UN24_00120	Evaluate Proposal for Camera		CON	AN_CE	Hrs	16		1,509		1,509	25%
1	04	02	04	01	01	UN24_00150	Receive production Camera		CON	AN_MSEG	$$		181,500		192,390	192,390	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	02	04	01	01	UN24_00150	Receive production Camera		CON	AN_CE	Hrs	8		755		755	25%
1	04	02	04	01	01	UN24_00160	QA Test Camera		CON	AN_CT	Hrs	24		1,443		1,443	25%
1	**04**	**02**	**04**	**01**	**02**		**Camera trigger interface**					**124**	**35,730**	**9,350**	**37,724**	**47,074**	
1	04	02	04	01	02	UN24_00170	Specify prototype Camera interface		PED	AN_CE	Hrs	12		1,101		1,101	45%
1	04	02	04	01	02	UN24_00180	Procure prototype Camera interfaces		CON	AN_MSEG	$$		5,000		5,150	5,150	45%
1	04	02	04	01	02	UN24_00190	Receive prototype Camera interfaces		CON	AN_CE	Hrs	8		734		734	45%
1	04	02	04	01	02	UN24_00200	Assemble prototype Camera Interface		CON	AN_CT	Hrs	16		936		936	45%
1	04	02	04	01	02	UN24_00210	Prototype testing Camera Interface		CON	AN_CT	Hrs	24		1,404		1,404	45%
1	04	02	04	01	02	UN24_00230	Write QA procedure for Camera interface		CON	AN_CE	Hrs	8		734		734	45%
1	04	02	04	01	02	UN24_00240	Prepare Bid Package for Camera Interface		CON	AN_CE	Hrs	8		734		734	45%
1	04	02	04	01	02	UN24_00280	Evaluate Proposal for Camera Interface		CON	AN_CE	Hrs	16		1,509		1,509	45%
1	04	02	04	01	02	UN24_00310	Receive production Camera interface		CON	AN_MSEG	$$		30,730		32,574	32,574	45%
1	04	02	04	01	02	UN24_00310	Receive production Camera interface		CON	AN_CE	Hrs	8		755		755	45%
1	04	02	04	01	02	UN24_00320	QA Test Camera interface		CON	AN_CT	Hrs	24		1,443		1,443	45%
1	**04**	**02**	**04**	**01**	**03**		**Digitizer**					**136**	**60,300**	**10,451**	**63,768**	**74,219**	
1	04	02	04	01	03	UN24_00330	Specify prototype Digitizer		PED	AN_CE	Hrs	24		2,202		2,202	25%
1	04	02	04	01	03	UN24_00340	Procure prototype Digitizer		CON	AN_MSEG	$$		5,000		5,150	5,150	25%
1	04	02	04	01	03	UN24_00350	Receive prototype Digitizer		CON	AN_CE	Hrs	8		734		734	25%
1	04	02	04	01	03	UN24_00360	Assemble prototype		CON	AN_CT	Hrs	16		936		936	25%
1	04	02	04	01	03	UN24_00370	Prototype testing		CON	AN_CT	Hrs	24		1,404		1,404	25%
1	04	02	04	01	03	UN24_00390	Write QA procedure for Digitizer		CON	AN_CE	Hrs	8		734		734	25%
1	04	02	04	01	03	UN24_00400	Prepare Bid Package for Digitizer		CON	AN_CE	Hrs	8		734		734	25%
1	04	02	04	01	03	UN24_00440	Evaluate Proposal for Digitizer		CON	AN_CE	Hrs	16		1,509		1,509	25%
1	04	02	04	01	03	UN24_00470	Receive production Digitizer		CON	AN_MSEG	$$		55,300		58,618	58,618	25%
1	04	02	04	01	03	UN24_00470	Receive production Digitizer		CON	AN_CE	Hrs	8		755		755	25%
1	04	02	04	01	03	UN24_00480	QA Test Digitizer		CON	AN_CT	Hrs	24		1,443		1,443	25%
1	**04**	**02**	**04**	**01**	**04**		**Timing interface**										
1	**04**	**02**	**04**	**01**	**05**		**Cabling**					**168**	**15,060**	**13,653**	**15,904**	**29,557**	
1	04	02	04	01	05	UN24_00670	Design timing signal cables		PED	AN_CE	Hrs	16		1,468		1,468	25%
1	04	02	04	01	05	UN24_00660	Design video feed cables		PED	AN_CE	Hrs	16		1,468		1,468	25%
1	04	02	04	01	05	UN24_00680	Specify cables		PED	AN_CE	Hrs	16		1,468		1,468	25%
1	04	02	04	01	05	UN24_00700	Procure prototype parts		CON	AN_MSEG	$$		2,000		2,060	2,060	25%
1	04	02	04	01	05	UN24_00710	Receive prototype parts		CON	AN_CE	Hrs	8		734		734	25%
1	04	02	04	01	05	UN24_00720	Assemble prototype cables		CON	AN_CT	Hrs	16		936		936	25%
1	04	02	04	01	05	UN24_00730	Test prototype cables		CON	AN_CT	Hrs	16		936		936	25%
1	04	02	04	01	05	UN24_00750	Specify production cables		PED	AN_CE	Hrs	8		734		734	25%
1	04	02	04	01	05	UN24_00760	Write QA procedure for production cables		CON	AN_CE	Hrs	8		734		734	25%
1	04	02	04	01	05	UN24_00770	Prepare Bid Package for production cables		CON	AN_CE	Hrs	16		1,468		1,468	25%
1	04	02	04	01	05	UN24_00810	Evaluate Proposal for production cables		CON	AN_CE	Hrs	16		1,509		1,509	25%
1	04	02	04	01	05	UN24_00840	Receive production cables		CON	AN_MSEG	$$		13,060		13,844	13,844	25%
1	04	02	04	01	05	UN24_00840	Receive production cables		CON	AN_CE	Hrs	8		755		755	25%
1	04	02	04	01	05	UN24_00850	QA Test production cables		CON	AN_CT	Hrs	24		1,443		1,443	25%
1	**04**	**02**	**04**	**01**	**06**		**Integrate components**					**498**	**60,000**	**42,628**	**63,450**	**106,078**	
1	04	02	04	01	06	UN24_00860	Write control Software Requirements Spec.		CON	AN_CE	Hrs	40		3,670		3,670	35%
1	04	02	04	01	06	UN24_00870	Design control software		PED	AN_CP	Hrs	80		7,341		7,341	35%
1	04	02	04	01	06	UN24_00930	Write control software		CON	AN_CP	Hrs	80		7,341		7,341	35%
1	04	02	04	01	06	UN24_00940	Test control software		CON	AN_CE	Hrs	40		3,670		3,670	35%
1	04	02	04	01	06	UN24_00990	Design prototype test setup		PED	AN_CE	Hrs	16		1,468		1,468	35%
1	04	02	04	01	06	UN24_01000	Prepare for design review		CON	AN_CE	Hrs	16		1,468		1,468	35%
1	04	02	04	01	06	UN24_01020	Conduct design review		PED	AN_CE	Hrs	24		2,202		2,202	35%
1	04	02	04	01	06	UN24_01030	Procure integration components for prototype (		CON	AN_MSEG	$$		5,000		5,150	5,150	35%
1	04	02	04	01	06	UN24_01040	Receive integration components for prototype		CON	AN_CT	Hrs	8		468		468	35%
1	04	02	04	01	06	UN24_01050	Assemble prototype		CON	AN_CT	Hrs	24		1,404		1,404	35%
1	04	02	04	01	06	UN24_01070	Write integrated test procedure		CON	AN_CE	Hrs	8		734		734	35%
1	04	02	04	01	06	UN24_01080	Assemble test setup		CON	AN_CT	Hrs	16		936		936	35%
1	04	02	04	01	06	UN24_01090	Perform prototype testing		CON	AN_CT	Hrs	16		936		936	35%
1	04	02	04	01	06	UN24_01090	Perform prototype testing		CON	AN_CP	Hrs	16		1,468		1,468	35%
1	04	02	04	01	06	UN24_01120	Write validation procedure		CON	AN_CE	Hrs	8		734		734	35%
1	04	02	04	01	06	UN24_01130	Design installation layout and plan		PED	AN_CE	Hrs	16		1,468		1,468	35%
1	04	02	04	01	06	UN24_01131	Prepare Bid Package for product integration co		CON	AN_CE	Hrs	16		1,468		1,468	35%
1	04	02	04	01	06	UN24_01135	Evaluate Proposal for product integration comp		CON	AN_CE	Hrs	16		1,509		1,509	35%
1	04	02	04	01	06	UN24_01150	Receive production integration components		CON	AN_MSEG	$$		55,000		58,300	58,300	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	02	04	01	06	UN24_01150	Receive production integration components		CON	AN_CT	Hrs	8		481		481	35%
1	04	02	04	01	06	UN24_01160	QA Test production integration components		CON	AN_CT	Hrs	25		1,504		1,504	35%
1	04	02	04	01	06	UN24_01160	QA Test production integration components		CON	AN_CP	Hrs	25		2,358		2,358	35%
1	**04**	**02**	**04**	**02**			**Reserved**										
1	**04**	**02**	**04**	**03**			**Observation station video**					**822**	**55,750**	**68,145**	**59,095**	**127,240**	
1	**04**	**02**	**04**	**03**	**01**		**Camera**					**84**	**9,000**	**6,277**	**9,540**	**15,817**	
1	04	02	04	03	01	UN24_02370	Specify prototype Camera		PED	AN_CE	Hrs	12		1,126		1,126	25%
1	04	02	04	03	01	UN24_02380	Procure prototype Camera		CON	AN_MSEG	$$		2,000		2,120	2,120	25%
1	04	02	04	03	01	UN24_02390	Receive prototype Camera		CON	AN_CE	Hrs	8		755		755	25%
1	04	02	04	03	01	UN24_02400	Assemble prototype		CON	AN_CT	Hrs	8		481		481	25%
1	04	02	04	03	01	UN24_02410	Prototype testing		CON	AN_CT	Hrs	16		962		962	25%
1	04	02	04	03	01	UN24_02430	Write QA procedure for Camera		CON	AN_CE	Hrs	8		755		755	25%
1	04	02	04	03	01	UN24_02440	Procure production Camera		CON	AN_MSEG	$$		7,000		7,420	7,420	25%
1	04	02	04	03	01	UN24_02450	Receive production Camera		CON	AN_CE	Hrs	8		755		755	25%
1	04	02	04	03	01	UN24_02460	QA Test Camera		CON	AN_CT	Hrs	24		1,443		1,443	25%
1	**04**	**02**	**04**	**03**	**02**		**Camera trigger interface**					**58**	**-**	**4,308**	**-**	**4,308**	
1	04	02	04	03	02	UN24_02500	Assemble prototype		CON	AN_CT	Hrs	10		601		601	20%
1	04	02	04	03	02	UN24_02510	Prototype testing		CON	AN_CT	Hrs	24		1,443		1,443	20%
1	04	02	04	03	02	UN24_02510	Prototype testing		CON	AN_CP	Hrs	24		2,264		2,264	20%
1	**04**	**02**	**04**	**03**	**03**		**Multiplexor**					**104**	**18,000**	**8,153**	**19,080**	**27,233**	
1	04	02	04	03	03	UN24_02570	Specify prototype Multiplexer		PED	AN_CE	Hrs	16		1,493		1,493	35%
1	04	02	04	03	03	UN24_02590	Receive prototype Multiplexer		CON	AN_CE	Hrs	8		755		755	35%
1	04	02	04	03	03	UN24_02600	Assemble prototype		CON	AN_CT	Hrs	16		962		962	35%
1	04	02	04	03	03	UN24_02610	Prototype testing		CON	AN_CT	Hrs	16		962		962	35%
1	04	02	04	03	03	UN24_02610	Prototype testing		CON	AN_CP	Hrs	16		1,509		1,509	35%
1	04	02	04	03	03	UN24_02630	Write QA procedure for Multiplexer		CON	AN_CE	Hrs	8		755		755	35%
1	04	02	04	03	03	UN24_02640	Procure production Multiplexer		CON	AN_MSEG	$$		18,000		19,080	19,080	35%
1	04	02	04	03	03	UN24_02650	Receive production Multiplexer		CON	AN_CE	Hrs	8		755		755	35%
1	04	02	04	03	03	UN24_02660	QA Test Multiplexer		CON	AN_CT	Hrs	16		962		962	35%
1	**04**	**02**	**04**	**03**	**04**		**Cabling**					**136**	**3,750**	**10,915**	**3,975**	**14,890**	
1	04	02	04	03	04	UN24_02670	Design video feed cables		PED	AN_CE	Hrs	8		755		755	25%
1	04	02	04	03	04	UN24_02690	Specify cables		PED	AN_CE	Hrs	8		755		755	25%
1	04	02	04	03	04	UN24_02710	Procure prototype parts		CON	AN_MSEG	$$		2,000		2,120	2,120	25%
1	04	02	04	03	04	UN24_02720	Receive prototype parts		CON	AN_CE	Hrs	8		755		755	25%
1	04	02	04	03	04	UN24_02730	Assemble prototype cables		CON	AN_CT	Hrs	16		962		962	25%
1	04	02	04	03	04	UN24_02740	Test prototype cables		CON	AN_CT	Hrs	16		962		962	25%
1	04	02	04	03	04	UN24_02760	Specify production cables		PED	AN_CE	Hrs	8		755		755	25%
1	04	02	04	03	04	UN24_02770	Write QA procedure for production cables		CON	AN_CE	Hrs	8		755		755	25%
1	04	02	04	03	04	UN24_02780	Prepare Bid Package for production cables		CON	AN_CE	Hrs	16		1,509		1,509	25%
1	04	02	04	03	04	UN24_02820	Evaluate Proposal for production cables		CON	AN_CE	Hrs	16		1,509		1,509	25%
1	04	02	04	03	04	UN24_02850	Receive production cables		CON	AN_MSEG	$$		1,750		1,855	1,855	25%
1	04	02	04	03	04	UN24_02850	Receive production cables		CON	AN_CE	Hrs	8		755		755	25%
1	04	02	04	03	04	UN24_02860	QA Test production cables		CON	AN_CT	Hrs	24		1,443		1,443	25%
1	**04**	**02**	**04**	**03**	**05**		**Integrate components**					**440**	**25,000**	**38,492**	**26,500**	**64,992**	
1	04	02	04	03	05	UN24_02880	Write control Software Requirements Spec.		CON	AN_CE	Hrs	16		1,509		1,509	30%
1	04	02	04	03	05	UN24_02890	Design control software		PED	AN_CP	Hrs	16		1,509		1,509	30%
1	04	02	04	03	05	UN24_02950	Write control software		CON	AN_CP	Hrs	160		15,091		15,091	30%
1	04	02	04	03	05	UN24_02960	Test control software		CON	AN_CE	Hrs	16		1,509		1,509	30%
1	04	02	04	03	05	UN24_03010	Design prototype test setup		PED	AN_CE	Hrs	16		1,509		1,509	30%
1	04	02	04	03	05	UN24_03020	Prepare for design review		CON	AN_CE	Hrs	16		1,509		1,509	30%
1	04	02	04	03	05	UN24_03040	Conduct design review		PED	AN_CE	Hrs	24		2,264		2,264	30%
1	04	02	04	03	05	UN24_03050	Procure integration components for prototype (		CON	AN_MSEG	$$		5,000		5,300	5,300	30%
1	04	02	04	03	05	UN24_03060	Receive integration components for prototype		CON	AN_CT	Hrs	8		481		481	30%
1	04	02	04	03	05	UN24_03070	Assemble prototype		CON	AN_CT	Hrs	24		1,443		1,443	30%
1	04	02	04	03	05	UN24_03090	Write integrated test procedure		CON	AN_CE	Hrs	8		755		755	30%
1	04	02	04	03	05	UN24_03100	Assemble test setup		CON	AN_CT	Hrs	16		962		962	30%
1	04	02	04	03	05	UN24_03110	Perform prototype testing		CON	AN_CT	Hrs	16		962		962	30%
1	04	02	04	03	05	UN24_03110	Perform prototype testing		CON	AN_CP	Hrs	16		1,509		1,509	30%
1	04	02	04	03	05	UN24_03130	Write validation procedure		CON	AN_CE	Hrs	8		755		755	30%
1	04	02	04	03	05	UN24_03140	Design installation layout and plan		CON	AN_CE	Hrs	16		1,509		1,509	30%
1	04	02	04	03	05	UN24_03150	Procure production integration components		CON	AN_MSEG	$$		20,000		21,200	21,200	30%
1	04	02	04	03	05	UN24_03160	Receive production integration components		CON	AN_CT	Hrs	8		481		481	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	02	04	03	05	UN24_03170	QA Test production integration components		CON	AN_CT	Hrs	16		962		962	30%
1	04	02	04	03	05	UN24_03170	QA Test production integration components		CON	AN_CP	Hrs	40		3,773		3,773	30%
1	**04**	**02**	**05**				**Data Acquisition and Control**					**368**	**43,000**	**30,303**	**45,580**	**75,883**	
1	**04**	**02**	**05**	**01**			**Strongback Temperature monitoring**					**368**	**43,000**	**30,303**	**45,580**	**75,883**	
1	**04**	**02**	**05**	**01**	**01**		**Integrate components**					**368**	**43,000**	**30,303**	**45,580**	**75,883**	
1	04	02	05	01	01	UN25_00010	Write control Software Requirements Spec		CON	AN_CE	Hrs	16		1,468		1,468	20%
1	04	02	05	01	01	UN25_00020	Design control software		PED	AN_CP	Hrs	20		1,835		1,835	20%
1	04	02	05	01	01	UN25_00080	Write control software		CON	AN_CP	Hrs	24		2,202		2,202	20%
1	04	02	05	01	01	UN25_00090	Test control software		CON	AN_CE	Hrs	16		1,468		1,468	20%
1	04	02	05	01	01	UN25_00140	Design prototype test setup		PED	AN_CE	Hrs	16		1,468		1,468	20%
1	04	02	05	01	01	UN25_00150	Prepare for design review		CON	AN_CP	Hrs	24		2,202		2,202	20%
1	04	02	05	01	01	UN25_00160	Conduct design review		PED	AN_CE	Hrs	16		1,468		1,468	20%
1	04	02	05	01	01	UN25_00180	Receive integration components for prototype		CON	AN_CT	Hrs	8		468		468	20%
1	04	02	05	01	01	UN25_00190	Assemble prototype		CON	AN_CT	Hrs	40		2,340		2,340	20%
1	04	02	05	01	01	UN25_00210	Write integrated test procedure		CON	AN_CE	Hrs	8		734		734	20%
1	04	02	05	01	01	UN25_00220	Assemble test setup		CON	AN_CT	Hrs	8		468		468	20%
1	04	02	05	01	01	UN25_00230	Perform prototype testing		CON	AN_CT	Hrs	8		468		468	20%
1	04	02	05	01	01	UN25_00230	Perform prototype testing		CON	AN_CP	Hrs	8		734		734	20%
1	04	02	05	01	01	UN25_00250	Write validation procedure		CON	AN_CE	Hrs	12		1,101		1,101	20%
1	04	02	05	01	01	UN25_00260	Design installation layout and plan		PED	AN_CE	Hrs	40		3,670		3,670	20%
1	04	02	05	01	01	UN25_00261	Prepare Bid Package for product integrated com		CON	AN_CE	Hrs	16		1,468		1,468	20%
1	04	02	05	01	01	UN25_00263	Vendor Prepare Prop for product integrated com		CON	AN_CE	Hrs	16		1,509		1,509	20%
1	04	02	05	01	01	UN25_00265	Evaluate Proposal for product integrated comp		CON	AN_CE	Hrs	16		1,509		1,509	20%
1	04	02	05	01	01	UN25_00280	Receive production integration components		CON	AN_MSEG	$$		43,000		45,580	45,580	20%
1	04	02	05	01	01	UN25_00280	Receive production integration components		CON	AN_CT	Hrs	8		481		481	20%
1	04	02	05	01	01	UN25_00290	QA Test production integration components		CON	AN_CT	Hrs	40		2,468		2,468	20%
1	04	02	05	01	01	UN25_00290	QA Test production integration components		CON	AN_CP	Hrs	8		774		774	20%
1	**04**	**02**	**06**				**Vacuum**					**809**	**54,000**	**69,988**	**57,240**	**127,228**	
1	**04**	**02**	**06**	**01**			**Ion Pump Controller**					**565**	**54,000**	**49,463**	**57,240**	**106,703**	
1	**04**	**02**	**06**	**01**	**01**		**Integrate components**					**565**	**54,000**	**49,463**	**57,240**	**106,703**	
1	04	02	06	01	01	UN26_00010	Write control Software Requirements Spec.		CON	AN_CE	Hrs	16		1,509		1,509	20%
1	04	02	06	01	01	UN26_00020	Design control software		PED	AN_CP	Hrs	20		1,886		1,886	20%
1	04	02	06	01	01	UN26_00080	Write control software		CON	AN_CP	Hrs	160		15,091		15,091	20%
1	04	02	06	01	01	UN26_00090	Test control software		CON	AN_CE	Hrs	16		1,509		1,509	20%
1	04	02	06	01	01	UN26_00140	Design prototype test setup		PED	AN_CE	Hrs	16		1,509		1,509	20%
1	04	02	06	01	01	UN26_00160	Prepare for design review		CON	AN_CP	Hrs	16		1,509		1,509	20%
1	04	02	06	01	01	UN26_00170	Conduct design review		PED	AN_CE	Hrs	16		1,509		1,509	20%
1	04	02	06	01	01	UN26_00180	Procure integration components for prototype (		CON	AN_MSEG	$$		20,000		21,200	21,200	20%
1	04	02	06	01	01	UN26_00190	Receive integration components for prototype		CON	AN_CT	Hrs	8		481		481	20%
1	04	02	06	01	01	UN26_00200	Assemble prototype		CON	AN_CT	Hrs	40		2,406		2,406	20%
1	04	02	06	01	01	UN26_00220	Write integrated test procedure		CON	AN_CE	Hrs	8		755		755	20%
1	04	02	06	01	01	UN26_00230	Assemble test setup		CON	AN_CT	Hrs	8		481		481	20%
1	04	02	06	01	01	UN26_00240	Perform prototype testing		CON	AN_CT	Hrs	8		481		481	20%
1	04	02	06	01	01	UN26_00240	Perform prototype testing		CON	AN_CP	Hrs	8		755		755	20%
1	04	02	06	01	01	UN26_00260	Write validation procedure		CON	AN_CE	Hrs	12		1,132		1,132	20%
1	04	02	06	01	01	UN26_00270	Design installation layout and plan		CON	AN_CE	Hrs	40		3,773		3,773	20%
1	04	02	06	01	01	UN26_00271	Prepare Bid Package for product integration co		CON	AN_CE	Hrs	16		1,509		1,509	20%
1	04	02	06	01	01	UN26_00273	Vendor Prepare Prop for product integration co		CON	AN_CE	Hrs	16		1,509		1,509	20%
1	04	02	06	01	01	UN26_00275	Evaluate Proposal for product integration comp		CON	AN_CE	Hrs	16		1,509		1,509	20%
1	04	02	06	01	01	UN26_00290	Receive production integration components		CON	AN_MSEG	$$		34,000		36,040	36,040	20%
1	04	02	06	01	01	UN26_00290	Receive production integration components		CON	AN_CT	Hrs	8		481		481	20%
1	04	02	06	01	01	UN26_00300	QA Test production integration components		CON	AN_CT	Hrs	40		2,406		2,406	20%
1	04	02	06	01	01	UN26_00300	QA Test production integration components		CON	AN_CP	Hrs	77		7,263		7,263	20%
1	**04**	**02**	**06**	**02**			**Reserved**										
1	**04**	**02**	**06**	**03**			**Reserved**										
1	**04**	**02**	**06**	**04**			**RGA**					**244**	**-**	**20,525**	**-**	**20,525**	
1	**04**	**02**	**06**	**04**	**01**		**Integrate components**					**244**	**-**	**20,525**	**-**	**20,525**	
1	04	02	06	04	01	UN26_01000	Write control Software Requirements Spec.		CON	AN_CP	Hrs	16		1,468		1,468	40%
1	04	02	06	04	01	UN26_01010	Design control software		PED	AN_CP	Hrs	20		1,835		1,835	40%
1	04	02	06	04	01	UN26_01070	Write control software		CON	AN_CP	Hrs	40		3,670		3,670	40%
1	04	02	06	04	01	UN26_01080	Test control software		CON	AN_CP	Hrs	16		1,468		1,468	40%
1	04	02	06	04	01	UN26_01150	Prepare for design review		CON	AN_CP	Hrs	40		3,670		3,670	40%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	02	06	04	01	UN26_01160	Conduct design review		PED	AN_CP	Hrs	16		1,468		1,468	40%
1	04	02	06	04	01	UN26_01280	Receive production integration components		CON	AN_CT	Hrs	16		936		936	40%
1	04	02	06	04	01	UN26_01290	QA Test production integration components		CON	AN_CT	Hrs	40		2,340		2,340	40%
1	04	02	06	04	01	UN26_01290	QA Test production integration components		CON	AN_CP	Hrs	40		3,670		3,670	40%
1	**04**	**02**	**07**				**Machine Protection**					**920**	**82,500**	**74,183**	**88,110**	**162,293**	
1	**04**	**02**	**07**	**01**			**Undulator Global MPS**					**460**	**26,000**	**37,141**	**27,380**	**64,521**	
1	**04**	**02**	**07**	**01**	**01**		**Hardware design**					**264**	**24,000**	**21,731**	**25,320**	**47,051**	
1	04	02	07	01	01	UN27_00011	Prepare for design review		CON	AN_CE	Hrs	24		2,202		2,202	40%
1	04	02	07	01	01	UN27_00010	Undulator global MPS module design		PED	AN_CE	Hrs	80		7,341		7,341	40%
1	04	02	07	01	01	UN27_00020	conduct design review		PED	AN_CE	Hrs	16		1,468		1,468	40%
1	04	02	07	01	01	UN27_00030	Procure prototype MPS hardware components		CON	AN_MSEG	$$		4,000		4,120	4,120	40%
1	04	02	07	01	01	UN27_00031	Receive Prototype MPS Hardware Components		CON	AN_CE	Hrs	8		734		734	40%
1	04	02	07	01	01	UN27_00040	Assemble prototype MPS hardware		CON	AN_CT	Hrs	40		2,340		2,340	40%
1	04	02	07	01	01	UN27_00050	Test prototype MPS hardware		CON	AN_CE	Hrs	16		1,468		1,468	40%
1	04	02	07	01	01	UN27_00070	Specify production MPS hardware		PED	AN_CE	Hrs	16		1,468		1,468	40%
1	04	02	07	01	01	UN27_00080	Write QA procedure for production MPS hardware		CON	AN_CE	Hrs	16		1,468		1,468	40%
1	04	02	07	01	01	UN27_00090	Procure production MPS hardware		CON	AN_MSEG	$$		20,000		21,200	21,200	40%
1	04	02	07	01	01	UN27_00100	Receive production and spare MPS hardware		CON	AN_CE	Hrs	8		774		774	40%
1	04	02	07	01	01	UN27_00110	QA Test production MPS hardware		CON	AN_CT	Hrs	40		2,468		2,468	40%
1	**04**	**02**	**07**	**01**	**02**		**Interface components**					**196**	**2,000**	**15,410**	**2,060**	**17,470**	
1	04	02	07	01	02	UN27_00120	Design interface electronics		PED	AN_CE	Hrs	20		1,835		1,835	40%
1	04	02	07	01	02	UN27_00121	Prepare for design review		CON	AN_CE	Hrs	24		2,202		2,202	40%
1	04	02	07	01	02	UN27_00130	conduct design review		PED	AN_CE	Hrs	16		1,468		1,468	40%
1	04	02	07	01	02	UN27_00140	Procure prototype Interface electronics compon		CON	AN_MSEG	$$		2,000		2,060	2,060	40%
1	04	02	07	01	02	UN27_00141	Receive Prototype Interface Electronics		CON	AN_CE	Hrs	8		734		734	40%
1	04	02	07	01	02	UN27_00150	Assemble prototype Interface electronics		CON	AN_CT	Hrs	40		2,340		2,340	40%
1	04	02	07	01	02	UN27_00160	Test prototype Interface electronics		CON	AN_CE	Hrs	16		1,468		1,468	40%
1	04	02	07	01	02	UN27_00180	Specify production Interface electronics		PED	AN_CE	Hrs	16		1,468		1,468	40%
1	04	02	07	01	02	UN27_00190	Write QA procedure for production Interface el		CON	AN_CE	Hrs	8		734		734	40%
1	04	02	07	01	02	UN27_00210	Receive production Interface electronics		CON	AN_CE	Hrs	8		755		755	40%
1	04	02	07	01	02	UN27_00220	QA Test production Interface electronics		CON	AN_CT	Hrs	40		2,406		2,406	40%
1	**04**	**02**	**07**	**02**			**Cerenkov Detector**					**156**	**35,000**	**12,619**	**38,030**	**50,649**	
1	**04**	**02**	**07**	**02**	**01**		**Signal interface**					**156**	**35,000**	**12,619**	**38,030**	**50,649**	
1	04	02	07	02	01	UN27_00230	Design signal interface		PED	AN_CE	Hrs	20		1,835		1,835	50%
1	04	02	07	02	01	UN27_00231	Prepare for design review		CON	AN_CE	Hrs	16		1,468		1,468	50%
1	04	02	07	02	01	UN27_00240	conduct design review		PED	AN_CE	Hrs	16		1,468		1,468	50%
1	04	02	07	02	01	UN27_00250	Procure prototype signal electronics component		CON	AN_MSEG	$$		2,000		2,060	2,060	50%
1	04	02	07	02	01	UN27_00251	Receive Prototype Signal Electronics		CON	AN_CE	Hrs	8		734		734	50%
1	04	02	07	02	01	UN27_00260	Assemble prototype signal electronics		CON	AN_CE	Hrs	16		1,468		1,468	50%
1	04	02	07	02	01	UN27_00270	Test prototype signal electronics		CON	AN_CT	Hrs	16		936		936	50%
1	04	02	07	02	01	UN27_00290	Specify production signal electronics		PED	AN_CE	Hrs	8		734		734	50%
1	04	02	07	02	01	UN27_00300	Write QA procedure for production signal elect		CON	AN_CE	Hrs	8		734		734	50%
1	04	02	07	02	01	UN27_00320	Receive production and spare signal electronic		CON	AN_CE	Hrs	8		774		774	50%
1	04	02	07	02	01	UN27_00321	REC: production signal electronics		CON	AN_MSEG	$$		33,000		35,970	35,970	50%
1	04	02	07	02	01	UN27_00330	QA Test production and spare signal electronic		CON	AN_CT	Hrs	40		2,468		2,468	50%
1	**04**	**02**	**07**	**03**			**Gamma Ray Detector**					**152**	**4,000**	**12,171**	**4,180**	**16,351**	
1	**04**	**02**	**07**	**03**	**01**		**Signal interface**					**152**	**4,000**	**12,171**	**4,180**	**16,351**	
1	04	02	07	03	01	UN27_00340	Design signal interface		PED	AN_CE	Hrs	16		1,468		1,468	50%
1	04	02	07	03	01	UN27_00341	Prepare for design review		CON	AN_CE	Hrs	16		1,468		1,468	50%
1	04	02	07	03	01	UN27_00350	conduct design review		PED	AN_CE	Hrs	16		1,468		1,468	50%
1	04	02	07	03	01	UN27_00360	Procure prototype signal electronics component		CON	AN_MSEG	$$		2,000		2,060	2,060	50%
1	04	02	07	03	01	UN27_00361	Receive Prototype Signal Electronics Component		CON	AN_CE	Hrs	8		734		734	50%
1	04	02	07	03	01	UN27_00370	Assemble prototype signal electronics		CON	AN_CE	Hrs	16		1,468		1,468	50%
1	04	02	07	03	01	UN27_00380	Test prototype signal electronics		CON	AN_CT	Hrs	16		936		936	50%
1	04	02	07	03	01	UN27_00400	Specify production signal electronics		PED	AN_CE	Hrs	8		734		734	50%
1	04	02	07	03	01	UN27_00410	Write QA procedure for production signal elect		CON	AN_CE	Hrs	8		734		734	50%
1	04	02	07	03	01	UN27_00420	Procure production signal electronics		CON	AN_MSEG	$$		2,000		2,120	2,120	50%
1	04	02	07	03	01	UN27_00430	Receive production signal electronics		CON	AN_CE	Hrs	8		755		755	50%
1	04	02	07	03	01	UN27_00440	QA Test production signal electronics		CON	AN_CT	Hrs	40		2,406		2,406	50%
1	**04**	**02**	**07**	**04**			**Chamber Temperature**					**152**	**17,500**	**12,252**	**18,520**	**30,772**	
1	**04**	**02**	**07**	**04**	**01**		**Signal interface**					**152**	**17,500**	**12,252**	**18,520**	**30,772**	
1	04	02	07	04	01	UN27_00450	Design signal interface		PED	AN_CE	Hrs	16		1,468		1,468	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	02	07	04	01	UN27_00451	Prepare for design review		CON	AN_CE	Hrs	16		1,468		1,468	25%
1	04	02	07	04	01	UN27_00460	conduct design review		PED	AN_CE	Hrs	16		1,468		1,468	25%
1	04	02	07	04	01	UN27_00470	Procure prototype signal electronics component		CON	AN_MSEG	$$		1,000		1,030	1,030	25%
1	04	02	07	04	01	UN27_00471	Receive Prototype Signal Electronics Component		CON	AN_CE	Hrs	8		734		734	25%
1	04	02	07	04	01	UN27_00480	Assemble prototype signal electronics		CON	AN_CE	Hrs	16		1,468		1,468	25%
1	04	02	07	04	01	UN27_00490	Test prototype signal electronics		CON	AN_CT	Hrs	16		936		936	25%
1	04	02	07	04	01	UN27_00510	Specify production signal electronics		PED	AN_CE	Hrs	8		734		734	25%
1	04	02	07	04	01	UN27_00520	Write QA procedure for production signal elect		CON	AN_CE	Hrs	8		734		734	25%
1	04	02	07	04	01	UN27_00530	Procure production signal electronics		CON	AN_MSEG	$$		16,500		17,490	17,490	25%
1	04	02	07	04	01	UN27_00540	Receive production and spare signal electronic		CON	AN_CE	Hrs	8		774		774	25%
1	04	02	07	04	01	UN27_00550	QA Test production signal electronics		CON	AN_CT	Hrs	40		2,468		2,468	25%
1	**04**	**03**					**Undulator Magnet & Support**					**35,767**	**19,886,502**	**3,124,866**	**21,466,644**	**24,591,510**	
1	**04**	**03**	**01**				**UND Magnet & Support - Mgmt and Integration**					**1,858**	**-**	**167,146**	**-**	**167,146**	
1	04	03	01			UN31_00010	Undulator Systems Integration		CON	AN_ME	Hrs	898		80,348		80,348	
1	04	03	01			UN31_00040	Dev/Coord Instl/Checkout/Verif/Interface,etc D		CON	AN_ME	Hrs	960		86,798		86,798	
1	**04**	**03**	**02**				**First Prototype Undulator & Mfg Plan**					**280**	**10,000**	**18,060**	**10,000**	**28,060**	
1	04	03	02			UN32_00170	Complete 1st Proto CAD/PRO-E Model		PED	AN_ME	Hrs	80		6,690		6,690	
1	04	03	02			UN32_00170	Complete 1st Proto CAD/PRO-E Model		PED	AN_MDD	Hrs	200		11,370		11,370	
1	04	03	02			UN32_00305	Construct/Eval Manual Horizontal Mover/Shims		PED	AN_MSSC	$$		10,000		10,000	10,000	
1	**04**	**03**	**03**				**1st Article Undulators & Long Lead Procurements**					**3,272**	**4,622,280**	**269,038**	**4,826,313**	**5,095,351**	
1	**04**	**03**	**03**	**01**			**Ti Strongback (LLP)**					**692**	**1,729,200**	**59,308**	**1,814,023**	**1,873,331**	
1	04	03	03	01		UN33_00160	Write Undulator Assembly Procedure		PED	AN_ME	Hrs	200		16,726		16,726	30%
1	04	03	03	01		UN33_10010	Prep Bid Package - Ti Strongback		PED	AN_ME	Hrs	60		5,018		5,018	30%
1	04	03	03	01		UN33_10070	Vendor Fab/Assy - Ti Strongback Article 01		CON	AN_MSSC	$$		2,400		2,472	2,472	30%
1	04	03	03	01		UN33_10070	Vendor Fab/Assy - Ti Strongback Article 01		CON	AN_ME	Hrs	80		6,884		6,884	30%
1	04	03	03	01		UN33_10071	ACCEPT: Factory Acceptance - Ti S/B Article 01		CON	AN_MSSC	$$		50,000		51,500	51,500	30%
1	04	03	03	01		UN33_10078	Vendor Fab/Assy - Ti Strongback Article 02		CON	AN_MSSC	$$		2,400		2,472	2,472	30%
1	04	03	03	01		UN33_10078	Vendor Fab/Assy - Ti Strongback Article 02		CON	AN_ME	Hrs	80		6,884		6,884	30%
1	04	03	03	01		UN33_10080	ACCEPT: Factory Acceptance - Ti S/B Article 02		CON	AN_MSSC	$$		50,000		51,500	51,500	30%
1	04	03	03	01		UN33_10090	Vendor Fab/Assy - Ti Strongback Article 03		CON	AN_MSSC	$$		2,400		2,472	2,472	30%
1	04	03	03	01		UN33_10090	Vendor Fab/Assy - Ti Strongback Article 03		CON	AN_ME	Hrs	20		1,721		1,721	30%
1	04	03	03	01		UN33_10092	ACCEPT: Factory Acceptance - Ti S/B Article 03		CON	AN_MSSC	$$		50,000		51,500	51,500	30%
1	04	03	03	01		UN33_10098	Vendor Fab/Assy - Ti Strongback Article 04		CON	AN_MSSC	$$		2,400		2,472	2,472	30%
1	04	03	03	01		UN33_10098	Vendor Fab/Assy - Ti Strongback Article 04		CON	AN_ME	Hrs	20		1,721		1,721	30%
1	04	03	03	01		UN33_10100	ACCEPT: Factory Acceptance - Ti S/B Article 04		CON	AN_MSSC	$$		50,000		51,500	51,500	30%
1	04	03	03	01		UN33_10110	Vendor Fab/Assy - Ti Strongback Article 05		CON	AN_MSSC	$$		2,400		2,472	2,472	30%
1	04	03	03	01		UN33_10110	Vendor Fab/Assy - Ti Strongback Article 05		CON	AN_ME	Hrs	8		688		688	30%
1	04	03	03	01		UN33_10112	ACCEPT: Factory Acceptance - Ti S/B Article 05		CON	AN_MSSC	$$		50,000		51,500	51,500	30%
1	04	03	03	01		UN33_10118	Vendor Fab/Assy - Ti Strongback Article 06		CON	AN_MSSC	$$		2,400		2,472	2,472	30%
1	04	03	03	01		UN33_10118	Vendor Fab/Assy - Ti Strongback Article 06		CON	AN_ME	Hrs	8		688		688	30%
1	04	03	03	01		UN33_10120	ACCEPT: Factory Acceptance - Ti S/B Article 06		CON	AN_MSSC	$$		50,000		51,500	51,500	30%
1	04	03	03	01		UN33_10130	Vendor Fab/Assy - Ti Strongback Article 07		CON	AN_MSSC	$$		2,400		2,472	2,472	30%
1	04	03	03	01		UN33_10130	Vendor Fab/Assy - Ti Strongback Article 07		CON	AN_ME	Hrs	8		688		688	30%
1	04	03	03	01		UN33_10132	ACCEPT: Factory Acceptance - Ti S/B Article 07		CON	AN_MSSC	$$		50,000		51,500	51,500	30%
1	04	03	03	01		UN33_10138	Vendor Fab/Assy - Ti Strongback Article 08		CON	AN_MSSC	$$		2,400		2,472	2,472	30%
1	04	03	03	01		UN33_10138	Vendor Fab/Assy - Ti Strongback Article 08		CON	AN_ME	Hrs	8		688		688	30%
1	04	03	03	01		UN33_10140	ACCEPT: Factory Acceptance - Ti S/B Article 08		CON	AN_MSSC	$$		50,000		51,500	51,500	30%
1	04	03	03	01		UN33_10150	Vendor Fab/Assy - Ti Strongback Article 09		CON	AN_MSSC	$$		2,400		2,472	2,472	30%
1	04	03	03	01		UN33_10150	Vendor Fab/Assy - Ti Strongback Article 09		CON	AN_ME	Hrs	8		688		688	30%
1	04	03	03	01		UN33_10152	ACCEPT: Factory Acceptance - Ti S/B Article 09		CON	AN_MSSC	$$		50,000		51,500	51,500	30%
1	04	03	03	01		UN33_10158	Vendor Fab/Assy - Ti Strongback Article 10		CON	AN_MSSC	$$		2,400		2,472	2,472	30%
1	04	03	03	01		UN33_10158	Vendor Fab/Assy - Ti Strongback Article 10		CON	AN_ME	Hrs	8		688		688	30%
1	04	03	03	01		UN33_10160	ACCEPT: Factory Acceptance - Ti S/B Article 10		CON	AN_MSSC	$$		50,000		51,500	51,500	30%
1	04	03	03	01		UN33_10170	Vendor Fab/Assy - Ti Strongback Article 11		CON	AN_MSSC	$$		2,400		2,472	2,472	30%
1	04	03	03	01		UN33_10170	Vendor Fab/Assy - Ti Strongback Article 11		CON	AN_ME	Hrs	8		688		688	30%
1	04	03	03	01		UN33_10172	ACCEPT: Factory Acceptance - Ti S/B Article 11		CON	AN_MSSC	$$		50,000		51,500	51,500	30%
1	04	03	03	01		UN33_10178	Vendor Fab/Assy - Ti Strongback Article 12		CON	AN_MSSC	$$		2,400		2,472	2,472	30%
1	04	03	03	01		UN33_10178	Vendor Fab/Assy - Ti Strongback Article 12		CON	AN_ME	Hrs	8		688		688	30%
1	04	03	03	01		UN33_10180	ACCEPT: Factory Acceptance - Ti S/B Article 12		CON	AN_MSSC	$$		50,000		51,500	51,500	30%
1	04	03	03	01		UN33_10190	Vendor Fab/Assy - Ti Strongback Article 13		CON	AN_MSSC	$$		2,400		2,479	2,479	30%
1	04	03	03	01		UN33_10190	Vendor Fab/Assy - Ti Strongback Article 13		CON	AN_ME	Hrs	8		690		690	30%
1	04	03	03	01		UN33_10192	ACCEPT: Factory Acceptance - Ti S/B Article 13		CON	AN_MSSC	$$		50,000		53,000	53,000	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	03	03	01		UN33_10198	Vendor Fab/Assy - Ti Strongback Article 14		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10198	Vendor Fab/Assy - Ti Strongback Article 14		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10200	ACCEPT: Factory Acceptance - Ti S/B Article 14		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10210	Vendor Fab/Assy - Ti Strongback Article 15		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10210	Vendor Fab/Assy - Ti Strongback Article 15		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10212	ACCEPT: Factory Acceptance - Ti S/B Article 15		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10218	Vendor Fab/Assy - Ti Strongback Article 16		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10218	Vendor Fab/Assy - Ti Strongback Article 16		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10220	ACCEPT: Factory Acceptance - Ti S/B Article 16		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10230	Vendor Fab/Assy - Ti Strongback Article 17		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10230	Vendor Fab/Assy - Ti Strongback Article 17		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10232	ACCEPT: Factory Acceptance - Ti S/B Article 17		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10238	Vendor Fab/Assy - Ti Strongback Article 18		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10238	Vendor Fab/Assy - Ti Strongback Article 18		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10240	ACCEPT: Factory Acceptance - Ti S/B Article 18		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10250	Vendor Fab/Assy - Ti Strongback Article 19		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10250	Vendor Fab/Assy - Ti Strongback Article 19		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10252	ACCEPT: Factory Acceptance - Ti S/B Article 19		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10258	Vendor Fab/Assy - Ti Strongback Article 20		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10258	Vendor Fab/Assy - Ti Strongback Article 20		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10260	ACCEPT: Factory Acceptance - Ti S/B Article 20		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10270	Vendor Fab/Assy - Ti Strongback Article 21		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10270	Vendor Fab/Assy - Ti Strongback Article 21		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10272	ACCEPT: Factory Acceptance - Ti S/B Article 21		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10278	Vendor Fab/Assy - Ti Strongback Article 22		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10278	Vendor Fab/Assy - Ti Strongback Article 22		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10280	ACCEPT: Factory Acceptance - Ti S/B Article 22		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10290	Vendor Fab/Assy - Ti Strongback Article 23		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10290	Vendor Fab/Assy - Ti Strongback Article 23		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10292	ACCEPT: Factory Acceptance - Ti S/B Article 23		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10298	Vendor Fab/Assy - Ti Strongback Article 24		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10298	Vendor Fab/Assy - Ti Strongback Article 24		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10300	ACCEPT: Factory Acceptance - Ti S/B Article 24		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10310	Vendor Fab/Assy - Ti Strongback Article 25		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10310	Vendor Fab/Assy - Ti Strongback Article 25		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10312	ACCEPT: Factory Acceptance - Ti S/B Article 25		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10318	Vendor Fab/Assy - Ti Strongback Article 26		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10318	Vendor Fab/Assy - Ti Strongback Article 26		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10320	ACCEPT: Factory Acceptance - Ti S/B Article 26		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10330	Vendor Fab/Assy - Ti Strongback Article 27		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10330	Vendor Fab/Assy - Ti Strongback Article 27		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10332	ACCEPT: Factory Acceptance - Ti S/B Article 27		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10338	Vendor Fab/Assy - Ti Strongback Article 28		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10338	Vendor Fab/Assy - Ti Strongback Article 28		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10340	ACCEPT: Factory Acceptance - Ti S/B Article 28		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10350	Vendor Fab/Assy - Ti Strongback Article 29		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10350	Vendor Fab/Assy - Ti Strongback Article 29		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10352	ACCEPT: Factory Acceptance - Ti S/B Article 29		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10358	Vendor Fab/Assy - Ti Strongback Article 30		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10358	Vendor Fab/Assy - Ti Strongback Article 30		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10360	ACCEPT: Factory Acceptance - Ti S/B Article 30		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10370	Vendor Fab/Assy - Ti Strongback Article 31		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10370	Vendor Fab/Assy - Ti Strongback Article 31		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10372	ACCEPT: Factory Acceptance - Ti S/B Article 31		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10378	Vendor Fab/Assy - Ti Strongback Article 32		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10378	Vendor Fab/Assy - Ti Strongback Article 32		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10380	ACCEPT: Factory Acceptance - Ti S/B Article 32		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	04	03	03	01		UN33_10390	Vendor Fab/Assy - Ti Strongback Article 33		CON	AN_MSSC	$$		2,400		2,544	2,544	30%
1	04	03	03	01		UN33_10390	Vendor Fab/Assy - Ti Strongback Article 33		CON	AN_ME	Hrs	8		708		708	30%
1	04	03	03	01		UN33_10392	ACCEPT: Factory Acceptance - Ti S/B Article 33		CON	AN_MSSC	$$		50,000		53,000	53,000	30%
1	**04**	**03**	**03**	**02**			**Magnet Blocks (LLP)**					**480**	**804,480**	**41,014**	**828,614**	**869,628**	
1	04	03	03	02		UN33_20010	Prep Bid Package - Magnet Blocks		PED	AN_ME	Hrs	120		10,036		10,036	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	03	03	02		UN33_20070	Vendor Fab/Assy - 1st Half Magnet Blocks		CON	AN_ME	Hrs	40		3,442		3,442	25%
1	04	03	03	02		UN33_20080	RCV: From Vendor - 1st Half Magnet Blocks		CON	AN_MSSC	$$		483,200		497,696	497,696	25%
1	04	03	03	02		UN33_20090	Vendor Fab/Assy - 2nd Half Magnet Blocks		CON	AN_MSSC	$$		7,200		7,416	7,416	25%
1	04	03	03	02		UN33_20090	Vendor Fab/Assy - 2nd Half Magnet Blocks		CON	AN_ME	Hrs	320		27,536		27,536	25%
1	04	03	03	02		UN33_20100	RCV: From Vendor - 2nd Half Magnet Blocks 13/2		CON	AN_MSSC	$$		314,080		323,502	323,502	25%
1	**04**	**03**	**03**	**03**			**Magnet Poles (LLP)**					**220**	**1,108,800**	**18,841**	**1,145,088**	**1,163,929**	
1	04	03	03	03		UN33_30010	Prep Bid Package - Magnet Poles		PED	AN_ME	Hrs	60		5,018		5,018	30%
1	04	03	03	03		UN33_30070	Vendor Fab/Assy - 1st Lot Magnet Poles (1-10)		CON	AN_ME	Hrs	40		3,442		3,442	30%
1	04	03	03	03		UN33_30082	Vendor Fab/Assy - 2nd Lot Magnet Poles (11-20)		CON	AN_ME	Hrs	40		3,442		3,442	30%
1	04	03	03	03		UN33_30080	RCV: From Vendor - 1st Lot Magnet Poles (1-10)		CON	AN_MSSC	$$		336,000		346,080	346,080	30%
1	04	03	03	03		UN33_30087	Vendor Fab/Assy - 3rd Lot Magnet Poles (21-30)		CON	AN_ME	Hrs	40		3,442		3,442	30%
1	04	03	03	03		UN33_30086	RCV: From Vendor - 2nd Lot Magnet Poles (11-20		CON	AN_MSSC	$$		336,000		346,080	346,080	30%
1	04	03	03	03		UN33_30090	Vendor Fab/Assy - 4th Lot Magnet Poles (31-33)		CON	AN_ME	Hrs	40		3,497		3,497	30%
1	04	03	03	03		UN33_30088	RCV: From Vendor - 3rd Lot Magnet Poles (21-30		CON	AN_MSSC	$$		336,000		346,080	346,080	30%
1	04	03	03	03		UN33_30100	RCV: From Vendor - 4th Lot Magnet Poles (31-33		CON	AN_MSSC	$$		100,800		106,848	106,848	30%
1	**04**	**03**	**03**	**04**			**Magnet Assembly & Supports - 1st Articles**					**920**	**954,800**	**80,223**	**1,012,088**	**1,092,311**	
1	04	03	03	04		UN33_40010	Prep Bid Package - Magnet Assembly & Supports		PED	AN_ME	Hrs	240		20,071		20,071	25%
1	04	03	03	04		UN33_40090	Evaluate Vendor A Fab/Assy Plan		CON	AN_ME	Hrs	20		1,769		1,769	25%
1	04	03	03	04		UN33_40180	Evaluate Vendor B Fab/Assy Plan		CON	AN_ME	Hrs	20		1,769		1,769	25%
1	04	03	03	04		UN33_40120	Vendor A Fab/Assy-Magnet #1 Assembly & Support		CON	AN_MSSC	$$		2,400		2,544	2,544	25%
1	04	03	03	04		UN33_40120	Vendor A Fab/Assy-Magnet #1 Assembly & Support		CON	AN_ME	Hrs	320		28,307		28,307	25%
1	04	03	03	04		UN33_40210	Vendor B Fab/Assy-Magnet #2 Assembly & Support		CON	AN_MSSC	$$		2,400		2,544	2,544	25%
1	04	03	03	04		UN33_40210	Vendor B Fab/Assy-Magnet #2 Assembly & Support		CON	AN_ME	Hrs	320		28,307		28,307	25%
1	04	03	03	04		UN33_40140	RCV: From Vendor A-1st Article Magnet Assy/Sup		CON	AN_MSSC	$$		475,000		503,500	503,500	25%
1	04	03	03	04		UN33_40220	RCV: From Vendor B - Magnet Assembly & Support		CON	AN_MSSC	$$		475,000		503,500	503,500	25%
1	**04**	**03**	**03**	**05**			**Magnetic Measurement (ANL or SLAC)**					**960**	**25,000**	**69,652**	**26,500**	**96,152**	
1	04	03	03	05		UN33_00530	Mag Measure - Undulator #01 (1st Art) Vend A		CON	AN_PHS	Hrs	240		21,230		21,230	
1	04	03	03	05		UN33_00530	Mag Measure - Undulator #01 (1st Art) Vend A		CON	AN_MFAT	Hrs	240		13,596		13,596	
1	04	03	03	05		UN33_00550	ACCEPT Vendor A Undulator #01 (1st Art) at ANL		CON	AN_MSSC	$$		12,500		13,250	13,250	
1	04	03	03	05		UN33_00560	Mag Measure - Undulator #02 (1st Art) Vend B		CON	AN_PHS	Hrs	240		21,230		21,230	
1	04	03	03	05		UN33_00560	Mag Measure - Undulator #02 (1st Art) Vend B		CON	AN_MFAT	Hrs	240		13,596		13,596	
1	04	03	03	05		UN33_00580	ACCEPT: Vendor B Undulator #02 (1st Art) at AN		CON	AN_MSSC	$$		12,500		13,250	13,250	
1	**04**	**03**	**04**				**Production Undulator**					**4,840**	**11,788,832**	**438,328**	**12,838,293**	**13,276,621**	
1	**04**	**03**	**04**	**01**			**Magnet Assembly & Supports**					**4,840**	**11,788,832**	**438,328**	**12,838,293**	**13,276,621**	
1	04	03	04	01		UN34_00010	Revise Contract Option Vendor A - Prdn Units		CON	AN_ME	Hrs	40		3,538		3,538	25%
1	04	03	04	01		UN34_10010	Revise Contract Option Vendor B - Prdn Units		CON	AN_ME	Hrs	40		3,538		3,538	25%
1	04	03	04	01		UN34_00050	Vendor A Fab/Assy - Mag Assy/Sup Undulator 03		CON	AN_MSSC	$$		160		170	170	25%
1	04	03	04	01		UN34_00050	Vendor A Fab/Assy - Mag Assy/Sup Undulator 03		CON	AN_ME	Hrs	160		14,154		14,154	25%
1	04	03	04	01		UN34_10050	Vendor B Fab/Assy - Magnet Assy/Sup Article 04		CON	AN_MSSC	$$		4,800		5,107	5,107	25%
1	04	03	04	01		UN34_10050	Vendor B Fab/Assy - Magnet Assy/Sup Article 04		CON	AN_ME	Hrs	160		14,203		14,203	25%
1	04	03	04	01		UN34_00052	RCV: From Vendor A - Mag Assy/Sup Undulator 03		CON	AN_MSSC	$$		380,000		402,800	402,800	25%
1	04	03	04	01		UN34_00054	Vendor A Fab/Assy - Mag Assy/Sup Undulator 05		CON	AN_MSSC	$$		240		260	260	25%
1	04	03	04	01		UN34_00054	Vendor A Fab/Assy - Mag Assy/Sup Undulator 05		CON	AN_ME	Hrs	160		14,434		14,434	25%
1	04	03	04	01		UN34_10052	RCV: From Vendor B - Magnet Assy/Sup Article 04		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_10054	Vendor B Fab/Assy - Magnet Assy/Sup Article 06		CON	AN_MSSC	$$		240		262	262	25%
1	04	03	04	01		UN34_10054	Vendor B Fab/Assy - Magnet Assy/Sup Article 06		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_00056	RCV: From Vendor A - Magnet Assy/Sup Article 05		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_00058	Vendor A Fab/Assy - Magnet Assy/Sup Article 07		CON	AN_MSSC	$$		160		174	174	25%
1	04	03	04	01		UN34_00058	Vendor A Fab/Assy - Magnet Assy/Sup Article 07		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_10056	RCV: From Vendor B - Magnet Assy/Sup Article 06		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_10058	Vendor B Fab/Assy - Magnet Assy/Sup Article 08		CON	AN_MSSC	$$		160		174	174	25%
1	04	03	04	01		UN34_10058	Vendor B Fab/Assy - Magnet Assy/Sup Article 08		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_00060	RCV: From Vendor A - Magnet Assy/Sup Article 07		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_00062	Vendor A Fab/Assy - Magnet Assy/Sup Article 09		CON	AN_MSSC	$$		120		131	131	25%
1	04	03	04	01		UN34_00062	Vendor A Fab/Assy - Magnet Assy/Sup Article 09		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_10060	RCV: From Vendor B - Magnet Assy/Sup Article 08		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_10062	Vendor B Fab/Assy - Magnet Assy/Sup Article 10		CON	AN_MSSC	$$		160		174	174	25%
1	04	03	04	01		UN34_10062	Vendor B Fab/Assy - Magnet Assy/Sup Article 10		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_00064	RCV: From Vendor A - Magnet Assy/Sup Article 09		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_00067	Vendor A Fab/Assy - Magnet Assy/Sup Article 11		CON	AN_MSSC	$$		160		174	174	25%
1	04	03	04	01		UN34_00067	Vendor A Fab/Assy - Magnet Assy/Sup Article 11		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_10064	RCV: From Vendor B - Magnet Assy/Sup Article 10		CON	AN_MSSC	$$		380,000		414,200	414,200	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	03	04	01		UN34_10067	Vendor B Fab/Assy - Magnet Assy/Sup Article 12		CON	AN_MSSC	$$		160		174	174	25%
1	04	03	04	01		UN34_10067	Vendor B Fab/Assy - Magnet Assy/Sup Article 12		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_00068	RCV: From Vendor A - Magnet Assy/Sup Article 11		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_00070	Vendor A Fab/Assy - Magnet Assy/Sup Article 13		CON	AN_MSSC	$$		8		9	9	25%
1	04	03	04	01		UN34_00070	Vendor A Fab/Assy - Magnet Assy/Sup Article 13		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_10068	RCV: From Vendor B - Magnet Assy/Sup Article 12		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_10070	Vendor B Fab/Assy - Magnet Assy/Sup Article 14		CON	AN_MSSC	$$		8		9	9	25%
1	04	03	04	01		UN34_10070	Vendor B Fab/Assy - Magnet Assy/Sup Article 14		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_00072	RCV: From Vendor A - Magnet Assy/Sup Article 13		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_00074	Vendor A Fab/Assy - Magnet Assy/Sup Article 15		CON	AN_MSSC	$$		160		174	174	25%
1	04	03	04	01		UN34_00074	Vendor A Fab/Assy - Magnet Assy/Sup Article 15		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_10072	RCV: From Vendor B - Magnet Assy/Sup Article 14		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_10074	Vendor B Fab/Assy - Magnet Assy/Sup Article 16		CON	AN_MSSC	$$		160		174	174	25%
1	04	03	04	01		UN34_10074	Vendor B Fab/Assy - Magnet Assy/Sup Article 16		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_00076	RCV: From Vendor A - Magnet Assy/Sup Article 15		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_00078	Vendor A Fab/Assy - Magnet Assy/Sup Article 17		CON	AN_MSSC	$$		120		131	131	25%
1	04	03	04	01		UN34_00078	Vendor A Fab/Assy - Magnet Assy/Sup Article 17		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_10076	RCV: From Vendor B - Magnet Assy/Sup Article 16		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_10078	Vendor B Fab/Assy - Magnet Assy/Sup Article 18		CON	AN_MSSC	$$		120		131	131	25%
1	04	03	04	01		UN34_10078	Vendor B Fab/Assy - Magnet Assy/Sup Article 18		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_00080	RCV: From Vendor A - Magnet Assy/Sup Article 17		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_00082	Vendor A Fab/Assy - Magnet Assy/Sup Article 19		CON	AN_MSSC	$$		160		174	174	25%
1	04	03	04	01		UN34_00082	Vendor A Fab/Assy - Magnet Assy/Sup Article 19		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_10080	RCV: From Vendor B - Magnet Assy/Sup Article 18		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_10082	Vendor B Fab/Assy - Magnet Assy/Sup Article 20		CON	AN_MSSC	$$		160		174	174	25%
1	04	03	04	01		UN34_10082	Vendor B Fab/Assy - Magnet Assy/Sup Article 20		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_00083	RCV: From Vendor A - Magnet Assy/Sup Article 19		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_00086	Vendor A Fab/Assy - Magnet Assy/Sup Article 21		CON	AN_MSSC	$$		120		131	131	25%
1	04	03	04	01		UN34_00086	Vendor A Fab/Assy - Magnet Assy/Sup Article 21		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_10083	RCV: From Vendor B - Magnet Assy/Sup Article 20		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_10086	Vendor B Fab/Assy - Magnet Assy/Sup Article 22		CON	AN_MSSC	$$		120		131	131	25%
1	04	03	04	01		UN34_10086	Vendor B Fab/Assy - Magnet Assy/Sup Article 22		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_00088	RCV: From Vendor A - Magnet Assy/Sup Article 21		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_00090	Vendor A Fab/Assy - Magnet Assy/Sup Article 23		CON	AN_MSSC	$$		160		174	174	25%
1	04	03	04	01		UN34_00090	Vendor A Fab/Assy - Magnet Assy/Sup Article 23		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_10088	RCV: From Vendor B - Magnet Assy/Sup Article 22		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_10090	Vendor B Fab/Assy - Magnet Assy/Sup Article 24		CON	AN_MSSC	$$		160		174	174	25%
1	04	03	04	01		UN34_10090	Vendor B Fab/Assy - Magnet Assy/Sup Article 24		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_00092	RCV: From Vendor A - Magnet Assy/Sup Article 23		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_00094	Vendor A Fab/Assy - Magnet Assy/Sup Article 25		CON	AN_MSSC	$$		120		131	131	25%
1	04	03	04	01		UN34_00094	Vendor A Fab/Assy - Magnet Assy/Sup Article 25		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_10092	RCV: From Vendor B - Magnet Assy/Sup Article 24		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_10094	Vendor B Fab/Assy - Magnet Assy/Sup Article 26		CON	AN_MSSC	$$		120		131	131	25%
1	04	03	04	01		UN34_10094	Vendor B Fab/Assy - Magnet Assy/Sup Article 26		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_00096	RCV: From Vendor A - Magnet Assy/Sup Article 25		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_00098	Vendor A Fab/Assy - Magnet Assy/Sup Article 27		CON	AN_MSSC	$$		160		174	174	25%
1	04	03	04	01		UN34_00098	Vendor A Fab/Assy - Magnet Assy/Sup Article 27		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_10096	RCV: From Vendor B - Magnet Assy/Sup Article 26		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_10098	Vendor B Fab/Assy - Magnet Assy/Sup Article 28		CON	AN_MSSC	$$		160		174	174	25%
1	04	03	04	01		UN34_10098	Vendor B Fab/Assy - Magnet Assy/Sup Article 28		CON	AN_ME	Hrs	160		14,522		14,522	25%
1	04	03	04	01		UN34_00100	RCV: From Vendor A - Magnet Assy/Sup Article 27		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_00102	Vendor A Fab/Assy - Magnet Assy/Sup Article 29		CON	AN_MSSC	$$		8		9	9	25%
1	04	03	04	01		UN34_00102	Vendor A Fab/Assy - Magnet Assy/Sup Article 29		CON	AN_ME	Hrs	140		12,706		12,706	25%
1	04	03	04	01		UN34_10100	RCV: From Vendor B - Magnet Assy/Sup Article 28		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_10102	Vendor B Fab/Assy - Magnet Assy/Sup Article 30		CON	AN_MSSC	$$		8		9	9	25%
1	04	03	04	01		UN34_10102	Vendor B Fab/Assy - Magnet Assy/Sup Article 30		CON	AN_ME	Hrs	140		12,706		12,706	25%
1	04	03	04	01		UN34_00103	RCV: From Vendor A - Magnet Assy/Sup Article 29		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_00106	Vendor A Fab/Assy - Magnet Assy/Sup Article 31		CON	AN_MSSC	$$		160		174	174	25%
1	04	03	04	01		UN34_00106	Vendor A Fab/Assy - Magnet Assy/Sup Article 31		CON	AN_ME	Hrs	120		10,891		10,891	25%
1	04	03	04	01		UN34_10104	RCV: From Vendor B - Magnet Assy/Sup Article 30		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_10106	Vendor B Fab/Assy - Magnet Assy/Sup Article 32		CON	AN_MSSC	$$		160		174	174	25%
1	04	03	04	01		UN34_10106	Vendor B Fab/Assy - Magnet Assy/Sup Article 32		CON	AN_ME	Hrs	120		10,891		10,891	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	03	04	01		UN34_00108	RCV: From Vendor A - Magnet Assy/Sup Article 31		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_00110	Vendor A Fab/Assy - Magnet Assy/Sup Article 33		CON	AN_MSSC	$$		120		131	131	25%
1	04	03	04	01		UN34_00110	Vendor A Fab/Assy - Magnet Assy/Sup Article 33		CON	AN_ME	Hrs	80		7,261		7,261	25%
1	04	03	04	01		UN34_10107	RCV: From Vendor B - Magnet Assy/Sup Article 32		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	04	03	04	01		UN34_00112	RCV: From Vendor A - Magnet Assy/Sup Article 33		CON	AN_MSSC	$$		380,000		414,200	414,200	25%
1	**04**	**03**	**04**	**02**			**Reserved**										
1	**04**	**03**	**05**				**Focusing Magnets**					**1,260**	**850,000**	**101,312**	**901,000**	**1,002,312**	
1	**04**	**03**	**05**	**01**			**Quadrupoles**					**1,260**	**850,000**	**101,312**	**901,000**	**1,002,312**	
1	04	03	05	01		UN35_00010	Define Physics Specification - Quadrupoles		PED	AN_PHS	Hrs	160		13,381		13,381	25%
1	04	03	05	01		UN35_00020	Define Engineering Specifications - Quadrupole		PED	AN_ME	Hrs	240		20,071		20,071	25%
1	04	03	05	01		UN35_00020	Define Engineering Specifications - Quadrupole		PED	AN_MDD	Hrs	240		13,644		13,644	25%
1	04	03	05	01		UN35_00060	Prep Bid Package - Quadrupoles		PED	AN_ME	Hrs	160		13,671		13,671	25%
1	04	03	05	01		UN35_00100	Evaluate Proposal - Quadrupoles		CON	AN_ME	Hrs	80		6,884		6,884	25%
1	04	03	05	01		UN35_00112	Vendor Fab/Assy - Quads 1st Article		CON	AN_MSSC	$$		25,000		26,500	26,500	25%
1	04	03	05	01		UN35_00116	Measure Magnet - Quads 1st Article		CON	AN_PHS	Hrs	5		442		442	25%
1	04	03	05	01		UN35_00116	Measure Magnet - Quads 1st Article		CON	AN_MFAT	Hrs	5		283		283	25%
1	04	03	05	01		UN35_00120	Vendor Fab/Assy - Quads & Suppts 1st lot (19)		CON	AN_MSSC	$$		825,000		874,500	874,500	25%
1	04	03	05	01		UN35_00120	Vendor Fab/Assy - Quads & Suppts 1st lot (19)		CON	AN_ME	Hrs	240		21,230		21,230	25%
1	04	03	05	01		UN35_00121	Review Travelers - Quadrupole 1st lot		CON	AN_PHS	Hrs	40		3,538		3,538	25%
1	04	03	05	01		UN35_00134	Review Travelers - Quadrupole 1st article		CON	AN_PHS	Hrs	90		8,168		8,168	25%
1	**04**	**03**	**05**	**02**			**Reserved**										
1	**04**	**03**	**06**				**Undulator Magnetic Measurement Facility (SLAC)**					**21,960**	**1,810,390**	**1,936,036**	**1,995,438**	**3,931,474**	
1	**04**	**03**	**06**	**01**			**Undulator MMF Setup**					**6,400**	**1,073,290**	**525,141**	**1,169,886**	**1,695,027**	
1	**04**	**03**	**06**	**01**	**01**		**Undulator Test Stand Prototype**					**880**	**105,390**	**71,875**	**114,875**	**186,750**	
1	04	03	06	01	01	UN36_00220	Procure Undulator Test Stand Proto		CON	SL_MSEQ	$$		105,390		114,875	114,875	15%
1	04	03	06	01	01	UN36_00230	Install and Test Undulator Test Stand Proto		CON	SL_PHS	Hrs	560		40,774		40,774	15%
1	04	03	06	01	01	UN36_00230	Install and Test Undulator Test Stand Proto		CON	SL_MFAT	Hrs	160		13,099		13,099	15%
1	04	03	06	01	01	UN36_00230	Install and Test Undulator Test Stand Proto		CON	SL_EE	Hrs	160		18,002		18,002	15%
1	**04**	**03**	**06**	**01**	**02**		**Reserved**										
1	**04**	**03**	**06**	**01**	**03**		**Reserved**										
1	**04**	**03**	**06**	**01**	**04**		**Undulator Test Stand**					**1,040**	**348,230**	**86,329**	**379,571**	**465,900**	
1	04	03	06	01	04	UN36_00140	Procure Undulator Test Stand		CON	SL_MSEQ	$$		348,230		379,571	379,571	50%
1	04	03	06	01	04	UN36_00150	Install and Test Undulator Test Stand		CON	SL_PHS	Hrs	560		40,774		40,774	15%
1	04	03	06	01	04	UN36_00150	Install and Test Undulator Test Stand		CON	SL_MFAT	Hrs	160		13,099		13,099	15%
1	04	03	06	01	04	UN36_00150	Install and Test Undulator Test Stand		CON	SL_MES	Hrs	160		14,454		14,454	15%
1	04	03	06	01	04	UN36_00150	Install and Test Undulator Test Stand		CON	SL_EE	Hrs	160		18,002		18,002	15%
1	**04**	**03**	**06**	**01**	**05**		**Undulator Fiducialization**					**1,200**	**410,000**	**105,857**	**446,900**	**552,757**	
1	04	03	06	01	05	UN36_00050	Design Undulator Fiducialization System		CON	SL_PHSS	Hrs	80		7,414		7,414	15%
1	04	03	06	01	05	UN36_00050	Design Undulator Fiducialization System		CON	SL_PHS	Hrs	160		11,650		11,650	15%
1	04	03	06	01	05	UN36_00050	Design Undulator Fiducialization System		CON	SL_MES	Hrs	320		28,909		28,909	15%
1	04	03	06	01	05	UN36_00060	Procure Undulator Fiducialization System		CON	SL_MSEQ	$$		410,000		446,900	446,900	25%
1	04	03	06	01	05	UN36_00070	Install and Test Undulator Fiducialization Sys		CON	SL_PHS	Hrs	160		11,650		11,650	15%
1	04	03	06	01	05	UN36_00070	Install and Test Undulator Fiducialization Sys		CON	SL_MFAT	Hrs	80		6,550		6,550	15%
1	04	03	06	01	05	UN36_00070	Install and Test Undulator Fiducialization Sys		CON	SL_MES	Hrs	240		21,682		21,682	15%
1	04	03	06	01	05	UN36_00070	Install and Test Undulator Fiducialization Sys		CON	SL_EE	Hrs	160		18,002		18,002	15%
1	**04**	**03**	**06**	**01**	**06**		**Quad Strength and Field Quality**					**400**	**8,200**	**32,654**	**8,938**	**41,592**	
1	04	03	06	01	06	UN36_00100	Procure Quad Strength and Field Quality		CON	SL_MSEQ	$$		8,200		8,938	8,938	5%
1	04	03	06	01	06	UN36_00110	Install and Test Quad Strength and Field Quali		CON	SL_PHS	Hrs	160		11,650		11,650	5%
1	04	03	06	01	06	UN36_00110	Install and Test Quad Strength and Field Quali		CON	SL_MFAT	Hrs	80		6,550		6,550	5%
1	04	03	06	01	06	UN36_00110	Install and Test Quad Strength and Field Quali		CON	SL_MES	Hrs	160		14,454		14,454	5%
1	**04**	**03**	**06**	**01**	**07**		**Quad Fiducialization System**					**560**	**49,000**	**45,800**	**53,410**	**99,210**	
1	04	03	06	01	07	UN36_00010	Design Quad Fidcuialization System		CON	SL_PHSS	Hrs	40		3,707		3,707	10%
1	04	03	06	01	07	UN36_00010	Design Quad Fidcuialization System		CON	SL_PHS	Hrs	80		5,825		5,825	10%
1	04	03	06	01	07	UN36_00010	Design Quad Fidcuialization System		CON	SL_MES	Hrs	40		3,614		3,614	10%
1	04	03	06	01	07	UN36_00020	Procure Quad Fiducialization System		CON	SL_MSEQ	$$		49,000		53,410	53,410	10%
1	04	03	06	01	07	UN36_00030	Install and Test Quad Fiducialization System		CON	SL_PHS	Hrs	160		11,650		11,650	10%
1	04	03	06	01	07	UN36_00030	Install and Test Quad Fiducialization System		CON	SL_MFAT	Hrs	80		6,550		6,550	10%
1	04	03	06	01	07	UN36_00030	Install and Test Quad Fiducialization System		CON	SL_MES	Hrs	160		14,454		14,454	10%
1	**04**	**03**	**06**	**01**	**08**		**Hall Probe Calibration System**					**2,080**	**116,470**	**163,702**	**126,952**	**290,654**	
1	04	03	06	01	08	UN36_00170	Design Hall Probe Calibration System		CON	SL_PHSS	Hrs	480		44,482		44,482	10%
1	04	03	06	01	08	UN36_00170	Design Hall Probe Calibration System		CON	SL_PHS	Hrs	880		64,073		64,073	10%
1	04	03	06	01	08	UN36_00170	Design Hall Probe Calibration System		CON	SL_MDD	Hrs	80		5,019		5,019	10%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	03	06	01	08	UN36_00180	Procure Hall Probe Calibration System		CON	SL_MSEQ	$$		116,470		126,952	126,952	10%
1	04	03	06	01	08	UN36_00190	Install and Test Hall Probe Calibration System		CON	SL_PHS	Hrs	400		29,124		29,124	10%
1	04	03	06	01	08	UN36_00190	Install and Test Hall Probe Calibration System		CON	SL_MFAT	Hrs	80		6,550		6,550	10%
1	04	03	06	01	08	UN36_00190	Install and Test Hall Probe Calibration System		CON	SL_MES	Hrs	160		14,454		14,454	10%
1	**04**	**03**	**06**	**01**	**09**		**Undulator Handling**					**240**	**36,000**	**18,924**	**39,240**	**58,164**	
1	04	03	06	01	09	UN36_00250	Design Undulator Handling		CON	SL_PHS	Hrs	40		2,912		2,912	5%
1	04	03	06	01	09	UN36_00250	Design Undulator Handling		CON	SL_MFAT	Hrs	80		6,550		6,550	5%
1	04	03	06	01	09	UN36_00260	Procure Undulator Handling		CON	SL_MSEQ	$$		36,000		39,240	39,240	5%
1	04	03	06	01	09	UN36_00270	Install and Test Undulator Handling		CON	SL_PHS	Hrs	40		2,912		2,912	5%
1	04	03	06	01	09	UN36_00270	Install and Test Undulator Handling		CON	SL_MFAT	Hrs	80		6,550		6,550	5%
1	**04**	**03**	**06**	**02**			**Fiducialization and Magnetic Measurements (F/MM)**					**7,632**	**147,600**	**664,052**	**165,312**	**829,364**	
1	04	03	06	02		UN36_00370	Procure Fiducialization and Mag Meas Hardware		CON	SL_MTRL	$$		147,600		165,312	165,312	20%
1	04	03	06	02		UN36_00610	Data Evaluation - Photon Diagnostic		CON	SL_PHSS	Hrs	48		4,573		4,573	5%
1	04	03	06	02		UN36_00600	Fiducialization Measurements - Photon Diagnost		CON	SL_PHS	Hrs	48		3,593		3,593	20%
1	04	03	06	02		UN36_00600	Fiducialization Measurements - Photon Diagnost		CON	SL_MFAT	Hrs	48		4,040		4,040	20%
1	04	03	06	02		UN36_00600	Fiducialization Measurements - Photon Diagnost		CON	SL_MES	Hrs	96		8,916		8,916	20%
1	04	03	06	02		UN36_00570	Data Evaluation - Vacuum Chamber		CON	SL_PHSS	Hrs	66		6,288		6,288	5%
1	04	03	06	02		UN36_00560	Fiducialization Measurements - Vacuum Chamber		CON	SL_MFAT	Hrs	160		13,466		13,466	20%
1	04	03	06	02		UN36_00560	Fiducialization Measurements - Vacuum Chamber		CON	SL_MES	Hrs	400		37,148		37,148	20%
1	04	03	06	02		UN36_00550	Magnetic Measurements - Correctors		CON	SL_PHS	Hrs	160		11,976		11,976	20%
1	04	03	06	02		UN36_00550	Magnetic Measurements - Correctors		CON	SL_MFAT	Hrs	160		13,466		13,466	20%
1	04	03	06	02		UN36_00510	Data Evaluation - Correctors		CON	SL_PHSS	Hrs	160		15,243		15,243	5%
1	04	03	06	02		UN36_00400	Data Evaluation - BPM		CON	SL_PHSS	Hrs	80		7,622		7,622	5%
1	04	03	06	02		UN36_00390	Fiducialization Measurements - BPM		CON	SL_PHS	Hrs	80		5,988		5,988	20%
1	04	03	06	02		UN36_00390	Fiducialization Measurements - BPM		CON	SL_MFAT	Hrs	80		6,733		6,733	20%
1	04	03	06	02		UN36_00390	Fiducialization Measurements - BPM		CON	SL_MES	Hrs	320		29,718		29,718	20%
1	**04**	**03**	**06**	**02**	**01**		**F/MM Undulator Magnet Sections**					**4,218**	**-**	**367,677**	**-**	**367,677**	
1	04	03	06	02	01	UN362_0030	Undulator Setup and Alignment - 01		CON	SL_MFAT	Hrs	16		1,382		1,382	5%
1	04	03	06	02	01	UN362_0130	Undulator Setup and Alignment - 02		CON	SL_MFAT	Hrs	16		1,382		1,382	5%
1	04	03	06	02	01	UN362_0040	Undulator Measurement and Set Gap - 01		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_0040	Undulator Measurement and Set Gap - 01		CON	SL_PHS	Hrs	40		3,072		3,072	5%
1	04	03	06	02	01	UN362_0230	Undulator Setup and Alignment - 03		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0140	Undulator Measurement and Set Gap - 02		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_0140	Undulator Measurement and Set Gap - 02		CON	SL_PHS	Hrs	40		3,072		3,072	5%
1	04	03	06	02	01	UN362_0330	Undulator Setup and Alignment - 04		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0240	Undulator Measurement and Set Gap - 03		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_0240	Undulator Measurement and Set Gap - 03		CON	SL_PHS	Hrs	32		2,458		2,458	5%
1	04	03	06	02	01	UN362_0340	Undulator Measurement and Set Gap - 04		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_0340	Undulator Measurement and Set Gap - 04		CON	SL_PHS	Hrs	32		2,458		2,458	5%
1	04	03	06	02	01	UN362_0150	Undulator Setup and Alignment - 02		CON	SL_MFAT	Hrs	16		1,382		1,382	5%
1	04	03	06	02	01	UN362_0430	Undulator Setup and Alignment - 05		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0440	Undulator Measurement and Set Gap - 05		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_0440	Undulator Measurement and Set Gap - 05		CON	SL_PHS	Hrs	16		1,229		1,229	5%
1	04	03	06	02	01	UN362_0160	Undulator Measurement/Pre-fiducialization - 02		CON	SL_PHSS	Hrs	40		3,910		3,910	25%
1	04	03	06	02	01	UN362_0160	Undulator Measurement/Pre-fiducialization - 02		CON	SL_PHS	Hrs	80		6,144		6,144	25%
1	04	03	06	02	01	UN362_0050	Undulator Setup and Alignment - 01		CON	SL_MFAT	Hrs	16		1,382		1,382	5%
1	04	03	06	02	01	UN362_0250	Undulator Setup and Alignment - 03		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0450	Undulator Setup and Alignment - 05		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0350	Undulator Setup and Alignment - 04		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0260	Undulator Measurement/Pre-fiducialization - 03		CON	SL_PHSS	Hrs	40		3,910		3,910	25%
1	04	03	06	02	01	UN362_0260	Undulator Measurement/Pre-fiducialization - 03		CON	SL_PHS	Hrs	64		4,915		4,915	25%
1	04	03	06	02	01	UN362_0060	Undulator Measurement/Pre-fiducialization - 01		CON	SL_PHSS	Hrs	40		3,910		3,910	25%
1	04	03	06	02	01	UN362_0060	Undulator Measurement/Pre-fiducialization - 01		CON	SL_PHS	Hrs	80		6,144		6,144	25%
1	04	03	06	02	01	UN362_0460	Undulator Measurement/Pre-fiducialization - 05		CON	SL_PHSS	Hrs	16		1,564		1,564	20%
1	04	03	06	02	01	UN362_0460	Undulator Measurement/Pre-fiducialization - 05		CON	SL_PHS	Hrs	32		2,458		2,458	20%
1	04	03	06	02	01	UN362_0360	Undulator Measurement/Pre-fiducialization - 04		CON	SL_PHSS	Hrs	40		3,910		3,910	25%
1	04	03	06	02	01	UN362_0360	Undulator Measurement/Pre-fiducialization - 04		CON	SL_PHS	Hrs	64		4,915		4,915	25%
1	04	03	06	02	01	UN362_0470	Undulator Setup and Alignment - 05		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0480	Undulator Fiducialization - 05		CON	SL_PHSS	Hrs	8		782		782	20%
1	04	03	06	02	01	UN362_0480	Undulator Fiducialization - 05		CON	SL_MES	Hrs	16		1,524		1,524	20%
1	04	03	06	02	01	UN362_0530	Undulator Setup and Alignment - 06		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0540	Undulator Measurement and Set Gap - 06		CON	SL_PHSS	Hrs	4		391		391	5%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	03	06	02	01	UN362_0540	Undulator Measurement and Set Gap - 06		CON	SL_PHS	Hrs	16		1,229		1,229	5%
1	04	03	06	02	01	UN362_0490	Undulator/QD/VacCh/BPM/Prealign - 05		CON	SL_MFAT	Hrs	16		1,382		1,382	20%
1	04	03	06	02	01	UN362_0490	Undulator/QD/VacCh/BPM/Prealign - 05		CON	SL_MES	Hrs	16		1,524		1,524	20%
1	04	03	06	02	01	UN362_0270	Undulator Setup and Alignment - 03		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0170	Undulator Setup and Alignment - 02		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0370	Undulator Setup and Alignment - 04		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0280	Undulator Fiducialization - 03		CON	SL_PHSS	Hrs	8		782		782	25%
1	04	03	06	02	01	UN362_0280	Undulator Fiducialization - 03		CON	SL_MES	Hrs	32		3,049		3,049	25%
1	04	03	06	02	01	UN362_0180	Undulator Fiducialization - 02		CON	SL_PHSS	Hrs	8		782		782	25%
1	04	03	06	02	01	UN362_0180	Undulator Fiducialization - 02		CON	SL_MES	Hrs	40		3,811		3,811	25%
1	04	03	06	02	01	UN362_0550	Undulator Setup and Alignment - 06		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0380	Undulator Fiducialization - 04		CON	SL_PHSS	Hrs	8		782		782	25%
1	04	03	06	02	01	UN362_0380	Undulator Fiducialization - 04		CON	SL_MES	Hrs	32		3,049		3,049	25%
1	04	03	06	02	01	UN362_0070	Undulator Setup and Alignment - 01		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0560	Undulator Measurement/Pre-fiducialization - 06		CON	SL_PHSS	Hrs	32		3,128		3,128	20%
1	04	03	06	02	01	UN362_0560	Undulator Measurement/Pre-fiducialization - 06		CON	SL_PHS	Hrs	16		1,229		1,229	20%
1	04	03	06	02	01	UN362_0080	Undulator Fiducialization - 01		CON	SL_PHSS	Hrs	8		782		782	25%
1	04	03	06	02	01	UN362_0080	Undulator Fiducialization - 01		CON	SL_MES	Hrs	40		3,811		3,811	25%
1	04	03	06	02	01	UN362_0630	Undulator Setup and Alignment - 07		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0290	Undulator/QD/VacCh/BPM/Prealign - 03		CON	SL_MFAT	Hrs	24		2,072		2,072	25%
1	04	03	06	02	01	UN362_0290	Undulator/QD/VacCh/BPM/Prealign - 03		CON	SL_MES	Hrs	24		2,287		2,287	25%
1	04	03	06	02	01	UN362_0640	Undulator Measurement and Set Gap - 07		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_0640	Undulator Measurement and Set Gap - 07		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_0390	Undulator/QD/VacCh/BPM/Prealign - 04		CON	SL_MFAT	Hrs	24		2,072		2,072	25%
1	04	03	06	02	01	UN362_0390	Undulator/QD/VacCh/BPM/Prealign - 04		CON	SL_MES	Hrs	24		2,287		2,287	25%
1	04	03	06	02	01	UN362_0190	Undulator/QD/VacCh/BPM/Prealign - 02		CON	SL_MFAT	Hrs	32		2,763		2,763	25%
1	04	03	06	02	01	UN362_0190	Undulator/QD/VacCh/BPM/Prealign - 02		CON	SL_MES	Hrs	32		3,049		3,049	25%
1	04	03	06	02	01	UN362_0570	Undulator Setup and Alignment - 06		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0580	Undulator Fiducialization - 06		CON	SL_PHSS	Hrs	8		782		782	20%
1	04	03	06	02	01	UN362_0580	Undulator Fiducialization - 06		CON	SL_MES	Hrs	16		1,524		1,524	20%
1	04	03	06	02	01	UN362_0090	Undulator/QD/VacCh/BPM/Prealign - 01		CON	SL_MFAT	Hrs	32		2,763		2,763	25%
1	04	03	06	02	01	UN362_0090	Undulator/QD/VacCh/BPM/Prealign - 01		CON	SL_MES	Hrs	32		3,049		3,049	25%
1	04	03	06	02	01	UN362_0650	Undulator Setup and Alignment - 07		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0660	Undulator Measurement/Pre-fiducialization - 07		CON	SL_PHSS	Hrs	16		1,564		1,564	20%
1	04	03	06	02	01	UN362_0660	Undulator Measurement/Pre-fiducialization - 07		CON	SL_PHS	Hrs	24		1,843		1,843	20%
1	04	03	06	02	01	UN362_0590	Undulator/QD/VacCh/BPM/Prealign - 06		CON	SL_MFAT	Hrs	16		1,382		1,382	20%
1	04	03	06	02	01	UN362_0590	Undulator/QD/VacCh/BPM/Prealign - 06		CON	SL_MES	Hrs	16		1,524		1,524	20%
1	04	03	06	02	01	UN362_0670	Undulator Setup and Alignment - 07		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0680	Undulator Fiducialization - 07		CON	SL_PHSS	Hrs	8		782		782	20%
1	04	03	06	02	01	UN362_0680	Undulator Fiducialization - 07		CON	SL_MES	Hrs	12		1,143		1,143	20%
1	04	03	06	02	01	UN362_0730	Undulator Setup and Alignment - 08		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0830	Undulator Setup and Alignment - 09		CON	SL_MFAT	Hrs	6		518		518	5%
1	04	03	06	02	01	UN362_0740	Undulator Measurement and Set Gap - 08		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_0740	Undulator Measurement and Set Gap - 08		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_0690	Undulator/QD/VacCh/BPM/Prealign - 07		CON	SL_MFAT	Hrs	16		1,382		1,382	20%
1	04	03	06	02	01	UN362_0690	Undulator/QD/VacCh/BPM/Prealign - 07		CON	SL_MES	Hrs	12		1,143		1,143	20%
1	04	03	06	02	01	UN362_0840	Undulator Measurement and Set Gap - 09		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_0840	Undulator Measurement and Set Gap - 09		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_0750	Undulator Setup and Alignment - 08		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0850	Undulator Setup and Alignment - 09		CON	SL_MFAT	Hrs	6		518		518	5%
1	04	03	06	02	01	UN362_0760	Undulator Measurement/Pre-fiducialization - 08		CON	SL_PHSS	Hrs	16		1,564		1,564	20%
1	04	03	06	02	01	UN362_0760	Undulator Measurement/Pre-fiducialization - 08		CON	SL_PHS	Hrs	24		1,843		1,843	20%
1	04	03	06	02	01	UN362_0860	Undulator Measurement/Pre-fiducialization - 09		CON	SL_PHSS	Hrs	16		1,564		1,564	20%
1	04	03	06	02	01	UN362_0860	Undulator Measurement/Pre-fiducialization - 09		CON	SL_PHS	Hrs	24		1,843		1,843	20%
1	04	03	06	02	01	UN362_0770	Undulator Setup and Alignment - 08		CON	SL_MFAT	Hrs	8		691		691	5%
1	04	03	06	02	01	UN362_0870	Undulator Setup and Alignment - 09		CON	SL_MFAT	Hrs	6		518		518	5%
1	04	03	06	02	01	UN362_0780	Undulator Fiducialization - 08		CON	SL_PHSS	Hrs	8		782		782	20%
1	04	03	06	02	01	UN362_0780	Undulator Fiducialization - 08		CON	SL_MES	Hrs	12		1,143		1,143	20%
1	04	03	06	02	01	UN362_0880	Undulator Fiducialization - 09		CON	SL_PHSS	Hrs	4		391		391	20%
1	04	03	06	02	01	UN362_0880	Undulator Fiducialization - 09		CON	SL_MES	Hrs	10		953		953	20%
1	04	03	06	02	01	UN362_0790	Undulator/QD/VacCh/BPM/Prealign - 08		CON	SL_MFAT	Hrs	16		1,382		1,382	20%
1	04	03	06	02	01	UN362_0790	Undulator/QD/VacCh/BPM/Prealign - 08		CON	SL_MES	Hrs	12		1,143		1,143	20%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	03	06	02	01	UN362_0930	Undulator Setup and Alignment - 10		CON	SL_MFAT	Hrs	6		518		518	5%
1	04	03	06	02	01	UN362_0890	Undulator/QD/VacCh/BPM/Prealign - 09		CON	SL_MFAT	Hrs	16		1,382		1,382	20%
1	04	03	06	02	01	UN362_0890	Undulator/QD/VacCh/BPM/Prealign - 09		CON	SL_MES	Hrs	12		1,143		1,143	20%
1	04	03	06	02	01	UN362_1030	Undulator Setup and Alignment - 11		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_0940	Undulator Measurement and Set Gap - 10		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_0940	Undulator Measurement and Set Gap - 10		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_1040	Undulator Measurement and Set Gap - 11		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_1040	Undulator Measurement and Set Gap - 11		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_0960	Undulator Measurement/Pre-fiducialization - 10		CON	SL_PHSS	Hrs	16		1,564		1,564	20%
1	04	03	06	02	01	UN362_0960	Undulator Measurement/Pre-fiducialization - 10		CON	SL_PHS	Hrs	24		1,843		1,843	20%
1	04	03	06	02	01	UN362_1050	Undulator Setup and Alignment - 11		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1060	Undulator Measurement/Pre-fiducialization - 11		CON	SL_PHSS	Hrs	16		1,564		1,564	20%
1	04	03	06	02	01	UN362_1060	Undulator Measurement/Pre-fiducialization - 11		CON	SL_PHS	Hrs	24		1,843		1,843	20%
1	04	03	06	02	01	UN362_0970	Undulator Setup and Alignment - 10		CON	SL_MFAT	Hrs	6		518		518	5%
1	04	03	06	02	01	UN362_0980	Undulator Fiducialization - 10		CON	SL_PHSS	Hrs	4		391		391	20%
1	04	03	06	02	01	UN362_0980	Undulator Fiducialization - 10		CON	SL_MES	Hrs	10		953		953	20%
1	04	03	06	02	01	UN362_1070	Undulator Setup and Alignment - 11		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1080	Undulator Fiducialization - 11		CON	SL_PHSS	Hrs	4		391		391	20%
1	04	03	06	02	01	UN362_1080	Undulator Fiducialization - 11		CON	SL_MES	Hrs	8		762		762	20%
1	04	03	06	02	01	UN362_0990	Undulator/QD/VacCh/BPM/Prealign - 10		CON	SL_MFAT	Hrs	16		1,382		1,382	20%
1	04	03	06	02	01	UN362_0990	Undulator/QD/VacCh/BPM/Prealign - 10		CON	SL_MES	Hrs	12		1,143		1,143	20%
1	04	03	06	02	01	UN362_1090	Undulator/QD/VacCh/BPM/Prealign - 11		CON	SL_MFAT	Hrs	16		1,382		1,382	20%
1	04	03	06	02	01	UN362_1090	Undulator/QD/VacCh/BPM/Prealign - 11		CON	SL_MES	Hrs	8		762		762	20%
1	04	03	06	02	01	UN362_1130	Undulator Setup and Alignment - 12		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1230	Undulator Setup and Alignment - 13		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1140	Undulator Measurement and Set Gap - 12		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_1140	Undulator Measurement and Set Gap - 12		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_1240	Undulator Measurement and Set Gap - 13		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_1240	Undulator Measurement and Set Gap - 13		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_1160	Undulator Measurement/Pre-fiducialization - 12		CON	SL_PHSS	Hrs	16		1,564		1,564	20%
1	04	03	06	02	01	UN362_1160	Undulator Measurement/Pre-fiducialization - 12		CON	SL_PHS	Hrs	24		1,843		1,843	20%
1	04	03	06	02	01	UN362_1260	Undulator Measurement/Pre-fiducialization - 13		CON	SL_PHSS	Hrs	16		1,564		1,564	20%
1	04	03	06	02	01	UN362_1260	Undulator Measurement/Pre-fiducialization - 13		CON	SL_PHS	Hrs	24		1,843		1,843	20%
1	04	03	06	02	01	UN362_1170	Undulator Setup and Alignment - 12		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1270	Undulator Setup and Alignment - 13		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1180	Undulator Fiducialization - 12		CON	SL_PHSS	Hrs	4		391		391	20%
1	04	03	06	02	01	UN362_1180	Undulator Fiducialization - 12		CON	SL_MES	Hrs	8		762		762	20%
1	04	03	06	02	01	UN362_1280	Undulator Fiducialization - 13		CON	SL_PHSS	Hrs	4		391		391	20%
1	04	03	06	02	01	UN362_1280	Undulator Fiducialization - 13		CON	SL_MES	Hrs	8		762		762	20%
1	04	03	06	02	01	UN362_1190	Undulator/QD/VacCh/BPM/Prealign - 12		CON	SL_MFAT	Hrs	16		1,382		1,382	20%
1	04	03	06	02	01	UN362_1190	Undulator/QD/VacCh/BPM/Prealign - 12		CON	SL_MES	Hrs	8		762		762	20%
1	04	03	06	02	01	UN362_1290	Undulator/QD/VacCh/BPM/Prealign - 13		CON	SL_MFAT	Hrs	16		1,382		1,382	20%
1	04	03	06	02	01	UN362_1290	Undulator/QD/VacCh/BPM/Prealign - 13		CON	SL_MES	Hrs	8		762		762	20%
1	04	03	06	02	01	UN362_1330	Undulator Setup and Alignment - 14		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1430	Undulator Setup and Alignment - 15		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1340	Undulator Measurement and Set Gap - 14		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_1340	Undulator Measurement and Set Gap - 14		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_1440	Undulator Measurement and Set Gap - 15		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_1440	Undulator Measurement and Set Gap - 15		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_1360	Undulator Measurement/Pre-fiducialization - 14		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_1360	Undulator Measurement/Pre-fiducialization - 14		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_1460	Undulator Measurement/Pre-fiducialization - 15		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_1460	Undulator Measurement/Pre-fiducialization - 15		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_1370	Undulator Setup and Alignment - 14		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1470	Undulator Setup and Alignment - 15		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1380	Undulator Fiducialization - 14		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_1380	Undulator Fiducialization - 14		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_1480	Undulator Fiducialization - 15		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_1480	Undulator Fiducialization - 15		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_1390	Undulator/QD/VacCh/BPM/Prealign - 14		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_1390	Undulator/QD/VacCh/BPM/Prealign - 14		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_1490	Undulator/QD/VacCh/BPM/Prealign - 15		CON	SL_MFAT	Hrs	16		1,382		1,382	10%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	03	06	02	01	UN362_1490	Undulator/QD/VacCh/BPM/Prealign - 15		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_1530	Undulator Setup and Alignment - 16		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1630	Undulator Setup and Alignment - 17		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1540	Undulator Measurement and Set Gap - 16		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_1540	Undulator Measurement and Set Gap - 16		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_1640	Undulator Measurement and Set Gap - 17		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_1640	Undulator Measurement and Set Gap - 17		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_1560	Undulator Measurement/Pre-fiducialization - 16		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_1560	Undulator Measurement/Pre-fiducialization - 16		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_1660	Undulator Measurement/Pre-fiducialization - 17		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_1660	Undulator Measurement/Pre-fiducialization - 17		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_1570	Undulator Setup and Alignment - 16		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1670	Undulator Setup and Alignment - 17		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1580	Undulator Fiducialization - 16		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_1580	Undulator Fiducialization - 16		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_1680	Undulator Fiducialization - 17		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_1680	Undulator Fiducialization - 17		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_1590	Undulator/QD/VacCh/BPM/Prealign - 16		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_1590	Undulator/QD/VacCh/BPM/Prealign - 16		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_1690	Undulator/QD/VacCh/BPM/Prealign - 17		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_1690	Undulator/QD/VacCh/BPM/Prealign - 17		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_1730	Undulator Setup and Alignment - 18		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1830	Undulator Setup and Alignment - 19		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1740	Undulator Measurement and Set Gap - 18		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_1740	Undulator Measurement and Set Gap - 18		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_1840	Undulator Measurement and Set Gap - 19		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_1840	Undulator Measurement and Set Gap - 19		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_1760	Undulator Measurement/Pre-fiducialization - 18		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_1760	Undulator Measurement/Pre-fiducialization - 18		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_1860	Undulator Measurement/Pre-fiducialization - 19		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_1860	Undulator Measurement/Pre-fiducialization - 19		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_1770	Undulator Setup and Alignment - 18		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1870	Undulator Setup and Alignment - 19		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1780	Undulator Fiducialization - 18		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_1780	Undulator Fiducialization - 18		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_1880	Undulator Fiducialization - 19		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_1880	Undulator Fiducialization - 19		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_1790	Undulator/QD/VacCh/BPM/Prealign - 18		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_1790	Undulator/QD/VacCh/BPM/Prealign - 18		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_1890	Undulator/QD/VacCh/BPM/Prealign - 19		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_1890	Undulator/QD/VacCh/BPM/Prealign - 19		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_1930	Undulator Setup and Alignment - 20		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2030	Undulator Setup and Alignment - 21		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1940	Undulator Measurement and Set Gap - 20		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_1940	Undulator Measurement and Set Gap - 20		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_2040	Undulator Measurement and Set Gap - 21		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_2040	Undulator Measurement and Set Gap - 21		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_1960	Undulator Measurement/Pre-fiducialization - 20		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_1960	Undulator Measurement/Pre-fiducialization - 20		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_2060	Undulator Measurement/Pre-fiducialization - 21		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_2060	Undulator Measurement/Pre-fiducialization - 21		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_1970	Undulator Setup and Alignment - 20		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2070	Undulator Setup and Alignment - 21		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_1980	Undulator Fiducialization - 20		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_1980	Undulator Fiducialization - 20		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2080	Undulator Fiducialization - 21		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_2080	Undulator Fiducialization - 21		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_1990	Undulator/QD/VacCh/BPM/Prealign - 20		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_1990	Undulator/QD/VacCh/BPM/Prealign - 20		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2090	Undulator/QD/VacCh/BPM/Prealign - 21		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_2090	Undulator/QD/VacCh/BPM/Prealign - 21		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2130	Undulator Setup and Alignment - 22		CON	SL_MFAT	Hrs	4		345		345	5%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	03	06	02	01	UN362_2230	Undulator Setup and Alignment - 23		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2140	Undulator Measurement and Set Gap - 22		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_2140	Undulator Measurement and Set Gap - 22		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_2240	Undulator Measurement and Set Gap - 23		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_2240	Undulator Measurement and Set Gap - 23		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_2160	Undulator Measurement/Pre-fiducialization - 22		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_2160	Undulator Measurement/Pre-fiducialization - 22		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_2260	Undulator Measurement/Pre-fiducialization - 23		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_2260	Undulator Measurement/Pre-fiducialization - 23		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_2170	Undulator Setup and Alignment - 22		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2270	Undulator Setup and Alignment - 23		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2180	Undulator Fiducialization - 22		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_2180	Undulator Fiducialization - 22		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2280	Undulator Fiducialization - 23		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_2280	Undulator Fiducialization - 23		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2190	Undulator/QD/VacCh/BPM/Prealign - 22		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_2190	Undulator/QD/VacCh/BPM/Prealign - 22		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2290	Undulator/QD/VacCh/BPM/Prealign - 23		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_2290	Undulator/QD/VacCh/BPM/Prealign - 23		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2330	Undulator Setup and Alignment - 24		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2430	Undulator Setup and Alignment - 25		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2340	Undulator Measurement and Set Gap - 24		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_2340	Undulator Measurement and Set Gap - 24		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_2440	Undulator Measurement and Set Gap - 25		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_2440	Undulator Measurement and Set Gap - 25		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_2360	Undulator Measurement/Pre-fiducialization - 24		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_2360	Undulator Measurement/Pre-fiducialization - 24		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_2460	Undulator Measurement/Pre-fiducialization - 25		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_2460	Undulator Measurement/Pre-fiducialization - 25		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_2370	Undulator Setup and Alignment - 24		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2470	Undulator Setup and Alignment - 25		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2380	Undulator Fiducialization - 24		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_2380	Undulator Fiducialization - 24		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2480	Undulator Fiducialization - 25		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_2480	Undulator Fiducialization - 25		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2390	Undulator/QD/VacCh/BPM/Prealign - 24		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_2390	Undulator/QD/VacCh/BPM/Prealign - 24		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2490	Undulator/QD/VacCh/BPM/Prealign - 25		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_2490	Undulator/QD/VacCh/BPM/Prealign - 25		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2530	Undulator Setup and Alignment - 26		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2630	Undulator Setup and Alignment - 27		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2540	Undulator Measurement and Set Gap - 26		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_2540	Undulator Measurement and Set Gap - 26		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_2640	Undulator Measurement and Set Gap - 27		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_2640	Undulator Measurement and Set Gap - 27		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_2560	Undulator Measurement/Pre-fiducialization - 26		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_2560	Undulator Measurement/Pre-fiducialization - 26		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_2660	Undulator Measurement/Pre-fiducialization - 27		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_2660	Undulator Measurement/Pre-fiducialization - 27		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_2570	Undulator Setup and Alignment - 26		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2670	Undulator Setup and Alignment - 27		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2580	Undulator Fiducialization - 26		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_2580	Undulator Fiducialization - 26		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2680	Undulator Fiducialization - 27		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_2680	Undulator Fiducialization - 27		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2590	Undulator/QD/VacCh/BPM/Prealign - 26		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_2590	Undulator/QD/VacCh/BPM/Prealign - 26		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2690	Undulator/QD/VacCh/BPM/Prealign - 27		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_2690	Undulator/QD/VacCh/BPM/Prealign - 27		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2730	Undulator Setup and Alignment - 28		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2830	Undulator Setup and Alignment - 29		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2740	Undulator Measurement and Set Gap - 28		CON	SL_PHSS	Hrs	4		391		391	5%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	03	06	02	01	UN362_2740	Undulator Measurement and Set Gap - 28		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_2840	Undulator Measurement and Set Gap - 29		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_2840	Undulator Measurement and Set Gap - 29		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_2760	Undulator Measurement/Pre-fiducialization - 28		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_2760	Undulator Measurement/Pre-fiducialization - 28		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_2860	Undulator Measurement/Pre-fiducialization - 29		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_2860	Undulator Measurement/Pre-fiducialization - 29		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_2770	Undulator Setup and Alignment - 28		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2870	Undulator Setup and Alignment - 29		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2780	Undulator Fiducialization - 28		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_2780	Undulator Fiducialization - 28		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2880	Undulator Fiducialization - 29		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_2880	Undulator Fiducialization - 29		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2790	Undulator/QD/VacCh/BPM/Prealign - 28		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_2790	Undulator/QD/VacCh/BPM/Prealign - 28		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2890	Undulator/QD/VacCh/BPM/Prealign - 29		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_2890	Undulator/QD/VacCh/BPM/Prealign - 29		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2930	Undulator Setup and Alignment - 30		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_3030	Undulator Setup and Alignment - 31		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2940	Undulator Measurement and Set Gap - 30		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_2940	Undulator Measurement and Set Gap - 30		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_3040	Undulator Measurement and Set Gap - 31		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_3040	Undulator Measurement and Set Gap - 31		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_2960	Undulator Measurement/Pre-fiducialization - 30		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_2960	Undulator Measurement/Pre-fiducialization - 30		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_3060	Undulator Measurement/Pre-fiducialization - 31		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_3060	Undulator Measurement/Pre-fiducialization - 31		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_2970	Undulator Setup and Alignment - 30		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_3070	Undulator Setup and Alignment - 31		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_2980	Undulator Fiducialization - 30		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_2980	Undulator Fiducialization - 30		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_3080	Undulator Fiducialization - 31		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_3080	Undulator Fiducialization - 31		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_2990	Undulator/QD/VacCh/BPM/Prealign - 30		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_2990	Undulator/QD/VacCh/BPM/Prealign - 30		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_3090	Undulator/QD/VacCh/BPM/Prealign - 31		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_3090	Undulator/QD/VacCh/BPM/Prealign - 31		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_3130	Undulator Setup and Alignment - 32		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_3140	Undulator Measurement and Set Gap - 32		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_3140	Undulator Measurement and Set Gap - 32		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_3160	Undulator Measurement/Pre-fiducialization - 32		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_3160	Undulator Measurement/Pre-fiducialization - 32		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_3170	Undulator Setup and Alignment - 32		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_3180	Undulator Fiducialization - 32		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_3180	Undulator Fiducialization - 32		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_3190	Undulator/QD/VacCh/BPM/Prealign - 32		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_3190	Undulator/QD/VacCh/BPM/Prealign - 32		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_3230	Undulator Setup and Alignment - 33		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_3240	Undulator Measurement and Set Gap - 33		CON	SL_PHSS	Hrs	4		391		391	5%
1	04	03	06	02	01	UN362_3240	Undulator Measurement and Set Gap - 33		CON	SL_PHS	Hrs	12		922		922	5%
1	04	03	06	02	01	UN362_3260	Undulator Measurement/Pre-fiducialization - 33		CON	SL_PHSS	Hrs	16		1,564		1,564	10%
1	04	03	06	02	01	UN362_3260	Undulator Measurement/Pre-fiducialization - 33		CON	SL_PHS	Hrs	24		1,843		1,843	10%
1	04	03	06	02	01	UN362_3270	Undulator Setup and Alignment - 33		CON	SL_MFAT	Hrs	4		345		345	5%
1	04	03	06	02	01	UN362_3280	Undulator Fiducialization - 33		CON	SL_PHSS	Hrs	4		391		391	10%
1	04	03	06	02	01	UN362_3280	Undulator Fiducialization - 33		CON	SL_MES	Hrs	8		762		762	10%
1	04	03	06	02	01	UN362_3290	Undulator/QD/VacCh/BPM/Prealign - 33		CON	SL_MFAT	Hrs	16		1,382		1,382	10%
1	04	03	06	02	01	UN362_3290	Undulator/QD/VacCh/BPM/Prealign - 33		CON	SL_MES	Hrs	8		762		762	10%
1	**04**	**03**	**06**	**02**	**02**		**F/MM Quadrupoles**					**1,508**	**-**	**127,605**	**-**	**127,605**	
1	04	03	06	02	02	UN36_02010	Magnetic Field Measurement #01 Article at SLAC		CON	SL_PHSS	Hrs	2		191		191	15%
1	04	03	06	02	02	UN36_02010	Magnetic Field Measurement #01 Article at SLAC		CON	SL_PHS	Hrs	16		1,198		1,198	15%
1	04	03	06	02	02	UN36_02010	Magnetic Field Measurement #01 Article at SLAC		CON	SL_MFAT	Hrs	4		337		337	15%
1	04	03	06	02	02	UN36_02010	Magnetic Field Measurement #01 Article at SLAC		CON	AN_PHS	Hrs	80		7,077		7,077	15%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	03	06	02	02	UN36_02010	Magnetic Field Measurement #01 Article at SLAC		CON	AN_ME	Hrs	80		7,077		7,077	15%
1	04	03	06	02	02	UN36_02020	Quadrupole #01 Fiducialization		CON	SL_PHSS	Hrs	2		191		191	15%
1	04	03	06	02	02	UN36_02020	Quadrupole #01 Fiducialization		CON	SL_PHS	Hrs	4		299		299	15%
1	04	03	06	02	02	UN36_02020	Quadrupole #01 Fiducialization		CON	SL_MFAT	Hrs	4		337		337	15%
1	04	03	06	02	02	UN36_02020	Quadrupole #01 Fiducialization		CON	SL_MES	Hrs	4		371		371	15%
1	04	03	06	02	02	UN36_02020	Quadrupole #01 Fiducialization		CON	AN_PHS	Hrs	80		7,077		7,077	15%
1	04	03	06	02	02	UN36_02020	Quadrupole #01 Fiducialization		CON	AN_MES	Hrs	80		7,546		7,546	15%
1	04	03	06	02	02	UN36_02360	Magnetic Field Measurement #19 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02360	Magnetic Field Measurement #19 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02360	Magnetic Field Measurement #19 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02340	Magnetic Field Measurement #18 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02340	Magnetic Field Measurement #18 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02340	Magnetic Field Measurement #18 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02320	Magnetic Field Measurement #17 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02320	Magnetic Field Measurement #17 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02320	Magnetic Field Measurement #17 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02300	Magnetic Field Measurement #16 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02300	Magnetic Field Measurement #16 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02300	Magnetic Field Measurement #16 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02280	Magnetic Field Measurement #15 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02280	Magnetic Field Measurement #15 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02280	Magnetic Field Measurement #15 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02260	Magnetic Field Measurement #14 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02260	Magnetic Field Measurement #14 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02260	Magnetic Field Measurement #14 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02240	Magnetic Field Measurement #13 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02240	Magnetic Field Measurement #13 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02240	Magnetic Field Measurement #13 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02220	Magnetic Field Measurement #12 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02220	Magnetic Field Measurement #12 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02220	Magnetic Field Measurement #12 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02200	Magnetic Field Measurement #11 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02200	Magnetic Field Measurement #11 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02200	Magnetic Field Measurement #11 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02180	Magnetic Field Measurement #10 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02180	Magnetic Field Measurement #10 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02180	Magnetic Field Measurement #10 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02160	Magnetic Field Measurement #09 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02160	Magnetic Field Measurement #09 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02160	Magnetic Field Measurement #09 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02140	Magnetic Field Measurement #08 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02140	Magnetic Field Measurement #08 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02140	Magnetic Field Measurement #08 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02120	Magnetic Field Measurement #07 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02120	Magnetic Field Measurement #07 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02120	Magnetic Field Measurement #07 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02100	Magnetic Field Measurement #06 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02100	Magnetic Field Measurement #06 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02100	Magnetic Field Measurement #06 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02085	Magnetic Field Measurement #05 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02085	Magnetic Field Measurement #05 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02085	Magnetic Field Measurement #05 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02070	Magnetic Field Measurement #04 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	15%
1	04	03	06	02	02	UN36_02070	Magnetic Field Measurement #04 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	15%
1	04	03	06	02	02	UN36_02070	Magnetic Field Measurement #04 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	15%
1	04	03	06	02	02	UN36_02050	Magnetic Field Measurement #03 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	15%
1	04	03	06	02	02	UN36_02050	Magnetic Field Measurement #03 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	15%
1	04	03	06	02	02	UN36_02050	Magnetic Field Measurement #03 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	15%
1	04	03	06	02	02	UN36_02030	Magnetic Field Measurement #02 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	15%
1	04	03	06	02	02	UN36_02030	Magnetic Field Measurement #02 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	15%
1	04	03	06	02	02	UN36_02030	Magnetic Field Measurement #02 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	15%
1	04	03	06	02	02	UN36_02370	Quadrupole #19 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	03	06	02	02	UN36_02370	Quadrupole #19 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02370	Quadrupole #19 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02370	Quadrupole #19 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02350	Quadrupole #18 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02350	Quadrupole #18 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02350	Quadrupole #18 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02350	Quadrupole #18 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02330	Quadrupole #17 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02330	Quadrupole #17 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02330	Quadrupole #17 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02330	Quadrupole #17 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02310	Quadrupole #16 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02310	Quadrupole #16 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02310	Quadrupole #16 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02310	Quadrupole #16 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02290	Quadrupole #15 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02290	Quadrupole #15 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02290	Quadrupole #15 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02290	Quadrupole #15 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02270	Quadrupole #14 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02270	Quadrupole #14 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02270	Quadrupole #14 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02270	Quadrupole #14 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02250	Quadrupole #13 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02250	Quadrupole #13 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02250	Quadrupole #13 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02250	Quadrupole #13 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02230	Quadrupole #12 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02230	Quadrupole #12 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02230	Quadrupole #12 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02230	Quadrupole #12 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02210	Quadrupole #11 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02210	Quadrupole #11 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02210	Quadrupole #11 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02210	Quadrupole #11 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02190	Quadrupole #10 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02190	Quadrupole #10 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02190	Quadrupole #10 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02190	Quadrupole #10 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02170	Quadrupole #09 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02170	Quadrupole #09 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02170	Quadrupole #09 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02170	Quadrupole #09 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02150	Quadrupole #08 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02150	Quadrupole #08 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02150	Quadrupole #08 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02150	Quadrupole #08 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02130	Quadrupole #07 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02130	Quadrupole #07 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02130	Quadrupole #07 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02130	Quadrupole #07 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02110	Quadrupole #06 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02110	Quadrupole #06 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02110	Quadrupole #06 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02110	Quadrupole #06 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02090	Quadrupole #05 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02090	Quadrupole #05 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02090	Quadrupole #05 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02090	Quadrupole #05 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02080	Quadrupole #04 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	15%
1	04	03	06	02	02	UN36_02080	Quadrupole #04 Fiducialization		CON	SL_PHS	Hrs	4		307		307	15%
1	04	03	06	02	02	UN36_02080	Quadrupole #04 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	15%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	03	06	02	02	UN36_02080	Quadrupole #04 Fiducialization		CON	SL_MES	Hrs	4		381		381	15%
1	04	03	06	02	02	UN36_02060	Quadrupole #03 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	15%
1	04	03	06	02	02	UN36_02060	Quadrupole #03 Fiducialization		CON	SL_PHS	Hrs	4		307		307	15%
1	04	03	06	02	02	UN36_02060	Quadrupole #03 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	15%
1	04	03	06	02	02	UN36_02060	Quadrupole #03 Fiducialization		CON	SL_MES	Hrs	4		381		381	15%
1	04	03	06	02	02	UN36_02040	Quadrupole #02 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	15%
1	04	03	06	02	02	UN36_02040	Quadrupole #02 Fiducialization		CON	SL_PHS	Hrs	4		307		307	15%
1	04	03	06	02	02	UN36_02040	Quadrupole #02 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	15%
1	04	03	06	02	02	UN36_02040	Quadrupole #02 Fiducialization		CON	SL_MES	Hrs	4		381		381	15%
1	04	03	06	02	02	UN36_02630	Magnetic Field Measurement #33 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02630	Magnetic Field Measurement #33 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02630	Magnetic Field Measurement #33 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02610	Magnetic Field Measurement #32 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02610	Magnetic Field Measurement #32 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02610	Magnetic Field Measurement #32 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02590	Magnetic Field Measurement #31 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02590	Magnetic Field Measurement #31 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02590	Magnetic Field Measurement #31 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02570	Magnetic Field Measurement #30 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02570	Magnetic Field Measurement #30 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02570	Magnetic Field Measurement #30 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02550	Magnetic Field Measurement #29 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02550	Magnetic Field Measurement #29 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02550	Magnetic Field Measurement #29 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02530	Magnetic Field Measurement #28 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02530	Magnetic Field Measurement #28 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02530	Magnetic Field Measurement #28 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02510	Magnetic Field Measurement #27 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02510	Magnetic Field Measurement #27 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02510	Magnetic Field Measurement #27 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02490	Magnetic Field Measurement #26 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02490	Magnetic Field Measurement #26 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02490	Magnetic Field Measurement #26 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02470	Magnetic Field Measurement #25 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02470	Magnetic Field Measurement #25 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02470	Magnetic Field Measurement #25 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02450	Magnetic Field Measurement #24 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02450	Magnetic Field Measurement #24 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02450	Magnetic Field Measurement #24 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02430	Magnetic Field Measurement #23 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02430	Magnetic Field Measurement #23 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02430	Magnetic Field Measurement #23 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02410	Magnetic Field Measurement #22 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02410	Magnetic Field Measurement #22 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02410	Magnetic Field Measurement #22 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02390	Magnetic Field Measurement #21 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02390	Magnetic Field Measurement #21 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02390	Magnetic Field Measurement #21 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02375	Magnetic Field Measurement #20 Article at SLAC		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02375	Magnetic Field Measurement #20 Article at SLAC		CON	SL_PHS	Hrs	16		1,229		1,229	10%
1	04	03	06	02	02	UN36_02375	Magnetic Field Measurement #20 Article at SLAC		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02640	Quadrupole #33 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02640	Quadrupole #33 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02640	Quadrupole #33 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02640	Quadrupole #33 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02620	Quadrupole #32 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02620	Quadrupole #32 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02620	Quadrupole #32 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02620	Quadrupole #32 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02600	Quadrupole #31 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02600	Quadrupole #31 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02600	Quadrupole #31 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	03	06	02	02	UN36_02600	Quadrupole #31 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02580	Quadrupole #30 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02580	Quadrupole #30 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02580	Quadrupole #30 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02580	Quadrupole #30 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02560	Quadrupole #29 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02560	Quadrupole #29 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02560	Quadrupole #29 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02560	Quadrupole #29 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02540	Quadrupole #28 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02540	Quadrupole #28 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02540	Quadrupole #28 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02540	Quadrupole #28 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02520	Quadrupole #27 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02520	Quadrupole #27 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02520	Quadrupole #27 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02520	Quadrupole #27 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02500	Quadrupole #26 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02500	Quadrupole #26 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02500	Quadrupole #26 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02500	Quadrupole #26 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02480	Quadrupole #25 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02480	Quadrupole #25 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02480	Quadrupole #25 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02480	Quadrupole #25 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02460	Quadrupole #24 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02460	Quadrupole #24 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02460	Quadrupole #24 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02460	Quadrupole #24 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02440	Quadrupole #23 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02440	Quadrupole #23 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02440	Quadrupole #23 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02440	Quadrupole #23 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02420	Quadrupole #22 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02420	Quadrupole #22 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02420	Quadrupole #22 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02420	Quadrupole #22 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02400	Quadrupole #21 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02400	Quadrupole #21 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02400	Quadrupole #21 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02400	Quadrupole #21 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	04	03	06	02	02	UN36_02380	Quadrupole #20 Fiducialization		CON	SL_PHSS	Hrs	2		195		195	10%
1	04	03	06	02	02	UN36_02380	Quadrupole #20 Fiducialization		CON	SL_PHS	Hrs	4		307		307	10%
1	04	03	06	02	02	UN36_02380	Quadrupole #20 Fiducialization		CON	SL_MFAT	Hrs	4		345		345	10%
1	04	03	06	02	02	UN36_02380	Quadrupole #20 Fiducialization		CON	SL_MES	Hrs	4		381		381	10%
1	**04**	**03**	**06**	**02**	**03**		**F/MM BPMs**										
1	**04**	**03**	**06**	**02**	**04**		**F/MM Correctors**										
1	**04**	**03**	**06**	**02**	**05**		**F/MM Vacuum Chamber**										
1	**04**	**03**	**06**	**02**	**06**		**F/MM Photon Diagnostics Components**										
1	**04**	**03**	**06**	**03**			**Undulator Monitoring**					**7,928**	**589,500**	**746,843**	**660,240**	**1,407,083**	
1	**04**	**03**	**06**	**03**	**01**		**Stretched Wire System**					**5,520**	**305,000**	**520,446**	**341,600**	**862,046**	
1	04	03	06	03	01	UN36_00410	Design Stretched Wire System		CON	SL_TSM	Hrs	960		101,482		101,482	15%
1	04	03	06	03	01	UN36_00410	Design Stretched Wire System		CON	SL_MES	Hrs	480		43,363		43,363	15%
1	04	03	06	03	01	UN36_00410	Design Stretched Wire System		CON	SL_ME	Hrs	160		16,914		16,914	15%
1	04	03	06	03	01	UN36_00410	Design Stretched Wire System		CON	SL_MDD	Hrs	960		60,230		60,230	15%
1	04	03	06	03	01	UN36_00410	Design Stretched Wire System		CON	SL_EE	Hrs	1,440		162,014		162,014	15%
1	04	03	06	03	01	UN36_00410	Design Stretched Wire System		CON	SL_CP	Hrs	800		72,776		72,776	15%
1	04	03	06	03	01	UN36_00420	Procure Stretched Wire System		CON	SL_MSEQ	$$		305,000		341,600	341,600	20%
1	04	03	06	03	01	UN36_00430	Install Stretched Wire System		CON	SL_TMUE	Hrs	160		15,840		15,840	20%
1	04	03	06	03	01	UN36_00430	Install Stretched Wire System		CON	SL_MFAT	Hrs	480		40,397		40,397	20%
1	04	03	06	03	01	UN36_00430	Install Stretched Wire System		CON	SL_MES	Hrs	80		7,430		7,430	20%
1	**04**	**03**	**06**	**03**	**02**		**Hydrostatic Level System**					**2,408**	**284,500**	**226,397**	**318,640**	**545,037**	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	03	06	03	02	UN36_00460	Design Hydrostatic Level System		CON	SL_TSM	Hrs	480		50,741		50,741	10%
1	04	03	06	03	02	UN36_00460	Design Hydrostatic Level System		CON	SL_TMUE	Hrs	640		61,632		61,632	10%
1	04	03	06	03	02	UN36_00460	Design Hydrostatic Level System		CON	SL_MES	Hrs	160		14,454		14,454	10%
1	04	03	06	03	02	UN36_00460	Design Hydrostatic Level System		CON	SL_ME	Hrs	160		16,914		16,914	10%
1	04	03	06	03	02	UN36_00460	Design Hydrostatic Level System		CON	SL_MDD	Hrs	400		25,096		25,096	10%
1	04	03	06	03	02	UN36_00460	Design Hydrostatic Level System		CON	SL_EE	Hrs	320		36,003		36,003	10%
1	04	03	06	03	02	UN36_00470	Procure Hydrostatic Level System		CON	SL_MSEQ	$$		284,500		318,640	318,640	30%
1	04	03	06	03	02	UN36_00480	Install Hydrostatic Level System		CON	SL_TMUW	Hrs	128		10,012		10,012	20%
1	04	03	06	03	02	UN36_00480	Install Hydrostatic Level System		CON	SL_TMUP	Hrs	80		7,585		7,585	20%
1	04	03	06	03	02	UN36_00480	Install Hydrostatic Level System		CON	SL_TMUE	Hrs	40		3,960		3,960	20%
1	**04**	**03**	**07**				**Reserved**										
1	**04**	**03**	**08**				**Fixed Supports**					**2,297**	**805,000**	**194,946**	**895,600**	**1,090,546**	
1	**04**	**03**	**08**	**01**			**Fixed Sppt Mgmt & Integration**					**200**	**-**	**21,051**	**-**	**21,051**	
1	04	03	08	01		UN38_00010	Project Oversight		PED	SL_PHSS	Hrs	40		3,711		3,711	45%
1	04	03	08	01		UN38_00010	Project Oversight		PED	SL_PCE	Hrs	60		6,758		6,758	45%
1	04	03	08	01		UN38_00010	Project Oversight		PED	SL_ME	Hrs	100		10,582		10,582	45%
1	**04**	**03**	**08**	**02**			**Fixed Support Design**					**1,620**	**-**	**129,274**	**-**	**129,274**	
1	04	03	08	02		UN38_00060	Create Detailed Mech Design and Specs		PED	SL_ME	Hrs	320		33,827		33,827	45%
1	04	03	08	02		UN38_00060	Create Detailed Mech Design and Specs		PED	SL_MDD	Hrs	640		40,154		40,154	45%
1	04	03	08	02		UN38_00050	Coordinate Interface w/Undulator Syst Componen		PED	SL_ME	Hrs	160		16,914		16,914	45%
1	04	03	08	02		UN38_00040	Perform Vibration Analysis		CON	SL_PHS	Hrs	80		5,825		5,825	45%
1	04	03	08	02		UN38_00040	Perform Vibration Analysis		CON	SL_ME	Hrs	60		6,343		6,343	45%
1	04	03	08	02		UN38_00030	Perform HVAC Design Integration		CON	SL_PHS	Hrs	240		17,474		17,474	45%
1	04	03	08	02		UN38_00020	Perform Thermal Stability Analysis		CON	SL_PHS	Hrs	120		8,737		8,737	45%
1	**04**	**03**	**08**	**03**			**Stabilized Girder Assemblies**					**165**	**639,000**	**16,066**	**709,680**	**725,746**	
1	04	03	08	03		UN38_00070	Prepare Bid Package - Granite Beams		CON	SL_PHS	Hrs	40		2,912		2,912	25%
1	04	03	08	03		UN38_00070	Prepare Bid Package - Granite Beams		CON	SL_ME	Hrs	40		4,228		4,228	25%
1	04	03	08	03		UN38_00110	Evaluate Proposals - Granite Beams		CON	SL_PHS	Hrs	8		582		582	25%
1	04	03	08	03		UN38_00110	Evaluate Proposals - Granite Beams		CON	SL_MVE	Hrs	8		846		846	25%
1	04	03	08	03		UN38_00190	Procure Mounting Platforms		CON	SL_MSEG	$$		1,000		1,120	1,120	25%
1	04	03	08	03		UN38_00190	Procure Mounting Platforms		CON	SL_ME	Hrs	24		2,608		2,608	25%
1	04	03	08	03		UN38_00180	Procure Invar Platform Support Tubes		CON	SL_MSEG	$$		3,000		3,360	3,360	25%
1	04	03	08	03		UN38_00180	Procure Invar Platform Support Tubes		CON	SL_ME	Hrs	24		2,608		2,608	25%
1	04	03	08	03		UN38_00170	Procure Insulation		CON	SL_MSEG	$$		5,000		5,600	5,600	25%
1	04	03	08	03		UN38_00170	Procure Insulation		CON	SL_ME	Hrs	8		869		869	25%
1	04	03	08	03		UN38_00160	Procure Cam Lock Joint Assemblies		CON	SL_MVE	Hrs	13		1,413		1,413	25%
1	04	03	08	03		UN38_00160	Procure Cam Lock Joint Assemblies		CON	SL_MSEG	$$		30,000		33,600	33,600	25%
1	04	03	08	03		UN38_00150	Receive Last Girder - Granite Beams		CON	SL_MSXX	$$		100,000		106,000	106,000	25%
1	04	03	08	03		UN38_00150	Receive Last Girder - Granite Beams		CON	SL_MSEG	$$		500,000		560,000	560,000	25%
1	**04**	**03**	**08**	**04**			**Thermal Intercept System**					**168**	**32,000**	**14,630**	**35,840**	**50,470**	
1	04	03	08	04		UN38_00250	Procure Temperature Controls		CON	SL_MSEG	$$		4,000		4,480	4,480	25%
1	04	03	08	04		UN38_00250	Procure Temperature Controls		CON	SL_ME	Hrs	16		1,739		1,739	25%
1	04	03	08	04		UN38_00240	Procure Variable Flow Heat Exchangers		CON	SL_MSEG	$$		10,000		11,200	11,200	25%
1	04	03	08	04		UN38_00240	Procure Variable Flow Heat Exchangers		CON	SL_ME	Hrs	16		1,739		1,739	25%
1	04	03	08	04		UN38_00230	Procure Recirculating Pump		CON	SL_MSEG	$$		6,000		6,720	6,720	25%
1	04	03	08	04		UN38_00230	Procure Recirculating Pump		CON	SL_ME	Hrs	16		1,739		1,739	25%
1	04	03	08	04		UN38_00220	Procure Stabilized Chilled Water Lines		CON	SL_PCT	Hrs	80		5,067		5,067	25%
1	04	03	08	04		UN38_00220	Procure Stabilized Chilled Water Lines		CON	SL_MSEG	$$		2,000		2,240	2,240	25%
1	04	03	08	04		UN38_00220	Procure Stabilized Chilled Water Lines		CON	SL_ME	Hrs	8		869		869	25%
1	04	03	08	04		UN38_00210	Procure Copper Screen Assemblies		CON	SL_MSEG	$$		10,000		11,200	11,200	25%
1	04	03	08	04		UN38_00210	Procure Copper Screen Assemblies		CON	SL_ME	Hrs	32		3,477		3,477	25%
1	**04**	**03**	**08**	**05**			**Thermometry**					**32**	**62,000**	**3,477**	**69,440**	**72,917**	
1	04	03	08	05		UN38_00290	Procure Readout Electronics		CON	SL_MSEG	$$		30,000		33,600	33,600	25%
1	04	03	08	05		UN38_00290	Procure Readout Electronics		CON	SL_ME	Hrs	16		1,739		1,739	25%
1	04	03	08	05		UN38_00280	Procure Cabling		CON	SL_MSEG	$$		2,000		2,240	2,240	25%
1	04	03	08	05		UN38_00280	Procure Cabling		CON	SL_ME	Hrs	8		869		869	25%
1	04	03	08	05		UN38_00270	Procure Thermistors		CON	SL_MSEG	$$		30,000		33,600	33,600	25%
1	04	03	08	05		UN38_00270	Procure Thermistors		CON	SL_ME	Hrs	8		869		869	25%
1	**04**	**03**	**08**	**06**			**Kinematic Girder Support**					**48**	**48,000**	**5,214**	**53,760**	**58,974**	
1	04	03	08	06		UN38_00360	Procure Girder Socket		CON	SL_MSEG	$$		6,000		6,720	6,720	25%
1	04	03	08	06		UN38_00360	Procure Girder Socket		CON	SL_ME	Hrs	8		869		869	25%
1	04	03	08	06		UN38_00350	Procure Roller Ball		CON	SL_MSEG	$$		6,000		6,720	6,720	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	03	08	06		UN38_00350	Procure Roller Ball		CON	SL_ME	Hrs	8		869		869	25%
1	04	03	08	06		UN38_00340	Procure Cast in Place Socket		CON	SL_MSEG	$$		12,000		13,440	13,440	25%
1	04	03	08	06		UN38_00340	Procure Cast in Place Socket		CON	SL_ME	Hrs	8		869		869	25%
1	04	03	08	06		UN38_00330	Proucre Guided Bearings		CON	SL_MSEG	$$		6,000		6,720	6,720	25%
1	04	03	08	06		UN38_00330	Proucre Guided Bearings		CON	SL_ME	Hrs	8		869		869	25%
1	04	03	08	06		UN38_00320	Procure Cylinderical Bearing		CON	SL_MSEG	$$		6,000		6,720	6,720	25%
1	04	03	08	06		UN38_00320	Procure Cylinderical Bearing		CON	SL_ME	Hrs	8		869		869	25%
1	04	03	08	06		UN38_00310	Procure Cast in Place Guides		CON	SL_MSEG	$$		12,000		13,440	13,440	25%
1	04	03	08	06		UN38_00310	Procure Cast in Place Guides		CON	SL_ME	Hrs	8		869		869	25%
1	**04**	**03**	**08**	**07**			**Earthquake Bracing**					**16**	**24,000**	**1,739**	**26,880**	**28,619**	
1	04	03	08	07		UN38_00380	Procure Earthquake Bracing		CON	SL_MSEG	$$		24,000		26,880	26,880	25%
1	04	03	08	07		UN38_00380	Procure Earthquake Bracing		CON	SL_ME	Hrs	16		1,739		1,739	25%
1	**04**	**03**	**08**	**08**			**Controls and Software**					**48**	**-**	**3,495**	**-**	**3,495**	
1	04	03	08	08		UN38_00390	Write Alignment Software		CON	SL_PHS	Hrs	48		3,495		3,495	25%
1	**04**	**04**					**Vacuum System**					**10,472**	**749,884**	**805,021**	**812,788**	**1,617,809**	
1	**04**	**04**	**01**				**Project Oversight**										
1	**04**	**04**	**02**				**Undulator Vacuum Chamber Assembly**					**4,328**	**212,000**	**328,003**	**229,748**	**557,751**	
1	**04**	**04**	**02**	**01**			**Prototype Chamber Weldment**					**1,424**	**14,800**	**106,968**	**14,800**	**121,768**	
1	04	04	02	01		UN42_00010	Specification Prtp Un Cham		PED	AN_PHS	Hrs	40		3,345		3,345	35%
1	04	04	02	01		UN42_00010	Specification Prtp Un Cham		PED	AN_MVE	Hrs	120		10,036		10,036	35%
1	04	04	02	01		UN42_00020	Prelim Prototype Design Prtp Un Cham		PED	AN_PHS	Hrs	40		3,345		3,345	35%
1	04	04	02	01		UN42_00020	Prelim Prototype Design Prtp Un Cham		PED	AN_MVE	Hrs	120		10,036		10,036	35%
1	04	04	02	01		UN42_00020	Prelim Prototype Design Prtp Un Cham		PED	AN_MDD	Hrs	160		9,096		9,096	35%
1	04	04	02	01		UN42_00030	Mechanical Analysis Prtp Un Cham		PED	AN_MVE	Hrs	24		2,007		2,007	35%
1	04	04	02	01		UN42_00030	Mechanical Analysis Prtp Un Cham		PED	AN_ME	Hrs	56		4,683		4,683	35%
1	04	04	02	01		UN42_00040	Prelim Prototype Design Review Un Cham		PED	SL_PHS	Hrs	8		566		566	35%
1	04	04	02	01		UN42_00040	Prelim Prototype Design Review Un Cham		PED	AN_PHS	Hrs	8		669		669	35%
1	04	04	02	01		UN42_00040	Prelim Prototype Design Review Un Cham		PED	AN_MVE	Hrs	16		1,338		1,338	35%
1	04	04	02	01		UN42_00040	Prelim Prototype Design Review Un Cham		PED	AN_MDD	Hrs	16		910		910	35%
1	04	04	02	01		UN42_00050	Prototype Design Un Cham		PED	AN_PHS	Hrs	8		669		669	35%
1	04	04	02	01		UN42_00050	Prototype Design Un Cham		PED	AN_MVE	Hrs	40		3,345		3,345	35%
1	04	04	02	01		UN42_00050	Prototype Design Un Cham		PED	AN_MDD	Hrs	64		3,638		3,638	35%
1	04	04	02	01		UN42_00100	Bid Package-Chamber Weldment		PED	AN_MVE	Hrs	40		3,345		3,345	35%
1	04	04	02	01		UN42_00090	Bid Package-Chamber Body Weldment		PED	AN_MVE	Hrs	40		3,345		3,345	35%
1	04	04	02	01		UN42_00080	Bid Package-Chamber Exit Weldment		PED	AN_MVE	Hrs	40		3,345		3,345	35%
1	04	04	02	01		UN42_00070	Bid Package-Chamber Entrance Weldment		PED	AN_MVE	Hrs	40		3,345		3,345	35%
1	04	04	02	01		UN42_00110	Bid Process Prtp Un Chamber		PED	AN_MVE	Hrs	40		3,345		3,345	35%
1	04	04	02	01		UN42_00155	AWARD: Chamber Weldment Support		PED	AN_MVE	Hrs	8		669		669	35%
1	04	04	02	01		UN42_00145	AWARD: Chamber Body Weldment Support		PED	AN_MVE	Hrs	8		669		669	35%
1	04	04	02	01		UN42_00135	AWARD: Chamber Exit Weldment Support		PED	AN_MVE	Hrs	8		669		669	35%
1	04	04	02	01		UN42_00125	AWARD: Chamber Entrance Weldment Support		PED	AN_MVE	Hrs	8		669		669	35%
1	04	04	02	01		UN42_00170	RCV Parts Prtp Un Cham		PED	AN_MVE	Hrs	24		2,007		2,007	35%
1	04	04	02	01		UN42_00170	RCV Parts Prtp Un Cham		PED	AN_MSEG	$$		14,800		14,800	14,800	35%
1	04	04	02	01		UN42_00180	Quality Assurance Prtp Un Cham		PED	AN_MVE	Hrs	16		1,338		1,338	35%
1	04	04	02	01		UN42_00180	Quality Assurance Prtp Un Cham		PED	AN_MFMS	Hrs	32		2,176		2,176	35%
1	04	04	02	01		UN42_00190	Fabrication of Prototype Chamber Weldment		PED	AN_MVE	Hrs	48		4,014		4,014	35%
1	04	04	02	01		UN42_00190	Fabrication of Prototype Chamber Weldment		PED	AN_MFMS	Hrs	80		5,439		5,439	35%
1	04	04	02	01		UN42_00200	Measurement and Test Prtp Un Cham		PED	AN_PHS	Hrs	24		2,030		2,030	35%
1	04	04	02	01		UN42_00200	Measurement and Test Prtp Un Cham		PED	AN_MVE	Hrs	56		4,737		4,737	35%
1	04	04	02	01		UN42_00200	Measurement and Test Prtp Un Cham		PED	AN_MFMS	Hrs	32		2,201		2,201	35%
1	04	04	02	01		UN42_00200	Measurement and Test Prtp Un Cham		PED	AN_MFAT	Hrs	120		6,501		6,501	35%
1	04	04	02	01		UN42_00210	Review and Report Prtp Un Cham		CON	AN_PHS	Hrs	8		688		688	35%
1	04	04	02	01		UN42_00210	Review and Report Prtp Un Cham		CON	AN_MVE	Hrs	24		2,065		2,065	35%
1	04	04	02	01		UN42_00210	Review and Report Prtp Un Cham		CON	AN_ME	Hrs	8		688		688	35%
1	**04**	**04**	**02**	**02**			**Production Chamber Weldment**					**2,904**	**197,200**	**221,035**	**214,948**	**435,983**	
1	04	04	02	02		UN42_00230	Receive Prd Un Cham Specs from Undulator Grou		CON	AN_PHS	Hrs	16		1,377		1,377	35%
1	04	04	02	02		UN42_00230	Receive Prd Un Cham Specs from Undulator Grou		CON	AN_MVE	Hrs	16		1,377		1,377	35%
1	04	04	02	02		UN42_00480	Prelim Design Chamber Sup		PED	AN_PHS	Hrs	16		1,377		1,377	35%
1	04	04	02	02		UN42_00480	Prelim Design Chamber Sup		PED	AN_MVE	Hrs	120		10,326		10,326	35%
1	04	04	02	02		UN42_00480	Prelim Design Chamber Sup		PED	AN_MDD	Hrs	160		9,360		9,360	35%
1	04	04	02	02		UN42_00240	Prelim Design Prd Un Cham		PED	AN_PHS	Hrs	24		2,065		2,065	35%
1	04	04	02	02		UN42_00240	Prelim Design Prd Un Cham		PED	AN_MVE	Hrs	64		5,507		5,507	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	04	02	02		UN42_00240	Prelim Design Prd Un Cham		PED	AN_MDD	Hrs	80		4,680		4,680	35%
1	04	04	02	02		UN42_00250	Prelim Design Review Prd Un Cham		PED	SL_PHS	Hrs	8		582		582	35%
1	04	04	02	02		UN42_00250	Prelim Design Review Prd Un Cham		PED	AN_PHS	Hrs	8		688		688	35%
1	04	04	02	02		UN42_00250	Prelim Design Review Prd Un Cham		PED	AN_MVE	Hrs	40		3,442		3,442	35%
1	04	04	02	02		UN42_00250	Prelim Design Review Prd Un Cham		PED	AN_MDD	Hrs	16		936		936	35%
1	04	04	02	02		UN42_00260	Final Design Prd Un Cham		PED	AN_PHS	Hrs	24		2,065		2,065	35%
1	04	04	02	02		UN42_00260	Final Design Prd Un Cham		PED	AN_MVE	Hrs	40		3,442		3,442	35%
1	04	04	02	02		UN42_00260	Final Design Prd Un Cham		PED	AN_MDD	Hrs	56		3,276		3,276	35%
1	04	04	02	02		UN42_00490	Prelim Design Review Chamber Sup		PED	SL_PHS	Hrs	8		582		582	35%
1	04	04	02	02		UN42_00490	Prelim Design Review Chamber Sup		PED	AN_PHS	Hrs	8		688		688	35%
1	04	04	02	02		UN42_00490	Prelim Design Review Chamber Sup		PED	AN_MVE	Hrs	40		3,442		3,442	35%
1	04	04	02	02		UN42_00490	Prelim Design Review Chamber Sup		PED	AN_MDD	Hrs	16		936		936	35%
1	04	04	02	02		UN42_00280	Bid Package- Prd Un Cham		CON	AN_MVE	Hrs	16		1,377		1,377	35%
1	04	04	02	02		UN42_00500	Final Design Chamber Sup		PED	AN_PHS	Hrs	8		688		688	35%
1	04	04	02	02		UN42_00500	Final Design Chamber Sup		PED	AN_MVE	Hrs	40		3,442		3,442	35%
1	04	04	02	02		UN42_00500	Final Design Chamber Sup		PED	AN_MDD	Hrs	64		3,744		3,744	35%
1	04	04	02	02		UN42_00710	Develop Installation Plan Prd Un Cham		CON	SL_SEE	Hrs	40		4,228		4,228	35%
1	04	04	02	02		UN42_00710	Develop Installation Plan Prd Un Cham		CON	AN_SEE	Hrs	40		4,626		4,626	35%
1	04	04	02	02		UN42_00710	Develop Installation Plan Prd Un Cham		CON	AN_PHS	Hrs	24		2,065		2,065	35%
1	04	04	02	02		UN42_00710	Develop Installation Plan Prd Un Cham		CON	AN_MVE	Hrs	24		2,065		2,065	35%
1	04	04	02	02		UN42_00520	Bid Package-Chamber Supports		CON	AN_MVE	Hrs	24		2,065		2,065	35%
1	04	04	02	02		UN42_00720	Review Installation Plan Prd Un Cham		CON	SL_SEE	Hrs	24		2,537		2,537	35%
1	04	04	02	02		UN42_00720	Review Installation Plan Prd Un Cham		CON	SL_MES	Hrs	8		723		723	35%
1	04	04	02	02		UN42_00720	Review Installation Plan Prd Un Cham		CON	AN_SEE	Hrs	24		2,776		2,776	35%
1	04	04	02	02		UN42_00720	Review Installation Plan Prd Un Cham		CON	AN_PHS	Hrs	8		688		688	35%
1	04	04	02	02		UN42_00720	Review Installation Plan Prd Un Cham		CON	AN_MVE	Hrs	16		1,377		1,377	35%
1	04	04	02	02		UN42_00550	Bid Process Chamber Supports		CON	AN_MVE	Hrs	8		708		708	35%
1	04	04	02	02		UN42_00330	Bid Process Prd Un Cham		CON	AN_MVE	Hrs	8		708		708	35%
1	04	04	02	02		UN42_00331	Evalute Bid Prd Un Cham		CON	AN_MVE	Hrs	8		708		708	35%
1	04	04	02	02		UN42_00365	AWARD: Chamber Supports (31) Support		CON	AN_MVE	Hrs	8		708		708	35%
1	04	04	02	02		UN42_00345	AWARD: Production Undulator Chamber (34) Support		CON	AN_MVE	Hrs	8		708		708	35%
1	04	04	02	02		UN42_00600	RCV Chamber Supports (31)		CON	AN_MVE	Hrs	24		2,178		2,178	35%
1	04	04	02	02		UN42_00600	RCV Chamber Supports (31)		CON	AN_MSSC	$$		61,200		66,708	66,708	35%
1	04	04	02	02		UN42_00400	Rec: First Lot Production Undulator Chamber (3		CON	AN_MVE	Hrs	8		726		726	35%
1	04	04	02	02		UN42_00400	Rec: First Lot Production Undulator Chamber (3		CON	AN_MSSC	$$		12,000		13,080	13,080	35%
1	04	04	02	02		UN42_00400	Rec: First Lot Production Undulator Chamber (3		CON	AN_MFAT	Hrs	64		3,720		3,720	35%
1	04	04	02	02		UN42_00610	Quality Assurance Chamber Sup		CON	AN_MVE	Hrs	16		1,452		1,452	35%
1	04	04	02	02		UN42_00610	Quality Assurance Chamber Sup		CON	AN_MFMS	Hrs	80		5,903		5,903	35%
1	04	04	02	02		UN42_00410	QA First Lot Prd Un Cham		CON	AN_MVE	Hrs	8		726		726	35%
1	04	04	02	02		UN42_00410	QA First Lot Prd Un Cham		CON	AN_MFMS	Hrs	24		1,771		1,771	35%
1	04	04	02	02		UN42_00420	Fabrication of First Lot Prd Un Cham		CON	AN_MVE	Hrs	80		7,261		7,261	35%
1	04	04	02	02		UN42_00420	Fabrication of First Lot Prd Un Cham		CON	AN_MFMS	Hrs	160		11,806		11,806	35%
1	04	04	02	02		UN42_00430	Approve Continuation of Production Prd Un Cham		CON	AN_MVE	Hrs	8		726		726	35%
1	04	04	02	02		UN42_00440	Rec: Remain Lot Production Undulator Chamb (31		CON	AN_MVE	Hrs	16		1,452		1,452	35%
1	04	04	02	02		UN42_00440	Rec: Remain Lot Production Undulator Chamb (31		CON	AN_MSCS	$$		124,000		135,160	135,160	35%
1	04	04	02	02		UN42_00440	Rec: Remain Lot Production Undulator Chamb (31		CON	AN_MFAT	Hrs	64		3,720		3,720	35%
1	04	04	02	02		UN42_00450	QA Production Lot Prd Un Cham		CON	AN_MVE	Hrs	40		3,630		3,630	35%
1	04	04	02	02		UN42_00450	QA Production Lot Prd Un Cham		CON	AN_MFMS	Hrs	64		4,723		4,723	35%
1	04	04	02	02		UN42_00460	Fabrication of Rem Production Lot Prd Un Cham		CON	AN_MVE	Hrs	80		7,261		7,261	35%
1	04	04	02	02		UN42_00460	Fabrication of Rem Production Lot Prd Un Cham		CON	AN_MFMS	Hrs	240		17,710		17,710	35%
1	04	04	02	02		UN42_00470	Approve Production Lot Prd Un Cham		CON	AN_MVE	Hrs	8		726		726	35%
1	04	04	02	02		UN42_00640	Assembly Test Prd Un Cham		CON	AN_PHS	Hrs	8		726		726	35%
1	04	04	02	02		UN42_00640	Assembly Test Prd Un Cham		CON	AN_MVE	Hrs	80		7,261		7,261	35%
1	04	04	02	02		UN42_00640	Assembly Test Prd Un Cham		CON	AN_MFAT	Hrs	160		9,299		9,299	35%
1	04	04	02	02		UN42_00640	Assembly Test Prd Un Cham		CON	AN_CE	Hrs	80		7,742		7,742	35%
1	04	04	02	02		UN42_00650	Clean Prd Un Cham		CON	AN_MVE	Hrs	16		1,452		1,452	35%
1	04	04	02	02		UN42_00650	Clean Prd Un Cham		CON	AN_MFAT	Hrs	80		4,650		4,650	35%
1	04	04	02	02		UN42_00660	Bake Prd Un Cham		CON	AN_MVE	Hrs	40		3,630		3,630	35%
1	04	04	02	02		UN42_00660	Bake Prd Un Cham		CON	AN_MFAT	Hrs	120		6,974		6,974	35%
1	04	04	02	02		UN42_00670	Prepare Chamber Assembly and Support for Shipm		CON	AN_MVE	Hrs	16		1,452		1,452	35%
1	04	04	02	02		UN42_00670	Prepare Chamber Assembly and Support for Shipm		CON	AN_MFAT	Hrs	64		3,720		3,720	35%
1	04	04	02	02		UN42_00680	Pack Chamber Assembly and Support for Shipping		CON	AN_MVE	Hrs	8		726		726	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	04	02	02		UN42_00680	Pack Chamber Assembly and Support for Shipping		CON	AN_MFAT	Hrs	40		2,325		2,325	35%
1	04	04	02	02		UN42_00700	Transmit Prd Un Cham Design & Drawings to SLA		CON	SL_MDD	Hrs	16		1,059		1,059	35%
1	04	04	02	02		UN42_00700	Transmit Prd Un Cham Design & Drawings to SLA		CON	AN_ME	Hrs	16		1,452		1,452	35%
1	04	04	02	02		UN42_00700	Transmit Prd Un Cham Design & Drawings to SLA		CON	AN_MDD	Hrs	16		987		987	35%
1	**04**	**04**	**03**				**Beam-line Bellows Module Assembly**					**976**	**76,500**	**71,744**	**83,109**	**154,853**	
1	**04**	**04**	**03**	**01**			**Prototype Bellows Module**					**432**	**4,590**	**32,394**	**4,727**	**37,121**	
1	04	04	03	01		UN43_00010	Specification Prtp Bel Mod		PED	AN_PHS	Hrs	8		669		669	35%
1	04	04	03	01		UN43_00010	Specification Prtp Bel Mod		PED	AN_MVE	Hrs	24		2,007		2,007	35%
1	04	04	03	01		UN43_00020	Prelim Prototype Design Prtp Bel Mod		PED	AN_PHS	Hrs	8		669		669	35%
1	04	04	03	01		UN43_00020	Prelim Prototype Design Prtp Bel Mod		PED	AN_MVE	Hrs	8		669		669	35%
1	04	04	03	01		UN43_00020	Prelim Prototype Design Prtp Bel Mod		PED	AN_MDD	Hrs	56		3,184		3,184	35%
1	04	04	03	01		UN43_00030	Mechanical Analysis Prtp Bel Mod		PED	AN_MVE	Hrs	8		669		669	35%
1	04	04	03	01		UN43_00030	Mechanical Analysis Prtp Bel Mod		PED	AN_ME	Hrs	24		2,007		2,007	35%
1	04	04	03	01		UN43_00050	Prtp Bel ModFinal Design		PED	AN_PHS	Hrs	8		669		669	35%
1	04	04	03	01		UN43_00050	Prtp Bel ModFinal Design		PED	AN_MVE	Hrs	16		1,338		1,338	35%
1	04	04	03	01		UN43_00050	Prtp Bel ModFinal Design		PED	AN_MDD	Hrs	40		2,274		2,274	35%
1	04	04	03	01		UN43_00110	Bid Package-Axial Restraints Prtp Bel Mod		PED	AN_MVE	Hrs	8		669		669	35%
1	04	04	03	01		UN43_00100	Bid Package- Prtp Bellows Module		PED	AN_MVE	Hrs	8		669		669	35%
1	04	04	03	01		UN43_00090	Bid Package-Tubes Prtp Bel Mod		PED	AN_MVE	Hrs	8		669		669	35%
1	04	04	03	01		UN43_00080	Bid Package-Rh Plated Stub Prtp Bel Mod		PED	AN_MVE	Hrs	8		669		669	35%
1	04	04	03	01		UN43_00070	Bid Package-Ag Plated RF Finger Prtp Bel Mod		PED	AN_MVE	Hrs	8		669		669	35%
1	04	04	03	01		UN43_00120	Bid Process Prtp Bel Mod		CON	AN_MVE	Hrs	8		688		688	35%
1	04	04	03	01		UN43_00170	AWARD: Axial Restraints Prtp Bel Mod		CON	AN_MVE	Hrs	8		688		688	35%
1	04	04	03	01		UN43_00170	AWARD: Axial Restraints Prtp Bel Mod		CON	AN_MSEG	$$		375		386	386	35%
1	04	04	03	01		UN43_00160	AWARD: Bellows Prtp Bel Mod		CON	AN_MVE	Hrs	8		688		688	35%
1	04	04	03	01		UN43_00160	AWARD: Bellows Prtp Bel Mod		CON	AN_MSEG	$$		900		927	927	35%
1	04	04	03	01		UN43_00150	AWARD: Tubes Prtp Bel Mod		CON	AN_MVE	Hrs	8		688		688	35%
1	04	04	03	01		UN43_00150	AWARD: Tubes Prtp Bel Mod		CON	AN_MSEG	$$		225		232	232	35%
1	04	04	03	01		UN43_00140	AWARD: Rh Plated Stub Prtp Bel Mod		CON	AN_MVE	Hrs	8		688		688	35%
1	04	04	03	01		UN43_00140	AWARD: Rh Plated Stub Prtp Bel Mod		CON	AN_MSEG	$$		375		386	386	35%
1	04	04	03	01		UN43_00130	AWARD: Ag Plated RF Finger Prtp Bel Mod		CON	AN_MVE	Hrs	8		688		688	35%
1	04	04	03	01		UN43_00130	AWARD: Ag Plated RF Finger Prtp Bel Mod		CON	AN_MSEG	$$		2,715		2,796	2,796	35%
1	04	04	03	01		UN43_00190	RCV: Bellows Prtp Bel Mod		CON	AN_MVE	Hrs	24		2,065		2,065	35%
1	04	04	03	01		UN43_00200	Quality Assurance Prtp Bel Mod		CON	AN_MVE	Hrs	8		688		688	35%
1	04	04	03	01		UN43_00200	Quality Assurance Prtp Bel Mod		CON	AN_MFMS	Hrs	16		1,119		1,119	35%
1	04	04	03	01		UN43_00220	Measurement and Test Prtp Bel Mod		CON	AN_MVE	Hrs	16		1,377		1,377	35%
1	04	04	03	01		UN43_00220	Measurement and Test Prtp Bel Mod		CON	AN_MFMS	Hrs	8		560		560	35%
1	04	04	03	01		UN43_00220	Measurement and Test Prtp Bel Mod		CON	AN_MFAT	Hrs	40		2,204		2,204	35%
1	04	04	03	01		UN43_00230	Review and Report Prtp Bel Mod		CON	AN_PHS	Hrs	8		688		688	35%
1	04	04	03	01		UN43_00230	Review and Report Prtp Bel Mod		CON	AN_MVE	Hrs	16		1,377		1,377	35%
1	04	04	03	01		UN43_00230	Review and Report Prtp Bel Mod		CON	AN_ME	Hrs	8		688		688	35%
1	**04**	**04**	**03**	**02**			**Production Bellows Module**					**544**	**71,910**	**39,350**	**78,382**	**117,732**	
1	04	04	03	02		UN43_00250	Prelim Standard Bellows Design		PED	AN_PHS	Hrs	8		688		688	35%
1	04	04	03	02		UN43_00250	Prelim Standard Bellows Design		PED	AN_MVE	Hrs	16		1,377		1,377	35%
1	04	04	03	02		UN43_00250	Prelim Standard Bellows Design		PED	AN_MDD	Hrs	56		3,276		3,276	35%
1	04	04	03	02		UN43_00260	Prelim Standard Bellows Design Review		PED	AN_PHS	Hrs	8		688		688	35%
1	04	04	03	02		UN43_00260	Prelim Standard Bellows Design Review		PED	AN_MVE	Hrs	8		688		688	35%
1	04	04	03	02		UN43_00260	Prelim Standard Bellows Design Review		PED	AN_MDD	Hrs	8		468		468	35%
1	04	04	03	02		UN43_00270	Final Standard Bellows Design		PED	AN_MVE	Hrs	8		688		688	35%
1	04	04	03	02		UN43_00270	Final Standard Bellows Design		PED	AN_MDD	Hrs	40		2,340		2,340	35%
1	04	04	03	02		UN43_00283	Final Design Review Std Bel Mod		PED	AN_PHS	Hrs	8		688		688	35%
1	04	04	03	02		UN43_00283	Final Design Review Std Bel Mod		PED	AN_MVE	Hrs	16		1,377		1,377	35%
1	04	04	03	02		UN43_00283	Final Design Review Std Bel Mod		PED	AN_MDD	Hrs	16		936		936	35%
1	04	04	03	02		UN43_00290	Bid Package-Standard Bellows Module		CON	AN_MVE	Hrs	8		688		688	35%
1	04	04	03	02		UN43_00340	Bid Process Std Bel Mod		CON	AN_MVE	Hrs	40		3,538		3,538	35%
1	04	04	03	02		UN43_00342	Evaluate Bid Std Bel Mod		CON	AN_MVE	Hrs	8		708		708	35%
1	04	04	03	02		UN43_00355	AWARD: Standard Bellows Module (47) Support		CON	AN_MVE	Hrs	8		708		708	35%
1	04	04	03	02		UN43_00410	Receive First Lot Standard Bellows Module (4)		CON	AN_MVE	Hrs	8		726		726	35%
1	04	04	03	02		UN43_00410	Receive First Lot Standard Bellows Module (4)		CON	AN_MSSC	$$		6,120		6,671	6,671	35%
1	04	04	03	02		UN43_00410	Receive First Lot Standard Bellows Module (4)		CON	AN_MFAT	Hrs	8		465		465	35%
1	04	04	03	02		UN43_00420	QA First Lot Std Bel Mod		CON	AN_MVE	Hrs	8		726		726	35%
1	04	04	03	02		UN43_00420	QA First Lot Std Bel Mod		CON	AN_MFMS	Hrs	8		590		590	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	04	03	02		UN43_00440	Approve Continuation of Production Std Bel Mod		CON	AN_MVE	Hrs	8		726		726	35%
1	04	04	03	02		UN43_00450	Receive Remain Prod Lot Std Bellows Module (43		CON	AN_MVE	Hrs	8		726		726	35%
1	04	04	03	02		UN43_00450	Receive Remain Prod Lot Std Bellows Module (43		CON	AN_MSSC	$$		65,790		71,711	71,711	35%
1	04	04	03	02		UN43_00450	Receive Remain Prod Lot Std Bellows Module (43		CON	AN_MFAT	Hrs	16		930		930	35%
1	04	04	03	02		UN43_00460	QA Production Lot Std Bel Mod		CON	AN_MVE	Hrs	8		726		726	35%
1	04	04	03	02		UN43_00460	QA Production Lot Std Bel Mod		CON	AN_MFMS	Hrs	24		1,771		1,771	35%
1	04	04	03	02		UN43_00500	Assembly Test Std Bel Mod		CON	AN_MVE	Hrs	16		1,452		1,452	35%
1	04	04	03	02		UN43_00500	Assembly Test Std Bel Mod		CON	AN_MFAT	Hrs	32		1,860		1,860	35%
1	04	04	03	02		UN43_00510	Clean Std Bel Mod		CON	AN_MVE	Hrs	8		726		726	35%
1	04	04	03	02		UN43_00510	Clean Std Bel Mod		CON	AN_MFAT	Hrs	24		1,395		1,395	35%
1	04	04	03	02		UN43_00520	Bake Std Bel Mod		CON	AN_MVE	Hrs	8		726		726	35%
1	04	04	03	02		UN43_00520	Bake Std Bel Mod		CON	AN_MFAT	Hrs	24		1,395		1,395	35%
1	04	04	03	02		UN43_00530	Prepare Standard Bellows for Shipment		CON	AN_MVE	Hrs	8		726		726	35%
1	04	04	03	02		UN43_00530	Prepare Standard Bellows for Shipment		CON	AN_MFAT	Hrs	16		930		930	35%
1	04	04	03	02		UN43_00540	Pack Standard Bellows for Shipping		CON	AN_MVE	Hrs	8		726		726	35%
1	04	04	03	02		UN43_00540	Pack Standard Bellows for Shipping		CON	AN_MFAT	Hrs	16		930		930	35%
1	04	04	03	02		UN43_00560	Transmit Std Bel Mod Design & Drawings to SLA		CON	SL_MDD	Hrs	8		529		529	35%
1	04	04	03	02		UN43_00560	Transmit Std Bel Mod Design & Drawings to SLA		CON	AN_ME	Hrs	8		726		726	35%
1	04	04	03	02		UN43_00560	Transmit Std Bel Mod Design & Drawings to SLA		CON	AN_MDD	Hrs	16		987		987	35%
1	**04**	**04**	**04**				**Reserved**										
1	**04**	**04**	**05**				**Short Diagnostic Break (SDB) Assembly**					**892**	**187,465**	**68,483**	**204,338**	**272,821**	
1	04	04	05			UN45_00010	Specification SBD		PED	AN_MVE	Hrs	24		2,065		2,065	25%
1	04	04	05			UN45_00020	Prelim SDB Design		PED	AN_MVE	Hrs	20		1,721		1,721	25%
1	04	04	05			UN45_00020	Prelim SDB Design		PED	AN_MDD	Hrs	40		2,340		2,340	25%
1	04	04	05			UN45_00030	Mechanical Analysis SBD		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	05			UN45_00030	Mechanical Analysis SBD		CON	AN_ME	Hrs	16		1,377		1,377	25%
1	04	04	05			UN45_00040	Prelim SDB Design Review		PED	AN_PHS	Hrs	8		688		688	25%
1	04	04	05			UN45_00040	Prelim SDB Design Review		PED	AN_MVE	Hrs	8		688		688	25%
1	04	04	05			UN45_00040	Prelim SDB Design Review		PED	AN_MDD	Hrs	8		468		468	25%
1	04	04	05			UN45_00050	Final SDB Design		PED	AN_MVE	Hrs	24		2,065		2,065	25%
1	04	04	05			UN45_00050	Final SDB Design		PED	AN_MDD	Hrs	40		2,340		2,340	25%
1	04	04	05			UN45_00052	Final SDB Design Review		PED	AN_PHS	Hrs	8		688		688	25%
1	04	04	05			UN45_00052	Final SDB Design Review		PED	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	05			UN45_00052	Final SDB Design Review		PED	AN_MDD	Hrs	16		936		936	25%
1	04	04	05			UN45_00150	Pump Support Bid Package		CON	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	05			UN45_00140	Chamber Support Bid Package		PED	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	05			UN45_00120	Ion Pump Cable Bid Package		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	05			UN45_00110	Ion Pump Power Supply Bid Pkg		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	05			UN45_00100	Ion Pump Bid Pkg		CON	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	05			UN45_00090	Bid Package-Pump Manifold		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	05			UN45_00070	Bid Package-Chamber Weldment Assembly		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	05			UN45_00160	Bid Process SDB		CON	AN_MVE	Hrs	16		1,415		1,415	25%
1	04	04	05			UN45_00255	AWARD: Pump Support (23) Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	05			UN45_00245	AWARD: Chamber Support (23) Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	05			UN45_00225	AWARD: Ion Pump Cable (23) Support		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	05			UN45_00215	AWARD: Ion Pump Power Supply (12) Support		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	05			UN45_00205	AWARD: Ion Pump (23) Support		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	05			UN45_00175	AWARD: Chamber Weldment Assembly (23) Support		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	05			UN45_00161	Evaluate Bids: SDB		CON	AN_MVE	Hrs	16		1,415		1,415	25%
1	04	04	05			UN45_00195	AWARD: Pump Manifold (23) Support		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	05			UN45_00336	Rec: SDB Ion Pump		CON	AN_MSSC	$$		32,614		35,549	35,549	25%
1	04	04	05			UN45_00335	Rec: SDB Pump Weld		CON	AN_MSSC	$$		10,526		11,473	11,473	25%
1	04	04	05			UN45_00332	Rec: SDB Pump Supports		CON	AN_MSSC	$$		8,050		8,775	8,775	25%
1	04	04	05			UN45_00330	Rec: SDB Chamber Supports		CON	AN_MSSC	$$		11,500		12,535	12,535	25%
1	04	04	05			UN45_00328	Rec: SDB Ion Pump Cable		CON	AN_MSSC	$$		12,420		13,538	13,538	25%
1	04	04	05			UN45_00326	Rec: SDB Ion Pump Power Supply		CON	AN_MSSC	$$		59,952		65,348	65,348	25%
1	04	04	05			UN45_00324	Rec: SDB Ion Pump		CON	AN_MSSC	$$		31,196		34,004	34,004	25%
1	04	04	05			UN45_00322	Rec: SDB Pump Manifold		CON	AN_MSSC	$$		10,068		10,974	10,974	25%
1	04	04	05			UN45_00320	Rec: SDB Chamber Weldment Assembly		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	05			UN45_00320	Rec: SDB Chamber Weldment Assembly		CON	AN_MSSC	$$		11,139		12,142	12,142	25%
1	04	04	05			UN45_00320	Rec: SDB Chamber Weldment Assembly		CON	AN_MFAT	Hrs	16		930		930	25%
1	04	04	05			UN45_00339	QA Production Lot SDB		CON	AN_MVE	Hrs	8		726		726	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	04	05			UN45_00339	QA Production Lot SDB		CON	AN_MFMS	Hrs	24		1,771		1,771	25%
1	04	04	05			UN45_00340	Approve Production Lot SDB		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	05			UN45_00350	Clean SDB		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	05			UN45_00350	Clean SDB		CON	AN_MFAT	Hrs	32		1,860		1,860	25%
1	04	04	05			UN45_00360	Bake SDB		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	05			UN45_00360	Bake SDB		CON	AN_MFAT	Hrs	32		1,860		1,860	25%
1	04	04	05			UN45_00370	Assemble Short Diagnostic Break Components		CON	AN_MVE	Hrs	32		2,904		2,904	25%
1	04	04	05			UN45_00370	Assemble Short Diagnostic Break Components		CON	AN_MFAT	Hrs	60		3,487		3,487	25%
1	04	04	05			UN45_00380	Assembly Test (LD)		CON	AN_PHS	Hrs	8		726		726	25%
1	04	04	05			UN45_00380	Assembly Test (LD)		CON	AN_MVE	Hrs	16		1,452		1,452	25%
1	04	04	05			UN45_00380	Assembly Test (LD)		CON	AN_MFAT	Hrs	60		3,487		3,487	25%
1	04	04	05			UN45_00390	Prepare Short Diagnostic Break for Shipment		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	05			UN45_00390	Prepare Short Diagnostic Break for Shipment		CON	AN_MFAT	Hrs	24		1,395		1,395	25%
1	04	04	05			UN45_00400	Pack Short Diagnostic Break for Shipping		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	05			UN45_00400	Pack Short Diagnostic Break for Shipping		CON	AN_MFAT	Hrs	24		1,395		1,395	25%
1	04	04	05			UN45_00430	Develop Installation Plan SDB		CON	SL_SEE	Hrs	16		1,784		1,784	25%
1	04	04	05			UN45_00430	Develop Installation Plan SDB		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	04	05			UN45_00430	Develop Installation Plan SDB		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	05			UN45_00420	Transmit SDB Design & Drawings to SLAC		CON	SL_MDD	Hrs	8		529		529	25%
1	04	04	05			UN45_00420	Transmit SDB Design & Drawings to SLAC		CON	AN_ME	Hrs	8		726		726	25%
1	04	04	05			UN45_00420	Transmit SDB Design & Drawings to SLAC		CON	AN_MDD	Hrs	16		987		987	25%
1	04	04	05			UN45_00440	Review installation Plan SDB		CON	SL_SEE	Hrs	8		892		892	25%
1	04	04	05			UN45_00440	Review installation Plan SDB		CON	AN_SEE	Hrs	8		976		976	25%
1	04	04	05			UN45_00440	Review installation Plan SDB		CON	AN_PHS	Hrs	8		726		726	25%
1	04	04	05			UN45_00440	Review installation Plan SDB		CON	AN_MVE	Hrs	8		726		726	25%
1	**04**	**04**	**06**				**Long Diagnostic Break (LDB) Assembly**					**960**	**85,965**	**76,012**	**93,702**	**169,714**	
1	04	04	06			UN46_00010	Specification LDB		PED	AN_PHS	Hrs	8		688		688	25%
1	04	04	06			UN46_00010	Specification LDB		PED	AN_MVE	Hrs	24		2,065		2,065	25%
1	04	04	06			UN46_00020	Prelim Prototype Design LDB		PED	AN_PHS	Hrs	8		705		705	25%
1	04	04	06			UN46_00020	Prelim Prototype Design LDB		PED	AN_MVE	Hrs	16		1,410		1,410	25%
1	04	04	06			UN46_00020	Prelim Prototype Design LDB		PED	AN_MDD	Hrs	40		2,396		2,396	25%
1	04	04	06			UN46_00030	Mechanical Analysis LDB		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	06			UN46_00030	Mechanical Analysis LDB		CON	AN_ME	Hrs	16		1,415		1,415	25%
1	04	04	06			UN46_00040	Prelim LDB Design Review		PED	AN_PHS	Hrs	8		708		708	25%
1	04	04	06			UN46_00040	Prelim LDB Design Review		PED	AN_MVE	Hrs	8		708		708	25%
1	04	04	06			UN46_00040	Prelim LDB Design Review		PED	AN_MDD	Hrs	8		481		481	25%
1	04	04	06			UN46_00050	LDB Final Design		CON	AN_PHS	Hrs	8		708		708	25%
1	04	04	06			UN46_00050	LDB Final Design		CON	AN_MVE	Hrs	24		2,123		2,123	25%
1	04	04	06			UN46_00050	LDB Final Design		CON	AN_MDD	Hrs	40		2,406		2,406	25%
1	04	04	06			UN46_00052	Final LDB Design Review		PED	SL_PHS	Hrs	8		599		599	25%
1	04	04	06			UN46_00052	Final LDB Design Review		PED	AN_PHS	Hrs	8		708		708	25%
1	04	04	06			UN46_00052	Final LDB Design Review		PED	AN_MVE	Hrs	16		1,415		1,415	25%
1	04	04	06			UN46_00052	Final LDB Design Review		PED	AN_MDD	Hrs	16		962		962	25%
1	04	04	06			UN46_00180	Bid Package-Ion Pump Support		CON	AN_MVE	Hrs	16		1,415		1,415	25%
1	04	04	06			UN46_00170	Bid Package-Chamber support		CON	AN_MVE	Hrs	16		1,415		1,415	25%
1	04	04	06			UN46_00110	Bid Package-Ion Pump		CON	AN_MVE	Hrs	16		1,415		1,415	25%
1	04	04	06			UN46_00100	Bid Package-Pump Manifold		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	06			UN46_00070	Bid Package-Chamber Weldment Assembly		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	06			UN46_00200	Bid Process LDB		CON	AN_MVE	Hrs	16		1,415		1,415	25%
1	04	04	06			UN46_00202	Evaluate Bid LDB		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	06			UN46_00325	AWARD: LDB Ion Pump Support Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	06			UN46_00315	AWARD: LDB Chamber Support Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	06			UN46_00255	AWARD: LDB Ion Pump Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	06			UN46_00245	AWARD: LDB Pump Manifold Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	06			UN46_00217	AWARD: LDB Chamber Weldment Assembly Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	06			UN46_00215	AWARD: LDB Valve (11) Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	06			UN46_00408	Rec: LDB Ion Pump Support (11)		CON	AN_MSSC	$$		3,850		4,197	4,197	25%
1	04	04	06			UN46_00406	Rec: LDB Chamber Support (11)		CON	AN_MSSC	$$		8,250		8,993	8,993	25%
1	04	04	06			UN46_00404	Rec: LDB Ion Pump (11)		CON	AN_MSSC	$$		51,514		56,150	56,150	25%
1	04	04	06			UN46_00402	Rec: LDB Pump Manifold (11)		CON	AN_MSSC	$$		5,034		5,487	5,487	25%
1	04	04	06			UN46_00400	Rec: LDB Chamber Weldment Assembly		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	06			UN46_00400	Rec: LDB Chamber Weldment Assembly		CON	AN_MSSC	$$		5,327		5,806	5,806	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	04	06			UN46_00400	Rec: LDB Chamber Weldment Assembly		CON	AN_MFAT	Hrs	16		930		930	25%
1	04	04	06			UN46_00350	Rec: LDB Valve (2)		CON	AN_MSSC	$$		11,990		13,069	13,069	25%
1	04	04	06			UN46_00410	QA Production Lot LDB		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	06			UN46_00410	QA Production Lot LDB		CON	AN_MFMS	Hrs	24		1,771		1,771	25%
1	04	04	06			UN46_00420	Approve Production Lot LDB		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	06			UN46_00430	Clean LDB		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	06			UN46_00430	Clean LDB		CON	AN_MFAT	Hrs	32		1,860		1,860	25%
1	04	04	06			UN46_00440	Bake LDB		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	06			UN46_00440	Bake LDB		CON	AN_MFAT	Hrs	32		1,860		1,860	25%
1	04	04	06			UN46_00450	Assemble Long Diagnostic Break Components		CON	AN_MVE	Hrs	16		1,452		1,452	25%
1	04	04	06			UN46_00450	Assemble Long Diagnostic Break Components		CON	AN_MFAT	Hrs	60		3,487		3,487	25%
1	04	04	06			UN46_00460	Assembly Test LDB		CON	AN_PHS	Hrs	8		726		726	25%
1	04	04	06			UN46_00460	Assembly Test LDB		CON	AN_MVE	Hrs	16		1,452		1,452	25%
1	04	04	06			UN46_00460	Assembly Test LDB		CON	AN_MFAT	Hrs	60		3,487		3,487	25%
1	04	04	06			UN46_00470	Prepare Long Diagnostic Break for Shipment		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	06			UN46_00470	Prepare Long Diagnostic Break for Shipment		CON	AN_MFAT	Hrs	24		1,395		1,395	25%
1	04	04	06			UN46_00480	Pack Long Diagnostic Break for Shipping		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	06			UN46_00480	Pack Long Diagnostic Break for Shipping		CON	AN_MFAT	Hrs	24		1,395		1,395	25%
1	04	04	06			UN46_00510	Develop Installation Plan LDB		CON	SL_SEE	Hrs	24		2,676		2,676	25%
1	04	04	06			UN46_00510	Develop Installation Plan LDB		CON	AN_SEE	Hrs	24		2,928		2,928	25%
1	04	04	06			UN46_00510	Develop Installation Plan LDB		CON	AN_PHS	Hrs	24		2,178		2,178	25%
1	04	04	06			UN46_00510	Develop Installation Plan LDB		CON	AN_MVE	Hrs	24		2,178		2,178	25%
1	04	04	06			UN46_00500	Transmit Design and Drawings to SLAC		CON	SL_MDD	Hrs	8		529		529	25%
1	04	04	06			UN46_00500	Transmit Design and Drawings to SLAC		CON	AN_ME	Hrs	8		726		726	25%
1	04	04	06			UN46_00500	Transmit Design and Drawings to SLAC		CON	AN_MDD	Hrs	16		987		987	25%
1	04	04	06			UN46_00520	Review installation Plan LDB		CON	SL_SEE	Hrs	16		1,784		1,784	25%
1	04	04	06			UN46_00520	Review installation Plan LDB		CON	SL_MES	Hrs	8		762		762	25%
1	04	04	06			UN46_00520	Review installation Plan LDB		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	04	06			UN46_00520	Review installation Plan LDB		CON	AN_PHS	Hrs	8		726		726	25%
1	04	04	06			UN46_00520	Review installation Plan LDB		CON	AN_MVE	Hrs	16		1,452		1,452	25%
1	**04**	**04**	**07**				**Entrance Section Assembly**					**1,144**	**42,260**	**92,269**	**46,065**	**138,334**	
1	04	04	07			UN47_00010	Specification Ent Sec		PED	AN_PHS	Hrs	16		1,377		1,377	25%
1	04	04	07			UN47_00010	Specification Ent Sec		PED	AN_MVE	Hrs	32		2,754		2,754	25%
1	04	04	07			UN47_00020	Prelim Design Ent Sec		PED	AN_PHS	Hrs	16		1,377		1,377	25%
1	04	04	07			UN47_00020	Prelim Design Ent Sec		PED	AN_MVE	Hrs	96		8,261		8,261	25%
1	04	04	07			UN47_00020	Prelim Design Ent Sec		PED	AN_MDD	Hrs	16		936		936	25%
1	04	04	07			UN47_00030	Mechanical Analysis Ent Sec		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	07			UN47_00030	Mechanical Analysis Ent Sec		CON	AN_ME	Hrs	24		2,065		2,065	25%
1	04	04	07			UN47_00040	Prelim Design Review Ent Sec		PED	AN_PHS	Hrs	8		688		688	25%
1	04	04	07			UN47_00040	Prelim Design Review Ent Sec		PED	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	07			UN47_00040	Prelim Design Review Ent Sec		PED	AN_MDD	Hrs	16		936		936	25%
1	04	04	07			UN47_00050	Final Design Ent Sec		PED	AN_PHS	Hrs	16		1,377		1,377	25%
1	04	04	07			UN47_00050	Final Design Ent Sec		PED	AN_MVE	Hrs	24		2,065		2,065	25%
1	04	04	07			UN47_00050	Final Design Ent Sec		PED	AN_MDD	Hrs	40		2,340		2,340	25%
1	04	04	07			UN47_00240	RGA Support Bid Pkg		CON	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	07			UN47_00230	Gate Valve Support Bid Pkg		CON	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	07			UN47_00220	Ion Pump Support Bid Pkg		CON	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	07			UN47_00210	Entrance Chamber Mount Bid Pkg		PED	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	07			UN47_00200	Standard Entrance Chamber Support Bid Pkg		PED	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	07			UN47_00190	RGA Bid Pkg		CON	AN_MVE	Hrs	24		2,065		2,065	25%
1	04	04	07			UN47_00170	Vacuum Gauge Bid Pkg		CON	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	07			UN47_00160	Valves Bid Pkg		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	07			UN47_00150	Gate Valve Bid Pkg		CON	AN_MVE	Hrs	24		2,065		2,065	25%
1	04	04	07			UN47_00140	Ion Pump Cable Bid Pkg		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	07			UN47_00130	Ion Pump Controller Bid Pkg		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	07			UN47_00120	Ion Pump Bid Pkg		CON	AN_MVE	Hrs	24		2,065		2,065	25%
1	04	04	07			UN47_00110	Bid Package-Pump Manifold		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	07			UN47_00090	Bid Package-Entrance Upstream Chamber		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	07			UN47_00080	Bid Package-Entrance Bellows		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	07			UN47_00070	Bid Package-Standard Entrance Chamber		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	07			UN47_00250	Bid Process Bid Pkg		CON	AN_MVE	Hrs	16		1,415		1,415	25%
1	04	04	07			UN47_00251	Evaluate Bids - Entrance Section		CON	AN_MVE	Hrs	16		1,415		1,415	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	04	07			UN47_00435	AWARD: RGA Support Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	07			UN47_00425	AWARD: Gate Valve Support Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	07			UN47_00415	AWARD: Ion Pump Support (1) Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	07			UN47_00405	AWARD: Entrance Chamber Mount Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	07			UN47_00395	AWARD: Standard Entrance Chamber Support Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	07			UN47_00385	AWARD: RGA (1) Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	07			UN47_00365	AWARD: Vacuum Gauge (1) Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	07			UN47_00355	AWARD: Valves (1) Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	07			UN47_00345	AWARD: Gate Valve (1) Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	07			UN47_00335	AWARD: Ion Pump Cable (1) Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	07			UN47_00325	AWARD: Ion Pump Controller (1) Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	07			UN47_00315	AWARD: Ion Pump (1) Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	07			UN47_00305	AWARD: Pump Manifold Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	07			UN47_00285	AWARD: Entrance Upstream Chamber Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	07			UN47_00275	AWARD: Entrance Bellows Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	07			UN47_00265	AWARD: Standard Entrance Chamber Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	07			UN47_00490	Rec: RGA Support		CON	AN_MSEG	$$		500		545	545	25%
1	04	04	07			UN47_00488	Rec: Gate Valve Support		CON	AN_MSEG	$$		1,200		1,308	1,308	25%
1	04	04	07			UN47_00486	Rec: Ion Pump Support		CON	AN_MSEG	$$		600		654	654	25%
1	04	04	07			UN47_00484	Rec: Chamber Mount		CON	AN_MSEG	$$		2,000		2,180	2,180	25%
1	04	04	07			UN47_00482	Rec: Entrance Chamber Support		CON	AN_MSEG	$$		2,000		2,180	2,180	25%
1	04	04	07			UN47_00480	Rec: RGA		CON	AN_MSEG	$$		17,000		18,530	18,530	25%
1	04	04	07			UN47_00478	Rec: Vacuum Gauge		CON	AN_MSEG	$$		3,455		3,766	3,766	25%
1	04	04	07			UN47_00476	Rec: Valve		CON	AN_MSEG	$$		1,090		1,188	1,188	25%
1	04	04	07			UN47_00474	Rec: Gate Valve		CON	AN_MSEG	$$		4,320		4,709	4,709	25%
1	04	04	07			UN47_00472	Rec: Ion Pump Cable		CON	AN_MSEG	$$		540		589	589	25%
1	04	04	07			UN47_00470	Rec: Ion Pump Controller		CON	AN_MSEG	$$		4,996		5,446	5,446	25%
1	04	04	07			UN47_00468	Rec: Ion Pump		CON	AN_MSEG	$$		1,418		1,546	1,546	25%
1	04	04	07			UN47_00466	Rec: Pump Manifold		CON	AN_MSEG	$$		650		709	709	25%
1	04	04	07			UN47_00464	Rec: Entrance Upstream Chamber		CON	AN_MSEG	$$		271		295	295	25%
1	04	04	07			UN47_00462	Rec: Entrance Bellows		CON	AN_MSEG	$$		700		763	763	25%
1	04	04	07			UN47_00460	Rec: Standard Entrance Chamber		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	07			UN47_00460	Rec: Standard Entrance Chamber		CON	AN_MSEG	$$		1,520		1,657	1,657	25%
1	04	04	07			UN47_00460	Rec: Standard Entrance Chamber		CON	AN_MFAT	Hrs	8		465		465	25%
1	04	04	07			UN47_00498	QA of Entrance Section Components		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	07			UN47_00498	QA of Entrance Section Components		CON	AN_MFMS	Hrs	24		1,771		1,771	25%
1	04	04	07			UN47_00499	Clean Ent Sec		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	07			UN47_00499	Clean Ent Sec		CON	AN_MFAT	Hrs	40		2,325		2,325	25%
1	04	04	07			UN47_00500	Bake Ent Sec		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	07			UN47_00500	Bake Ent Sec		CON	AN_MFAT	Hrs	40		2,325		2,325	25%
1	04	04	07			UN47_00510	Assemble Entrance Section Components		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	07			UN47_00510	Assemble Entrance Section Components		CON	AN_MFAT	Hrs	40		2,325		2,325	25%
1	04	04	07			UN47_00520	Assembly Test Ent Sec		CON	AN_PHS	Hrs	16		1,452		1,452	25%
1	04	04	07			UN47_00520	Assembly Test Ent Sec		CON	AN_MVE	Hrs	16		1,452		1,452	25%
1	04	04	07			UN47_00520	Assembly Test Ent Sec		CON	AN_MFAT	Hrs	40		2,325		2,325	25%
1	04	04	07			UN47_00530	Prepare Ent Sec Assembly & Support for Shipme		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	07			UN47_00530	Prepare Ent Sec Assembly & Support for Shipme		CON	AN_MFAT	Hrs	24		1,395		1,395	25%
1	04	04	07			UN47_00540	Pack Ent Sec Assembly & Support for Shipment		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	07			UN47_00540	Pack Ent Sec Assembly & Support for Shipment		CON	AN_MFAT	Hrs	16		930		930	25%
1	04	04	07			UN47_00570	Develop Installation Plan Ent Sec		CON	SL_SEE	Hrs	16		1,784		1,784	25%
1	04	04	07			UN47_00570	Develop Installation Plan Ent Sec		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	04	07			UN47_00570	Develop Installation Plan Ent Sec		CON	AN_PHS	Hrs	8		726		726	25%
1	04	04	07			UN47_00570	Develop Installation Plan Ent Sec		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	07			UN47_00560	Transmit Ent Sec Design a& Drawings to SLAC		CON	SL_MDD	Hrs	8		529		529	25%
1	04	04	07			UN47_00560	Transmit Ent Sec Design a& Drawings to SLAC		CON	AN_ME	Hrs	8		726		726	25%
1	04	04	07			UN47_00560	Transmit Ent Sec Design a& Drawings to SLAC		CON	AN_MDD	Hrs	16		987		987	25%
1	04	04	07			UN47_00580	Review installation Plan Ent Sec		CON	SL_SEE	Hrs	8		892		892	25%
1	04	04	07			UN47_00580	Review installation Plan Ent Sec		CON	AN_SEE	Hrs	8		976		976	25%
1	04	04	07			UN47_00580	Review installation Plan Ent Sec		CON	AN_PHS	Hrs	8		726		726	25%
1	04	04	07			UN47_00580	Review installation Plan Ent Sec		CON	AN_MVE	Hrs	8		726		726	25%
1	**04**	**04**	**08**				**Exit Section Assembly**					**1,028**	**96,019**	**81,836**	**104,661**	**186,497**	
1	04	04	08			UN48_00010	Specification Exit Sec		PED	AN_PHS	Hrs	16		1,377		1,377	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	04	08			UN48_00010	Specification Exit Sec		PED	AN_MVE	Hrs	24		2,065		2,065	25%
1	04	04	08			UN48_00020	Prelim Prototype Design Exit Sec		PED	AN_PHS	Hrs	40		3,442		3,442	25%
1	04	04	08			UN48_00020	Prelim Prototype Design Exit Sec		PED	AN_MVE	Hrs	32		2,754		2,754	25%
1	04	04	08			UN48_00020	Prelim Prototype Design Exit Sec		PED	AN_MDD	Hrs	60		3,510		3,510	25%
1	04	04	08			UN48_00030	Mechanical Analysis Exit Sec		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	08			UN48_00030	Mechanical Analysis Exit Sec		CON	AN_ME	Hrs	24		2,065		2,065	25%
1	04	04	08			UN48_00040	Prelim Prototype Design Review Exit Sec		PED	SL_PHS	Hrs	8		582		582	25%
1	04	04	08			UN48_00040	Prelim Prototype Design Review Exit Sec		PED	AN_PHS	Hrs	8		688		688	25%
1	04	04	08			UN48_00040	Prelim Prototype Design Review Exit Sec		PED	AN_MVE	Hrs	8		688		688	25%
1	04	04	08			UN48_00040	Prelim Prototype Design Review Exit Sec		PED	AN_MDD	Hrs	8		468		468	25%
1	04	04	08			UN48_00050	Final Exit Sec Design		PED	AN_PHS	Hrs	8		688		688	25%
1	04	04	08			UN48_00050	Final Exit Sec Design		PED	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	08			UN48_00050	Final Exit Sec Design		PED	AN_MDD	Hrs	40		2,340		2,340	25%
1	04	04	08			UN48_00240	RGA Support Bid Package		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	08			UN48_00230	Gate Valve Support Bid Package		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	08			UN48_00220	Ion Pump Support Bid Package		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	08			UN48_00210	Exit Chamber Support Bid Package		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	08			UN48_00200	Standard Exit Chamber Support Bid Package		PED	AN_MVE	Hrs	8		688		688	25%
1	04	04	08			UN48_00190	RGA Bid Package		CON	AN_MVE	Hrs	24		2,065		2,065	25%
1	04	04	08			UN48_00170	Vacuum Gauge Bid Package		CON	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	08			UN48_00160	Valves Bid Package		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	08			UN48_00150	Gate Valve Bid Package		CON	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	08			UN48_00140	Roughing Pump Bid Package		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	08			UN48_00130	Turbo Pump Bid Package		PED	AN_MVE	Hrs	24		2,065		2,065	25%
1	04	04	08			UN48_00120	Ion Pump Bid Package		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	08			UN48_00110	Bid Package-Exit Pump Manifold		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	08			UN48_00100	Bid Package-Exit Downstream Chamber		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	08			UN48_00080	Bid Package-Exit Bellows		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	08			UN48_00070	Bid Package-Standard Exit Chamber		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	08			UN48_00250	Bid Process Exit Sec		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	08			UN48_00435	AWARD: RGA Support (1) Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	08			UN48_00425	AWARD: Gate Valve Support (1) Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	08			UN48_00415	AWARD: Ion Pump Support (2) Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	08			UN48_00405	AWARD: Exit Downstream Chamber Support (2) Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	08			UN48_00395	AWARD: Standard Exit Chamber Support (2) Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	08			UN48_00385	AWARD: RGA Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	08			UN48_00365	AWARD: Vacuum Gauge Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	08			UN48_00355	AWARD: Valves Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	08			UN48_00345	AWARD: Gate Valve Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	08			UN48_00335	AWARD: Roughing Pump Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	08			UN48_00325	AWARD: Turbo Pump Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	08			UN48_00315	AWARD: Ion Pump Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	08			UN48_00305	AWARD: Exit Pump Manifold Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	08			UN48_00295	AWARD: Exit Downstream Chamber Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	08			UN48_00275	AWARD: Exit Bellows Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	08			UN48_00265	AWARD: Standard Exit Chamber Sppt		CON	AN_MVE	Hrs	8		708		708	25%
1	04	04	08			UN48_00482	Rec: RGA Support		CON	AN_MSEG	$$		500		545	545	25%
1	04	04	08			UN48_00481	Rec: Gate Valve Support		CON	AN_MSEG	$$		1,200		1,308	1,308	25%
1	04	04	08			UN48_00480	Rec: Ion Pump Support		CON	AN_MSEG	$$		2,400		2,616	2,616	25%
1	04	04	08			UN48_00478	Rec: Exit Downstream Chamber Support		CON	AN_MSEG	$$		4,000		4,360	4,360	25%
1	04	04	08			UN48_00476	Rec: Standard Exit Chamber Support		CON	AN_MSEG	$$		4,000		4,360	4,360	25%
1	04	04	08			UN48_00475	Rec: RGA		CON	AN_MSEG	$$		17,000		18,530	18,530	25%
1	04	04	08			UN48_00474	Rec: Vacuum Gauge		CON	AN_MSEG	$$		3,455		3,766	3,766	25%
1	04	04	08			UN48_00473	Rec: Valve		CON	AN_MSEG	$$		1,090		1,188	1,188	25%
1	04	04	08			UN48_00472	Rec: Gate Valve		CON	AN_MSEG	$$		4,320		4,709	4,709	25%
1	04	04	08			UN48_00469	Rec: Roughing Pump		CON	AN_MSEG	$$		7,500		8,175	8,175	25%
1	04	04	08			UN48_00467	Rec: Turbo Pump		CON	AN_MSEG	$$		18,448		20,108	20,108	25%
1	04	04	08			UN48_00466	Rec: Ion Pump		CON	AN_MSEG	$$		27,816		30,319	30,319	25%
1	04	04	08			UN48_00465	Rec: Exit Pump Manifold		CON	AN_MSEG	$$		1,300		1,417	1,417	25%
1	04	04	08			UN48_00463	Rec: Exit Downstream Chamber		CON	AN_MSEG	$$		542		591	591	25%
1	04	04	08			UN48_00462	Rec: Exit Bellows		CON	AN_MSEG	$$		928		1,012	1,012	25%
1	04	04	08			UN48_00460	Rec: Standard Exit Chamber		CON	AN_MVE	Hrs	8		726		726	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	04	08			UN48_00460	Rec: Standard Exit Chamber		CON	AN_MSEG	$$		1,520		1,657	1,657	25%
1	04	04	08			UN48_00460	Rec: Standard Exit Chamber		CON	AN_MFAT	Hrs	8		465		465	25%
1	04	04	08			UN48_00488	QA of Exit Section Components		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	08			UN48_00488	QA of Exit Section Components		CON	AN_MFMS	Hrs	24		1,771		1,771	25%
1	04	04	08			UN48_00489	Approve Production Exit Sec		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	08			UN48_00490	Clean Exit Sec		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	08			UN48_00490	Clean Exit Sec		CON	AN_MFAT	Hrs	40		2,325		2,325	25%
1	04	04	08			UN48_00500	Bake Exit Sec		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	08			UN48_00500	Bake Exit Sec		CON	AN_MFAT	Hrs	32		1,860		1,860	25%
1	04	04	08			UN48_00510	Assemble Exit Section Components		CON	AN_MVE	Hrs	16		1,452		1,452	25%
1	04	04	08			UN48_00510	Assemble Exit Section Components		CON	AN_MFAT	Hrs	32		1,860		1,860	25%
1	04	04	08			UN48_00520	Assembly Test Exit Sec		CON	AN_PHS	Hrs	8		726		726	25%
1	04	04	08			UN48_00520	Assembly Test Exit Sec		CON	AN_MVE	Hrs	16		1,452		1,452	25%
1	04	04	08			UN48_00520	Assembly Test Exit Sec		CON	AN_MFAT	Hrs	32		1,860		1,860	25%
1	04	04	08			UN48_00530	Prepare Exit Sec Assembly & Support for Ship		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	08			UN48_00530	Prepare Exit Sec Assembly & Support for Ship		CON	AN_MFAT	Hrs	24		1,395		1,395	25%
1	04	04	08			UN48_00540	Pack Exit Sec Assembly and Support for Shipmen		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	08			UN48_00540	Pack Exit Sec Assembly and Support for Shipmen		CON	AN_MFAT	Hrs	16		930		930	25%
1	04	04	08			UN48_00570	Develop Exit Sec Installation Plan		CON	SL_SEE	Hrs	16		1,784		1,784	25%
1	04	04	08			UN48_00570	Develop Exit Sec Installation Plan		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	04	08			UN48_00570	Develop Exit Sec Installation Plan		CON	AN_PHS	Hrs	8		726		726	25%
1	04	04	08			UN48_00570	Develop Exit Sec Installation Plan		CON	AN_MVE	Hrs	8		726		726	25%
1	04	04	08			UN48_00560	Transmit Exit Sec Design & Drawings to SLAC		CON	SL_MDD	Hrs	8		529		529	25%
1	04	04	08			UN48_00560	Transmit Exit Sec Design & Drawings to SLAC		CON	AN_ME	Hrs	8		726		726	25%
1	04	04	08			UN48_00560	Transmit Exit Sec Design & Drawings to SLAC		CON	AN_MDD	Hrs	16		987		987	25%
1	04	04	08			UN48_00580	Review Exit Sec Installation Plan		CON	SL_SEE	Hrs	8		892		892	25%
1	04	04	08			UN48_00580	Review Exit Sec Installation Plan		CON	AN_SEE	Hrs	8		976		976	25%
1	04	04	08			UN48_00580	Review Exit Sec Installation Plan		CON	AN_PHS	Hrs	8		726		726	25%
1	04	04	08			UN48_00580	Review Exit Sec Installation Plan		CON	AN_MVE	Hrs	8		726		726	25%
1	**04**	**04**	**09**				**Baking System**					**1,144**	**49,675**	**86,674**	**51,165**	**137,839**	
1	04	04	09			UN49_00010	Specification of Baking Station (System)		PED	AN_MVE	Hrs	56		4,819		4,819	25%
1	04	04	09			UN49_00020	Prelim Design of Baking Station		PED	AN_PHS	Hrs	8		688		688	25%
1	04	04	09			UN49_00020	Prelim Design of Baking Station		PED	AN_MVE	Hrs	80		6,884		6,884	25%
1	04	04	09			UN49_00020	Prelim Design of Baking Station		PED	AN_MDD	Hrs	120		7,020		7,020	25%
1	04	04	09			UN49_00030	Prelim Baking Station Design Review		CON	AN_PHS	Hrs	8		688		688	25%
1	04	04	09			UN49_00030	Prelim Baking Station Design Review		CON	AN_MVE	Hrs	40		3,442		3,442	25%
1	04	04	09			UN49_00030	Prelim Baking Station Design Review		CON	AN_MDD	Hrs	16		936		936	25%
1	04	04	09			UN49_00040	Final Design of Baking Station		PED	AN_PHS	Hrs	8		688		688	25%
1	04	04	09			UN49_00040	Final Design of Baking Station		PED	AN_MVE	Hrs	32		2,754		2,754	25%
1	04	04	09			UN49_00040	Final Design of Baking Station		PED	AN_MDD	Hrs	40		2,340		2,340	25%
1	04	04	09			UN49_00140	RGA Baking Station		CON	AN_MVE	Hrs	40		3,442		3,442	25%
1	04	04	09			UN49_00120	Bid Pkg: Vacuum Gauge Baking Station		CON	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	09			UN49_00110	Bid Package-Valves Baking Station		CON	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	09			UN49_00100	Bid Pkg: Roughing Pump Baking Station		CON	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	09			UN49_00090	Bid Pkg: Turbo Pump Baking Station		CON	AN_MVE	Hrs	24		2,065		2,065	25%
1	04	04	09			UN49_00080	Bid Package-Thermal Insulation		CON	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	09			UN49_00070	Bid Package-Heater		CON	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	09			UN49_00060	Bid Package-Baking Station		CON	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	09			UN49_00150	Bid Process Baking Station		CON	AN_MVE	Hrs	16		1,377		1,377	25%
1	04	04	09			UN49_00151	Evaluate Bids: Baking Station		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	09			UN49_00245	AWARD: RGA Sppt		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	09			UN49_00225	AWARD: Vacuum Gauge Sppt		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	09			UN49_00215	AWARD: Valves Sppt		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	09			UN49_00205	AWARD: Roughing Pump Sppt		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	09			UN49_00195	AWARD: Turbo Pump Sppt		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	09			UN49_00185	AWARD: Thermal Insulation Sppt		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	09			UN49_00175	AWARD: Heater Sppt		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	09			UN49_00165	AWARD: Baking Station Sppt		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	09			UN49_00260	Fabrication of Baking Components		CON	AN_MVE	Hrs	64		5,507		5,507	25%
1	04	04	09			UN49_00260	Fabrication of Baking Components		CON	AN_MFMS	Hrs	120		8,395		8,395	25%
1	04	04	09			UN49_00270	Receive Baking Cmponents		CON	AN_MVE	Hrs	8		688		688	25%
1	04	04	09			UN49_00270	Receive Baking Cmponents		CON	AN_MSEG	$$		49,675		51,165	51,165	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	04	09			UN49_00270	Receive Baking Cmponents		CON	AN_MFAT	Hrs	24		1,323		1,323	25%
1	04	04	09			UN49_00280	QA of Baking Components		CON	AN_MVE	Hrs	24		2,065		2,065	25%
1	04	04	09			UN49_00280	QA of Baking Components		CON	AN_MFMS	Hrs	40		2,798		2,798	25%
1	04	04	09			UN49_00290	Integration to Baking System		CON	AN_MVE	Hrs	56		4,819		4,819	25%
1	04	04	09			UN49_00290	Integration to Baking System		CON	AN_MFAT	Hrs	80		4,409		4,409	25%
1	04	04	09			UN49_00300	Preform Bake System Testing		CON	AN_MVE	Hrs	24		2,065		2,065	25%
1	04	04	09			UN49_00300	Preform Bake System Testing		CON	AN_MFAT	Hrs	16		882		882	25%
1	04	04	09			UN49_00310	Transmit Baking Sys Design & Drawings to SLAC		CON	SL_MDD	Hrs	8		502		502	25%
1	04	04	09			UN49_00310	Transmit Baking Sys Design & Drawings to SLAC		CON	AN_ME	Hrs	8		688		688	25%
1	04	04	09			UN49_00310	Transmit Baking Sys Design & Drawings to SLAC		CON	AN_MDD	Hrs	16		936		936	25%
1	**04**	**05**					**Diagnostics**					**17,621**	**3,730,000**	**1,252,431**	**3,984,243**	**5,236,674**	
1	**04**	**05**	**01**				**Project Oversight**										
1	**04**	**05**	**02**				**E-Beam and X-Ray Profile Diagnostics**					**5,784**	**1,542,000**	**392,269**	**1,667,610**	**2,059,879**	
1	**04**	**05**	**02**	**01**			**EBXPD Test Station**					**880**	**79,000**	**55,698**	**81,370**	**137,068**	
1	04	05	02	01		UN502_0020	Design of EBXPD Test Station		PED	AN_PHS	Hrs	16		1,338		1,338	35%
1	04	05	02	01		UN502_0020	Design of EBXPD Test Station		PED	AN_PHPD	Hrs	32		1,437		1,437	35%
1	04	05	02	01		UN502_0020	Design of EBXPD Test Station		PED	AN_ME	Hrs	40		3,345		3,345	35%
1	04	05	02	01		UN502_0020	Design of EBXPD Test Station		PED	AN_MDD	Hrs	80		4,548		4,548	35%
1	04	05	02	01		UN502_0010	Specification of EBXPD Test Station		PED	AN_PHS	Hrs	16		1,338		1,338	35%
1	04	05	02	01		UN502_0010	Specification of EBXPD Test Station		PED	AN_PHPD	Hrs	24		1,078		1,078	35%
1	04	05	02	01		UN502_0010	Specification of EBXPD Test Station		PED	AN_ME	Hrs	24		2,007		2,007	35%
1	04	05	02	01		UN502_0070	Specify EBXPD Module Base Plate Outline		PED	AN_PHS	Hrs	8		669		669	35%
1	04	05	02	01		UN502_0070	Specify EBXPD Module Base Plate Outline		PED	AN_PHPD	Hrs	8		359		359	35%
1	04	05	02	01		UN502_0070	Specify EBXPD Module Base Plate Outline		PED	AN_ME	Hrs	8		669		669	35%
1	04	05	02	01		UN502_0100	Write Test Plan		PED	AN_PHS	Hrs	8		669		669	35%
1	04	05	02	01		UN502_0100	Write Test Plan		PED	AN_PHPD	Hrs	32		1,437		1,437	35%
1	04	05	02	01		UN502_0100	Write Test Plan		PED	AN_ME	Hrs	16		1,338		1,338	35%
1	04	05	02	01		UN502_0080	Design EBXPD Module Base plate		PED	AN_PHS	Hrs	8		669		669	35%
1	04	05	02	01		UN502_0080	Design EBXPD Module Base plate		PED	AN_PHPD	Hrs	8		359		359	35%
1	04	05	02	01		UN502_0080	Design EBXPD Module Base plate		PED	AN_ME	Hrs	8		669		669	35%
1	04	05	02	01		UN502_0080	Design EBXPD Module Base plate		PED	AN_MDD	Hrs	40		2,274		2,274	35%
1	04	05	02	01		UN502_0110	Determine Suitable Test facility		PED	AN_PHS	Hrs	16		1,338		1,338	35%
1	04	05	02	01		UN502_0110	Determine Suitable Test facility		PED	AN_PHPD	Hrs	16		718		718	35%
1	04	05	02	01		UN502_0110	Determine Suitable Test facility		PED	AN_ME	Hrs	8		669		669	35%
1	04	05	02	01		UN502_0090	Fabricate EBXPD Module base plate		CON	AN_MSEG	$$		6,000		6,180	6,180	35%
1	04	05	02	01		UN502_0090	Fabricate EBXPD Module base plate		CON	AN_MFMS	Hrs	40		2,798		2,798	35%
1	04	05	02	01		UN502_0090	Fabricate EBXPD Module base plate		CON	AN_ME	Hrs	8		688		688	35%
1	04	05	02	01		UN502_0060	Procure EBXPD Obsevation Station		CON	AN_PHPD	Hrs	8		370		370	35%
1	04	05	02	01		UN502_0060	Procure EBXPD Obsevation Station		CON	AN_MSEG	$$		20,000		20,600	20,600	35%
1	04	05	02	01		UN502_0060	Procure EBXPD Obsevation Station		CON	AN_ME	Hrs	8		688		688	35%
1	04	05	02	01		UN502_0050	Procure EBXPD Test Station Controllers		CON	AN_PHPD	Hrs	8		370		370	35%
1	04	05	02	01		UN502_0050	Procure EBXPD Test Station Controllers		CON	AN_MSEG	$$		2,000		2,060	2,060	35%
1	04	05	02	01		UN502_0050	Procure EBXPD Test Station Controllers		CON	AN_ME	Hrs	8		688		688	35%
1	04	05	02	01		UN502_0040	Procure EBXPD Support Stand		CON	AN_MSEG	$$		23,000		23,690	23,690	35%
1	04	05	02	01		UN502_0040	Procure EBXPD Support Stand		CON	AN_ME	Hrs	8		688		688	35%
1	04	05	02	01		UN502_0030	Procure EBXPD Test Chamber		CON	AN_PHPD	Hrs	8		370		370	35%
1	04	05	02	01		UN502_0030	Procure EBXPD Test Chamber		CON	AN_MSEG	$$		28,000		28,840	28,840	35%
1	04	05	02	01		UN502_0030	Procure EBXPD Test Chamber		CON	AN_ME	Hrs	8		688		688	35%
1	04	05	02	01		UN502_0120	Assemble Test station		CON	AN_PHS	Hrs	8		688		688	35%
1	04	05	02	01		UN502_0120	Assemble Test station		CON	AN_PHPD	Hrs	32		1,478		1,478	35%
1	04	05	02	01		UN502_0120	Assemble Test station		CON	AN_MFAT	Hrs	80		4,409		4,409	35%
1	04	05	02	01		UN502_0120	Assemble Test station		CON	AN_ME	Hrs	16		1,377		1,377	35%
1	04	05	02	01		UN502_0130	Intregrate Controls		CON	AN_PHPD	Hrs	32		1,478		1,478	35%
1	04	05	02	01		UN502_0130	Intregrate Controls		CON	AN_MFAT	Hrs	32		1,764		1,764	35%
1	04	05	02	01		UN502_0130	Intregrate Controls		CON	AN_ME	Hrs	16		1,377		1,377	35%
1	04	05	02	01		UN502_0140	Perform Module Testing		CON	AN_PHS	Hrs	16		1,377		1,377	35%
1	04	05	02	01		UN502_0140	Perform Module Testing		CON	AN_PHPD	Hrs	32		1,478		1,478	35%
1	04	05	02	01		UN502_0140	Perform Module Testing		CON	AN_MFAT	Hrs	32		1,764		1,764	35%
1	04	05	02	01		UN502_0150	Test Measurements Review meeting		PED	AN_PHS	Hrs	16		1,377		1,377	35%
1	04	05	02	01		UN502_0150	Test Measurements Review meeting		PED	AN_PHPD	Hrs	32		1,478		1,478	35%
1	04	05	02	01		UN502_0150	Test Measurements Review meeting		PED	AN_ME	Hrs	16		1,377		1,377	35%
1	**04**	**05**	**02**	**02**			**EBXPD Vacuum Chamber**					**448**	**220,000**	**32,233**	**239,800**	**272,033**	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	05	02	02		UN502_0170	Preliminary Vacuum Chamber Design		PED	AN_PHS	Hrs	8		688		688	35%
1	04	05	02	02		UN502_0170	Preliminary Vacuum Chamber Design		PED	AN_PHPD	Hrs	32		1,478		1,478	35%
1	04	05	02	02		UN502_0170	Preliminary Vacuum Chamber Design		PED	AN_ME	Hrs	40		3,442		3,442	35%
1	04	05	02	02		UN502_0170	Preliminary Vacuum Chamber Design		PED	AN_MDD	Hrs	80		4,680		4,680	35%
1	04	05	02	02		UN502_0180	Mechanical Analysis - EBXPD -VC		CON	AN_PHS	Hrs	16		1,377		1,377	35%
1	04	05	02	02		UN502_0180	Mechanical Analysis - EBXPD -VC		CON	AN_ME	Hrs	32		2,754		2,754	35%
1	04	05	02	02		UN502_0190	Design Review - EBXPD -VC		PED	AN_PHS	Hrs	8		688		688	35%
1	04	05	02	02		UN502_0190	Design Review - EBXPD -VC		PED	AN_PHPD	Hrs	24		1,109		1,109	35%
1	04	05	02	02		UN502_0190	Design Review - EBXPD -VC		PED	AN_ME	Hrs	24		2,065		2,065	35%
1	04	05	02	02		UN502_0200	Final Chamber Design - EBXPD -VC		PED	AN_PHS	Hrs	8		688		688	35%
1	04	05	02	02		UN502_0200	Final Chamber Design - EBXPD -VC		PED	AN_PHPD	Hrs	16		739		739	35%
1	04	05	02	02		UN502_0200	Final Chamber Design - EBXPD -VC		PED	AN_ME	Hrs	32		2,754		2,754	35%
1	04	05	02	02		UN502_0200	Final Chamber Design - EBXPD -VC		PED	AN_MDD	Hrs	40		2,340		2,340	35%
1	04	05	02	02		UN502_0220	Procurement Bid Package -EBXPD Support stand		CON	AN_ME	Hrs	8		688		688	35%
1	04	05	02	02		UN502_0210	Procurement Bid Package -EBXPD Vacuum chamber		CON	AN_ME	Hrs	8		688		688	35%
1	04	05	02	02		UN502_0230	Bid Process - EBXPD-VC		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	02	02		UN502_0231	Evaluate Bids - EBXPD-VC		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	02	02		UN502_0255	AWARD: EBXPD Support Stand (11) Sppt		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	02	02		UN502_0245	AWARD: EBXPD Vacuum Chamber (11) Sppt		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	02	02		UN502_0274	Rec: EBXPD Support Stand (11)		CON	AN_MSEG	$$		55,000		59,950	59,950	35%
1	04	05	02	02		UN502_0270	Rec: EBXPD Vacuum Chamber (11)		CON	AN_MSEG	$$		165,000		179,850	179,850	35%
1	04	05	02	02		UN502_0270	Rec: EBXPD Vacuum Chamber (11)		CON	AN_ME	Hrs	8		726		726	35%
1	04	05	02	02		UN502_0280	QA EBXPD Vacuum Chamber		CON	AN_MFMS	Hrs	24		1,771		1,771	35%
1	04	05	02	02		UN502_0280	QA EBXPD Vacuum Chamber		CON	AN_ME	Hrs	8		726		726	35%
1	**04**	**05**	**02**	**03**			**Positioning Mechanism**					**648**	**447,000**	**45,836**	**484,830**	**530,666**	
1	04	05	02	03		UN502_0300	Design Prototype Positioning Mechanism		PED	AN_PHS	Hrs	8		688		688	35%
1	04	05	02	03		UN502_0300	Design Prototype Positioning Mechanism		PED	AN_PHPD	Hrs	32		1,478		1,478	35%
1	04	05	02	03		UN502_0300	Design Prototype Positioning Mechanism		PED	AN_ME	Hrs	40		3,442		3,442	35%
1	04	05	02	03		UN502_0300	Design Prototype Positioning Mechanism		PED	AN_MDD	Hrs	80		4,680		4,680	35%
1	04	05	02	03		UN502_0310	Mechanical Analysis - EBXPD-PM		CON	AN_PHS	Hrs	8		688		688	35%
1	04	05	02	03		UN502_0310	Mechanical Analysis - EBXPD-PM		CON	AN_ME	Hrs	24		2,065		2,065	35%
1	04	05	02	03		UN502_0320	Fabricate Prototype Positioning Mechanism		CON	AN_PHPD	Hrs	8		370		370	35%
1	04	05	02	03		UN502_0320	Fabricate Prototype Positioning Mechanism		CON	AN_MSEG	$$		40,000		41,200	41,200	35%
1	04	05	02	03		UN502_0320	Fabricate Prototype Positioning Mechanism		CON	AN_MFMS	Hrs	60		4,198		4,198	35%
1	04	05	02	03		UN502_0320	Fabricate Prototype Positioning Mechanism		CON	AN_ME	Hrs	16		1,377		1,377	35%
1	04	05	02	03		UN502_0330	Test Prototype Positioning Mechanism		CON	AN_PHS	Hrs	8		688		688	35%
1	04	05	02	03		UN502_0330	Test Prototype Positioning Mechanism		CON	AN_PHPD	Hrs	8		370		370	35%
1	04	05	02	03		UN502_0330	Test Prototype Positioning Mechanism		CON	AN_MFAT	Hrs	32		1,764		1,764	35%
1	04	05	02	03		UN502_0330	Test Prototype Positioning Mechanism		CON	AN_ME	Hrs	16		1,377		1,377	35%
1	04	05	02	03		UN502_0340	Preliminary Positioning Mechanism Design		PED	AN_PHS	Hrs	8		688		688	35%
1	04	05	02	03		UN502_0340	Preliminary Positioning Mechanism Design		PED	AN_PHPD	Hrs	8		370		370	35%
1	04	05	02	03		UN502_0340	Preliminary Positioning Mechanism Design		PED	AN_ME	Hrs	32		2,754		2,754	35%
1	04	05	02	03		UN502_0340	Preliminary Positioning Mechanism Design		PED	AN_MDD	Hrs	60		3,510		3,510	35%
1	04	05	02	03		UN502_0350	Design Review		PED	AN_PHS	Hrs	8		688		688	35%
1	04	05	02	03		UN502_0350	Design Review		PED	AN_PHPD	Hrs	8		370		370	35%
1	04	05	02	03		UN502_0350	Design Review		PED	AN_ME	Hrs	16		1,377		1,377	35%
1	04	05	02	03		UN502_0360	Final Positioning Mechanism Design		PED	AN_PHS	Hrs	8		688		688	35%
1	04	05	02	03		UN502_0360	Final Positioning Mechanism Design		PED	AN_PHPD	Hrs	8		370		370	35%
1	04	05	02	03		UN502_0360	Final Positioning Mechanism Design		PED	AN_ME	Hrs	24		2,065		2,065	35%
1	04	05	02	03		UN502_0360	Final Positioning Mechanism Design		PED	AN_MDD	Hrs	40		2,340		2,340	35%
1	04	05	02	03		UN502_0380	Procurement Bid Package -Main translation stag		CON	AN_ME	Hrs	8		688		688	35%
1	04	05	02	03		UN502_0370	Procurement Bid Package -Beam tube and spring		CON	AN_ME	Hrs	8		688		688	35%
1	04	05	02	03		UN502_0390	Bid Process		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	02	03		UN502_0391	Evaluate Bids		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	02	03		UN502_0415	AWARD: Main translation stage (11) Sppt		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	02	03		UN502_0405	AWARD: Beam tube and spring contact (11) Sppt		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	02	03		UN502_0434	Rec: Main translation stage (11)		CON	AN_MSEG	$$		319,000		347,710	347,710	35%
1	04	05	02	03		UN502_0430	Rec: Beam Tube and Spring Contact (11)		CON	AN_MSEG	$$		88,000		95,920	95,920	35%
1	04	05	02	03		UN502_0430	Rec: Beam Tube and Spring Contact (11)		CON	AN_ME	Hrs	8		726		726	35%
1	04	05	02	03		UN502_0440	QA EBXPD Positioning Mechanism		CON	AN_MFMS	Hrs	24		1,771		1,771	35%
1	04	05	02	03		UN502_0440	QA EBXPD Positioning Mechanism		CON	AN_ME	Hrs	8		726		726	35%
1	**04**	**05**	**02**	**04**			**Scanning wire assembly (EBXPD -SWA)**					**1,032**	**365,000**	**67,368**	**394,700**	**462,068**	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	05	02	04		UN502_0460	Design Prototype SWA		PED	AN_PHS	Hrs	32		2,676		2,676	45%
1	04	05	02	04		UN502_0460	Design Prototype SWA		PED	AN_PHPD	Hrs	32		1,437		1,437	45%
1	04	05	02	04		UN502_0460	Design Prototype SWA		PED	AN_ME	Hrs	40		3,345		3,345	45%
1	04	05	02	04		UN502_0460	Design Prototype SWA		PED	AN_MDD	Hrs	120		6,822		6,822	45%
1	04	05	02	04		UN502_0470	Mechanical Analysis - SWA		PED	AN_PHS	Hrs	8		669		669	45%
1	04	05	02	04		UN502_0470	Mechanical Analysis - SWA		PED	AN_PHPD	Hrs	24		1,078		1,078	45%
1	04	05	02	04		UN502_0470	Mechanical Analysis - SWA		PED	AN_ME	Hrs	24		2,007		2,007	45%
1	04	05	02	04		UN502_0480	Fabricate Prototype SWA		PED	AN_PHPD	Hrs	24		1,078		1,078	45%
1	04	05	02	04		UN502_0480	Fabricate Prototype SWA		PED	AN_MSEG	$$		35,000		35,000	35,000	45%
1	04	05	02	04		UN502_0480	Fabricate Prototype SWA		PED	AN_MFMS	Hrs	60		4,079		4,079	45%
1	04	05	02	04		UN502_0480	Fabricate Prototype SWA		PED	AN_ME	Hrs	24		2,007		2,007	45%
1	04	05	02	04		UN502_0490	Test Prototype SWA		CON	AN_PHS	Hrs	16		1,377		1,377	45%
1	04	05	02	04		UN502_0490	Test Prototype SWA		CON	AN_PHPD	Hrs	40		1,848		1,848	45%
1	04	05	02	04		UN502_0490	Test Prototype SWA		CON	AN_MFAT	Hrs	32		1,764		1,764	45%
1	04	05	02	04		UN502_0490	Test Prototype SWA		CON	AN_ME	Hrs	16		1,377		1,377	45%
1	04	05	02	04		UN502_0500	Preliminary SWA Design		PED	AN_PHS	Hrs	24		2,065		2,065	45%
1	04	05	02	04		UN502_0500	Preliminary SWA Design		PED	AN_PHPD	Hrs	40		1,848		1,848	45%
1	04	05	02	04		UN502_0500	Preliminary SWA Design		PED	AN_ME	Hrs	40		3,442		3,442	45%
1	04	05	02	04		UN502_0500	Preliminary SWA Design		PED	AN_MDD	Hrs	80		4,680		4,680	45%
1	04	05	02	04		UN502_0510	Design Review - SWA		PED	AN_PHS	Hrs	8		688		688	45%
1	04	05	02	04		UN502_0510	Design Review - SWA		PED	AN_PHPD	Hrs	24		1,109		1,109	45%
1	04	05	02	04		UN502_0510	Design Review - SWA		PED	AN_ME	Hrs	16		1,377		1,377	45%
1	04	05	02	04		UN502_0520	Final SWA Design		PED	AN_PHS	Hrs	8		688		688	45%
1	04	05	02	04		UN502_0520	Final SWA Design		PED	AN_PHPD	Hrs	32		1,478		1,478	45%
1	04	05	02	04		UN502_0520	Final SWA Design		PED	AN_ME	Hrs	32		2,754		2,754	45%
1	04	05	02	04		UN502_0520	Final SWA Design		PED	AN_MDD	Hrs	60		3,510		3,510	45%
1	04	05	02	04		UN502_0550	Procurement Bid Package -Photo electron detect		CON	AN_PHS	Hrs	8		688		688	45%
1	04	05	02	04		UN502_0550	Procurement Bid Package -Photo electron detect		CON	AN_PHPD	Hrs	16		739		739	45%
1	04	05	02	04		UN502_0550	Procurement Bid Package -Photo electron detect		CON	AN_ME	Hrs	8		688		688	45%
1	04	05	02	04		UN502_0540	Procurement Bid Package -Wire mounting rack		CON	AN_PHPD	Hrs	8		370		370	45%
1	04	05	02	04		UN502_0540	Procurement Bid Package -Wire mounting rack		CON	AN_ME	Hrs	16		1,377		1,377	45%
1	04	05	02	04		UN502_0530	Procurement Bid Package -Motorized scanner		CON	AN_PHPD	Hrs	8		370		370	45%
1	04	05	02	04		UN502_0530	Procurement Bid Package -Motorized scanner		CON	AN_ME	Hrs	16		1,377		1,377	45%
1	04	05	02	04		UN502_0560	Bid Process - SWA		CON	AN_PHPD	Hrs	8		380		380	45%
1	04	05	02	04		UN502_0560	Bid Process - SWA		CON	AN_ME	Hrs	8		708		708	45%
1	04	05	02	04		UN502_0561	Evaluate Bids		CON	AN_PHPD	Hrs	8		380		380	45%
1	04	05	02	04		UN502_0561	Evaluate Bids		CON	AN_ME	Hrs	8		708		708	45%
1	04	05	02	04		UN502_0595	AWARD: Photo electron detector (11) Sppt		CON	AN_PHPD	Hrs	8		380		380	45%
1	04	05	02	04		UN502_0595	AWARD: Photo electron detector (11) Sppt		CON	AN_ME	Hrs	8		708		708	45%
1	04	05	02	04		UN502_0585	AWARD: Wire mounting rack (11) Sppt		CON	AN_PHPD	Hrs	8		380		380	45%
1	04	05	02	04		UN502_0585	AWARD: Wire mounting rack (11) Sppt		CON	AN_ME	Hrs	8		708		708	45%
1	04	05	02	04		UN502_0575	AWARD: Motorized scanner (11) Sppt		CON	AN_PHPD	Hrs	8		380		380	45%
1	04	05	02	04		UN502_0575	AWARD: Motorized scanner (11) Sppt		CON	AN_ME	Hrs	8		708		708	45%
1	04	05	02	04		UN502_0618	Rec: Photo electron detector (11)		CON	AN_MSEG	$$		176,000		191,840	191,840	45%
1	04	05	02	04		UN502_0614	Rec: Wire Rack (11)		CON	AN_MSEG	$$		55,000		59,950	59,950	45%
1	04	05	02	04		UN502_0610	Rec: Motorized Scanner (11)		CON	AN_PHPD	Hrs	8		390		390	45%
1	04	05	02	04		UN502_0610	Rec: Motorized Scanner (11)		CON	AN_MSEG	$$		99,000		107,910	107,910	45%
1	04	05	02	04		UN502_0610	Rec: Motorized Scanner (11)		CON	AN_ME	Hrs	8		726		726	45%
1	**04**	**05**	**02**	**05**			**Optical transition radiation imaging assembly**					**1,284**	**410,000**	**86,664**	**444,650**	**531,314**	
1	04	05	02	05		UN502_0620	Design Prototype EBXPD-OTR		PED	AN_PHS	Hrs	24		2,007		2,007	30%
1	04	05	02	05		UN502_0620	Design Prototype EBXPD-OTR		PED	AN_PHPD	Hrs	40		1,796		1,796	30%
1	04	05	02	05		UN502_0620	Design Prototype EBXPD-OTR		PED	AN_ME	Hrs	40		3,345		3,345	30%
1	04	05	02	05		UN502_0620	Design Prototype EBXPD-OTR		PED	AN_MDD	Hrs	80		4,548		4,548	30%
1	04	05	02	05		UN502_0630	Mechanical Analysis - EBXPD -OTR		PED	AN_PHS	Hrs	16		1,338		1,338	30%
1	04	05	02	05		UN502_0630	Mechanical Analysis - EBXPD -OTR		PED	AN_ME	Hrs	24		2,007		2,007	30%
1	04	05	02	05		UN502_0640	Fabricate Prototype EBXPD-OTR		PED	AN_PHPD	Hrs	32		1,437		1,437	30%
1	04	05	02	05		UN502_0640	Fabricate Prototype EBXPD-OTR		PED	AN_MSEG	$$		25,000		25,000	25,000	30%
1	04	05	02	05		UN502_0640	Fabricate Prototype EBXPD-OTR		PED	AN_MFMS	Hrs	60		4,079		4,079	30%
1	04	05	02	05		UN502_0640	Fabricate Prototype EBXPD-OTR		PED	AN_ME	Hrs	32		2,676		2,676	30%
1	04	05	02	05		UN502_0650	Test Prototype LEBXPD-OTR		CON	AN_PHS	Hrs	8		688		688	30%
1	04	05	02	05		UN502_0650	Test Prototype LEBXPD-OTR		CON	AN_PHPD	Hrs	32		1,478		1,478	30%
1	04	05	02	05		UN502_0650	Test Prototype LEBXPD-OTR		CON	AN_MFAT	Hrs	32		1,764		1,764	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	05	02	05		UN502_0650	Test Prototype LEBXPD-OTR		CON	AN_ME	Hrs	16		1,377		1,377	30%
1	04	05	02	05		UN502_0660	Preliminary EBXPD-OTR Design		PED	AN_PHS	Hrs	32		2,754		2,754	30%
1	04	05	02	05		UN502_0660	Preliminary EBXPD-OTR Design		PED	AN_PHPD	Hrs	60		2,772		2,772	30%
1	04	05	02	05		UN502_0660	Preliminary EBXPD-OTR Design		PED	AN_ME	Hrs	60		5,163		5,163	30%
1	04	05	02	05		UN502_0660	Preliminary EBXPD-OTR Design		PED	AN_MDD	Hrs	80		4,680		4,680	30%
1	04	05	02	05		UN502_0670	Design Review - EBXPD-OTR		PED	AN_PHS	Hrs	16		1,377		1,377	30%
1	04	05	02	05		UN502_0670	Design Review - EBXPD-OTR		PED	AN_PHPD	Hrs	24		1,109		1,109	30%
1	04	05	02	05		UN502_0670	Design Review - EBXPD-OTR		PED	AN_ME	Hrs	16		1,377		1,377	30%
1	04	05	02	05		UN502_0680	Final EBXPD-OTR Design		PED	AN_PHS	Hrs	16		1,377		1,377	30%
1	04	05	02	05		UN502_0680	Final EBXPD-OTR Design		PED	AN_PHPD	Hrs	24		1,109		1,109	30%
1	04	05	02	05		UN502_0680	Final EBXPD-OTR Design		PED	AN_ME	Hrs	24		2,065		2,065	30%
1	04	05	02	05		UN502_0680	Final EBXPD-OTR Design		PED	AN_MDD	Hrs	40		2,340		2,340	30%
1	04	05	02	05		UN502_0730	Procurement Bid Package -Camera assembly and s		CON	AN_PHS	Hrs	16		1,377		1,377	30%
1	04	05	02	05		UN502_0730	Procurement Bid Package -Camera assembly and s		CON	AN_PHPD	Hrs	24		1,109		1,109	30%
1	04	05	02	05		UN502_0730	Procurement Bid Package -Camera assembly and s		CON	AN_ME	Hrs	8		688		688	30%
1	04	05	02	05		UN502_0720	Procurement Bid Package -Motorized filter / ap		CON	AN_PHS	Hrs	8		688		688	30%
1	04	05	02	05		UN502_0720	Procurement Bid Package -Motorized filter / ap		CON	AN_PHPD	Hrs	24		1,109		1,109	30%
1	04	05	02	05		UN502_0720	Procurement Bid Package -Motorized filter / ap		CON	AN_ME	Hrs	8		688		688	30%
1	04	05	02	05		UN502_0710	Procurement Bid Package -Light transport and i		CON	AN_PHS	Hrs	16		1,377		1,377	30%
1	04	05	02	05		UN502_0710	Procurement Bid Package -Light transport and i		CON	AN_PHPD	Hrs	24		1,109		1,109	30%
1	04	05	02	05		UN502_0710	Procurement Bid Package -Light transport and i		CON	AN_ME	Hrs	8		688		688	30%
1	04	05	02	05		UN502_0700	Procurement Bid Package -Motorized shutter		CON	AN_PHS	Hrs	8		688		688	30%
1	04	05	02	05		UN502_0700	Procurement Bid Package -Motorized shutter		CON	AN_PHPD	Hrs	8		370		370	30%
1	04	05	02	05		UN502_0700	Procurement Bid Package -Motorized shutter		CON	AN_ME	Hrs	24		2,065		2,065	30%
1	04	05	02	05		UN502_0690	Procurement Bid Package -Mirrors		CON	AN_PHS	Hrs	16		1,377		1,377	30%
1	04	05	02	05		UN502_0690	Procurement Bid Package -Mirrors		CON	AN_PHPD	Hrs	24		1,109		1,109	30%
1	04	05	02	05		UN502_0690	Procurement Bid Package -Mirrors		CON	AN_ME	Hrs	8		688		688	30%
1	04	05	02	05		UN502_0740	Bid Process - EBXPD-OTR		CON	AN_PHS	Hrs	8		708		708	30%
1	04	05	02	05		UN502_0740	Bid Process - EBXPD-OTR		CON	AN_PHPD	Hrs	8		380		380	30%
1	04	05	02	05		UN502_0740	Bid Process - EBXPD-OTR		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	02	05		UN502_0741	Evaluate Bids - EBXPD-OTR		CON	AN_PHS	Hrs	16		1,415		1,415	30%
1	04	05	02	05		UN502_0741	Evaluate Bids - EBXPD-OTR		CON	AN_PHPD	Hrs	16		760		760	30%
1	04	05	02	05		UN502_0741	Evaluate Bids - EBXPD-OTR		CON	AN_ME	Hrs	16		1,415		1,415	30%
1	04	05	02	05		UN502_0795	AWARD: Camera assm and shielding (11) Sppt		CON	AN_PHPD	Hrs	8		380		380	30%
1	04	05	02	05		UN502_0795	AWARD: Camera assm and shielding (11) Sppt		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	02	05		UN502_0785	AWARD: Motorized filter/apt changer (11) Sppt		CON	AN_PHPD	Hrs	8		380		380	30%
1	04	05	02	05		UN502_0785	AWARD: Motorized filter/apt changer (11) Sppt		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	02	05		UN502_0775	AWARD: Light transport/imaging optics Sppt		CON	AN_PHPD	Hrs	8		380		380	30%
1	04	05	02	05		UN502_0775	AWARD: Light transport/imaging optics Sppt		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	02	05		UN502_0765	AWARD: Motorized shutter (upstream) (11) Sppt		CON	AN_PHPD	Hrs	8		380		380	30%
1	04	05	02	05		UN502_0765	AWARD: Motorized shutter (upstream) (11) Sppt		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	02	05		UN502_0755	AWARD: Mirrors (11) Sppt		CON	AN_PHPD	Hrs	8		380		380	30%
1	04	05	02	05		UN502_0755	AWARD: Mirrors (11) Sppt		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	02	05		UN502_0818	Rec: Camera assembly and shielding (11)		CON	AN_MSEG	$$		110,000		119,900	119,900	30%
1	04	05	02	05		UN502_0816	Rec: Motorized filter/aperture changer (11)		CON	AN_MSEG	$$		77,000		83,930	83,930	30%
1	04	05	02	05		UN502_0814	Rec: Light transport/imaging optics (vac) (11)		CON	AN_MSEG	$$		99,000		107,910	107,910	30%
1	04	05	02	05		UN502_0812	Rec: Motorized Shutter (upstream) (11)		CON	AN_MSEG	$$		77,000		83,930	83,930	30%
1	04	05	02	05		UN502_0810	Rec: Mirrors (11)		CON	AN_PHS	Hrs	8		726		726	30%
1	04	05	02	05		UN502_0810	Rec: Mirrors (11)		CON	AN_PHPD	Hrs	16		780		780	30%
1	04	05	02	05		UN502_0810	Rec: Mirrors (11)		CON	AN_MSEG	$$		22,000		23,980	23,980	30%
1	04	05	02	05		UN502_0810	Rec: Mirrors (11)		CON	AN_ME	Hrs	16		1,452		1,452	30%
1	04	05	02	05		UN502_0820	QA EBXPD OTR		CON	AN_MFMS	Hrs	32		2,361		2,361	30%
1	04	05	02	05		UN502_0820	QA EBXPD OTR		CON	AN_ME	Hrs	8		726		726	30%
1	**04**	**05**	**02**	**06**			**Reserved**										
1	**04**	**05**	**02**	**07**			**Reserved**										
1	**04**	**05**	**02**	**08**			**Reserved**										
1	**04**	**05**	**02**	**09**			**EBXPD Design & Integration**					**1,492**	**21,000**	**104,470**	**22,260**	**126,730**	
1	04	05	02	09		UN502_1400	Prelim Design EBXPD station		PED	AN_PHS	Hrs	24		2,065		2,065	35%
1	04	05	02	09		UN502_1400	Prelim Design EBXPD station		PED	AN_PHPD	Hrs	24		1,109		1,109	35%
1	04	05	02	09		UN502_1400	Prelim Design EBXPD station		PED	AN_ME	Hrs	32		2,754		2,754	35%
1	04	05	02	09		UN502_1400	Prelim Design EBXPD station		PED	AN_MDD	Hrs	60		3,510		3,510	35%
1	04	05	02	09		UN502_1420	Prelim Design EBXPD Supports		PED	AN_PHS	Hrs	16		1,377		1,377	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	05	02	09		UN502_1420	Prelim Design EBXPD Supports		PED	AN_ME	Hrs	40		3,442		3,442	35%
1	04	05	02	09		UN502_1420	Prelim Design EBXPD Supports		PED	AN_MDD	Hrs	60		3,510		3,510	35%
1	04	05	02	09		UN502_1410	Prelim Design EBXPD Packaging for Shipment		PED	AN_ME	Hrs	16		1,377		1,377	35%
1	04	05	02	09		UN502_1410	Prelim Design EBXPD Packaging for Shipment		PED	AN_MDD	Hrs	32		1,872		1,872	35%
1	04	05	02	09		UN502_1430	Design Review - EBXPD		PED	AN_PHS	Hrs	24		2,065		2,065	35%
1	04	05	02	09		UN502_1430	Design Review - EBXPD		PED	AN_PHPD	Hrs	32		1,478		1,478	35%
1	04	05	02	09		UN502_1430	Design Review - EBXPD		PED	AN_ME	Hrs	24		2,065		2,065	35%
1	04	05	02	09		UN502_1460	Final Design EBXPD Supports		PED	AN_PHS	Hrs	24		2,065		2,065	35%
1	04	05	02	09		UN502_1460	Final Design EBXPD Supports		PED	AN_ME	Hrs	32		2,754		2,754	35%
1	04	05	02	09		UN502_1460	Final Design EBXPD Supports		PED	AN_MDD	Hrs	40		2,340		2,340	35%
1	04	05	02	09		UN502_1450	Final Design EBXPD Packaging for Shipment		PED	AN_ME	Hrs	16		1,377		1,377	35%
1	04	05	02	09		UN502_1450	Final Design EBXPD Packaging for Shipment		PED	AN_MDD	Hrs	24		1,404		1,404	35%
1	04	05	02	09		UN502_1440	Final Design EBXPD station		PED	AN_PHS	Hrs	16		1,377		1,377	35%
1	04	05	02	09		UN502_1440	Final Design EBXPD station		PED	AN_PHPD	Hrs	24		1,109		1,109	35%
1	04	05	02	09		UN502_1440	Final Design EBXPD station		PED	AN_ME	Hrs	40		3,442		3,442	35%
1	04	05	02	09		UN502_1440	Final Design EBXPD station		PED	AN_MDD	Hrs	40		2,340		2,340	35%
1	04	05	02	09		UN502_1650	Develop EBXPD Installation Plan		CON	AN_PHS	Hrs	24		2,065		2,065	35%
1	04	05	02	09		UN502_1650	Develop EBXPD Installation Plan		CON	AN_ME	Hrs	24		2,065		2,065	35%
1	04	05	02	09		UN502_1470	Prepare Bid Package EBXPD		CON	AN_PHPD	Hrs	16		739		739	35%
1	04	05	02	09		UN502_1470	Prepare Bid Package EBXPD		CON	AN_ME	Hrs	16		1,377		1,377	35%
1	04	05	02	09		UN502_1660	Review EBXPD installation Plan		CON	AN_SEE	Hrs	8		943		943	35%
1	04	05	02	09		UN502_1660	Review EBXPD installation Plan		CON	AN_PHS	Hrs	8		701		701	35%
1	04	05	02	09		UN502_1660	Review EBXPD installation Plan		CON	AN_ME	Hrs	8		701		701	35%
1	04	05	02	09		UN502_1480	Bid Process EBXPD		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	02	09		UN502_1495	AWARD: EBXPD Package Sppt		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	02	09		UN502_1540	Receive EBXPD		CON	AN_MSEG	$$		21,000		22,260	22,260	35%
1	04	05	02	09		UN502_1540	Receive EBXPD		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	02	09		UN502_1550	QA EBXPD		CON	AN_MFMS	Hrs	32		2,301		2,301	35%
1	04	05	02	09		UN502_1550	QA EBXPD		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	02	09		UN502_1560	Approve EBXPD		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	02	09		UN502_1570	Organize Parts for Assembly EBXPD		CON	AN_MFAT	Hrs	24		1,395		1,395	35%
1	04	05	02	09		UN502_1570	Organize Parts for Assembly EBXPD		CON	AN_ME	Hrs	16		1,452		1,452	35%
1	04	05	02	09		UN502_1580	Assemble EBXPD Package		CON	AN_PHS	Hrs	40		3,630		3,630	35%
1	04	05	02	09		UN502_1580	Assemble EBXPD Package		CON	AN_PHPD	Hrs	40		1,949		1,949	35%
1	04	05	02	09		UN502_1580	Assemble EBXPD Package		CON	AN_MFAT	Hrs	200		11,624		11,624	35%
1	04	05	02	09		UN502_1580	Assemble EBXPD Package		CON	AN_ME	Hrs	60		5,446		5,446	35%
1	04	05	02	09		UN502_1590	Integrate Controls into EBXPD		CON	AN_PHPD	Hrs	40		1,949		1,949	35%
1	04	05	02	09		UN502_1590	Integrate Controls into EBXPD		CON	AN_MFAT	Hrs	80		4,650		4,650	35%
1	04	05	02	09		UN502_1590	Integrate Controls into EBXPD		CON	AN_ME	Hrs	40		3,630		3,630	35%
1	04	05	02	09		UN502_1610	Assemble EBXPD into Shipping Pac		CON	AN_MFAT	Hrs	80		4,650		4,650	35%
1	04	05	02	09		UN502_1610	Assemble EBXPD into Shipping Pac		CON	AN_ME	Hrs	24		2,178		2,178	35%
1	04	05	02	09		UN502_1640	Transmit EBXPD Engineering Data to Slac		CON	AN_ME	Hrs	8		726		726	35%
1	04	05	02	09		UN502_1640	Transmit EBXPD Engineering Data to Slac		CON	AN_MDD	Hrs	8		494		494	35%
1	04	05	02	09		UN502_1620	Write Shipping Paper Work EBXPD		CON	AN_ME	Hrs	8		726		726	35%
1	**04**	**05**	**03**				**Reserved**										
1	**04**	**05**	**04**				**End-of-Undulator(EOU) X-ray and Profile diagnost**					**8,156**	**1,011,000**	**561,614**	**1,065,023**	**1,626,637**	
1	**04**	**05**	**04**	**01**			**Prototype Construction and Testing**					**1,028**	**20,000**	**69,098**	**20,600**	**89,698**	
1	04	05	04	01		UN504_0010	Specification EOU		PED	AN_PHS	Hrs	56		4,819		4,819	60%
1	04	05	04	01		UN504_0010	Specification EOU		PED	AN_PHPD	Hrs	80		3,696		3,696	60%
1	04	05	04	01		UN504_0010	Specification EOU		PED	AN_ME	Hrs	80		6,884		6,884	60%
1	04	05	04	01		UN504_0017	Design Test Device		PED	AN_PHS	Hrs	16		1,377		1,377	60%
1	04	05	04	01		UN504_0017	Design Test Device		PED	AN_PHPD	Hrs	40		1,848		1,848	60%
1	04	05	04	01		UN504_0017	Design Test Device		PED	AN_ME	Hrs	32		2,754		2,754	60%
1	04	05	04	01		UN504_0017	Design Test Device		PED	AN_MDD	Hrs	60		3,510		3,510	60%
1	04	05	04	01		UN504_0015	Design test Fixtures		PED	AN_PHS	Hrs	16		1,377		1,377	60%
1	04	05	04	01		UN504_0015	Design test Fixtures		PED	AN_PHPD	Hrs	16		739		739	60%
1	04	05	04	01		UN504_0015	Design test Fixtures		PED	AN_ME	Hrs	32		2,754		2,754	60%
1	04	05	04	01		UN504_0015	Design test Fixtures		PED	AN_MDD	Hrs	40		2,340		2,340	60%
1	04	05	04	01		UN504_0030	EOU Test Device Fabrication		PED	AN_PHPD	Hrs	40		1,848		1,848	60%
1	04	05	04	01		UN504_0030	EOU Test Device Fabrication		PED	AN_MFMS	Hrs	80		5,597		5,597	60%
1	04	05	04	01		UN504_0030	EOU Test Device Fabrication		PED	AN_ME	Hrs	32		2,754		2,754	60%
1	04	05	04	01		UN504_0020	Procure and Fabrication test Fixtures		CON	AN_PHPD	Hrs	24		1,109		1,109	60%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	05	04	01		UN504_0020	Procure and Fabrication test Fixtures		CON	AN_MSEG	$$		20,000		20,600	20,600	60%
1	04	05	04	01		UN504_0020	Procure and Fabrication test Fixtures		CON	AN_MFMS	Hrs	80		5,597		5,597	60%
1	04	05	04	01		UN504_0020	Procure and Fabrication test Fixtures		CON	AN_ME	Hrs	24		2,065		2,065	60%
1	04	05	04	01		UN504_0040	Define EOU Device Testing Facility		PED	AN_PHS	Hrs	24		2,065		2,065	60%
1	04	05	04	01		UN504_0040	Define EOU Device Testing Facility		PED	AN_PHPD	Hrs	24		1,109		1,109	60%
1	04	05	04	01		UN504_0040	Define EOU Device Testing Facility		PED	AN_ME	Hrs	16		1,377		1,377	60%
1	04	05	04	01		UN504_0050	Assemble Test Equipment and Station		CON	AN_PHS	Hrs	8		688		688	60%
1	04	05	04	01		UN504_0050	Assemble Test Equipment and Station		CON	AN_PHPD	Hrs	32		1,478		1,478	60%
1	04	05	04	01		UN504_0050	Assemble Test Equipment and Station		CON	AN_MFMS	Hrs	16		1,119		1,119	60%
1	04	05	04	01		UN504_0050	Assemble Test Equipment and Station		CON	AN_MFAT	Hrs	48		2,645		2,645	60%
1	04	05	04	01		UN504_0050	Assemble Test Equipment and Station		CON	AN_ME	Hrs	32		2,754		2,754	60%
1	04	05	04	01		UN504_0060	Integrate Controls into Test station		CON	AN_PHS	Hrs	8		688		688	60%
1	04	05	04	01		UN504_0060	Integrate Controls into Test station		CON	AN_PHPD	Hrs	40		1,848		1,848	60%
1	04	05	04	01		UN504_0060	Integrate Controls into Test station		CON	AN_MFAT	Hrs	16		882		882	60%
1	04	05	04	01		UN504_0060	Integrate Controls into Test station		CON	AN_ME	Hrs	16		1,377		1,377	60%
1	**04**	**05**	**04**	**02**			**Bunch Length Monitor-Streak Camera (BLM)**					**1,172**	**700,000**	**80,012**	**732,543**	**812,555**	
1	04	05	04	02		UN504_0080	BLM Prototype Specification		CON	AN_PHS	Hrs	32		2,754		2,754	30%
1	04	05	04	02		UN504_0080	BLM Prototype Specification		CON	AN_PHPD	Hrs	60		2,772		2,772	30%
1	04	05	04	02		UN504_0080	BLM Prototype Specification		CON	AN_ME	Hrs	32		2,754		2,754	30%
1	04	05	04	02		UN504_0090	BLM Prototype Design		CON	AN_PHS	Hrs	8		688		688	30%
1	04	05	04	02		UN504_0090	BLM Prototype Design		CON	AN_PHPD	Hrs	40		1,848		1,848	30%
1	04	05	04	02		UN504_0090	BLM Prototype Design		CON	AN_ME	Hrs	40		3,442		3,442	30%
1	04	05	04	02		UN504_0090	BLM Prototype Design		CON	AN_MDD	Hrs	80		4,680		4,680	30%
1	04	05	04	02		UN504_0100	BLM Prototype Fabrication		CON	AN_PHPD	Hrs	24		1,109		1,109	30%
1	04	05	04	02		UN504_0100	BLM Prototype Fabrication		CON	AN_MFMS	Hrs	80		5,597		5,597	30%
1	04	05	04	02		UN504_0100	BLM Prototype Fabrication		CON	AN_ME	Hrs	24		2,065		2,065	30%
1	04	05	04	02		UN504_0110	Procurement Bid Package -Streak Camera Station		CON	AN_PHS	Hrs	24		2,065		2,065	30%
1	04	05	04	02		UN504_0110	Procurement Bid Package -Streak Camera Station		CON	AN_PHPD	Hrs	40		1,848		1,848	30%
1	04	05	04	02		UN504_0110	Procurement Bid Package -Streak Camera Station		CON	AN_ME	Hrs	16		1,377		1,377	30%
1	04	05	04	02		UN504_0112	Procurement Bid Process- Streak Camera Station		CON	AN_ME	Hrs	8		688		688	30%
1	04	05	04	02		UN504_0116	Evaluate Bids - Streak Camera Station		CON	AN_ME	Hrs	8		688		688	30%
1	04	05	04	02		UN504_0125	AWARD: Streak Camera Station Sppt		CON	AN_PHS	Hrs	8		688		688	30%
1	04	05	04	02		UN504_0125	AWARD: Streak Camera Station Sppt		CON	AN_PHPD	Hrs	8		370		370	30%
1	04	05	04	02		UN504_0125	AWARD: Streak Camera Station Sppt		CON	AN_ME	Hrs	8		688		688	30%
1	04	05	04	02		UN504_0130	Receive Streak Camera		CON	AN_PHS	Hrs	8		692		692	30%
1	04	05	04	02		UN504_0130	Receive Streak Camera		CON	AN_PHPD	Hrs	24		1,115		1,115	30%
1	04	05	04	02		UN504_0130	Receive Streak Camera		CON	AN_MSEG	$$		400,000		414,543	414,543	30%
1	04	05	04	02		UN504_0130	Receive Streak Camera		CON	AN_ME	Hrs	8		692		692	30%
1	04	05	04	02		UN504_0140	BLM Prototype Testing		CON	AN_PHS	Hrs	24		2,123		2,123	30%
1	04	05	04	02		UN504_0140	BLM Prototype Testing		CON	AN_PHPD	Hrs	64		3,039		3,039	30%
1	04	05	04	02		UN504_0140	BLM Prototype Testing		CON	AN_MFAT	Hrs	40		2,266		2,266	30%
1	04	05	04	02		UN504_0140	BLM Prototype Testing		CON	AN_ME	Hrs	40		3,538		3,538	30%
1	04	05	04	02		UN504_0150	Review of PRT BLM Testing		CON	AN_PHS	Hrs	16		1,415		1,415	30%
1	04	05	04	02		UN504_0150	Review of PRT BLM Testing		CON	AN_PHPD	Hrs	40		1,900		1,900	30%
1	04	05	04	02		UN504_0150	Review of PRT BLM Testing		CON	AN_ME	Hrs	16		1,415		1,415	30%
1	04	05	04	02		UN504_0210	Procurement Bid Package -Misc Parts & Vacuum C		CON	AN_PHS	Hrs	8		708		708	30%
1	04	05	04	02		UN504_0210	Procurement Bid Package -Misc Parts & Vacuum C		CON	AN_PHPD	Hrs	16		760		760	30%
1	04	05	04	02		UN504_0210	Procurement Bid Package -Misc Parts & Vacuum C		CON	AN_ME	Hrs	24		2,123		2,123	30%
1	04	05	04	02		UN504_0200	Procurement Bid Package -Timing System		CON	AN_PHS	Hrs	24		2,123		2,123	30%
1	04	05	04	02		UN504_0200	Procurement Bid Package -Timing System		CON	AN_PHPD	Hrs	32		1,520		1,520	30%
1	04	05	04	02		UN504_0200	Procurement Bid Package -Timing System		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	04	02		UN504_0190	Procurement Bid Package -Electro Optics Measur		CON	AN_PHS	Hrs	8		708		708	30%
1	04	05	04	02		UN504_0190	Procurement Bid Package -Electro Optics Measur		CON	AN_PHPD	Hrs	16		760		760	30%
1	04	05	04	02		UN504_0190	Procurement Bid Package -Electro Optics Measur		CON	AN_ME	Hrs	16		1,415		1,415	30%
1	04	05	04	02		UN504_0220	Procurement Bid Process - BLM		CON	AN_PHS	Hrs	8		708		708	30%
1	04	05	04	02		UN504_0220	Procurement Bid Process - BLM		CON	AN_PHPD	Hrs	8		380		380	30%
1	04	05	04	02		UN504_0220	Procurement Bid Process - BLM		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	04	02		UN504_0225	Evaluate Bids - BLM		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	04	02		UN504_0155	AWARD: Misc Parts & Vacuum Chamber Sppt		CON	AN_PHS	Hrs	8		708		708	30%
1	04	05	04	02		UN504_0155	AWARD: Misc Parts & Vacuum Chamber Sppt		CON	AN_PHPD	Hrs	8		380		380	30%
1	04	05	04	02		UN504_0155	AWARD: Misc Parts & Vacuum Chamber Sppt		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	04	02		UN504_0145	AWARD: Timing System Sppt		CON	AN_PHS	Hrs	8		708		708	30%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	05	04	02		UN504_0145	AWARD: Timing System Sppt		CON	AN_PHPD	Hrs	16		760		760	30%
1	04	05	04	02		UN504_0145	AWARD: Timing System Sppt		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	04	02		UN504_0135	AWARD: Electro Optics Measurements Sppt		CON	AN_PHS	Hrs	8		708		708	30%
1	04	05	04	02		UN504_0135	AWARD: Electro Optics Measurements Sppt		CON	AN_PHPD	Hrs	8		380		380	30%
1	04	05	04	02		UN504_0135	AWARD: Electro Optics Measurements Sppt		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	04	02		UN504_0270	Receive Packages		CON	AN_PHS	Hrs	8		708		708	30%
1	04	05	04	02		UN504_0270	Receive Packages		CON	AN_PHPD	Hrs	16		760		760	30%
1	04	05	04	02		UN504_0270	Receive Packages		CON	AN_MSEG	$$		300,000		318,000	318,000	30%
1	04	05	04	02		UN504_0270	Receive Packages		CON	AN_ME	Hrs	16		1,415		1,415	30%
1	04	05	04	02		UN504_0280	QA BLM		CON	AN_MFMS	Hrs	32		2,301		2,301	30%
1	04	05	04	02		UN504_0280	QA BLM		CON	AN_ME	Hrs	16		1,415		1,415	30%
1	**04**	**05**	**04**	**03**			**Upstream corrector / separator**					**1,192**	**-**	**81,870**	**-**	**81,870**	
1	04	05	04	03		UN504_0300	Upstream corrector / separator Specification		PED	AN_PHS	Hrs	32		2,754		2,754	35%
1	04	05	04	03		UN504_0300	Upstream corrector / separator Specification		PED	AN_PHPD	Hrs	60		2,772		2,772	35%
1	04	05	04	03		UN504_0300	Upstream corrector / separator Specification		PED	AN_ME	Hrs	60		5,163		5,163	35%
1	04	05	04	03		UN504_0310	Upstream corrector / separator Design		PED	AN_PHS	Hrs	40		3,442		3,442	35%
1	04	05	04	03		UN504_0310	Upstream corrector / separator Design		PED	AN_PHPD	Hrs	96		4,435		4,435	35%
1	04	05	04	03		UN504_0310	Upstream corrector / separator Design		PED	AN_ME	Hrs	80		6,884		6,884	35%
1	04	05	04	03		UN504_0310	Upstream corrector / separator Design		PED	AN_MDD	Hrs	120		7,020		7,020	35%
1	04	05	04	03		UN504_0320	Upstream corrector / separator Prototype Fabri		CON	AN_PHPD	Hrs	32		1,478		1,478	35%
1	04	05	04	03		UN504_0320	Upstream corrector / separator Prototype Fabri		CON	AN_MFMS	Hrs	160		11,194		11,194	35%
1	04	05	04	03		UN504_0320	Upstream corrector / separator Prototype Fabri		CON	AN_ME	Hrs	32		2,754		2,754	35%
1	04	05	04	03		UN504_0330	Upstream corrector / separator Prototype Testi		PED	AN_PHS	Hrs	24		2,123		2,123	35%
1	04	05	04	03		UN504_0330	Upstream corrector / separator Prototype Testi		PED	AN_PHPD	Hrs	24		1,140		1,140	35%
1	04	05	04	03		UN504_0330	Upstream corrector / separator Prototype Testi		PED	AN_MFAT	Hrs	40		2,266		2,266	35%
1	04	05	04	03		UN504_0330	Upstream corrector / separator Prototype Testi		PED	AN_ME	Hrs	24		2,123		2,123	35%
1	04	05	04	03		UN504_0340	Review of Testing		CON	AN_PHS	Hrs	16		1,415		1,415	35%
1	04	05	04	03		UN504_0340	Review of Testing		CON	AN_PHPD	Hrs	16		760		760	35%
1	04	05	04	03		UN504_0340	Review of Testing		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	03		UN504_0390	Procurement Bid Package -Kicker power supply		CON	AN_PHS	Hrs	16		1,415		1,415	35%
1	04	05	04	03		UN504_0390	Procurement Bid Package -Kicker power supply		CON	AN_PHPD	Hrs	32		1,520		1,520	35%
1	04	05	04	03		UN504_0390	Procurement Bid Package -Kicker power supply		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	03		UN504_0380	Procurement Bid Package -3 mrad kicker		CON	AN_PHS	Hrs	16		1,415		1,415	35%
1	04	05	04	03		UN504_0380	Procurement Bid Package -3 mrad kicker		CON	AN_PHPD	Hrs	32		1,520		1,520	35%
1	04	05	04	03		UN504_0380	Procurement Bid Package -3 mrad kicker		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	04	03		UN504_0400	Bid Process		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	03		UN504_0400	Bid Process		CON	AN_PHPD	Hrs	8		380		380	35%
1	04	05	04	03		UN504_0400	Bid Process		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	04	03		UN504_0420	AWARD: Kicker power supply		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	03		UN504_0420	AWARD: Kicker power supply		CON	AN_PHPD	Hrs	8		380		380	35%
1	04	05	04	03		UN504_0420	AWARD: Kicker power supply		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	04	03		UN504_0410	AWARD: 3 mrad kicker		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	03		UN504_0410	AWARD: 3 mrad kicker		CON	AN_PHPD	Hrs	16		760		760	35%
1	04	05	04	03		UN504_0410	AWARD: 3 mrad kicker		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	04	03		UN504_0440	Receive Packages		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	03		UN504_0440	Receive Packages		CON	AN_PHPD	Hrs	24		1,140		1,140	35%
1	04	05	04	03		UN504_0440	Receive Packages		CON	AN_ME	Hrs	24		2,123		2,123	35%
1	04	05	04	03		UN504_0450	QA Upstream Corrector/Separator		CON	AN_MFMS	Hrs	40		2,877		2,877	35%
1	04	05	04	03		UN504_0450	QA Upstream Corrector/Separator		CON	AN_ME	Hrs	24		2,123		2,123	35%
1	**04**	**05**	**04**	**04**			**Optical Diffraction radiation imaging assembly (**					**1,252**	**28,000**	**87,729**	**29,680**	**117,409**	
1	04	05	04	04		UN504_0470	EOU-OTR Prototype Specification		PED	AN_PHS	Hrs	24		2,065		2,065	35%
1	04	05	04	04		UN504_0470	EOU-OTR Prototype Specification		PED	AN_PHPD	Hrs	48		2,218		2,218	35%
1	04	05	04	04		UN504_0470	EOU-OTR Prototype Specification		PED	AN_ME	Hrs	40		3,442		3,442	35%
1	04	05	04	04		UN504_0480	EOU-OTR Prototype Design		PED	AN_PHS	Hrs	40		3,442		3,442	35%
1	04	05	04	04		UN504_0480	EOU-OTR Prototype Design		PED	AN_PHPD	Hrs	60		2,772		2,772	35%
1	04	05	04	04		UN504_0480	EOU-OTR Prototype Design		PED	AN_ME	Hrs	60		5,163		5,163	35%
1	04	05	04	04		UN504_0480	EOU-OTR Prototype Design		PED	AN_MDD	Hrs	80		4,680		4,680	35%
1	04	05	04	04		UN504_0485	EOU-OTR Prototype Design Review		PED	AN_PHS	Hrs	8		688		688	35%
1	04	05	04	04		UN504_0485	EOU-OTR Prototype Design Review		PED	AN_ME	Hrs	16		1,377		1,377	35%
1	04	05	04	04		UN504_0490	EOU-OTR Prototype Fabrication		PED	AN_PHPD	Hrs	24		1,109		1,109	35%
1	04	05	04	04		UN504_0490	EOU-OTR Prototype Fabrication		PED	AN_MFMS	Hrs	80		5,597		5,597	35%
1	04	05	04	04		UN504_0490	EOU-OTR Prototype Fabrication		PED	AN_ME	Hrs	24		2,065		2,065	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	05	04	04		UN504_0500	EOU-OTR Prototype Testing		PED	AN_PHS	Hrs	16		1,415		1,415	35%
1	04	05	04	04		UN504_0500	EOU-OTR Prototype Testing		PED	AN_PHPD	Hrs	32		1,520		1,520	35%
1	04	05	04	04		UN504_0500	EOU-OTR Prototype Testing		PED	AN_MFAT	Hrs	60		3,399		3,399	35%
1	04	05	04	04		UN504_0500	EOU-OTR Prototype Testing		PED	AN_ME	Hrs	32		2,831		2,831	35%
1	04	05	04	04		UN504_0510	Review of Testing		CON	AN_PHS	Hrs	16		1,415		1,415	35%
1	04	05	04	04		UN504_0510	Review of Testing		CON	AN_PHPD	Hrs	32		1,520		1,520	35%
1	04	05	04	04		UN504_0510	Review of Testing		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	04		UN504_0590	Procurement Bid Package -Hardware		CON	AN_PHS	Hrs	16		1,415		1,415	35%
1	04	05	04	04		UN504_0590	Procurement Bid Package -Hardware		CON	AN_PHPD	Hrs	24		1,140		1,140	35%
1	04	05	04	04		UN504_0590	Procurement Bid Package -Hardware		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	04		UN504_0580	Procurement Bid Package -Support Table		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	04		UN504_0580	Procurement Bid Package -Support Table		CON	AN_PHPD	Hrs	8		380		380	35%
1	04	05	04	04		UN504_0580	Procurement Bid Package -Support Table		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	04		UN504_0570	Procurement Bid Package -Vacuum Vessel		CON	AN_PHS	Hrs	16		1,415		1,415	35%
1	04	05	04	04		UN504_0570	Procurement Bid Package -Vacuum Vessel		CON	AN_PHPD	Hrs	8		380		380	35%
1	04	05	04	04		UN504_0570	Procurement Bid Package -Vacuum Vessel		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	04		UN504_0560	Procurement Bid Package -Optical parts		CON	AN_PHS	Hrs	16		1,415		1,415	35%
1	04	05	04	04		UN504_0560	Procurement Bid Package -Optical parts		CON	AN_PHPD	Hrs	24		1,140		1,140	35%
1	04	05	04	04		UN504_0560	Procurement Bid Package -Optical parts		CON	AN_ME	Hrs	24		2,123		2,123	35%
1	04	05	04	04		UN504_0550	Procurement Bid Package -Translation Assembly		CON	AN_PHS	Hrs	16		1,415		1,415	35%
1	04	05	04	04		UN504_0550	Procurement Bid Package -Translation Assembly		CON	AN_PHPD	Hrs	24		1,140		1,140	35%
1	04	05	04	04		UN504_0550	Procurement Bid Package -Translation Assembly		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	04	04		UN504_0600	Bid Process		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	04		UN504_0600	Bid Process		CON	AN_PHPD	Hrs	16		760		760	35%
1	04	05	04	04		UN504_0600	Bid Process		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	04		UN504_0655	AWARD: Hardware Sppt		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	04		UN504_0655	AWARD: Hardware Sppt		CON	AN_PHPD	Hrs	16		760		760	35%
1	04	05	04	04		UN504_0655	AWARD: Hardware Sppt		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	04		UN504_0645	AWARD: Support Table Sppt		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	04		UN504_0645	AWARD: Support Table Sppt		CON	AN_PHPD	Hrs	16		760		760	35%
1	04	05	04	04		UN504_0645	AWARD: Support Table Sppt		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	04	04		UN504_0635	AWARD: Vacuum Vessel Sppt		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	04		UN504_0635	AWARD: Vacuum Vessel Sppt		CON	AN_PHPD	Hrs	16		760		760	35%
1	04	05	04	04		UN504_0635	AWARD: Vacuum Vessel Sppt		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	04		UN504_0625	AWARD: Optical parts Sppt		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	04		UN504_0625	AWARD: Optical parts Sppt		CON	AN_PHPD	Hrs	8		380		380	35%
1	04	05	04	04		UN504_0625	AWARD: Optical parts Sppt		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	04		UN504_0615	AWARD: Translation Assembly w/mirrors Sppt		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	04		UN504_0615	AWARD: Translation Assembly w/mirrors Sppt		CON	AN_PHPD	Hrs	16		760		760	35%
1	04	05	04	04		UN504_0615	AWARD: Translation Assembly w/mirrors Sppt		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	04	04		UN504_0670	Receive Packages		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	04		UN504_0670	Receive Packages		CON	AN_PHPD	Hrs	16		760		760	35%
1	04	05	04	04		UN504_0670	Receive Packages		CON	AN_MSEG	$$		28,000		29,680	29,680	35%
1	04	05	04	04		UN504_0670	Receive Packages		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	04		UN504_0680	QA EOU ODR Assembly		CON	AN_MFMS	Hrs	40		2,877		2,877	35%
1	04	05	04	04		UN504_0680	QA EOU ODR Assembly		CON	AN_ME	Hrs	8		708		708	35%
1	**04**	**05**	**04**	**05**			**X-ray High Resolution monochromator assembly (EO**					**1,324**	**149,000**	**91,875**	**157,940**	**249,815**	
1	04	05	04	05		UN504_0700	EOU-XRM Prototype Specification		PED	AN_PHS	Hrs	24		2,065		2,065	35%
1	04	05	04	05		UN504_0700	EOU-XRM Prototype Specification		PED	AN_PHPD	Hrs	32		1,478		1,478	35%
1	04	05	04	05		UN504_0700	EOU-XRM Prototype Specification		PED	AN_ME	Hrs	24		2,065		2,065	35%
1	04	05	04	05		UN504_0710	EOU-XRM Prototype Design		PED	AN_PHS	Hrs	40		3,442		3,442	35%
1	04	05	04	05		UN504_0710	EOU-XRM Prototype Design		PED	AN_PHPD	Hrs	80		3,696		3,696	35%
1	04	05	04	05		UN504_0710	EOU-XRM Prototype Design		PED	AN_ME	Hrs	60		5,163		5,163	35%
1	04	05	04	05		UN504_0710	EOU-XRM Prototype Design		PED	AN_MDD	Hrs	120		7,020		7,020	35%
1	04	05	04	05		UN504_0720	EOU-XRM Prototype Fabrication		PED	AN_PHPD	Hrs	16		739		739	35%
1	04	05	04	05		UN504_0720	EOU-XRM Prototype Fabrication		PED	AN_MFMS	Hrs	80		5,597		5,597	35%
1	04	05	04	05		UN504_0720	EOU-XRM Prototype Fabrication		PED	AN_ME	Hrs	24		2,065		2,065	35%
1	04	05	04	05		UN504_0730	EOU-XRM Prototype Testing		PED	AN_PHS	Hrs	24		2,123		2,123	35%
1	04	05	04	05		UN504_0730	EOU-XRM Prototype Testing		PED	AN_PHPD	Hrs	40		1,900		1,900	35%
1	04	05	04	05		UN504_0730	EOU-XRM Prototype Testing		PED	AN_MFAT	Hrs	80		4,532		4,532	35%
1	04	05	04	05		UN504_0730	EOU-XRM Prototype Testing		PED	AN_ME	Hrs	40		3,538		3,538	35%
1	04	05	04	05		UN504_0740	Review of Testing		CON	AN_PHS	Hrs	24		2,123		2,123	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	05	04	05		UN504_0740	Review of Testing		CON	AN_PHPD	Hrs	24		1,140		1,140	35%
1	04	05	04	05		UN504_0740	Review of Testing		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	05		UN504_0820	Procurement Bid Package -Vacuum Vessel		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	05		UN504_0820	Procurement Bid Package -Vacuum Vessel		CON	AN_PHPD	Hrs	8		380		380	35%
1	04	05	04	05		UN504_0820	Procurement Bid Package -Vacuum Vessel		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	05		UN504_0810	Procurement Bid Package -Detector & Visible Op		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	05		UN504_0810	Procurement Bid Package -Detector & Visible Op		CON	AN_PHPD	Hrs	24		1,140		1,140	35%
1	04	05	04	05		UN504_0810	Procurement Bid Package -Detector & Visible Op		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	04	05		UN504_0800	Procurement Bid Package -X-Ray Optics		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	05		UN504_0800	Procurement Bid Package -X-Ray Optics		CON	AN_PHPD	Hrs	24		1,140		1,140	35%
1	04	05	04	05		UN504_0800	Procurement Bid Package -X-Ray Optics		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	04	05		UN504_0790	Procurement Bid Package -Rotary Assembly		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	05		UN504_0790	Procurement Bid Package -Rotary Assembly		CON	AN_PHPD	Hrs	24		1,140		1,140	35%
1	04	05	04	05		UN504_0790	Procurement Bid Package -Rotary Assembly		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	05		UN504_0780	Procurement Bid Package -Translation Assembly		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	05		UN504_0780	Procurement Bid Package -Translation Assembly		CON	AN_PHPD	Hrs	8		380		380	35%
1	04	05	04	05		UN504_0780	Procurement Bid Package -Translation Assembly		CON	AN_ME	Hrs	24		2,123		2,123	35%
1	04	05	04	05		UN504_0830	Procurement Bid Package -Support Table and Har		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	05		UN504_0830	Procurement Bid Package -Support Table and Har		CON	AN_PHPD	Hrs	8		380		380	35%
1	04	05	04	05		UN504_0830	Procurement Bid Package -Support Table and Har		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	05		UN504_0840	Bid Process		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	05		UN504_0840	Bid Process		CON	AN_PHPD	Hrs	16		760		760	35%
1	04	05	04	05		UN504_0840	Bid Process		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	05		UN504_0905	AWARD: Support Table and Hardware Sppt		CON	AN_PHS	Hrs	16		1,415		1,415	35%
1	04	05	04	05		UN504_0905	AWARD: Support Table and Hardware Sppt		CON	AN_PHPD	Hrs	16		760		760	35%
1	04	05	04	05		UN504_0905	AWARD: Support Table and Hardware Sppt		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	05		UN504_0895	AWARD: Vacuum Vessel Sppt		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	05		UN504_0895	AWARD: Vacuum Vessel Sppt		CON	AN_PHPD	Hrs	16		760		760	35%
1	04	05	04	05		UN504_0895	AWARD: Vacuum Vessel Sppt		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	05		UN504_0885	AWARD: Detector & Visible Optics Parts Sppt		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	05		UN504_0885	AWARD: Detector & Visible Optics Parts Sppt		CON	AN_PHPD	Hrs	16		760		760	35%
1	04	05	04	05		UN504_0885	AWARD: Detector & Visible Optics Parts Sppt		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	04	05		UN504_0875	AWARD: X-Ray Optics Sppt		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	05		UN504_0875	AWARD: X-Ray Optics Sppt		CON	AN_PHPD	Hrs	16		760		760	35%
1	04	05	04	05		UN504_0875	AWARD: X-Ray Optics Sppt		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	04	05		UN504_0865	AWARD: Rotary Assembly Sppt		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	05		UN504_0865	AWARD: Rotary Assembly Sppt		CON	AN_PHPD	Hrs	8		380		380	35%
1	04	05	04	05		UN504_0865	AWARD: Rotary Assembly Sppt		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	05		UN504_0855	AWARD: Translation Assembly Sppt		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	05		UN504_0855	AWARD: Translation Assembly Sppt		CON	AN_PHPD	Hrs	8		380		380	35%
1	04	05	04	05		UN504_0855	AWARD: Translation Assembly Sppt		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	05		UN504_0920	Receive Packages		CON	AN_PHS	Hrs	8		708		708	35%
1	04	05	04	05		UN504_0920	Receive Packages		CON	AN_PHPD	Hrs	16		760		760	35%
1	04	05	04	05		UN504_0920	Receive Packages		CON	AN_MSEG	$$		149,000		157,940	157,940	35%
1	04	05	04	05		UN504_0920	Receive Packages		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	04	05		UN504_0930	QA EOU XRM Assembly		CON	AN_MFMS	Hrs	40		2,877		2,877	35%
1	04	05	04	05		UN504_0930	QA EOU XRM Assembly		CON	AN_ME	Hrs	8		708		708	35%
1	**04**	**05**	**04**	**06**			**X-ray Imaging High Resolution detector assembly**					**1,264**	**114,000**	**88,076**	**124,260**	**212,336**	
1	04	05	04	06		UN504_0950	EOU-XRID Prototype Specification		PED	AN_PHS	Hrs	24		2,065		2,065	45%
1	04	05	04	06		UN504_0950	EOU-XRID Prototype Specification		PED	AN_PHPD	Hrs	40		1,848		1,848	45%
1	04	05	04	06		UN504_0950	EOU-XRID Prototype Specification		PED	AN_ME	Hrs	40		3,442		3,442	45%
1	04	05	04	06		UN504_0960	EOU-XRID Prototype Design		PED	AN_PHS	Hrs	40		3,442		3,442	45%
1	04	05	04	06		UN504_0960	EOU-XRID Prototype Design		PED	AN_PHPD	Hrs	60		2,772		2,772	45%
1	04	05	04	06		UN504_0960	EOU-XRID Prototype Design		PED	AN_ME	Hrs	60		5,163		5,163	45%
1	04	05	04	06		UN504_0960	EOU-XRID Prototype Design		PED	AN_MDD	Hrs	80		4,680		4,680	45%
1	04	05	04	06		UN504_0970	EOU-XRID Prototype Fabrication		PED	AN_PHPD	Hrs	24		1,109		1,109	45%
1	04	05	04	06		UN504_0970	EOU-XRID Prototype Fabrication		PED	AN_MFMS	Hrs	80		5,597		5,597	45%
1	04	05	04	06		UN504_0970	EOU-XRID Prototype Fabrication		PED	AN_ME	Hrs	24		2,065		2,065	45%
1	04	05	04	06		UN504_0980	EOU-XRID Prototype Testing		PED	AN_PHS	Hrs	16		1,415		1,415	45%
1	04	05	04	06		UN504_0980	EOU-XRID Prototype Testing		PED	AN_PHPD	Hrs	40		1,900		1,900	45%
1	04	05	04	06		UN504_0980	EOU-XRID Prototype Testing		PED	AN_MFAT	Hrs	40		2,266		2,266	45%
1	04	05	04	06		UN504_0980	EOU-XRID Prototype Testing		PED	AN_ME	Hrs	24		2,123		2,123	45%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	05	04	06		UN504_0990	Review of Testing		CON	AN_PHS	Hrs	16		1,415		1,415	45%
1	04	05	04	06		UN504_0990	Review of Testing		CON	AN_PHPD	Hrs	40		1,900		1,900	45%
1	04	05	04	06		UN504_0990	Review of Testing		CON	AN_ME	Hrs	40		3,538		3,538	45%
1	04	05	04	06		UN504_1060	Procurement Bid Package of Vacuum vessel		CON	AN_PHS	Hrs	8		708		708	45%
1	04	05	04	06		UN504_1060	Procurement Bid Package of Vacuum vessel		CON	AN_PHPD	Hrs	8		380		380	45%
1	04	05	04	06		UN504_1060	Procurement Bid Package of Vacuum vessel		CON	AN_ME	Hrs	24		2,123		2,123	45%
1	04	05	04	06		UN504_1050	Procurement Bid Package of Ion / electron dete		CON	AN_PHS	Hrs	8		708		708	45%
1	04	05	04	06		UN504_1050	Procurement Bid Package of Ion / electron dete		CON	AN_PHPD	Hrs	24		1,140		1,140	45%
1	04	05	04	06		UN504_1050	Procurement Bid Package of Ion / electron dete		CON	AN_ME	Hrs	8		708		708	45%
1	04	05	04	06		UN504_1040	Procurement Bid Package of Ion / electron acce		CON	AN_PHS	Hrs	8		708		708	45%
1	04	05	04	06		UN504_1040	Procurement Bid Package of Ion / electron acce		CON	AN_PHPD	Hrs	24		1,140		1,140	45%
1	04	05	04	06		UN504_1040	Procurement Bid Package of Ion / electron acce		CON	AN_ME	Hrs	8		708		708	45%
1	04	05	04	06		UN504_1030	Procurement Bid Package of Ion / electron gun		CON	AN_PHS	Hrs	8		708		708	45%
1	04	05	04	06		UN504_1030	Procurement Bid Package of Ion / electron gun		CON	AN_PHPD	Hrs	16		760		760	45%
1	04	05	04	06		UN504_1030	Procurement Bid Package of Ion / electron gun		CON	AN_ME	Hrs	8		708		708	45%
1	04	05	04	06		UN504_1070	Procurement Bid Package of Translation stage		CON	AN_PHS	Hrs	8		708		708	45%
1	04	05	04	06		UN504_1070	Procurement Bid Package of Translation stage		CON	AN_PHPD	Hrs	24		1,140		1,140	45%
1	04	05	04	06		UN504_1070	Procurement Bid Package of Translation stage		CON	AN_ME	Hrs	24		2,123		2,123	45%
1	04	05	04	06		UN504_1080	Procurement Bid Package of Support Table & Har		CON	AN_PHS	Hrs	8		708		708	45%
1	04	05	04	06		UN504_1080	Procurement Bid Package of Support Table & Har		CON	AN_PHPD	Hrs	24		1,140		1,140	45%
1	04	05	04	06		UN504_1080	Procurement Bid Package of Support Table & Har		CON	AN_ME	Hrs	24		2,123		2,123	45%
1	04	05	04	06		UN504_1090	Bid Process		CON	AN_PHS	Hrs	8		708		708	45%
1	04	05	04	06		UN504_1090	Bid Process		CON	AN_PHPD	Hrs	16		760		760	45%
1	04	05	04	06		UN504_1090	Bid Process		CON	AN_ME	Hrs	16		1,415		1,415	45%
1	04	05	04	06		UN504_1155	AWARD: Support Table & Hardware Sppt		CON	AN_PHS	Hrs	8		708		708	45%
1	04	05	04	06		UN504_1155	AWARD: Support Table & Hardware Sppt		CON	AN_PHPD	Hrs	8		380		380	45%
1	04	05	04	06		UN504_1155	AWARD: Support Table & Hardware Sppt		CON	AN_ME	Hrs	8		708		708	45%
1	04	05	04	06		UN504_1135	AWARD: Vacuum vessel Sppt		CON	AN_PHS	Hrs	8		708		708	45%
1	04	05	04	06		UN504_1135	AWARD: Vacuum vessel Sppt		CON	AN_PHPD	Hrs	16		760		760	45%
1	04	05	04	06		UN504_1135	AWARD: Vacuum vessel Sppt		CON	AN_ME	Hrs	8		708		708	45%
1	04	05	04	06		UN504_1125	AWARD: Ion / electron detector assembly Sppt		CON	AN_PHS	Hrs	8		708		708	45%
1	04	05	04	06		UN504_1125	AWARD: Ion / electron detector assembly Sppt		CON	AN_PHPD	Hrs	16		760		760	45%
1	04	05	04	06		UN504_1125	AWARD: Ion / electron detector assembly Sppt		CON	AN_ME	Hrs	16		1,415		1,415	45%
1	04	05	04	06		UN504_1115	AWARD: Ion / electron accelerator / optics Sppt		CON	AN_PHS	Hrs	8		708		708	45%
1	04	05	04	06		UN504_1115	AWARD: Ion / electron accelerator / optics Sppt		CON	AN_PHPD	Hrs	16		760		760	45%
1	04	05	04	06		UN504_1115	AWARD: Ion / electron accelerator / optics Sppt		CON	AN_ME	Hrs	8		708		708	45%
1	04	05	04	06		UN504_1105	AWARD: Ion / electron gun Sppt		CON	AN_PHS	Hrs	8		708		708	45%
1	04	05	04	06		UN504_1105	AWARD: Ion / electron gun Sppt		CON	AN_PHPD	Hrs	8		380		380	45%
1	04	05	04	06		UN504_1105	AWARD: Ion / electron gun Sppt		CON	AN_ME	Hrs	16		1,415		1,415	45%
1	04	05	04	06		UN504_1145	AWARD: Translation stage Sppt		CON	AN_PHS	Hrs	8		726		726	45%
1	04	05	04	06		UN504_1145	AWARD: Translation stage Sppt		CON	AN_PHPD	Hrs	8		390		390	45%
1	04	05	04	06		UN504_1145	AWARD: Translation stage Sppt		CON	AN_ME	Hrs	8		726		726	45%
1	04	05	04	06		UN504_1170	Receive Packages		CON	AN_PHS	Hrs	8		726		726	45%
1	04	05	04	06		UN504_1170	Receive Packages		CON	AN_PHPD	Hrs	16		780		780	45%
1	04	05	04	06		UN504_1170	Receive Packages		CON	AN_MSEG	$$		114,000		124,260	124,260	45%
1	04	05	04	06		UN504_1170	Receive Packages		CON	AN_ME	Hrs	16		1,452		1,452	45%
1	04	05	04	06		UN504_1180	QA EOU XRID Assembly		CON	AN_MFMS	Hrs	40		2,952		2,952	45%
1	04	05	04	06		UN504_1180	QA EOU XRID Assembly		CON	AN_ME	Hrs	8		726		726	45%
1	**04**	**05**	**04**	**07**			**EOU Design and Integration**					**924**	**-**	**62,954**	**-**	**62,954**	
1	04	05	04	07		UN504_1260	PD: EOU Major Assembly Design		CON	AN_PHS	Hrs	16		1,377		1,377	35%
1	04	05	04	07		UN504_1260	PD: EOU Major Assembly Design		CON	AN_PHPD	Hrs	40		1,848		1,848	35%
1	04	05	04	07		UN504_1260	PD: EOU Major Assembly Design		CON	AN_ME	Hrs	40		3,442		3,442	35%
1	04	05	04	07		UN504_1260	PD: EOU Major Assembly Design		CON	AN_MDD	Hrs	60		3,510		3,510	35%
1	04	05	04	07		UN504_1280	PD: EOU Supports		CON	AN_PHS	Hrs	8		688		688	35%
1	04	05	04	07		UN504_1280	PD: EOU Supports		CON	AN_PHPD	Hrs	8		370		370	35%
1	04	05	04	07		UN504_1280	PD: EOU Supports		CON	AN_ME	Hrs	24		2,065		2,065	35%
1	04	05	04	07		UN504_1280	PD: EOU Supports		CON	AN_MDD	Hrs	40		2,340		2,340	35%
1	04	05	04	07		UN504_1270	PD: EOU Shipping Containers		CON	AN_ME	Hrs	16		1,377		1,377	35%
1	04	05	04	07		UN504_1270	PD: EOU Shipping Containers		CON	AN_MDD	Hrs	40		2,340		2,340	35%
1	04	05	04	07		UN504_1290	EOU Design Review		PED	AN_PHS	Hrs	8		688		688	35%
1	04	05	04	07		UN504_1290	EOU Design Review		PED	AN_PHPD	Hrs	24		1,109		1,109	35%
1	04	05	04	07		UN504_1290	EOU Design Review		PED	AN_ME	Hrs	24		2,065		2,065	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	05	04	07		UN504_1290	EOU Design Review		PED	AN_MDD	Hrs	16		936		936	35%
1	04	05	04	07		UN504_1340	Prepare EOU Bid Package		CON	AN_PHPD	Hrs	24		1,109		1,109	35%
1	04	05	04	07		UN504_1340	Prepare EOU Bid Package		CON	AN_ME	Hrs	24		2,065		2,065	35%
1	04	05	04	07		UN504_1350	EOU Bid Process		PED	AN_ME	Hrs	8		688		688	35%
1	04	05	04	07		UN504_1360	AWARD: EOU Package		CON	AN_ME	Hrs	8		688		688	35%
1	04	05	04	07		UN504_1410	Receive EOU Package		CON	AN_PHPD	Hrs	16		739		739	35%
1	04	05	04	07		UN504_1410	Receive EOU Package		CON	AN_ME	Hrs	16		1,377		1,377	35%
1	04	05	04	07		UN504_1420	QA EOU Package		CON	AN_PHPD	Hrs	8		370		370	35%
1	04	05	04	07		UN504_1420	QA EOU Package		CON	AN_MFMS	Hrs	40		2,798		2,798	35%
1	04	05	04	07		UN504_1420	QA EOU Package		CON	AN_ME	Hrs	8		688		688	35%
1	04	05	04	07		UN504_1430	Approve EOU Package		CON	AN_PHPD	Hrs	8		370		370	35%
1	04	05	04	07		UN504_1430	Approve EOU Package		CON	AN_ME	Hrs	8		688		688	35%
1	04	05	04	07		UN504_1440	Organize Parts for Assembly		CON	AN_MFAT	Hrs	24		1,323		1,323	35%
1	04	05	04	07		UN504_1440	Organize Parts for Assembly		CON	AN_ME	Hrs	8		688		688	35%
1	04	05	04	07		UN504_1450	Assemble EOU Package		CON	AN_PHS	Hrs	40		3,630		3,630	35%
1	04	05	04	07		UN504_1450	Assemble EOU Package		CON	AN_PHPD	Hrs	40		1,949		1,949	35%
1	04	05	04	07		UN504_1450	Assemble EOU Package		CON	AN_MFAT	Hrs	80		4,650		4,650	35%
1	04	05	04	07		UN504_1450	Assemble EOU Package		CON	AN_ME	Hrs	40		3,630		3,630	35%
1	04	05	04	07		UN504_1460	Integrate Controls onto Assembly		CON	AN_PHS	Hrs	16		1,452		1,452	35%
1	04	05	04	07		UN504_1460	Integrate Controls onto Assembly		CON	AN_PHPD	Hrs	16		780		780	35%
1	04	05	04	07		UN504_1460	Integrate Controls onto Assembly		CON	AN_MFAT	Hrs	16		930		930	35%
1	04	05	04	07		UN504_1460	Integrate Controls onto Assembly		CON	AN_ME	Hrs	8		726		726	35%
1	04	05	04	07		UN504_1470	Validation Testing of EOU		CON	AN_PHS	Hrs	8		726		726	35%
1	04	05	04	07		UN504_1470	Validation Testing of EOU		CON	AN_PHPD	Hrs	16		780		780	35%
1	04	05	04	07		UN504_1470	Validation Testing of EOU		CON	AN_MFAT	Hrs	16		930		930	35%
1	04	05	04	07		UN504_1470	Validation Testing of EOU		CON	AN_ME	Hrs	16		1,452		1,452	35%
1	04	05	04	07		UN504_1480	Pack EOU for Shipping		CON	AN_MFAT	Hrs	24		1,395		1,395	35%
1	04	05	04	07		UN504_1480	Pack EOU for Shipping		CON	AN_ME	Hrs	16		1,452		1,452	35%
1	04	05	04	07		UN504_1490	Write Shipping Paper Work - EOU		CON	AN_ME	Hrs	8		726		726	35%
1	**04**	**05**	**05**				**RFBPM**					**1,308**	**760,000**	**106,590**	**803,800**	**910,390**	
1	04	05	05			UN505_0010	Specification and Requirements RFBPM		PED	AN_PHS	Hrs	24		2,065		2,065	35%
1	04	05	05			UN505_0010	Specification and Requirements RFBPM		PED	AN_ME	Hrs	24		2,065		2,065	35%
1	04	05	05			UN505_0010	Specification and Requirements RFBPM		PED	AN_EE	Hrs	40		3,670		3,670	35%
1	04	05	05			UN505_0020	Design RFBPM Test Device		PED	AN_ME	Hrs	40		3,442		3,442	35%
1	04	05	05			UN505_0020	Design RFBPM Test Device		PED	AN_MDD	Hrs	60		3,510		3,510	35%
1	04	05	05			UN505_0020	Design RFBPM Test Device		PED	AN_EE	Hrs	40		3,670		3,670	35%
1	04	05	05			UN505_0040	Build Test Device		CON	AN_MSEG	$$		60,000		61,800	61,800	35%
1	04	05	05			UN505_0040	Build Test Device		CON	AN_MFMS	Hrs	32		2,239		2,239	35%
1	04	05	05			UN505_0040	Build Test Device		CON	AN_MFAT	Hrs	32		1,764		1,764	35%
1	04	05	05			UN505_0040	Build Test Device		CON	AN_ME	Hrs	24		2,065		2,065	35%
1	04	05	05			UN505_0040	Build Test Device		CON	AN_EE	Hrs	40		3,670		3,670	35%
1	04	05	05			UN505_0030	Locate Suitable Facility		CON	AN_PHS	Hrs	16		1,377		1,377	35%
1	04	05	05			UN505_0030	Locate Suitable Facility		CON	AN_ME	Hrs	8		688		688	35%
1	04	05	05			UN505_0030	Locate Suitable Facility		CON	AN_EE	Hrs	16		1,468		1,468	35%
1	04	05	05			UN505_0050	Assemble RFBPM		CON	AN_PHS	Hrs	16		1,377		1,377	35%
1	04	05	05			UN505_0050	Assemble RFBPM		CON	AN_MFAT	Hrs	32		1,764		1,764	35%
1	04	05	05			UN505_0050	Assemble RFBPM		CON	AN_ME	Hrs	24		2,065		2,065	35%
1	04	05	05			UN505_0050	Assemble RFBPM		CON	AN_EE	Hrs	32		2,936		2,936	35%
1	04	05	05			UN505_0060	Integrate RFBPM		CON	AN_PHS	Hrs	16		1,377		1,377	35%
1	04	05	05			UN505_0060	Integrate RFBPM		CON	AN_ME	Hrs	16		1,377		1,377	35%
1	04	05	05			UN505_0060	Integrate RFBPM		CON	AN_EE	Hrs	24		2,202		2,202	35%
1	04	05	05			UN505_0070	RFBPM Device Testing		CON	AN_PHS	Hrs	16		1,377		1,377	35%
1	04	05	05			UN505_0070	RFBPM Device Testing		CON	AN_MFAT	Hrs	16		882		882	35%
1	04	05	05			UN505_0070	RFBPM Device Testing		CON	AN_ME	Hrs	16		1,377		1,377	35%
1	04	05	05			UN505_0070	RFBPM Device Testing		CON	AN_EE	Hrs	40		3,670		3,670	35%
1	04	05	05			UN505_0090	RFBPM Preliminary Design		PED	AN_ME	Hrs	32		2,754		2,754	35%
1	04	05	05			UN505_0090	RFBPM Preliminary Design		PED	AN_MDD	Hrs	80		4,680		4,680	35%
1	04	05	05			UN505_0090	RFBPM Preliminary Design		PED	AN_EE	Hrs	32		2,936		2,936	35%
1	04	05	05			UN505_0100	RFBPM Design Review		PED	AN_PHS	Hrs	16		1,377		1,377	35%
1	04	05	05			UN505_0100	RFBPM Design Review		PED	AN_ME	Hrs	16		1,377		1,377	35%
1	04	05	05			UN505_0100	RFBPM Design Review		PED	AN_EE	Hrs	16		1,468		1,468	35%
1	04	05	05			UN505_0110	RFBPM Final Design		PED	AN_ME	Hrs	32		2,754		2,754	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	05	05			UN505_0110	RFBPM Final Design		PED	AN_MDD	Hrs	40		2,340		2,340	35%
1	04	05	05			UN505_0110	RFBPM Final Design		PED	AN_EE	Hrs	16		1,468		1,468	35%
1	04	05	05			UN505_0150	Prepare Bid of RF Cabling		CON	AN_EE	Hrs	16		1,468		1,468	35%
1	04	05	05			UN505_0140	Prepare Bid of Support & Alignment Mechanism		CON	AN_ME	Hrs	16		1,377		1,377	35%
1	04	05	05			UN505_0130	Prepare Bid of Copper Body Brazement		CON	AN_ME	Hrs	16		1,377		1,377	35%
1	04	05	05			UN505_0130	Prepare Bid of Copper Body Brazement		CON	AN_EE	Hrs	16		1,468		1,468	35%
1	04	05	05			UN505_0160	Bid Process - RFBPM		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	05			UN505_0160	Bid Process - RFBPM		CON	AN_EE	Hrs	8		755		755	35%
1	04	05	05			UN505_0390	Evaluate Bids - RFBPM		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	05			UN505_0195	AWARD: RF Cabling (35) Sppt		CON	AN_EE	Hrs	8		755		755	35%
1	04	05	05			UN505_0185	AWARD: Support & Alignment Mechanism (35) Sppt		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	05			UN505_0175	AWARD: Copper Body Brazement (35) Sppt		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	05			UN505_0175	AWARD: Copper Body Brazement (35) Sppt		CON	AN_EE	Hrs	8		755		755	35%
1	04	05	05			UN505_0214	Rec: RF Cabling (35)		CON	AN_MSEG	$$		140,000		148,400	148,400	35%
1	04	05	05			UN505_0212	Rec: Support & Alignment Mechanism (35)		CON	AN_MSEG	$$		280,000		296,800	296,800	35%
1	04	05	05			UN505_0210	Rec: Copper Body Brazement (35)		CON	AN_MSEG	$$		280,000		296,800	296,800	35%
1	04	05	05			UN505_0210	Rec: Copper Body Brazement (35)		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	05			UN505_0220	QA Production Lot		CON	AN_MFMS	Hrs	40		2,877		2,877	35%
1	04	05	05			UN505_0220	QA Production Lot		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	05			UN505_0220	QA Production Lot		CON	AN_EE	Hrs	16		1,509		1,509	35%
1	04	05	05			UN505_0220	QA Production Lot		CON	AN_CT	Hrs	16		962		962	35%
1	04	05	05			UN505_0230	Approve Production Lot		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	05			UN505_0230	Approve Production Lot		CON	AN_EE	Hrs	8		755		755	35%
1	04	05	05			UN505_0240	Pack RFBPM for Shipping		CON	AN_MFAT	Hrs	24		1,360		1,360	35%
1	04	05	05			UN505_0240	Pack RFBPM for Shipping		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	05			UN505_0260	Transmit Engineering Data to SLAC-RFBPM		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	05			UN505_0260	Transmit Engineering Data to SLAC-RFBPM		CON	AN_MDD	Hrs	8		481		481	35%
1	04	05	05			UN505_0250	Write Shipping Paper Work-RFBPM		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	05			UN505_0270	Develop Installation Plan-RFBPM		CON	AN_SEE	Hrs	16		1,902		1,902	35%
1	04	05	05			UN505_0270	Develop Installation Plan-RFBPM		CON	AN_ME	Hrs	16		1,415		1,415	35%
1	04	05	05			UN505_0270	Develop Installation Plan-RFBPM		CON	AN_EE	Hrs	24		2,264		2,264	35%
1	04	05	05			UN505_0280	Review installation Plan-RFBPM		CON	AN_SEE	Hrs	16		1,902		1,902	35%
1	04	05	05			UN505_0280	Review installation Plan-RFBPM		CON	AN_ME	Hrs	8		708		708	35%
1	04	05	05			UN505_0280	Review installation Plan-RFBPM		CON	AN_EE	Hrs	8		755		755	35%
1	**04**	**05**	**06**				**Reserved**										
1	**04**	**05**	**07**				**Charge Monitor (CM)**					**525**	**26,000**	**43,134**	**28,100**	**71,234**	
1	04	05	07			UN507_0010	Specification and Requirements - CM		PED	AN_PHS	Hrs	40		3,442		3,442	25%
1	04	05	07			UN507_0010	Specification and Requirements - CM		PED	AN_ME	Hrs	24		2,065		2,065	25%
1	04	05	07			UN507_0040	Preliminary Design - CM		PED	AN_ME	Hrs	24		2,065		2,065	25%
1	04	05	07			UN507_0040	Preliminary Design - CM		PED	AN_MDD	Hrs	60		3,510		3,510	25%
1	04	05	07			UN507_0020	Specification and Requirements - Cable		PED	AN_PHS	Hrs	8		688		688	25%
1	04	05	07			UN507_0020	Specification and Requirements - Cable		PED	AN_EE	Hrs	24		2,202		2,202	25%
1	04	05	07			UN507_0050	Design Review - CM		PED	AN_PHS	Hrs	8		688		688	25%
1	04	05	07			UN507_0050	Design Review - CM		PED	AN_ME	Hrs	16		1,377		1,377	25%
1	04	05	07			UN507_0030	Purchase Cable		CON	AN_PHS	Hrs	8		688		688	25%
1	04	05	07			UN507_0030	Purchase Cable		CON	AN_MSEG	$$		4,000		4,120	4,120	25%
1	04	05	07			UN507_0030	Purchase Cable		CON	AN_EE	Hrs	8		734		734	25%
1	04	05	07			UN507_0060	Final Design - CM		PED	AN_ME	Hrs	24		2,065		2,065	25%
1	04	05	07			UN507_0060	Final Design - CM		PED	AN_MDD	Hrs	40		2,340		2,340	25%
1	04	05	07			UN507_0180	Develop Installation Plan		CON	AN_SEE	Hrs	8		925		925	25%
1	04	05	07			UN507_0180	Develop Installation Plan		CON	AN_ME	Hrs	24		2,065		2,065	25%
1	04	05	07			UN507_0180	Develop Installation Plan		CON	AN_EE	Hrs	24		2,202		2,202	25%
1	04	05	07			UN507_0080	Prepare Bid of Charge Monitor Package		CON	AN_ME	Hrs	24		2,065		2,065	25%
1	04	05	07			UN507_0190	Review installation Plan		CON	AN_SEE	Hrs	9		1,041		1,041	25%
1	04	05	07			UN507_0190	Review installation Plan		CON	AN_ME	Hrs	8		688		688	25%
1	04	05	07			UN507_0190	Review installation Plan		CON	AN_EE	Hrs	8		734		734	25%
1	04	05	07			UN507_0090	Bid Process - CM		CON	AN_ME	Hrs	8		708		708	25%
1	04	05	07			UN507_0102	AWARD: Charge Monitor Package (2) Sppt		CON	AN_ME	Hrs	8		708		708	25%
1	04	05	07			UN507_0120	Rec: Charge Monitor Package (2)		CON	AN_MSEG	$$		22,000		23,980	23,980	25%
1	04	05	07			UN507_0120	Rec: Charge Monitor Package (2)		CON	AN_ME	Hrs	8		726		726	25%
1	04	05	07			UN507_0130	QA Production Lot		CON	AN_MFMS	Hrs	24		1,771		1,771	25%
1	04	05	07			UN507_0130	QA Production Lot		CON	AN_ME	Hrs	16		1,452		1,452	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	05	07			UN507_0130	QA Production Lot		CON	AN_EE	Hrs	16		1,548		1,548	25%
1	04	05	07			UN507_0140	Approve Production Lot		CON	AN_ME	Hrs	8		726		726	25%
1	04	05	07			UN507_0140	Approve Production Lot		CON	AN_EE	Hrs	8		774		774	25%
1	04	05	07			UN507_0150	Pack Charge Monitor for Shipping		CON	AN_MFAT	Hrs	8		465		465	25%
1	04	05	07			UN507_0150	Pack Charge Monitor for Shipping		CON	AN_ME	Hrs	8		726		726	25%
1	04	05	07			UN507_0170	Transmit Engineering Data to Slac		CON	AN_ME	Hrs	8		726		726	25%
1	04	05	07			UN507_0170	Transmit Engineering Data to Slac		CON	AN_MDD	Hrs	8		494		494	25%
1	04	05	07			UN507_0160	Write Shipping Paper Work		CON	AN_ME	Hrs	8		726		726	25%
1	**04**	**05**	**08**				**Cherenkov Detector**					**836**	**140,000**	**69,106**	**152,600**	**221,706**	
1	04	05	08			UN508_0010	Specification and Requirements - Ch-D		PED	AN_PHS	Hrs	32		2,754		2,754	25%
1	04	05	08			UN508_0010	Specification and Requirements - Ch-D		PED	AN_ME	Hrs	32		2,754		2,754	25%
1	04	05	08			UN508_0020	Preliminary Design - Ch-D		PED	AN_PHS	Hrs	40		3,442		3,442	25%
1	04	05	08			UN508_0020	Preliminary Design - Ch-D		PED	AN_ME	Hrs	64		5,507		5,507	25%
1	04	05	08			UN508_0020	Preliminary Design - Ch-D		PED	AN_MDD	Hrs	80		4,680		4,680	25%
1	04	05	08			UN508_0020	Preliminary Design - Ch-D		PED	AN_EE	Hrs	64		5,873		5,873	25%
1	04	05	08			UN508_0030	Design Review - Ch-D		PED	AN_PHS	Hrs	8		688		688	25%
1	04	05	08			UN508_0030	Design Review - Ch-D		PED	AN_ME	Hrs	16		1,377		1,377	25%
1	04	05	08			UN508_0030	Design Review - Ch-D		PED	AN_EE	Hrs	16		1,468		1,468	25%
1	04	05	08			UN508_0170	Develop Installation Plan - Ch-D		CON	AN_SEE	Hrs	16		1,851		1,851	25%
1	04	05	08			UN508_0170	Develop Installation Plan - Ch-D		CON	AN_ME	Hrs	32		2,754		2,754	25%
1	04	05	08			UN508_0170	Develop Installation Plan - Ch-D		CON	AN_EE	Hrs	32		2,936		2,936	25%
1	04	05	08			UN508_0040	Final Design - Ch-D		PED	AN_ME	Hrs	32		2,754		2,754	25%
1	04	05	08			UN508_0040	Final Design - Ch-D		PED	AN_MDD	Hrs	60		3,510		3,510	25%
1	04	05	08			UN508_0040	Final Design - Ch-D		PED	AN_EE	Hrs	40		3,670		3,670	25%
1	04	05	08			UN508_0180	Review installation Plan - Ch-D		CON	AN_SEE	Hrs	8		925		925	25%
1	04	05	08			UN508_0180	Review installation Plan - Ch-D		CON	AN_ME	Hrs	16		1,377		1,377	25%
1	04	05	08			UN508_0180	Review installation Plan - Ch-D		CON	AN_EE	Hrs	16		1,468		1,468	25%
1	04	05	08			UN508_0060	Prepare Bid of Cherenkov Detector Package		CON	AN_PHS	Hrs	16		1,377		1,377	25%
1	04	05	08			UN508_0060	Prepare Bid of Cherenkov Detector Package		CON	AN_ME	Hrs	16		1,377		1,377	25%
1	04	05	08			UN508_0060	Prepare Bid of Cherenkov Detector Package		CON	AN_EE	Hrs	16		1,468		1,468	25%
1	04	05	08			UN508_0070	Bid Process - Ch-D		CON	AN_ME	Hrs	8		708		708	25%
1	04	05	08			UN508_0072	Evaluate Bids - Ch-D		CON	AN_ME	Hrs	8		708		708	25%
1	04	05	08			UN508_0085	AWARD: Cherenkov Detector Package (35) Sppt		CON	AN_ME	Hrs	8		708		708	25%
1	04	05	08			UN508_0160	Transmit Engineering Data to Slac-Ch-D		CON	AN_ME	Hrs	8		726		726	25%
1	04	05	08			UN508_0160	Transmit Engineering Data to Slac-Ch-D		CON	AN_MDD	Hrs	8		494		494	25%
1	04	05	08			UN508_0100	Rec: Cherenkov Detector (35)		CON	AN_MSEG	$$		140,000		152,600	152,600	25%
1	04	05	08			UN508_0100	Rec: Cherenkov Detector (35)		CON	AN_ME	Hrs	16		1,452		1,452	25%
1	04	05	08			UN508_0110	QA Production Lot - Ch-D		CON	AN_MFMS	Hrs	40		2,952		2,952	25%
1	04	05	08			UN508_0110	QA Production Lot - Ch-D		CON	AN_ME	Hrs	16		1,452		1,452	25%
1	04	05	08			UN508_0110	QA Production Lot - Ch-D		CON	AN_EE	Hrs	24		2,323		2,323	25%
1	04	05	08			UN508_0120	Approve Production Lot-Ch-D		CON	AN_ME	Hrs	8		726		726	25%
1	04	05	08			UN508_0130	Pack Cherenkov Detector for Shipping		CON	AN_MFAT	Hrs	24		1,395		1,395	25%
1	04	05	08			UN508_0130	Pack Cherenkov Detector for Shipping		CON	AN_ME	Hrs	8		726		726	25%
1	04	05	08			UN508_0140	Write Shipping Paper Work-Ch-D		CON	AN_ME	Hrs	8		726		726	25%
1	**04**	**05**	**09**				**Radiation Detection Monitor (RDM)**					**496**	**35,000**	**38,376**	**38,150**	**76,526**	
1	04	05	09			UN509_0010	Specification and Requirements - RDM		PED	AN_PHS	Hrs	32		2,676		2,676	40%
1	04	05	09			UN509_0010	Specification and Requirements - RDM		PED	AN_ME	Hrs	16		1,338		1,338	40%
1	04	05	09			UN509_0090	Preliminary Design - RDM		PED	AN_ME	Hrs	40		3,345		3,345	40%
1	04	05	09			UN509_0090	Preliminary Design - RDM		PED	AN_MDD	Hrs	80		4,548		4,548	40%
1	04	05	09			UN509_0100	Design Review - RDM		PED	AN_PHS	Hrs	8		669		669	40%
1	04	05	09			UN509_0100	Design Review - RDM		PED	AN_ME	Hrs	16		1,338		1,338	40%
1	04	05	09			UN509_0110	Final Design - RDM		PED	AN_ME	Hrs	32		2,742		2,742	40%
1	04	05	09			UN509_0110	Final Design - RDM		PED	AN_MDD	Hrs	60		3,495		3,495	40%
1	04	05	09			UN509_0240	Develop Installation Plan - RDM		CON	AN_SEE	Hrs	8		925		925	40%
1	04	05	09			UN509_0240	Develop Installation Plan - RDM		CON	AN_PHS	Hrs	8		688		688	40%
1	04	05	09			UN509_0240	Develop Installation Plan - RDM		CON	AN_ME	Hrs	16		1,377		1,377	40%
1	04	05	09			UN509_0130	Prepare Bid of RDM Package		CON	AN_PHS	Hrs	8		688		688	40%
1	04	05	09			UN509_0130	Prepare Bid of RDM Package		CON	AN_ME	Hrs	24		2,065		2,065	40%
1	04	05	09			UN509_0250	Review installation Plan - RDM		CON	SL_SEE	Hrs	4		423		423	40%
1	04	05	09			UN509_0250	Review installation Plan - RDM		CON	AN_SEE	Hrs	4		463		463	40%
1	04	05	09			UN509_0250	Review installation Plan - RDM		CON	AN_ME	Hrs	4		344		344	40%
1	04	05	09			UN509_0140	Bid Process - RDM		CON	AN_ME	Hrs	8		708		708	40%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	05	09			UN509_0141	Evaluate Bid - RDM		CON	AN_ME	Hrs	8		708		708	40%
1	04	05	09			UN509_0155	AWARD: RDM Package (1) Sppt		CON	AN_ME	Hrs	8		708		708	40%
1	04	05	09			UN509_0170	Receive - RDM (1)		CON	AN_MSEG	$$		35,000		38,150	38,150	40%
1	04	05	09			UN509_0170	Receive - RDM (1)		CON	AN_ME	Hrs	16		1,452		1,452	40%
1	04	05	09			UN509_0180	QA - RDM		CON	AN_MFMS	Hrs	32		2,361		2,361	40%
1	04	05	09			UN509_0180	QA - RDM		CON	AN_ME	Hrs	16		1,452		1,452	40%
1	04	05	09			UN509_0190	Approve - RDM		CON	AN_ME	Hrs	8		726		726	40%
1	04	05	09			UN509_0200	Pack RDM for Shipping		CON	AN_MFAT	Hrs	8		465		465	40%
1	04	05	09			UN509_0200	Pack RDM for Shipping		CON	AN_ME	Hrs	8		726		726	40%
1	04	05	09			UN509_0230	Transmit Engineering Data to Slac - RDM		CON	AN_ME	Hrs	8		726		726	40%
1	04	05	09			UN509_0230	Transmit Engineering Data to Slac - RDM		CON	AN_MDD	Hrs	8		494		494	40%
1	04	05	09			UN509_0210	Write Shipping Paper Work - RDM		CON	AN_ME	Hrs	8		726		726	40%
1	**04**	**05**	**10**				**Reserved**										
1	**04**	**05**	**11**				**Supplemental Shielding**					**516**	**216,000**	**41,342**	**228,960**	**270,302**	
1	04	05	11			UN511_0010	Specification and Requirements - Sup S		PED	AN_PHS	Hrs	32		2,754		2,754	30%
1	04	05	11			UN511_0010	Specification and Requirements - Sup S		PED	AN_ME	Hrs	16		1,377		1,377	30%
1	04	05	11			UN511_0020	Preliminary Design - Sup S		PED	AN_ME	Hrs	60		5,301		5,301	30%
1	04	05	11			UN511_0020	Preliminary Design - Sup S		PED	AN_MDD	Hrs	80		4,805		4,805	30%
1	04	05	11			UN511_0030	Design Review - Sup S		PED	AN_PHS	Hrs	8		708		708	30%
1	04	05	11			UN511_0030	Design Review - Sup S		PED	AN_ME	Hrs	16		1,415		1,415	30%
1	04	05	11			UN511_0040	Final Design - Sup S		PED	AN_ME	Hrs	24		2,123		2,123	30%
1	04	05	11			UN511_0040	Final Design - Sup S		PED	AN_MDD	Hrs	40		2,406		2,406	30%
1	04	05	11			UN511_0190	Develop Installation Plan - Sup S		CON	AN_SEE	Hrs	16		1,902		1,902	30%
1	04	05	11			UN511_0190	Develop Installation Plan - Sup S		CON	AN_ME	Hrs	24		2,123		2,123	30%
1	04	05	11			UN511_0060	Prepare Bid of Misc Shielding		CON	AN_ME	Hrs	16		1,415		1,415	30%
1	04	05	11			UN511_0070	Prepare Bid of Shielding Supports		CON	AN_ME	Hrs	16		1,415		1,415	30%
1	04	05	11			UN511_0080	Bid Process - Sup S		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	11			UN511_0200	Review installation Plan - Sup S		CON	AN_SEE	Hrs	8		951		951	30%
1	04	05	11			UN511_0200	Review installation Plan - Sup S		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	11			UN511_0105	AWARD: Procurement of Shielding Supports Sppt		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	11			UN511_0095	AWARD: Procurement of Misc Shielding Sppt		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	11			UN511_0120	Receive Production Lot - Sup S		CON	AN_MSEG	$$		216,000		228,960	228,960	30%
1	04	05	11			UN511_0120	Receive Production Lot - Sup S		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	11			UN511_0130	QA Production Lot - Sup S		CON	AN_MFMS	Hrs	16		1,151		1,151	30%
1	04	05	11			UN511_0130	QA Production Lot - Sup S		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	11			UN511_0140	Approve Production Lot - Sup S		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	11			UN511_0150	Pack Supplemental Shielding for Shipping-Sup		CON	AN_MFAT	Hrs	32		1,813		1,813	30%
1	04	05	11			UN511_0150	Pack Supplemental Shielding for Shipping-Sup		CON	AN_ME	Hrs	16		1,415		1,415	30%
1	04	05	11			UN511_0180	Transmit Engineering Data to Slac - Sup S		CON	AN_ME	Hrs	8		708		708	30%
1	04	05	11			UN511_0180	Transmit Engineering Data to Slac - Sup S		CON	AN_MDD	Hrs	8		481		481	30%
1	04	05	11			UN511_0160	Write Shipping Paper Work - Sup S		CON	AN_ME	Hrs	24		2,123		2,123	30%
1	**04**	**06**					**Undulator System Installation and Alignment**					**32,544**	**-**	**2,823,459**	**-**	**2,823,459**	
1	**04**	**06**	**01**				**Undulator System Installation and Alignment Inte**					**2,879**	**-**	**228,696**	**-**	**228,696**	
1	**04**	**06**	**01**	**01**			**Undulator System**					**1,897**	**-**	**150,638**	**-**	**150,638**	
1	04	06	01	01		UN601_0010	Set up Alignment Network		CON	SL_MFAT	Hrs	100		8,635		8,635	20%
1	04	06	01	01		UN601_0010	Set up Alignment Network		CON	SL_EE	Hrs	20		2,373		2,373	20%
1	04	06	01	01		UN601_0020	Pull Cabling + Services		CON	SL_SEE	Hrs	15		1,672		1,672	20%
1	04	06	01	01		UN601_0020	Pull Cabling + Services		CON	SL_PCEF	Hrs	75		4,874		4,874	20%
1	04	06	01	01		UN601_0030	Fixed Base (Granite)		CON	SL_SEL	Hrs	80		3,959		3,959	20%
1	04	06	01	01		UN601_0030	Fixed Base (Granite)		CON	SL_ME	Hrs	16		1,784		1,784	20%
1	04	06	01	01		UN601_0040	Hydrostatic Level System		CON	SL_SEE	Hrs	15		1,672		1,672	20%
1	04	06	01	01		UN601_0040	Hydrostatic Level System		CON	SL_MES	Hrs	15		1,429		1,429	20%
1	04	06	01	01		UN601_0040	Hydrostatic Level System		CON	SL_ME	Hrs	15		1,672		1,672	20%
1	04	06	01	01		UN601_0050	Manual and Remote Adjusters		CON	SL_SEE	Hrs	20		2,230		2,230	20%
1	04	06	01	01		UN601_0050	Manual and Remote Adjusters		CON	SL_PCT	Hrs	100		6,499		6,499	20%
1	04	06	01	01		UN601_0050	Manual and Remote Adjusters		CON	SL_ME	Hrs	20		2,230		2,230	20%
1	04	06	01	01		UN601_0060	Und/Quad/BPM Assembly		CON	SL_SEE	Hrs	33		3,679		3,679	20%
1	04	06	01	01		UN601_0060	Und/Quad/BPM Assembly		CON	SL_PCT	Hrs	165		10,723		10,723	20%
1	04	06	01	01		UN601_0060	Und/Quad/BPM Assembly		CON	SL_ME	Hrs	33		3,679		3,679	20%
1	04	06	01	01		UN601_0070	Diagnostics/Vac Straight		CON	SL_SEE	Hrs	24		2,676		2,676	20%
1	04	06	01	01		UN601_0070	Diagnostics/Vac Straight		CON	SL_PCT	Hrs	90		5,849		5,849	20%
1	04	06	01	01		UN601_0070	Diagnostics/Vac Straight		CON	SL_ME	Hrs	18		2,007		2,007	20%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	06	01	01		UN601_0080	Wire Position Monitor		CON	SL_SEE	Hrs	17		1,898		1,898	20%
1	04	06	01	01		UN601_0080	Wire Position Monitor		CON	SL_CT	Hrs	85		5,532		5,532	20%
1	04	06	01	01		UN601_0080	Wire Position Monitor		CON	SL_CE	Hrs	17		2,020		2,020	20%
1	04	06	01	01		UN601_0090	Control Connections		CON	SL_SEE	Hrs	99		11,185		11,185	20%
1	04	06	01	01		UN601_0090	Control Connections		CON	SL_PCEF	Hrs	297		19,561		19,561	20%
1	04	06	01	01		UN601_0090	Control Connections		CON	SL_ME	Hrs	99		11,185		11,185	20%
1	04	06	01	01		UN601_0100	Controls Checkout		CON	SL_PCEF	Hrs	165		10,886		10,886	20%
1	04	06	01	01		UN601_0100	Controls Checkout		CON	SL_ME	Hrs	33		3,735		3,735	20%
1	04	06	01	01		UN601_0100	Controls Checkout		CON	SL_MDD	Hrs	33		2,217		2,217	20%
1	04	06	01	01		UN601_0110	Vacuum System Checkout		CON	SL_PCEF	Hrs	165		11,002		11,002	20%
1	04	06	01	01		UN601_0110	Vacuum System Checkout		CON	SL_ME	Hrs	33		3,775		3,775	20%
1	**04**	**06**	**01**	**02**			**Entrance Section**					**491**	**-**	**39,029**	**-**	**39,029**	
1	04	06	01	02		UN602_0010	Entrance Sect. - Alignment Group to Layout Flo		CON	SL_MFAT	Hrs	100		8,635		8,635	20%
1	04	06	01	02		UN602_0010	Entrance Sect. - Alignment Group to Layout Flo		CON	SL_EE	Hrs	20		2,373		2,373	20%
1	04	06	01	02		UN602_0020	Entrance Section - Install Stands and Supports		CON	SL_SEE	Hrs	15		1,672		1,672	20%
1	04	06	01	02		UN602_0020	Entrance Section - Install Stands and Supports		CON	SL_PCEF	Hrs	75		4,874		4,874	20%
1	04	06	01	02		UN602_0040	Entrance Section - Rough Pump		CON	SL_SEL	Hrs	80		3,959		3,959	20%
1	04	06	01	02		UN602_0040	Entrance Section - Rough Pump		CON	SL_ME	Hrs	16		1,784		1,784	20%
1	04	06	01	02		UN602_0050	Entrance Section - Alignment		CON	SL_SEE	Hrs	15		1,672		1,672	20%
1	04	06	01	02		UN602_0050	Entrance Section - Alignment		CON	SL_MES	Hrs	15		1,429		1,429	20%
1	04	06	01	02		UN602_0050	Entrance Section - Alignment		CON	SL_ME	Hrs	15		1,672		1,672	20%
1	04	06	01	02		UN602_0060	Entrance Section - Leak Check and Check-out		CON	SL_SEE	Hrs	20		2,230		2,230	20%
1	04	06	01	02		UN602_0060	Entrance Section - Leak Check and Check-out		CON	SL_PCT	Hrs	100		6,499		6,499	20%
1	04	06	01	02		UN602_0060	Entrance Section - Leak Check and Check-out		CON	SL_ME	Hrs	20		2,230		2,230	20%
1	**04**	**06**	**01**	**03**			**Exit Section**					**491**	**-**	**39,029**	**-**	**39,029**	
1	04	06	01	03		UN603_0010	Exit Section - Alignment Group to Layout Floor		CON	SL_MFAT	Hrs	100		8,635		8,635	20%
1	04	06	01	03		UN603_0010	Exit Section - Alignment Group to Layout Floor		CON	SL_EE	Hrs	20		2,373		2,373	20%
1	04	06	01	03		UN603_0020	Exit Section - Install Stands and Supports		CON	SL_SEE	Hrs	15		1,672		1,672	20%
1	04	06	01	03		UN603_0020	Exit Section - Install Stands and Supports		CON	SL_PCEF	Hrs	75		4,874		4,874	20%
1	04	06	01	03		UN603_0040	Exit Section - Rough Pump		CON	SL_SEL	Hrs	80		3,959		3,959	20%
1	04	06	01	03		UN603_0040	Exit Section - Rough Pump		CON	SL_ME	Hrs	16		1,784		1,784	20%
1	04	06	01	03		UN603_0050	Exit Section - Alignment		CON	SL_SEE	Hrs	15		1,672		1,672	20%
1	04	06	01	03		UN603_0050	Exit Section - Alignment		CON	SL_MES	Hrs	15		1,429		1,429	20%
1	04	06	01	03		UN603_0050	Exit Section - Alignment		CON	SL_ME	Hrs	15		1,672		1,672	20%
1	04	06	01	03		UN603_0060	Exit Section - Leak Check and Check-out		CON	SL_SEE	Hrs	20		2,230		2,230	20%
1	04	06	01	03		UN603_0060	Exit Section - Leak Check and Check-out		CON	SL_PCT	Hrs	100		6,499		6,499	20%
1	04	06	01	03		UN603_0060	Exit Section - Leak Check and Check-out		CON	SL_ME	Hrs	20		2,230		2,230	20%
1	**04**	**06**	**02**				**Control System Installation and Alignment**					**9,793**	**-**	**608,136**	**-**	**608,136**	
1	04	06	02			UN22_03650	QA Test production integration components		CON	AN_CT	Hrs	40		2,406		2,406	25%
1	04	06	02			UN23_00960	Install components at SLAC		CON	AN_CT	Hrs	640		39,488		39,488	25%
1	04	06	02			UN24_03180	Install components at SLAC		CON	AN_CT	Hrs	528		32,578		32,578	25%
1	04	06	02			UN22_01880	Install components at SLAC		CON	AN_CT	Hrs	480		29,616		29,616	25%
1	04	06	02			UN22_00930	Install components at SLAC		CON	AN_CT	Hrs	480		29,616		29,616	25%
1	04	06	02			UN25_00300	Install components at SLAC		CON	AN_CT	Hrs	528		32,578		32,578	25%
1	04	06	02			UN23_01590	Install components at SLAC		CON	AN_CT	Hrs	640		39,488		39,488	25%
1	04	06	02			UN23_00980	Perform validation testing		CON	AN_CT	Hrs	400		24,680		24,680	25%
1	04	06	02			UN24_03190	Perform validation testing		CON	AN_CT	Hrs	264		16,289		16,289	25%
1	04	06	02			UN25_00320	Perform validation testing		CON	AN_CT	Hrs	33		2,036		2,036	25%
1	04	06	02			UN24_01170	Install components at SLAC		CON	AN_CT	Hrs	800		49,360		49,360	25%
1	04	06	02			UN23_02670	Install components at SLAC		CON	AN_CT	Hrs	640		39,488		39,488	25%
1	04	06	02			UN22_04610	Install components at SLAC		CON	AN_CT	Hrs	120		7,404		7,404	25%
1	04	06	02			UN22_03660	Install components at SLAC		CON	AN_CT	Hrs	120		7,404		7,404	25%
1	04	06	02			UN22_01900	Perform validation testing		CON	AN_CT	Hrs	320		19,744		19,744	25%
1	04	06	02			UN22_00950	Perform validation testing		CON	AN_CT	Hrs	320		19,744		19,744	25%
1	04	06	02			UN23_01610	Perform validation testing		CON	AN_CT	Hrs	400		24,680		24,680	25%
1	04	06	02			UN22_04630	Perform validation testing		CON	AN_CT	Hrs	160		9,872		9,872	25%
1	04	06	02			UN22_03680	Perform validation testing		CON	AN_CT	Hrs	160		9,872		9,872	25%
1	04	06	02			UN24_01180	Perform validation testing		CON	AN_CT	Hrs	320		20,026		20,026	25%
1	04	06	02			UN23_02690	Perform validation testing		CON	AN_CT	Hrs	400		25,167		25,167	25%
1	04	06	02			UN26_01630	Install components at SLAC		CON	AN_CT	Hrs	240		15,192		15,192	25%
1	04	06	02			UN26_01300	Install components at SLAC		CON	AN_CT	Hrs	240		15,192		15,192	25%
1	04	06	02			UN26_00970	Install components at SLAC		CON	AN_CT	Hrs	240		15,192		15,192	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	06	02			UN26_00640	Install components at SLAC		CON	AN_CT	Hrs	240		15,192		15,192	25%
1	04	06	02			UN26_00310	Install components at SLAC		CON	AN_CT	Hrs	240		15,192		15,192	25%
1	04	06	02			UN26_01650	Perform validation testing		CON	AN_CT	Hrs	160		10,128		10,128	25%
1	04	06	02			UN26_01320	Perform validation testing		CON	AN_CT	Hrs	160		10,128		10,128	25%
1	04	06	02			UN26_00990	Perform validation testing		CON	AN_CT	Hrs	160		10,128		10,128	25%
1	04	06	02			UN26_00660	Perform validation testing		CON	AN_CT	Hrs	160		10,128		10,128	25%
1	04	06	02			UN26_00330	Perform validation testing		CON	AN_CT	Hrs	160		10,128		10,128	25%
1	**04**	**06**	**03**				**Magnets & Supports Installation and Alignment**										
1	**04**	**06**	**03**	**01**			**Magnets Installation and Alignment**										
1	**04**	**06**	**03**	**02**			**Fixed Supports Installation and Alignment**										
1	**04**	**06**	**04**				**Vacuum System Installation and Alignment**					**12,008**	**-**	**1,213,042**	**-**	**1,213,042**	
1	04	06	04			UN48_00590	Exit Section Assembly and Support Arrive at S		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	04	06	04			UN48_00590	Exit Section Assembly and Support Arrive at S		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	06	04			UN48_00590	Exit Section Assembly and Support Arrive at S		CON	AN_MVE	Hrs	16		1,452		1,452	25%
1	04	06	04			UN48_00600	Pre-Align Exit Section Assy and Support at SLA		CON	SL_MES	Hrs	160		15,245		15,245	25%
1	04	06	04			UN48_00600	Pre-Align Exit Section Assy and Support at SLA		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	06	04			UN48_00600	Pre-Align Exit Section Assy and Support at SLA		CON	AN_MVE	Hrs	32		2,904		2,904	25%
1	04	06	04			UN47_00590	Entrance Section Assy and Support Arrive at SL		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	04	06	04			UN47_00590	Entrance Section Assy and Support Arrive at SL		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	06	04			UN47_00590	Entrance Section Assy and Support Arrive at SL		CON	AN_MVE	Hrs	16		1,452		1,452	25%
1	04	06	04			UN47_00600	Pre-Align Entrance Section Assembly and Suppor		CON	SL_MES	Hrs	160		15,245		15,245	25%
1	04	06	04			UN47_00600	Pre-Align Entrance Section Assembly and Suppor		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	06	04			UN47_00600	Pre-Align Entrance Section Assembly and Suppor		CON	AN_MVE	Hrs	32		2,904		2,904	25%
1	04	06	04			UN42_00730	Prd Un Cham Assembly Arrive at SLAC		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	04	06	04			UN42_00730	Prd Un Cham Assembly Arrive at SLAC		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	06	04			UN42_00730	Prd Un Cham Assembly Arrive at SLAC		CON	AN_MVE	Hrs	16		1,452		1,452	25%
1	04	06	04			UN46_00530	Long Diagnostic Break Assembly Arrive at SLAC		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	04	06	04			UN46_00530	Long Diagnostic Break Assembly Arrive at SLAC		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	06	04			UN46_00530	Long Diagnostic Break Assembly Arrive at SLAC		CON	AN_MVE	Hrs	16		1,452		1,452	25%
1	04	06	04			UN45_00450	Short Diagnostic Break Assembly Arrive at SLAC		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	04	06	04			UN45_00450	Short Diagnostic Break Assembly Arrive at SLAC		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	06	04			UN45_00450	Short Diagnostic Break Assembly Arrive at SLAC		CON	AN_MVE	Hrs	16		1,452		1,452	25%
1	04	06	04			UN44_00530	Standard Collimator Arrive at SLAC		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	04	06	04			UN44_00530	Standard Collimator Arrive at SLAC		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	06	04			UN44_00530	Standard Collimator Arrive at SLAC		CON	AN_MVE	Hrs	16		1,452		1,452	25%
1	04	06	04			UN43_00570	Standard Bellows Arrive at SLAC		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	04	06	04			UN43_00570	Standard Bellows Arrive at SLAC		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	06	04			UN43_00570	Standard Bellows Arrive at SLAC		CON	AN_MVE	Hrs	16		1,452		1,452	25%
1	04	06	04			UN42_00740	Pre-Align Prd Un Cham Assembly at SLAC		CON	SL_MES	Hrs	160		15,467		15,467	25%
1	04	06	04			UN42_00740	Pre-Align Prd Un Cham Assembly at SLAC		CON	AN_SEE	Hrs	16		1,980		1,980	25%
1	04	06	04			UN42_00740	Pre-Align Prd Un Cham Assembly at SLAC		CON	AN_MVE	Hrs	32		2,947		2,947	25%
1	04	06	04			UN46_00540	Pre-Align Long Diagnostic Break Assembly at S		CON	SL_MES	Hrs	104		10,150		10,150	25%
1	04	06	04			UN46_00540	Pre-Align Long Diagnostic Break Assembly at S		CON	AN_SEE	Hrs	16		1,999		1,999	25%
1	04	06	04			UN46_00540	Pre-Align Long Diagnostic Break Assembly at S		CON	AN_MVE	Hrs	32		2,975		2,975	25%
1	04	06	04			UN45_00460	Pre-Align Short Diagnostic Break Assembly at S		CON	SL_MES	Hrs	80		7,808		7,808	25%
1	04	06	04			UN45_00460	Pre-Align Short Diagnostic Break Assembly at S		CON	AN_SEE	Hrs	16		1,999		1,999	25%
1	04	06	04			UN45_00460	Pre-Align Short Diagnostic Break Assembly at S		CON	AN_MVE	Hrs	32		2,975		2,975	25%
1	04	06	04			UN44_00540	Install Standard Collimator		CON	SL_SEE	Hrs	80		9,136		9,136	25%
1	04	06	04			UN44_00540	Install Standard Collimator		CON	SL_MFAT	Hrs	240		21,226		21,226	25%
1	04	06	04			UN44_00540	Install Standard Collimator		CON	AN_SEE	Hrs	80		9,997		9,997	25%
1	04	06	04			UN44_00540	Install Standard Collimator		CON	AN_PHS	Hrs	40		3,719		3,719	25%
1	04	06	04			UN44_00540	Install Standard Collimator		CON	AN_MVE	Hrs	40		3,719		3,719	25%
1	04	06	04			UN43_00580	Install Standard Bellows		CON	SL_SEE	Hrs	24		2,738		2,738	25%
1	04	06	04			UN43_00580	Install Standard Bellows		CON	SL_MFAT	Hrs	160		14,139		14,139	25%
1	04	06	04			UN43_00580	Install Standard Bellows		CON	AN_SEE	Hrs	40		4,994		4,994	25%
1	04	06	04			UN43_00580	Install Standard Bellows		CON	AN_PHS	Hrs	16		1,486		1,486	25%
1	04	06	04			UN43_00580	Install Standard Bellows		CON	AN_MVE	Hrs	24		2,229		2,229	25%
1	04	06	04			UN43_00590	Align Standard Bellows		CON	SL_MES	Hrs	80		7,821		7,821	25%
1	04	06	04			UN43_00590	Align Standard Bellows		CON	AN_SEE	Hrs	40		5,007		5,007	25%
1	04	06	04			UN43_00590	Align Standard Bellows		CON	AN_MVE	Hrs	16		1,490		1,490	25%
1	04	06	04			UN44_00550	Align Standard Collimator		CON	SL_MES	Hrs	80		7,821		7,821	25%
1	04	06	04			UN44_00550	Align Standard Collimator		CON	AN_SEE	Hrs	40		5,007		5,007	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	06	04			UN44_00550	Align Standard Collimator		CON	AN_MVE	Hrs	16		1,490		1,490	25%
1	04	06	04			UN43_00610	Integrate Vacuum and Cooling Std Bel Mod		CON	AN_SEE	Hrs	40		5,007		5,007	25%
1	04	06	04			UN43_00610	Integrate Vacuum and Cooling Std Bel Mod		CON	AN_PHS	Hrs	8		745		745	25%
1	04	06	04			UN43_00610	Integrate Vacuum and Cooling Std Bel Mod		CON	AN_MVE	Hrs	24		2,235		2,235	25%
1	04	06	04			UN42_00750	Install Prd Un Cham Assembly		CON	SL_SEE	Hrs	120		13,727		13,727	25%
1	04	06	04			UN42_00750	Install Prd Un Cham Assembly		CON	SL_MFAT	Hrs	280		24,805		24,805	25%
1	04	06	04			UN42_00750	Install Prd Un Cham Assembly		CON	AN_SEE	Hrs	160		20,027		20,027	25%
1	04	06	04			UN42_00750	Install Prd Un Cham Assembly		CON	AN_PHS	Hrs	40		3,725		3,725	25%
1	04	06	04			UN42_00750	Install Prd Un Cham Assembly		CON	AN_MVE	Hrs	80		7,450		7,450	25%
1	04	06	04			UN44_00570	Integrate Vacuum and Cooling Std Col		CON	SL_SEE	Hrs	40		4,576		4,576	25%
1	04	06	04			UN44_00570	Integrate Vacuum and Cooling Std Col		CON	SL_CT	Hrs	40		2,667		2,667	25%
1	04	06	04			UN44_00570	Integrate Vacuum and Cooling Std Col		CON	SL_CE	Hrs	40		4,870		4,870	25%
1	04	06	04			UN44_00570	Integrate Vacuum and Cooling Std Col		CON	AN_SEE	Hrs	40		5,007		5,007	25%
1	04	06	04			UN44_00570	Integrate Vacuum and Cooling Std Col		CON	AN_PHS	Hrs	16		1,490		1,490	25%
1	04	06	04			UN44_00570	Integrate Vacuum and Cooling Std Col		CON	AN_MVE	Hrs	16		1,490		1,490	25%
1	04	06	04			UN44_00570	Integrate Vacuum and Cooling Std Col		CON	AN_CE	Hrs	40		3,972		3,972	25%
1	04	06	04			UN48_00610	Install Exit Section Assembly and Support		CON	SL_SEE	Hrs	40		4,576		4,576	25%
1	04	06	04			UN48_00610	Install Exit Section Assembly and Support		CON	SL_MFAT	Hrs	240		21,262		21,262	25%
1	04	06	04			UN48_00610	Install Exit Section Assembly and Support		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	04			UN48_00610	Install Exit Section Assembly and Support		CON	AN_PHS	Hrs	64		5,960		5,960	25%
1	04	06	04			UN48_00610	Install Exit Section Assembly and Support		CON	AN_MVE	Hrs	24		2,235		2,235	25%
1	04	06	04			UN47_00610	Install Entrance Section Assembly and Support		CON	SL_SEE	Hrs	40		4,576		4,576	25%
1	04	06	04			UN47_00610	Install Entrance Section Assembly and Support		CON	SL_MFAT	Hrs	160		14,174		14,174	25%
1	04	06	04			UN47_00610	Install Entrance Section Assembly and Support		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	04			UN47_00610	Install Entrance Section Assembly and Support		CON	AN_PHS	Hrs	40		3,725		3,725	25%
1	04	06	04			UN47_00610	Install Entrance Section Assembly and Support		CON	AN_MVE	Hrs	40		3,725		3,725	25%
1	04	06	04			UN46_00550	Install Long Diagnostic Break Assembly		CON	SL_SEE	Hrs	56		6,406		6,406	25%
1	04	06	04			UN46_00550	Install Long Diagnostic Break Assembly		CON	SL_MFAT	Hrs	240		21,262		21,262	25%
1	04	06	04			UN46_00550	Install Long Diagnostic Break Assembly		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	04			UN46_00550	Install Long Diagnostic Break Assembly		CON	AN_PHS	Hrs	40		3,725		3,725	25%
1	04	06	04			UN46_00550	Install Long Diagnostic Break Assembly		CON	AN_MVE	Hrs	40		3,725		3,725	25%
1	04	06	04			UN45_00470	Install Short Diagnostic Break Assembly		CON	SL_SEE	Hrs	80		9,151		9,151	25%
1	04	06	04			UN45_00470	Install Short Diagnostic Break Assembly		CON	SL_MFAT	Hrs	200		17,718		17,718	25%
1	04	06	04			UN45_00470	Install Short Diagnostic Break Assembly		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	04			UN45_00470	Install Short Diagnostic Break Assembly		CON	AN_PHS	Hrs	24		2,235		2,235	25%
1	04	06	04			UN45_00470	Install Short Diagnostic Break Assembly		CON	AN_MVE	Hrs	40		3,725		3,725	25%
1	04	06	04			UN42_00790	Integrate Un Cham Assy Vacuum and Cooling		CON	SL_SEE	Hrs	80		9,151		9,151	25%
1	04	06	04			UN42_00790	Integrate Un Cham Assy Vacuum and Cooling		CON	SL_CT	Hrs	160		10,669		10,669	25%
1	04	06	04			UN42_00790	Integrate Un Cham Assy Vacuum and Cooling		CON	SL_CE	Hrs	120		14,610		14,610	25%
1	04	06	04			UN42_00790	Integrate Un Cham Assy Vacuum and Cooling		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	04			UN42_00790	Integrate Un Cham Assy Vacuum and Cooling		CON	AN_PHS	Hrs	80		7,450		7,450	25%
1	04	06	04			UN42_00790	Integrate Un Cham Assy Vacuum and Cooling		CON	AN_MVE	Hrs	40		3,725		3,725	25%
1	04	06	04			UN42_00790	Integrate Un Cham Assy Vacuum and Cooling		CON	AN_CE	Hrs	120		11,915		11,915	25%
1	04	06	04			UN42_00760	Align Un Cham Assembly		CON	SL_MES	Hrs	160		15,642		15,642	25%
1	04	06	04			UN42_00760	Align Un Cham Assembly		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	04			UN42_00760	Align Un Cham Assembly		CON	AN_MVE	Hrs	40		3,725		3,725	25%
1	04	06	04			UN47_00620	Align Entrance Section Assembly and Support		CON	SL_MES	Hrs	160		15,642		15,642	25%
1	04	06	04			UN47_00620	Align Entrance Section Assembly and Support		CON	AN_SEE	Hrs	64		8,011		8,011	25%
1	04	06	04			UN47_00620	Align Entrance Section Assembly and Support		CON	AN_MVE	Hrs	16		1,490		1,490	25%
1	04	06	04			UN46_00560	Align Long Diagnostic Break Assembly		CON	SL_MES	Hrs	160		15,642		15,642	25%
1	04	06	04			UN46_00560	Align Long Diagnostic Break Assembly		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	04			UN46_00560	Align Long Diagnostic Break Assembly		CON	AN_MVE	Hrs	40		3,725		3,725	25%
1	04	06	04			UN45_00480	Align Short Diagnostic Break Assembly		CON	SL_MES	Hrs	160		15,642		15,642	25%
1	04	06	04			UN45_00480	Align Short Diagnostic Break Assembly		CON	AN_SEE	Hrs	64		8,011		8,011	25%
1	04	06	04			UN45_00480	Align Short Diagnostic Break Assembly		CON	AN_MVE	Hrs	40		3,725		3,725	25%
1	04	06	04			UN48_00620	Align Exit Section Assembly and Support		CON	SL_MES	Hrs	160		15,642		15,642	25%
1	04	06	04			UN48_00620	Align Exit Section Assembly and Support		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	04			UN48_00620	Align Exit Section Assembly and Support		CON	AN_MVE	Hrs	40		3,725		3,725	25%
1	04	06	04			UN47_00630	Validate Entrance Section Assembly and Support		CON	SL_SEE	Hrs	24		2,745		2,745	25%
1	04	06	04			UN47_00630	Validate Entrance Section Assembly and Support		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	04			UN47_00630	Validate Entrance Section Assembly and Support		CON	AN_PHS	Hrs	24		2,235		2,235	25%
1	04	06	04			UN47_00630	Validate Entrance Section Assembly and Support		CON	AN_MVE	Hrs	16		1,490		1,490	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	06	04			UN45_00490	Validate Short Diagnostic Break Assembly		CON	SL_SEE	Hrs	40		4,576		4,576	25%
1	04	06	04			UN45_00490	Validate Short Diagnostic Break Assembly		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	04			UN45_00490	Validate Short Diagnostic Break Assembly		CON	AN_PHS	Hrs	8		745		745	25%
1	04	06	04			UN45_00490	Validate Short Diagnostic Break Assembly		CON	AN_MVE	Hrs	32		2,980		2,980	25%
1	04	06	04			UN46_00570	Validate Long Diagnostic Break Assembly		CON	SL_SEE	Hrs	32		3,660		3,660	25%
1	04	06	04			UN46_00570	Validate Long Diagnostic Break Assembly		CON	AN_SEE	Hrs	64		8,011		8,011	25%
1	04	06	04			UN46_00570	Validate Long Diagnostic Break Assembly		CON	AN_PHS	Hrs	8		745		745	25%
1	04	06	04			UN46_00570	Validate Long Diagnostic Break Assembly		CON	AN_MVE	Hrs	40		3,725		3,725	25%
1	04	06	04			UN42_00770	Validate Un Cham Assembly		CON	SL_SEE	Hrs	80		9,151		9,151	25%
1	04	06	04			UN42_00770	Validate Un Cham Assembly		CON	AN_SEE	Hrs	120		15,020		15,020	25%
1	04	06	04			UN42_00770	Validate Un Cham Assembly		CON	AN_PHS	Hrs	8		745		745	25%
1	04	06	04			UN42_00770	Validate Un Cham Assembly		CON	AN_MVE	Hrs	40		3,725		3,725	25%
1	04	06	04			UN48_00630	Validate Exit Section Assembly and Support		CON	SL_SEE	Hrs	40		4,576		4,576	25%
1	04	06	04			UN48_00630	Validate Exit Section Assembly and Support		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	04			UN48_00630	Validate Exit Section Assembly and Support		CON	AN_PHS	Hrs	40		3,725		3,725	25%
1	04	06	04			UN48_00630	Validate Exit Section Assembly and Support		CON	AN_MVE	Hrs	24		2,235		2,235	25%
1	04	06	04			UN47_00650	Integrate Vac/Cooling - Entrance Section Assy		CON	SL_SEE	Hrs	32		3,660		3,660	25%
1	04	06	04			UN47_00650	Integrate Vac/Cooling - Entrance Section Assy		CON	SL_CT	Hrs	160		10,669		10,669	25%
1	04	06	04			UN47_00650	Integrate Vac/Cooling - Entrance Section Assy		CON	SL_CE	Hrs	40		4,870		4,870	25%
1	04	06	04			UN47_00650	Integrate Vac/Cooling - Entrance Section Assy		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	04			UN47_00650	Integrate Vac/Cooling - Entrance Section Assy		CON	AN_PHS	Hrs	64		5,960		5,960	25%
1	04	06	04			UN47_00650	Integrate Vac/Cooling - Entrance Section Assy		CON	AN_MVE	Hrs	24		2,235		2,235	25%
1	04	06	04			UN47_00650	Integrate Vac/Cooling - Entrance Section Assy		CON	AN_CE	Hrs	80		7,943		7,943	25%
1	04	06	04			UN45_00510	Integrate Vac/Cooling - Short Diag Break Assy		CON	SL_SEE	Hrs	32		3,660		3,660	25%
1	04	06	04			UN45_00510	Integrate Vac/Cooling - Short Diag Break Assy		CON	SL_CT	Hrs	160		10,669		10,669	25%
1	04	06	04			UN45_00510	Integrate Vac/Cooling - Short Diag Break Assy		CON	SL_CE	Hrs	80		9,740		9,740	25%
1	04	06	04			UN45_00510	Integrate Vac/Cooling - Short Diag Break Assy		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	04			UN45_00510	Integrate Vac/Cooling - Short Diag Break Assy		CON	AN_PHS	Hrs	40		3,725		3,725	25%
1	04	06	04			UN45_00510	Integrate Vac/Cooling - Short Diag Break Assy		CON	AN_MVE	Hrs	24		2,235		2,235	25%
1	04	06	04			UN45_00510	Integrate Vac/Cooling - Short Diag Break Assy		CON	AN_CE	Hrs	80		7,943		7,943	25%
1	04	06	04			UN46_00590	Integrate Vac/Cooling - Long Diag Break Assy		CON	SL_SEE	Hrs	32		3,660		3,660	25%
1	04	06	04			UN46_00590	Integrate Vac/Cooling - Long Diag Break Assy		CON	SL_CT	Hrs	80		5,334		5,334	25%
1	04	06	04			UN46_00590	Integrate Vac/Cooling - Long Diag Break Assy		CON	SL_CE	Hrs	80		9,740		9,740	25%
1	04	06	04			UN46_00590	Integrate Vac/Cooling - Long Diag Break Assy		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	04			UN46_00590	Integrate Vac/Cooling - Long Diag Break Assy		CON	AN_PHS	Hrs	64		5,960		5,960	25%
1	04	06	04			UN46_00590	Integrate Vac/Cooling - Long Diag Break Assy		CON	AN_MVE	Hrs	24		2,235		2,235	25%
1	04	06	04			UN46_00590	Integrate Vac/Cooling - Long Diag Break Assy		CON	AN_CE	Hrs	80		7,943		7,943	25%
1	04	06	04			UN48_00650	Integrate Vac/Cooling - Exit Section Assy		CON	SL_SEE	Hrs	32		3,660		3,660	25%
1	04	06	04			UN48_00650	Integrate Vac/Cooling - Exit Section Assy		CON	SL_CT	Hrs	160		10,669		10,669	25%
1	04	06	04			UN48_00650	Integrate Vac/Cooling - Exit Section Assy		CON	SL_CE	Hrs	80		9,740		9,740	25%
1	04	06	04			UN48_00650	Integrate Vac/Cooling - Exit Section Assy		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	04			UN48_00650	Integrate Vac/Cooling - Exit Section Assy		CON	AN_PHS	Hrs	80		7,450		7,450	25%
1	04	06	04			UN48_00650	Integrate Vac/Cooling - Exit Section Assy		CON	AN_MVE	Hrs	24		2,235		2,235	25%
1	04	06	04			UN48_00650	Integrate Vac/Cooling - Exit Section Assy		CON	AN_CE	Hrs	80		7,943		7,943	25%
1	04	06	04			UN47_00660	Integration Test - Entrance Section Assy		CON	SL_SEE	Hrs	24		2,745		2,745	25%
1	04	06	04			UN47_00660	Integration Test - Entrance Section Assy		CON	SL_CT	Hrs	80		5,334		5,334	25%
1	04	06	04			UN47_00660	Integration Test - Entrance Section Assy		CON	SL_CE	Hrs	32		3,896		3,896	25%
1	04	06	04			UN47_00660	Integration Test - Entrance Section Assy		CON	AN_SEE	Hrs	64		8,011		8,011	25%
1	04	06	04			UN47_00660	Integration Test - Entrance Section Assy		CON	AN_PHS	Hrs	64		5,960		5,960	25%
1	04	06	04			UN47_00660	Integration Test - Entrance Section Assy		CON	AN_MVE	Hrs	16		1,490		1,490	25%
1	04	06	04			UN47_00660	Integration Test - Entrance Section Assy		CON	AN_CE	Hrs	80		7,943		7,943	25%
1	04	06	04			UN45_00520	Integration Test - Short Diag Break Assy		CON	SL_SEE	Hrs	24		2,745		2,745	25%
1	04	06	04			UN45_00520	Integration Test - Short Diag Break Assy		CON	SL_CT	Hrs	80		5,334		5,334	25%
1	04	06	04			UN45_00520	Integration Test - Short Diag Break Assy		CON	SL_CE	Hrs	40		4,870		4,870	25%
1	04	06	04			UN45_00520	Integration Test - Short Diag Break Assy		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	04			UN45_00520	Integration Test - Short Diag Break Assy		CON	AN_PHS	Hrs	80		7,450		7,450	25%
1	04	06	04			UN45_00520	Integration Test - Short Diag Break Assy		CON	AN_MVE	Hrs	24		2,235		2,235	25%
1	04	06	04			UN45_00520	Integration Test - Short Diag Break Assy		CON	AN_CE	Hrs	40		3,972		3,972	25%
1	04	06	04			UN42_00800	Integration Test Un Cham Assembly		CON	SL_SEE	Hrs	40		4,576		4,576	25%
1	04	06	04			UN42_00800	Integration Test Un Cham Assembly		CON	SL_CT	Hrs	80		5,334		5,334	25%
1	04	06	04			UN42_00800	Integration Test Un Cham Assembly		CON	SL_CE	Hrs	80		9,740		9,740	25%
1	04	06	04			UN42_00800	Integration Test Un Cham Assembly		CON	AN_SEE	Hrs	120		15,020		15,020	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	06	04			UN42_00800	Integration Test Un Cham Assembly		CON	AN_PHS	Hrs	120		11,174		11,174	25%
1	04	06	04			UN42_00800	Integration Test Un Cham Assembly		CON	AN_MVE	Hrs	40		3,725		3,725	25%
1	04	06	04			UN42_00800	Integration Test Un Cham Assembly		CON	AN_CE	Hrs	80		7,943		7,943	25%
1	04	06	04			UN46_00600	Integration Test - Long Diag Break Assy		CON	SL_SEE	Hrs	24		2,745		2,745	25%
1	04	06	04			UN46_00600	Integration Test - Long Diag Break Assy		CON	SL_CT	Hrs	80		5,334		5,334	25%
1	04	06	04			UN46_00600	Integration Test - Long Diag Break Assy		CON	SL_CE	Hrs	48		5,844		5,844	25%
1	04	06	04			UN46_00600	Integration Test - Long Diag Break Assy		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	04			UN46_00600	Integration Test - Long Diag Break Assy		CON	AN_PHS	Hrs	80		7,450		7,450	25%
1	04	06	04			UN46_00600	Integration Test - Long Diag Break Assy		CON	AN_MVE	Hrs	24		2,235		2,235	25%
1	04	06	04			UN46_00600	Integration Test - Long Diag Break Assy		CON	AN_CE	Hrs	80		7,943		7,943	25%
1	04	06	04			UN48_00660	Integration Test - Exit Section Assy		CON	SL_SEE	Hrs	24		2,745		2,745	25%
1	04	06	04			UN48_00660	Integration Test - Exit Section Assy		CON	SL_CT	Hrs	80		5,334		5,334	25%
1	04	06	04			UN48_00660	Integration Test - Exit Section Assy		CON	SL_CE	Hrs	32		3,896		3,896	25%
1	04	06	04			UN48_00660	Integration Test - Exit Section Assy		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	04			UN48_00660	Integration Test - Exit Section Assy		CON	AN_PHS	Hrs	40		3,725		3,725	25%
1	04	06	04			UN48_00660	Integration Test - Exit Section Assy		CON	AN_MVE	Hrs	16		1,490		1,490	25%
1	04	06	04			UN48_00660	Integration Test - Exit Section Assy		CON	AN_CE	Hrs	80		7,943		7,943	25%
1	**04**	**06**	**05**				**Diagnostics System Installation and Alignment**					**7,864**	**-**	**773,585**	**-**	**773,585**	
1	04	06	05			UN504_1520	Develop Installation Plan		CON	SL_SEE	Hrs	24		2,537		2,537	25%
1	04	06	05			UN504_1520	Develop Installation Plan		CON	AN_SEE	Hrs	80		9,253		9,253	25%
1	04	06	05			UN504_1520	Develop Installation Plan		CON	AN_PHS	Hrs	16		1,377		1,377	25%
1	04	06	05			UN504_1520	Develop Installation Plan		CON	AN_ME	Hrs	40		3,442		3,442	25%
1	04	06	05			UN504_1520	Develop Installation Plan		CON	AN_CE	Hrs	16		1,468		1,468	25%
1	04	06	05			UN504_1530	Review installation Plan		CON	SL_SEE	Hrs	16		1,691		1,691	25%
1	04	06	05			UN504_1530	Review installation Plan		CON	AN_SEE	Hrs	24		2,776		2,776	25%
1	04	06	05			UN504_1530	Review installation Plan		CON	AN_PHS	Hrs	8		688		688	25%
1	04	06	05			UN504_1530	Review installation Plan		CON	AN_ME	Hrs	24		2,065		2,065	25%
1	04	06	05			UN504_1530	Review installation Plan		CON	AN_CE	Hrs	8		734		734	25%
1	04	06	05			UN505_0290	RFBPM Arrive at SLAC		CON	SL_MFAT	Hrs	16		1,347		1,347	25%
1	04	06	05			UN505_0290	RFBPM Arrive at SLAC		CON	AN_SEE	Hrs	16		1,902		1,902	25%
1	04	06	05			UN505_0290	RFBPM Arrive at SLAC		CON	AN_ME	Hrs	8		708		708	25%
1	04	06	05			UN505_0300	Pre-Align RFBPM at SLAC		CON	SL_MES	Hrs	120		11,144		11,144	25%
1	04	06	05			UN505_0300	Pre-Align RFBPM at SLAC		CON	AN_SEE	Hrs	80		9,512		9,512	25%
1	04	06	05			UN505_0300	Pre-Align RFBPM at SLAC		CON	AN_ME	Hrs	40		3,538		3,538	25%
1	04	06	05			UN511_0210	Supplemental Shielding Arrive at SLAC		CON	SL_MFAT	Hrs	40		3,366		3,366	25%
1	04	06	05			UN511_0210	Supplemental Shielding Arrive at SLAC		CON	AN_SEE	Hrs	16		1,902		1,902	25%
1	04	06	05			UN511_0210	Supplemental Shielding Arrive at SLAC		CON	AN_ME	Hrs	16		1,415		1,415	25%
1	04	06	05			UN511_0220	Install Supplemental Shielding		CON	SL_MFAT	Hrs	80		6,908		6,908	25%
1	04	06	05			UN511_0220	Install Supplemental Shielding		CON	AN_SEE	Hrs	40		4,880		4,880	25%
1	04	06	05			UN511_0220	Install Supplemental Shielding		CON	AN_ME	Hrs	24		2,178		2,178	25%
1	04	06	05			UN505_0310	Install RFBPM		CON	SL_MFAT	Hrs	120		10,362		10,362	25%
1	04	06	05			UN505_0310	Install RFBPM		CON	AN_SEE	Hrs	80		9,759		9,759	25%
1	04	06	05			UN505_0310	Install RFBPM		CON	AN_ME	Hrs	24		2,178		2,178	25%
1	04	06	05			UN505_0310	Install RFBPM		CON	AN_EE	Hrs	24		2,323		2,323	25%
1	04	06	05			UN508_0190	Cherenkov Detector Arrive at SLAC		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	04	06	05			UN508_0190	Cherenkov Detector Arrive at SLAC		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	06	05			UN508_0190	Cherenkov Detector Arrive at SLAC		CON	AN_ME	Hrs	16		1,452		1,452	25%
1	04	06	05			UN507_0200	Charge Monitor Arrive at SLAC		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	04	06	05			UN507_0200	Charge Monitor Arrive at SLAC		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	06	05			UN507_0200	Charge Monitor Arrive at SLAC		CON	AN_ME	Hrs	16		1,452		1,452	25%
1	04	06	05			UN509_0260	RDM Arrive at SLAC		CON	SL_MFAT	Hrs	24		2,072		2,072	25%
1	04	06	05			UN509_0260	RDM Arrive at SLAC		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	06	05			UN509_0260	RDM Arrive at SLAC		CON	AN_ME	Hrs	16		1,452		1,452	25%
1	04	06	05			UN508_0200	Install Cherenkov Detector		CON	SL_MFAT	Hrs	80		6,908		6,908	25%
1	04	06	05			UN508_0200	Install Cherenkov Detector		CON	AN_SEE	Hrs	80		9,759		9,759	25%
1	04	06	05			UN508_0200	Install Cherenkov Detector		CON	AN_ME	Hrs	40		3,630		3,630	25%
1	04	06	05			UN505_0350	Integrate RFBPM		CON	SL_MFAT	Hrs	120		10,362		10,362	25%
1	04	06	05			UN505_0350	Integrate RFBPM		CON	AN_SEE	Hrs	64		7,807		7,807	25%
1	04	06	05			UN505_0350	Integrate RFBPM		CON	AN_ME	Hrs	64		5,809		5,809	25%
1	04	06	05			UN505_0350	Integrate RFBPM		CON	AN_EE	Hrs	64		6,194		6,194	25%
1	04	06	05			UN505_0320	Align RFBPM		CON	SL_MES	Hrs	120		11,434		11,434	25%
1	04	06	05			UN505_0320	Align RFBPM		CON	AN_SEE	Hrs	64		7,807		7,807	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	06	05			UN505_0320	Align RFBPM		CON	AN_ME	Hrs	24		2,178		2,178	25%
1	04	06	05			UN511_0230	Inspect Supplemental Shielding Placement and S		CON	SL_SEE	Hrs	16		1,784		1,784	25%
1	04	06	05			UN511_0230	Inspect Supplemental Shielding Placement and S		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	06	05			UN509_0270	Install RDM		CON	SL_MFAT	Hrs	80		6,908		6,908	25%
1	04	06	05			UN509_0270	Install RDM		CON	AN_SEE	Hrs	80		9,759		9,759	25%
1	04	06	05			UN509_0270	Install RDM		CON	AN_ME	Hrs	40		3,630		3,630	25%
1	04	06	05			UN507_0210	Install Charge Monitor		CON	SL_MFAT	Hrs	80		6,908		6,908	25%
1	04	06	05			UN507_0210	Install Charge Monitor		CON	AN_SEE	Hrs	56		6,831		6,831	25%
1	04	06	05			UN507_0210	Install Charge Monitor		CON	AN_ME	Hrs	40		3,630		3,630	25%
1	04	06	05			UN507_0240	Integrate Charge Monitor		CON	SL_MFAT	Hrs	16		1,382		1,382	25%
1	04	06	05			UN507_0240	Integrate Charge Monitor		CON	SL_CT	Hrs	40		2,600		2,600	25%
1	04	06	05			UN507_0240	Integrate Charge Monitor		CON	AN_SEE	Hrs	24		2,928		2,928	25%
1	04	06	05			UN507_0240	Integrate Charge Monitor		CON	AN_ME	Hrs	16		1,452		1,452	25%
1	04	06	05			UN507_0240	Integrate Charge Monitor		CON	AN_CE	Hrs	40		3,871		3,871	25%
1	04	06	05			UN507_0220	Assemble Charge Monitor Controls		CON	SL_MFAT	Hrs	24		2,072		2,072	25%
1	04	06	05			UN507_0220	Assemble Charge Monitor Controls		CON	SL_CT	Hrs	80		5,199		5,199	25%
1	04	06	05			UN507_0220	Assemble Charge Monitor Controls		CON	AN_SEE	Hrs	24		2,928		2,928	25%
1	04	06	05			UN507_0220	Assemble Charge Monitor Controls		CON	AN_CE	Hrs	56		5,420		5,420	25%
1	04	06	05			UN508_0230	Integrate Cherenkov Detector		CON	SL_MFAT	Hrs	48		4,145		4,145	25%
1	04	06	05			UN508_0230	Integrate Cherenkov Detector		CON	SL_CT	Hrs	80		5,199		5,199	25%
1	04	06	05			UN508_0230	Integrate Cherenkov Detector		CON	AN_SEE	Hrs	56		6,831		6,831	25%
1	04	06	05			UN508_0230	Integrate Cherenkov Detector		CON	AN_ME	Hrs	16		1,452		1,452	25%
1	04	06	05			UN508_0230	Integrate Cherenkov Detector		CON	AN_EE	Hrs	64		6,194		6,194	25%
1	04	06	05			UN508_0230	Integrate Cherenkov Detector		CON	AN_CE	Hrs	40		3,871		3,871	25%
1	04	06	05			UN508_0210	Validate Cherenkov Detector		CON	SL_MFAT	Hrs	80		6,908		6,908	25%
1	04	06	05			UN508_0210	Validate Cherenkov Detector		CON	AN_SEE	Hrs	56		6,831		6,831	25%
1	04	06	05			UN508_0210	Validate Cherenkov Detector		CON	AN_EE	Hrs	40		3,871		3,871	25%
1	04	06	05			UN505_0330	Validate RFBPM		CON	SL_MFAT	Hrs	24		2,072		2,072	25%
1	04	06	05			UN505_0330	Validate RFBPM		CON	AN_SEE	Hrs	40		4,880		4,880	25%
1	04	06	05			UN505_0330	Validate RFBPM		CON	AN_EE	Hrs	80		7,742		7,742	25%
1	04	06	05			UN509_0300	Integrate RDM		CON	SL_MFAT	Hrs	24		2,072		2,072	25%
1	04	06	05			UN509_0300	Integrate RDM		CON	SL_CT	Hrs	80		5,199		5,199	25%
1	04	06	05			UN509_0300	Integrate RDM		CON	AN_SEE	Hrs	56		6,831		6,831	25%
1	04	06	05			UN509_0300	Integrate RDM		CON	AN_ME	Hrs	32		2,904		2,904	25%
1	04	06	05			UN509_0300	Integrate RDM		CON	AN_CE	Hrs	64		6,194		6,194	25%
1	04	06	05			UN509_0280	Assemble RDM Controls		CON	SL_MFAT	Hrs	24		2,072		2,072	25%
1	04	06	05			UN509_0280	Assemble RDM Controls		CON	SL_CT	Hrs	80		5,199		5,199	25%
1	04	06	05			UN509_0280	Assemble RDM Controls		CON	AN_SEE	Hrs	40		4,880		4,880	25%
1	04	06	05			UN509_0280	Assemble RDM Controls		CON	AN_CE	Hrs	56		5,420		5,420	25%
1	04	06	05			UN505_0360	Test RFBPM		CON	SL_PHS	Hrs	80		6,144		6,144	25%
1	04	06	05			UN505_0360	Test RFBPM		CON	SL_MFAT	Hrs	32		2,763		2,763	25%
1	04	06	05			UN505_0360	Test RFBPM		CON	AN_SEE	Hrs	40		4,880		4,880	25%
1	04	06	05			UN505_0360	Test RFBPM		CON	AN_EE	Hrs	80		7,742		7,742	25%
1	04	06	05			UN507_0250	Test Charge Monitor		CON	SL_PHS	Hrs	16		1,229		1,229	25%
1	04	06	05			UN507_0250	Test Charge Monitor		CON	SL_MFAT	Hrs	16		1,382		1,382	25%
1	04	06	05			UN507_0250	Test Charge Monitor		CON	AN_SEE	Hrs	24		2,928		2,928	25%
1	04	06	05			UN507_0250	Test Charge Monitor		CON	AN_CE	Hrs	40		3,871		3,871	25%
1	04	06	05			UN508_0240	Test Cherenkov Detector		CON	SL_PHS	Hrs	48		3,686		3,686	25%
1	04	06	05			UN508_0240	Test Cherenkov Detector		CON	SL_MFAT	Hrs	32		2,763		2,763	25%
1	04	06	05			UN508_0240	Test Cherenkov Detector		CON	AN_SEE	Hrs	48		5,856		5,856	25%
1	04	06	05			UN508_0240	Test Cherenkov Detector		CON	AN_EE	Hrs	56		5,420		5,420	25%
1	04	06	05			UN508_0240	Test Cherenkov Detector		CON	AN_CE	Hrs	56		5,420		5,420	25%
1	04	06	05			UN509_0310	Test RDM		CON	SL_PHS	Hrs	24		1,843		1,843	25%
1	04	06	05			UN509_0310	Test RDM		CON	SL_CT	Hrs	24		1,560		1,560	25%
1	04	06	05			UN509_0310	Test RDM		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	06	05			UN509_0310	Test RDM		CON	AN_CE	Hrs	40		3,871		3,871	25%
1	04	06	05			UN502_1670	EBXPD Arrive at SLAC		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	04	06	05			UN502_1670	EBXPD Arrive at SLAC		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	06	05			UN502_1670	EBXPD Arrive at SLAC		CON	AN_ME	Hrs	8		726		726	25%
1	04	06	05			UN502_1680	Pre-Align EBXPD at SLAC		CON	SL_SEE	Hrs	40		4,460		4,460	25%
1	04	06	05			UN502_1680	Pre-Align EBXPD at SLAC		CON	SL_MES	Hrs	120		11,434		11,434	25%
1	04	06	05			UN502_1680	Pre-Align EBXPD at SLAC		CON	AN_SEE	Hrs	80		9,759		9,759	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	06	05			UN502_1680	Pre-Align EBXPD at SLAC		CON	AN_ME	Hrs	40		3,630		3,630	25%
1	04	06	05			UN502_1690	Install EBXPD		CON	SL_SEE	Hrs	40		4,460		4,460	25%
1	04	06	05			UN502_1690	Install EBXPD		CON	SL_MFAT	Hrs	120		10,362		10,362	25%
1	04	06	05			UN502_1690	Install EBXPD		CON	AN_SEE	Hrs	80		9,759		9,759	25%
1	04	06	05			UN502_1690	Install EBXPD		CON	AN_PHS	Hrs	24		2,178		2,178	25%
1	04	06	05			UN502_1690	Install EBXPD		CON	AN_ME	Hrs	40		3,630		3,630	25%
1	04	06	05			UN502_1690	Install EBXPD		CON	AN_CE	Hrs	40		3,871		3,871	25%
1	04	06	05			UN502_1700	Align EBXPD		CON	SL_SEE	Hrs	24		2,676		2,676	25%
1	04	06	05			UN502_1700	Align EBXPD		CON	SL_MES	Hrs	80		7,622		7,622	25%
1	04	06	05			UN502_1700	Align EBXPD		CON	AN_SEE	Hrs	64		7,807		7,807	25%
1	04	06	05			UN502_1700	Align EBXPD		CON	AN_ME	Hrs	24		2,178		2,178	25%
1	04	06	05			UN502_1730	Integrate EBXPD		CON	SL_SEE	Hrs	24		2,676		2,676	25%
1	04	06	05			UN502_1730	Integrate EBXPD		CON	SL_CT	Hrs	120		7,799		7,799	25%
1	04	06	05			UN502_1730	Integrate EBXPD		CON	SL_CE	Hrs	80		9,494		9,494	25%
1	04	06	05			UN502_1730	Integrate EBXPD		CON	AN_SEE	Hrs	80		9,759		9,759	25%
1	04	06	05			UN502_1730	Integrate EBXPD		CON	AN_PHS	Hrs	16		1,452		1,452	25%
1	04	06	05			UN502_1730	Integrate EBXPD		CON	AN_ME	Hrs	16		1,452		1,452	25%
1	04	06	05			UN502_1730	Integrate EBXPD		CON	AN_CE	Hrs	80		7,742		7,742	25%
1	04	06	05			UN502_1710	Validate EBXPD		CON	SL_SEE	Hrs	16		1,784		1,784	25%
1	04	06	05			UN502_1710	Validate EBXPD		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	04	06	05			UN502_1710	Validate EBXPD		CON	AN_SEE	Hrs	40		4,880		4,880	25%
1	04	06	05			UN502_1710	Validate EBXPD		CON	AN_PHS	Hrs	16		1,452		1,452	25%
1	04	06	05			UN502_1710	Validate EBXPD		CON	AN_ME	Hrs	32		2,904		2,904	25%
1	04	06	05			UN502_1710	Validate EBXPD		CON	AN_CE	Hrs	40		3,871		3,871	25%
1	04	06	05			UN502_1740	Test EBXPD		CON	SL_SEE	Hrs	24		2,676		2,676	25%
1	04	06	05			UN502_1740	Test EBXPD		CON	SL_CT	Hrs	40		2,600		2,600	25%
1	04	06	05			UN502_1740	Test EBXPD		CON	SL_CE	Hrs	40		4,747		4,747	25%
1	04	06	05			UN502_1740	Test EBXPD		CON	AN_SEE	Hrs	80		9,759		9,759	25%
1	04	06	05			UN502_1740	Test EBXPD		CON	AN_PHS	Hrs	40		3,630		3,630	25%
1	04	06	05			UN502_1740	Test EBXPD		CON	AN_ME	Hrs	16		1,452		1,452	25%
1	04	06	05			UN502_1740	Test EBXPD		CON	AN_CE	Hrs	40		3,871		3,871	25%
1	04	06	05			UN504_1510	Transmit Engineering Data to SLAC		CON	SL_MDD	Hrs	8		529		529	25%
1	04	06	05			UN504_1510	Transmit Engineering Data to SLAC		CON	AN_ME	Hrs	8		726		726	25%
1	04	06	05			UN504_1510	Transmit Engineering Data to SLAC		CON	AN_MDD	Hrs	16		987		987	25%
1	04	06	05			UN504_1540	EOU Arrive at SLAC		CON	SL_MFAT	Hrs	16		1,382		1,382	25%
1	04	06	05			UN504_1540	EOU Arrive at SLAC		CON	AN_SEE	Hrs	16		1,952		1,952	25%
1	04	06	05			UN504_1540	EOU Arrive at SLAC		CON	AN_ME	Hrs	8		726		726	25%
1	04	06	05			UN504_1550	Pre-Align EOU at SLAC		CON	SL_SEE	Hrs	24		2,676		2,676	25%
1	04	06	05			UN504_1550	Pre-Align EOU at SLAC		CON	SL_MES	Hrs	120		11,434		11,434	25%
1	04	06	05			UN504_1550	Pre-Align EOU at SLAC		CON	AN_SEE	Hrs	64		7,807		7,807	25%
1	04	06	05			UN504_1550	Pre-Align EOU at SLAC		CON	AN_ME	Hrs	24		2,178		2,178	25%
1	04	06	05			UN504_1560	Install EOU		CON	SL_SEE	Hrs	24		2,676		2,676	25%
1	04	06	05			UN504_1560	Install EOU		CON	SL_MFAT	Hrs	120		10,362		10,362	25%
1	04	06	05			UN504_1560	Install EOU		CON	AN_SEE	Hrs	80		9,759		9,759	25%
1	04	06	05			UN504_1560	Install EOU		CON	AN_PHS	Hrs	24		2,178		2,178	25%
1	04	06	05			UN504_1560	Install EOU		CON	AN_ME	Hrs	48		4,356		4,356	25%
1	04	06	05			UN504_1560	Install EOU		CON	AN_CE	Hrs	40		3,871		3,871	25%
1	04	06	05			UN504_1570	Align EOU		CON	SL_SEE	Hrs	16		1,784		1,784	25%
1	04	06	05			UN504_1570	Align EOU		CON	SL_MES	Hrs	80		7,622		7,622	25%
1	04	06	05			UN504_1570	Align EOU		CON	AN_SEE	Hrs	56		6,831		6,831	25%
1	04	06	05			UN504_1570	Align EOU		CON	AN_ME	Hrs	32		2,904		2,904	25%
1	04	06	05			UN504_1580	Validate EOU		CON	SL_SEE	Hrs	16		1,824		1,824	25%
1	04	06	05			UN504_1580	Validate EOU		CON	AN_SEE	Hrs	40		4,991		4,991	25%
1	04	06	05			UN504_1580	Validate EOU		CON	AN_PHS	Hrs	16		1,485		1,485	25%
1	04	06	05			UN504_1580	Validate EOU		CON	AN_ME	Hrs	24		2,228		2,228	25%
1	04	06	05			UN504_1580	Validate EOU		CON	AN_CE	Hrs	16		1,584		1,584	25%
1	04	06	05			UN504_1600	Integrate EOU		CON	SL_SEE	Hrs	16		1,830		1,830	25%
1	04	06	05			UN504_1600	Integrate EOU		CON	SL_CT	Hrs	120		8,002		8,002	25%
1	04	06	05			UN504_1600	Integrate EOU		CON	SL_CE	Hrs	80		9,740		9,740	25%
1	04	06	05			UN504_1600	Integrate EOU		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	05			UN504_1600	Integrate EOU		CON	AN_PHS	Hrs	16		1,490		1,490	25%
1	04	06	05			UN504_1600	Integrate EOU		CON	AN_ME	Hrs	24		2,235		2,235	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	04	06	05			UN504_1600	Integrate EOU		CON	AN_CE	Hrs	56		5,560		5,560	25%
1	04	06	05			UN504_1610	Test EOU		CON	SL_SEE	Hrs	16		1,830		1,830	25%
1	04	06	05			UN504_1610	Test EOU		CON	SL_CT	Hrs	80		5,334		5,334	25%
1	04	06	05			UN504_1610	Test EOU		CON	SL_CE	Hrs	80		9,740		9,740	25%
1	04	06	05			UN504_1610	Test EOU		CON	AN_SEE	Hrs	80		10,014		10,014	25%
1	04	06	05			UN504_1610	Test EOU		CON	AN_PHS	Hrs	16		1,490		1,490	25%
1	04	06	05			UN504_1610	Test EOU		CON	AN_ME	Hrs	24		2,235		2,235	25%
1	04	06	05			UN504_1610	Test EOU		CON	AN_CE	Hrs	80		7,943		7,943	25%
1	**05**						**X-RAY TRANSPORT & DIAGNOSTICS SYSTEMS**					**91,400**	**6,798,943**	**14,400,388**	**8,456,597**	**22,856,985**	
1	**05**	**01**					**System Management & Integration**					**10,011**	**135,333**	**2,045,827**	**169,439**	**2,215,266**	
1	**05**	**01**	**01**				**Management**					**10,011**	**135,333**	**2,045,827**	**169,439**	**2,215,266**	
1	**05**	**01**	**01**	**01**			**XTOD Management - Technical**					**8,201**	**76,000**	**1,787,633**	**95,790**	**1,883,423**	
1	05	01	01	01		XT_027	Acquisition Plan - 1		PED	LL_CCA	Hrs	160		25,333		25,333	15%
1	05	01	01	01		XT_172	Meetings - 2		PED	LL_MSCS	$$		20,000		24,197	24,197	15%
1	05	01	01	01		XT_162	Travel - 2		PED	LL_MSTR	$$		10,000		12,099	12,099	15%
1	05	01	01	01		XT_037	Prepare Basis of Estimate - 2		PED	LL_ME	Hrs	320		56,509		56,509	35%
1	05	01	01	01		XT_037	Prepare Basis of Estimate - 2		PED	LL_EE	Hrs	80		14,127		14,127	35%
1	05	01	01	01		XT_032	Prepare for EIR Review		PED	LL_ME	Hrs	160		28,254		28,254	35%
1	05	01	01	01		XT_024	Management & Oversight - 1		PED	LL_PHSS	Hrs	453		94,392		94,392	15%
1	05	01	01	01		XT_026	Management & Oversight - 2		PED	LL_PHSS	Hrs	1,757		376,718		376,718	15%
1	05	01	01	01		XT_55	Travel - 3		CON	LL_MSTR	$$		23,000		29,747	29,747	15%
1	05	01	01	01		XT_446	Management & Oversight - 3		CON	LL_PHSS	Hrs	5,271		1,192,300		1,192,300	15%
1	05	01	01	01		XT_35567	Meetings - 3		CON	LL_MSCS	$$		23,000		29,747	29,747	15%
1	**05**	**01**	**01**	**02**			**LLNL Project Support**					**1,810**	**59,333**	**258,194**	**73,649**	**331,843**	
1	05	01	01	02		XT11_1004	Project Support M&S - LLNL - PED		PED	LL_MSCS	$$		30,000		36,296	36,296	10%
1	05	01	01	02		XT11_1002	Teleconfernce/Comp - LLNL - PED		PED	LL_MSPS	$$		7,000		8,469	8,469	10%
1	05	01	01	02		XT11_1001	Administrative/Database Support - LLNL - PED		PED	LL_ADMN	Hrs	303		41,428		41,428	10%
1	05	01	01	02		XT11_1000	Financial/Budget Support - LLNL - PED		PED	LL_ADMN	Hrs	303		41,428		41,428	10%
1	05	01	01	02		XT_235	Project Support M&S - LLNL-CON		CON	LL_MSCS	$$		20,000		25,867	25,867	10%
1	05	01	01	02		XT_234	Teleconfernce/Comp - LLNL-CON		CON	LL_MSPS	$$		2,333		3,017	3,017	10%
1	05	01	01	02		XT_233	Administrative/Database Support - LLNL-CON		CON	LL_ADMN	Hrs	602		87,669		87,669	10%
1	05	01	01	02		XT_23	Financial/Budget Support - LLNL - CON		CON	LL_ADMN	Hrs	602		87,669		87,669	10%
1	**05**	**02**					**Controls**					**5,765**	**30,000**	**1,085,641**	**38,700**	**1,124,341**	
1	**05**	**02**	**01**				**Reserved**										
1	**05**	**02**	**02**				**Slow Controls**					**5,093**	**30,000**	**955,054**	**38,700**	**993,754**	
1	05	02	02			XT_0102	Specification - Slow Controls		PED	LL_PHSS	Hrs	40		8,817		8,817	50%
1	05	02	02			XT_0102	Specification - Slow Controls		PED	LL_CE	Hrs	80		14,944		14,944	50%
1	05	02	02			XT_0103	Design - Slow Controls		PED	LL_PHSS	Hrs	115		25,348		25,348	50%
1	05	02	02			XT_0103	Design - Slow Controls		PED	LL_CE	Hrs	460		85,928		85,928	50%
1	05	02	02			XT_0104	Design Review - Slow Controls		PED	LL_PHSS	Hrs	8		1,763		1,763	50%
1	05	02	02			XT_0104	Design Review - Slow Controls		PED	LL_CE	Hrs	8		1,494		1,494	50%
1	05	02	02			XT_0108	Prepare Bid Pkg Servers - Slow Controls		CON	LL_CE	Hrs	16		2,989		2,989	50%
1	05	02	02			XT_0113	Vendor Fab/Ship Servers - Slow Controls		CON	LL_PHSS	Hrs	16		3,618		3,618	45%
1	05	02	02			XT_0113	Vendor Fab/Ship Servers - Slow Controls		CON	LL_MSEG	$$		30,000		38,700	38,700	45%
1	05	02	02			XT_0132	Assemble Far Hall - Slow Controls		CON	LL_CT	Hrs	250		37,233		37,233	50%
1	05	02	02			XT_0132	Assemble Far Hall - Slow Controls		CON	LL_CE	Hrs	1,000		191,660		191,660	50%
1	05	02	02			XT_0126	Assemble Near Hall - Slow Controls		CON	LL_CT	Hrs	250		37,233		37,233	55%
1	05	02	02			XT_0126	Assemble Near Hall - Slow Controls		CON	LL_CE	Hrs	1,000		191,660		191,660	55%
1	05	02	02			XT_0115	Assemble FEE - Slow Controls		CON	LL_CT	Hrs	250		37,233		37,233	55%
1	05	02	02			XT_0115	Assemble FEE - Slow Controls		CON	LL_CE	Hrs	1,000		191,660		191,660	55%
1	05	02	02			XT_0133	Programming Far Hall - Slow Controls		CON	LL_CP	Hrs	200		41,158		41,158	55%
1	05	02	02			XT_0127	Programming Near Hall - Slow Controls		CON	LL_CP	Hrs	200		41,158		41,158	55%
1	05	02	02			XT_0116	Programming FEE - Slow Controls		CON	LL_CP	Hrs	200		41,158		41,158	55%
1	**05**	**02**	**03**				**Fast Controls**					**376**	**-**	**73,428**	**-**	**73,428**	
1	05	02	03			XT_01433	Specification - Fast Controls		PED	LL_PHS	Hrs	80		15,968		15,968	45%
1	05	02	03			XT_0144	Design - Fast Controls		CON	LL_PHS	Hrs	160		32,538		32,538	45%
1	05	02	03			XT_44	Prepare Bid Pkg - Fast Controls		CON	LL_CE	Hrs	16		3,067		3,067	25%
1	05	02	03			XT_50	Assemble FEE - Fast Controls		CON	LL_CT	Hrs	40		5,957		5,957	25%
1	05	02	03			XT_50	Assemble FEE - Fast Controls		CON	LL_CE	Hrs	40		7,666		7,666	25%
1	05	02	03			XT_51	Programming FEE - Fast Controls		CON	LL_CP	Hrs	40		8,232		8,232	55%
1	**05**	**02**	**04**				**Femto Controls**					**296**	**-**	**57,159**	**-**	**57,159**	
1	05	02	04			XT_01149	Specification - Femto Controls		PED	LL_PHS	Hrs	80		15,968		15,968	45%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	05	02	04			XT_0148	Design - Femto Controls		CON	LL_PHS	Hrs	80		16,269		16,269	45%
1	05	02	04			XT_0150	Prepare Bid Pkg - Femto Controls		CON	LL_CE	Hrs	16		3,067		3,067	45%
1	05	02	04			XT_0152	Assemble FEE - Femto Controls		CON	LL_CT	Hrs	40		5,957		5,957	45%
1	05	02	04			XT_0152	Assemble FEE - Femto Controls		CON	LL_CE	Hrs	40		7,666		7,666	45%
1	05	02	04			XT_0153	Programming FEE - Femto Controls		CON	LL_CP	Hrs	40		8,232		8,232	45%
1	**05**	**03**					**Mechanical & Vacuum Subsystem**					**2,750**	**1,907,000**	**457,519**	**2,300,211**	**2,757,730**	
1	**05**	**03**	**01**				**Reserved**										
1	**05**	**03**	**02**				**Mech/Vac Front End**					**1,310**	**129,000**	**208,426**	**159,759**	**368,185**	
1	05	03	02			XT_9	Specification - Electron Dump Mech/Vac		PED	LL_ME	Hrs	40		7,268		7,268	45%
1	05	03	02			XT_1	Specification - FEE Mech/Vac		PED	LL_PM	Hrs	40		7,766		7,766	45%
1	05	03	02			XT_1	Specification - FEE Mech/Vac		PED	LL_ME	Hrs	40		7,268		7,268	45%
1	05	03	02			XT_10	Design - Electron Dump Mech/Vac		PED	LL_ME	Hrs	80		14,537		14,537	45%
1	05	03	02			XT_0282	Design - Mech/Vac		PED	LL_MFPC	Hrs	330		46,596		46,596	45%
1	05	03	02			XT_0282	Design - Mech/Vac		PED	LL_KE	Hrs	330		59,964		59,964	45%
1	05	03	02			XT_0282	Design - Mech/Vac		PED	LL_CT	Hrs	330		46,596		46,596	45%
1	05	03	02			XT_246	Procure Stands - ED Mech/Vac		PED	LL_MSEQ	$$		9,000		10,980	10,980	35%
1	05	03	02			XT_236	Procure Ion Gauges - ED Mech/Vac		PED	LL_MSEQ	$$		5,000		6,100	6,100	35%
1	05	03	02			XT_226	Procure Vacuum Piping - ED Mech/Vac		PED	LL_MSEQ	$$		2,000		2,440	2,440	35%
1	05	03	02			XT_219	Vendor Fab/Ship Ion Pumps - ED Mech/Vac		CON	LL_MSEQ	$$		38,000		46,360	46,360	45%
1	05	03	02			XT_2922	Procure Spools - FEE Mech/Vac		PED	LL_MSEQ	$$		5,000		6,100	6,100	35%
1	05	03	02			XT_291	Procure Spools - FEE Mech/Vac		PED	LL_MSEQ	$$		1,000		1,220	1,220	35%
1	05	03	02			XT_290	Procure Vacuum Piping - FEE Mech/Vac		PED	LL_MSEQ	$$		2,000		2,440	2,440	25%
1	05	03	02			XT_200	Prepare Bid Pkg Valves - FEE Mech/Vac		PED	LL_PCCA	Hrs	40		6,517		6,517	25%
1	05	03	02			XT_213	Vendor Fab/Ship Ion Pump - FEE Mech/Vac		CON	LL_MSEQ	$$		38,000		47,709	47,709	62%
1	05	03	02			XT_208	Vendor Fab Stands - FEE Mech/Vac		CON	LL_MSEQ	$$		12,000		15,066	15,066	62%
1	05	03	02			XT_203	Vendor Fab/Ship Valves - FEE Mech/Vac		CON	LL_MSEQ	$$		17,000		21,344	21,344	62%
1	05	03	02			XT_4	Assemble - FEE Mech/Vac		CON	LL_MFAT	Hrs	80		11,914		11,914	45%
1	**05**	**03**	**03**				**Mech/Vac Near Hall**					**600**	**157,000**	**102,666**	**197,820**	**300,486**	
1	**05**	**03**	**03**	**01**			**NEH Hutch 1**					**200**	**77,000**	**34,222**	**97,020**	**131,242**	
1	05	03	03	01		XT_300	Specification - Near Hall Mech/Vac - H1		PED	LL_MVE	Hrs	40		7,268		7,268	45%
1	05	03	03	01		XT_310	Design - Near Hall Mech/Vac - H1		PED	LL_MDD	Hrs	160		26,954		26,954	45%
1	05	03	03	01		XT_0480	Procure Spools - NEH Mech/Vac - H1		CON	LL_MSEQ	$$		2,000		2,520	2,520	35%
1	05	03	03	01		XT_0470	Procure Ion Gauges - NEH Mech/Vac - H1		CON	LL_MSEQ	$$		5,000		6,300	6,300	35%
1	05	03	03	01		XT_0460	Procure Vacuum Piping - NEH Mech/Vac - H1		CON	LL_MSEQ	$$		2,000		2,520	2,520	35%
1	05	03	03	01		XT_0450	Procure Berilium Valves - NEH Mech/Vac - H1		CON	LL_MSEQ	$$		5,000		6,300	6,300	35%
1	05	03	03	01		XT_0420	Procure Isolation Valves - NEH Mech/Vac - H1		CON	LL_MSEQ	$$		4,000		5,040	5,040	35%
1	05	03	03	01		XT_0410	Vendor Fab/Ship Stands - NEH Mech/Vac - H1		CON	LL_MSEQ	$$		21,000		26,460	26,460	35%
1	05	03	03	01		XT_0405	Vendor Fab/Ship Ion Pumps - NEH Mech/Vac - H1		CON	LL_MSEQ	$$		38,000		47,880	47,880	35%
1	**05**	**03**	**03**	**02**			**NEH Hutch 2**					**200**	**26,000**	**34,222**	**32,760**	**66,982**	
1	05	03	03	02		XT_671	Specification - Near Hall Mech/Vac - H2		PED	LL_MVE	Hrs	40		7,268		7,268	25%
1	05	03	03	02		XT_672	Design - Near Hall Mech/Vac - H2		PED	LL_MDD	Hrs	160		26,954		26,954	25%
1	05	03	03	02		XT_0426	Procure Stands - NEH Mech/Vac - H2		CON	LL_MSEQ	$$		9,000		11,340	11,340	25%
1	05	03	03	02		XT_04255	Procure Ion Gauges - NEH Mech/Vac - H2		CON	LL_MSEQ	$$		5,000		6,300	6,300	25%
1	05	03	03	02		XT_0423	Procure Vacuum Piping - NEH Mech/Vac - H2		CON	LL_MSEQ	$$		2,000		2,520	2,520	25%
1	05	03	03	02		XT_0422	Procure Berilium Valves - NEH Mech/Vac - H2		CON	LL_MSEQ	$$		8,000		10,080	10,080	25%
1	05	03	03	02		XT_0421	Procure Isolation Valves - NEH Mech/Vac - H2		CON	LL_MSEQ	$$		2,000		2,520	2,520	25%
1	**05**	**03**	**03**	**03**			**NEH Hutch 3**					**200**	**54,000**	**34,222**	**68,040**	**102,262**	
1	05	03	03	03		XT_771	Specification - Near Hall Mech/Vac - H3		PED	LL_MVE	Hrs	40		7,268		7,268	45%
1	05	03	03	03		XT_772	Design - Near Hall Mech/Vac - H3		PED	LL_MDD	Hrs	160		26,954		26,954	45%
1	05	03	03	03		XT_0492	Procure Stands - NEH Mech/Vac - H3		CON	LL_MSEQ	$$		9,000		11,340	11,340	25%
1	05	03	03	03		XT_0491	Procure Ion Gauges - NEH Mech/Vac - H3		CON	LL_MSEQ	$$		5,000		6,300	6,300	25%
1	05	03	03	03		XT_0490	Procure Vacuum Piping - NEH Mech/Vac - H3		CON	LL_MSEQ	$$		2,000		2,520	2,520	25%
1	05	03	03	03		XT_0445	Vendor Fab/Ship Ion Pumps - NEH Mech/Vac - H3		CON	LL_MSEQ	$$		38,000		47,880	47,880	25%
1	**05**	**03**	**04**				**Mech/Vac Tunnel**					**240**	**1,428,000**	**41,748**	**1,699,280**	**1,741,028**	
1	05	03	04			XT_551	Specification - Tunnel Mech/Vac		PED	LL_MVE	Hrs	40		7,472		7,472	25%
1	05	03	04			XT_552	Design - Tunnel Mech/Vac		CON	LL_MDD	Hrs	200		34,276		34,276	25%
1	05	03	04			XT_7102	Vendor Fab/Ship Ion Pumps - Tunnel Mech/Vac - 2		CON	LL_MSXX	$$		500,000		530,000	530,000	25%
1	05	03	04			XT_0442	Vendor Fab/Ship Stands - Tunnel Mech/Vac		CON	LL_MSEQ	$$		246,000		309,960	309,960	25%
1	05	03	04			XT_0436	Vendor Fab/Ship Ion Gauges - Tunnel Mech/Vac		CON	LL_MSEQ	$$		132,000		166,320	166,320	25%
1	05	03	04			XT_0431	Procure Spools - Tunnel Mech/Vac		CON	LL_MSEQ	$$		2,000		2,520	2,520	25%
1	05	03	04			XT_0430	Vendor Fab/Ship Ion Pumps - Tunnel Mech/Vac - 1		CON	LL_MSEQ	$$		500,000		630,000	630,000	25%
1	05	03	04			XT_0424	Procure Isolation Valve - Tunnel Mech/Vac		CON	LL_MSEQ	$$		8,000		10,080	10,080	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	05	03	04			XT_0414	Vendor Fab/Ship Vacuum Piping - Tunnel Mech/Vac		CON	LL_MSEQ	$$		40,000		50,400	50,400	25%
1	**05**	**03**	**05**				**Mech/Vac Far Hall**					**600**	**193,000**	**104,679**	**243,352**	**348,031**	
1	**05**	**03**	**05**	**01**			**FEH Hutch 1**					**200**	**75,000**	**34,893**	**94,500**	**129,393**	
1	05	03	05	01		XT_661	Specification - Far Hall Mech/Vac - H1		PED	LL_MVE	Hrs	40		7,472		7,472	25%
1	05	03	05	01		XT_662	Design - Far Hall Mech/Vac - H1		CON	LL_MDD	Hrs	160		27,421		27,421	25%
1	05	03	05	01		XT_702	Procure Vacuum Piping - Far Hall Mech/Vac - H1		CON	LL_MSEQ	$$		2,000		2,520	2,520	25%
1	05	03	05	01		XT_682	Procure Isolation Valve - Far Hall Mech/Vac - H1		CON	LL_MSEQ	$$		7,000		8,820	8,820	25%
1	05	03	05	01		XT_37	Procure Ion Gauges - Far Hall Mech/Vac - H1		CON	LL_MSEQ	$$		5,000		6,300	6,300	25%
1	05	03	05	01		XT_36	Procure Spools - Far Hall Mech/Vac - H1		CON	LL_MSEQ	$$		2,000		2,520	2,520	25%
1	05	03	05	01		XT_34	Vendor Fab/Ship Stands - Far Hall Mech/Vac		CON	LL_MSEQ	$$		21,000		26,460	26,460	25%
1	05	03	05	01		XT_14	Vendor Fab/Ship Ion Pump - Far Hall Mech/Vac		CON	LL_MSEQ	$$		38,000		47,880	47,880	25%
1	**05**	**03**	**05**	**02**			**FEH Hutch 2**					**200**	**64,000**	**34,893**	**80,726**	**115,619**	
1	05	03	05	02		XT_70	Specification - Far Hall Mech/Vac - H2		PED	LL_MVE	Hrs	40		7,472		7,472	25%
1	05	03	05	02		XT_71	Design - Far Hall Mech/Vac - H2		CON	LL_MDD	Hrs	160		27,421		27,421	25%
1	05	03	05	02		XT_121	Procure Berilium Valves - Far Hall Mech/Vac		CON	LL_MSEQ	$$		8,000		10,080	10,080	25%
1	05	03	05	02		XT_120	Procure Ion Gauges - Far Hall Mech/Vac		CON	LL_MSEQ	$$		5,000		6,300	6,300	25%
1	05	03	05	02		XT_110	Procure Stands - Far Hall Mech/Vac		CON	LL_MSEQ	$$		9,000		11,340	11,340	25%
1	05	03	05	02		XT_109	Procure Vacuum Piping - Far Hall Mech/Vac		CON	LL_MSEQ	$$		2,000		2,520	2,520	25%
1	05	03	05	02		XT_108	Procure Isolation Valve - Far Hall Mech/Vac		CON	LL_MSEQ	$$		2,000		2,520	2,520	25%
1	05	03	05	02		XT_106	Vendor Fab/Ship Ion Pump - Far Hall Mech/Vac		CON	LL_MSEQ	$$		38,000		47,966	47,966	25%
1	**05**	**03**	**05**	**03**			**FEH Hutch 3**					**200**	**54,000**	**34,893**	**68,126**	**103,019**	
1	05	03	05	03		XT_78	Specification - Far Hall Mech/Vac - H3		PED	LL_MVE	Hrs	40		7,472		7,472	25%
1	05	03	05	03		XT_79	Design - Far Hall Mech/Vac - H3		CON	LL_MDD	Hrs	160		27,421		27,421	25%
1	05	03	05	03		XT_89	Procure Vacuum Piping - Far Hall Mech/Vac		CON	LL_MSEQ	$$		2,000		2,520	2,520	25%
1	05	03	05	03		XT_179	Procure Stands - Far Hall Mech/Vac		CON	LL_MSEQ	$$		9,000		11,340	11,340	25%
1	05	03	05	03		XT_178	Procure Ion Gauges - Far Hall Mech/Vac		CON	LL_MSEQ	$$		5,000		6,300	6,300	25%
1	05	03	05	03		XT_19	Vendor Fab/Ship Ion Pump - Far Hall Mech/Vac		CON	LL_MSEQ	$$		38,000		47,966	47,966	25%
1	**05**	**04**					**Optical Subsystem**					**26,736**	**1,874,110**	**4,336,412**	**2,309,958**	**6,646,370**	
1	**05**	**04**	**01**				**Reserved**										
1	**05**	**04**	**02**				**Facility Optics**					**20,136**	**1,391,710**	**3,617,092**	**1,720,878**	**5,337,970**	
1	**05**	**04**	**02**	**01**			**Reserved**										
1	**05**	**04**	**02**	**02**			**Fixed Mask**					**1,548**	**39,000**	**291,399**	**49,140**	**340,539**	
1	05	04	02	02		XT_1138	Specification - Fixed Mask 3		PED	LL_PHS	Hrs	40		7,984		7,984	45%
1	05	04	02	02		XT_1120	Specification - Fixed Mask 2		PED	LL_PHS	Hrs	40		7,984		7,984	45%
1	05	04	02	02		XT_1101	Specification - Fixed Mask 1		PED	LL_PHSS	Hrs	40		8,817		8,817	45%
1	05	04	02	02		XT_1139	Design - Fixed Mask 3		PED	LL_PHS	Hrs	72		14,371		14,371	45%
1	05	04	02	02		XT_1139	Design - Fixed Mask 3		PED	LL_MDD	Hrs	80		13,710		13,710	45%
1	05	04	02	02		XT_1121	Design - Fixed Mask 2		PED	LL_MVE	Hrs	80		14,944		14,944	45%
1	05	04	02	02		XT_1121	Design - Fixed Mask 2		PED	LL_MDD	Hrs	72		12,339		12,339	45%
1	05	04	02	02		XT_1102	Design - Fixed Mask 1		PED	LL_PRE	Hrs	40		7,472		7,472	45%
1	05	04	02	02		XT_1102	Design - Fixed Mask 1		PED	LL_PHS	Hrs	120		23,952		23,952	45%
1	05	04	02	02		XT_1102	Design - Fixed Mask 1		PED	LL_PCCA	Hrs	40		6,699		6,699	45%
1	05	04	02	02		XT_1102	Design - Fixed Mask 1		PED	LL_MVE	Hrs	120		22,416		22,416	45%
1	05	04	02	02		XT_1140	Design Review - Fixed Mask 3		PED	LL_PHS	Hrs	16		3,194		3,194	25%
1	05	04	02	02		XT_1140	Design Review - Fixed Mask 3		PED	LL_MVE	Hrs	16		2,989		2,989	25%
1	05	04	02	02		XT_1122	Design Review - Fixed Mask 2		PED	LL_PHS	Hrs	16		3,194		3,194	25%
1	05	04	02	02		XT_1122	Design Review - Fixed Mask 2		PED	LL_MVE	Hrs	16		2,989		2,989	25%
1	05	04	02	02		XT_1113	Design Review - Fixed Mask 1		PED	LL_PHS	Hrs	16		3,194		3,194	25%
1	05	04	02	02		XT_1113	Design Review - Fixed Mask 1		PED	LL_MVE	Hrs	16		2,989		2,989	25%
1	05	04	02	02		XT_1142	Prepare Bid Pkg - Fixed Mask 3		CON	LL_PM	Hrs	40		7,984		7,984	25%
1	05	04	02	02		XT_1124	Prepare Bid Pkg - Fixed Mask 2		CON	LL_PM	Hrs	40		7,984		7,984	25%
1	05	04	02	02		XT_1115	Prepare Bid Pkg - Fixed Mask 1		CON	LL_PM	Hrs	40		7,984		7,984	25%
1	05	04	02	02		XT_1145	Vendor Fab - Fixed Mask 3		CON	LL_MSEQ	$$		13,000		16,380	16,380	25%
1	05	04	02	02		XT_1127	Vendor Fab - Fixed Mask 2		CON	LL_MSEQ	$$		13,000		16,380	16,380	25%
1	05	04	02	02		XT_1118	Vendor Fab - Fixed Mask 1		CON	LL_MSEQ	$$		13,000		16,380	16,380	25%
1	05	04	02	02		XT_1148	Inspect - Fixed Mask 3		CON	LL_PHS	Hrs	16		3,194		3,194	25%
1	05	04	02	02		XT_1130	Inspect - Fixed Mask 2		CON	LL_PHS	Hrs	16		3,194		3,194	25%
1	05	04	02	02		XT_1103	Inspect - Fixed Mask 1		CON	LL_PHS	Hrs	16		3,194		3,194	25%
1	05	04	02	02		XT_1149	Fab - Fixed Mask 3		CON	LL_MFAT	Hrs	100		14,784		14,784	25%
1	05	04	02	02		XT_1131	Fab - Fixed Mask 2		CON	LL_MFAT	Hrs	100		14,784		14,784	25%
1	05	04	02	02		XT_1104	Fab - Fixed Mask 1		CON	LL_MFAT	Hrs	100		14,784		14,784	25%
1	05	04	02	02		XT_1151	Characterize - Fixed Mask 3		CON	LL_PHSS	Hrs	80		18,092		18,092	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	05	04	02	02		XT_1133	Characterize - Fixed Mask 2		CON	LL_PHSS	Hrs	80		18,092		18,092	25%
1	05	04	02	02		XT_1107	Characterize - Fixed Mask 1		CON	LL_PHSS	Hrs	80		18,092		18,092	25%
1	**05**	**04**	**02**	**03**			**Slit/Collimators**					**4,648**	**927,400**	**802,820**	**1,131,428**	**1,934,248**	
1	05	04	02	03		XT_7000	Specification - Slit/Collimator B		PED	LL_PRE	Hrs	8		1,454		1,454	25%
1	05	04	02	03		XT_7000	Specification - Slit/Collimator B		PED	LL_PHSS	Hrs	40		8,576		8,576	25%
1	05	04	02	03		XT_260	Specification - Slit/Collimator A		PED	LL_PRE	Hrs	40		7,268		7,268	45%
1	05	04	02	03		XT_260	Specification - Slit/Collimator A		PED	LL_PHSS	Hrs	80		17,153		17,153	45%
1	05	04	02	03		XT_7040	Engineering - Slit/Collimator B		PED	LL_PRE	Hrs	80		14,537		14,537	25%
1	05	04	02	03		XT_7040	Engineering - Slit/Collimator B		PED	LL_ME	Hrs	16		2,907		2,907	25%
1	05	04	02	03		XT_7040	Engineering - Slit/Collimator B		PED	LL_CE	Hrs	40		7,268		7,268	25%
1	05	04	02	03		XT_7001	Design - Slit/Collimator B		PED	LL_MVE	Hrs	40		7,268		7,268	25%
1	05	04	02	03		XT_7001	Design - Slit/Collimator B		PED	LL_MDD	Hrs	136		22,673		22,673	25%
1	05	04	02	03		XT_7001	Design - Slit/Collimator B		PED	LL_CT	Hrs	40		5,648		5,648	25%
1	05	04	02	03		XT_410	Engineering - Slit/Collimator A		PED	LL_PRE	Hrs	200		36,342		36,342	25%
1	05	04	02	03		XT_410	Engineering - Slit/Collimator A		PED	LL_ME	Hrs	40		7,268		7,268	25%
1	05	04	02	03		XT_410	Engineering - Slit/Collimator A		PED	LL_CE	Hrs	120		21,805		21,805	25%
1	05	04	02	03		XT_400	Design - Slit/Collimator A		PED	LL_PHS	Hrs	80		15,533		15,533	25%
1	05	04	02	03		XT_400	Design - Slit/Collimator A		PED	LL_PCCA	Hrs	24		3,910		3,910	25%
1	05	04	02	03		XT_400	Design - Slit/Collimator A		PED	LL_MVE	Hrs	80		14,537		14,537	25%
1	05	04	02	03		XT_400	Design - Slit/Collimator A		PED	LL_ME	Hrs	800		145,368		145,368	25%
1	05	04	02	03		XT_400	Design - Slit/Collimator A		PED	LL_MDD	Hrs	500		83,355		83,355	25%
1	05	04	02	03		XT_400	Design - Slit/Collimator A		PED	LL_CT	Hrs	80		11,296		11,296	25%
1	05	04	02	03		XT_4012	Design Review - Slit/Collimator A		PED	LL_PHS	Hrs	8		1,553		1,553	25%
1	05	04	02	03		XT_4012	Design Review - Slit/Collimator A		PED	LL_ME	Hrs	16		2,907		2,907	25%
1	05	04	02	03		XT_7043	Procure Stand - Slit/Collimator B		PED	LL_MSEQ	$$		10,000		12,200	12,200	25%
1	05	04	02	03		XT_7004	Prepare Bid Pkg Jaws - Slit/Collimator B		PED	LL_PCCA	Hrs	20		3,258		3,258	25%
1	05	04	02	03		XT_4043	Procure Stand - Slit/Collimator A		PED	LL_MSEQ	$$		10,000		12,200	12,200	25%
1	05	04	02	03		XT_7023	Vendor Fab Precision Hardware - Slit/Col B		CON	LL_MSEQ	$$		162,000		197,640	197,640	25%
1	05	04	02	03		XT_7022	Vendor Fab Vacuum System - Slit/Collimator B		CON	LL_MSEQ	$$		44,700		54,534	54,534	25%
1	05	04	02	03		XT_7021	Vendor Fab Electronics - Slit/Collimator B		CON	LL_MSEQ	$$		46,000		56,120	56,120	25%
1	05	04	02	03		XT_7020	Vendor Fab Tank - Slit/Collimator B		CON	LL_MSEQ	$$		60,000		73,200	73,200	25%
1	05	04	02	03		XT_7019	Vendor Fab Jaws - Slit/Collimator B		CON	LL_MSEQ	$$		160,000		195,200	195,200	25%
1	05	04	02	03		XT_4035	Vendor Fab Precision Hardware - Slit/Col A		CON	LL_MSEQ	$$		162,000		197,640	197,640	25%
1	05	04	02	03		XT_4034	Vendor Fab Vacuum System - Slit/Collimator A		CON	LL_MSEQ	$$		29,700		36,234	36,234	25%
1	05	04	02	03		XT_4033	Vendor Fab Electronics - Slit/Collimator A		CON	LL_MSEQ	$$		23,000		28,060	28,060	25%
1	05	04	02	03		XT_4032	Vendor Fab Tank - Slit/Collimator A		CON	LL_MSEQ	$$		60,000		73,200	73,200	25%
1	05	04	02	03		XT_4031	Vendor Fab Jaws - Slit/Collimator A		CON	LL_MSEQ	$$		160,000		195,200	195,200	25%
1	05	04	02	03		XT_490	Assemble Jaws - Slit/Collimator A		CON	LL_PHS	Hrs	80		15,968		15,968	25%
1	05	04	02	03		XT_490	Assemble Jaws - Slit/Collimator A		CON	LL_MFAT	Hrs	240		34,836		34,836	25%
1	05	04	02	03		XT_490	Assemble Jaws - Slit/Collimator A		CON	LL_ME	Hrs	80		14,944		14,944	25%
1	05	04	02	03		XT_4010	Assemble Precision Hardware - Slit/Collimator A		CON	LL_PRE	Hrs	80		14,944		14,944	25%
1	05	04	02	03		XT_4010	Assemble Precision Hardware - Slit/Collimator A		CON	LL_PHS	Hrs	80		15,968		15,968	25%
1	05	04	02	03		XT_4010	Assemble Precision Hardware - Slit/Collimator A		CON	LL_MFAT	Hrs	240		34,836		34,836	25%
1	05	04	02	03		XT_4004	Assemble Electronics - Slit/Collimator A		CON	LL_PHS	Hrs	80		15,968		15,968	25%
1	05	04	02	03		XT_4004	Assemble Electronics - Slit/Collimator A		CON	LL_MFAT	Hrs	240		34,836		34,836	25%
1	05	04	02	03		XT_4004	Assemble Electronics - Slit/Collimator A		CON	LL_EE	Hrs	80		14,944		14,944	25%
1	05	04	02	03		XT_4003	Assemble Vacuum System - Slit/Collimator A		CON	LL_PHS	Hrs	80		15,968		15,968	25%
1	05	04	02	03		XT_4003	Assemble Vacuum System - Slit/Collimator A		CON	LL_MVE	Hrs	80		14,944		14,944	25%
1	05	04	02	03		XT_4003	Assemble Vacuum System - Slit/Collimator A		CON	LL_MFAT	Hrs	240		34,836		34,836	25%
1	05	04	02	03		XT_4002	Assemble Tank - Slit/Collimator A		CON	LL_MFAT	Hrs	160		23,224		23,224	25%
1	05	04	02	03		XT_4002	Assemble Tank - Slit/Collimator A		CON	LL_ME	Hrs	400		74,720		74,720	25%
1	**05**	**04**	**02**	**04**			**Flipper Mirror**					**2,344**	**278,000**	**424,574**	**350,280**	**774,854**	
1	05	04	02	04		XT_56	Specification - Flipper Mirror		PED	LL_PRE	Hrs	8		1,494		1,494	50%
1	05	04	02	04		XT_56	Specification - Flipper Mirror		PED	LL_PHSS	Hrs	40		8,817		8,817	50%
1	05	04	02	04		XT_60	Engineering - Flipper Mirror		CON	LL_PRE	Hrs	200		37,360		37,360	60%
1	05	04	02	04		XT_60	Engineering - Flipper Mirror		CON	LL_ME	Hrs	40		7,472		7,472	60%
1	05	04	02	04		XT_60	Engineering - Flipper Mirror		CON	LL_CE	Hrs	120		22,416		22,416	60%
1	05	04	02	04		XT_59	Design - Flipper Mirror		PED	LL_PHS	Hrs	80		15,968		15,968	55%
1	05	04	02	04		XT_59	Design - Flipper Mirror		PED	LL_PCCA	Hrs	24		4,020		4,020	55%
1	05	04	02	04		XT_59	Design - Flipper Mirror		PED	LL_MVE	Hrs	80		14,944		14,944	55%
1	05	04	02	04		XT_59	Design - Flipper Mirror		PED	LL_ME	Hrs	800		149,440		149,440	55%
1	05	04	02	04		XT_59	Design - Flipper Mirror		PED	LL_MDD	Hrs	500		85,690		85,690	55%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	05	04	02	04		XT_59	Design - Flipper Mirror		PED	LL_CT	Hrs	80		11,612		11,612	55%
1	05	04	02	04		XT_58	Engineering - Flipper Mirror		CON	LL_PRE	Hrs	80		14,944		14,944	60%
1	05	04	02	04		XT_58	Engineering - Flipper Mirror		CON	LL_ME	Hrs	16		2,989		2,989	60%
1	05	04	02	04		XT_58	Engineering - Flipper Mirror		CON	LL_CE	Hrs	40		7,472		7,472	60%
1	05	04	02	04		XT_57	Design - Flipper Mirror		PED	LL_MVE	Hrs	40		7,472		7,472	55%
1	05	04	02	04		XT_57	Design - Flipper Mirror		PED	LL_MDD	Hrs	136		23,308		23,308	55%
1	05	04	02	04		XT_57	Design - Flipper Mirror		PED	LL_CT	Hrs	40		5,806		5,806	55%
1	05	04	02	04		XT_68	Procure Stand - Flipper Mirror		CON	LL_MSEQ	$$		10,000		12,600	12,600	50%
1	05	04	02	04		XT_63	Prepare Bid Pkg Jaws - Flipper Mirror		CON	LL_PCCA	Hrs	20		3,350		3,350	50%
1	05	04	02	04		XT_80	Vendor Fab Tank - Flipper Mirror		CON	LL_MSEQ	$$		40,000		50,400	50,400	50%
1	05	04	02	04		XT_7854	Vendor Fab Electronics - Flipper Mirror		CON	LL_MSEQ	$$		46,000		57,960	57,960	50%
1	05	04	02	04		XT_7813	Vendor Fab Precision Hardware - Flipper Mirror		CON	LL_MSEQ	$$		64,000		80,640	80,640	50%
1	05	04	02	04		XT_778956	Vendor Fab Jaws - Flipper Mirror		CON	LL_MSEQ	$$		48,000		60,480	60,480	50%
1	05	04	02	04		XT_7512	Vendor Fab Vacuum System - Flipper Mirror		CON	LL_MSEQ	$$		70,000		88,200	88,200	50%
1	**05**	**04**	**02**	**05**			**Gas Attenuator**					**10,380**	**147,310**	**1,862,148**	**190,030**	**2,052,178**	
1	05	04	02	05		XT_2021	Theory - Gas Attenuator		CON	LL_PHS	Hrs	320		62,131		62,131	55%
1	05	04	02	05		XT_2021	Theory - Gas Attenuator		CON	LL_ME	Hrs	320		58,147		58,147	55%
1	05	04	02	05		XT_2021	Theory - Gas Attenuator		CON	LL_MDD	Hrs	320		53,347		53,347	55%
1	05	04	02	05		XT_2021	Theory - Gas Attenuator		CON	LL_EE	Hrs	320		58,147		58,147	55%
1	05	04	02	05		XT_496	Safety Note - Gas Attenuator		CON	LL_PHSS	Hrs	160		34,306		34,306	55%
1	05	04	02	05		XT_496	Safety Note - Gas Attenuator		CON	LL_PHS	Hrs	160		31,066		31,066	55%
1	05	04	02	05		XT_496	Safety Note - Gas Attenuator		CON	LL_MVE	Hrs	160		29,074		29,074	55%
1	05	04	02	05		XT_496	Safety Note - Gas Attenuator		CON	LL_MDD	Hrs	160		26,674		26,674	55%
1	05	04	02	05		XT_496	Safety Note - Gas Attenuator		CON	LL_EE	Hrs	160		29,074		29,074	55%
1	05	04	02	05		XT_491	Specification - Gas Attenuator		CON	LL_PHS	Hrs	320		62,131		62,131	55%
1	05	04	02	05		XT_491	Specification - Gas Attenuator		CON	LL_ME	Hrs	320		58,147		58,147	55%
1	05	04	02	05		XT_491	Specification - Gas Attenuator		CON	LL_EE	Hrs	320		58,147		58,147	55%
1	05	04	02	05		XT_493	Design - Gas Attenuator		CON	LL_PHS	Hrs	960		188,570		188,570	55%
1	05	04	02	05		XT_493	Design - Gas Attenuator		CON	LL_MVE	Hrs	480		88,239		88,239	55%
1	05	04	02	05		XT_493	Design - Gas Attenuator		CON	LL_ME	Hrs	960		176,478		176,478	55%
1	05	04	02	05		XT_493	Design - Gas Attenuator		CON	LL_MDD	Hrs	480		80,955		80,955	55%
1	05	04	02	05		XT_493	Design - Gas Attenuator		CON	LL_EE	Hrs	480		88,239		88,239	55%
1	05	04	02	05		XT_494	Second Design - Gas Attenuator		CON	LL_MVE	Hrs	160		29,888		29,888	55%
1	05	04	02	05		XT_494	Second Design - Gas Attenuator		CON	LL_MDD	Hrs	160		27,421		27,421	55%
1	05	04	02	05		XT_494	Second Design - Gas Attenuator		CON	LL_EE	Hrs	160		29,888		29,888	55%
1	05	04	02	05		XT_2103	Greenfield Comp Engineering - Gas Attenuator		CON	LL_MVE	Hrs	120		22,416		22,416	55%
1	05	04	02	05		XT_2103	Greenfield Comp Engineering - Gas Attenuator		CON	LL_MDD	Hrs	160		27,421		27,421	55%
1	05	04	02	05		XT_2093	Controls Engineering - Gas Attenuator		CON	LL_PHS	Hrs	160		31,936		31,936	55%
1	05	04	02	05		XT_2093	Controls Engineering - Gas Attenuator		CON	LL_MVE	Hrs	200		37,360		37,360	55%
1	05	04	02	05		XT_2093	Controls Engineering - Gas Attenuator		CON	LL_MDD	Hrs	280		47,986		47,986	55%
1	05	04	02	05		XT_2083	Gast Pump Engineering - Gas Attenuator		CON	LL_MVE	Hrs	40		7,472		7,472	55%
1	05	04	02	05		XT_2083	Gast Pump Engineering - Gas Attenuator		CON	LL_MDD	Hrs	40		6,855		6,855	55%
1	05	04	02	05		XT_2073	Storage Tank Engineering - Gas Attenuator		CON	LL_MVE	Hrs	120		22,416		22,416	55%
1	05	04	02	05		XT_2073	Storage Tank Engineering - Gas Attenuator		CON	LL_MDD	Hrs	40		6,855		6,855	55%
1	05	04	02	05		XT_2002	Turbo Pump Engineering - Gas Attenuator		CON	LL_MVE	Hrs	80		14,944		14,944	55%
1	05	04	02	05		XT_2002	Turbo Pump Engineering - Gas Attenuator		CON	LL_MDD	Hrs	120		20,566		20,566	55%
1	05	04	02	05		XT_2001	Venture Engineering - Gas Attenuator		CON	LL_MVE	Hrs	80		14,944		14,944	55%
1	05	04	02	05		XT_2001	Venture Engineering - Gas Attenuator		CON	LL_MDD	Hrs	100		17,138		17,138	55%
1	05	04	02	05		XT_2000	Chamber Engineering - Gas Attenuator		PED	LL_MVE	Hrs	160		29,888		29,888	55%
1	05	04	02	05		XT_2000	Chamber Engineering - Gas Attenuator		PED	LL_MDD	Hrs	160		27,421		27,421	55%
1	05	04	02	05		XT_2054	Vendor Fab Controls - Gas Attenuator		CON	LL_MSEQ	$$		50,000		64,500	64,500	55%
1	05	04	02	05		XT_2051	Vendor Fab Chamber - Gas Attenuator		CON	LL_MSEQ	$$		61,310		79,090	79,090	55%
1	05	04	02	05		XT_2033	Vendor Fab Hardware - Gas Attenuator		CON	LL_MSEQ	$$		36,000		46,440	46,440	55%
1	05	04	02	05		XT_2124	Assemble Blower - Gas Attenuator		CON	LL_MVE	Hrs	40		7,666		7,666	55%
1	05	04	02	05		XT_2124	Assemble Blower - Gas Attenuator		CON	LL_MFAT	Hrs	80		11,914		11,914	55%
1	05	04	02	05		XT_2124	Assemble Blower - Gas Attenuator		CON	LL_MDD	Hrs	40		7,033		7,033	55%
1	05	04	02	05		XT_2114	Assemble Gas Purifier - Gas Attenuator		CON	LL_MVE	Hrs	40		7,666		7,666	55%
1	05	04	02	05		XT_2114	Assemble Gas Purifier - Gas Attenuator		CON	LL_MFAT	Hrs	80		11,914		11,914	55%
1	05	04	02	05		XT_2114	Assemble Gas Purifier - Gas Attenuator		CON	LL_MDD	Hrs	80		14,066		14,066	55%
1	05	04	02	05		XT_2104	Assemble Transfer Manifold - Gas Attenuator		CON	LL_MFAT	Hrs	120		17,872		17,872	55%
1	05	04	02	05		XT_2104	Assemble Transfer Manifold - Gas Attenuator		CON	LL_MDD	Hrs	80		14,066		14,066	55%
1	05	04	02	05		XT_2094	Assemble Greenfield Comp - Gas Attenuator		CON	LL_MFAT	Hrs	120		17,872		17,872	55%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	05	04	02	05		XT_2084	Assemble Gast Pumps - Gas Attenuator		CON	LL_MFAT	Hrs	60		8,936		8,936	55%
1	05	04	02	05		XT_2072	Assemble Dry Pumps - Gas Attenuator		CON	LL_MFAT	Hrs	60		8,936		8,936	55%
1	05	04	02	05		XT_2065	Assemble Venture - Gas Attenuator		CON	LL_MFAT	Hrs	80		11,914		11,914	55%
1	05	04	02	05		XT_2063	Assemble Hardware - Gas Attenuator		CON	LL_MVE	Hrs	80		15,333		15,333	55%
1	05	04	02	05		XT_2063	Assemble Hardware - Gas Attenuator		CON	LL_MFAT	Hrs	120		17,872		17,872	55%
1	05	04	02	05		XT_2060	Assemble Tanks - Gas Attenuator		CON	LL_MFAT	Hrs	80		11,914		11,914	55%
1	05	04	02	05		XT_2052	Assemble Chamber - Gas Attenuator		CON	LL_MFAT	Hrs	160		23,829		23,829	55%
1	05	04	02	05		XT_2048	Assemble Turbo Pumps - Gas Attentuator		CON	LL_MFAT	Hrs	120		17,872		17,872	55%
1	05	04	02	05		XT_2035	Assemble Controls - Gas Attenuator		CON	LL_MFAT	Hrs	200		29,786		29,786	55%
1	**05**	**04**	**02**	**06**			**Reserved**										
1	**05**	**04**	**02**	**07**			**Reserved**										
1	**05**	**04**	**02**	**08**			**Solid Attenuator**					**1,216**	**-**	**236,151**	**-**	**236,151**	
1	05	04	02	08		XT_498	Specification - Solid Attenuator		CON	LL_PRE	Hrs	40		7,472		7,472	45%
1	05	04	02	08		XT_498	Specification - Solid Attenuator		CON	LL_PHSS	Hrs	40		8,817		8,817	45%
1	05	04	02	08		XT_499	Design - Solid Attenuator		CON	LL_PRE	Hrs	40		7,472		7,472	45%
1	05	04	02	08		XT_499	Design - Solid Attenuator		CON	LL_PHS	Hrs	40		7,984		7,984	45%
1	05	04	02	08		XT_499	Design - Solid Attenuator		CON	LL_ME	Hrs	48		8,966		8,966	45%
1	05	04	02	08		XT_5001	Prepare Bid Pkg - Solid Attenuator		CON	LL_PCCA	Hrs	48		8,039		8,039	45%
1	05	04	02	08		XT_501	Assemble - Solid Attenuator		CON	LL_PHS	Hrs	480		96,804		96,804	45%
1	05	04	02	08		XT_501	Assemble - Solid Attenuator		CON	LL_ME	Hrs	480		90,597		90,597	45%
1	**05**	**04**	**02**	**09**			**Reserved**										
1	**05**	**04**	**03**				**End Station Optics**					**1,760**	**312,000**	**295,324**	**393,120**	**688,444**	
1	**05**	**04**	**03**	**01**			**Reserved**										
1	**05**	**04**	**03**	**02**			**Optics Tank - Near Hall**					**1,760**	**312,000**	**295,324**	**393,120**	**688,444**	
1	05	04	03	02		XT_512	Design - Near Hall Optics Tank		CON	LL_PRE	Hrs	120		22,416		22,416	15%
1	05	04	03	02		XT_512	Design - Near Hall Optics Tank		CON	LL_PHS	Hrs	160		31,936		31,936	15%
1	05	04	03	02		XT_512	Design - Near Hall Optics Tank		CON	LL_PCCA	Hrs	20		3,350		3,350	15%
1	05	04	03	02		XT_512	Design - Near Hall Optics Tank		CON	LL_MVE	Hrs	40		7,472		7,472	15%
1	05	04	03	02		XT_512	Design - Near Hall Optics Tank		CON	LL_MFAT	Hrs	80		11,612		11,612	15%
1	05	04	03	02		XT_512	Design - Near Hall Optics Tank		CON	LL_ME	Hrs	180		33,624		33,624	15%
1	05	04	03	02		XT_512	Design - Near Hall Optics Tank		CON	LL_MDD	Hrs	120		20,566		20,566	15%
1	05	04	03	02		XT_512	Design - Near Hall Optics Tank		CON	LL_CT	Hrs	80		11,612		11,612	15%
1	05	04	03	02		XT_512	Design - Near Hall Optics Tank		CON	LL_CE	Hrs	120		22,416		22,416	15%
1	05	04	03	02		XT_564	Procure Lens Mount		CON	LL_MSEQ	$$		5,000		6,300	6,300	15%
1	05	04	03	02		XT_8003	Vendor Fab/Ship Tank - Near Hall Optics Tank		CON	LL_MSEQ	$$		40,000		50,400	50,400	15%
1	05	04	03	02		XT_579	Vendor Fab/Ship Vacuum - Near Hall Optics Tank		CON	LL_MSEQ	$$		70,000		88,200	88,200	15%
1	05	04	03	02		XT_5535	Vendor Fab/Ship Lens Test - Near Hall Optic Tank		CON	LL_MSEQ	$$		20,000		25,200	25,200	15%
1	05	04	03	02		XT_5530	Vendor Fab/Ship Lens Fab - Near Hall Optic Tank		CON	LL_MSEQ	$$		22,000		27,720	27,720	15%
1	05	04	03	02		XT_5523	Vendor Fab/Ship Press - Near Hall Optic Tank		CON	LL_MSEQ	$$		14,000		17,640	17,640	15%
1	05	04	03	02		XT_5518	Vendor Fab/Ship Diamond Turned Frm-NH Optic Tank		CON	LL_MSEQ	$$		24,000		30,240	30,240	15%
1	05	04	03	02		XT_545	Vendor Fab/Ship Stand - Near Hall Optic Tank		CON	LL_MSEQ	$$		10,000		12,600	12,600	15%
1	05	04	03	02		XT_40055	Vendor Fab/Ship Cntl/Elect -Near Hall Optic Tank		CON	LL_MSEQ	$$		23,000		28,980	28,980	15%
1	05	04	03	02		XT_11002	Vendor Fab/Ship Motion & Mech -NHall Optics Tank		CON	LL_MSEQ	$$		84,000		105,840	105,840	15%
1	05	04	03	02		XT_606	Assemble Stand - Near Hall Optics Tank		CON	LL_MFPC	Hrs	40		5,806		5,806	15%
1	05	04	03	02		XT_586	Assemble Vacuum - Near Hall Optics Tank		CON	LL_MFPC	Hrs	160		23,224		23,224	15%
1	05	04	03	02		XT_566	Assemble Tank - Near Hall Optics Tank		CON	LL_MFPC	Hrs	160		23,224		23,224	15%
1	05	04	03	02		XT_546	Assemble Control & Elect - Near Hall Optics Tank		CON	LL_PRC	Hrs	160		27,421		27,421	15%
1	05	04	03	02		XT_546	Assemble Control & Elect - Near Hall Optics Tank		CON	LL_CT	Hrs	160		23,224		23,224	15%
1	05	04	03	02		XT_506	Assemble Motion & Mech - Near Hall Optics Tank		CON	LL_PRC	Hrs	160		27,421		27,421	15%
1	**05**	**04**	**03**	**03**			**Reserved**										
1	**05**	**04**	**03**	**04**			**Reserved**										
1	**05**	**04**	**03**	**05**			**Reserved**										
1	**05**	**04**	**04**				**Crystals & Gratings**					**4,840**	**170,400**	**423,996**	**195,960**	**619,956**	
1	**05**	**04**	**04**	**01**			**Reserved**										
1	**05**	**04**	**04**	**02**			**System Monochrometer**					**2,680**	**85,000**	**244,860**	**97,750**	**342,610**	
1	05	04	04	02		XT_299	Engineering - System Monochrometer		CON	SL_MVE	Hrs	240		26,081		26,081	25%
1	05	04	04	02		XT_299	Engineering - System Monochrometer		CON	SL_ME	Hrs	480		52,162		52,162	25%
1	05	04	04	02		XT_299	Engineering - System Monochrometer		CON	SL_EE	Hrs	240		27,758		27,758	25%
1	05	04	04	02		XT_269	Specification - System Monochrometer		PED	SL_PHS	Hrs	160		11,976		11,976	25%
1	05	04	04	02		XT_269	Specification - System Monochrometer		PED	SL_ME	Hrs	160		17,387		17,387	25%
1	05	04	04	02		XT_270	Design - System Monochrometer		PED	SL_MDD	Hrs	1,000		64,618		64,618	25%
1	05	04	04	02		XT_443	Vendor Fab - System Monochrometer		CON	SL_MTRL	$$		85,000		97,750	97,750	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	05	04	04	02		XT_272	Assemble/Inspect - System Monochrometer		CON	SL_ME	Hrs	400		44,878		44,878	25%
1	**05**	**04**	**04**	**03**			**Pulse Split & Delay**					**2,160**	**85,400**	**179,136**	**98,210**	**277,346**	
1	05	04	04	03		XT_262	Specification - Pulse Split & Delay		PED	SL_MVE	Hrs	160		17,387		17,387	35%
1	05	04	04	03		XT_263	Design - Pulse Split & Delay		PED	SL_PHS	Hrs	1,000		74,998		74,998	35%
1	05	04	04	03		XT_263	Design - Pulse Split & Delay		PED	SL_MVE	Hrs	500		54,442		54,442	35%
1	05	04	04	03		XT_263	Design - Pulse Split & Delay		PED	SL_MDD	Hrs	500		32,309		32,309	35%
1	05	04	04	03		XT_333	Vendor Fab/Ship Vacuum Chamb-Pulse Split & Delay		CON	SL_MTRL	$$		42,500		48,875	48,875	35%
1	05	04	04	03		XT_317	Vendor Fab Prec Lin Stage - Pulse Split & Delay		CON	SL_MTRL	$$		42,900		49,335	49,335	35%
1	**05**	**05**					**Diagnostics Subsystem**					**20,658**	**2,852,500**	**3,829,340**	**3,638,289**	**7,467,629**	
1	**05**	**05**	**01**				**Reserved**										
1	**05**	**05**	**01**	**01**			**Reserved**										
1	**05**	**05**	**02**				**Modeling & Simulation**					**4,000**	**14,000**	**783,604**	**17,640**	**801,244**	
1	**05**	**05**	**02**	**01**			**Wave Model**					**2,000**	**14,000**	**391,802**	**17,640**	**409,442**	
1	05	05	02	01		XT_277	Design - Wave Model		PED	LL_PHS	Hrs	2,000		391,802		391,802	15%
1	05	05	02	01		XT_328	Vendor Ship Computer System - Wave Model		CON	LL_MSEQ	$$		14,000		17,640	17,640	15%
1	**05**	**05**	**02**	**02**			**Monte Carlo Model**					**2,000**	**-**	**391,802**	**-**	**391,802**	
1	05	05	02	02		XT_284	Design - Monte Carlo Model		PED	LL_PHS	Hrs	2,000		391,802		391,802	15%
1	**05**	**05**	**03**				**Facility Diagnostics**					**7,554**	**2,101,500**	**1,374,507**	**2,670,135**	**4,044,642**	
1	**05**	**05**	**03**	**01**			**Direct Imager**					**1,500**	**434,000**	**278,123**	**546,840**	**824,963**	
1	05	05	03	01		XT_592	Design (5) - Direct Imager		PED	LL_PHS	Hrs	500		98,168		98,168	45%
1	05	05	03	01		XT_592	Design (5) - Direct Imager		PED	LL_ME	Hrs	250		45,937		45,937	45%
1	05	05	03	01		XT_592	Design (5) - Direct Imager		PED	LL_MDD	Hrs	250		42,145		42,145	45%
1	05	05	03	01		XT_592	Design (5) - Direct Imager		PED	LL_EE	Hrs	500		91,873		91,873	45%
1	05	05	03	01		XT_653	Vendor Fab/Ship Data Acquisiton - Direct Imager		CON	LL_MSEQ	$$		39,000		49,140	49,140	45%
1	05	05	03	01		XT_5559	Vendor Fab/Ship Production Units - Direct Imager		CON	LL_MSEQ	$$		329,000		414,540	414,540	45%
1	05	05	03	01		XT_5554	Vendor Fab/Ship Prototype Hrdware- Direct Imager		CON	LL_MSEQ	$$		66,000		83,160	83,160	45%
1	**05**	**05**	**03**	**02**			**Indirect Imager**					**600**	**460,000**	**114,049**	**579,600**	**693,649**	
1	05	05	03	02		XT_692	Design - Indirect Imager		PED	LL_PHS	Hrs	400		78,208		78,208	45%
1	05	05	03	02		XT_692	Design - Indirect Imager		PED	LL_ME	Hrs	100		18,298		18,298	45%
1	05	05	03	02		XT_692	Design - Indirect Imager		PED	LL_MDD	Hrs	50		8,394		8,394	45%
1	05	05	03	02		XT_692	Design - Indirect Imager		PED	LL_EE	Hrs	50		9,149		9,149	45%
1	05	05	03	02		XT_6608	Vendor Fab/Ship Production Units - Indirect Imag		CON	LL_MSEQ	$$		342,000		430,920	430,920	45%
1	05	05	03	02		XT_6603	Vendor Fab/Ship Prototype Hrdware-Indirect Image		CON	LL_MSEQ	$$		118,000		148,680	148,680	45%
1	**05**	**05**	**03**	**03**			**Pulsed Ion Chamber**					**1,600**	**465,000**	**297,696**	**585,900**	**883,596**	
1	05	05	03	03		XT_792	Design - Pulsed Ion Chamber		PED	LL_PHS	Hrs	800		155,328		155,328	45%
1	05	05	03	03		XT_792	Design - Pulsed Ion Chamber		PED	LL_ME	Hrs	400		72,684		72,684	45%
1	05	05	03	03		XT_792	Design - Pulsed Ion Chamber		PED	LL_MDD	Hrs	200		33,342		33,342	45%
1	05	05	03	03		XT_792	Design - Pulsed Ion Chamber		PED	LL_EE	Hrs	200		36,342		36,342	45%
1	05	05	03	03		XT_6628	Vendor Fab/Ship Data Acquisiton - Pulsed Ion Cha		CON	LL_MSEQ	$$		18,000		22,680	22,680	45%
1	05	05	03	03		XT_6614	Vendor Fab Prototype Hrdware- Pulsed Ion Chamber		CON	LL_MSEQ	$$		84,000		105,840	105,840	45%
1	05	05	03	03		XT_6619	Vendor Fab Production Units- Pulsed Ion Chamber		CON	LL_MSEQ	$$		363,000		457,380	457,380	45%
1	**05**	**05**	**03**	**04**			**Gas Mixing System**					**1,968**	**166,000**	**349,064**	**214,140**	**563,204**	
1	05	05	03	04		XT_892	Design - Gas Mixing System		CON	LL_PHS	Hrs	120		23,952		23,952	25%
1	05	05	03	04		XT_892	Design - Gas Mixing System		CON	LL_ME	Hrs	400		74,720		74,720	25%
1	05	05	03	04		XT_892	Design - Gas Mixing System		CON	LL_MDD	Hrs	200		34,276		34,276	25%
1	05	05	03	04		XT_892	Design - Gas Mixing System		CON	LL_EE	Hrs	200		37,360		37,360	25%
1	05	05	03	04		XT_6663	Vendor Fab/Ship Controller/Misc - Gas Mixing Sys		CON	LL_MSEQ	$$		96,000		123,840	123,840	25%
1	05	05	03	04		XT_6642	Vendor Fab EPICS IF - Gas Mixing System		CON	LL_MSEQ	$$		17,000		21,930	21,930	25%
1	05	05	03	04		XT_6641	Vendor Fab Regulator Manifold-Gas Mixing System		CON	LL_MSEQ	$$		17,000		21,930	21,930	25%
1	05	05	03	04		XT_6638	Vendor Fab/Ship Hardware - Gas Mixing Sys		CON	LL_MSEQ	$$		36,000		46,440	46,440	25%
1	05	05	03	04		XT_894	Assemble - Gas Mixing System		CON	LL_TMUP	Hrs	40		5,957		5,957	25%
1	05	05	03	04		XT_894	Assemble - Gas Mixing System		CON	LL_TMUO	Hrs	8		1,191		1,191	25%
1	05	05	03	04		XT_894	Assemble - Gas Mixing System		CON	LL_PHS	Hrs	100		20,479		20,479	25%
1	05	05	03	04		XT_894	Assemble - Gas Mixing System		CON	LL_PCEF	Hrs	100		14,893		14,893	25%
1	05	05	03	04		XT_894	Assemble - Gas Mixing System		CON	LL_MVE	Hrs	400		76,664		76,664	25%
1	05	05	03	04		XT_894	Assemble - Gas Mixing System		CON	LL_MFAT	Hrs	200		29,786		29,786	25%
1	05	05	03	04		XT_894	Assemble - Gas Mixing System		CON	LL_CT	Hrs	200		29,786		29,786	25%
1	**05**	**05**	**03**	**05**			**FEE Diagnostic Tanks**					**1,326**	**262,500**	**232,108**	**338,595**	**570,703**	
1	05	05	03	05		XT_992	Design - FEE Diagnostic Tank		PED	LL_PHS	Hrs	80		15,968		15,968	35%
1	05	05	03	05		XT_992	Design - FEE Diagnostic Tank		PED	LL_ME	Hrs	280		52,304		52,304	35%
1	05	05	03	05		XT_992	Design - FEE Diagnostic Tank		PED	LL_MDD	Hrs	400		68,552		68,552	35%
1	05	05	03	05		XT_992	Design - FEE Diagnostic Tank		PED	LL_EE	Hrs	160		29,888		29,888	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	05	05	03	05		XT_993	Procure Computer - FEE Diagnostic Tank		CON	LL_MSEQ	$$		10,000		12,870	12,870	35%
1	05	05	03	05		XT_6703	Vendor Fab/Ship Misc Racks/Chases-FEE Diagnostic		CON	LL_MSEQ	$$		45,500		58,695	58,695	35%
1	05	05	03	05		XT_6698	Vendor Fab/Ship EPICS IF - FEE Diagnostic Tank		CON	LL_MSEQ	$$		17,000		21,930	21,930	35%
1	05	05	03	05		XT_6693	Vendor Fab/Ship Motor Driver -FEE Diagnostic Tnk		CON	LL_MSEQ	$$		15,000		19,350	19,350	35%
1	05	05	03	05		XT_6688	Vendor Fab/Ship Stand - FEE Diagnostic Tank		CON	LL_MSEQ	$$		17,000		21,930	21,930	35%
1	05	05	03	05		XT_6683	Vendor Fab/Ship Imager Stages - FEE Diagnostic T		CON	LL_MSEQ	$$		60,000		77,400	77,400	35%
1	05	05	03	05		XT_6678	Vendor Ship Scroll Dry Pump-FEE Diagnostic Tank		CON	LL_MSEQ	$$		13,000		16,770	16,770	35%
1	05	05	03	05		XT_6673	Vendor Fab/Ship Turbo System - FEE Diagnostic Ta		CON	LL_MSEQ	$$		35,000		45,150	45,150	35%
1	05	05	03	05		XT_1062	Vendor Fab/Ship Tank - FEE Diagnostic Tank		CON	LL_MSEQ	$$		50,000		64,500	64,500	35%
1	05	05	03	05		XT_994	Assemble - FEE Diagnostic Tank		CON	LL_TMUP	Hrs	40		5,957		5,957	35%
1	05	05	03	05		XT_994	Assemble - FEE Diagnostic Tank		CON	LL_TMUO	Hrs	16		2,383		2,383	35%
1	05	05	03	05		XT_994	Assemble - FEE Diagnostic Tank		CON	LL_PHS	Hrs	50		10,240		10,240	35%
1	05	05	03	05		XT_994	Assemble - FEE Diagnostic Tank		CON	LL_PCEF	Hrs	50		7,447		7,447	35%
1	05	05	03	05		XT_994	Assemble - FEE Diagnostic Tank		CON	LL_MVE	Hrs	50		9,583		9,583	35%
1	05	05	03	05		XT_994	Assemble - FEE Diagnostic Tank		CON	LL_MFAT	Hrs	200		29,786		29,786	35%
1	**05**	**05**	**03**	**06**			**Ion Pumped Diagnostic Tanks**					**560**	**314,000**	**103,467**	**405,060**	**508,527**	
1	05	05	03	06		XT_1001	Design - Ion Pumped Tank		PED	LL_PHS	Hrs	80		16,111		16,111	15%
1	05	05	03	06		XT_1001	Design - Ion Pumped Tank		PED	LL_ME	Hrs	200		37,695		37,695	15%
1	05	05	03	06		XT_1001	Design - Ion Pumped Tank		PED	LL_MDD	Hrs	200		34,583		34,583	15%
1	05	05	03	06		XT_1001	Design - Ion Pumped Tank		PED	LL_EE	Hrs	80		15,078		15,078	15%
1	05	05	03	06		XT_7739	Vendor Fab/Ship Misc Racks/Chases-Ion Pumped Tan		CON	LL_MSEQ	$$		15,000		19,350	19,350	15%
1	05	05	03	06		XT_7734	Vendor Fab/Ship EPICS IF - Ion Pumped Tank		CON	LL_MSEQ	$$		34,000		43,860	43,860	15%
1	05	05	03	06		XT_7729	Vendor Fab/Ship Motor Driver -Ion Pumped Tank		CON	LL_MSEQ	$$		26,000		33,540	33,540	15%
1	05	05	03	06		XT_7724	Vendor Fab/Ship Stand - Ion Pumped Tank		CON	LL_MSEQ	$$		20,000		25,800	25,800	15%
1	05	05	03	06		XT_7719	Vendor Fab/Ship Imager Stages - Ion Pumped Tank		CON	LL_MSEQ	$$		80,000		103,200	103,200	15%
1	05	05	03	06		XT_7714	Vendor Ship Misc - Ion Pumped Tank		CON	LL_MSEQ	$$		37,000		47,730	47,730	15%
1	05	05	03	06		XT_7709	Vendor Fab/Ship Ion Pump - Ion Pumped Tank		CON	LL_MSEQ	$$		22,000		28,380	28,380	15%
1	05	05	03	06		XT_7704	Vendor Fab/Ship Tank - Ion Pumped Tank		CON	LL_MSEQ	$$		60,000		77,400	77,400	15%
1	05	05	03	06		XT_1002	Procure Computer - Ion Pumped Tank		CON	LL_MSEQ	$$		20,000		25,800	25,800	15%
1	**05**	**05**	**04**				**Commissioning Diagnostics**					**9,104**	**737,000**	**1,671,229**	**950,514**	**2,621,743**	
1	**05**	**05**	**04**	**01**			**Commission Diagnostic Tank**					**875**	**345,000**	**161,195**	**444,834**	**606,029**	
1	05	05	04	01		XT_412	Design - Comm Diagnostic Tank		PED	LL_PHS	Hrs	125		24,950		24,950	35%
1	05	05	04	01		XT_412	Design - Comm Diagnostic Tank		PED	LL_ME	Hrs	250		46,700		46,700	35%
1	05	05	04	01		XT_412	Design - Comm Diagnostic Tank		PED	LL_MDD	Hrs	250		42,845		42,845	35%
1	05	05	04	01		XT_412	Design - Comm Diagnostic Tank		PED	LL_EE	Hrs	250		46,700		46,700	35%
1	05	05	04	01		XT_7750	Procure Computer - Comm Diagnostic Tank		CON	LL_MSEQ	$$		10,000		12,870	12,870	35%
1	05	05	04	01		XT_45	Procure Hardware - Comm Diagnostic Tank		CON	LL_MSEQ	$$		62,000		79,794	79,794	35%
1	05	05	04	01		XT_7774	Vendor Fab/Ship 2 axis Rail Adjustment-Comm Diag		CON	LL_MSEQ	$$		14,000		18,060	18,060	35%
1	05	05	04	01		XT_7773	Vendor Fab/Ship EPICS IF - Comm Diagnostic Tank		CON	LL_MSEQ	$$		17,000		21,930	21,930	35%
1	05	05	04	01		XT_7772	Vendor Fab/Ship Motor Driver -Comm Diagnostic Ta		CON	LL_MSEQ	$$		35,000		45,150	45,150	35%
1	05	05	04	01		XT_7771	Vendor Fab/Ship Stand - Comm Diagnostic Tank		CON	LL_MSEQ	$$		17,000		21,930	21,930	35%
1	05	05	04	01		XT_7770	Vendor Fab/Ship Imager Stages - Comm Diagnostic		CON	LL_MSEQ	$$		92,000		118,680	118,680	35%
1	05	05	04	01		XT_7769	Vendor Ship Turbo System - Comm Diagnostic		CON	LL_MSEQ	$$		35,000		45,150	45,150	35%
1	05	05	04	01		XT_7768	Vendor Fab Scroll Dry Pump - Comm Diagnostic Tan		CON	LL_MSEQ	$$		13,000		16,770	16,770	35%
1	05	05	04	01		XT_7767	Vendor Fab/Ship Tank - Comm Diagnostic Tank		CON	LL_MSEQ	$$		50,000		64,500	64,500	35%
1	**05**	**05**	**04**	**02**			**Total Energy Measurement**					**3,472**	**137,000**	**626,268**	**176,730**	**802,998**	
1	05	05	04	02		XT_419	Design - Total Energy Measurement		CON	LL_PHS	Hrs	720		144,729		144,729	55%
1	05	05	04	02		XT_419	Design - Total Energy Measurement		CON	LL_ME	Hrs	720		135,449		135,449	55%
1	05	05	04	02		XT_419	Design - Total Energy Measurement		CON	LL_MDD	Hrs	180		31,066		31,066	55%
1	05	05	04	02		XT_419	Design - Total Energy Measurement		CON	LL_EE	Hrs	360		67,724		67,724	55%
1	05	05	04	02		XT_7801	Procure Production Unit-Total Energy Measurement		CON	LL_MSEQ	$$		98,000		126,420	126,420	55%
1	05	05	04	02		XT_422	Procure Data Acquisit - Total Energy Measurement		CON	LL_MSEQ	$$		39,000		50,310	50,310	55%
1	05	05	04	02		XT_421	Assemble - Total Energy Measurement		CON	LL_PM	Hrs	120		24,651		24,651	55%
1	05	05	04	02		XT_421	Assemble - Total Energy Measurement		CON	LL_PHS	Hrs	128		26,294		26,294	55%
1	05	05	04	02		XT_421	Assemble - Total Energy Measurement		CON	LL_PCEF	Hrs	400		59,756		59,756	55%
1	05	05	04	02		XT_421	Assemble - Total Energy Measurement		CON	LL_MFMS	Hrs	440		65,731		65,731	55%
1	05	05	04	02		XT_421	Assemble - Total Energy Measurement		CON	LL_MFAT	Hrs	160		23,902		23,902	55%
1	05	05	04	02		XT_421	Assemble - Total Energy Measurement		CON	LL_EE	Hrs	240		46,140		46,140	55%
1	05	05	04	02		XT_421	Assemble - Total Energy Measurement		CON	LL_CP	Hrs	4		826		826	55%
1	**05**	**05**	**04**	**03**			**Reserved**										
1	**05**	**05**	**04**	**04**			**Spectral Measurement**					**2,590**	**205,000**	**472,421**	**264,450**	**736,871**	
1	05	05	04	04		XT_479	Design - Spectral Measurement		PED	LL_PHS	Hrs	500		99,800		99,800	65%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	05	05	04	04		XT_479	Design - Spectral Measurement		PED	LL_ME	Hrs	500		93,400		93,400	65%
1	05	05	04	04		XT_479	Design - Spectral Measurement		PED	LL_MDD	Hrs	250		42,845		42,845	65%
1	05	05	04	04		XT_479	Design - Spectral Measurement		PED	LL_EE	Hrs	500		93,400		93,400	65%
1	05	05	04	04		XT_8935	Vendor Fab Low Energy - Spectral Measurement		CON	LL_MSEQ	$$		52,000		67,080	67,080	65%
1	05	05	04	04		XT_8915	Vendor Fab High Energy - Spectral Measurement		CON	LL_MSEQ	$$		49,000		63,210	63,210	65%
1	05	05	04	04		XT_8876	Vendor Fab Rails & Stages - Spectral Measurement		CON	LL_MSEQ	$$		26,000		33,540	33,540	65%
1	05	05	04	04		XT_8872	Vendor Fab Grating - Spectral Measurement		CON	LL_MSEQ	$$		39,000		50,310	50,310	65%
1	05	05	04	04		XT_581	Vendor Fab Data Acquisition-Spectral Measurement		CON	LL_MSEQ	$$		39,000		50,310	50,310	65%
1	05	05	04	04		XT_4888	Assemble at LLNL - Spectral Measurement		CON	LL_PHS	Hrs	320		65,533		65,533	65%
1	05	05	04	04		XT_4888	Assemble at LLNL - Spectral Measurement		CON	LL_PCT	Hrs	40		5,957		5,957	65%
1	05	05	04	04		XT_4888	Assemble at LLNL - Spectral Measurement		CON	LL_PCEF	Hrs	80		11,914		11,914	65%
1	05	05	04	04		XT_4888	Assemble at LLNL - Spectral Measurement		CON	LL_MFMS	Hrs	320		47,658		47,658	65%
1	05	05	04	04		XT_4888	Assemble at LLNL - Spectral Measurement		CON	LL_MFAT	Hrs	80		11,914		11,914	65%
1	**05**	**05**	**04**	**05**			**Spatial Coherence**					**1,714**	**50,000**	**319,061**	**64,500**	**383,561**	
1	05	05	04	05		XT_486	Design - Spatial Coherence		PED	LL_PHS	Hrs	125		24,950		24,950	25%
1	05	05	04	05		XT_486	Design - Spatial Coherence		PED	LL_ME	Hrs	63		11,768		11,768	25%
1	05	05	04	05		XT_486	Design - Spatial Coherence		PED	LL_MDD	Hrs	63		10,797		10,797	25%
1	05	05	04	05		XT_486	Design - Spatial Coherence		PED	LL_EE	Hrs	63		11,768		11,768	25%
1	05	05	04	05		XT_707	Vendor Fab Low Energy Slit - Spatial Coherence		CON	LL_MSEQ	$$		35,000		45,150	45,150	25%
1	05	05	04	05		XT_253	Vendor Fab High Energy Slit - Spatial Coherence		CON	LL_MSEQ	$$		15,000		19,350	19,350	25%
1	05	05	04	05		XT_488	Assemble - Spatial Coherence		CON	LL_MFPC	Hrs	200		29,786		29,786	25%
1	05	05	04	05		XT_488	Assemble - Spatial Coherence		CON	LL_ME	Hrs	400		76,664		76,664	25%
1	05	05	04	05		XT_488	Assemble - Spatial Coherence		CON	LL_EE	Hrs	800		153,328		153,328	25%
1	**05**	**05**	**04**	**06**			**Spatial Shape & Centroid Measurement**					**223**	**-**	**45,454**	**-**	**45,454**	
1	05	05	04	06		XT_4994	Design - Spatial Shape & Centroid Measure		PED	LL_PHS	Hrs	63		12,688		12,688	25%
1	05	05	04	06		XT_899	Assemble -Spatial Shape & Centroid Measure		CON	LL_PHS	Hrs	160		32,766		32,766	25%
1	**05**	**05**	**04**	**07**			**Divergence Measurement**					**230**	**-**	**46,830**	**-**	**46,830**	
1	05	05	04	07		XT_5111	Design - Divergence Measurement		CON	LL_PHS	Hrs	80		16,111		16,111	25%
1	05	05	04	07		XT_5557	Assemble - Divergence Measurement		CON	LL_PHS	Hrs	150		30,719		30,719	25%
1	**05**	**06**					**X-Ray Transport System Installation & Alignment**					**25,480**	**-**	**2,645,649**	**-**	**2,645,649**	
1	**05**	**06**	**01**				**Front End Enclosure Install**					**12,468**	**-**	**1,327,448**	**-**	**1,327,448**	
1	05	06	01			XT_810	Install - Slit/Collimator A		CON	SL_PHS	Hrs	10		763		763	25%
1	05	06	01			XT_810	Install - Slit/Collimator A		CON	SL_MVE	Hrs	40		4,429		4,429	25%
1	05	06	01			XT_810	Install - Slit/Collimator A		CON	SL_MFAT	Hrs	40		3,430		3,430	25%
1	05	06	01			XT_810	Install - Slit/Collimator A		CON	SL_EE	Hrs	10		1,178		1,178	25%
1	05	06	01			XT_810	Install - Slit/Collimator A		CON	LL_PRE	Hrs	10		1,903		1,903	25%
1	05	06	01			XT_4005	Leak Check - Slit/Collimator A		CON	SL_MVE	Hrs	40		4,460		4,460	25%
1	05	06	01			XT_4005	Leak Check - Slit/Collimator A		CON	SL_MFAT	Hrs	16		1,382		1,382	25%
1	05	06	01			XT_800	Test Beam Line - Slit/Collimator A		CON	SL_PHS	Hrs	60		4,608		4,608	25%
1	05	06	01			XT_820	Fab/Assemble/Test - Const $ - Slit/Col		CON	SL_PHS	Hrs	400		30,720		30,720	25%
1	05	06	01			XT_820	Fab/Assemble/Test - Const $ - Slit/Col		CON	SL_MFAT	Hrs	400		34,540		34,540	25%
1	05	06	01			XT_820	Fab/Assemble/Test - Const $ - Slit/Col		CON	SL_CT	Hrs	100		6,499		6,499	25%
1	05	06	01			XT_820	Fab/Assemble/Test - Const $ - Slit/Col		CON	LL_PRE	Hrs	200		38,332		38,332	25%
1	05	06	01			XT_820	Fab/Assemble/Test - Const $ - Slit/Col		CON	LL_PRC	Hrs	200		35,166		35,166	25%
1	05	06	01			XT_795	Install - Pulsed Ion Chamber		CON	SL_PHS	Hrs	160		12,288		12,288	25%
1	05	06	01			XT_795	Install - Pulsed Ion Chamber		CON	SL_PCT	Hrs	160		10,398		10,398	25%
1	05	06	01			XT_795	Install - Pulsed Ion Chamber		CON	SL_PCE	Hrs	80		9,494		9,494	25%
1	05	06	01			XT_795	Install - Pulsed Ion Chamber		CON	SL_MFMS	Hrs	160		16,941		16,941	25%
1	05	06	01			XT_795	Install - Pulsed Ion Chamber		CON	SL_MFAT	Hrs	1,920		165,792		165,792	25%
1	05	06	01			XT_795	Install - Pulsed Ion Chamber		CON	SL_ME	Hrs	80		8,919		8,919	25%
1	05	06	01			XT_795	Install - Pulsed Ion Chamber		CON	SL_EE	Hrs	40		4,747		4,747	25%
1	05	06	01			XT_1154	Install - Fixed Mask 3		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	05	06	01			XT_1136	Install - Fixed Mask 2		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	05	06	01			XT_1111	Install - Fixed Mask 1		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	05	06	01			XT_0121	Install FEE - Slow Controls		CON	SL_CT	Hrs	40		2,600		2,600	45%
1	05	06	01			XT_5	Install Isolation Valve - FEE Mech/Vac		CON	SL_PCCA	Hrs	16		1,106		1,106	25%
1	05	06	01			XT_5	Install Isolation Valve - FEE Mech/Vac		CON	SL_MFAT	Hrs	16		1,382		1,382	25%
1	05	06	01			XT_5	Install Isolation Valve - FEE Mech/Vac		CON	SL_CT	Hrs	16		1,040		1,040	25%
1	05	06	01			XT_2118	Install Stands - FEE Mech/Vac		CON	SL_MFAT	Hrs	80		6,908		6,908	25%
1	05	06	01			XT_2116	Install Spools - FEE Mech/Vac		CON	SL_PCCA	Hrs	4		276		276	45%
1	05	06	01			XT_2116	Install Spools - FEE Mech/Vac		CON	SL_MFAT	Hrs	8		691		691	45%
1	05	06	01			XT_2115	Install Ion Gauges - FEE Mech/Vac		CON	SL_PCCA	Hrs	6		415		415	45%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	05	06	01			XT_2115	Install Ion Gauges - FEE Mech/Vac		CON	SL_MFAT	Hrs	12		1,036		1,036	45%
1	05	06	01			XT_2115	Install Ion Gauges - FEE Mech/Vac		CON	SL_CT	Hrs	6		390		390	45%
1	05	06	01			XT_2113	Install Ion Pumps - FEE Mech/Vac		CON	SL_MFAT	Hrs	20		1,727		1,727	45%
1	05	06	01			XT_2113	Install Ion Pumps - FEE Mech/Vac		CON	SL_CT	Hrs	10		650		650	45%
1	05	06	01			XT_2113	Install Ion Pumps - FEE Mech/Vac		CON	LL_PCCA	Hrs	10		1,718		1,718	45%
1	05	06	01			XT_2112	Install Isolation Valve - FEE Mech/Vac		CON	SL_MFAT	Hrs	24		2,072		2,072	45%
1	05	06	01			XT_2111	Install Berilium Valves - FEE Mech/Vac		CON	SL_MFAT	Hrs	32		2,763		2,763	45%
1	05	06	01			XT_2111	Install Berilium Valves - FEE Mech/Vac		CON	SL_CT	Hrs	16		1,040		1,040	45%
1	05	06	01			XT_1152	Test - Fixed Mask 3		CON	SL_PHS	Hrs	15		1,152		1,152	25%
1	05	06	01			XT_1152	Test - Fixed Mask 3		CON	SL_MVE	Hrs	30		3,345		3,345	25%
1	05	06	01			XT_1134	Test - Fixed Mask 2		CON	SL_PHS	Hrs	8		614		614	25%
1	05	06	01			XT_1134	Test - Fixed Mask 2		CON	SL_MVE	Hrs	40		4,460		4,460	25%
1	05	06	01			XT_1110	Test - Fixed Mask 1		CON	SL_PHS	Hrs	8		614		614	25%
1	05	06	01			XT_1110	Test - Fixed Mask 1		CON	SL_ME	Hrs	40		4,460		4,460	25%
1	05	06	01			XT_2010	Shipping / Install - Gas Attenuator		CON	LL_TMUO	Hrs	150		22,514		22,514	45%
1	05	06	01			XT_2010	Shipping / Install - Gas Attenuator		CON	LL_TMUE	Hrs	50		7,505		7,505	45%
1	05	06	01			XT_2010	Shipping / Install - Gas Attenuator		CON	LL_SEPM	Hrs	50		9,658		9,658	45%
1	05	06	01			XT_95	Install Vacuum Pipe - Electron Dump Mech/Vac		CON	LL_PCCA	Hrs	6		1,031		1,031	45%
1	05	06	01			XT_95	Install Vacuum Pipe - Electron Dump Mech/Vac		CON	LL_MFAT	Hrs	24		3,574		3,574	45%
1	05	06	01			XT_125	Install Ion Pumps - Electron Dump Mech/Vac		CON	SL_PCCA	Hrs	12		829		829	45%
1	05	06	01			XT_125	Install Ion Pumps - Electron Dump Mech/Vac		CON	SL_MFAT	Hrs	24		2,072		2,072	45%
1	05	06	01			XT_125	Install Ion Pumps - Electron Dump Mech/Vac		CON	SL_CT	Hrs	12		780		780	45%
1	05	06	01			XT_115	Install Stands - Electron Dump Mech/Vac		CON	SL_MFAT	Hrs	80		6,908		6,908	45%
1	05	06	01			XT_105	Install Ion Gauges - Electron Dump Mech/Vac		CON	SL_PCCA	Hrs	6		415		415	45%
1	05	06	01			XT_105	Install Ion Gauges - Electron Dump Mech/Vac		CON	SL_MFAT	Hrs	12		1,036		1,036	45%
1	05	06	01			XT_105	Install Ion Gauges - Electron Dump Mech/Vac		CON	SL_CT	Hrs	6		390		390	45%
1	05	06	01			XT_0122	Integrate FEE - Slow Controls		CON	SL_PHS	Hrs	16		1,229		1,229	45%
1	05	06	01			XT_0122	Integrate FEE - Slow Controls		CON	SL_CT	Hrs	46		2,990		2,990	45%
1	05	06	01			XT_96	Test Pipe - Electron Dump Mech/Vac		CON	SL_MFAT	Hrs	40		3,454		3,454	45%
1	05	06	01			XT_281	Install - Wave Model		CON	SL_PHS	Hrs	40		3,072		3,072	25%
1	05	06	01			XT_281	Install - Wave Model		CON	SL_PCT	Hrs	40		2,600		2,600	25%
1	05	06	01			XT_7823	Fab/Assemble/Test - Const $ - Flipper Mirror		CON	SL_PHS	Hrs	480		37,437		37,437	45%
1	05	06	01			XT_7823	Fab/Assemble/Test - Const $ - Flipper Mirror		CON	SL_MFAT	Hrs	360		31,570		31,570	45%
1	05	06	01			XT_7823	Fab/Assemble/Test - Const $ - Flipper Mirror		CON	SL_CT	Hrs	120		7,920		7,920	45%
1	05	06	01			XT_7823	Fab/Assemble/Test - Const $ - Flipper Mirror		CON	LL_PRE	Hrs	200		38,930		38,930	45%
1	05	06	01			XT_7823	Fab/Assemble/Test - Const $ - Flipper Mirror		CON	LL_PRC	Hrs	200		35,714		35,714	45%
1	05	06	01			XT_1153	Test - Beamline - Fixed Mask 3		CON	SL_PHS	Hrs	40		3,072		3,072	45%
1	05	06	01			XT_1135	Test - Beamline - Fixed Mask 2		CON	SL_PHS	Hrs	40		3,072		3,072	45%
1	05	06	01			XT_1109	Test - Beamline - Fixed Mask 1		CON	SL_PHS	Hrs	40		3,072		3,072	45%
1	05	06	01			XT_53	Install FEE - Fast Controls		CON	SL_CT	Hrs	40		2,632		2,632	45%
1	05	06	01			XT_0155	Install FEE - Femto Controls		CON	SL_CT	Hrs	40		2,632		2,632	45%
1	05	06	01			XT_0117	Test FEE - Slow Controls		CON	SL_PHS	Hrs	5		384		384	45%
1	05	06	01			XT_0117	Test FEE - Slow Controls		CON	SL_CE	Hrs	10		1,187		1,187	45%
1	05	06	01			XT_7046	Fab/Assemble/Test - Const $ - Slit/Col		CON	SL_PHS	Hrs	400		31,381		31,381	45%
1	05	06	01			XT_7046	Fab/Assemble/Test - Const $ - Slit/Col		CON	SL_MFAT	Hrs	200		17,642		17,642	45%
1	05	06	01			XT_7046	Fab/Assemble/Test - Const $ - Slit/Col		CON	SL_CT	Hrs	100		6,639		6,639	45%
1	05	06	01			XT_7046	Fab/Assemble/Test - Const $ - Slit/Col		CON	LL_PRE	Hrs	200		39,159		39,159	45%
1	05	06	01			XT_7046	Fab/Assemble/Test - Const $ - Slit/Col		CON	LL_PRC	Hrs	400		71,849		71,849	45%
1	05	06	01			XT_54	Integrate FEE - Fast Controls		CON	SL_PHS	Hrs	16		1,261		1,261	25%
1	05	06	01			XT_54	Integrate FEE - Fast Controls		CON	SL_CT	Hrs	46		3,067		3,067	25%
1	05	06	01			XT_0156	Integrate FEE - Femto Controls		CON	SL_PHS	Hrs	16		1,261		1,261	25%
1	05	06	01			XT_0156	Integrate FEE - Femto Controls		CON	SL_CT	Hrs	46		3,067		3,067	25%
1	05	06	01			XT_2012	Assemble - Beamline Test - Gas Attenuator		CON	SL_PHS	Hrs	1,112		87,614		87,614	45%
1	05	06	01			XT_2012	Assemble - Beamline Test - Gas Attenuator		CON	SL_MVE	Hrs	240		27,454		27,454	45%
1	05	06	01			XT_2012	Assemble - Beamline Test - Gas Attenuator		CON	SL_MFAT	Hrs	240		21,262		21,262	45%
1	05	06	01			XT_2012	Assemble - Beamline Test - Gas Attenuator		CON	SL_ME	Hrs	240		27,454		27,454	45%
1	05	06	01			XT_2012	Assemble - Beamline Test - Gas Attenuator		CON	SL_CT	Hrs	240		16,003		16,003	45%
1	05	06	01			XT_2012	Assemble - Beamline Test - Gas Attenuator		CON	LL_PRE	Hrs	240		47,194		47,194	45%
1	05	06	01			XT_2012	Assemble - Beamline Test - Gas Attenuator		CON	LL_PRC	Hrs	240		43,296		43,296	45%
1	05	06	01			XT_2011	Acceptance Test - Gas Attenuator		CON	SL_PHS	Hrs	160		12,606		12,606	45%
1	05	06	01			XT_2011	Acceptance Test - Gas Attenuator		CON	SL_MVE	Hrs	160		18,302		18,302	45%
1	05	06	01			XT_2011	Acceptance Test - Gas Attenuator		CON	SL_EE	Hrs	160		19,480		19,480	45%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	05	06	01			XT_2011	Acceptance Test - Gas Attenuator		CON	LL_PRE	Hrs	160		31,462		31,462	45%
1	05	06	01			XT_2011	Acceptance Test - Gas Attenuator		CON	LL_PHS	Hrs	160		33,618		33,618	45%
1	05	06	01			XT_2011	Acceptance Test - Gas Attenuator		CON	LL_ME	Hrs	160		31,462		31,462	45%
1	05	06	01			XT_0158	Test FEE - Femto Controls		CON	SL_PHS	Hrs	320		25,213		25,213	25%
1	05	06	01			XT_0147	Test FEE - Fast Controls		CON	SL_PHS	Hrs	320		25,213		25,213	25%
1	**05**	**06**	**02**				**Near Hall Install**					**5,001**	**-**	**534,511**	**-**	**534,511**	
1	05	06	02			XT_507	Install - Near Hall Optics Tank		CON	SL_PHS	Hrs	160		12,288		12,288	25%
1	05	06	02			XT_507	Install - Near Hall Optics Tank		CON	SL_PCT	Hrs	80		5,199		5,199	25%
1	05	06	02			XT_507	Install - Near Hall Optics Tank		CON	SL_MFMS	Hrs	160		16,941		16,941	25%
1	05	06	02			XT_507	Install - Near Hall Optics Tank		CON	SL_MFAT	Hrs	880		75,988		75,988	25%
1	05	06	02			XT_507	Install - Near Hall Optics Tank		CON	LL_PRC	Hrs	320		56,266		56,266	25%
1	05	06	02			XT_815	Install Stands - NH Mech/Vac - H3		CON	SL_MFAT	Hrs	80		6,908		6,908	25%
1	05	06	02			XT_805	Install Ion Gauges - NH Mech/Vac - H3		CON	SL_MFAT	Hrs	12		1,036		1,036	25%
1	05	06	02			XT_805	Install Ion Gauges - NH Mech/Vac - H3		CON	SL_CT	Hrs	6		390		390	25%
1	05	06	02			XT_805	Install Ion Gauges - NH Mech/Vac - H3		CON	LL_PCCA	Hrs	6		1,031		1,031	25%
1	05	06	02			XT_785	Install Ion Pumps - NH Mech/Vac - H3		CON	SL_MFAT	Hrs	24		2,072		2,072	25%
1	05	06	02			XT_785	Install Ion Pumps - NH Mech/Vac - H3		CON	SL_CT	Hrs	12		780		780	25%
1	05	06	02			XT_785	Install Ion Pumps - NH Mech/Vac - H3		CON	LL_PCCA	Hrs	12		2,062		2,062	25%
1	05	06	02			XT_775	Install Vacuum Piping - NH Mech/Vac - H3		CON	SL_MFAT	Hrs	24		2,072		2,072	25%
1	05	06	02			XT_775	Install Vacuum Piping - NH Mech/Vac - H3		CON	LL_PCCA	Hrs	6		1,031		1,031	25%
1	05	06	02			XT_3672	Install Ion Pumps - NH Mech/Vac - H2		CON	SL_MFAT	Hrs	24		2,072		2,072	25%
1	05	06	02			XT_3672	Install Ion Pumps - NH Mech/Vac - H2		CON	SL_CT	Hrs	12		780		780	25%
1	05	06	02			XT_3672	Install Ion Pumps - NH Mech/Vac - H2		CON	LL_PCCA	Hrs	12		2,062		2,062	25%
1	05	06	02			XT_3671	Install Vacuum Piping - NH Mech/Vac - H2		CON	SL_MFAT	Hrs	24		2,072		2,072	25%
1	05	06	02			XT_3671	Install Vacuum Piping - NH Mech/Vac - H2		CON	LL_PCCA	Hrs	6		1,031		1,031	25%
1	05	06	02			XT_3670	Install Berilium Valves - NH Mech/Vac - H2		CON	SL_MFAT	Hrs	24		2,072		2,072	25%
1	05	06	02			XT_3670	Install Berilium Valves - NH Mech/Vac - H2		CON	SL_CT	Hrs	12		780		780	25%
1	05	06	02			XT_3670	Install Berilium Valves - NH Mech/Vac - H2		CON	LL_PCCA	Hrs	12		2,062		2,062	25%
1	05	06	02			XT_3669	Install Isolation Valves - NH Mech/Vac - H2		CON	SL_MFAT	Hrs	4		345		345	25%
1	05	06	02			XT_3669	Install Isolation Valves - NH Mech/Vac - H2		CON	SL_CT	Hrs	4		260		260	25%
1	05	06	02			XT_3669	Install Isolation Valves - NH Mech/Vac - H2		CON	LL_PCCA	Hrs	4		687		687	25%
1	05	06	02			XT_3668	Install Stands - NH Mech/Vac - H2		CON	SL_MFAT	Hrs	80		6,908		6,908	25%
1	05	06	02			XT_3666	Install Ion Gauges - NH Mech/Vac - H2		CON	SL_MFAT	Hrs	12		1,036		1,036	25%
1	05	06	02			XT_3666	Install Ion Gauges - NH Mech/Vac - H2		CON	SL_CT	Hrs	6		390		390	25%
1	05	06	02			XT_3666	Install Ion Gauges - NH Mech/Vac - H2		CON	LL_PCCA	Hrs	6		1,031		1,031	25%
1	05	06	02			XT_360	Install Ion Pumps - NH Mech/Vac - H1		CON	SL_MFAT	Hrs	24		2,072		2,072	45%
1	05	06	02			XT_360	Install Ion Pumps - NH Mech/Vac - H1		CON	SL_CT	Hrs	12		780		780	45%
1	05	06	02			XT_360	Install Ion Pumps - NH Mech/Vac - H1		CON	LL_PCCA	Hrs	12		2,062		2,062	45%
1	05	06	02			XT_350	Install Vacuum Piping - NH Mech/Vac - H1		CON	SL_MFAT	Hrs	24		2,072		2,072	45%
1	05	06	02			XT_350	Install Vacuum Piping - NH Mech/Vac - H1		CON	LL_PCCA	Hrs	6		1,031		1,031	45%
1	05	06	02			XT_340	Install Berilium Valves - NH Mech/Vac - H1		CON	SL_MFAT	Hrs	16		1,382		1,382	45%
1	05	06	02			XT_340	Install Berilium Valves - NH Mech/Vac - H1		CON	SL_CT	Hrs	8		520		520	45%
1	05	06	02			XT_340	Install Berilium Valves - NH Mech/Vac - H1		CON	LL_PCCA	Hrs	8		1,375		1,375	45%
1	05	06	02			XT_330	Install Isolation Valves - NH Mech/Vac - H1		CON	SL_MFAT	Hrs	8		691		691	45%
1	05	06	02			XT_330	Install Isolation Valves - NH Mech/Vac - H1		CON	SL_CT	Hrs	8		520		520	45%
1	05	06	02			XT_330	Install Isolation Valves - NH Mech/Vac - H1		CON	LL_PCCA	Hrs	8		1,375		1,375	45%
1	05	06	02			XT_0463	Install Stands - NH Mech/Vac - H1		CON	SL_MFAT	Hrs	160		13,816		13,816	45%
1	05	06	02			XT_0463	Install Stands - NH Mech/Vac - H1		CON	LL_PCCA	Hrs	40		6,874		6,874	45%
1	05	06	02			XT_0462	Install Spools - NH Mech/Vac - H1		CON	SL_MFAT	Hrs	32		2,763		2,763	45%
1	05	06	02			XT_0462	Install Spools - NH Mech/Vac - H1		CON	LL_PCCA	Hrs	8		1,375		1,375	45%
1	05	06	02			XT_0461	Install Ion Gauges - NH Mech/Vac - H1		CON	SL_MFAT	Hrs	12		1,036		1,036	45%
1	05	06	02			XT_0461	Install Ion Gauges - NH Mech/Vac - H1		CON	SL_CT	Hrs	5		325		325	45%
1	05	06	02			XT_0461	Install Ion Gauges - NH Mech/Vac - H1		CON	LL_PCCA	Hrs	5		859		859	45%
1	05	06	02			XT_776	Test - Near Hall Mech/Vac - H3		CON	SL_MFAT	Hrs	40		3,454		3,454	45%
1	05	06	02			XT_676	Test - Near Hall Mech/Vac - H2		CON	SL_MFAT	Hrs	80		6,908		6,908	45%
1	05	06	02			XT_660	Test - Near Hall Mech/Vac - H1		CON	SL_MFAT	Hrs	80		6,908		6,908	45%
1	05	06	02			XT_508	Integrate & Test - Near Hall Optics Tank		CON	SL_PHS	Hrs	40		3,072		3,072	25%
1	05	06	02			XT_508	Integrate & Test - Near Hall Optics Tank		CON	SL_ME	Hrs	40		4,460		4,460	25%
1	05	06	02			XT_508	Integrate & Test - Near Hall Optics Tank		CON	SL_EE	Hrs	40		4,747		4,747	25%
1	05	06	02			XT_415	Install - Comm Diagnostic Tank		CON	SL_TMUP	Hrs	40		3,891		3,891	45%
1	05	06	02			XT_415	Install - Comm Diagnostic Tank		CON	SL_TMUO	Hrs	16		1,343		1,343	45%
1	05	06	02			XT_415	Install - Comm Diagnostic Tank		CON	SL_PHS	Hrs	80		6,144		6,144	45%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	05	06	02			XT_415	Install - Comm Diagnostic Tank		CON	SL_PCEF	Hrs	80		5,199		5,199	45%
1	05	06	02			XT_415	Install - Comm Diagnostic Tank		CON	SL_MVE	Hrs	80		8,919		8,919	45%
1	05	06	02			XT_415	Install - Comm Diagnostic Tank		CON	SL_MFMS	Hrs	28		2,965		2,965	45%
1	05	06	02			XT_415	Install - Comm Diagnostic Tank		CON	SL_MFAT	Hrs	320		27,632		27,632	45%
1	05	06	02			XT_416	Test - Comm Diagnostic Tank		CON	SL_PHS	Hrs	40		3,072		3,072	25%
1	05	06	02			XT_416	Test - Comm Diagnostic Tank		CON	SL_MFAT	Hrs	80		6,908		6,908	25%
1	05	06	02			XT_416	Test - Comm Diagnostic Tank		CON	SL_ME	Hrs	40		4,460		4,460	25%
1	05	06	02			XT_0128	Install Near Hall - Slow Controls		CON	SL_CT	Hrs	46		2,990		2,990	45%
1	05	06	02			XT_695	Install - Indirect Imager		CON	SL_MFMS	Hrs	120		12,706		12,706	45%
1	05	06	02			XT_695	Install - Indirect Imager		CON	SL_ME	Hrs	75		8,362		8,362	45%
1	05	06	02			XT_695	Install - Indirect Imager		CON	SL_EE	Hrs	30		3,560		3,560	45%
1	05	06	02			XT_695	Install - Indirect Imager		CON	LL_PHS	Hrs	240		49,150		49,150	45%
1	05	06	02			XT_695	Install - Indirect Imager		CON	LL_MFAT	Hrs	180		26,807		26,807	45%
1	05	06	02			XT_695	Install - Indirect Imager		CON	LL_CP	Hrs	30		6,174		6,174	45%
1	05	06	02			XT_489	Install - Spatial Coherence		CON	SL_PHS	Hrs	120		9,216		9,216	25%
1	05	06	02			XT_0129	Integrate Near Hall - Slow Controls		CON	SL_PHS	Hrs	16		1,229		1,229	45%
1	05	06	02			XT_0129	Integrate Near Hall - Slow Controls		CON	SL_CT	Hrs	46		2,990		2,990	45%
1	05	06	02			XT_5004	Install - Divergence Measurement		CON	SL_PHS	Hrs	16		1,229		1,229	25%
1	05	06	02			XT_5004	Install - Divergence Measurement		CON	SL_ME	Hrs	16		1,784		1,784	25%
1	05	06	02			XT_4991	Test - Spatial Coherence		CON	SL_PHS	Hrs	160		12,288		12,288	25%
1	05	06	02			XT_4433	Visible Calibration - Direct Imager		CON	SL_MFAT	Hrs	5		432		432	25%
1	05	06	02			XT_4433	Visible Calibration - Direct Imager		CON	LL_PHS	Hrs	10		2,048		2,048	25%
1	05	06	02			XT_4433	Visible Calibration - Direct Imager		CON	LL_MFAT	Hrs	10		1,489		1,489	25%
1	05	06	02			XT_0130	Test Near Hall - Slow Controls		CON	SL_PHS	Hrs	5		384		384	45%
1	05	06	02			XT_0130	Test Near Hall - Slow Controls		CON	SL_CE	Hrs	10		1,187		1,187	45%
1	05	06	02			XT_4435	X-Ray Calibration - Direct Imager		CON	SL_MFAT	Hrs	10		864		864	25%
1	05	06	02			XT_4435	X-Ray Calibration - Direct Imager		CON	LL_PHS	Hrs	80		16,383		16,383	25%
1	05	06	02			XT_4435	X-Ray Calibration - Direct Imager		CON	LL_MFAT	Hrs	80		11,914		11,914	25%
1	05	06	02			XT_696	Test - Indirect Imager		CON	SL_PHS	Hrs	40		3,116		3,116	25%
1	05	06	02			XT_5005	Test - Divergence Measurement		CON	SL_PHS	Hrs	40		3,148		3,148	25%
1	05	06	02			XT_4997	Install - Spatial Shape & Centroid Measure		CON	SL_MFAT	Hrs	16		1,417		1,417	25%
1	05	06	02			XT_4997	Install - Spatial Shape & Centroid Measure		CON	SL_ME	Hrs	16		1,830		1,830	25%
1	05	06	02			XT_4998	Test - Spatial Shape & Centroid Measure		CON	SL_PHS	Hrs	40		3,152		3,152	25%
1	**05**	**06**	**03**				**Tunnel Install**					**2,880**	**-**	**288,890**	**-**	**288,890**	
1	05	06	03			XT_656	Install Spools - Tunnel Mech/Vac		CON	SL_MFAT	Hrs	40		3,520		3,520	25%
1	05	06	03			XT_656	Install Spools - Tunnel Mech/Vac		CON	LL_PCCA	Hrs	40		7,005		7,005	25%
1	05	06	03			XT_647	Install Stands - Tunnel Mech/Vac		CON	SL_MFAT	Hrs	1,000		88,002		88,002	25%
1	05	06	03			XT_647	Install Stands - Tunnel Mech/Vac		CON	LL_PCCA	Hrs	160		28,022		28,022	25%
1	05	06	03			XT_646	Install Ion Gauges - Tunnel Mech/Vac		CON	SL_MFAT	Hrs	320		28,161		28,161	25%
1	05	06	03			XT_646	Install Ion Gauges - Tunnel Mech/Vac		CON	SL_CT	Hrs	80		5,299		5,299	25%
1	05	06	03			XT_646	Install Ion Gauges - Tunnel Mech/Vac		CON	LL_PCCA	Hrs	80		14,011		14,011	25%
1	05	06	03			XT_636	Install Ion Pumps - Tunnel Mech/Vac		CON	SL_MFAT	Hrs	320		28,161		28,161	25%
1	05	06	03			XT_636	Install Ion Pumps - Tunnel Mech/Vac		CON	SL_CT	Hrs	160		10,598		10,598	25%
1	05	06	03			XT_636	Install Ion Pumps - Tunnel Mech/Vac		CON	LL_PCCA	Hrs	160		28,022		28,022	25%
1	05	06	03			XT_626	Install Vacuum Piping - Tunnel Mech/Vac		CON	SL_MVE	Hrs	80		9,090		9,090	25%
1	05	06	03			XT_626	Install Vacuum Piping - Tunnel Mech/Vac		CON	SL_MFAT	Hrs	160		14,080		14,080	25%
1	05	06	03			XT_556	Install Isolation Valve - Tunnel Mech/Vac		CON	SL_MFAT	Hrs	40		3,520		3,520	25%
1	05	06	03			XT_556	Install Isolation Valve - Tunnel Mech/Vac		CON	SL_CT	Hrs	40		2,649		2,649	25%
1	05	06	03			XT_557	Test - Tunnel Mech/Vac		CON	SL_MVE	Hrs	40		4,576		4,576	25%
1	05	06	03			XT_557	Test - Tunnel Mech/Vac		CON	SL_MFAT	Hrs	160		14,174		14,174	25%
1	**05**	**06**	**04**				**Far Hall Install**					**5,131**	**-**	**494,800**	**-**	**494,800**	
1	05	06	04			XT_595	Install - Direct Imager		CON	SL_PHS	Hrs	456		35,112		35,112	45%
1	05	06	04			XT_595	Install - Direct Imager		CON	SL_MFMS	Hrs	104		11,040		11,040	45%
1	05	06	04			XT_595	Install - Direct Imager		CON	SL_MFAT	Hrs	152		13,159		13,159	45%
1	05	06	04			XT_595	Install - Direct Imager		CON	SL_ME	Hrs	53		5,924		5,924	45%
1	05	06	04			XT_595	Install - Direct Imager		CON	LL_PCT	Hrs	40		5,973		5,973	45%
1	05	06	04			XT_595	Install - Direct Imager		CON	LL_PCEF	Hrs	104		15,529		15,529	45%
1	05	06	04			XT_595	Install - Direct Imager		CON	LL_EE	Hrs	26		4,996		4,996	45%
1	05	06	04			XT_595	Install - Direct Imager		CON	LL_CP	Hrs	26		5,364		5,364	45%
1	05	06	04			XT_7820	Install - Flipper Mirror		CON	SL_PHS	Hrs	40		3,072		3,072	45%
1	05	06	04			XT_0134	Install Far Hall - Slow Controls		CON	SL_CT	Hrs	46		2,990		2,990	45%
1	05	06	04			XT_82	Install Ion Pumps - Far Hall Mech/Vac - H3		CON	SL_MFAT	Hrs	24		2,072		2,072	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	05	06	04			XT_82	Install Ion Pumps - Far Hall Mech/Vac - H3		CON	SL_CT	Hrs	12		780		780	25%
1	05	06	04			XT_82	Install Ion Pumps - Far Hall Mech/Vac - H3		CON	LL_PCCA	Hrs	12		2,062		2,062	25%
1	05	06	04			XT_1168	Install Stands - Far Hall Mech/Vac - H3		CON	SL_MFAT	Hrs	80		6,908		6,908	25%
1	05	06	04			XT_1167	Install Ion Gauges - Far Hall Mech/Vac - H3		CON	SL_MFAT	Hrs	12		1,036		1,036	45%
1	05	06	04			XT_1167	Install Ion Gauges - Far Hall Mech/Vac - H3		CON	SL_CT	Hrs	6		390		390	45%
1	05	06	04			XT_1167	Install Ion Gauges - Far Hall Mech/Vac - H3		CON	LL_PCCA	Hrs	6		1,031		1,031	45%
1	05	06	04			XT_74	Install Ion Pumps - Far Hall Mech/Vac - H2		CON	SL_MFAT	Hrs	24		2,072		2,072	25%
1	05	06	04			XT_74	Install Ion Pumps - Far Hall Mech/Vac - H2		CON	SL_CT	Hrs	12		780		780	25%
1	05	06	04			XT_74	Install Ion Pumps - Far Hall Mech/Vac - H2		CON	LL_PCCA	Hrs	12		2,062		2,062	25%
1	05	06	04			XT_666	Install Isolation Valve - Far Hall Mech/Vac		CON	SL_MFAT	Hrs	16		1,382		1,382	25%
1	05	06	04			XT_666	Install Isolation Valve - Far Hall Mech/Vac		CON	SL_CT	Hrs	16		1,040		1,040	25%
1	05	06	04			XT_666	Install Isolation Valve - Far Hall Mech/Vac		CON	LL_PCCA	Hrs	16		2,749		2,749	25%
1	05	06	04			XT_42	Install Stands - Far Hall Mech/Vac		CON	SL_MFAT	Hrs	160		13,816		13,816	25%
1	05	06	04			XT_42	Install Stands - Far Hall Mech/Vac		CON	LL_PCCA	Hrs	40		6,874		6,874	25%
1	05	06	04			XT_41	Install Spools - Far Hall Mech/Vac		CON	SL_MFAT	Hrs	32		2,763		2,763	25%
1	05	06	04			XT_41	Install Spools - Far Hall Mech/Vac		CON	LL_PCCA	Hrs	8		1,375		1,375	25%
1	05	06	04			XT_30	Install Ion Gauges - Far Hall Mech/Vac		CON	SL_MFAT	Hrs	12		1,036		1,036	25%
1	05	06	04			XT_30	Install Ion Gauges - Far Hall Mech/Vac		CON	SL_CT	Hrs	6		390		390	25%
1	05	06	04			XT_30	Install Ion Gauges - Far Hall Mech/Vac		CON	LL_PCCA	Hrs	6		1,031		1,031	25%
1	05	06	04			XT_29	Install Ion Pumps - Far Hall Mech/Vac		CON	SL_MFAT	Hrs	24		2,072		2,072	25%
1	05	06	04			XT_29	Install Ion Pumps - Far Hall Mech/Vac		CON	SL_CT	Hrs	12		780		780	25%
1	05	06	04			XT_29	Install Ion Pumps - Far Hall Mech/Vac		CON	LL_PCCA	Hrs	12		2,062		2,062	25%
1	05	06	04			XT_26	Install Vacuum Piping - Far Hall Mech/Vac		CON	SL_PCCA	Hrs	6		415		415	25%
1	05	06	04			XT_26	Install Vacuum Piping - Far Hall Mech/Vac		CON	SL_MFAT	Hrs	12		1,036		1,036	25%
1	05	06	04			XT_1202	Install Vacuum Piping - Far Hall Mech/Vac - H2		CON	SL_PCCA	Hrs	6		415		415	25%
1	05	06	04			XT_1202	Install Vacuum Piping - Far Hall Mech/Vac - H2		CON	SL_MFAT	Hrs	24		2,072		2,072	25%
1	05	06	04			XT_1025	Install Stands - Far Hall Mech/Vac - H2		CON	SL_MFAT	Hrs	80		6,908		6,908	25%
1	05	06	04			XT_1024	Install Ion Gauges - Far Hall Mech/Vac - H2		CON	SL_MFAT	Hrs	12		1,036		1,036	25%
1	05	06	04			XT_1024	Install Ion Gauges - Far Hall Mech/Vac - H2		CON	SL_CT	Hrs	6		390		390	25%
1	05	06	04			XT_1024	Install Ion Gauges - Far Hall Mech/Vac - H2		CON	LL_PCCA	Hrs	6		1,031		1,031	25%
1	05	06	04			XT_1023	Install Berilium Valve - Far Hall Mech/Vac - H2		CON	SL_MFAT	Hrs	24		2,072		2,072	25%
1	05	06	04			XT_1023	Install Berilium Valve - Far Hall Mech/Vac - H2		CON	SL_CT	Hrs	12		780		780	25%
1	05	06	04			XT_1023	Install Berilium Valve - Far Hall Mech/Vac - H2		CON	LL_PCCA	Hrs	12		2,062		2,062	25%
1	05	06	04			XT_1022	Install Isolation Valve - Far Hall Mech/Vac - H2		CON	SL_MFAT	Hrs	4		345		345	25%
1	05	06	04			XT_1022	Install Isolation Valve - Far Hall Mech/Vac - H2		CON	SL_CT	Hrs	4		260		260	25%
1	05	06	04			XT_1022	Install Isolation Valve - Far Hall Mech/Vac - H2		CON	LL_PCCA	Hrs	4		687		687	25%
1	05	06	04			XT_75	Test - Far Hall Mech/Vac - H2		CON	SL_MFAT	Hrs	40		3,454		3,454	45%
1	05	06	04			XT_667	Test - Far Hall Mech/Vac - H1		CON	SL_MFAT	Hrs	40		3,454		3,454	45%
1	05	06	04			XT_7821	Leak Check - Flipper Mirror		CON	SL_MFAT	Hrs	8		709		709	45%
1	05	06	04			XT_0135	Integrate Far Hall - Slow Controls		CON	SL_PHS	Hrs	16		1,261		1,261	45%
1	05	06	04			XT_0135	Integrate Far Hall - Slow Controls		CON	SL_CT	Hrs	48		3,201		3,201	45%
1	05	06	04			XT_635	Visible Calibration - Direct Imager		CON	LL_PHS	Hrs	40		8,404		8,404	45%
1	05	06	04			XT_635	Visible Calibration - Direct Imager		CON	LL_MFAT	Hrs	40		6,112		6,112	45%
1	05	06	04			XT_1166	Install Vacuum Piping - Far Hall Mech/Vac - H3		CON	SL_MFAT	Hrs	24		2,126		2,126	25%
1	05	06	04			XT_83	Test - Far Hall Mech/Vac - H3		CON	SL_PHS	Hrs	40		3,152		3,152	25%
1	05	06	04			XT_83	Test - Far Hall Mech/Vac - H3		CON	SL_MFAT	Hrs	40		3,544		3,544	25%
1	05	06	04			XT_645	X-Ray Calibration - Direct Imager		CON	LL_PHS	Hrs	40		8,404		8,404	45%
1	05	06	04			XT_645	X-Ray Calibration - Direct Imager		CON	LL_MFAT	Hrs	40		6,112		6,112	45%
1	05	06	04			XT_452	Install - Total Energy Measurement		CON	SL_PHS	Hrs	40		3,152		3,152	45%
1	05	06	04			XT_7822	Test Beam Line - Flipper Mirror		CON	SL_PHS	Hrs	16		1,261		1,261	25%
1	05	06	04			XT_596	Test - Direct Imager		CON	SL_PHS	Hrs	40		3,152		3,152	25%
1	05	06	04			XT_596	Test - Direct Imager		CON	SL_ME	Hrs	40		4,576		4,576	25%
1	05	06	04			XT_482	Install - Spectral Measurement		CON	SL_PHS	Hrs	40		3,152		3,152	45%
1	05	06	04			XT_273	Install - System Monochrometer		CON	SL_TMUW	Hrs	80		6,587		6,587	45%
1	05	06	04			XT_273	Install - System Monochrometer		CON	SL_PHS	Hrs	40		3,152		3,152	45%
1	05	06	04			XT_273	Install - System Monochrometer		CON	SL_PCEF	Hrs	40		2,667		2,667	45%
1	05	06	04			XT_273	Install - System Monochrometer		CON	SL_MFMS	Hrs	80		8,691		8,691	45%
1	05	06	04			XT_273	Install - System Monochrometer		CON	SL_MFAT	Hrs	320		28,349		28,349	45%
1	05	06	04			XT_273	Install - System Monochrometer		CON	LL_PCE	Hrs	10		1,966		1,966	45%
1	05	06	04			XT_273	Install - System Monochrometer		CON	LL_MFPC	Hrs	80		12,224		12,224	45%
1	05	06	04			XT_0136	Test Far Hall - Slow Controls		CON	SL_PHS	Hrs	8		630		630	45%
1	05	06	04			XT_0136	Test Far Hall - Slow Controls		CON	SL_CT	Hrs	16		1,067		1,067	45%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	05	06	04			XT_0136	Test Far Hall - Slow Controls		CON	SL_CE	Hrs	16		1,948		1,948	45%
1	05	06	04			XT_266	Install - Pulse Split & Delay		CON	SL_TMUW	Hrs	24		1,976		1,976	45%
1	05	06	04			XT_266	Install - Pulse Split & Delay		CON	SL_PCT	Hrs	4		267		267	45%
1	05	06	04			XT_266	Install - Pulse Split & Delay		CON	SL_MFPC	Hrs	40		6,938		6,938	45%
1	05	06	04			XT_266	Install - Pulse Split & Delay		CON	SL_MFMS	Hrs	30		3,259		3,259	45%
1	05	06	04			XT_266	Install - Pulse Split & Delay		CON	SL_MFAT	Hrs	1,732		153,438		153,438	45%
1	05	06	04			XT_483	Test - Spectral Measurement		CON	SL_PHS	Hrs	40		3,152		3,152	45%
1	05	06	04			XT_274	Test - Pulse System Monochrometer		CON	SL_PHS	Hrs	40		3,152		3,152	45%
1	05	06	04			XT_423	Test - Total Energy Measurement		CON	SL_PHS	Hrs	40		3,152		3,152	45%
1	05	06	04			XT_267	Test - Pulse Split & Delay		CON	SL_PHS	Hrs	40		3,152		3,152	25%
1	05	06	04			XT_267	Test - Pulse Split & Delay		CON	SL_ME	Hrs	40		4,576		4,576	25%
1	**06**						**X-RAY END STATION SYSTEMS**					**65,935**	**8,557,000**	**6,642,172**	**9,579,121**	**16,221,293**	
1	**06**	**01**					**System Management & Integration**					**18,184**	**50,000**	**1,877,519**	**63,400**	**1,940,919**	
1	**06**	**01**	**01**				**Management**					**18,184**	**50,000**	**1,877,519**	**63,400**	**1,940,919**	
1	06	01	01			XE_0302	Travel FY-04		PED	SL_MSTR	$$		10,000		12,000	12,000	0%
1	06	01	01			XE_0172	Management & Oversight - 2		PED	SL_PHSS	Hrs	2,560		230,554		230,554	0%
1	06	01	01			XE_0172	Management & Oversight - 2		PED	SL_PHS	Hrs	672		47,551		47,551	0%
1	06	01	01			XE_0172	Management & Oversight - 2		PED	SL_EE	Hrs	896		97,969		97,969	0%
1	06	01	01			XE_0452	Travel FY-05		PED	SL_MSTR	$$		10,000		12,300	12,300	0%
1	06	01	01			XE_01722	Management & Oversight - 3		PED	SL_PHSS	Hrs	1,757		162,821		162,821	0%
1	06	01	01			XE_01722	Management & Oversight - 3		PED	SL_EE	Hrs	1,757		197,680		197,680	0%
1	06	01	01			XE_0462	Travel FY-06		CON	SL_MSTR	$$		10,000		12,700	12,700	0%
1	06	01	01			XE_033	Management & Oversight - 4		CON	SL_PHSS	Hrs	5,271		515,311		515,311	0%
1	06	01	01			XE_033	Management & Oversight - 4		CON	SL_EE	Hrs	5,271		625,633		625,633	0%
1	06	01	01			XE_0472	Travel FY-07		CON	SL_MSTR	$$		10,000		13,000	13,000	0%
1	06	01	01			XE_0482	Travel FY-08		CON	SL_MSTR	$$		10,000		13,400	13,400	0%
1	**06**	**02**					**Controls Subsystem**					**18,256**	**3,275,000**	**1,889,292**	**3,752,888**	**5,642,180**	
1	**06**	**02**	**01**				**Cabling**					**2,520**	**111,000**	**290,679**	**127,650**	**418,329**	
1	**06**	**02**	**01**	**01**			**Front End Enclosure Cable**					**1,060**	**20,000**	**123,278**	**23,000**	**146,278**	
1	06	02	01	01		XE_0201	Specification FEE - Cabling		PED	SL_PHS	Hrs	20		1,536		1,536	15%
1	06	02	01	01		XE_0201	Specification FEE - Cabling		PED	SL_EE	Hrs	80		9,494		9,494	15%
1	06	02	01	01		XE_0201	Specification FEE - Cabling		PED	SL_CE	Hrs	40		4,747		4,747	15%
1	06	02	01	01		XE_0202	Design FEE - Cabling		CON	SL_PHS	Hrs	40		3,072		3,072	15%
1	06	02	01	01		XE_0202	Design FEE - Cabling		CON	SL_EE	Hrs	80		9,494		9,494	15%
1	06	02	01	01		XE_0202	Design FEE - Cabling		CON	SL_CE	Hrs	160		18,987		18,987	15%
1	06	02	01	01		XE_168	Prepare Bid Pkg FEE Cable & Cable Tray - Cabling		CON	SL_EE	Hrs	160		18,987		18,987	15%
1	06	02	01	01		XE_168	Prepare Bid Pkg FEE Cable & Cable Tray - Cabling		CON	SL_CE	Hrs	160		18,987		18,987	15%
1	06	02	01	01		XE_158	Prepare Bid Pkg FEE Racks & Panels - Cabling		CON	SL_EE	Hrs	160		18,987		18,987	15%
1	06	02	01	01		XE_158	Prepare Bid Pkg FEE Racks & Panels - Cabling		CON	SL_CE	Hrs	160		18,987		18,987	15%
1	06	02	01	01		XE_156	Vendor Fab/Ship FEE Racks & Panels - Cabling		CON	SL_MSEQ	$$		10,000		11,500	11,500	15%
1	06	02	01	01		XE_141	Vendor Fab/Ship FEE Cable & Cable Tray - Cabling		CON	SL_MSEQ	$$		10,000		11,500	11,500	15%
1	**06**	**02**	**01**	**02**			**Near Hall Cable**					**580**	**28,000**	**66,318**	**32,200**	**98,518**	
1	06	02	01	02		XE_0272	Specification Near Hall - Cabling		PED	SL_PHS	Hrs	20		1,536		1,536	15%
1	06	02	01	02		XE_0272	Specification Near Hall - Cabling		PED	SL_EE	Hrs	80		9,494		9,494	15%
1	06	02	01	02		XE_0272	Specification Near Hall - Cabling		PED	SL_CE	Hrs	40		4,747		4,747	15%
1	06	02	01	02		XE_0292	Design Near Hall - Cabling		CON	SL_PHS	Hrs	40		3,072		3,072	15%
1	06	02	01	02		XE_0292	Design Near Hall - Cabling		CON	SL_EE	Hrs	80		9,494		9,494	15%
1	06	02	01	02		XE_0292	Design Near Hall - Cabling		CON	SL_CE	Hrs	160		18,987		18,987	15%
1	06	02	01	02		XE_2520	Prepare Bid Pkg NH Cable & Cable Tray - Cabling		CON	SL_EE	Hrs	40		4,747		4,747	15%
1	06	02	01	02		XE_2520	Prepare Bid Pkg NH Cable & Cable Tray - Cabling		CON	SL_CE	Hrs	40		4,747		4,747	15%
1	06	02	01	02		XE_2519	Prepare Bid Pkg NH Racks & Panels - Cabling		CON	SL_EE	Hrs	40		4,747		4,747	15%
1	06	02	01	02		XE_2519	Prepare Bid Pkg NH Racks & Panels - Cabling		CON	SL_CE	Hrs	40		4,747		4,747	15%
1	06	02	01	02		XE_2526	Vendor Fab/Ship NH Racks & Panels - Cabling		CON	SL_MSEQ	$$		10,000		11,500	11,500	15%
1	06	02	01	02		XE_2525	Vendor Fab/Ship NH Cable & Cable Tray - Cabling		CON	SL_MSEQ	$$		18,000		20,700	20,700	15%
1	**06**	**02**	**01**	**03**			**Tunnel Cable**					**300**	**35,000**	**34,765**	**40,250**	**75,015**	
1	06	02	01	03		XE_0212	Specification Tunnel - Cabling		PED	SL_PHS	Hrs	20		1,536		1,536	15%
1	06	02	01	03		XE_0212	Specification Tunnel - Cabling		PED	SL_EE	Hrs	40		4,747		4,747	15%
1	06	02	01	03		XE_0212	Specification Tunnel - Cabling		PED	SL_CE	Hrs	40		4,747		4,747	15%
1	06	02	01	03		XE_0282	Design Tunnel - Cabling		CON	SL_EE	Hrs	80		9,494		9,494	15%
1	06	02	01	03		XE_0282	Design Tunnel - Cabling		CON	SL_CE	Hrs	80		9,494		9,494	15%
1	06	02	01	03		XE_2501	Prepare Bid Pkg Tunnel Cable/Cable Tray - Cablng		CON	SL_EE	Hrs	40		4,747		4,747	15%
1	06	02	01	03		XE_2506	Vendor Fab/Ship Tunnel Cable/Cable Tray - Cablng		CON	SL_MSEQ	$$		35,000		40,250	40,250	15%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	**06**	**02**	**01**	**04**			**Far Hall Cable**					**580**	**28,000**	**66,318**	**32,200**	**98,518**	
1	06	02	01	04		XE_0325	Specification Far Hall - Cabling		PED	SL_PHS	Hrs	20		1,536		1,536	15%
1	06	02	01	04		XE_0325	Specification Far Hall - Cabling		PED	SL_EE	Hrs	80		9,494		9,494	15%
1	06	02	01	04		XE_0325	Specification Far Hall - Cabling		PED	SL_CE	Hrs	40		4,747		4,747	15%
1	06	02	01	04		XE_0345	Design Far Hall - Cabling		CON	SL_PHS	Hrs	40		3,072		3,072	15%
1	06	02	01	04		XE_0345	Design Far Hall - Cabling		CON	SL_EE	Hrs	80		9,494		9,494	15%
1	06	02	01	04		XE_0345	Design Far Hall - Cabling		CON	SL_CE	Hrs	160		18,987		18,987	15%
1	06	02	01	04		XE_2401	Prepare Bid Pkg Cable & Cable Tray FH - Cabling		CON	SL_EE	Hrs	40		4,747		4,747	15%
1	06	02	01	04		XE_2401	Prepare Bid Pkg Cable & Cable Tray FH - Cabling		CON	SL_CE	Hrs	40		4,747		4,747	15%
1	06	02	01	04		XE_2400	Prepare Bid Pkg Racks & Panels FH - Cabling		CON	SL_EE	Hrs	40		4,747		4,747	15%
1	06	02	01	04		XE_2400	Prepare Bid Pkg Racks & Panels FH - Cabling		CON	SL_CE	Hrs	40		4,747		4,747	15%
1	06	02	01	04		XE_2407	Vendor Fab/Ship Racks & Panels FH - Cabling		CON	SL_MSEQ	$$		10,000		11,500	11,500	15%
1	06	02	01	04		XE_2406	Vendor Fab/Ship Cable & Cable Tray FH - Cabling		CON	SL_MSEQ	$$		18,000		20,700	20,700	15%
1	**06**	**02**	**02**				**Network**					**2,340**	**500,000**	**255,304**	**574,700**	**830,004**	
1	06	02	02			XE_2200	Specification - Network		PED	SL_EE	Hrs	160		18,506		18,506	25%
1	06	02	02			XE_2200	Specification - Network		PED	SL_CE	Hrs	160		18,506		18,506	25%
1	06	02	02			XE_2208	Design Far Hall - Network		CON	SL_PHS	Hrs	40		2,994		2,994	25%
1	06	02	02			XE_2208	Design Far Hall - Network		CON	SL_EE	Hrs	160		18,506		18,506	25%
1	06	02	02			XE_2208	Design Far Hall - Network		CON	SL_CE	Hrs	160		18,506		18,506	25%
1	06	02	02			XE_2205	Design Tunnel - Network		CON	SL_EE	Hrs	40		4,626		4,626	25%
1	06	02	02			XE_2205	Design Tunnel - Network		CON	SL_CE	Hrs	40		4,626		4,626	25%
1	06	02	02			XE_2202	Design Near Hall - Network		CON	SL_PHS	Hrs	20		1,497		1,497	25%
1	06	02	02			XE_2202	Design Near Hall - Network		CON	SL_EE	Hrs	160		18,506		18,506	25%
1	06	02	02			XE_2202	Design Near Hall - Network		CON	SL_CE	Hrs	160		18,506		18,506	25%
1	06	02	02			XE_2201	Design FEE - Network		CON	SL_PHS	Hrs	40		2,994		2,994	25%
1	06	02	02			XE_2201	Design FEE - Network		CON	SL_EE	Hrs	320		37,011		37,011	25%
1	06	02	02			XE_2201	Design FEE - Network		CON	SL_CE	Hrs	320		37,011		37,011	25%
1	06	02	02			XE_2247	Programming FEE - Network		CON	SL_CP	Hrs	160		15,041		15,041	25%
1	06	02	02			XE_2238	Programming Far Hall - Network		CON	SL_CP	Hrs	160		15,041		15,041	25%
1	06	02	02			XE_2235	Programming Tunnel - Network		CON	SL_CP	Hrs	40		3,760		3,760	25%
1	06	02	02			XE_2230	Programming Near Hall - Network		CON	SL_CP	Hrs	160		15,041		15,041	25%
1	06	02	02			XE_2203	Prepare Bid Pkg Electronics - Network		CON	SL_EE	Hrs	40		4,626		4,626	25%
1	06	02	02			XE_2211	Vendor Fab/Ship Electronics - Network		CON	SL_MSEQ	$$		500,000		574,700	574,700	25%
1	**06**	**02**	**03**				**PC Support**					**1,000**	**360,000**	**109,188**	**414,000**	**523,188**	
1	06	02	03			XE_2255	Specification - PC Support		PED	SL_EE	Hrs	40		4,626		4,626	15%
1	06	02	03			XE_2255	Specification - PC Support		PED	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	03			XE_2257	Design Near Hall - PC Support		CON	SL_EE	Hrs	80		9,379		9,379	15%
1	06	02	03			XE_2257	Design Near Hall - PC Support		CON	SL_CE	Hrs	80		9,379		9,379	15%
1	06	02	03			XE_2277	Programming Near Hall - PC Support		CON	SL_CP	Hrs	160		15,284		15,284	15%
1	06	02	03			XE_2263	Design Far Hall - PC Support		CON	SL_PHS	Hrs	40		3,072		3,072	15%
1	06	02	03			XE_2263	Design Far Hall - PC Support		CON	SL_EE	Hrs	80		9,494		9,494	15%
1	06	02	03			XE_2263	Design Far Hall - PC Support		CON	SL_CE	Hrs	80		9,494		9,494	15%
1	06	02	03			XE_2287	Programming Far Hall - PC Support		CON	SL_CP	Hrs	160		15,352		15,352	15%
1	06	02	03			XE_2299	Prepare Bid Pkg PCs/Software/Printer - PC Spt		CON	SL_EE	Hrs	40		4,747		4,747	15%
1	06	02	03			XE_2299	Prepare Bid Pkg PCs/Software/Printer - PC Spt		CON	SL_CE	Hrs	40		4,747		4,747	15%
1	06	02	03			XE_2259	Prepare Bid Pkg File Server - PC Support		CON	SL_EE	Hrs	40		4,747		4,747	15%
1	06	02	03			XE_2259	Prepare Bid Pkg File Server - PC Support		CON	SL_CE	Hrs	40		4,747		4,747	15%
1	06	02	03			XE_2258	Prepare Bid Pkg Domain Server - PC Support		CON	SL_EE	Hrs	40		4,747		4,747	15%
1	06	02	03			XE_2258	Prepare Bid Pkg Domain Server - PC Support		CON	SL_CE	Hrs	40		4,747		4,747	15%
1	06	02	03			XE_2297	Vendor Fab/Ship PCs/Software/Printer - PC Spt		CON	SL_MSEQ	$$		200,000		230,000	230,000	15%
1	06	02	03			XE_2267	Vendor Fab/Ship File Server - PC Support		CON	SL_MSEQ	$$		100,000		115,000	115,000	15%
1	06	02	03			XE_2266	Vendor Fab/Ship Domain Server - PC Support		CON	SL_MSEQ	$$		60,000		69,000	69,000	15%
1	**06**	**02**	**04**				**Beamline Controls**					**2,288**	**1,499,000**	**227,066**	**1,717,850**	**1,944,916**	
1	06	02	04			XE_300	Specification High Perf Data Storage - Beam Cntl		PED	SL_PHS	Hrs	16		1,198		1,198	35%
1	06	02	04			XE_300	Specification High Perf Data Storage - Beam Cntl		PED	SL_EE	Hrs	16		1,851		1,851	35%
1	06	02	04			XE_300	Specification High Perf Data Storage - Beam Cntl		PED	SL_CP	Hrs	16		1,496		1,496	35%
1	06	02	04			XE_300	Specification High Perf Data Storage - Beam Cntl		PED	SL_CE	Hrs	40		4,626		4,626	35%
1	06	02	04			XE_2600	Specification - Beamline Controls		PED	SL_PHS	Hrs	80		5,988		5,988	35%
1	06	02	04			XE_2600	Specification - Beamline Controls		PED	SL_EE	Hrs	80		9,253		9,253	35%
1	06	02	04			XE_2600	Specification - Beamline Controls		PED	SL_CE	Hrs	120		13,879		13,879	35%
1	06	02	04			XE_2602	Design Far Hall - Beamline Control		CON	SL_PHS	Hrs	80		6,009		6,009	35%
1	06	02	04			XE_2602	Design Far Hall - Beamline Control		CON	SL_EE	Hrs	120		13,927		13,927	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	06	02	04			XE_2602	Design Far Hall - Beamline Control		CON	SL_CP	Hrs	120		11,261		11,261	35%
1	06	02	04			XE_2602	Design Far Hall - Beamline Control		CON	SL_CE	Hrs	80		9,285		9,285	35%
1	06	02	04			XE_2601	Design Near Hall - Beamline Control		CON	SL_PHS	Hrs	80		6,009		6,009	35%
1	06	02	04			XE_2601	Design Near Hall - Beamline Control		CON	SL_EE	Hrs	80		9,285		9,285	35%
1	06	02	04			XE_2601	Design Near Hall - Beamline Control		CON	SL_CP	Hrs	160		15,015		15,015	35%
1	06	02	04			XE_2601	Design Near Hall - Beamline Control		CON	SL_CE	Hrs	160		18,570		18,570	35%
1	06	02	04			XE_111	Design High Perf Data Storage - Beamline Control		PED	SL_PHS	Hrs	80		5,988		5,988	35%
1	06	02	04			XE_111	Design High Perf Data Storage - Beamline Control		PED	SL_EE	Hrs	80		9,253		9,253	35%
1	06	02	04			XE_111	Design High Perf Data Storage - Beamline Control		PED	SL_CP	Hrs	80		7,482		7,482	35%
1	06	02	04			XE_111	Design High Perf Data Storage - Beamline Control		PED	SL_CE	Hrs	80		9,253		9,253	35%
1	06	02	04			XE_2620	Programming Near Hall - Beamline Control		CON	SL_CP	Hrs	480		44,890		44,890	35%
1	06	02	04			XE_2606	Prep Bid Pkg MC Electronics - Beamline Control		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	02	04			XE_2606	Prep Bid Pkg MC Electronics - Beamline Control		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	02	04			XE_2605	Prepare Bid Pkg MC Software - Beamline Control		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	02	04			XE_2605	Prepare Bid Pkg MC Software - Beamline Control		CON	SL_CP	Hrs	40		3,838		3,838	35%
1	06	02	04			XE_2604	Prep Bid Pkg Rotate/Transl Stage- Beamline Cntrl		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	02	04			XE_301	Prepare Bid Pkg Data Storage - Beamline Control		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	02	04			XE_44	Vendor Fab/Ship Data Storage - Beamline Ctrl - 2		CON	SL_MSXX	$$		100,000		109,000	109,000	35%
1	06	02	04			XE_314	Vendor Ship Computers		CON	SL_MSEQ	$$		179,000		205,850	205,850	35%
1	06	02	04			XE_304	Vendor Fab/Ship Data Storage - Beamline Ctrl - 1		CON	SL_MSEQ	$$		500,000		575,000	575,000	35%
1	06	02	04			XE_2615	Vendor Fab/Ship MC Electronics - Beamline Cntrl		CON	SL_MSEQ	$$		300,000		345,000	345,000	35%
1	06	02	04			XE_2614	Vendor Fab/Ship MC Software - Beamline Control		CON	SL_MSEQ	$$		20,000		23,000	23,000	35%
1	06	02	04			XE_2613	Vendor Fab/Ship Rotate/Transl Stage - Beam Cntl		CON	SL_MSEQ	$$		400,000		460,000	460,000	35%
1	**06**	**02**	**05**				**X-Ray PPS**					**6,244**	**580,000**	**625,680**	**660,986**	**1,286,666**	
1	**06**	**02**	**05**	**01**			**FEE X-Ray PPS**					**1,840**	**175,000**	**184,878**	**199,938**	**384,816**	
1	06	02	05	01		XE_81	Specification FEE - X-Ray PPS		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	05	01		XE_81	Specification FEE - X-Ray PPS		PED	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	01		XE_80	Design FEE - PPS		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	05	01		XE_80	Design FEE - PPS		CON	SL_ME	Hrs	160		17,387		17,387	15%
1	06	02	05	01		XE_80	Design FEE - PPS		CON	SL_MDD	Hrs	160		10,318		10,318	15%
1	06	02	05	01		XE_80	Design FEE - PPS		CON	SL_CE	Hrs	160		18,506		18,506	15%
1	06	02	05	01		XE_90	Safety Review FEE - PPS		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	05	01		XE_90	Safety Review FEE - PPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	01		XE_92	Prepare Bid Pkg FEE Detectors - PPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	01		XE_120	Prepare Bid Pkg FEE Containment/Interlock - PPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	01		XE_12	Prep Bid Pkg NH Beam Stop Hardware - X-Ray PPS		CON	SL_ME	Hrs	80		8,694		8,694	15%
1	06	02	05	01		XE_112	Prep Bid Pkg FEE Beam Stop Hardware - X-Ray PPS		CON	SL_ME	Hrs	80		8,694		8,694	15%
1	06	02	05	01		XE_100	Prepare Bid Pkg FEE Alarms/Signs - PPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	01		XE_222	Bid Process FEE Beam Stop Hardware - X-Ray PPS		CON	SL_ME	Hrs	80		8,694		8,694	15%
1	06	02	05	01		XE_13	Bid Process NH Beam Stop Hardware - X-Ray PPS		CON	SL_ME	Hrs	80		8,694		8,694	15%
1	06	02	05	01		XE_95	Vendor Fab/Ship FEE Detectors - PPS		CON	SL_MSEQ	$$		10,000		11,425	11,425	15%
1	06	02	05	01		XE_242	Vendor Fab/Ship FEE Beam Stop Hardware-X-Ray PPS		CON	SL_MSEQ	$$		150,000		171,375	171,375	15%
1	06	02	05	01		XE_182	Vendor Fab/Ship FEE Containment/Interlock - PPS		CON	SL_MSEQ	$$		5,000		5,713	5,713	15%
1	06	02	05	01		XE_103	Vendor Fab/Ship FEE Alarms/Signs - PPS		CON	SL_MSEQ	$$		10,000		11,425	11,425	15%
1	06	02	05	01		XE_132	Assemble FEE Beam Stop Hardware - X-Ray PPS		CON	SL_MFMS	Hrs	80		8,470		8,470	15%
1	06	02	05	01		XE_132	Assemble FEE Beam Stop Hardware - X-Ray PPS		CON	SL_MFAT	Hrs	320		27,632		27,632	15%
1	06	02	05	01		XE_132	Assemble FEE Beam Stop Hardware - X-Ray PPS		CON	SL_ME	Hrs	320		35,677		35,677	15%
1	**06**	**02**	**05**	**02**			**Near Hall X-Ray PPS**					**1,520**	**175,000**	**150,102**	**199,938**	**350,040**	
1	06	02	05	02		XE_3000	Specification Near Hall - X-Ray PPS		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	05	02		XE_3000	Specification Near Hall - X-Ray PPS		PED	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	02		XE_3001	Design Near Hall - X-Ray PPS		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	05	02		XE_3001	Design Near Hall - X-Ray PPS		CON	SL_ME	Hrs	160		17,387		17,387	15%
1	06	02	05	02		XE_3001	Design Near Hall - X-Ray PPS		CON	SL_MDD	Hrs	160		10,318		10,318	15%
1	06	02	05	02		XE_3001	Design Near Hall - X-Ray PPS		CON	SL_CE	Hrs	160		18,506		18,506	15%
1	06	02	05	02		XE_3031	Safety Review Near Hall - X-Ray PPS		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	05	02		XE_3031	Safety Review Near Hall - X-Ray PPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	02		XE_3005	Prepare Near Hall Bid Pkg Detectors - X-Ray PPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	02		XE_3004	Prep Bid Pkg NHall Contain/Interlock - X-Ray PPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	02		XE_3003	Prepare Bid Pkg Near Hall Alarms/Signs-X-RayPPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	02		XE_3014	Vendor Fab/Ship Near Hall Detectors -X-Ray PPS		CON	SL_MSEQ	$$		10,000		11,425	11,425	15%
1	06	02	05	02		XE_3013	Vendor Fab/Ship NHall Contain/Interlock-X-RayPPS		CON	SL_MSEQ	$$		5,000		5,713	5,713	15%
1	06	02	05	02		XE_3012	Vendor Fab/Ship Near Hall Alarms/Signs-X-Ray PPS		CON	SL_MSEQ	$$		10,000		11,425	11,425	15%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	06	02	05	02		XE_15	Vendor Fab/Ship NH Beam Stop Hardware-X-Ray PPS		CON	SL_MSEQ	$$		150,000		171,375	171,375	15%
1	06	02	05	02		XE_17	Assemble NH Beam Stop Hardware - X-Ray PPS		CON	SL_MFMS	Hrs	80		8,470		8,470	15%
1	06	02	05	02		XE_17	Assemble NH Beam Stop Hardware - X-Ray PPS		CON	SL_MFAT	Hrs	320		27,632		27,632	15%
1	06	02	05	02		XE_17	Assemble NH Beam Stop Hardware - X-Ray PPS		CON	SL_ME	Hrs	320		35,677		35,677	15%
1	**06**	**02**	**05**	**03**			**Tunnel X-Ray PPS**					**1,702**	**175,000**	**170,393**	**198,047**	**368,440**	
1	06	02	05	03		XE_400	Specification Tunnel - X-Ray PPS		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	05	03		XE_400	Specification Tunnel - X-Ray PPS		PED	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	03		XE_401	Design Tunnel - X-Ray PPS		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	05	03		XE_401	Design Tunnel - X-Ray PPS		CON	SL_ME	Hrs	160		17,387		17,387	15%
1	06	02	05	03		XE_401	Design Tunnel - X-Ray PPS		CON	SL_MDD	Hrs	160		10,318		10,318	15%
1	06	02	05	03		XE_401	Design Tunnel - X-Ray PPS		CON	SL_CE	Hrs	160		18,506		18,506	15%
1	06	02	05	03		XE_451	Safety Review Tunnel - X-Ray PPS		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	05	03		XE_451	Safety Review Tunnel - X-Ray PPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	03		XE_405	Prepare Bid Pkg Tunnel Detectors - X-Ray PPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	03		XE_404	Prep Bid Pkg Tunnel Containmt/Interlock-X-RayPPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	03		XE_403	Prepare Bid Pkg Tunnel Alarms/Signs - X-Ray PPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	03		XE_2333	Procure Beam Stop Hardware		CON	SL_MSEQ	$$		150,000		169,484	169,484	15%
1	06	02	05	03		XE_414	Vendor Fab/Ship Tunnel Detectors - X-Ray PPS		CON	SL_MSEQ	$$		10,000		11,425	11,425	15%
1	06	02	05	03		XE_413	Vendor Ship Tunnel Contain/Interlock-X-RayPPS		CON	SL_MSEQ	$$		5,000		5,713	5,713	15%
1	06	02	05	03		XE_412	Vendor Fab/Ship Tunnel Alarms/Signs - X-Ray PPS		CON	SL_MSEQ	$$		10,000		11,425	11,425	15%
1	06	02	05	03		XE_233	Procure Beam Stop Hardware		CON	SL_ME	Hrs	182		20,291		20,291	15%
1	06	02	05	03		XE_23336	Assemble Beam Stop Hardware		CON	SL_MFMS	Hrs	80		8,470		8,470	15%
1	06	02	05	03		XE_23336	Assemble Beam Stop Hardware		CON	SL_MFAT	Hrs	320		27,632		27,632	15%
1	06	02	05	03		XE_23336	Assemble Beam Stop Hardware		CON	SL_ME	Hrs	320		35,677		35,677	15%
1	**06**	**02**	**05**	**04**			**Far Hall X-Ray PPS**					**1,182**	**55,000**	**120,307**	**63,063**	**183,370**	
1	06	02	05	04		XE_425	Specification Far Hall - PPS		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	05	04		XE_425	Specification Far Hall - PPS		PED	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	04		XE_426	Design Far Hall - PPS		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	05	04		XE_426	Design Far Hall - PPS		CON	SL_ME	Hrs	80		8,694		8,694	15%
1	06	02	05	04		XE_426	Design Far Hall - PPS		CON	SL_MDD	Hrs	80		5,159		5,159	15%
1	06	02	05	04		XE_426	Design Far Hall - PPS		CON	SL_CE	Hrs	160		18,506		18,506	15%
1	06	02	05	04		XE_456	Safety Review Far Hall - PPS		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	05	04		XE_456	Safety Review Far Hall - PPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	04		XE_4447	Procure Beam Stop Hardware		CON	SL_ME	Hrs	182		19,947		19,947	15%
1	06	02	05	04		XE_430	Prepare Far Hall Bid Pkg Detectors - PPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	04		XE_429	Prep Bid Pkg Far Hall Contain/Interlock - PPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	04		XE_428	Prepare Bid Pkg Far Hall Alarms/Signs - PPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	05	04		XE_439	Vendor Fab/Ship Far Hall Detectors - PPS		CON	SL_MSEQ	$$		10,000		11,425	11,425	15%
1	06	02	05	04		XE_438	Vendor Fab/Ship Far Hall Contain/Interlock- PPS		CON	SL_MSEQ	$$		5,000		5,713	5,713	15%
1	06	02	05	04		XE_437	Vendor Fab/Ship Far Hall Alarms/Signs - PPS		CON	SL_MSEQ	$$		10,000		11,425	11,425	15%
1	06	02	05	04		XE_44478	Procure Beam Stop Hardware		CON	SL_MSEQ	$$		30,000		34,500	34,500	15%
1	06	02	05	04		XE_44479	Assemble Beam Stop Hardware		CON	SL_MFMS	Hrs	40		4,235		4,235	15%
1	06	02	05	04		XE_44479	Assemble Beam Stop Hardware		CON	SL_MFAT	Hrs	160		13,816		13,816	15%
1	06	02	05	04		XE_44479	Assemble Beam Stop Hardware		CON	SL_ME	Hrs	160		17,838		17,838	15%
1	**06**	**02**	**06**				**X-Ray MPS**					**2,240**	**140,000**	**220,872**	**159,952**	**380,824**	
1	**06**	**02**	**06**	**01**			**FEE X-Ray MPS**					**560**	**35,000**	**55,218**	**39,988**	**95,206**	
1	06	02	06	01		XE_5015	Specification FEE - MPS		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	06	01		XE_5015	Specification FEE - MPS		PED	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	01		XE_5014	Design FEE - MPS		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	06	01		XE_5014	Design FEE - MPS		CON	SL_ME	Hrs	80		8,694		8,694	15%
1	06	02	06	01		XE_5014	Design FEE - MPS		CON	SL_MDD	Hrs	80		5,159		5,159	15%
1	06	02	06	01		XE_5014	Design FEE - MPS		CON	SL_CE	Hrs	80		9,253		9,253	15%
1	06	02	06	01		XE_5104	Safety Review - MPS		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	06	01		XE_5104	Safety Review - MPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	01		XE_5017	Prepare Bid Pkg FEE Valves - MPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	01		XE_5007	Prepare Bid Pkg FEE Interlocks - MPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	01		XE_5000	Prepare Bid Pkg FEE Sensors - MPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	01		XE_5020	Vendor Fab/Ship FEE Valves - MPS		CON	SL_MSEQ	$$		20,000		22,850	22,850	15%
1	06	02	06	01		XE_5010	Vendor Fab/Ship FEE Interlocks - MPS		CON	SL_MSEQ	$$		5,000		5,713	5,713	15%
1	06	02	06	01		XE_5003	Vendor Fab/Ship FEE Sensors - MPS		CON	SL_MSEQ	$$		10,000		11,425	11,425	15%
1	**06**	**02**	**06**	**02**			**Near Hall X-Ray MPS**					**560**	**35,000**	**55,218**	**39,988**	**95,206**	
1	06	02	06	02		XE_5024	Specification Near Hall - MPS		PED	SL_PHS	Hrs	40		2,994		2,994	15%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	06	02	06	02		XE_5024	Specification Near Hall - MPS		PED	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	02		XE_5025	Design Near Hall - MPS		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	06	02		XE_5025	Design Near Hall - MPS		CON	SL_ME	Hrs	80		8,694		8,694	15%
1	06	02	06	02		XE_5025	Design Near Hall - MPS		CON	SL_MDD	Hrs	80		5,159		5,159	15%
1	06	02	06	02		XE_5025	Design Near Hall - MPS		CON	SL_CE	Hrs	80		9,253		9,253	15%
1	06	02	06	02		XE_5114	Safety Review - MPS		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	06	02		XE_5114	Safety Review - MPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	02		XE_5029	Prepare Near Hall Bid Pkg Valves - MPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	02		XE_5028	Prep Bid Pkg Near Hall Interlocks - MPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	02		XE_5027	Prepare Bid Pkg Near Hall Sensors - MPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	02		XE_5038	Vendor Fab/Ship Near Hall Valves - MPS		CON	SL_MSEQ	$$		20,000		22,850	22,850	15%
1	06	02	06	02		XE_5037	Vendor Fab/Ship Near Hall Interlocks- MPS		CON	SL_MSEQ	$$		5,000		5,713	5,713	15%
1	06	02	06	02		XE_5036	Vendor Fab/Ship Near Hall Sensors - MPS		CON	SL_MSEQ	$$		10,000		11,425	11,425	15%
1	**06**	**02**	**06**	**03**			**Tunnel X-Ray MPS**					**560**	**35,000**	**55,218**	**39,988**	**95,206**	
1	06	02	06	03		XE_5048	Specification Tunnel - MPS		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	06	03		XE_5048	Specification Tunnel - MPS		PED	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	03		XE_5049	Design Tunnel - MPS		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	06	03		XE_5049	Design Tunnel - MPS		CON	SL_ME	Hrs	80		8,694		8,694	15%
1	06	02	06	03		XE_5049	Design Tunnel - MPS		CON	SL_MDD	Hrs	80		5,159		5,159	15%
1	06	02	06	03		XE_5049	Design Tunnel - MPS		CON	SL_CE	Hrs	80		9,253		9,253	15%
1	06	02	06	03		XE_5098	Safety Review - MPS		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	06	03		XE_5098	Safety Review - MPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	03		XE_5053	Prepare Bid Pkg Tunnel Valves - MPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	03		XE_5052	Prep Bid Pkg Tunnel Interlocks - MPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	03		XE_5051	Prepare Bid Pkg Tunnel Sensors - MPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	03		XE_5062	Vendor Fab/Ship Tunnel Valves - MPS		CON	SL_MSEQ	$$		20,000		22,850	22,850	15%
1	06	02	06	03		XE_5061	Vendor Fab/Ship Tunnel Interlocks - MPS		CON	SL_MSEQ	$$		5,000		5,713	5,713	15%
1	06	02	06	03		XE_5060	Vendor Fab/Ship Tunnel Sensors - MPS		CON	SL_MSEQ	$$		10,000		11,425	11,425	15%
1	**06**	**02**	**06**	**04**			**Far Hall X-Ray MPS**					**560**	**35,000**	**55,218**	**39,988**	**95,206**	
1	06	02	06	04		XE_5072	Specification Far Hall - MPS		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	06	04		XE_5072	Specification Far Hall - MPS		PED	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	04		XE_5073	Design Far Hall - MPS		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	06	04		XE_5073	Design Far Hall - MPS		CON	SL_ME	Hrs	80		8,694		8,694	15%
1	06	02	06	04		XE_5073	Design Far Hall - MPS		CON	SL_MDD	Hrs	80		5,159		5,159	15%
1	06	02	06	04		XE_5073	Design Far Hall - MPS		CON	SL_CE	Hrs	80		9,253		9,253	15%
1	06	02	06	04		XE_5102	Safety Review - MPS		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	06	04		XE_5102	Safety Review - MPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	04		XE_5077	Prepare Far Hall Bid Pkg Valves - MPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	04		XE_5076	Prep Bid Pkg Far Hall Interlocks - MPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	04		XE_5075	Prepare Bid Pkg Far Hall Sensors - MPS		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	06	04		XE_5086	Vendor Fab/Ship Far Hall Valves - MPS		CON	SL_MSEQ	$$		20,000		22,850	22,850	15%
1	06	02	06	04		XE_5085	Vendor Fab/Ship Far Hall Interlocks- MPS		CON	SL_MSEQ	$$		5,000		5,713	5,713	15%
1	06	02	06	04		XE_5084	Vendor Fab/Ship Far Hall Sensors - MPS		CON	SL_MSEQ	$$		10,000		11,425	11,425	15%
1	**06**	**02**	**07**				**Laser PPS**					**920**	**35,000**	**91,073**	**40,250**	**131,323**	
1	**06**	**02**	**07**	**01**			**Near Hall Laser PPS**					**440**	**15,000**	**43,163**	**17,250**	**60,413**	
1	06	02	07	01		XE_2700	Specification - Near Hall - Laser PPS		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	07	01		XE_2701	Design Near Hall - Laser PPS		CON	SL_PHS	Hrs	120		8,982		8,982	15%
1	06	02	07	01		XE_2701	Design Near Hall - Laser PPS		CON	SL_CE	Hrs	120		13,879		13,879	15%
1	06	02	07	01		XE_2703	Safety Review Near Hall - Laser PPS		CON	SL_PHS	Hrs	40		3,070		3,070	15%
1	06	02	07	01		XE_2703	Safety Review Near Hall - Laser PPS		CON	SL_CE	Hrs	40		4,744		4,744	15%
1	06	02	07	01		XE_2705	Prep Bid Pkg NHall Contain/Interlck - Laser PPS		CON	SL_CE	Hrs	40		4,747		4,747	15%
1	06	02	07	01		XE_2704	Prep Bid Pkg Near Hall Alarms/Signs - Laser PPS		CON	SL_CE	Hrs	40		4,747		4,747	15%
1	06	02	07	01		XE_2714	Vendor Ship Near Hall Contain/Intrlck-Laser PPS		CON	SL_MSEQ	$$		5,000		5,750	5,750	15%
1	06	02	07	01		XE_2713	Vendor Fab/Ship Near Hall Alarm/Sign - Laser PPS		CON	SL_MSEQ	$$		10,000		11,500	11,500	15%
1	**06**	**02**	**07**	**02**			**Far Hall Laser PPS**					**480**	**20,000**	**47,910**	**23,000**	**70,910**	
1	06	02	07	02		XE_7301	Specification Far Hall - Laser PPS		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	07	02		XE_7311	Design Far Hall - Laser PPS		CON	SL_PHS	Hrs	120		8,982		8,982	15%
1	06	02	07	02		XE_7311	Design Far Hall - Laser PPS		CON	SL_CE	Hrs	120		13,879		13,879	15%
1	06	02	07	02		XE_7331	Safety Review Far Hall - Laser PPS		CON	SL_PHS	Hrs	40		3,070		3,070	15%
1	06	02	07	02		XE_7331	Safety Review Far Hall - Laser PPS		CON	SL_CE	Hrs	40		4,744		4,744	15%
1	06	02	07	02		XE_7361	Prepare Bid Pkg Far Hall Detectors - Laser PPS		CON	SL_CE	Hrs	40		4,747		4,747	15%
1	06	02	07	02		XE_7351	Prep Bid Pkg FHall Contain/Interlck - Laser PPS		CON	SL_CE	Hrs	40		4,747		4,747	15%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	06	02	07	02		XE_7341	Prep Bid Pkg Far Hall Alarms/Signs - Laser PPS		CON	SL_CE	Hrs	40		4,747		4,747	15%
1	06	02	07	02		XE_7451	Vendor Fab/Ship Far Hall Detectors - Laser PPS		CON	SL_MSEQ	$$		5,000		5,750	5,750	15%
1	06	02	07	02		XE_7441	Vendor Ship Far Hall Contain/Intrlck-Laser PPS		CON	SL_MSEQ	$$		5,000		5,750	5,750	15%
1	06	02	07	02		XE_7431	Vendor Fab/Ship Far Hall Alarm/Sign - Laser PPS		CON	SL_MSEQ	$$		10,000		11,500	11,500	15%
1	**06**	**02**	**08**				**User Safeguards**					**704**	**50,000**	**69,430**	**57,500**	**126,930**	
1	**06**	**02**	**08**	**01**			**Near Hall User Safeguards**					**400**	**25,000**	**39,596**	**28,750**	**68,346**	
1	06	02	08	01		XE_900	Specification Near Hall - User Safeguards		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	08	01		XE_901	Design Near Hall - User Safeguards		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	08	01		XE_901	Design Near Hall - User Safeguards		CON	SL_ME	Hrs	40		4,347		4,347	15%
1	06	02	08	01		XE_901	Design Near Hall - User Safeguards		CON	SL_MDD	Hrs	40		2,580		2,580	15%
1	06	02	08	01		XE_901	Design Near Hall - User Safeguards		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	08	01		XE_903	Safety Review Near Hall - User Safeguards		CON	SL_PHS	Hrs	40		3,070		3,070	15%
1	06	02	08	01		XE_903	Safety Review Near Hall - User Safeguards		CON	SL_CE	Hrs	40		4,744		4,744	15%
1	06	02	08	01		XE_906	Prepare Near Hall Bid Pkg Detectors - User Safeg		CON	SL_CE	Hrs	40		4,747		4,747	15%
1	06	02	08	01		XE_905	Prep Bid Pkg NHall Interlock - User Safeguards		CON	SL_CE	Hrs	40		4,747		4,747	15%
1	06	02	08	01		XE_904	Prep Bid Pkg Near Hall Alarms/Signs - User Safeg		CON	SL_CE	Hrs	40		4,747		4,747	15%
1	06	02	08	01		XE_915	Vendor Fab/Ship Near Hall Detectors - User Safeg		CON	SL_MSEQ	$$		15,000		17,250	17,250	15%
1	06	02	08	01		XE_914	Vendor Ship Near Hall Intrlock-User Safeguards		CON	SL_MSEQ	$$		5,000		5,750	5,750	15%
1	06	02	08	01		XE_913	Vendor Fab/Ship Near Hall Alarm/Sign - User Safe		CON	SL_MSEQ	$$		5,000		5,750	5,750	15%
1	**06**	**02**	**08**	**02**			**Far Hall User Safeguards**					**304**	**25,000**	**29,834**	**28,750**	**58,584**	
1	06	02	08	02		XE_850	Specification Far Hall - User Safeguards		PED	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	08	02		XE_851	Design Far Hall - User Safeguards		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	02	08	02		XE_851	Design Far Hall - User Safeguards		CON	SL_ME	Hrs	40		4,347		4,347	15%
1	06	02	08	02		XE_851	Design Far Hall - User Safeguards		CON	SL_MDD	Hrs	40		2,580		2,580	15%
1	06	02	08	02		XE_851	Design Far Hall - User Safeguards		CON	SL_CE	Hrs	40		4,626		4,626	15%
1	06	02	08	02		XE_853	Safety Review Far Hall - User Safeguards		CON	SL_PHS	Hrs	40		3,070		3,070	15%
1	06	02	08	02		XE_853	Safety Review Far Hall - User Safeguards		CON	SL_CE	Hrs	40		4,744		4,744	15%
1	06	02	08	02		XE_856	Prepare Far Hall Bid Pkg Detectors - User Safegu		CON	SL_CE	Hrs	8		949		949	15%
1	06	02	08	02		XE_855	Prep Bid Pkg Far Hall Interlock - User Safeguard		CON	SL_CE	Hrs	8		949		949	15%
1	06	02	08	02		XE_854	Prep Bid Pkg Far Hall Alarms/Signs - User Safegu		CON	SL_CE	Hrs	8		949		949	15%
1	06	02	08	02		XE_865	Vendor Fab/Ship Far Hall Detectors - User Safegu		CON	SL_MSEQ	$$		15,000		17,250	17,250	15%
1	06	02	08	02		XE_864	Vendor Ship Far Hall Contain/Intrlck-User Safegu		CON	SL_MSEQ	$$		5,000		5,750	5,750	15%
1	06	02	08	02		XE_863	Vendor Fab/Ship Far Hall Alarm/Sign - User Safeg		CON	SL_MSEQ	$$		5,000		5,750	5,750	15%
1	**06**	**03**					**Mechanical/Vacuum Subsystem**					**3,600**	**280,000**	**354,356**	**321,400**	**675,756**	
1	**06**	**03**	**01**				**Chamber Support Tables - Mech/Vac**					**640**	**20,000**	**62,146**	**22,400**	**84,546**	
1	06	03	01			XE_503	Specification - Chamber Spt Table		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	03	01			XE_503	Specification - Chamber Spt Table		PED	SL_ME	Hrs	40		4,347		4,347	15%
1	06	03	01			XE_504	Design - Chamber Spt Table		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	03	01			XE_504	Design - Chamber Spt Table		PED	SL_ME	Hrs	160		17,387		17,387	15%
1	06	03	01			XE_505	Design Review - Chamber Spt Table		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	03	01			XE_505	Design Review - Chamber Spt Table		PED	SL_ME	Hrs	40		4,347		4,347	15%
1	06	03	01			XE_507	Prep Bid Pkg Metal Products - Chamber Spt Table		CON	SL_ME	Hrs	40		4,347		4,347	15%
1	06	03	01			XE_510	Vendor Fab/Ship Metal Products-Chamber Spt Table		CON	SL_MSEQ	$$		20,000		22,400	22,400	15%
1	06	03	01			XE_515	Assemble Near Hall - Chamber Spt Table		CON	SL_MFAT	Hrs	80		6,908		6,908	15%
1	06	03	01			XE_515	Assemble Near Hall - Chamber Spt Table		CON	SL_ME	Hrs	40		4,460		4,460	15%
1	06	03	01			XE_512	Assemble Far Hall - Chamber Spt Table		CON	SL_MFAT	Hrs	80		6,908		6,908	15%
1	06	03	01			XE_512	Assemble Far Hall - Chamber Spt Table		CON	SL_ME	Hrs	40		4,460		4,460	15%
1	**06**	**03**	**02**				**Vacuum Components - Mech/Vac**					**2,080**	**210,000**	**206,256**	**241,500**	**447,756**	
1	**06**	**03**	**02**	**01**			**Valves - Vacuum**					**600**	**100,000**	**58,586**	**115,000**	**173,586**	
1	06	03	02	01		XE_2760	Specification Valve - Vacuum		PED	SL_PHS	Hrs	40		3,021		3,021	15%
1	06	03	02	01		XE_2760	Specification Valve - Vacuum		PED	SL_MVE	Hrs	40		4,386		4,386	15%
1	06	03	02	01		XE_2761	Design Valve - Vacuum		PED	SL_PHS	Hrs	40		3,072		3,072	15%
1	06	03	02	01		XE_2761	Design Valve - Vacuum		PED	SL_MVE	Hrs	80		8,919		8,919	15%
1	06	03	02	01		XE_2762	Design Review Valves - Vacuum		PED	SL_PHS	Hrs	40		3,072		3,072	15%
1	06	03	02	01		XE_2762	Design Review Valves - Vacuum		PED	SL_MVE	Hrs	40		4,460		4,460	15%
1	06	03	02	01		XE_2800	Prep Bid Pkg Beryllium Valve - Vacuum		CON	SL_MVE	Hrs	40		4,460		4,460	15%
1	06	03	02	01		XE_2764	Prep Bid Pkg Isolation Valve - Vacuum		CON	SL_MVE	Hrs	40		4,460		4,460	15%
1	06	03	02	01		XE_2803	Vendor Fab/Ship Beryllium Valve - Vacuum		CON	SL_MSEQ	$$		50,000		57,500	57,500	15%
1	06	03	02	01		XE_2767	Vendor Fab/Ship Isolation Valve - Vacuum		CON	SL_MSEQ	$$		50,000		57,500	57,500	15%
1	06	03	02	01		XE_2805	Assemble Far Hall Valve - Vacuum		CON	SL_MVE	Hrs	40		4,460		4,460	15%
1	06	03	02	01		XE_2805	Assemble Far Hall Valve - Vacuum		CON	SL_MFAT	Hrs	80		6,908		6,908	15%
1	06	03	02	01		XE_2781	Assemble Near Hall Valve - Vacuum		CON	SL_MVE	Hrs	40		4,460		4,460	15%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	06	03	02	01		XE_2781	Assemble Near Hall Valve - Vacuum		CON	SL_MFAT	Hrs	80		6,908		6,908	15%
1	**06**	**03**	**02**	**02**			**Hardware - Vacuum**					**520**	**25,000**	**51,054**	**28,750**	**79,804**	
1	06	03	02	02		XE_2900	Specification - Vacuum Hardware		PED	SL_PHS	Hrs	40		3,021		3,021	15%
1	06	03	02	02		XE_2900	Specification - Vacuum Hardware		PED	SL_MVE	Hrs	40		4,386		4,386	15%
1	06	03	02	02		XE_2901	Design - Vacuum Hardware		PED	SL_MVE	Hrs	80		8,919		8,919	15%
1	06	03	02	02		XE_2902	Design Review - Vacuum Hardware		PED	SL_PHS	Hrs	40		3,072		3,072	15%
1	06	03	02	02		XE_2902	Design Review - Vacuum Hardware		PED	SL_MVE	Hrs	40		4,460		4,460	15%
1	06	03	02	02		XE_2905	Prep Bid Pkg - Vacuum Hardware		CON	SL_MVE	Hrs	40		4,460		4,460	15%
1	06	03	02	02		XE_2911	Vendor Fab/Ship - Vacuum Hardware		CON	SL_MSEQ	$$		25,000		28,750	28,750	15%
1	06	03	02	02		XE_2926	Assemble Far Hall - Vacuum Hardware		CON	SL_MVE	Hrs	40		4,460		4,460	15%
1	06	03	02	02		XE_2926	Assemble Far Hall - Vacuum Hardware		CON	SL_MFAT	Hrs	80		6,908		6,908	15%
1	06	03	02	02		XE_2918	Assemble Near Hall - Vacuum Hardware		CON	SL_MVE	Hrs	40		4,460		4,460	15%
1	06	03	02	02		XE_2918	Assemble Near Hall - Vacuum Hardware		CON	SL_MFAT	Hrs	80		6,908		6,908	15%
1	**06**	**03**	**02**	**03**			**Ion Pump - Vacuum**					**360**	**25,000**	**36,665**	**28,750**	**65,415**	
1	06	03	02	03		XE_2933	Specification Ion Pump - Vacuum		PED	SL_MVE	Hrs	40		4,386		4,386	15%
1	06	03	02	03		XE_2934	Design Ion Pump - Vacuum		PED	SL_MVE	Hrs	80		8,919		8,919	15%
1	06	03	02	03		XE_2935	Design Review Ion Pump - Vacuum		PED	SL_PHS	Hrs	40		3,072		3,072	15%
1	06	03	02	03		XE_2935	Design Review Ion Pump - Vacuum		PED	SL_MVE	Hrs	40		4,460		4,460	15%
1	06	03	02	03		XE_2940	Vendor Fab/Ship Ion Pump - Vacuum		CON	SL_MSEQ	$$		25,000		28,750	28,750	15%
1	06	03	02	03		XE_2988	Assemble Near Hall Ion Pump - Vacuum		CON	SL_MVE	Hrs	40		4,460		4,460	15%
1	06	03	02	03		XE_2988	Assemble Near Hall Ion Pump - Vacuum		CON	SL_MFAT	Hrs	40		3,454		3,454	15%
1	06	03	02	03		XE_2954	Assemble Far Hall Ion Pump - Vacuum		CON	SL_MVE	Hrs	40		4,460		4,460	15%
1	06	03	02	03		XE_2954	Assemble Far Hall Ion Pump - Vacuum		CON	SL_MFAT	Hrs	40		3,454		3,454	15%
1	**06**	**03**	**02**	**04**			**Turbo Pump - Vacuum**					**400**	**50,000**	**39,114**	**57,500**	**96,614**	
1	06	03	02	04		XE_2960	Specification Turbo Pump - Vacuum		PED	SL_MVE	Hrs	40		4,386		4,386	15%
1	06	03	02	04		XE_2961	Design Turbo Pump - Vacuum		PED	SL_MVE	Hrs	40		4,460		4,460	15%
1	06	03	02	04		XE_2962	Design Review Turbo Pump - Vacuum		PED	SL_PHS	Hrs	40		3,072		3,072	15%
1	06	03	02	04		XE_2962	Design Review Turbo Pump - Vacuum		PED	SL_MVE	Hrs	40		4,460		4,460	15%
1	06	03	02	04		XE_2964	Prep Bid Pkg Turbo Pump - Vacuum		CON	SL_MVE	Hrs	40		4,460		4,460	15%
1	06	03	02	04		XE_2967	Vendor Fab/Ship Turbo Pump - Vacuum		CON	SL_MSEQ	$$		50,000		57,500	57,500	15%
1	06	03	02	04		XE_29998	Assemble FH Turbo Pump - Vacuum		CON	SL_MVE	Hrs	20		2,230		2,230	15%
1	06	03	02	04		XE_29998	Assemble FH Turbo Pump - Vacuum		CON	SL_MFAT	Hrs	80		6,908		6,908	15%
1	06	03	02	04		XE_2969	Assemble NH Turbo Pump - Vacuum		CON	SL_MVE	Hrs	20		2,230		2,230	15%
1	06	03	02	04		XE_2969	Assemble NH Turbo Pump - Vacuum		CON	SL_MFAT	Hrs	80		6,908		6,908	15%
1	**06**	**03**	**02**	**05**			**Gauges - Vacuum**					**200**	**10,000**	**20,837**	**11,500**	**32,337**	
1	06	03	02	05		XE_800	Specification Gauges - Vacuum		PED	SL_MVE	Hrs	40		4,386		4,386	15%
1	06	03	02	05		XE_801	Design Gauges - Vacuum		PED	SL_MVE	Hrs	80		8,919		8,919	15%
1	06	03	02	05		XE_802	Design Review Gauges - Vacuum		PED	SL_PHS	Hrs	40		3,072		3,072	15%
1	06	03	02	05		XE_802	Design Review Gauges - Vacuum		PED	SL_MVE	Hrs	40		4,460		4,460	15%
1	06	03	02	05		XE_808	Vendor Fab/Ship Gauges - Vacuum		CON	SL_MSEQ	$$		10,000		11,500	11,500	15%
1	**06**	**03**	**03**				**Experimental Chambers**					**880**	**50,000**	**85,954**	**57,500**	**143,454**	
1	**06**	**03**	**03**	**01**			**Near Hall Experimental Chamber**					**440**	**25,000**	**42,977**	**28,750**	**71,727**	
1	06	03	03	01		XE_5300	Specification Near Hall - Experimental Chamber		PED	SL_PHS	Hrs	40		2,994		2,994	25%
1	06	03	03	01		XE_5300	Specification Near Hall - Experimental Chamber		PED	SL_MVE	Hrs	40		4,347		4,347	25%
1	06	03	03	01		XE_5301	Design Near Hall - Experimental Chamber		PED	SL_PHS	Hrs	40		2,994		2,994	25%
1	06	03	03	01		XE_5301	Design Near Hall - Experimental Chamber		PED	SL_MVE	Hrs	120		13,040		13,040	25%
1	06	03	03	01		XE_5302	Design Review Near Hall - Experimental Chamber		PED	SL_PHS	Hrs	40		2,994		2,994	25%
1	06	03	03	01		XE_5302	Design Review Near Hall - Experimental Chamber		PED	SL_MVE	Hrs	40		4,347		4,347	25%
1	06	03	03	01		XE_5304	Prep Bid Pkg Near Hall - Experimental Chamber		CON	SL_MVE	Hrs	40		4,347		4,347	25%
1	06	03	03	01		XE_5307	Vendor Fab/Ship Near Hall - Experimental Chamber		CON	SL_MSEQ	$$		25,000		28,750	28,750	25%
1	06	03	03	01		XE_5309	Assemble Near Hall - Experimental Chamber		CON	SL_MVE	Hrs	40		4,460		4,460	25%
1	06	03	03	01		XE_5309	Assemble Near Hall - Experimental Chamber		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	**06**	**03**	**03**	**02**			**Far Hall Experimental Chamber**					**440**	**25,000**	**42,977**	**28,750**	**71,727**	
1	06	03	03	02		XE_5400	Specification Far Hall - Experimental Chamber		PED	SL_PHS	Hrs	40		2,994		2,994	25%
1	06	03	03	02		XE_5400	Specification Far Hall - Experimental Chamber		PED	SL_MVE	Hrs	40		4,347		4,347	25%
1	06	03	03	02		XE_5401	Design Far Hall - Experimental Chamber		PED	SL_PHS	Hrs	40		2,994		2,994	25%
1	06	03	03	02		XE_5401	Design Far Hall - Experimental Chamber		PED	SL_MVE	Hrs	120		13,040		13,040	25%
1	06	03	03	02		XE_5402	Design Review Far Hall - Experimental Chamber		PED	SL_PHS	Hrs	40		2,994		2,994	25%
1	06	03	03	02		XE_5402	Design Review Far Hall - Experimental Chamber		PED	SL_MVE	Hrs	40		4,347		4,347	25%
1	06	03	03	02		XE_5404	Prep Bid Pkg Far Hall - Experimental Chamber		CON	SL_MVE	Hrs	40		4,347		4,347	25%
1	06	03	03	02		XE_5407	Vendor Fab/Ship Far Hall - Experimental Chamber		CON	SL_MSEQ	$$		25,000		28,750	28,750	25%
1	06	03	03	02		XE_5413	Assemble Far Hall - Experimental Chamber		CON	SL_MVE	Hrs	40		4,460		4,460	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	06	03	03	02		XE_5413	Assemble Far Hall - Experimental Chamber		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	**06**	**04**					**Laser Subsystem**					**4,000**	**801,000**	**378,736**	**920,713**	**1,299,449**	
1	**06**	**04**	**01**				**Oscillator Laser & Pump**					**976**	**200,000**	**92,350**	**230,000**	**322,350**	
1	**06**	**04**	**01**	**01**			**Near Hall Oscillator Laser & Pump**					**448**	**100,000**	**42,349**	**115,000**	**157,349**	
1	06	04	01	01		XE_701	Specification Near Hall - Oscillator Laser/Pump		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	04	01	01		XE_701	Specification Near Hall - Oscillator Laser/Pump		PED	SL_EE	Hrs	40		4,626		4,626	15%
1	06	04	01	01		XE_702	Design Near Hall - Oscillator Laser/Pump		PED	SL_PHS	Hrs	160		11,976		11,976	15%
1	06	04	01	01		XE_702	Design Near Hall - Oscillator Laser/Pump		PED	SL_EE	Hrs	160		18,506		18,506	15%
1	06	04	01	01		XE_703	Design Review Near Hall - Oscillator Laser/Pump		PED	SL_PHS	Hrs	16		1,198		1,198	15%
1	06	04	01	01		XE_703	Design Review Near Hall - Oscillator Laser/Pump		PED	SL_EE	Hrs	16		1,851		1,851	15%
1	06	04	01	01		XE_705	Prep Bid Pkg Near Hall - Oscillator Laser/Pump		CON	SL_PHS	Hrs	16		1,198		1,198	15%
1	06	04	01	01		XE_708	Vendor Fab/Ship Near Hall - Oscillator Laser/Pum		CON	SL_MSEQ	$$		100,000		115,000	115,000	15%
1	**06**	**04**	**01**	**02**			**Far Hall Oscillator Laser & Pump**					**528**	**100,000**	**50,001**	**115,000**	**165,001**	
1	06	04	01	02		XE_5503	Specification Far Hall - Oscillator Laser/Pump		PED	SL_PHS	Hrs	80		5,988		5,988	15%
1	06	04	01	02		XE_5503	Specification Far Hall - Oscillator Laser/Pump		PED	SL_EE	Hrs	80		9,253		9,253	15%
1	06	04	01	02		XE_5504	Design Far Hall - Oscillator Laser/Pump		PED	SL_PHS	Hrs	160		11,976		11,976	15%
1	06	04	01	02		XE_5504	Design Far Hall - Oscillator Laser/Pump		PED	SL_EE	Hrs	160		18,506		18,506	15%
1	06	04	01	02		XE_5505	Design Review Far Hall - Oscillator Laser/Pump		PED	SL_PHS	Hrs	16		1,198		1,198	15%
1	06	04	01	02		XE_5505	Design Review Far Hall - Oscillator Laser/Pump		PED	SL_EE	Hrs	16		1,851		1,851	15%
1	06	04	01	02		XE_5507	Prep Bid Pkg Far Hall - Oscillator Laser/Pump		CON	SL_PHS	Hrs	16		1,229		1,229	15%
1	06	04	01	02		XE_5510	Vendor Fab/Ship Far Hall - Oscillator Laser/Pump		CON	SL_MSEQ	$$		100,000		115,000	115,000	15%
1	**06**	**04**	**02**				**Laser Diagnostics**					**760**	**121,000**	**71,578**	**139,150**	**210,728**	
1	06	04	02			XE_4000	Specification - Laser Diagnostics		PED	SL_PHS	Hrs	240		17,964		17,964	15%
1	06	04	02			XE_4000	Specification - Laser Diagnostics		PED	SL_EE	Hrs	240		27,758		27,758	15%
1	06	04	02			XE_4001	Design - Laser Diagnostics		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	04	02			XE_4001	Design - Laser Diagnostics		CON	SL_PCE	Hrs	40		4,626		4,626	15%
1	06	04	02			XE_4001	Design - Laser Diagnostics		CON	SL_EE	Hrs	40		4,626		4,626	15%
1	06	04	02			XE_4003	Safety Review - Laser Diagnostics		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	04	02			XE_4003	Safety Review - Laser Diagnostics		CON	SL_EE	Hrs	40		4,626		4,626	15%
1	06	04	02			XE_4026	Prep Bid Pkg Autocorrelators - Laser Diagnostic		CON	SL_PHS	Hrs	16		1,198		1,198	15%
1	06	04	02			XE_4025	Prep Bid Pkg Oscillo Scope - Laser Diagnostics		CON	SL_PHS	Hrs	16		1,198		1,198	15%
1	06	04	02			XE_4006	Prepare Bid Pkg Fast Diodes - Laser Diagnostics		CON	SL_PHS	Hrs	16		1,198		1,198	15%
1	06	04	02			XE_4005	Prep Bid Pkg IR FROG - Laser Diagnostics		CON	SL_PHS	Hrs	16		1,198		1,198	15%
1	06	04	02			XE_4004	Prep Bid Pkg Energy Sensors - Laser Diagnostics		CON	SL_PHS	Hrs	16		1,198		1,198	15%
1	06	04	02			XE_4035	Vendor Ship Autocorrelators - Laser Diagnostics		CON	SL_MSEQ	$$		5,000		5,750	5,750	15%
1	06	04	02			XE_4034	Vendor Fab/Ship Oscillo Scope - Laser Diagnost		CON	SL_MSEQ	$$		75,000		86,250	86,250	15%
1	06	04	02			XE_4015	Vendor Fab/Ship Fast Diodes - Laser Diagnostics		CON	SL_MSEQ	$$		1,000		1,150	1,150	15%
1	06	04	02			XE_4014	Vendor Ship IR FROG- Laser Diagnostics		CON	SL_MSEQ	$$		25,000		28,750	28,750	15%
1	06	04	02			XE_4013	Vendor Fab/Ship Energy Sensor - Laser Diagnostic		CON	SL_MSEQ	$$		15,000		17,250	17,250	15%
1	**06**	**04**	**03**				**Laser Supplies & Optical Transport**					**656**	**110,000**	**63,436**	**126,500**	**189,936**	
1	06	04	03			XE_6000	Specification - Laser Supp/Optic Transport		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	04	03			XE_6000	Specification - Laser Supp/Optic Transport		PED	SL_ME	Hrs	40		4,347		4,347	15%
1	06	04	03			XE_6000	Specification - Laser Supp/Optic Transport		PED	SL_EE	Hrs	40		4,626		4,626	15%
1	06	04	03			XE_6001	Design - Laser Supp/Optic Transport		CON	SL_PHS	Hrs	120		8,982		8,982	15%
1	06	04	03			XE_6001	Design - Laser Supp/Optic Transport		CON	SL_ME	Hrs	120		13,040		13,040	15%
1	06	04	03			XE_6001	Design - Laser Supp/Optic Transport		CON	SL_EE	Hrs	120		13,879		13,879	15%
1	06	04	03			XE_6065	Prep Bid Pkg Cabinets - Laser Supplies		CON	SL_PHS	Hrs	16		1,226		1,226	15%
1	06	04	03			XE_6060	Prep Bid Pkg Optic Tables (4) - Laser Supplies		CON	SL_PHS	Hrs	20		1,532		1,532	15%
1	06	04	03			XE_6060	Prep Bid Pkg Optic Tables (4) - Laser Supplies		CON	SL_ME	Hrs	20		2,224		2,224	15%
1	06	04	03			XE_6055	Prep Bid Pkg Shielding/Contain - Laser Supplies		CON	SL_PHS	Hrs	40		3,068		3,068	15%
1	06	04	03			XE_6055	Prep Bid Pkg Shielding/Contain - Laser Supplies		CON	SL_ME	Hrs	40		4,454		4,454	15%
1	06	04	03			XE_6004	Prep Bid Pkg Lenses & Mirrors - Laser Supplies		CON	SL_PHS	Hrs	40		3,064		3,064	15%
1	06	04	03			XE_6068	Vendor Fab/Ship Cabinets -Laser Supplies		CON	SL_MSEQ	$$		5,000		5,750	5,750	15%
1	06	04	03			XE_6063	Vendor Fab/Ship Optic Tables (4) -Laser Supplies		CON	SL_MSEQ	$$		40,000		46,000	46,000	15%
1	06	04	03			XE_6007	Vendor Fab/Ship Lenses & Mirrors -Laser Supplies		CON	SL_MSEQ	$$		50,000		57,500	57,500	15%
1	06	04	03			XE_6058	Vendor Fab/Ship Shielding/Conta -Laser Supplies		CON	SL_MSEQ	$$		15,000		17,250	17,250	15%
1	**06**	**04**	**04**				**Laser Timing**					**808**	**20,000**	**76,802**	**23,000**	**99,802**	
1	06	04	04			XE_6020	Specification - Laser Timing		PED	SL_PHS	Hrs	240		17,964		17,964	45%
1	06	04	04			XE_6020	Specification - Laser Timing		PED	SL_EE	Hrs	240		27,758		27,758	45%
1	06	04	04			XE_6021	Design - Laser Timing		CON	SL_PHS	Hrs	120		8,982		8,982	45%
1	06	04	04			XE_6021	Design - Laser Timing		CON	SL_EE	Hrs	120		13,879		13,879	45%
1	06	04	04			XE_6022	Design Review - Laser Timing		PED	SL_PHS	Hrs	40		2,994		2,994	45%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	06	04	04			XE_6022	Design Review - Laser Timing		PED	SL_EE	Hrs	40		4,626		4,626	45%
1	06	04	04			XE_6024	Prep Bid Pkg Frequency Analyzer - Laser Timing		CON	SL_PHS	Hrs	8		599		599	45%
1	06	04	04			XE_6027	Vendor Fab/Ship Frequency Analyzer - Laser Timin		CON	SL_MSEQ	$$		20,000		23,000	23,000	45%
1	**06**	**04**	**05**				**Laser Amplifiers**					**800**	**350,000**	**74,570**	**402,063**	**476,633**	
1	**06**	**04**	**05**	**01**			**Near Hall Laser Amplifier**					**360**	**175,000**	**33,475**	**201,250**	**234,725**	
1	06	04	05	01		XE_6038	Specification Near Hall - Laser Amplifiers		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	04	05	01		XE_6038	Specification Near Hall - Laser Amplifiers		PED	SL_EE	Hrs	40		4,626		4,626	15%
1	06	04	05	01		XE_6039	Design Near Hall - Laser Amplifiers		PED	SL_PHS	Hrs	80		5,988		5,988	15%
1	06	04	05	01		XE_6039	Design Near Hall - Laser Amplifiers		PED	SL_EE	Hrs	80		9,253		9,253	15%
1	06	04	05	01		XE_6040	Design Review Near Hall - Laser Amplifiers		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	04	05	01		XE_6040	Design Review Near Hall - Laser Amplifiers		PED	SL_EE	Hrs	40		4,626		4,626	15%
1	06	04	05	01		XE_6042	Prep Bid Pkg Near Hall - Laser Amplifiers		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	04	05	01		XE_6045	Vendor Fab/Ship Near Hall - Laser Amplifiers		CON	SL_MSEQ	$$		175,000		201,250	201,250	15%
1	**06**	**04**	**05**	**02**			**Far Hall Laser Amplifier**					**440**	**175,000**	**41,095**	**200,813**	**241,908**	
1	06	04	05	02		XE_7000	Specification Far Hall - Laser Amplifiers		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	04	05	02		XE_7000	Specification Far Hall - Laser Amplifiers		PED	SL_EE	Hrs	40		4,626		4,626	15%
1	06	04	05	02		XE_7001	Design Far Hall - Laser Amplifiers		PED	SL_PHS	Hrs	120		8,982		8,982	15%
1	06	04	05	02		XE_7001	Design Far Hall - Laser Amplifiers		PED	SL_EE	Hrs	120		13,879		13,879	15%
1	06	04	05	02		XE_7002	Design Review Far Hall - Laser Amplifiers		PED	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	04	05	02		XE_7002	Design Review Far Hall - Laser Amplifiers		PED	SL_EE	Hrs	40		4,626		4,626	15%
1	06	04	05	02		XE_7004	Prep Bid Pkg Far Hall - Laser Amplifiers		CON	SL_PHS	Hrs	40		2,994		2,994	15%
1	06	04	05	02		XE_7007	Vendor Fab/Ship Far Hall - Laser Amplifiers		CON	SL_MSEQ	$$		175,000		200,813	200,813	15%
1	**06**	**05**					**X-Ray Detectors**					**2,225**	**4,151,000**	**211,501**	**4,520,720**	**4,732,221**	
1	**06**	**05**	**01**				**Beam Imaging**					**25**	**1,000**	**1,870**	**1,120**	**2,990**	
1	06	05	01			XE_7016	Specification - Beam Imaging		PED	SL_PHS	Hrs	5		374		374	25%
1	06	05	01			XE_7017	Design - Beam Imaging		CON	SL_PHS	Hrs	5		374		374	25%
1	06	05	01			XE_7018	Design Review - Beam Imaging		PED	SL_PHS	Hrs	5		374		374	25%
1	06	05	01			XE_7020	Prep Bid Pkg - Beam Imaging		CON	SL_PHS	Hrs	5		374		374	25%
1	06	05	01			XE_7023	Vendor Fab/Ship - Beam Imaging		CON	SL_MSEQ	$$		1,000		1,120	1,120	25%
1	06	05	01			XE_7025	Assemble - Beam Imaging		CON	SL_PHS	Hrs	5		374		374	25%
1	**06**	**05**	**02**				**2-D X-Ray Detector**					**520**	**4,000,000**	**48,149**	**4,347,100**	**4,395,249**	
1	06	05	02			XE_7055	Specification - 2-D X-Ray Detector		PED	SL_PHS	Hrs	40		2,912		2,912	50%
1	06	05	02			XE_7055	Specification - 2-D X-Ray Detector		PED	SL_EE	Hrs	40		4,500		4,500	50%
1	06	05	02			XE_7075	Engineering - 2-D X-Ray Detector		PED	SL_PHS	Hrs	120		8,922		8,922	50%
1	06	05	02			XE_7075	Engineering - 2-D X-Ray Detector		PED	SL_EE	Hrs	120		13,787		13,787	50%
1	06	05	02			XE_7059	Prep Bid Pkg - 2-D X-Ray Detector		PED	SL_PHS	Hrs	40		2,912		2,912	50%
1	06	05	02			XE_7062	Contract - Design - 2-D X-Ray Detector		CON	SL_MSSC	$$		140,000		152,600	152,600	50%
1	06	05	02			XE_7057	Preliminary Design Review - 2-D X-Ray Detector		PED	SL_PHS	Hrs	80		5,939		5,939	50%
1	06	05	02			XE_7057	Preliminary Design Review - 2-D X-Ray Detector		PED	SL_EE	Hrs	80		9,177		9,177	50%
1	06	05	02			XE_752	Final Design Review - 2-D X-Ray Detector - 2		CON	SL_MSXX	$$		300,000		318,000	318,000	50%
1	06	05	02			XE_7081	Final Design Review - 2-D X-Ray Detector - 1		CON	SL_MSSC	$$		360,000		403,200	403,200	50%
1	06	05	02			XE_7072	Contract - Prototype - 2-D X-Ray Detector		CON	SL_MSXX	$$		800,000		848,000	848,000	50%
1	06	05	02			XE_7122	Contract - Produce 1st Rpt - 2-D X-Ray Detector		CON	SL_MSXX	$$		800,000		869,300	869,300	50%
1	06	05	02			XE_7082	Contract - Test - 2-D X-Ray Detector		CON	SL_MSXX	$$		800,000		872,000	872,000	50%
1	06	05	02			XE_7112	Contract - Produce Final Report		CON	SL_MSXX	$$		400,000		440,000	440,000	50%
1	06	05	02			XE_7092	Contract - Final - 2-D X-Ray Detector		CON	SL_MSXX	$$		400,000		444,000	444,000	50%
1	**06**	**05**	**03**				**Beam Intensity**					**760**	**50,000**	**72,531**	**57,500**	**130,031**	
1	06	05	03			XE_7029	Specification - Beam Intensity		PED	SL_PHS	Hrs	80		6,144		6,144	25%
1	06	05	03			XE_7029	Specification - Beam Intensity		PED	SL_EE	Hrs	80		9,494		9,494	25%
1	06	05	03			XE_7030	Design - Beam Intensity		CON	SL_PHS	Hrs	120		9,216		9,216	25%
1	06	05	03			XE_7030	Design - Beam Intensity		CON	SL_EE	Hrs	120		14,240		14,240	25%
1	06	05	03			XE_7031	Design Review - Beam Intensity		PED	SL_PHS	Hrs	40		3,072		3,072	25%
1	06	05	03			XE_7031	Design Review - Beam Intensity		PED	SL_EE	Hrs	40		4,747		4,747	25%
1	06	05	03			XE_7033	Prep Bid Pkg - Beam Intensity		CON	SL_PHS	Hrs	40		3,072		3,072	25%
1	06	05	03			XE_7036	Vendor Fab/Ship - Beam Intensity		CON	SL_MSEQ	$$		50,000		57,500	57,500	25%
1	06	05	03			XE_7038	Assemble - Beam Intensity		CON	SL_PHS	Hrs	80		6,144		6,144	25%
1	06	05	03			XE_7038	Assemble - Beam Intensity		CON	SL_MFAT	Hrs	80		6,908		6,908	25%
1	06	05	03			XE_7038	Assemble - Beam Intensity		CON	SL_EE	Hrs	80		9,494		9,494	25%
1	**06**	**05**	**04**				**Streak Camera**					**920**	**100,000**	**88,951**	**115,000**	**203,951**	
1	06	05	04			XE_7042	Specification - Streak Camera		PED	SL_PHS	Hrs	40		2,994		2,994	35%
1	06	05	04			XE_7042	Specification - Streak Camera		PED	SL_EE	Hrs	40		4,626		4,626	35%
1	06	05	04			XE_7043	Preliminary Design - Streak Camera		PED	SL_PHS	Hrs	80		5,988		5,988	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	06	05	04			XE_7043	Preliminary Design - Streak Camera		PED	SL_EE	Hrs	80		9,253		9,253	35%
1	06	05	04			XE_7044	Preliminary Design Review - Streak Camera		PED	SL_PHS	Hrs	40		2,994		2,994	35%
1	06	05	04			XE_7044	Preliminary Design Review - Streak Camera		PED	SL_EE	Hrs	40		4,626		4,626	35%
1	06	05	04			XE_7109	Final Design - Streak Camera		PED	SL_PHS	Hrs	120		8,982		8,982	35%
1	06	05	04			XE_7109	Final Design - Streak Camera		PED	SL_EE	Hrs	120		13,879		13,879	35%
1	06	05	04			XE_7110	Final Design Review - Streak Camera		PED	SL_PHS	Hrs	40		2,994		2,994	35%
1	06	05	04			XE_7110	Final Design Review - Streak Camera		PED	SL_EE	Hrs	40		4,626		4,626	35%
1	06	05	04			XE_7046	Prep Bid Pkg - Streak Camera		CON	SL_PHS	Hrs	40		2,994		2,994	35%
1	06	05	04			XE_7046	Prep Bid Pkg - Streak Camera		CON	SL_EE	Hrs	40		4,626		4,626	35%
1	06	05	04			XE_7106	Contract 100% Complete - Streak Camera		CON	SL_MSEQ	$$		100,000		115,000	115,000	35%
1	06	05	04			XE_7051	Assemble at SLAC - Streak Camera		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	05	04			XE_7051	Assemble at SLAC - Streak Camera		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	05	04			XE_7049	Inspect/Vendor Setup - Streak Camera		CON	SL_PHS	Hrs	40		3,140		3,140	35%
1	06	05	04			XE_7049	Inspect/Vendor Setup - Streak Camera		CON	SL_ME	Hrs	40		4,558		4,558	35%
1	06	05	04			XE_7049	Inspect/Vendor Setup - Streak Camera		CON	SL_EE	Hrs	40		4,852		4,852	35%
1	**06**	**06**					**System Installation & Alignment**					**19,670**	**-**	**1,930,768**	**-**	**1,930,768**	
1	**06**	**06**	**01**				**Front End Install**					**3,112**	**-**	**304,503**	**-**	**304,503**	
1	06	06	01			XE_7027	Install FEE - Beam Imaging		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	01			XE_7027	Install FEE - Beam Imaging		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	01			XE_7087	Set Up PC - Beam Imaging		CON	SL_PHS	Hrs	8		614		614	35%
1	06	06	01			XE_7087	Set Up PC - Beam Imaging		CON	SL_EE	Hrs	8		949		949	35%
1	06	06	01			XE_7077	Integrate with Controls - Beam Imaging		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	01			XE_7077	Integrate with Controls - Beam Imaging		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	01			XE_7077	Integrate with Controls - Beam Imaging		CON	SL_CT	Hrs	40		2,600		2,600	35%
1	06	06	01			XE_7077	Integrate with Controls - Beam Imaging		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	01			XE_142	Install FEE Beam Stop Hardware		CON	SL_MFAT	Hrs	160		13,816		13,816	35%
1	06	06	01			XE_142	Install FEE Beam Stop Hardware		CON	SL_ME	Hrs	160		17,838		17,838	35%
1	06	06	01			XE_2218	Install Electronics FEE - Network		CON	SL_EE	Hrs	80		9,494		9,494	35%
1	06	06	01			XE_2218	Install Electronics FEE - Network		CON	SL_CT	Hrs	80		5,199		5,199	35%
1	06	06	01			XE_2218	Install Electronics FEE - Network		CON	SL_CP	Hrs	80		7,676		7,676	35%
1	06	06	01			XE_2218	Install Electronics FEE - Network		CON	SL_CE	Hrs	80		9,494		9,494	35%
1	06	06	01			XE_99	Install FEE Detectors - PPS		CON	SL_TMUE	Hrs	80		8,126		8,126	35%
1	06	06	01			XE_99	Install FEE Detectors - PPS		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	01			XE_99	Install FEE Detectors - PPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	01			XE_5023	Install FEE Valves - MPS		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	01			XE_5023	Install FEE Valves - MPS		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	01			XE_5012	Install FEE Interlocks - MPS		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	01			XE_5012	Install FEE Interlocks - MPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	01			XE_5006	Install FEE Sensors - MPS		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	01			XE_5006	Install FEE Sensors - MPS		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	01			XE_185	Install FEE Containment/Interlock - PPS		CON	SL_TMUE	Hrs	80		8,126		8,126	35%
1	06	06	01			XE_185	Install FEE Containment/Interlock - PPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	01			XE_152	Install Cable Tray FEE - Cabling		CON	SL_TMUE	Hrs	160		16,251		16,251	35%
1	06	06	01			XE_152	Install Cable Tray FEE - Cabling		CON	SL_CT	Hrs	80		5,199		5,199	35%
1	06	06	01			XE_152	Install Cable Tray FEE - Cabling		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	01			XE_107	Install FEE Alarms/Signs - PPS		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	01			XE_107	Install FEE Alarms/Signs - PPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	01			XE_2219	Test FEE - Network		CON	SL_PHS	Hrs	16		1,229		1,229	35%
1	06	06	01			XE_2219	Test FEE - Network		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	01			XE_2219	Test FEE - Network		CON	SL_CT	Hrs	40		2,600		2,600	35%
1	06	06	01			XE_2219	Test FEE - Network		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	01			XE_0311	Install FEE Racks & Panels - Cabling		CON	SL_TMUE	Hrs	160		16,251		16,251	35%
1	06	06	01			XE_0311	Install FEE Racks & Panels - Cabling		CON	SL_CT	Hrs	40		2,600		2,600	35%
1	06	06	01			XE_0311	Install FEE Racks & Panels - Cabling		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	01			XE_0441	Install FEE Cables - Cabling		CON	SL_TMUE	Hrs	160		16,251		16,251	35%
1	06	06	01			XE_0441	Install FEE Cables - Cabling		CON	SL_CT	Hrs	40		2,600		2,600	35%
1	06	06	01			XE_0441	Install FEE Cables - Cabling		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	01			XE_5013	Test FEE - MPS		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	01			XE_5013	Test FEE - MPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	01			XE_186	Test FEE - PPS		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	01			XE_186	Test FEE - PPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	01			XE_0321	Test FEE - Cabling		CON	SL_PHS	Hrs	40		3,072		3,072	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	06	06	01			XE_0321	Test FEE - Cabling		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	01			XE_7070	Install FEE - Beam Intensity		CON	SL_PHS	Hrs	80		6,152		6,152	35%
1	06	06	01			XE_7070	Install FEE - Beam Intensity		CON	SL_EE	Hrs	80		9,506		9,506	35%
1	06	06	01			XE_7040	Integrate with Controls - Beam Intensity		CON	SL_PHS	Hrs	80		6,303		6,303	35%
1	06	06	01			XE_7040	Integrate with Controls - Beam Intensity		CON	SL_EE	Hrs	80		9,740		9,740	35%
1	06	06	01			XE_7040	Integrate with Controls - Beam Intensity		CON	SL_CT	Hrs	80		5,334		5,334	35%
1	06	06	01			XE_7040	Integrate with Controls - Beam Intensity		CON	SL_CE	Hrs	80		9,740		9,740	35%
1	**06**	**06**	**02**				**Near Hall Install**					**7,338**	**-**	**712,993**	**-**	**712,993**	
1	**06**	**06**	**02**	**01**			**Near Hall Install Controls**					**4,612**	**-**	**450,987**	**-**	**450,987**	
1	06	06	02	01		XE_5045	Install Near Hall Valves - MPS		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	01		XE_5045	Install Near Hall Valves - MPS		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	02	01		XE_5044	Install Near Hall Interlocks - MPS		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	02	01		XE_5044	Install Near Hall Interlocks - MPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_5043	Install Near Hall Sensors - MPS		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	01		XE_5043	Install Near Hall Sensors - MPS		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	02	01		XE_3021	Install Near Hall Detectors - X-Ray PPS		CON	SL_TMUE	Hrs	80		8,126		8,126	35%
1	06	06	02	01		XE_3021	Install Near Hall Detectors - X-Ray PPS		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	01		XE_3021	Install Near Hall Detectors - X-Ray PPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_3020	Install Near Hall Containment/Interlock-X-RayPPS		CON	SL_TMUE	Hrs	80		8,126		8,126	35%
1	06	06	02	01		XE_3020	Install Near Hall Containment/Interlock-X-RayPPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_3019	Install Near Hall Alarms/Signs - X-Ray PPS		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	02	01		XE_3019	Install Near Hall Alarms/Signs - X-Ray PPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_5046	Test Near Hall - MPS		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	01		XE_5046	Test Near Hall - MPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_3022	Test Near Hall - X-Ray PPS		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	01		XE_3022	Test Near Hall - X-Ray PPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_18	Install NH Beam Stop Hardware		CON	SL_MFAT	Hrs	160		13,816		13,816	35%
1	06	06	02	01		XE_18	Install NH Beam Stop Hardware		CON	SL_ME	Hrs	160		17,838		17,838	35%
1	06	06	02	01		XE_306	Install Data Storag Near Hall - Beamline Cntrl		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	01		XE_306	Install Data Storag Near Hall - Beamline Cntrl		CON	SL_CP	Hrs	40		3,838		3,838	35%
1	06	06	02	01		XE_306	Install Data Storag Near Hall - Beamline Cntrl		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_2622	Install Near Hall MC Software - Beamline Control		CON	SL_CP	Hrs	80		7,676		7,676	35%
1	06	06	02	01		XE_2621	Install Near Hall R/Trans Stage - Beamline Contr		CON	SL_PHS	Hrs	80		6,144		6,144	35%
1	06	06	02	01		XE_2621	Install Near Hall R/Trans Stage - Beamline Contr		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_2621	Install Near Hall R/Trans Stage - Beamline Contr		CON	SL_CT	Hrs	80		5,199		5,199	35%
1	06	06	02	01		XE_2621	Install Near Hall R/Trans Stage - Beamline Contr		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_2599	Install Near Hall Data Storage - Beamline Contrl		CON	SL_CP	Hrs	40		3,838		3,838	35%
1	06	06	02	01		XE_2599	Install Near Hall Data Storage - Beamline Contrl		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_922	Install Near Hall Detectors - User Safeguards		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	02	01		XE_922	Install Near Hall Detectors - User Safeguards		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_921	Install Near Hall Contain/Interlck - User Safegu		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	02	01		XE_921	Install Near Hall Contain/Interlck - User Safegu		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_920	Install Near Hall Alarms/Signs - User Safeguards		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	02	01		XE_920	Install Near Hall Alarms/Signs - User Safeguards		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_2721	Install Near Hall Contain/Interlck - Laser PPS		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	02	01		XE_2721	Install Near Hall Contain/Interlck - Laser PPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_2720	Install Near Hall Alarms/Signs - Laser PPS		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	02	01		XE_2720	Install Near Hall Alarms/Signs - Laser PPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_162	Install Cable Tray Near Hall - Cabling		CON	SL_TMUE	Hrs	160		16,251		16,251	35%
1	06	06	02	01		XE_162	Install Cable Tray Near Hall - Cabling		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_162	Install Cable Tray Near Hall - Cabling		CON	SL_CT	Hrs	80		5,199		5,199	35%
1	06	06	02	01		XE_162	Install Cable Tray Near Hall - Cabling		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_0312	Install Near Hall Racks & Panels - Cabling		CON	SL_TMUE	Hrs	160		16,251		16,251	35%
1	06	06	02	01		XE_0312	Install Near Hall Racks & Panels - Cabling		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_0312	Install Near Hall Racks & Panels - Cabling		CON	SL_CT	Hrs	40		2,600		2,600	35%
1	06	06	02	01		XE_0312	Install Near Hall Racks & Panels - Cabling		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_2623	Install Near Hall MC Electronics - Beam Control		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	01		XE_2623	Install Near Hall MC Electronics - Beam Control		CON	SL_EE	Hrs	80		9,494		9,494	35%
1	06	06	02	01		XE_2623	Install Near Hall MC Electronics - Beam Control		CON	SL_CT	Hrs	80		5,199		5,199	35%
1	06	06	02	01		XE_2623	Install Near Hall MC Electronics - Beam Control		CON	SL_CE	Hrs	80		9,494		9,494	35%
1	06	06	02	01		XE_163	Install Cable Near Hall - Cabling		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_163	Install Cable Near Hall - Cabling		CON	SL_CT	Hrs	120		7,799		7,799	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	06	06	02	01		XE_163	Install Cable Near Hall - Cabling		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_2221	Install Near Hall Electronics - Network		CON	SL_EE	Hrs	80		9,494		9,494	35%
1	06	06	02	01		XE_2221	Install Near Hall Electronics - Network		CON	SL_CT	Hrs	80		5,199		5,199	35%
1	06	06	02	01		XE_2221	Install Near Hall Electronics - Network		CON	SL_CP	Hrs	80		7,676		7,676	35%
1	06	06	02	01		XE_2221	Install Near Hall Electronics - Network		CON	SL_CE	Hrs	80		9,494		9,494	35%
1	06	06	02	01		XE_923	Test Near Hall - User Safeguards		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	01		XE_923	Test Near Hall - User Safeguards		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_2723	Test Near Hall - Laser PPS		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	01		XE_2723	Test Near Hall - Laser PPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_2624	Test Near Hall - Beamline Control		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	01		XE_2624	Test Near Hall - Beamline Control		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_2624	Test Near Hall - Beamline Control		CON	SL_CP	Hrs	40		3,838		3,838	35%
1	06	06	02	01		XE_2624	Test Near Hall - Beamline Control		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_2309	Install Near Hall PCs/Software/Printer - PC Supp		CON	SL_EE	Hrs	16		1,899		1,899	35%
1	06	06	02	01		XE_2309	Install Near Hall PCs/Software/Printer - PC Supp		CON	SL_CT	Hrs	40		2,600		2,600	35%
1	06	06	02	01		XE_2309	Install Near Hall PCs/Software/Printer - PC Supp		CON	SL_CE	Hrs	16		1,899		1,899	35%
1	06	06	02	01		XE_2278	Install Near Hall Domain Server - PC Support		CON	SL_EE	Hrs	20		2,373		2,373	35%
1	06	06	02	01		XE_2278	Install Near Hall Domain Server - PC Support		CON	SL_CT	Hrs	40		2,600		2,600	35%
1	06	06	02	01		XE_2278	Install Near Hall Domain Server - PC Support		CON	SL_CE	Hrs	20		2,373		2,373	35%
1	06	06	02	01		XE_2224	Test Near Hall - Network		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	01		XE_2224	Test Near Hall - Network		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_2224	Test Near Hall - Network		CON	SL_CT	Hrs	40		2,600		2,600	35%
1	06	06	02	01		XE_2224	Test Near Hall - Network		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_0371	Install Cable to Near Hall Laser - Cabling		CON	SL_EE	Hrs	20		2,373		2,373	35%
1	06	06	02	01		XE_0371	Install Cable to Near Hall Laser - Cabling		CON	SL_CT	Hrs	80		5,199		5,199	35%
1	06	06	02	01		XE_2279	Install Near Hall File Server - PC Support		CON	SL_EE	Hrs	80		9,494		9,494	35%
1	06	06	02	01		XE_2279	Install Near Hall File Server - PC Support		CON	SL_CT	Hrs	80		5,199		5,199	35%
1	06	06	02	01		XE_2279	Install Near Hall File Server - PC Support		CON	SL_CE	Hrs	80		9,494		9,494	35%
1	06	06	02	01		XE_0341	Test Near Hall - Cabling		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	01		XE_0341	Test Near Hall - Cabling		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_2280	Test Near Hall - PC Support		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	01		XE_2280	Test Near Hall - PC Support		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	02	01		XE_2280	Test Near Hall - PC Support		CON	SL_CT	Hrs	40		2,600		2,600	35%
1	06	06	02	01		XE_2280	Test Near Hall - PC Support		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	**06**	**06**	**02**	**02**			**Near Hall Install Mech/Vac**					**640**	**-**	**63,312**	**-**	**63,312**	
1	06	06	02	02		XE_516	Install Near Hall - Chamber Spt Table		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	02	02		XE_516	Install Near Hall - Chamber Spt Table		CON	SL_ME	Hrs	40		4,460		4,460	35%
1	06	06	02	02		XE_5311	Install Near Hall - Experimental Chamber		CON	SL_MVE	Hrs	40		4,460		4,460	35%
1	06	06	02	02		XE_5311	Install Near Hall - Experimental Chamber		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	02	02		XE_817	Install Near Hall Gauges - Vacuum		CON	SL_MVE	Hrs	40		4,460		4,460	35%
1	06	06	02	02		XE_817	Install Near Hall Gauges - Vacuum		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	02	02		XE_5321	Leak Check/Test Near Hall - Experimental Chamber		CON	SL_MVE	Hrs	40		4,460		4,460	35%
1	06	06	02	02		XE_5321	Leak Check/Test Near Hall - Experimental Chamber		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	02	02		XE_2971	Install NH Turbo Pump - Vacuum		CON	SL_MVE	Hrs	40		4,460		4,460	35%
1	06	06	02	02		XE_2971	Install NH Turbo Pump - Vacuum		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	02	02		XE_2948	Install Near Hall Ion Pump - Vacuum		CON	SL_MVE	Hrs	40		4,460		4,460	35%
1	06	06	02	02		XE_2948	Install Near Hall Ion Pump - Vacuum		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	02	02		XE_2920	Install Near Hall - Vacuum Hardware		CON	SL_MVE	Hrs	40		4,460		4,460	35%
1	06	06	02	02		XE_2920	Install Near Hall - Vacuum Hardware		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	02	02		XE_2780	Install Near Hall Valves - Vacuum		CON	SL_MVE	Hrs	40		4,460		4,460	35%
1	06	06	02	02		XE_2780	Install Near Hall Valves - Vacuum		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	**06**	**06**	**02**	**03**			**Near Hall Install Laser**					**1,646**	**-**	**154,979**	**-**	**154,979**	
1	06	06	02	03		XE_6032	Install Diagnostics Near Hall - Laser Timing		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	03		XE_6032	Install Diagnostics Near Hall - Laser Timing		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	02	03		XE_4042	Install Autocorrelators - Laser Diagnostics		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	03		XE_4042	Install Autocorrelators - Laser Diagnostics		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	02	03		XE_4041	Install Oscilloscope - Laser Diagnostics		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	03		XE_4041	Install Oscilloscope - Laser Diagnostics		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	02	03		XE_4030	Install Fast Diodes - Laser Diagnostics		CON	SL_PHS	Hrs	20		1,536		1,536	35%
1	06	06	02	03		XE_4021	Install IR FROG - Laser Diagnostics		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	03		XE_4021	Install IR FROG - Laser Diagnostics		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	02	03		XE_4020	Install Energy Sensors - Laser Diagnostics		CON	SL_PHS	Hrs	40		3,072		3,072	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	06	06	02	03		XE_4020	Install Energy Sensors - Laser Diagnostics		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	02	03		XE_6072	Test Timing System Near Hall - Laser Timing		CON	SL_PHS	Hrs	80		6,144		6,144	35%
1	06	06	02	03		XE_6072	Test Timing System Near Hall - Laser Timing		CON	SL_EE	Hrs	80		9,494		9,494	35%
1	06	06	02	03		XE_6072	Test Timing System Near Hall - Laser Timing		CON	SL_CT	Hrs	80		5,199		5,199	35%
1	06	06	02	03		XE_6011	Install Pipe, Laser Table to X-Ray Hutch-LSupp		CON	SL_TMUP	Hrs	40		3,891		3,891	35%
1	06	06	02	03		XE_6011	Install Pipe, Laser Table to X-Ray Hutch-LSupp		CON	SL_PHS	Hrs	10		768		768	35%
1	06	06	02	03		XE_6011	Install Pipe, Laser Table to X-Ray Hutch-LSupp		CON	SL_MVE	Hrs	40		4,460		4,460	35%
1	06	06	02	03		XE_4023	Test - Laser Diagnostics		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	03		XE_4023	Test - Laser Diagnostics		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	02	03		XE_6015	Test - Optic Transport		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	03		XE_6015	Test - Optic Transport		CON	SL_ME	Hrs	40		4,460		4,460	35%
1	06	06	02	03		XE_6050	First Install Near Hall - Laser Amplifiers		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	02	03		XE_6050	First Install Near Hall - Laser Amplifiers		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	03		XE_6050	First Install Near Hall - Laser Amplifiers		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	02	03		XE_6052	Final Check Near Hall - Laser Amplifiers		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	03		XE_6052	Final Check Near Hall - Laser Amplifiers		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	02	03		XE_6053	Test Near Hall - Laser Amplifiers		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	03		XE_6053	Test Near Hall - Laser Amplifiers		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	02	03		XE_710	Install Laser Table Near Hall - Oscillator Laser		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	02	03		XE_710	Install Laser Table Near Hall - Oscillator Laser		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	02	03		XE_710	Install Laser Table Near Hall - Oscillator Laser		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	02	03		XE_740	First Install Near Hall - Oscillator Laser/Pump		CON	SL_TMUE	Hrs	40		4,073		4,073	35%
1	06	06	02	03		XE_740	First Install Near Hall - Oscillator Laser/Pump		CON	SL_PHS	Hrs	40		3,080		3,080	35%
1	06	06	02	03		XE_740	First Install Near Hall - Oscillator Laser/Pump		CON	SL_EE	Hrs	40		4,759		4,759	35%
1	06	06	02	03		XE_730	Vendor Setup/Demo NHall - Oscillator Laser/Pump		CON	SL_PHS	Hrs	80		6,303		6,303	35%
1	06	06	02	03		XE_712	Final Check Near Hall - Oscillator Laser/Pump		CON	SL_PHS	Hrs	40		3,152		3,152	35%
1	06	06	02	03		XE_712	Final Check Near Hall - Oscillator Laser/Pump		CON	SL_EE	Hrs	40		4,870		4,870	35%
1	06	06	02	03		XE_700	Test Near Hall - Oscillator Laser/Pum		CON	SL_TMUE	Hrs	8		834		834	35%
1	06	06	02	03		XE_700	Test Near Hall - Oscillator Laser/Pum		CON	SL_PHS	Hrs	40		3,152		3,152	35%
1	06	06	02	03		XE_700	Test Near Hall - Oscillator Laser/Pum		CON	SL_MFAT	Hrs	8		709		709	35%
1	**06**	**06**	**02**	**04**			**Near Hall Install Detectors**					**440**	**-**	**43,715**	**-**	**43,715**	
1	06	06	02	04		XE_7053	Install Near Hall - Streak Camera		CON	SL_PHS	Hrs	40		3,152		3,152	35%
1	06	06	02	04		XE_7053	Install Near Hall - Streak Camera		CON	SL_ME	Hrs	40		4,576		4,576	35%
1	06	06	02	04		XE_7053	Install Near Hall - Streak Camera		CON	SL_EE	Hrs	40		4,870		4,870	35%
1	06	06	02	04		XE_7073	Integrate with Controls - Streak Camera		CON	SL_PHS	Hrs	80		6,303		6,303	35%
1	06	06	02	04		XE_7073	Integrate with Controls - Streak Camera		CON	SL_EE	Hrs	80		9,740		9,740	35%
1	06	06	02	04		XE_7073	Integrate with Controls - Streak Camera		CON	SL_CT	Hrs	80		5,334		5,334	35%
1	06	06	02	04		XE_7073	Integrate with Controls - Streak Camera		CON	SL_CE	Hrs	80		9,740		9,740	35%
1	**06**	**06**	**02**	**05**			**Near Hall Install Atomic Physics**										
1	**06**	**06**	**03**				**Tunnel Install**					**1,920**	**-**	**189,971**	**-**	**189,971**	
1	06	06	03			XE_233367	Install Beam Stop Hardware		CON	SL_MFAT	Hrs	160		13,816		13,816	25%
1	06	06	03			XE_233367	Install Beam Stop Hardware		CON	SL_ME	Hrs	160		17,838		17,838	25%
1	06	06	03			XE_5069	Install Tunnel Valves - MPS		CON	SL_PHS	Hrs	40		3,072		3,072	25%
1	06	06	03			XE_5069	Install Tunnel Valves - MPS		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	06	06	03			XE_5068	Install Tunnel Interlocks - MPS		CON	SL_TMUE	Hrs	40		4,063		4,063	25%
1	06	06	03			XE_5068	Install Tunnel Interlocks - MPS		CON	SL_CE	Hrs	40		4,747		4,747	25%
1	06	06	03			XE_5067	Install Tunnel Sensors - MPS		CON	SL_PHS	Hrs	40		3,072		3,072	25%
1	06	06	03			XE_5067	Install Tunnel Sensors - MPS		CON	SL_MFAT	Hrs	40		3,454		3,454	25%
1	06	06	03			XE_421	Install Tunnel Detectors - X-Ray PPS		CON	SL_TMUE	Hrs	80		8,126		8,126	25%
1	06	06	03			XE_421	Install Tunnel Detectors - X-Ray PPS		CON	SL_PHS	Hrs	40		3,072		3,072	25%
1	06	06	03			XE_421	Install Tunnel Detectors - X-Ray PPS		CON	SL_CE	Hrs	40		4,747		4,747	25%
1	06	06	03			XE_420	Install Tunnel Containment/Interlock - X-Ray PPS		CON	SL_TMUE	Hrs	80		8,126		8,126	25%
1	06	06	03			XE_420	Install Tunnel Containment/Interlock - X-Ray PPS		CON	SL_CE	Hrs	40		4,747		4,747	25%
1	06	06	03			XE_419	Install Tunnel Alarms/Signs - X-Ray PPS		CON	SL_TMUE	Hrs	40		4,063		4,063	25%
1	06	06	03			XE_419	Install Tunnel Alarms/Signs - X-Ray PPS		CON	SL_CE	Hrs	40		4,747		4,747	25%
1	06	06	03			XE_2226	Install Tunnel Electronics - Network		CON	SL_EE	Hrs	80		9,494		9,494	25%
1	06	06	03			XE_2226	Install Tunnel Electronics - Network		CON	SL_CT	Hrs	80		5,199		5,199	25%
1	06	06	03			XE_2226	Install Tunnel Electronics - Network		CON	SL_CE	Hrs	80		9,494		9,494	25%
1	06	06	03			XE_172	Install Tunnel Cable Tray - Cabling		CON	SL_TMUE	Hrs	160		16,251		16,251	25%
1	06	06	03			XE_172	Install Tunnel Cable Tray - Cabling		CON	SL_EE	Hrs	40		4,747		4,747	25%
1	06	06	03			XE_172	Install Tunnel Cable Tray - Cabling		CON	SL_CT	Hrs	80		5,199		5,199	25%
1	06	06	03			XE_172	Install Tunnel Cable Tray - Cabling		CON	SL_CE	Hrs	40		4,747		4,747	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	06	06	03			XE_2227	Test Tunnel - Network		CON	SL_PHS	Hrs	40		3,072		3,072	25%
1	06	06	03			XE_2227	Test Tunnel - Network		CON	SL_EE	Hrs	40		4,747		4,747	25%
1	06	06	03			XE_2227	Test Tunnel - Network		CON	SL_CT	Hrs	40		2,600		2,600	25%
1	06	06	03			XE_2227	Test Tunnel - Network		CON	SL_CE	Hrs	40		4,747		4,747	25%
1	06	06	03			XE_5070	Test Tunnel - MPS		CON	SL_PHS	Hrs	40		3,072		3,072	25%
1	06	06	03			XE_5070	Test Tunnel - MPS		CON	SL_CE	Hrs	40		4,747		4,747	25%
1	06	06	03			XE_422	Test Tunnel - X-Ray PPS		CON	SL_PHS	Hrs	40		3,072		3,072	25%
1	06	06	03			XE_422	Test Tunnel - X-Ray PPS		CON	SL_CE	Hrs	40		4,747		4,747	25%
1	06	06	03			XE_0351	Test Tunnel - Cabling		CON	SL_PHS	Hrs	40		3,152		3,152	25%
1	06	06	03			XE_0351	Test Tunnel - Cabling		CON	SL_EE	Hrs	40		4,870		4,870	25%
1	06	06	03			XE_0351	Test Tunnel - Cabling		CON	SL_CE	Hrs	40		4,870		4,870	25%
1	**06**	**06**	**04**				**Far Hall Install**					**7,300**	**-**	**723,301**	**-**	**723,301**	
1	**06**	**06**	**04**	**01**			**Far Hall Install Controls**					**5,284**	**-**	**525,599**	**-**	**525,599**	
1	06	06	04	01		XE_872	Install Far Hall Detectors - User Safeguards		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	04	01		XE_872	Install Far Hall Detectors - User Safeguards		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_871	Install Far Hall Contain/Interlck - User Safegua		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	04	01		XE_871	Install Far Hall Contain/Interlck - User Safegua		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_870	Install Far Hall Alarms/Signs - User Safeguards		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	04	01		XE_870	Install Far Hall Alarms/Signs - User Safeguards		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_7521	Install Far Hall Detectors - Laser PPS		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	04	01		XE_7521	Install Far Hall Detectors - Laser PPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_7511	Install Far Hall Contain/Interlck - Laser PPS		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	04	01		XE_7511	Install Far Hall Contain/Interlck - Laser PPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_7501	Install Far Hall Alarms/Signs - Laser PPS		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	04	01		XE_7501	Install Far Hall Alarms/Signs - Laser PPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_5093	Install Far Hall Valves - MPS		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	04	01		XE_5093	Install Far Hall Valves - MPS		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	04	01		XE_5092	Install Far Hall Interlocks - MPS		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	04	01		XE_5092	Install Far Hall Interlocks - MPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_5091	Install Far Hall Sensors - MPS		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	04	01		XE_5091	Install Far Hall Sensors - MPS		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	04	01		XE_446	Install Far Hall Detectors - PPS		CON	SL_TMUE	Hrs	80		8,126		8,126	35%
1	06	06	04	01		XE_446	Install Far Hall Detectors - PPS		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	04	01		XE_446	Install Far Hall Detectors - PPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_445	Install Far Hall Containment/Interlock - PPS		CON	SL_TMUE	Hrs	80		8,126		8,126	35%
1	06	06	04	01		XE_445	Install Far Hall Containment/Interlock - PPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_444	Install Far Hall Alarms/Signs - PPS		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	04	01		XE_444	Install Far Hall Alarms/Signs - PPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_316	Install Data Storage Far Hall - Beamline Cntrl		CON	SL_CP	Hrs	40		3,838		3,838	35%
1	06	06	04	01		XE_316	Install Data Storage Far Hall - Beamline Cntrl		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_2630	Install Far Hall MC Electronics - Beam Control		CON	SL_PHS	Hrs	80		6,144		6,144	35%
1	06	06	04	01		XE_2630	Install Far Hall MC Electronics - Beam Control		CON	SL_EE	Hrs	80		9,494		9,494	35%
1	06	06	04	01		XE_2630	Install Far Hall MC Electronics - Beam Control		CON	SL_CT	Hrs	80		5,199		5,199	35%
1	06	06	04	01		XE_2629	Install Far Hall MC Software - Beamline Cntrl		CON	SL_CP	Hrs	80		7,676		7,676	35%
1	06	06	04	01		XE_2628	Install Far Hall Rotate/Trans Stage - Beam Cntrl		CON	SL_PHS	Hrs	80		6,144		6,144	35%
1	06	06	04	01		XE_2628	Install Far Hall Rotate/Trans Stage - Beam Cntrl		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_2628	Install Far Hall Rotate/Trans Stage - Beam Cntrl		CON	SL_CT	Hrs	80		5,199		5,199	35%
1	06	06	04	01		XE_2628	Install Far Hall Rotate/Trans Stage - Beam Cntrl		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_2627	Programming Far Hall - Beamline Control		CON	SL_CP	Hrs	80		7,776		7,776	35%
1	06	06	04	01		XE_2229	Install Far Hall Electronics - Network		CON	SL_EE	Hrs	80		9,494		9,494	35%
1	06	06	04	01		XE_2229	Install Far Hall Electronics - Network		CON	SL_CT	Hrs	80		5,199		5,199	35%
1	06	06	04	01		XE_2229	Install Far Hall Electronics - Network		CON	SL_CP	Hrs	80		7,676		7,676	35%
1	06	06	04	01		XE_2229	Install Far Hall Electronics - Network		CON	SL_CE	Hrs	80		9,494		9,494	35%
1	06	06	04	01		XE_0324	Install Cable Tray FH - Cabling		CON	SL_TMUE	Hrs	160		16,251		16,251	35%
1	06	06	04	01		XE_0324	Install Cable Tray FH - Cabling		CON	SL_EE	Hrs	80		9,494		9,494	35%
1	06	06	04	01		XE_0324	Install Cable Tray FH - Cabling		CON	SL_CE	Hrs	80		9,494		9,494	35%
1	06	06	04	01		XE_2319	Install Far Hall File Server - PC Support		CON	SL_EE	Hrs	80		9,494		9,494	35%
1	06	06	04	01		XE_2319	Install Far Hall File Server - PC Support		CON	SL_CT	Hrs	80		5,199		5,199	35%
1	06	06	04	01		XE_2319	Install Far Hall File Server - PC Support		CON	SL_CE	Hrs	80		9,494		9,494	35%
1	06	06	04	01		XE_2289	Install Far Hall Domain Server - PC Support		CON	SL_EE	Hrs	20		2,373		2,373	35%
1	06	06	04	01		XE_2289	Install Far Hall Domain Server - PC Support		CON	SL_CT	Hrs	40		2,600		2,600	35%
1	06	06	04	01		XE_2289	Install Far Hall Domain Server - PC Support		CON	SL_CE	Hrs	20		2,373		2,373	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	06	06	04	01		XE_2288	Install Far Hall PCs/Software/Printer - PC Spt		CON	SL_EE	Hrs	16		1,899		1,899	35%
1	06	06	04	01		XE_2288	Install Far Hall PCs/Software/Printer - PC Spt		CON	SL_CT	Hrs	40		2,600		2,600	35%
1	06	06	04	01		XE_2288	Install Far Hall PCs/Software/Printer - PC Spt		CON	SL_CE	Hrs	16		1,899		1,899	35%
1	06	06	04	01		XE_2290	Test Far Hall - PC Support		CON	SL_PHS	Hrs	40		3,094		3,094	35%
1	06	06	04	01		XE_2290	Test Far Hall - PC Support		CON	SL_EE	Hrs	40		4,781		4,781	35%
1	06	06	04	01		XE_2290	Test Far Hall - PC Support		CON	SL_CT	Hrs	40		2,618		2,618	35%
1	06	06	04	01		XE_2290	Test Far Hall - PC Support		CON	SL_CE	Hrs	40		4,781		4,781	35%
1	06	06	04	01		XE_873	Test Far Hall - User Safeguards		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	04	01		XE_873	Test Far Hall - User Safeguards		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_7531	Test Far Hall - Laser PPS		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	04	01		XE_7531	Test Far Hall - Laser PPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_5094	Test Far Hall - MPS		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	04	01		XE_5094	Test Far Hall - MPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_447	Test Far Hall - PPS		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	04	01		XE_447	Test Far Hall - PPS		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_307	Test High Perf Data Storage - Beamline Control		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	04	01		XE_307	Test High Perf Data Storage - Beamline Control		CON	SL_CP	Hrs	40		3,838		3,838	35%
1	06	06	04	01		XE_307	Test High Perf Data Storage - Beamline Control		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_2631	Test Far Hall - Beamline Control		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	04	01		XE_2631	Test Far Hall - Beamline Control		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_2631	Test Far Hall - Beamline Control		CON	SL_CP	Hrs	40		3,838		3,838	35%
1	06	06	04	01		XE_2631	Test Far Hall - Beamline Control		CON	SL_CE	Hrs	40		4,747		4,747	35%
1	06	06	04	01		XE_2232	Test Far Hall - Network		CON	SL_PHS	Hrs	40		3,112		3,112	35%
1	06	06	04	01		XE_2232	Test Far Hall - Network		CON	SL_EE	Hrs	40		4,808		4,808	35%
1	06	06	04	01		XE_2232	Test Far Hall - Network		CON	SL_CT	Hrs	40		2,633		2,633	35%
1	06	06	04	01		XE_2232	Test Far Hall - Network		CON	SL_CE	Hrs	40		4,808		4,808	35%
1	06	06	04	01		XE_0314	Install Far Hall Racks & Panels - Cabling		CON	SL_TMUE	Hrs	160		16,674		16,674	35%
1	06	06	04	01		XE_0314	Install Far Hall Racks & Panels - Cabling		CON	SL_EE	Hrs	40		4,870		4,870	35%
1	06	06	04	01		XE_0314	Install Far Hall Racks & Panels - Cabling		CON	SL_CT	Hrs	40		2,667		2,667	35%
1	06	06	04	01		XE_0314	Install Far Hall Racks & Panels - Cabling		CON	SL_CE	Hrs	40		4,870		4,870	35%
1	06	06	04	01		XE_444791	Install Beam Stop Hardware		CON	SL_MFAT	Hrs	160		14,174		14,174	35%
1	06	06	04	01		XE_444791	Install Beam Stop Hardware		CON	SL_ME	Hrs	160		18,302		18,302	35%
1	06	06	04	01		XE_2292	Integrate & Test System - PC Support		CON	SL_PHS	Hrs	16		1,261		1,261	35%
1	06	06	04	01		XE_2292	Integrate & Test System - PC Support		CON	SL_CE	Hrs	16		1,948		1,948	35%
1	06	06	04	01		XE_2233	Integrate & Test System Far Hall - Network		CON	SL_PHS	Hrs	40		3,152		3,152	35%
1	06	06	04	01		XE_2233	Integrate & Test System Far Hall - Network		CON	SL_EE	Hrs	40		4,870		4,870	35%
1	06	06	04	01		XE_2233	Integrate & Test System Far Hall - Network		CON	SL_CT	Hrs	40		2,667		2,667	35%
1	06	06	04	01		XE_2233	Integrate & Test System Far Hall - Network		CON	SL_CE	Hrs	40		4,870		4,870	35%
1	06	06	04	01		XE_2633	Integrate & Test System - Beamline Control		CON	SL_PHS	Hrs	40		3,152		3,152	35%
1	06	06	04	01		XE_2633	Integrate & Test System - Beamline Control		CON	SL_EE	Hrs	40		4,870		4,870	35%
1	06	06	04	01		XE_2633	Integrate & Test System - Beamline Control		CON	SL_CE	Hrs	40		4,870		4,870	35%
1	06	06	04	01		XE_0334	Install Cable Far Hall - Cabling		CON	SL_EE	Hrs	40		4,870		4,870	35%
1	06	06	04	01		XE_0334	Install Cable Far Hall - Cabling		CON	SL_CT	Hrs	120		8,002		8,002	35%
1	06	06	04	01		XE_0334	Install Cable Far Hall - Cabling		CON	SL_CE	Hrs	40		4,870		4,870	35%
1	06	06	04	01		XE_0381	Install Cable to Far Hall Laser - Cabling		CON	SL_EE	Hrs	20		2,435		2,435	35%
1	06	06	04	01		XE_0381	Install Cable to Far Hall Laser - Cabling		CON	SL_CT	Hrs	80		5,334		5,334	35%
1	06	06	04	01		XE_0361	Test Far Hall - Cabling		CON	SL_PHS	Hrs	40		3,152		3,152	35%
1	06	06	04	01		XE_0361	Test Far Hall - Cabling		CON	SL_EE	Hrs	40		4,870		4,870	35%
1	06	06	04	01		XE_0331	System Integrate & Test Far Hall - Cabling		CON	SL_PHS	Hrs	80		6,303		6,303	35%
1	06	06	04	01		XE_0331	System Integrate & Test Far Hall - Cabling		CON	SL_EE	Hrs	80		9,740		9,740	35%
1	06	06	04	01		XE_0331	System Integrate & Test Far Hall - Cabling		CON	SL_CE	Hrs	80		9,740		9,740	35%
1	**06**	**06**	**04**	**02**			**Far Hall Install Mech/Vac**					**720**	**-**	**70,925**	**-**	**70,925**	
1	06	06	04	02		XE_825	Install Far Hall Gauges - Vacuum		CON	SL_MVE	Hrs	40		4,460		4,460	35%
1	06	06	04	02		XE_825	Install Far Hall Gauges - Vacuum		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	04	02		XE_5488	Leak Check/Test - Experimental Chamber		CON	SL_MVE	Hrs	40		4,460		4,460	35%
1	06	06	04	02		XE_5488	Leak Check/Test - Experimental Chamber		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	04	02		XE_5415	Install Far Hall - Experimental Chamber		CON	SL_MVE	Hrs	40		4,460		4,460	35%
1	06	06	04	02		XE_5415	Install Far Hall - Experimental Chamber		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	04	02		XE_513	Install Far Hall - Chamber Spt Table		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	04	02		XE_513	Install Far Hall - Chamber Spt Table		CON	SL_ME	Hrs	40		4,460		4,460	35%
1	06	06	04	02		XE_29722	Install Far Hall Turbo Pump - Vacuum		CON	SL_MVE	Hrs	40		4,460		4,460	35%
1	06	06	04	02		XE_29722	Install Far Hall Turbo Pump - Vacuum		CON	SL_MFAT	Hrs	40		3,454		3,454	35%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	06	06	04	02		XE_2956	Install Far Hall Ion Pump - Vacuum		CON	SL_MVE	Hrs	40		4,460		4,460	35%
1	06	06	04	02		XE_2956	Install Far Hall Ion Pump - Vacuum		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	04	02		XE_2928	Install Far Hall - Vacuum Hardware		CON	SL_MVE	Hrs	40		4,460		4,460	35%
1	06	06	04	02		XE_2928	Install Far Hall - Vacuum Hardware		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	04	02		XE_2807	Install Far Hall Valve - Vacuum		CON	SL_MVE	Hrs	40		4,460		4,460	35%
1	06	06	04	02		XE_2807	Install Far Hall Valve - Vacuum		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	04	02		XE_806	Test Gauges - Vacuum System		CON	SL_PHS	Hrs	40		3,105		3,105	35%
1	06	06	04	02		XE_806	Test Gauges - Vacuum System		CON	SL_MVE	Hrs	40		4,508		4,508	35%
1	**06**	**06**	**04**	**03**			**Far Hall Install Laser**					**896**	**-**	**84,951**	**-**	**84,951**	
1	06	06	04	03		XE_6104	Test Timing Far Hall - Laser Timing		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	04	03		XE_6104	Test Timing Far Hall - Laser Timing		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	04	03		XE_6104	Test Timing Far Hall - Laser Timing		CON	SL_CT	Hrs	24		1,560		1,560	35%
1	06	06	04	03		XE_6103	Install Diagnostics Far Hall - Laser Timing		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	04	03		XE_6103	Install Diagnostics Far Hall - Laser Timing		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	04	03		XE_5517	Install Laser Table Far Hall-Oscillator Laser		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	04	03		XE_5517	Install Laser Table Far Hall-Oscillator Laser		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	04	03		XE_5517	Install Laser Table Far Hall-Oscillator Laser		CON	SL_MFAT	Hrs	40		3,454		3,454	35%
1	06	06	04	03		XE_7011	First Install Far Hall - Laser Amplifiers		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	04	03		XE_7011	First Install Far Hall - Laser Amplifiers		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	04	03		XE_7011	First Install Far Hall - Laser Amplifiers		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	04	03		XE_5518	First Install Far Hall - Oscillator Laser/Pump		CON	SL_TMUE	Hrs	40		4,063		4,063	35%
1	06	06	04	03		XE_5518	First Install Far Hall - Oscillator Laser/Pump		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	04	03		XE_5518	First Install Far Hall - Oscillator Laser/Pump		CON	SL_EE	Hrs	40		4,747		4,747	35%
1	06	06	04	03		XE_5519	Vendor Setup/Demo FHall - Oscillator Laser/Pump		CON	SL_PHS	Hrs	40		3,072		3,072	35%
1	06	06	04	03		XE_7013	Final Check Far Hall - Laser Amplifiers		CON	SL_PHS	Hrs	16		1,229		1,229	35%
1	06	06	04	03		XE_7013	Final Check Far Hall - Laser Amplifiers		CON	SL_EE	Hrs	16		1,899		1,899	35%
1	06	06	04	03		XE_5520	Final Check Far Hall - Oscillator Laser/Pump		CON	SL_PHS	Hrs	16		1,229		1,229	35%
1	06	06	04	03		XE_5520	Final Check Far Hall - Oscillator Laser/Pump		CON	SL_EE	Hrs	16		1,899		1,899	35%
1	06	06	04	03		XE_7014	Test Far Hall - Laser Amplifiers		CON	SL_PHS	Hrs	80		6,303		6,303	35%
1	06	06	04	03		XE_7014	Test Far Hall - Laser Amplifiers		CON	SL_EE	Hrs	80		9,740		9,740	35%
1	06	06	04	03		XE_5521	Test Far Hall - Oscillator Laser/Pum		CON	SL_TMUE	Hrs	40		4,168		4,168	35%
1	06	06	04	03		XE_5521	Test Far Hall - Oscillator Laser/Pum		CON	SL_PHS	Hrs	40		3,152		3,152	35%
1	06	06	04	03		XE_5521	Test Far Hall - Oscillator Laser/Pum		CON	SL_MFAT	Hrs	8		709		709	35%
1	**06**	**06**	**04**	**04**			**Far Hall Install Detectors**					**400**	**-**	**41,826**	**-**	**41,826**	
1	06	06	04	04		XE_7064	Install at SLAC - 2-D X-Ray Detector		CON	SL_PHS	Hrs	80		6,303		6,303	35%
1	06	06	04	04		XE_7064	Install at SLAC - 2-D X-Ray Detector		CON	SL_EE	Hrs	80		9,740		9,740	35%
1	06	06	04	04		XE_7076	Integrate with Controls - 2-D X-Ray Detector		CON	SL_PHS	Hrs	80		6,303		6,303	35%
1	06	06	04	04		XE_7076	Integrate with Controls - 2-D X-Ray Detector		CON	SL_EE	Hrs	80		9,740		9,740	35%
1	06	06	04	04		XE_7076	Integrate with Controls - 2-D X-Ray Detector		CON	SL_CE	Hrs	80		9,740		9,740	35%
1	**06**	**06**	**04**	**05**			**Reserved**										
1	**06**	**07**					**Reserved**										
1	**06**	**07**	**01**				**Reserved**										
1	**06**	**07**	**02**				**Reserved**										
1	**06**	**07**	**03**				**Reserved**										
1	**06**	**07**	**04**				**Reserved**										
1	**07**						**Reserved**										
1	**08**						**Reserved**										
1	**09**						**CONVENTIONAL FACILITIES**					**53,993**	**51,577,385**	**5,290,082**	**56,113,468**	**61,403,550**	
1	**09**	**01**					**System Management & Integration**					**35,071**	**1,095,929**	**3,688,085**	**1,232,871**	**4,920,956**	
1	**09**	**01**	**01**				**Management**					**7,847**	**115,000**	**856,775**	**142,755**	**999,530**	
1	09	01	01			CF02010012	Travel - FY04		PED	SL_MSTR	$$		10,000		12,000	12,000	10%
1	09	01	01			CF02010011	Software - PED		PED	SL_MSEG	$$		5,412		5,806	5,806	10%
1	09	01	01			CF02010010	Management - PED		PED	SL_SEEM	Hrs	896		92,046		92,046	10%
1	09	01	01			CF02010014	Travel - FY05-08		CON	SL_MSTR	$$		80,000		102,800	102,800	10%
1	09	01	01			CF02010013	Management - CONST		CON	SL_SEEM	Hrs	6,951		764,729		764,729	10%
1	09	01	01			CF02010016	Software - CONST		CON	SL_MSEG	$$		19,588		22,149	22,149	10%
1	**09**	**01**	**02**				**Cost Account Managers**					**21,686**	**-**	**2,379,026**	**-**	**2,379,026**	
1	09	01	02			CF02010015	Cost Account Managers-Phase I		PED	SL_SEEM	Hrs	896		92,046		92,046	10%
1	09	01	02			CF02010017	Cost Account Managers-Phase II		CON	SL_SEEM	Hrs	20,790		2,286,980		2,286,980	10%
1	**09**	**01**	**03**				**Construction Management**					**-**	**980,929**	**-**	**1,090,116**	**1,090,116**	
1	09	01	03			CF02010020	Construction Management		CON	SL_MSXX	$$		500,000		540,236	540,236	10%
1	09	01	03			CF02010020	Construction Management		CON	SL_MSSC	$$		480,929		549,880	549,880	10%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	**09**	**01**	**04**				**Mechanical Design (MD)**					**2,784**	**-**	**185,826**	**-**	**185,826**	
1	**09**	**01**	**04**	**01**			**Mechanical Design Title 1 (Linac not included)**										
1	**09**	**01**	**04**	**02**			**Mechanical Design T1 Linac Facilities**					**588**	**-**	**36,891**	**-**	**36,891**	
1	09	01	04	02		CF03010125	Mechan Design Support Pre-Title 1 Linac Facility		PED	SL_MDD	Hrs	192		12,046		12,046	20%
1	09	01	04	02		CF03011010	Mechanical Design Support Title 1 Linac Facility		PED	SL_MDD	Hrs	396		24,845		24,845	20%
1	**09**	**01**	**04**	**03**			**Mechanical Design Title 2 (Linac not included)**					**1,303**	**-**	**81,580**	**-**	**81,580**	
1	09	01	04	03		CF00201030	Mechanical Design Support For Title 2 Design		PED	SL_MDD	Hrs	64		3,902		3,902	20%
1	09	01	04	03		CF12010230	Mechanical Design Support For Title 2 Design		PED	SL_MDD	Hrs	64		3,902		3,902	20%
1	09	01	04	03		CF13010230	Mechanical Design Support For Title 2 Design		PED	SL_MDD	Hrs	127		7,968		7,968	20%
1	09	01	04	03		CF11010230	Mechanical Design Support For Title 2 Design		PED	SL_MDD	Hrs	127		7,968		7,968	20%
1	09	01	04	03		CF09010230	Mechanical Design Support For Title 2 Design		PED	SL_MDD	Hrs	127		7,968		7,968	20%
1	09	01	04	03		CF08010230	Mechanical Design Support For Title 2 Design		PED	SL_MDD	Hrs	127		7,968		7,968	20%
1	09	01	04	03		CF07010230	Mechanical Design Support For Title 2 Design		PED	SL_MDD	Hrs	127		7,968		7,968	20%
1	09	01	04	03		CF05012105	Mechanical Design Support For Title 2 Design		PED	SL_MDD	Hrs	127		7,968		7,968	20%
1	09	01	04	03		CF04010230	Mechanical Design Support For Title 2 Design		PED	SL_MDD	Hrs	127		7,968		7,968	20%
1	09	01	04	03		CF06010230	Mechanical Design Support for Title 2 Design		PED	SL_MDD	Hrs	127		7,968		7,968	20%
1	09	01	04	03		CF10010230	Mechanical Design Support For Title 2 Design		PED	SL_MDD	Hrs	127		7,968		7,968	20%
1	09	01	04	03		CF14010230	Mechanical Design Support For Title 2 Design		PED	SL_MDD	Hrs	32		2,064		2,064	20%
1	**09**	**01**	**04**	**04**			**Mechanical Design T2 Linac Facilities**					**348**	**-**	**22,009**	**-**	**22,009**	
1	09	01	04	04		CF03012105	Mechanical Design Support Title 2 Linac Facility		PED	SL_MDD	Hrs	348		22,009		22,009	20%
1	**09**	**01**	**04**	**05**			**Mechanical Design Title 3 Linac Facility**					**220**	**-**	**24,054**	**-**	**24,054**	
1	09	01	04	05		CF03023020	Mechanical Design Support for Construction		PED	SL_SEE	Hrs	220		24,054		24,054	20%
1	**09**	**01**	**04**	**06**			**Mechanical Design Title 3 (Linac not Included)**					**325**	**-**	**21,292**	**-**	**21,292**	
1	09	01	04	06		CF13013085	Mechanical Design Title 3 (Linac not Included)		PED	SL_MDD	Hrs	325		21,292		21,292	20%
1	**09**	**01**	**05**				**Site Engineering and Maintenance (SEM)**					**2,754**	**-**	**266,458**	**-**	**266,458**	
1	**09**	**01**	**05**	**01**			**SEM Engineering Title 1(Linac Not Included)**					**10**	**-**	**645**	**-**	**645**	
1	09	01	05	01		CF14010106	MCC Prepare as Builts		PED	SL_MDD	Hrs	10		645		645	20%
1	**09**	**01**	**05**	**02**			**SEM Engineering Title 1 Linac Facility**					**600**	**-**	**59,987**	**-**	**59,987**	
1	09	01	05	02		CF03010108	Utility investigation Linac Facility		PED	SL_SEE	Hrs	80		8,457		8,457	20%
1	09	01	05	02		CF03010108	Utility investigation Linac Facility		PED	SL_MDD	Hrs	80		5,019		5,019	20%
1	09	01	05	02		CF03010104	Develop as-built package Linac Facilitiy		PED	SL_SEE	Hrs	80		8,457		8,457	20%
1	09	01	05	02		CF03010116	Review Budget/Constructibility Linac Facility		PED	SL_SEE	Hrs	40		4,228		4,228	20%
1	09	01	05	02		CF03010114	Review Schedule Linac Facility		PED	SL_SEE	Hrs	40		4,228		4,228	20%
1	09	01	05	02		CF03011005	Basis of Design Linac Facility		PED	SL_SEE	Hrs	120		12,685		12,685	20%
1	09	01	05	02		CF03011105	Schematic Design Review 1 Linac T1		PED	SL_SEE	Hrs	40		4,228		4,228	20%
1	09	01	05	02		CF03011115	Schematic Design Review 2 Linac T1		PED	SL_SEE	Hrs	40		4,228		4,228	20%
1	09	01	05	02		CF03011140	Final Schematic Design Review Linac T1		PED	SL_SEE	Hrs	80		8,457		8,457	20%
1	**09**	**01**	**05**	**03**			**SEM Engineering Title 2 (Linac Not Included)**										
1	**09**	**01**	**05**	**04**			**SEM Design Linac Facility Title 2**					**2,144**	**-**	**205,826**	**-**	**205,826**	
1	09	01	05	04		CF03010205	User mtg.-interior layout details Linac Facility		PED	SL_SEE	Hrs	160		16,914		16,914	20%
1	09	01	05	04		CF03010205	User mtg.-interior layout details Linac Facility		PED	SL_MDD	Hrs	320		20,077		20,077	20%
1	09	01	05	04		CF03010215	User Review and Approval Linac Facility		PED	SL_SEE	Hrs	96		10,148		10,148	20%
1	09	01	05	04		CF03010215	User Review and Approval Linac Facility		PED	SL_MDD	Hrs	192		12,046		12,046	20%
1	09	01	05	04		CF03012020	Multi-Discipline Developmt Phase Linac Facility		PED	SL_SEE	Hrs	720		76,111		76,111	20%
1	09	01	05	04		CF03012025	User Review and Approval Linac Facility		PED	SL_SEE	Hrs	40		4,228		4,228	20%
1	09	01	05	04		CF03012030	Consultant Modify drwgs as necessary Linac Facil		PED	SL_SEE	Hrs	80		8,457		8,457	20%
1	09	01	05	04		CF03012035	Consultants provide 50% dwgs Linac Facility		PED	SL_SEE	Hrs	8		846		846	20%
1	09	01	05	04		CF03012040	Design team coordination meeting Linac Facility		PED	SL_SEE	Hrs	16		1,691		1,691	20%
1	09	01	05	04		CF03012045	Consultnt issue update base plans Linac Facility		PED	SL_SEE	Hrs	40		4,228		4,228	20%
1	09	01	05	04		CF03012055	User Review Linac Facility		PED	SL_SEE	Hrs	40		4,228		4,228	20%
1	09	01	05	04		CF03012060	Details & Specifications Linac Facility		PED	SL_SEE	Hrs	80		8,599		8,599	20%
1	09	01	05	04		CF03012065	100% Drawings& Specs f/Consultants Linac Facilit		PED	SL_SEE	Hrs	112		12,171		12,171	20%
1	09	01	05	04		CF03012070	Issue Drawings/Specs for cost est Linac Facility		PED	SL_SEE	Hrs	40		4,347		4,347	20%
1	09	01	05	04		CF03012075	Cost estimate Linac Facility		PED	SL_SEE	Hrs	80		8,694		8,694	20%
1	09	01	05	04		CF03012080	100% Design Development Submittal Linac Facility		PED	SL_SEE	Hrs	40		4,347		4,347	20%
1	09	01	05	04		CF03012090	SLAC Review Linac Facility		PED	SL_SEE	Hrs	80		8,694		8,694	20%
1	**09**	**02**					**Title 1 & Title 2 Conventional Facilities**					**-**	**2,208,615**	**-**	**2,387,937**	**2,387,937**	
1	**09**	**02**	**01**				**Reserved**										
1	**09**	**02**	**02**				**A & E Services (S20, MMF, MMC not Incl)**					**-**	**1,938,507**	**-**	**2,098,695**	**2,098,695**	
1	**09**	**02**	**02**	**01**			**Title 1 Design**					**-**	**475,745**	**-**	**504,287**	**504,287**	
1	09	02	02	01		CF13011105	Schematic Design Review 1 CLOB		PED	SL_MSSC	$$		21,402		22,686	22,686	20%
1	09	02	02	01		CF10011115	Schematic Design Review 1 X - Ray Trans/Dia		PED	SL_MSSC	$$		15,527		16,459	16,459	20%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	09	02	02	01		CF10011150	Title 1 Complete X - Ray Transport & Diagnostic		PED	SL_MSSC	$$		7,763		8,229	8,229	20%
1	09	02	02	01		CF06011005	Design Undulator Facility Title 1		PED	SL_MSSC	$$		19,517		20,688	20,688	20%
1	09	02	02	01		CF05011005	Design Research Yard Mods Title 1		PED	SL_MSSC	$$		29,108		30,854	30,854	20%
1	09	02	02	01		CF13011115	Schematic Design Review 2 CLOB		PED	SL_MSSC	$$		21,402		22,686	22,686	20%
1	09	02	02	01		CF11011140	Schematic Design Review FEH		PED	SL_MSSC	$$		35,080		37,185	37,185	20%
1	09	02	02	01		CF10011140	Schematic Dsgn Rev 2 X - Ray Trans/Dia		PED	SL_MSSC	$$		38,818		41,147	41,147	20%
1	09	02	02	01		CF09011140	Schematic Design Review 2 NEH		PED	SL_MSSC	$$		44,257		46,912	46,912	20%
1	09	02	02	01		CF08011140	Schematic Design Review 2 Beam Dump		PED	SL_MSSC	$$		10,041		10,643	10,643	20%
1	09	02	02	01		CF07011140	Schematic Design Review 2 FEE		PED	SL_MSSC	$$		9,856		10,447	10,447	20%
1	09	02	02	01		CF06011140	Schematic Design Review 2 Und Facil		PED	SL_MSSC	$$		32,150		34,079	34,079	20%
1	09	02	02	01		CF05011040	Schematic Design 2 Research Yard		PED	SL_MSSC	$$		47,113		49,940	49,940	20%
1	09	02	02	01		CF04011140	Schematic Design Review 2 BTH		PED	SL_MSSC	$$		34,789		36,876	36,876	20%
1	09	02	02	01		CF13011150	Title 1 Complete Central Lab Office Bldg (CLOB)		PED	SL_MSSC	$$		10,700		11,342	11,342	20%
1	09	02	02	01		CF13011140	Final Schematic Design Review CLOB		PED	SL_MSSC	$$		53,504		56,714	56,714	20%
1	09	02	02	01		CF11011150	Title 1 Complete Far Experimental Hall		PED	SL_MSSC	$$		7,017		7,438	7,438	20%
1	09	02	02	01		CF09011150	Title 1 Complete Near Experimental Hall		PED	SL_MSSC	$$		10,915		11,570	11,570	20%
1	09	02	02	01		CF08011150	Title 1 Complete Beam Dump		PED	SL_MSSC	$$		2,008		2,128	2,128	20%
1	09	02	02	01		CF07011150	Title 1 Complete Front End Enclosure		PED	SL_MSSC	$$		1,971		2,089	2,089	20%
1	09	02	02	01		CF06011150	Title 1 Complete Undulator Facility		PED	SL_MSSC	$$		6,429		6,815	6,815	20%
1	09	02	02	01		CF05011150	Title 1 Complete Research Yard		PED	SL_MSSC	$$		9,422		9,987	9,987	20%
1	09	02	02	01		CF04011150	Title 1 Complete BTH		PED	SL_MSSC	$$		6,956		7,373	7,373	20%
1	**09**	**02**	**02**				**Title 2 Design**					**-**	**1,462,762**	**-**	**1,594,408**	**1,594,408**	
1	09	02	02	02		CF05012020	Multi-Discipline Development Phase Research Yard		PED	SL_MSSC	$$		44,221		48,201	48,201	20%
1	09	02	02	02		CF06012020	Multi-Discipline Development Phase Undulator Fac		PED	SL_MSSC	$$		43,200		47,088	47,088	20%
1	09	02	02	02		CF05012114	Design Review 1 Research Yard (T2)		PED	SL_MSSC	$$		42,405		46,221	46,221	20%
1	09	02	02	02		CF13012114	Design Review 1 Central Lab Office Bldg (T2)		PED	SL_MSSC	$$		48,158		52,492	52,492	20%
1	09	02	02	02		CF11012114	Design Review 1 FEH (T2)		PED	SL_MSSC	$$		31,574		34,416	34,416	20%
1	09	02	02	02		CF09012114	T2 Design Review 1 NEH (T2)		PED	SL_MSSC	$$		39,834		43,419	43,419	20%
1	09	02	02	02		CF08012114	Design Review 1 Beam Dump (T2)		PED	SL_MSSC	$$		9,037		9,850	9,850	20%
1	09	02	02	02		CF07012114	Design Review 1 FEE (T2)		PED	SL_MSSC	$$		8,871		9,669	9,669	20%
1	09	02	02	02		CF04012114	Design Review 1 BTH (T2)		PED	SL_MSSC	$$		31,313		34,131	34,131	20%
1	09	02	02	02		CF06012114	Design Review 1 Undulator Facil (T2)		PED	SL_MSSC	$$		28,937		31,541	31,541	20%
1	09	02	02	02		CF10012114	Design Review 1 X-Ray Trans/Dia Tun (T2)		PED	SL_MSSC	$$		34,939		38,084	38,084	20%
1	09	02	02	02		CF05012116	Design Review 2 (Research Yard T2)		PED	SL_MSSC	$$		42,405		46,221	46,221	20%
1	09	02	02	02		CF13012116	Design Review 2 Central Lab Office Bldg (T2)		PED	SL_MSSC	$$		48,158		52,492	52,492	20%
1	09	02	02	02		CF11012116	Design Review 2 FEH (T2)		PED	SL_MSSC	$$		31,574		34,416	34,416	20%
1	09	02	02	02		CF09012116	T2 Design Review 2 NEH (T2)		PED	SL_MSSC	$$		39,834		43,419	43,419	20%
1	09	02	02	02		CF08012116	Design Review 2 Beam Dump (T2)		PED	SL_MSSC	$$		9,037		9,850	9,850	20%
1	09	02	02	02		CF07012116	Design Review 1 FEE (T2)		PED	SL_MSSC	$$		8,871		9,669	9,669	20%
1	09	02	02	02		CF04012116	Design Review 2 BTH (T2)		PED	SL_MSSC	$$		31,313		34,131	34,131	20%
1	09	02	02	02		CF06012116	Design Review 2 Undulator Facil (T2)		PED	SL_MSSC	$$		28,937		31,541	31,541	20%
1	09	02	02	02		CF10012116	Design Review 2 X-Ray Trans/Dia Tun (T2)		PED	SL_MSSC	$$		34,939		38,084	38,084	20%
1	09	02	02	02		CF05012134	Final Design Review Research Yard (T2)		PED	SL_MSSC	$$		106,012		115,553	115,553	20%
1	09	02	02	02		CF05012140	Title 2 Design Complete Research Yard		PED	SL_MSSC	$$		21,202		23,110	23,110	20%
1	09	02	02	02		CF13012134	Final Design Review CLOB (T2)		PED	SL_MSSC	$$		120,396		131,232	131,232	20%
1	09	02	02	02		CF11012134	Final Design Review FEH (T2)		PED	SL_MSSC	$$		78,934		86,038	86,038	20%
1	09	02	02	02		CF09012134	T2 Final Design Review NEH (T2)		PED	SL_MSSC	$$		99,586		108,549	108,549	20%
1	09	02	02	02		CF08012134	Final Design Review (T2)		PED	SL_MSSC	$$		22,593		24,626	24,626	20%
1	09	02	02	02		CF07012134	Final Design Review FEE (T2)		PED	SL_MSSC	$$		22,177		24,173	24,173	20%
1	09	02	02	02		CF04012134	Final Design Review BTH (T2)		PED	SL_MSSC	$$		78,282		85,327	85,327	20%
1	09	02	02	02		CF13012140	Title 2 Complete Central Lab Office Bldg (CLOB)		PED	SL_MSSC	$$		24,079		26,246	26,246	20%
1	09	02	02	02		CF11012140	Title 2 Complete Far Experimental Hall		PED	SL_MSSC	$$		15,787		17,208	17,208	20%
1	09	02	02	02		CF09012140	Title 2 Complete Near Experimental Hall		PED	SL_MSSC	$$		19,917		21,710	21,710	20%
1	09	02	02	02		CF08012140	Title 2 Complete Beam Dump		PED	SL_MSSC	$$		4,519		4,926	4,926	20%
1	09	02	02	02		CF07012140	Title 2 Complete Front End Enclosure		PED	SL_MSSC	$$		4,435		4,834	4,834	20%
1	09	02	02	02		CF06012140	Title 2 Complete Undulator Facility		PED	SL_MSSC	$$		14,469		15,771	15,771	20%
1	09	02	02	02		CF06012134	Final Design Review Undulator Facil (T2)		PED	SL_MSSC	$$		72,343		78,854	78,854	20%
1	09	02	02	02		CF10012134	Final Design Review X-Ray Trans/Dia Tun(T2)		PED	SL_MSSC	$$		87,348		95,209	95,209	20%
1	09	02	02	02		CF10012140	Title 2 Complete X-Ray Transport/Diagnostic Tun		PED	SL_MSSC	$$		17,470		19,042	19,042	20%
1	09	02	02	02		CF04012140	Title 2 Complete		PED	SL_MSSC	$$		15,656		17,065	17,065	20%
1	**09**	**02**	**03**				**A & E Services - (S20, MMF,MCC)**					**-**	**270,108**	**-**	**289,242**	**289,242**	
1	**09**	**02**	**03**	**01**			**Title 1 Design (Sector 20)**					**-**	**33,618**	**-**	**35,635**	**35,635**	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	09	02	03	01		CF02011115	Schematic Design Review 2 Title 1		PED	SL_MSSC	$$		11,209		11,882	11,882	20%
1	09	02	03	01		CF02011150	Alcove Mods/RF Hut Title 1 Complete		PED	SL_MSSC	$$		4,457		4,724	4,724	20%
1	09	02	03	01		CF02011140	Complete Final Schematic Design T1		PED	SL_MSSC	$$		17,952		19,029	19,029	20%
1	**09**	**02**	**03**	**02**			**Title 2 Design (Sector 20)**					**-**	**44,000**	**-**	**46,639**	**46,639**	
1	09	02	03	02		CF02012030	Design Review 1 w/Cost Est Alcove/RF HUT		PED	SL_MSSC	$$		12,222		12,955	12,955	20%
1	09	02	03	02		CF02012055	Design Review 2 Alcove/RF HUT		PED	SL_MSSC	$$		12,222		12,955	12,955	20%
1	09	02	03	02		CF02012085	Complete Final Design Review Alcove/RF HUT		PED	SL_MSSC	$$		15,156		16,065	16,065	20%
1	09	02	03	02		CF02012140	Alcove/RF Hut Title 2 Complete Title 2		PED	SL_MSSC	$$		4,400		4,664	4,664	20%
1	**09**	**02**	**03**	**03**			**Title 1 Design (MMF)**					**-**	**49,695**	**-**	**52,677**	**52,677**	
1	09	02	03	03		CF12011030	MMF Schematic Design Review Title 1		PED	SL_MSSC	$$		14,198		15,050	15,050	20%
1	09	02	03	03		CF12011050	MMF Schematic Design Review 2		PED	SL_MSSC	$$		14,198		15,050	15,050	20%
1	09	02	03	03		CF12011080	MMF Final Schematic Design Complete		PED	SL_MSSC	$$		16,329		17,309	17,309	20%
1	09	02	03	03		CF12011090	MMF Design Title 1 Complete		PED	SL_MSSC	$$		4,970		5,268	5,268	20%
1	**09**	**02**	**03**	**04**			**Title 2 Design (MMF)**					**-**	**94,000**	**-**	**99,641**	**99,641**	
1	09	02	03	04		CF12012025	MMF Design Review 1 w/Cost Est		PED	SL_MSSC	$$		21,692		22,994	22,994	20%
1	09	02	03	04		CF12012050	MMF Design Review 2		PED	SL_MSSC	$$		21,692		22,994	22,994	20%
1	09	02	03	04		CF12012080	MMF Final Design Review		PED	SL_MSSC	$$		41,216		43,689	43,689	20%
1	09	02	03	04		CF12012095	MMF Title 2 Complete		PED	SL_MSSC	$$		9,400		9,964	9,964	20%
1	**09**	**02**	**03**	**05**			**Title 1 Design (MCC)**					**-**	**11,295**	**-**	**12,650**	**12,650**	
1	09	02	03	05		CF14011030	MCC Schematic Design Review Title 1		PED	SL_MSSC	$$		2,259		2,530	2,530	20%
1	09	02	03	05		CF14011050	MCC Schematic Design Review 2		PED	SL_MSSC	$$		2,259		2,530	2,530	20%
1	09	02	03	05		CF14011090	MCC Design Title 1 Complete		PED	SL_MSSC	$$		2,259		2,530	2,530	20%
1	09	02	03	05		CF14011080	MCC Final Schematic Design Complete		PED	SL_MSSC	$$		4,518		5,060	5,060	20%
1	**09**	**02**	**03**	**06**			**Title 2 Design (MCC)**					**-**	**37,500**	**-**	**42,000**	**42,000**	
1	09	02	03	06		CF14012025	MCC Design Review 1 w/Cost Est		PED	SL_MSSC	$$		10,000		11,200	11,200	20%
1	09	02	03	06		CF14012050	MCC Design Review 2		PED	SL_MSSC	$$		10,000		11,200	11,200	20%
1	09	02	03	06		CF14012095	MCC Title 2 Complete		PED	SL_MSSC	$$		2,500		2,800	2,800	20%
1	09	02	03	06		CF14012080	MCC Final Design Review		PED	SL_MSSC	$$		15,000		16,800	16,800	20%
1	**09**	**03**					**Construction-T3 Conventional Facilities**					**18,922**	**48,272,841**	**1,601,997**	**52,492,660**	**54,094,657**	
1	**09**	**03**	**01**				**Sector 20 Injector Facilities**					**2,888**	**1,241,296**	**180,453**	**1,311,012**	**1,491,465**	
1	**09**	**03**	**01**	**01**			**Site Preparation**					**1,952**	**-**	**121,961**	**-**	**121,961**	
1	09	03	01	01		CF03013241	RF Hut Clear Area		CON	SL_SEPM	Hrs	192		11,996		11,996	20%
1	09	03	01	01		CF03013095	Alcove Relocate Pump Room		CON	SL_SEPM	Hrs	1,760		109,965		109,965	20%
	09	**03**	**01**	**02**			**Structural**										
1	**09**	**03**	**01**	**03**			**Electrical**										
1	**09**	**03**	**01**	**04**			**Utilities**					**896**	**1,200,000**	**55,982**	**1,266,000**	**1,321,982**	
1	09	03	01	04		CF03013247	T3 Construction of RF Hut and Alcove		CON	SL_MSXX	$$		700,000		721,000	721,000	20%
1	09	03	01	04		CF03013247	T3 Construction of RF Hut and Alcove		CON	SL_MSSC	$$		500,000		545,000	545,000	20%
1	09	03	01	04		CF03013105	Alcove Remove Unused Utilities		CON	SL_SEPM	Hrs	896		55,982		55,982	20%
1	**09**	**03**	**01**	**05**			**HVAC**										
1	**09**	**03**	**01**	**06**			**Special System - Fire Protection**										
1	**09**	**03**	**01**	**07**			**Interior**										
1	**09**	**03**	**01**	**10**			**Project Close Out Sector 20 Injector Facility**					**40**	**41,296**	**2,510**	**45,012**	**47,522**	
1	09	03	01	10		CF03013156	Drawing Implementation to SLAC System-RF Hut		CON	SL_MDD	Hrs	20		1,255		1,255	20%
1	09	03	01	10		CF03013154	Drawing Implementation to SLAC System-Alcove		CON	SL_MDD	Hrs	20		1,255		1,255	20%
1	09	03	01	10		CF22010010	Reproduction		CON	SL_MSSC	$$		3,500		3,815	3,815	
1	09	03	01	10		CF22010005	Testing		CON	SL_MSSC	$$		5,760		6,278	6,278	
1	09	03	01	10		CF22010000	Furnishings		CON	SL_MSSC	$$		32,036		34,919	34,919	
1	**09**	**03**	**02**				**Magnetic Measurement Facility**					**880**	**1,241,146**	**64,926**	**1,310,849**	**1,375,775**	
1	09	03	02			CF12112902	MMF Title 3 Construction		PED	SL_MSXX	$$		700,000		721,000	721,000	20%
1	09	03	02			CF12112902	MMF Title 3 Construction		PED	SL_MSSC	$$		500,000		545,000	545,000	20%
1	**09**	**03**	**02**	**01**			**Site Preparation**					**320**	**-**	**15,015**	**-**	**15,015**	
1	09	03	02	01		CF12112905	MMF Clear Area Unload Racks		CON	SL_SEL	Hrs	160		7,507		7,507	20%
1	09	03	02	01		CF12112910	MMF Clear Area Tear Down Fencing		CON	SL_SEL	Hrs	80		3,754		3,754	20%
1	09	03	02	01		CF12112915	MMF Clear Area Remove Storage Racks		CON	SL_SEL	Hrs	80		3,754		3,754	20%
1	**09**	**03**	**02**	**02**			**Structural**					**160**	**-**	**12,733**	**-**	**12,733**	
1	09	03	02	02		CF12113010	MMF Rework Crane		CON	SL_TMUO	Hrs	160		12,733		12,733	20%
1	**09**	**03**	**02**	**03**			**Electrical**					**360**	**-**	**34,668**	**-**	**34,668**	
1	09	03	02	03		CF12113005	MMF Modify Bldg Lighting & Power etc.		CON	SL_TMUE	Hrs	360		34,668		34,668	20%
1	**09**	**03**	**02**	**04**			**Utilities**										
1	**09**	**03**	**02**	**05**			**HVAC**										
1	**09**	**03**	**02**	**06**			**Special System - Fire Protection**										

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	**09**	**03**	**02**	**07**			**Interior**										
1	**09**	**03**	**02**	**10**			**Project Close Out Magnetic Measurement Facility**					**40**	**41,146**	**2,510**	**44,849**	**47,359**	
1	09	03	02	10		CF12113053	Drawing Implementation to SLAC System		CON	SL_MDD	Hrs	40		2,510		2,510	20%
1	09	03	02	10		CF22020010	Reproduction		CON	SL_MSSC	$$		3,500		3,815	3,815	
1	09	03	02	10		CF22020005	Testing		CON	SL_MSSC	$$		5,760		6,278	6,278	
1	09	03	02	10		CF22020000	Furnishings		CON	SL_MSSC	$$		31,886		34,756	34,756	
1	**09**	**03**	**03**				**Main Control Center Facilities Upgrade**					**40**	**283,260**	**2,716**	**331,054**	**333,770**	
1	**09**	**03**	**03**	**01**			**Site Preparation**					**-**	**200,000**	**-**	**232,807**	**232,807**	
1	09	03	03	01		CF14012906	MCC Title 3 Construction		CON	SL_MSSC	$$		200,000		232,807	232,807	20%
1	**09**	**03**	**03**	**02**			**Structural**										
1	**09**	**03**	**03**	**03**			**Electrical**										
1	**09**	**03**	**03**	**04**			**Utilities**										
1	**09**	**03**	**03**	**05**			**HVAC**										
1	**09**	**03**	**03**	**06**			**Special System - Fire Protection**										
1	**09**	**03**	**03**	**07**			**Interior**										
1	**09**	**03**	**03**	**10**			**Project Close Out Main Control Center Facilitiy**					**40**	**83,260**	**2,716**	**98,247**	**100,963**	
1	09	03	03	10		CF14013053	Drawing Implementation to SLAC System		CON	SL_MDD	Hrs	40		2,716		2,716	20%
1	09	03	03	10		CF24020010	Reproduction		CON	SL_MSSC	$$		2,500		2,950	2,950	
1	09	03	03	10		CF24020005	Testing		CON	SL_MSSC	$$		5,760		6,797	6,797	
1	09	03	03	10		CF24020000	Furnishings		CON	SL_MSSC	$$		75,000		88,500	88,500	
1	**09**	**03**	**04**				**Linac Facility**					**3,860**	**289,750**	**306,974**	**326,200**	**633,174**	
1	**09**	**03**	**04**	**03**			**Electrical**					**2,560**	**100,000**	**203,433**	**112,000**	**315,433**	
1	09	03	04	03		CF03023065	Install Interior Utilities Electrical		CON	SL_TMUO	Hrs	320		26,179		26,179	20%
1	09	03	04	03		CF03023065	Install Interior Utilities Electrical		CON	SL_TMUE	Hrs	960		95,040		95,040	20%
1	09	03	04	03		CF03023065	Install Interior Utilities Electrical		CON	SL_SEPM	Hrs	1,280		82,214		82,214	20%
1	09	03	04	03		CF03023065	Install Interior Utilities Electrical		CON	SL_MSSC	$$		100,000		112,000	112,000	20%
1	**09**	**03**	**04**	**04**			**Utilities**					**1,260**	**89,750**	**100,961**	**100,700**	**201,661**	
1	09	03	04	04		CF03023005	Install Utilities Linac Facility		CON	SL_TMUW	Hrs	180		14,104		14,104	20%
1	09	03	04	04		CF03023005	Install Utilities Linac Facility		CON	SL_TMUP	Hrs	360		34,191		34,191	20%
1	09	03	04	04		CF03023005	Install Utilities Linac Facility		CON	SL_TMUO	Hrs	360		29,503		29,503	20%
1	09	03	04	04		CF03023005	Install Utilities Linac Facility		CON	SL_SEPM	Hrs	360		23,163		23,163	20%
1	09	03	04	04		CF03023005	Install Utilities Linac Facility		CON	SL_MSSC	$$		89,750		100,700	100,700	20%
1	**09**	**03**	**04**	**06**			**Special System - Fire Protection**										
1	**09**	**03**	**04**	**10**			**Project Close Out Linac Facility**					**40**	**100,000**	**2,580**	**113,500**	**116,080**	
1	09	03	04	10		CF03023055	Building Commissioning Linac Facility		CON	SL_MSSC	$$		50,000		56,000	56,000	20%
1	09	03	04	10		CF03023010	Drawing Implementation to SLAC System		CON	SL_MDD	Hrs	40		2,580		2,580	20%
1	09	03	04	10		CF03023045	Project Punch List Linac Facility		CON	SL_MSSC	$$		50,000		57,500	57,500	20%
1	**09**	**03**	**05**				**Research Yard/B102,B211,B113 & Storage Trailers**					**4,752**	**1,795,753**	**389,051**	**2,015,396**	**2,404,447**	
1	09	03	05			CF05034005	UTR Support for Construction		CON	SL_UTR	Hrs	1,127		122,471		122,471	20%
1	09	03	05			CF05034000	AE Engineering Support for Construction		CON	SL_MSPS	$$		152,753		171,083	171,083	20%
1	09	03	05			CF05033007	EPR Site Characterization Research Yard Mods		CON	SL_MSSC	$$		469,000		525,280	525,280	20%
1	09	03	05			CF05033006	EPR Drilling Contractor Research Yard Mods		CON	SL_MSSC	$$		34,000		38,080	38,080	20%
1	09	03	05			CF05033004	EPR Site Remediation Research Yard Mods		CON	SL_SEE	Hrs	215		23,364		23,364	20%
1	09	03	05			CF05033003	T3 Construction Research Yard Mods		CON	SL_MSSC	$$		500,000		560,000	560,000	20%
1	09	03	05			CF05012905	DWG Implementation to SLAC System RY to FELC		CON	SL_MDD	Hrs	20		1,290		1,290	20%
1	**09**	**03**	**05**	**01**			**Site Preparation**					**800**	**-**	**51,384**	**-**	**51,384**	
1	**09**	**03**	**05**	**01**	**01**		**Site Preparation SEM**					**800**	**-**	**51,384**	**-**	**51,384**	
1	09	03	05	01	01	CF05033010	Sitework Research Yard Mods (SEM)		CON	SL_SEPM	Hrs	800		51,384		51,384	20%
1	**09**	**03**	**05**	**01**	**02**		**Site Preparation G/C**										
1	**09**	**03**	**05**	**02**			**Structural**					**800**	**-**	**56,436**	**-**	**56,436**	
1	**09**	**03**	**05**	**02**	**01**		**Structural SEM**					**800**	**-**	**56,436**	**-**	**56,436**	
1	09	03	05	02	01	CF05013070	Modify Bldg #102 Research Yard Mods (SEM)		CON	SL_SEPM	Hrs	400		25,692		25,692	20%
1	09	03	05	02	01	CF05033015	Concrete Pad Research Yard Mods (SEM)		CON	SL_TMUC	Hrs	400		30,744		30,744	20%
1	**09**	**03**	**05**	**02**	**02**		**Structural G/C**										
1	**09**	**03**	**05**	**03**			**Electrical**					**550**	**-**	**54,450**	**-**	**54,450**	
1	**09**	**03**	**05**	**03**	**01**		**Electrical SEM**					**550**	**-**	**54,450**	**-**	**54,450**	
1	09	03	05	03	01	CF05033065	Instl Interior Utilities Electrical (SEM)		CON	SL_TMUE	Hrs	550		54,450		54,450	20%
1	**09**	**03**	**05**	**03**	**02**		**Electrical G/C**										
1	**09**	**03**	**05**	**04**			**Utilities**					**500**	**-**	**32,115**	**-**	**32,115**	
1	**09**	**03**	**05**	**04**	**01**		**Utilities SEM**					**500**	**-**	**32,115**	**-**	**32,115**	
1	09	03	05	04	01	CF05033005	Install Underground Research Yard Mods (SEM)		CON	SL_SEPM	Hrs	500		32,115		32,115	20%
1	**09**	**03**	**05**	**04**	**02**		**Utilities G/C**										

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	09	03	05	05			**HVAC**					500	-	32,115	-	32,115	
1	09	03	05	05	01		**HVAC SEM**					500	-	32,115	-	32,115	
1	09	03	05	05	01	CF05033025	Instl Interior Utilities HVAC (SEM)		CON	SL_SEPM	Hrs	500		32,115		32,115	20%
1	09	03	05	05	02		**HVAC G/C**										
1	09	03	05	06			**Special System - Fire Protection**					200	-	12,846	-	12,846	
1	09	03	05	06	01		**Special System - Fire Protection SEM**					200	-	12,846	-	12,846	
1	09	03	05	06	01	CF05033075	Instl Interior Utilities Fire Protection (SEM)		CON	SL_SEPM	Hrs	200		12,846		12,846	20%
1	09	03	05	06	02		**Special System - Fire Protection**										
1	09	03	05	07			**Interior**										
1	09	03	05	07	01		**Interior SEM**										
1	09	03	05	07	02		**Interior G/C**										
1	09	03	05	10			**Project Close Out Reasearch Yard**					40	640,000	2,580	720,953	723,533	
1	09	03	05	10		CF05033053	Drawing Implementation to SLAC System		CON	SL_MDD	Hrs	40		2,580		2,580	20%
1	09	03	05	10		CF22030010	Reproduction		CON	SL_MSSC	$$		65,000		74,436	74,436	
1	09	03	05	10		CF22030005	Testing		CON	SL_MSSC	$$		100,000		114,517	114,517	
1	09	03	05	10		CF22030000	Furnishings		CON	SL_MSSC	$$		475,000		532,000	532,000	
1	09	03	06				**Access Road & Beam Transport Hall**					3,947	4,699,657	388,349	5,078,582	5,466,931	
1	09	03	06			CF04034005	UTR Support for Construction		CON	SL_UTR	Hrs	2,947		324,041		324,041	20%
1	09	03	06			CF04034000	AE Engineering Support for Construction		CON	SL_MSPS	$$		44,096		49,991	49,991	20%
1	09	03	06	01			**Site Preparation**					960	4,655,561	61,661	5,028,591	5,090,252	
1	09	03	06	01		CF04033084	T3 Construction Beam Transport Hall&Access Roads		CON	SL_MSXX	$$		4,155,561		4,461,750	4,461,750	20%
1	09	03	06	01		CF04033084	T3 Construction Beam Transport Hall&Access Roads		CON	SL_MSSC	$$		500,000		566,841	566,841	20%
1	09	03	06	01		CF04012910	FFTB Remove Utilities		CON	SL_SEPM	Hrs	960		61,661		61,661	20%
1	09	03	06	02			**Structural**										
1	09	03	06	03			**Electrical**										
1	09	03	06	04			**Utilities**										
1	09	03	06	05			**HVAC**										
1	09	03	06	06			**Special System- Fire Protection**										
1	09	03	06	07			**Interior**										
1	09	03	06	09			**Reserved**										
1	09	03	06	10			**Project Close Out Beam Trans Hall**					40	-	2,647	-	2,647	
1	09	03	06	10		CF04033053	Drawing Implementation to SLAC System		CON	SL_MDD	Hrs	40		2,647		2,647	20%
1	09	03	07				**Undulator Hall**					40	4,615,228	2,580	4,942,842	4,945,422	
1	09	03	07			CF06054000	AE Engineering Support for Construction		CON	SL_MSPS	$$		40,520		45,543	45,543	20%
1	09	03	07			CF06053002	T3 Construction Undulator Facility		CON	SL_MSXX	$$		4,074,708		4,335,320	4,335,320	20%
1	09	03	07			CF06053002	T3 Construction Undulator Facility		CON	SL_MSSC	$$		500,000		561,979	561,979	20%
1	09	03	07	01			**Site Preparation**										
1	09	03	07	02			**Structural**										
1	09	03	07	03			**Electrical**										
1	09	03	07	04			**Utilities**										
1	09	03	07	05			**HVAC**										
1	09	03	07	06			**Special System - Fire Protection**										
1	09	03	07	07			**Interior**										
1	09	03	07	09			**Tunneling**										
1	09	03	07	10			**Project Close Out Undulator Hall**					40	-	2,580	-	2,580	
1	09	03	07	10		CF06053053	Drawing Implementation to SLAC System		CON	SL_MDD	Hrs	40		2,580		2,580	20%
1	09	03	08				**Front End Enclosure**					40	430,650	2,647	486,469	489,116	
1	09	03	08			CF07064000	AE Engineering Support for Const		CON	SL_MSPS	$$		12,462		14,076	14,076	20%
1	09	03	08			CF07063002	T3 Construction Front End Enclosure		CON	SL_MSSC	$$		418,188		472,393	472,393	20%
1	09	03	08	01			**Site Preparation**										
1	09	03	08	02			**Structural**										
1	09	03	08	03			**Electrical**										
1	09	03	08	04			**Utilities**										
1	09	03	08	05			**HVAC**										
1	09	03	08	06			**Special System - Fire Protection**										
1	09	03	08	07			**Interior**										
1	09	03	08	09			**Tunneling**										
1	09	03	08	10			**Project Close Out Front End Enclosure**					40	-	2,647	-	2,647	
1	09	03	08	10		CF07063053	Drawing Implementation to SLAC System		CON	SL_MDD	Hrs	40		2,647		2,647	20%
1	09	03	09				**Beam Dump**					40	2,214,298	2,647	2,457,034	2,459,681	
1	09	03	09			CF08074000	AE Engineering Support for Construction		CON	SL_MSPS	$$		12,717		14,401	14,401	20%
1	09	03	09			CF08073002	T3 Construction Beam Dump		CON	SL_MSXX	$$		851,581		913,675	913,675	20%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	09	03	09			CF08073002	T3 Construction Beam Dump		CON	SL_MSSC	$$		500,000		566,458	566,458	20%
1	**09**	**03**	**09**	**01**			**Site Preparation**										
1	**09**	**03**	**09**	**02**			**Structural**										
1	**09**	**03**	**09**	**03**			**Electrical**					**-**	**850,000**	**-**	**962,500**	**962,500**	
1	09	03	09	03		CF08073060	Install Steel Shielding		CON	SL_MSXX	$$		250,000		272,500	272,500	20%
1	09	03	09	03		CF08073060	Install Steel Shielding		CON	SL_MSSC	$$		500,000		575,000	575,000	20%
1	09	03	09	03		CF08073060	Install Steel Shielding		CON	SL_MSPS	$$		100,000		115,000	115,000	20%
1	**09**	**03**	**09**	**04**			**Utilities**										
1	**09**	**03**	**09**	**05**			**reserved**										
1	**09**	**03**	**09**	**06**			**Special System (Fire Protection) Beam Dump**										
1	**09**	**03**	**09**	**09**			**Tunneling**										
1	**09**	**03**	**09**	**10**			**Project Close Out Beam Dump**					**40**	**-**	**2,647**	**-**	**2,647**	
1	09	03	09	10		CF08073053	Drawing Implementation to SLAC System		CON	SL_MDD	Hrs	40		2,647		2,647	20%
1	**09**	**03**	**10**				**Near Experimental Hall**					**40**	**3,549,566**	**2,580**	**3,799,977**	**3,802,557**	
1	09	03	10			CF09084000	AE Engineering Support for Construction		CON	SL_MSPS	$$		55,687		62,434	62,434	20%
1	09	03	10			CF09083002	T3 Construction Near Experimental Hall		CON	SL_MSXX	$$		2,993,879		3,176,966	3,176,966	20%
1	09	03	10			CF09083002	T3 Construction Near Experimental Hall		CON	SL_MSSC	$$		500,000		560,577	560,577	20%
1	**09**	**03**	**10**	**01**			**Site Preparation**										
1	**09**	**03**	**10**	**02**			**Structural**										
1	**09**	**03**	**10**	**03**			**Electrical**										
1	**09**	**03**	**10**	**04**			**Utilities**										
1	**09**	**03**	**10**	**05**			**HVAC**										
1	**09**	**03**	**10**	**06**			**Special System - Fire Protection**										
1	**09**	**03**	**10**	**07**			**Interior**										
1	**09**	**03**	**10**	**09**			**Reserved**										
1	**09**	**03**	**10**	**10**			**Project Close Out Near Experimental Hall**					**40**	**-**	**2,580**	**-**	**2,580**	
1	09	03	10	10		CF09083053	Drawing Implementation to SLAC System		CON	SL_MDD	Hrs	40		2,580		2,580	20%
1	**09**	**03**	**11**				**X-Ray Transport & Diagnostic Hall**					**40**	**3,864,579**	**2,647**	**4,184,126**	**4,186,773**	
1	09	03	11			CF10094010	AE Engineering Support for Construction		CON	SL_MSPS	$$		49,108		55,507	55,507	20%
1	**09**	**03**	**11**	**01**			**Site Preparation**										
1	**09**	**03**	**11**	**02**			**Structural**										
1	**09**	**03**	**11**	**03**			**Electrical**										
1	**09**	**03**	**11**	**04**			**Utilities**										
1	**09**	**03**	**11**	**05**			**HVAC**										
1	**09**	**03**	**11**	**06**			**Special System - Fire Protection**										
1	**09**	**03**	**11**	**07**			**Interiors**										
1	**09**	**03**	**11**	**09**			**Tunneling**					**-**	**3,815,471**	**-**	**4,128,619**	**4,128,619**	
1	09	03	11	09		CF10093084	T3 Construction X-Ray Transport Diagnostics		CON	SL_MSXX	$$		3,315,471		3,561,514	3,561,514	20%
1	09	03	11	09		CF10093084	T3 Construction X-Ray Transport Diagnostics		CON	SL_MSSC	$$		500,000		567,105	567,105	20%
1	**09**	**03**	**11**	**10**			**Project Close Out X-Ray Transport & Diagonistic**					**40**	**-**	**2,647**	**-**	**2,647**	
1	09	03	11	10		CF10093053	Drawing Implementation to SLAC System		CON	SL_MDD	Hrs	40		2,647		2,647	20%
1	**09**	**03**	**12**				**Far Experimental Hall**					**40**	**6,552,319**	**2,647**	**7,192,054**	**7,194,701**	
1	09	03	12			CF11104000	AE Engineering Support for Construction		CON	SL_MSSC	$$		39,373		44,691	44,691	30%
1	09	03	12			CF11103002	T3 Construction Far Experimental Hall		CON	SL_MSXX	$$		6,012,946		6,569,118	6,569,118	30%
1	09	03	12			CF11103002	T3 Construction Far Experimental Hall		CON	SL_MSSC	$$		500,000		578,245	578,245	30%
1	**09**	**03**	**12**	**01**			**Reserved**										
1	**09**	**03**	**12**	**02**			**Structural**										
1	**09**	**03**	**12**	**03**			**Electrical**										
1	**09**	**03**	**12**	**04**			**Utilities**										
1	**09**	**03**	**12**	**05**			**HVAC**										
1	**09**	**03**	**12**	**06**			**Special System - Fire Protection**										
1	**09**	**03**	**12**	**07**			**Interiors**										
1	**09**	**03**	**12**	**09**			**Tunneling**										
1	**09**	**03**	**12**	**10**			**Project Close Out Far Experimental Hall**					**40**	**-**	**2,647**	**-**	**2,647**	
1	09	03	12	10		CF11103053	Drawing Implementation to SLAC System		CON	SL_MDD	Hrs	40		2,647		2,647	30%
1	**09**	**03**	**13**				**Central Lab Office Bldg (CLOB)**					**2,315**	**17,495,339**	**253,780**	**19,057,065**	**19,310,845**	
1	09	03	13			CF13014005	UTR Support for Construction		CON	SL_UTR	Hrs	2,275		251,133		251,133	20%
1	09	03	13			CF13014000	AE Engineering Support for Construction		CON	SL_MSSC	$$		60,054		68,358	68,358	20%
1	09	03	13			CF13013002	T3 Construction Central Lab Office Building		CON	SL_MSXX	$$		16,935,285		18,413,827	18,413,827	20%
1	09	03	13			CF13013002	T3 Construction Central Lab Office Building		CON	SL_MSSC	$$		500,000		574,880	574,880	20%
1	**09**	**03**	**13**	**01**			**Site Preparation**										
1	**09**	**03**	**13**	**02**			**Structural**										

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
1	09	03	13	03			**Electrical**										
1	09	03	13	04			**Utilities**										
1	09	03	13	05			**HVAC**										
1	09	03	13	06			**Special System - Fire Protection**										
1	09	03	13	07			**Interior**										
1	09	03	13	10			**Project Close Out CLOB**					**40**	**-**	**2,647**	**-**	**2,647**	
1	09	03	13	10		CF13013053	Drawing Implementation to SLAC System		CON	SL_MDD	Hrs	40		2,647		2,647	20%
2							**LCLS PROJECT - R&D, SPARES, COMMISSIONING**					**184,375**	**18,344,639**	**19,927,071**	**20,555,168**	**40,482,239**	
2	01						**LCLS PROJECT MGMT, PLANNING & ADMN (OPC)**					**76,612**	**10,519,000**	**7,112,147**	**11,826,051**	**18,938,198**	
2	01	01					**Physics Support (OPC)**					**72,849**	**1,000,000**	**6,615,338**	**1,130,089**	**7,745,427**	
2	01	01	01				**SAC-MAC Physics**					**6,916**	**-**	**594,040**	**-**	**594,040**	
2	01	01	01			PM210_0290	MAC Physicists (R&D)		R&D	SL_PHS	Hrs	1,729		142,673		142,673	20%
2	01	01	01			PM210_0360	MAC Physicists (PreOps)		PRE	SL_PHS	Hrs	5,187		451,367		451,367	20%
2	01	01	02				**Injector Physics**					**7,819**	**-**	**666,473**	**-**	**666,473**	
2	01	01	02			PM210_0300	Injector Physicists (R&D)		R&D	SL_PHS	Hrs	2,632		215,106		215,106	20%
2	01	01	02			PM210_0370	Injector Physicists (PreOps)		PRE	SL_PHS	Hrs	5,187		451,367		451,367	20%
2	01	01	03				**Linac Physics**					**7,819**	**-**	**666,473**	**-**	**666,473**	
2	01	01	03			PM210_0310	Linac Physicists (R&D)		R&D	SL_PHS	Hrs	2,632		215,106		215,106	20%
2	01	01	03			PM210_0380	Linac Physicists (PreOps)		PRE	SL_PHS	Hrs	5,187		451,367		451,367	20%
2	01	01	04				**Undulator Physics**					**7,819**	**-**	**666,473**	**-**	**666,473**	
2	01	01	04			PM210_0320	Undulator Physicists (R&D)		R&D	SL_PHS	Hrs	2,632		215,106		215,106	20%
2	01	01	04			PM210_0390	Undulator Physicists (PreOps)		PRE	SL_PHS	Hrs	5,187		451,367		451,367	20%
2	01	01	05				**X-Ray Transport Physics**					**1,955**	**-**	**166,640**	**-**	**166,640**	
2	01	01	05			PM210_0330	X-Ray Transport Physicists (R&D)		R&D	SL_PHS	Hrs	658		53,777		53,777	20%
2	01	01	05			PM210_0400	X-Ray Transport Physicists (PreOps)		PRE	SL_PHS	Hrs	1,297		112,863		112,863	20%
2	01	01	06				**X-Ray Endstation Physics**					**1,955**	**-**	**166,640**	**-**	**166,640**	
2	01	01	06			PM210_0340	X-Ray Endstation Physicists (R&D)		R&D	SL_PHS	Hrs	658		53,777		53,777	20%
2	01	01	06			PM210_0410	X-Ray Endstation Physicists (PreOps)		PRE	SL_PHS	Hrs	1,297		112,863		112,863	20%
2	01	01	07				**Conventional Facilities Physics**					**7,819**	**-**	**666,473**	**-**	**666,473**	
2	01	01	07			PM210_0350	Conventional Facility Physicists (R&D)		R&D	SL_PHS	Hrs	2,632		215,106		215,106	20%
2	01	01	07			PM210_0420	Conventional Facility Physicists (PreOps)		PRE	SL_PHS	Hrs	5,187		451,367		451,367	20%
2	01	01	08				**Consulting Physics (Collaboration)**					**-**	**1,000,000**	**-**	**1,130,089**	**1,130,089**	
2	01	01	08			PM210_0240	Consulting Collaboration Physicists (R&D)		R&D	SL_MSPS	$$		400,000		435,175	435,175	20%
2	01	01	08			PM210_0430	Consulting Collaboration Physicists (PreOps)		PRE	SL_MSPS	$$		600,000		694,914	694,914	20%
2	01	01	09				**Consulting Physics (SLAC)**					**7,819**	**-**	**666,473**	**-**	**666,473**	
2	01	01	09			PM210_0130	Consulting SLAC Physicists (R&D)		R&D	SL_PHS	Hrs	2,632		215,106		215,106	20%
2	01	01	09			PM210_0270	Consulting SLAC Physicists (PreOps)		PRE	SL_PHS	Hrs	5,187		451,367		451,367	20%
2	01	01	10				**Global Controls Physics Liaison**					**7,819**	**-**	**666,473**	**-**	**666,473**	
2	01	01	10			PM210_0250	Global Controls Physicists Liaison (R&D)		R&D	SL_PHS	Hrs	2,632		215,106		215,106	30%
2	01	01	10			PM210_0280	Global Controls Physicists Liaison (PreOps)		PRE	SL_PHS	Hrs	5,187		451,367		451,367	30%
2	01	01	11				**Global Controls OPC**					**15,109**	**-**	**1,689,183**	**-**	**1,689,183**	
2	01	01	11			PM20101A05	RF Conditioning Controls Commissioning		PRE	SL_CP	Hrs	315		33,560		33,560	30%
2	01	01	11			PM20101B05	L1-BC1 Controls Commissioning		PRE	SL_CP	Hrs	320		34,798		34,798	30%
2	01	01	11			PM20101B05	L1-BC1 Controls Commissioning		PRE	SL_CE	Hrs	120		16,139		16,139	30%
2	01	01	11			PM20101A15	RF Gun Ops with Beam-Controls Comissioning-B		PRE	SL_CP	Hrs	98		10,657		10,657	30%
2	01	01	11			PM20101A10	RF Gun Ops with Beam-Controls Comissioning-A		PRE	SL_CP	Hrs	455		49,478		49,478	30%
2	01	01	11			PM20101A20	L0-1&L0-2 Controls Commissioning		PRE	SL_CP	Hrs	455		49,478		49,478	30%
2	01	01	11			PM20101A30	DL1 Controls Commissioning		PRE	SL_CP	Hrs	520		56,547		56,547	30%
2	01	01	11			PM20101A25	L0&SAB Controls Commissioning		PRE	SL_CP	Hrs	520		56,547		56,547	30%
2	01	01	11			PM20101B10	L2-BC2-L3 Controls Commissioning		PRE	SL_CP	Hrs	480		53,168		53,168	30%
2	01	01	11			PM20101B10	L2-BC2-L3 Controls Commissioning		PRE	SL_CE	Hrs	200		27,397		27,397	30%
2	01	01	11			PM20101B20	Linac Controls Optimization Commissioning		PRE	SL_CP	Hrs	6,926		772,780		772,780	30%
2	01	01	11			PM20101A35	Injector Controls Optimization Commissioning		PRE	SL_CP	Hrs	4,220		470,854		470,854	30%
2	01	01	11			PM20101B15	LTU + Dump Controls Commissioning		PRE	SL_CP	Hrs	320		35,705		35,705	30%
2	01	01	11			PM20101B15	LTU + Dump Controls Commissioning		PRE	SL_CE	Hrs	160		22,077		22,077	30%
2	01	02					**R&D Studies & Prototyping**					**3,763**	**10,000**	**496,809**	**10,879**	**507,689**	
2	01	02				PM210_0260	R&D Studies & Prototyping		R&D	SL_MSEG	$$		10,000		10,879	10,879	40%
2	01	02				PM210_0265	Low Level Applications R&D		R&D	SL_CE	Hrs	1,166		147,596		147,596	
2	01	02				PM210_0275	Low Level Applications Commissioning		PRE	SL_CE	Hrs	2,597		349,213		349,213	
2	01	03					**Project Mgmnt, Planning and Admn - M&S (OPC)**					**-**	**9,509,000**	**-**	**10,685,082**	**10,685,082**	
2	01	03				PM210_0460	SAC/MAC Travel (R&D)		R&D	SL_MSTR	$$		100,000		139,400	139,400	
2	01	03				PM210_0440	Physics Programmatic Travel (R&D)		R&D	SL_MSTR	$$		150,000		209,100	209,100	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	01	03				PM210_0470	SAC/MAC Travel (PreOps)		PRE	SL_MSTR	$$		100,000		147,644	147,644	
2	01	03				PM210_0450	Physics Progammatic Travel (PreOps)		PRE	SL_MSTR	$$		225,000		332,198	332,198	
2	01	03				PM210_0480	Pre-ops Electrical Power Usage (1.5k hrs) - 2007		PRE	SL_MSXX	$$		3,000,000		3,270,000	3,270,000	
2	01	03				PM210_0490	Pre-ops Electrical Power Usage (3.0k hrs) - 2008		PRE	SL_MSXX	$$		5,934,000		6,586,740	6,586,740	
2	**01**	**03**	**01**				**Reserved**										
2	**01**	**03**	**02**				**Reserved**										
2	**01**	**03**	**03**				**Reserved**										
2	**01**	**03**	**04**				**Reserved**										
2	**01**	**03**	**05**				**Reserved**										
2	**01**	**03**	**06**				**Reserved**										
2	**01**	**03**	**07**				**Reserved**										
2	**01**	**03**	**08**				**Reserved**										
2	**01**	**03**	**09**				**Reserved**										
2	**01**	**03**	**10**				**Reserved**										
2	**01**	**03**	**11**				**Reserved**										
2	**02**						**INJECTOR SYSTEM (OPC)**					**43,842**	**1,813,633**	**4,447,857**	**2,081,467**	**6,529,324**	
2	**02**	**01**					**Reserved**										
2	**02**	**01**	**01**				**Reserved**										
2	**02**	**01**	**02**				**Reserved**										
2	**02**	**01**	**03**				**Reserved**										
2	**02**	**02**					**Injector Controls Subsystem**					**11,508**	**82,433**	**1,307,639**	**94,357**	**1,401,996**	
2	**02**	**02**	**01**				**EPICS VXI Control Modules**					**6,054**	**82,433**	**667,700**	**94,357**	**762,057**	
2	02	02	01			IJ22210000	Define Injector Timing module Reqmts		R&D	SL_CP	Hrs	120		12,024		12,024	
2	02	02	01			IJ22210000	Define Injector Timing module Reqmts		R&D	SL_CE	Hrs	120		14,870		14,870	
2	02	02	01			IJ22210010	Prep Bid Pak-Injector Timing modules		R&D	SL_CP	Hrs	20		2,004		2,004	
2	02	02	01			IJ22210010	Prep Bid Pak-Injector Timing modules		R&D	SL_CE	Hrs	20		2,479		2,479	
2	02	02	01			IJ22210010	Prep Bid Pak-Injector Timing modules		R&D	SL_ADMN	Hrs	20		1,286		1,286	
2	02	02	01			IJ22210030	Evaluate Vendor Proposals		R&D	SL_CP	Hrs	8		801		801	
2	02	02	01			IJ22210030	Evaluate Vendor Proposals		R&D	SL_CE	Hrs	8		992		992	
2	02	02	01			IJ22210045	Manage/Work with Vendor		R&D	SL_CP	Hrs	40		4,124		4,124	
2	02	02	01			IJ22210045	Manage/Work with Vendor		R&D	SL_CE	Hrs	40		5,100		5,100	
2	02	02	01			IJ22210070	Write Test Docs - Injector Timing modules		R&D	SL_CP	Hrs	10		1,031		1,031	
2	02	02	01			IJ22210065	Procure cables		R&D	SL_MSEG	$$		133		146	146	
2	02	02	01			IJ22210060	Procure VME crate (1) w/IOC(1), VxWorks license		R&D	SL_MSEG	$$		15,000		16,473	16,473	
2	02	02	01			IJ22210083	Assemble procured parts		R&D	SL_PCEF	Hrs	72		5,029		5,029	
2	02	02	01			IJ22210125	Fabricate 1st Articles		PRE	SL_MSSC	$$		8,000		9,028	9,028	
2	02	02	01			IJ22210130	Test Prototype		PRE	SL_CP	Hrs	120		12,718		12,718	
2	02	02	01			IJ22210130	Test Prototype		PRE	SL_CE	Hrs	120		15,730		15,730	
2	02	02	01			IJ22210155	Protocol Arbiter		PRE	SL_CP	Hrs	400		43,078		43,078	
2	02	02	01			IJ22210150	Understand the SLC Message protocol		PRE	SL_CP	Hrs	880		94,770		94,770	
2	02	02	01			IJ22210145	Understand the SLC DBEX protocol		PRE	SL_CP	Hrs	880		94,770		94,770	
2	02	02	01			IJ22210140	Understand the SLC Timex protocol		PRE	SL_CP	Hrs	880		94,770		94,770	
2	02	02	01			IJ22210135	Write SLC Aware time service for the IOC		PRE	SL_CP	Hrs	880		94,770		94,770	
2	02	02	01			IJ22210115	Procure Timing System Heliax Cableplant		SPR	SL_MSEG	$$		15,000		17,380	17,380	
2	02	02	01			IJ22210110	Procure SLCnet cable to MPG micro 360 Hz signal		SPR	SL_MSEG	$$		200		232	232	
2	02	02	01			IJ22210105	Procure Fiducial RF Amplifier		SPR	SL_MSEG	$$		2,000		2,317	2,317	
2	02	02	01			IJ22210100	Procure Fiducial Output Module		SPR	SL_MSEG	$$		2,000		2,317	2,317	
2	02	02	01			IJ22210095	Procure Splitter to Main Drive Line (MDL) 476 MH		SPR	SL_MSEG	$$		9,900		11,471	11,471	
2	02	02	01			IJ22210090	Procure Master & Distributed Timing Hardware		SPR	SL_MSEG	$$		30,000		34,760	34,760	
2	02	02	01			IJ22210001	Controls Commissioning		PRE	SL_CP	Hrs	440		47,847		47,847	
2	02	02	01			IJ22210001	Controls Commissioning		PRE	SL_CE	Hrs	496		66,708		66,708	
2	02	02	01			IJ22210117	Port Fast-feedbac software from Kissnet to Ether		PRE	SL_CP	Hrs	160		17,399		17,399	
2	02	02	01			IJ22210055	Procure SLCnet cable to MPG micro 360 Hz signal		PRE	SL_MSEG	$$		200		232	232	
2	02	02	01			IJ22210075	Install access to PEP-II timing signal, control		PRE	SL_PCEF	Hrs	24		1,768		1,768	
2	02	02	01			IJ22210075	Install access to PEP-II timing signal, control		PRE	SL_CT	Hrs	8		589		589	
2	02	02	01			IJ22210075	Install access to PEP-II timing signal, control		PRE	SL_CCA	Hrs	8		627		627	
2	02	02	01			IJ22210160	Write Test S/W - Injector Timing modules		PRE	SL_CP	Hrs	40		4,350		4,350	
2	02	02	01			IJ22210165	Integrate software & hardware		PRE	SL_CP	Hrs	20		2,175		2,175	
2	02	02	01			IJ22210165	Integrate software & hardware		PRE	SL_CCA	Hrs	20		1,566		1,566	
2	02	02	01			IJ22210175	Perform lab tests on Injector Timing modules		PRE	SL_CP	Hrs	40		4,350		4,350	
2	02	02	01			IJ22210175	Perform lab tests on Injector Timing modules		PRE	SL_CE	Hrs	40		5,380		5,380	
2	02	02	01			IJ22210170	Integrate with SLC TIming Sys		PRE	SL_CP	Hrs	60		6,525		6,525	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	02	02	01			IJ22210170	Integrate with SLC TIming Sys		PRE	SL_CE	Hrs	60		8,069		8,069	
2	**02**	**02**	**02**				**LLRF Controls**					**1,732**	**-**	**212,764**	**-**	**212,764**	
2	02	02	02			IJ02020000	Define LLRF Gun Cntrls Reqmts @ Sec20/21		R&D	SL_CP	Hrs	80		8,016		8,016	
2	02	02	02			IJ02020000	Define LLRF Gun Cntrls Reqmts @ Sec20/21		R&D	SL_CE	Hrs	270		33,458		33,458	
2	02	02	02			IJ02020025	Design LLRF Gun Cntrls @ Sec20/21		R&D	SL_CP	Hrs	80		8,187		8,187	
2	02	02	02			IJ02020025	Design LLRF Gun Cntrls @ Sec20/21		R&D	SL_CE	Hrs	900		113,911		113,911	
2	02	02	02			IJ02020035	Design Review		R&D	SL_CT	Hrs	2		139		139	
2	02	02	02			IJ02020035	Design Review		R&D	SL_CP	Hrs	40		4,124		4,124	
2	02	02	02			IJ02020035	Design Review		R&D	SL_CE	Hrs	40		5,100		5,100	
2	02	02	02			IJ02020040	Design Modifications		R&D	SL_CP	Hrs	40		4,124		4,124	
2	02	02	02			IJ02020040	Design Modifications		R&D	SL_CE	Hrs	280		35,703		35,703	
2	**02**	**02**	**03**				**E-Beam Diagnostics Controls**					**3,722**	**-**	**427,175**	**-**	**427,175**	
2	**02**	**02**	**03**	**01**			**Reserved**										
2	**02**	**02**	**03**	**02**			**Controls - Toroids**					**722**	**-**	**83,299**	**-**	**83,299**	
2	02	02	03	02		IJ02030200	Define Toroid Controls Reqmts		PRE	SL_CP	Hrs	120		12,718		12,718	
2	02	02	03	02		IJ02030200	Define Toroid Controls Reqmts		PRE	SL_CE	Hrs	120		15,730		15,730	
2	02	02	03	02		IJ02030204	Design Toroid Controls		PRE	SL_CP	Hrs	120		12,718		12,718	
2	02	02	03	02		IJ02030204	Design Toroid Controls		PRE	SL_CE	Hrs	120		15,730		15,730	
2	02	02	03	02		IJ02030208	Design Review - Toroid		PRE	SL_CT	Hrs	2		144		144	
2	02	02	03	02		IJ02030208	Design Review - Toroid		PRE	SL_CP	Hrs	40		4,240		4,240	
2	02	02	03	02		IJ02030208	Design Review - Toroid		PRE	SL_CCA	Hrs	40		3,053		3,053	
2	02	02	03	02		IJ02030210	Design Modifications - Toroids		PRE	SL_CP	Hrs	80		8,480		8,480	
2	02	02	03	02		IJ02030210	Design Modifications - Toroids		PRE	SL_CE	Hrs	80		10,487		10,487	
2	**02**	**02**	**03**	**03**			**Controls - Faraday Cup**					**722**	**-**	**81,029**	**-**	**81,029**	
2	02	02	03	03		IJ02030300	Define Faraday Cup Controls Reqmts		R&D	SL_CP	Hrs	120		12,371		12,371	
2	02	02	03	03		IJ02030300	Define Faraday Cup Controls Reqmts		R&D	SL_CE	Hrs	120		15,301		15,301	
2	02	02	03	03		IJ02030304	Design Faraday Cup Controls		R&D	SL_CP	Hrs	120		12,371		12,371	
2	02	02	03	03		IJ02030304	Design Faraday Cup Controls		R&D	SL_CE	Hrs	120		15,301		15,301	
2	02	02	03	03		IJ02030308	Design Review - Faraday Cups		R&D	SL_CT	Hrs	2		139		139	
2	02	02	03	03		IJ02030308	Design Review - Faraday Cups		R&D	SL_CP	Hrs	40		4,124		4,124	
2	02	02	03	03		IJ02030308	Design Review - Faraday Cups		R&D	SL_CCA	Hrs	40		2,970		2,970	
2	02	02	03	03		IJ02030310	Design Modifications - Faraday Cup		R&D	SL_CP	Hrs	80		8,248		8,248	
2	02	02	03	03		IJ02030310	Design Modifications - Faraday Cup		R&D	SL_CE	Hrs	80		10,201		10,201	
2	**02**	**02**	**03**	**04**			**Controls - Tune-Up Dump**					**112**	**-**	**13,172**	**-**	**13,172**	
2	02	02	03	04		IJ02030400	Define Tune-Up Dump Controls Reqmts		PRE	SL_CP	Hrs	20		2,175		2,175	
2	02	02	03	04		IJ02030400	Define Tune-Up Dump Controls Reqmts		PRE	SL_CE	Hrs	20		2,689		2,689	
2	02	02	03	04		IJ02030404	Design Tune-Up Dump Controls		PRE	SL_CP	Hrs	20		2,175		2,175	
2	02	02	03	04		IJ02030404	Design Tune-Up Dump Controls		PRE	SL_CE	Hrs	20		2,689		2,689	
2	02	02	03	04		IJ02030408	Design Review-Tune Dump		PRE	SL_CP	Hrs	8		870		870	
2	02	02	03	04		IJ02030408	Design Review-Tune Dump		PRE	SL_CCA	Hrs	8		627		627	
2	02	02	03	04		IJ02030410	Design Modifications - Tune Dump		PRE	SL_CP	Hrs	8		870		870	
2	02	02	03	04		IJ02030410	Design Modifications - Tune Dump		PRE	SL_CE	Hrs	8		1,076		1,076	
2	**02**	**02**	**03**	**05**			**Controls - Profile Monitors**					**722**	**-**	**81,029**	**-**	**81,029**	
2	02	02	03	05		IJ02030500	Define Profile Monitor Controls Reqmts		R&D	SL_CP	Hrs	120		12,371		12,371	
2	02	02	03	05		IJ02030500	Define Profile Monitor Controls Reqmts		R&D	SL_CE	Hrs	120		15,301		15,301	
2	02	02	03	05		IJ02030504	Design Profile Monitor Controls		R&D	SL_CP	Hrs	120		12,371		12,371	
2	02	02	03	05		IJ02030504	Design Profile Monitor Controls		R&D	SL_CE	Hrs	120		15,301		15,301	
2	02	02	03	05		IJ02030508	Design Review - Profile Monitors		R&D	SL_CT	Hrs	2		139		139	
2	02	02	03	05		IJ02030508	Design Review - Profile Monitors		R&D	SL_CP	Hrs	40		4,124		4,124	
2	02	02	03	05		IJ02030508	Design Review - Profile Monitors		R&D	SL_CCA	Hrs	40		2,970		2,970	
2	02	02	03	05		IJ02030510	Design Modifications - Profile Monitors		R&D	SL_CP	Hrs	80		8,248		8,248	
2	02	02	03	05		IJ02030510	Design Modifications - Profile Monitors		R&D	SL_CE	Hrs	80		10,201		10,201	
2	**02**	**02**	**03**	**06**			**Control - EO Diagnostic**					**722**	**-**	**85,488**	**-**	**85,488**	
2	02	02	03	06		IJ02030600	Define EO Diagnostic Controls Reqmts		PRE	SL_CP	Hrs	120		12,718		12,718	
2	02	02	03	06		IJ02030600	Define EO Diagnostic Controls Reqmts		PRE	SL_CE	Hrs	120		15,730		15,730	
2	02	02	03	06		IJ02030604	Design EO Diagnostic Controls		PRE	SL_CP	Hrs	120		12,718		12,718	
2	02	02	03	06		IJ02030604	Design EO Diagnostic Controls		PRE	SL_CE	Hrs	120		15,730		15,730	
2	02	02	03	06		IJ02030608	Design Review - E/O Diagnostics		PRE	SL_CT	Hrs	2		144		144	
2	02	02	03	06		IJ02030608	Design Review - E/O Diagnostics		PRE	SL_CP	Hrs	40		4,240		4,240	
2	02	02	03	06		IJ02030608	Design Review - E/O Diagnostics		PRE	SL_CE	Hrs	40		5,243		5,243	
2	02	02	03	06		IJ02030610	Design Modifications - E/O Diagnostics		PRE	SL_CP	Hrs	80		8,480		8,480	
2	02	02	03	06		IJ02030610	Design Modifications - E/O Diagnostics		PRE	SL_CE	Hrs	80		10,487		10,487	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	**02**	**02**	**03**	**07**			**Controls - BPM Processor Module**					**722**	**-**	**83,158**	**-**	**83,158**	
2	02	02	03	07		IJ02030700	Define BPM processor module Cntrls Reqmts		R&D	SL_CP	Hrs	120		12,371		12,371	
2	02	02	03	07		IJ02030700	Define BPM processor module Cntrls Reqmts		R&D	SL_CE	Hrs	120		15,301		15,301	
2	02	02	03	07		IJ02030704	Design BPM Proc Module Cntrls		R&D	SL_CP	Hrs	120		12,371		12,371	
2	02	02	03	07		IJ02030704	Design BPM Proc Module Cntrls		R&D	SL_CE	Hrs	120		15,301		15,301	
2	02	02	03	07		IJ02030708	Design Review - BPM		R&D	SL_CT	Hrs	2		139		139	
2	02	02	03	07		IJ02030708	Design Review - BPM		R&D	SL_CP	Hrs	40		4,124		4,124	
2	02	02	03	07		IJ02030708	Design Review - BPM		R&D	SL_CE	Hrs	40		5,100		5,100	
2	02	02	03	07		IJ02030710	Design Modifications - BPM		R&D	SL_CP	Hrs	80		8,248		8,248	
2	02	02	03	07		IJ02030710	Design Modifications - BPM		R&D	SL_CE	Hrs	80		10,201		10,201	
2	**02**	**02**	**04**				**Reserved**										
2	**02**	**02**	**05**				**Reserved**										
2	**02**	**02**	**06**				**Reserved**										
2	**02**	**02**	**07**				**Reserved**										
2	**02**	**02**	**08**				**Reserved**										
2	**02**	**02**	**09**				**Reserved**										
2	**02**	**03**					**Injector Lasers**					**716**	**585,000**	**81,680**	**670,120**	**751,800**	
2	**02**	**03**	**01**				**Drive Laser Prototyping**					**716**	**85,000**	**81,680**	**90,780**	**172,460**	
2	02	03	01			IJ03010005	Def proto effort temp Pulse Shaping(BNL/FNL/SLAC		R&D	SL_PHSS	Hrs	44		4,491		4,491	
2	02	03	01			IJ03010005	Def proto effort temp Pulse Shaping(BNL/FNL/SLAC		R&D	SL_OE	Hrs	44		5,452		5,452	
2	02	03	01			IJ03010000	Def prototyping effort for UV convers (ANL/SLAC)		R&D	SL_PHSS	Hrs	44		4,491		4,491	
2	02	03	01			IJ03010000	Def prototyping effort for UV convers (ANL/SLAC)		R&D	SL_OE	Hrs	44		5,452		5,452	
2	02	03	01			IJ03010060	HW spec for BNL prototyping (Pulse Shaping)		R&D	SL_PHSS	Hrs	20		2,041		2,041	
2	02	03	01			IJ03010060	HW spec for BNL prototyping (Pulse Shaping)		R&D	SL_OE	Hrs	10		1,239		1,239	
2	02	03	01			IJ03010015	HW spec for ANL prototyping effort (UV convers)		R&D	SL_PHSS	Hrs	80		8,166		8,166	
2	02	03	01			IJ03010015	HW spec for ANL prototyping effort (UV convers)		R&D	SL_OE	Hrs	80		9,913		9,913	
2	02	03	01			IJ03010065	Proc parts for BNL(pulse shaping diag&conv unit)		R&D	SL_MSEG	$$		25,000		26,700	26,700	
2	02	03	01			IJ03010020	Procure parts for ANL (Baseline UV conv)		R&D	SL_MSEG	$$		60,000		64,080	64,080	
2	02	03	01			IJ03010070	Pulse Shaper tests		R&D	SL_PHSS	Hrs	20		2,041		2,041	
2	02	03	01			IJ03010070	Pulse Shaper tests		R&D	SL_OE	Hrs	20		2,479		2,479	
2	02	03	01			IJ03010025	Baseline conversion tests		R&D	SL_PHSS	Hrs	20		2,063		2,063	
2	02	03	01			IJ03010025	Baseline conversion tests		R&D	SL_OE	Hrs	20		2,505		2,505	
2	02	03	01			IJ03010075	UV tests with shaping		R&D	SL_PHSS	Hrs	20		2,041		2,041	
2	02	03	01			IJ03010075	UV tests with shaping		R&D	SL_OE	Hrs	20		2,479		2,479	
2	02	03	01			IJ03010080	Evaluate effects of shaping on the e-beam		R&D	SL_PHSS	Hrs	20		2,089		2,089	
2	02	03	01			IJ03010080	Evaluate effects of shaping on the e-beam		R&D	SL_OE	Hrs	20		2,536		2,536	
2	02	03	01			IJ03010085	Analysis and final report (temporal shaping)		R&D	SL_PHSS	Hrs	20		2,100		2,100	
2	02	03	01			IJ03010085	Analysis and final report (temporal shaping)		R&D	SL_OE	Hrs	20		2,550		2,550	
2	02	03	01			IJ03010030	Analysis and final report (baseline UV convers)		R&D	SL_OE	Hrs	20		2,550		2,550	
2	02	03	01			IJ03010035	UV spatial profile shaping testing		R&D	SL_PHSS	Hrs	20		2,100		2,100	
2	02	03	01			IJ03010035	UV spatial profile shaping testing		R&D	SL_OE	Hrs	20		2,550		2,550	
2	02	03	01			IJ03010040	UV launching tests		R&D	SL_PHSS	Hrs	40		4,201		4,201	
2	02	03	01			IJ03010040	UV launching tests		R&D	SL_OE	Hrs	20		2,550		2,550	
2	02	03	01			IJ03010045	Analysis and final report (UV conversion)		R&D	SL_PHSS	Hrs	10		1,051		1,051	
2	02	03	01			IJ03010045	Analysis and final report (UV conversion)		R&D	SL_OE	Hrs	20		2,550		2,550	
2	**02**	**03**	**02**				**Drive Laser Oscillator**					**-**	**500,000**	**-**	**579,340**	**579,340**	
2	02	03	02			IJ22320000	Drive Laser Spares		SPR	SL_MSEG	$$		500,000		579,340	579,340	
2	**02**	**03**	**03**				**Reserved**										
2	**02**	**03**	**04**				**Reserved**										
2	**02**	**03**	**05**				**Reserved**										
2	**02**	**03**	**06**				**Reserved**										
2	**02**	**03**	**07**				**Reserved**										
2	**02**	**03**	**08**				**Reserved**										
2	**02**	**03**	**09**				**Reserved**										
2	**02**	**03**	**10**				**Reserved**										
2	**02**	**03**	**11**				**Reserved**										
2	**02**	**03**	**12**				**Reserved**										
2	**02**	**03**	**13**				**Reserved**										
2	**02**	**03**	**14**				**Reserved**										
2	**02**	**03**	**15**				**Reserved**										
2	**02**	**03**	**16**				**Reserved**										
2	**02**	**03**	**17**				**Reserved**										

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	02	03	18				**Reserved**										
2	02	03	19				**Reserved**										
2	02	03	20				**Reserved**										
2	02	03	21				**Reserved**										
2	02	03	22				**Reserved**										
2	02	03	23				**Reserved**										
2	02	03	24				**Reserved**										
2	02	03	25				**Reserved**										
2	02	03	26				**Reserved**										
2	02	03	27				**Reserved**										
2	02	03	28				**Reserved**										
2	02	03	29				**Reserved**										
2	02	03	30				**Reserved**										
2	02	04					**RF Gun & Load Lock**					**7,024**	**300,000**	**611,891**	**340,088**	**951,980**	
2	02	04	01				**RF Gun**					**6,944**	**120,000**	**603,837**	**131,526**	**735,363**	
2	02	04	01			IJ22410000	RF Gun R&D (GTF)		R&D	SL_PHSS	Hrs	1,984		207,945		207,945	
2	02	04	01			IJ22410000	RF Gun R&D (GTF)		R&D	SL_PHS	Hrs	3,968		326,759		326,759	
2	02	04	01			IJ22410000	RF Gun R&D (GTF)		R&D	SL_OT	Hrs	992		69,132		69,132	
2	02	04	01			IJ22410000	RF Gun R&D (GTF)		R&D	SL_MSEG	$$		120,000		131,526	131,526	
2	02	04	02				**RF Gun Supports**					**80**	**80,000**	**8,055**	**92,694**	**100,749**	
2	02	04	02			IJ22420000	RF Gun Spares		SPR	SL_MSEG	$$		80,000		92,694	92,694	
2	02	04	02			IJ22420000	RF Gun Spares		SPR	SL_ME	Hrs	40		5,055		5,055	
2	02	04	02			IJ22420000	RF Gun Spares		SPR	SL_MDD	Hrs	40		3,000		3,000	
2	02	04	03				**Gun Load Lock**					**-**	**100,000**	**-**	**115,868**	**115,868**	
2	02	04	03			IJ22430000	RF Gun Load Lock Spares		SPR	SL_MSEG	$$		100,000		115,868	115,868	
2	02	04	04				**Reserved**										
2	02	04	05				**Reserved**										
2	02	04	06				**Reserved**										
2	02	04	07				**Reserved**										
2	02	04	08				**Reserved**										
2	02	05					**Gun to Linac Section (GTL)**					**-**	**100,000**	**-**	**115,868**	**115,868**	
2	02	05	01				**Reserved**										
2	02	05	02				**GTL Faraday Cup/YAG1**					**-**	**100,000**	**-**	**115,868**	**115,868**	
2	02	05	02			IJ22520000	GTL Spares		SPR	SL_MSEG	$$		100,000		115,868	115,868	
2	02	05	03				**Reserved**										
2	02	05	04				**Reserved**										
2	02	05	05				**Reserved**										
2	02	05	06				**Reserved**										
2	02	05	07				**Reserved**										
2	02	05	08				**Reserved**										
2	02	05	09				**Reserved**										
2	02	05	10				**Reserved**										
2	02	05	11				**Reserved**										
2	02	06					**Injector Linac Structures**					**-**	**50,000**	**-**	**57,934**	**57,934**	
2	02	06	01				**Reserved**										
2	02	06	02				**L0-2 Structure Assembly**					**-**	**50,000**	**-**	**57,934**	**57,934**	
2	02	06	02			IJ22620000	Linac Spares		SPR	SL_MSEG	$$		50,000		57,934	57,934	
2	02	06	03				**Reserved**										
2	02	06	04				**Reserved**										
2	02	07					**L0-1 to L0-2 Section (L0-1TL0-2)**					**-**	**40,000**	**-**	**46,347**	**46,347**	
2	02	07	01				**Reserved**										
2	02	07	02				**L0-1TL0-2 BPMs ( )**					**-**	**40,000**	**-**	**46,347**	**46,347**	
2	02	07	02			IJ22720000	L0-1 to L0-2 Spares		SPR	SL_MSEG	$$		40,000		46,347	46,347	
2	02	07	03				**Reserved**										
2	02	07	04				**Reserved**										
2	02	07	05				**Reserved**										
2	02	07	06				**Reserved**										
2	02	07	07				**Reserved**										
2	02	08					**Linac to DL1 (LTDL1)**					**-**	**100,000**	**-**	**115,868**	**115,868**	
2	02	08	01				**Reserved**										
2	02	08	02				**LTDL1 BPMs ( )**					**-**	**100,000**	**-**	**115,868**	**115,868**	
2	02	08	02			IJ22820000	Linac to DL1 Spares		SPR	SL_MSEG	$$		100,000		115,868	115,868	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	02	08	03				Reserved										
2	02	08	04				Reserved										
2	02	08	05				Reserved										
2	02	08	06				Reserved										
2	02	08	07				Reserved										
2	02	08	08				Reserved										
2	02	08	09				Reserved										
2	02	08	10				Reserved										
2	02	09					Dog Leg 1 Bend (DL1)					-	50,000	-	57,934	57,934	
2	02	09	01				Reserved										
2	02	09	02				DL1 QB Quadrupole					-	50,000	-	57,934	57,934	
2	02	09	02			IJ22920000	DL1 Spares		SPR	SL_MSEG	$$		50,000		57,934	57,934	
2	02	09	03				Reserved										
2	02	09	04				Reserved										
2	02	09	05				Reserved										
2	02	09	06				Reserved										
2	02	10					DL1 to Linac (DL1TL)					-	70,000	-	81,108	81,108	
2	02	10	01				Reserved										
2	02	10	02				DL1TL Steering Coils (X-Y Assys)					-	70,000	-	81,108	81,108	
2	02	10	02			IJ22A20000	DL1 to Linac Spares		SPR	SL_MSEG	$$		70,000		81,108	81,108	
2	02	10	03				Reserved										
2	02	10	04				Reserved										
2	02	10	05				Reserved										
2	02	10	06				Reserved										
2	02	10	07				Reserved										
2	02	11					Straight Ahead Beamline (SAB)					-	100,000	-	115,868	115,868	
2	02	11	01				Reserved										
2	02	11	02				SAB Quadrupoles ( )					-	100,000	-	115,868	115,868	
2	02	11	02			IJ22B20000	SAB Spares		SPR	SL_MSEG	$$		100,000		115,868	115,868	
2	02	11	03				Reserved										
2	02	11	04				Reserved										
2	02	11	05				Reserved										
2	02	11	06				Reserved										
2	02	11	07				Reserved										
2	02	11	08				Reserved										
2	02	11	09				Reserved										
2	02	12					Injector RF Waveguide Subsystem					-	170,000	-	196,975	196,975	
2	02	12	01				Reserved										
2	02	12	02				RF Waveguide Supports					-	170,000	-	196,975	196,975	
2	02	12	02			IJ22C20000	RF Waveguides Spares		SPR	SL_MSEG	$$		170,000		196,975	196,975	
2	02	13					Injector RF Subsystem										
2	02	13	01				Reserved										
2	02	13	01	01			Reserved										
2	02	13	02				Reserved										
2	02	14					Cathode Processing (CP) Station					-	100,000	-	115,868	115,868	
2	02	14	01				Reserved										
2	02	14	02				CP Load Lock					-	100,000	-	115,868	115,868	
2	02	14	02			IJ22E20000	CP Spares		SPR	SL_MSEG	$$		100,000		115,868	115,868	
2	02	14	03				Reserved										
2	02	14	04				Reserved										
2	02	14	05				Reserved										
2	02	15					Injector Laser Heater Subsystem					-	2,000	-	2,317	2,317	
2	02	15	01				Reserved										
2	02	15	02				Beam Conditioning Optics (Laser Bay)					-	2,000	-	2,317	2,317	
2	02	15	02			IJ15020000	Procure Laser Heater Optics Spares		SPR	SL_MSEG	$$		2,000		2,317	2,317	
2	02	15	03				Reserved										
2	02	15	04				Reserved										
2	02	15	05				Reserved										
2	02	15	06				Reserved										
2	02	15	07				Reserved										
2	02	15	08				Reserved										
2	02	16					Injector Power Conversion Subsystem					920	64,200	85,411	70,814	156,226	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	**02**	**16**	**01**				**Personnel Protection System (PPS) R&D**					**920**	**50,000**	**85,411**	**54,361**	**139,773**	
2	02	16	01			IJ16020000	PLC PPS Design Evaluation		R&D	SL_MSPS	$$		25,000		26,700	26,700	
2	02	16	01			IJ16020000	PLC PPS Design Evaluation		R&D	SL_CE	Hrs	280		34,697		34,697	
2	02	16	01			IJ16010042	BSOIC Design		R&D	SL_CCA	Hrs	120		8,913		8,913	
2	02	16	01			IJ16010044	BSOIC Drafting		R&D	SL_CCA	Hrs	140		10,397		10,397	
2	02	16	01			IJ16010046	Conduct Design Review		R&D	SL_CE	Hrs	8		1,020		1,020	
2	02	16	01			IJ16010225	Prep Bid Pak - BSOIC		R&D	SL_CE	Hrs	16		2,040		2,040	
2	02	16	01			IJ16010245	Evaluate Proposals - BSOIC		R&D	SL_CE	Hrs	16		2,040		2,040	
2	02	16	01			IJ16010255	Vendor Fab/Assy - BSOIC		R&D	SL_MSSC	$$		25,000		27,661	27,661	
2	02	16	01			IJ16010275	Fab and Pre Assemble Components (as required)		R&D	SL_PCEF	Hrs	308		22,110		22,110	
2	02	16	01			IJ16010280	Conduct Design Review		R&D	SL_CE	Hrs	8		1,048		1,048	
2	02	16	01			IJ16010282	Conduct SLAC Citizen Committee Review		R&D	SL_CE	Hrs	8		1,048		1,048	
2	02	16	01			IJ16010288	Perform Pre-Install Qual Test on Injector PPS		R&D	SL_CE	Hrs	16		2,098		2,098	
2	**02**	**16**	**02**				**Reserved**										
2	**02**	**16**	**03**				**Reserved**										
2	**02**	**16**	**04**				**Power Conv (beamline pwr supp) Spares**					**-**	**14,200**	**-**	**16,453**	**16,453**	
2	02	16	04			IJ16020410	Procure 15KW Power Supply-Spares		SPR	SL_MSEG	$$		8,500		9,849	9,849	
2	02	16	04			IJ16020405	Procure 30 AMP MCOR Modules (1)-Spares		SPR	SL_MSEG	$$		2,100		2,433	2,433	
2	02	16	04			IJ16020400	Procure 12 AMP MCOR Modules (2)-Spares		SPR	SL_MSEG	$$		3,600		4,171	4,171	
2	**02**	**17**					**Injector System Commissioning**					**23,674**	**-**	**2,361,235**	**-**	**2,361,235**	
2	**02**	**17**	**01**				**Reserved**										
2	**02**	**17**	**02**				**Drive Laser Commissioning**					**3,210**	**-**	**326,123**	**-**	**326,123**	
2	02	17	02			IJ21702115	Integrate: Oscillator		PRE	SL_PHSS	Hrs	20		2,159		2,159	
2	02	17	02			IJ21702115	Integrate: Oscillator		PRE	SL_OT	Hrs	40		2,872		2,872	
2	02	17	02			IJ21702115	Integrate: Oscillator		PRE	SL_OE	Hrs	20		2,621		2,621	
2	02	17	02			IJ21702095	Integrate: Osc Diagnostics & Isolator		PRE	SL_OT	Hrs	30		2,153		2,153	
2	02	17	02			IJ21702095	Integrate: Osc Diagnostics & Isolator		PRE	SL_OE	Hrs	10		1,311		1,311	
2	02	17	02			IJ21702102	Checkout : Oscillator		PRE	SL_PHSS	Hrs	20		2,159		2,159	
2	02	17	02			IJ21702102	Checkout : Oscillator		PRE	SL_OT	Hrs	40		2,872		2,872	
2	02	17	02			IJ21702102	Checkout : Oscillator		PRE	SL_OE	Hrs	20		2,621		2,621	
2	02	17	02			IJ21702105	Integrate: Stretcher/Shaper with Osc		PRE	SL_OT	Hrs	40		2,872		2,872	
2	02	17	02			IJ21702105	Integrate: Stretcher/Shaper with Osc		PRE	SL_OE	Hrs	40		5,243		5,243	
2	02	17	02			IJ21702112	Checkout: Stretcher/Shaper with Osc		PRE	SL_PHSS	Hrs	40		4,319		4,319	
2	02	17	02			IJ21702112	Checkout: Stretcher/Shaper with Osc		PRE	SL_OT	Hrs	40		2,872		2,872	
2	02	17	02			IJ21702112	Checkout: Stretcher/Shaper with Osc		PRE	SL_OE	Hrs	40		5,243		5,243	
2	02	17	02			IJ21702114	Integrate OSC Timing & Steering Stability Appara		PRE	SL_PHSS	Hrs	20		2,159		2,159	
2	02	17	02			IJ21702114	Integrate OSC Timing & Steering Stability Appara		PRE	SL_OT	Hrs	40		2,872		2,872	
2	02	17	02			IJ21702114	Integrate OSC Timing & Steering Stability Appara		PRE	SL_OE	Hrs	40		5,243		5,243	
2	02	17	02			IJ21702000	Checkout & Integrate: Oscillator Beam Encl		PRE	SL_OT	Hrs	10		717		717	
2	02	17	02			IJ21702000	Checkout & Integrate: Oscillator Beam Encl		PRE	SL_OE	Hrs	10		1,311		1,311	
2	02	17	02			IJ21702010	Checkout & Integrate: preAmplifier with Osc		PRE	SL_PHSS	Hrs	20		2,159		2,159	
2	02	17	02			IJ21702010	Checkout & Integrate: preAmplifier with Osc		PRE	SL_OT	Hrs	40		2,872		2,872	
2	02	17	02			IJ21702010	Checkout & Integrate: preAmplifier with Osc		PRE	SL_OE	Hrs	40		5,243		5,243	
2	02	17	02			IJ21702020	Checkout & Integrate: preAmplifier diag		PRE	SL_PHSS	Hrs	20		2,159		2,159	
2	02	17	02			IJ21702020	Checkout & Integrate: preAmplifier diag		PRE	SL_OT	Hrs	40		2,872		2,872	
2	02	17	02			IJ21702020	Checkout & Integrate: preAmplifier diag		PRE	SL_OE	Hrs	40		5,243		5,243	
2	02	17	02			IJ21702030	Checkout & Integrate: Temporal shaper/Low Pwr Co		PRE	SL_PHSS	Hrs	20		2,159		2,159	
2	02	17	02			IJ21702030	Checkout & Integrate: Temporal shaper/Low Pwr Co		PRE	SL_OT	Hrs	20		1,436		1,436	
2	02	17	02			IJ21702030	Checkout & Integrate: Temporal shaper/Low Pwr Co		PRE	SL_OE	Hrs	20		2,621		2,621	
2	02	17	02			IJ21702040	Checkout & Integrate: KHz Pulse selection & 120		PRE	SL_PHSS	Hrs	20		2,159		2,159	
2	02	17	02			IJ21702040	Checkout & Integrate: KHz Pulse selection & 120		PRE	SL_OT	Hrs	20		1,436		1,436	
2	02	17	02			IJ21702040	Checkout & Integrate: KHz Pulse selection & 120		PRE	SL_OE	Hrs	20		2,621		2,621	
2	02	17	02			IJ21702050	Checkout &Integrate:Pre-Amplifier Spatial filter		PRE	SL_OT	Hrs	20		1,436		1,436	
2	02	17	02			IJ21702050	Checkout &Integrate:Pre-Amplifier Spatial filter		PRE	SL_OE	Hrs	20		2,621		2,621	
2	02	17	02			IJ21702120	Checkout & Integrate: Pre-Amp Beam Encl		PRE	SL_OT	Hrs	40		2,872		2,872	
2	02	17	02			IJ21702120	Checkout & Integrate: Pre-Amp Beam Encl		PRE	SL_OE	Hrs	20		2,621		2,621	
2	02	17	02			IJ21702060	C\O & Integ:PreAmp Timing stability Meas appa		PRE	SL_PHSS	Hrs	20		2,159		2,159	
2	02	17	02			IJ21702060	C\O & Integ:PreAmp Timing stability Meas appa		PRE	SL_OT	Hrs	30		2,153		2,153	
2	02	17	02			IJ21702060	C\O & Integ:PreAmp Timing stability Meas appa		PRE	SL_OE	Hrs	30		3,933		3,933	
2	02	17	02			IJ21702140	Checkout & Integrate: Final Amplifier diagnostic		PRE	SL_PHSS	Hrs	20		2,159		2,159	
2	02	17	02			IJ21702140	Checkout & Integrate: Final Amplifier diagnostic		PRE	SL_OT	Hrs	80		5,743		5,743	
2	02	17	02			IJ21702140	Checkout & Integrate: Final Amplifier diagnostic		PRE	SL_OE	Hrs	60		7,865		7,865	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	02	17	02			IJ21702130	Checkout & Integrate: Final Amplifier & pump		PRE	SL_PHSS	Hrs	80		8,638		8,638	
2	02	17	02			IJ21702130	Checkout & Integrate: Final Amplifier & pump		PRE	SL_OT	Hrs	80		5,743		5,743	
2	02	17	02			IJ21702130	Checkout & Integrate: Final Amplifier & pump		PRE	SL_OE	Hrs	80		10,487		10,487	
2	02	17	02			IJ21702150	Checkout & Integrate: 120 Hz combiner parts		PRE	SL_OT	Hrs	40		2,872		2,872	
2	02	17	02			IJ21702150	Checkout & Integrate: 120 Hz combiner parts		PRE	SL_OE	Hrs	40		5,243		5,243	
2	02	17	02			IJ21702160	Checkout & Integrate: vacuum Spatial filters & o		PRE	SL_OT	Hrs	40		2,872		2,872	
2	02	17	02			IJ21702160	Checkout & Integrate: vacuum Spatial filters & o		PRE	SL_OE	Hrs	20		2,621		2,621	
2	02	17	02			IJ21702170	Checkout & Integrate: high power compressor		PRE	SL_OT	Hrs	40		2,872		2,872	
2	02	17	02			IJ21702170	Checkout & Integrate: high power compressor		PRE	SL_OE	Hrs	40		5,243		5,243	
2	02	17	02			IJ21702210	Checkout & Integrate: Spatial profile shaping as		PRE	SL_OT	Hrs	40		2,872		2,872	
2	02	17	02			IJ21702210	Checkout & Integrate: Spatial profile shaping as		PRE	SL_OE	Hrs	40		5,243		5,243	
2	02	17	02			IJ21702180	Checkout & Integrate: Timing stability apparatus		PRE	SL_PHSS	Hrs	40		4,319		4,319	
2	02	17	02			IJ21702180	Checkout & Integrate: Timing stability apparatus		PRE	SL_OT	Hrs	60		4,307		4,307	
2	02	17	02			IJ21702180	Checkout & Integrate: Timing stability apparatus		PRE	SL_OE	Hrs	40		5,243		5,243	
2	02	17	02			IJ21702220	Checkout & Integrate: Beam relay & Encl		PRE	SL_OT	Hrs	40		2,872		2,872	
2	02	17	02			IJ21702220	Checkout & Integrate: Beam relay & Encl		PRE	SL_OE	Hrs	40		5,243		5,243	
2	02	17	02			IJ21702190	Checkout & Integrate: Pulse energy stabilization		PRE	SL_OT	Hrs	40		2,872		2,872	
2	02	17	02			IJ21702190	Checkout & Integrate: Pulse energy stabilization		PRE	SL_OE	Hrs	20		2,621		2,621	
2	02	17	02			IJ21702190	Checkout & Integrate: Pulse energy stabilization		PRE	SL_EE	Hrs	20		2,621		2,621	
2	02	17	02			IJ21702240	Checkout & Integrate: UV conversion diagnostics		PRE	SL_OT	Hrs	40		2,872		2,872	
2	02	17	02			IJ21702240	Checkout & Integrate: UV conversion diagnostics		PRE	SL_OE	Hrs	40		5,243		5,243	
2	02	17	02			IJ21702200	Checkout & Integrate: steering stabilization app		PRE	SL_OT	Hrs	40		2,891		2,891	
2	02	17	02			IJ21702200	Checkout & Integrate: steering stabilization app		PRE	SL_OE	Hrs	40		5,280		5,280	
2	02	17	02			IJ21702230	Checkout & Integrate UV conversion unit		PRE	SL_OT	Hrs	40		2,916		2,916	
2	02	17	02			IJ21702230	Checkout & Integrate UV conversion unit		PRE	SL_OE	Hrs	40		5,326		5,326	
2	02	17	02			IJ21702290	Checkout & Integrate: UV transport Optics & Encl		PRE	SL_OT	Hrs	40		2,947		2,947	
2	02	17	02			IJ21702290	Checkout & Integrate: UV transport Optics & Encl		PRE	SL_OE	Hrs	20		2,689		2,689	
2	02	17	02			IJ21702270	Checkout & Integrate: vertical Beam xport tube		PRE	SL_OT	Hrs	40		2,947		2,947	
2	02	17	02			IJ21702270	Checkout & Integrate: vertical Beam xport tube		PRE	SL_OE	Hrs	10		1,345		1,345	
2	02	17	02			IJ21702250	Checkout & Integrate: UV Pulse energy stabilizat		PRE	SL_OT	Hrs	20		1,473		1,473	
2	02	17	02			IJ21702250	Checkout & Integrate: UV Pulse energy stabilizat		PRE	SL_OE	Hrs	20		2,689		2,689	
2	02	17	02			IJ21702350	Checkout & Integrate: UV launch Optics		PRE	SL_OT	Hrs	60		4,419		4,419	
2	02	17	02			IJ21702350	Checkout & Integrate: UV launch Optics		PRE	SL_OE	Hrs	60		8,069		8,069	
2	02	17	02			IJ21702310	Checkout & Integrate: Visible Beam transport dia		PRE	SL_OT	Hrs	40		2,947		2,947	
2	02	17	02			IJ21702310	Checkout & Integrate: Visible Beam transport dia		PRE	SL_OE	Hrs	20		2,689		2,689	
2	02	17	02			IJ21702260	Checkout & Integrate: UV Pulse Timing stability		PRE	SL_PHSS	Hrs	40		4,431		4,431	
2	02	17	02			IJ21702260	Checkout & Integrate: UV Pulse Timing stability		PRE	SL_OT	Hrs	40		2,947		2,947	
2	02	17	02			IJ21702260	Checkout & Integrate: UV Pulse Timing stability		PRE	SL_OE	Hrs	40		5,380		5,380	
2	02	17	02			IJ21702320	Checkout & Integrate: IR Beam transport & Encl		PRE	SL_OT	Hrs	20		1,473		1,473	
2	02	17	02			IJ21702320	Checkout & Integrate: IR Beam transport & Encl		PRE	SL_OE	Hrs	20		2,689		2,689	
2	02	17	02			IJ21702300	Checkout & Integrate: Visible Beam transport Opt		PRE	SL_OT	Hrs	40		2,947		2,947	
2	02	17	02			IJ21702300	Checkout & Integrate: Visible Beam transport Opt		PRE	SL_OE	Hrs	20		2,689		2,689	
2	02	17	02			IJ21702330	Checkout & Integrate: UV Spatial filter		PRE	SL_OT	Hrs	40		2,947		2,947	
2	02	17	02			IJ21702330	Checkout & Integrate: UV Spatial filter		PRE	SL_OE	Hrs	40		5,380		5,380	
2	02	17	02			IJ21702340	Checkout & Integrate: UV Spatial profile shaper		PRE	SL_OT	Hrs	40		2,947		2,947	
2	02	17	02			IJ21702340	Checkout & Integrate: UV Spatial profile shaper		PRE	SL_OE	Hrs	40		5,380		5,380	
2	02	17	02			IJ21702280	Checkout & Integrate: UV Beam steering stabiliza		PRE	SL_PHSS	Hrs	40		4,431		4,431	
2	02	17	02			IJ21702280	Checkout & Integrate: UV Beam steering stabiliza		PRE	SL_OE	Hrs	20		2,689		2,689	
2	02	17	02			IJ21702360	Checkout & Integrate: UV Pulse energy controller		PRE	SL_OT	Hrs	40		2,947		2,947	
2	02	17	02			IJ21702360	Checkout & Integrate: UV Pulse energy controller		PRE	SL_OE	Hrs	40		5,380		5,380	
2	02	17	02			IJ21702360	Checkout & Integrate: UV Pulse energy controller		PRE	SL_CE	Hrs	40		5,380		5,380	
2	02	17	02			IJ21702370	C&I Time slew measurement apparatus		PRE	SL_PHSS	Hrs	20		2,216		2,216	
2	02	17	02			IJ21702370	C&I Time slew measurement apparatus		PRE	SL_OT	Hrs	20		1,473		1,473	
2	02	17	02			IJ21702370	C&I Time slew measurement apparatus		PRE	SL_OE	Hrs	20		2,689		2,689	
2	**02**	**17**	**03**				**RF Conditioning**					**1,080**	**-**	**98,875**	**-**	**98,875**	
2	02	17	03			IJ21703	RF Conditioning		PRE	SL_KT	Hrs	720		51,686		51,686	
2	02	17	03			IJ21703	RF Conditioning		PRE	SL_KE	Hrs	360		47,190		47,190	
2	**02**	**17**	**04**				**RF Gun Operation with Beam**					**4,424**	**-**	**443,125**	**-**	**443,125**	
2	02	17	04			IJ21704000	RF Gun Operation with Beam		PRE	SL_PHSS	Hrs	520		57,602		57,602	
2	02	17	04			IJ21704000	RF Gun Operation with Beam		PRE	SL_PHS	Hrs	1,040		90,522		90,522	
2	02	17	04			IJ21704000	RF Gun Operation with Beam		PRE	SL_OT	Hrs	1,040		76,602		76,602	
2	02	17	04			IJ21704000	RF Gun Operation with Beam		PRE	SL_OE	Hrs	520		69,936		69,936	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	02	17	04			IJ21704000	RF Gun Operation with Beam		PRE	SL_KE	Hrs	520		69,936		69,936	
2	02	17	04			IJ21704005	RF Gun Operation with Beam		PRE	SL_PHSS	Hrs	112		12,407		12,407	
2	02	17	04			IJ21704005	RF Gun Operation with Beam		PRE	SL_PHS	Hrs	224		19,497		19,497	
2	02	17	04			IJ21704005	RF Gun Operation with Beam		PRE	SL_OT	Hrs	224		16,499		16,499	
2	02	17	04			IJ21704005	RF Gun Operation with Beam		PRE	SL_OE	Hrs	112		15,063		15,063	
2	02	17	04			IJ21704005	RF Gun Operation with Beam		PRE	SL_KE	Hrs	112		15,063		15,063	
2	**02**	**17**	**05**				**L0-1&L0-2 Commissioning**					**3,640**	**-**	**364,597**	**-**	**364,597**	
2	02	17	05			IJ21705	L0-1 & L0-2 Commissioning		PRE	SL_PHSS	Hrs	520		57,602		57,602	
2	02	17	05			IJ21705	L0-1 & L0-2 Commissioning		PRE	SL_PHS	Hrs	1,040		90,522		90,522	
2	02	17	05			IJ21705	L0-1 & L0-2 Commissioning		PRE	SL_OT	Hrs	1,040		76,602		76,602	
2	02	17	05			IJ21705	L0-1 & L0-2 Commissioning		PRE	SL_OE	Hrs	520		69,936		69,936	
2	02	17	05			IJ21705	L0-1 & L0-2 Commissioning		PRE	SL_KE	Hrs	520		69,936		69,936	
2	**02**	**17**	**06**				**L0&SAB Commissioning**					**3,640**	**-**	**364,597**	**-**	**364,597**	
2	02	17	06			IJ21706	L0 & SAB Commissioning		PRE	SL_PHSS	Hrs	520		57,602		57,602	
2	02	17	06			IJ21706	L0 & SAB Commissioning		PRE	SL_PHS	Hrs	1,040		90,522		90,522	
2	02	17	06			IJ21706	L0 & SAB Commissioning		PRE	SL_OT	Hrs	1,040		76,602		76,602	
2	02	17	06			IJ21706	L0 & SAB Commissioning		PRE	SL_OE	Hrs	520		69,936		69,936	
2	02	17	06			IJ21706	L0 & SAB Commissioning		PRE	SL_KE	Hrs	520		69,936		69,936	
2	**02**	**17**	**07**				**DL1 Commissioning**					**3,640**	**-**	**364,597**	**-**	**364,597**	
2	02	17	07			IJ21707	DL1 Commissioning		PRE	SL_PHSS	Hrs	520		57,602		57,602	
2	02	17	07			IJ21707	DL1 Commissioning		PRE	SL_PHS	Hrs	1,040		90,522		90,522	
2	02	17	07			IJ21707	DL1 Commissioning		PRE	SL_OT	Hrs	1,040		76,602		76,602	
2	02	17	07			IJ21707	DL1 Commissioning		PRE	SL_OE	Hrs	520		69,936		69,936	
2	02	17	07			IJ21707	DL1 Commissioning		PRE	SL_KE	Hrs	520		69,936		69,936	
2	**02**	**17**	**08**				**Injector Optimization**					**4,040**	**-**	**399,321**	**-**	**399,321**	
2	02	17	08			IJ21708	Injector Optimization		PRE	SL_PHSS	Hrs	520		57,931		57,931	
2	02	17	08			IJ21708	Injector Optimization		PRE	SL_PHS	Hrs	1,040		91,038		91,038	
2	02	17	08			IJ21708	Injector Optimization		PRE	SL_OT	Hrs	1,040		77,041		77,041	
2	02	17	08			IJ21708	Injector Optimization		PRE	SL_OE	Hrs	520		70,336		70,336	
2	02	17	08			IJ21708	Injector Optimization		PRE	SL_KE	Hrs	520		70,336		70,336	
2	02	17	08			IJ15080005	Plan for Laser Heater commissioning		PRE	SL_PHS	Hrs	80		6,963		6,963	
2	02	17	08			IJ15080010	Commission Laser Heater Bay Optics		PRE	SL_OT	Hrs	80		5,892		5,892	
2	02	17	08			IJ15080015	Commission IR Optical Path to Laser Heater		PRE	SL_OT	Hrs	40		3,023		3,023	
2	02	17	08			IJ15080020	Match beam power and size for LH		PRE	SL_OT	Hrs	80		6,045		6,045	
2	02	17	08			IJ15080025	Setup LH electron energy spread measurement		PRE	SL_PHS	Hrs	80		7,143		7,143	
2	02	17	08			IJ15080030	Overlap LH electron and laser beams		PRE	SL_PHS	Hrs	40		3,572		3,572	
2	**03**						**LINAC SYSTEM (OPC)**					**9,983**	**836,790**	**1,020,831**	**970,621**	**1,991,451**	
2	**03**	**01**					**Reserved**										
2	**03**	**01**	**01**				**Reserved**										
2	**03**	**01**	**02**				**Reserved**										
2	**03**	**01**	**03**				**Reserved**										
2	**03**	**01**	**04**				**Reserved**										
2	**03**	**02**					**Linac Controls & Power Conversion Subsystem**					**174**	**73,110**	**15,022**	**84,712**	**99,734**	
2	**03**	**02**	**01**				**Reserved**										
2	**03**	**02**	**02**				**Reserved**										
2	**03**	**02**	**03**				**Reserved**										
2	**03**	**02**	**04**				**Power Conversion**					**174**	**73,110**	**15,022**	**84,712**	**99,734**	
2	**03**	**02**	**04**	**01**			**Spare Power Supply (Dipole Type)**					**80**	**21,480**	**6,740**	**24,888**	**31,628**	
2	03	02	04	01		LN02043616	Procure Klixon Run Safe Box & Hdwr		SPR	SL_MSEG	$$		1,500		1,738	1,738	
2	03	02	04	01		LN02043614	Procure Cable - Lugs, Splices, Etc.		SPR	SL_MSEG	$$		160		185	185	
2	03	02	04	01		LN02043612	Procure - 2/C 18AWG Interlock Cable		SPR	SL_MSEG	$$		20		23	23	
2	03	02	04	01		LN02043610	Procure - 1/C Cable		SPR	SL_MSEG	$$		1,000		1,159	1,159	
2	03	02	04	01		LN02043608	Procure PSC 2 Cable		SPR	SL_MSEG	$$		500		579	579	
2	03	02	04	01		LN02043606	Procure Power Supply Controller (PSC2)		SPR	SL_MSEG	$$		1,500		1,738	1,738	
2	03	02	04	01		LN02043604	Procure Controller		SPR	SL_MSEG	$$		2,000		2,317	2,317	
2	03	02	04	01		LN02043602	Procure Transductors		SPR	SL_MSEG	$$		1,800		2,086	2,086	
2	03	02	04	01		LN02043600	Procure Power Supply - (Dipole Type)		SPR	SL_MSEG	$$		13,000		15,063	15,063	
2	03	02	04	01		LN02043622	Assemble Pwr Supply, Transductor & Control		SPR	SL_PCT	Hrs	16		1,179		1,179	
2	03	02	04	01		LN02043622	Assemble Pwr Supply, Transductor & Control		SPR	SL_PCE	Hrs	8		1,076		1,076	
2	03	02	04	01		LN02043622	Assemble Pwr Supply, Transductor & Control		SPR	SL_PCCA	Hrs	24		1,880		1,880	
2	03	02	04	01		LN02043628	Integrate Pwr Supply, Transductor & Control		SPR	SL_PCEF	Hrs	26		1,915		1,915	
2	03	02	04	01		LN02043630	Integrate Cables		SPR	SL_TMUE	Hrs	6		690		690	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	**03**	**02**	**04**	**02**			**Spare Power Supply (Quad Type)**					**82**	**21,480**	**6,901**	**24,888**	**31,789**	
2	03	02	04	02		LN02045316	Procure Klixon Run Safe Box & Hdwr		SPR	SL_MSEG	$$		1,500		1,738	1,738	
2	03	02	04	02		LN02045314	Procure Cable - Lugs, Splices, Etc.		SPR	SL_MSEG	$$		160		185	185	
2	03	02	04	02		LN02045312	Procure - 2/C 18AWG Interlock Cable		SPR	SL_MSEG	$$		20		23	23	
2	03	02	04	02		LN02045310	Procure - 1/C Cable		SPR	SL_MSEG	$$		1,000		1,159	1,159	
2	03	02	04	02		LN02045308	Procure PSC 2 Cable		SPR	SL_MSEG	$$		500		579	579	
2	03	02	04	02		LN02045306	Procure Power Supply Controller (PSC2)		SPR	SL_MSEG	$$		1,500		1,738	1,738	
2	03	02	04	02		LN02045304	Procure Controller		SPR	SL_MSEG	$$		2,000		2,317	2,317	
2	03	02	04	02		LN02045302	Procure Transductors		SPR	SL_MSEG	$$		1,800		2,086	2,086	
2	03	02	04	02		LN02045300	Procure Power Supply - (Quad Type)		SPR	SL_MSEG	$$		13,000		15,063	15,063	
2	03	02	04	02		LN02045318	Assemble Pwr Supply, Transductor & Control		SPR	SL_PCT	Hrs	16		1,179		1,179	
2	03	02	04	02		LN02045318	Assemble Pwr Supply, Transductor & Control		SPR	SL_PCE	Hrs	8		1,076		1,076	
2	03	02	04	02		LN02045318	Assemble Pwr Supply, Transductor & Control		SPR	SL_PCCA	Hrs	24		1,880		1,880	
2	03	02	04	02		LN02045320	Integrate Pwr Supply, Transductor & Control		SPR	SL_PCEF	Hrs	26		1,915		1,915	
2	03	02	04	02		LN02045322	Integrate Cables		SPR	SL_TMUE	Hrs	6		690		690	
2	03	02	04	02		LN02045324	Integrate Magnet Interlock		SPR	SL_TMUI	Hrs	2		161		161	
2	**03**	**02**	**04**	**03**			**Spare Power Supply (Trim Type)**					**12**	**30,150**	**1,382**	**34,935**	**36,316**	
2	03	02	04	03		LN02045224	Procure Cable - Lugs, Splices, Etc. (5ea)		SPR	SL_MSEG	$$		200		232	232	
2	03	02	04	03		LN02045218	Procure - 2/C #8 Cable (5ea)		SPR	SL_MSEG	$$		600		695	695	
2	03	02	04	03		LN02045216	Procure MCOR 12 Amp Modules (5ea)		SPR	SL_MSEG	$$		14,400		16,685	16,685	
2	03	02	04	03		LN02045214	Procure Cooling Unit		SPR	SL_MSEG	$$		350		406	406	
2	03	02	04	03		LN02045212	Procure Output Interface		SPR	SL_MSEG	$$		600		695	695	
2	03	02	04	03		LN02045210	Procure Cable - SAM/DAC		SPR	SL_MSEG	$$		100		116	116	
2	03	02	04	03		LN02045208	Procure Digital Analog Converter		SPR	SL_MSEG	$$		2,200		2,549	2,549	
2	03	02	04	03		LN02045206	Procure Smart Analog Monitor		SPR	SL_MSEG	$$		2,500		2,897	2,897	
2	03	02	04	03		LN02045204	Procure MCOR Controller Card (VME)		SPR	SL_MSEG	$$		600		695	695	
2	03	02	04	03		LN02045202	Procure MCOR Chassis		SPR	SL_MSEG	$$		2,100		2,433	2,433	
2	03	02	04	03		LN02045200	Procure MCOR Bulk Power Supply		SPR	SL_MSEG	$$		6,500		7,531	7,531	
2	03	02	04	03		LN02045238	Integrate Cables		SPR	SL_TMUE	Hrs	12		1,382		1,382	
2	**03**	**02**	**04**	**04**			**Reserved**										
2	**03**	**02**	**05**				**Reserved**										
2	**03**	**02**	**06**				**Reserved**										
2	**03**	**02**	**07**				**Reserved**										
2	**03**	**02**	**08**				**Reserved**										
2	**03**	**02**	**09**				**Reserved**										
2	**03**	**02**	**10**				**Reserved**										
2	**03**	**03**					**Linac Magnets & Supports**					**-**	**127,000**	**-**	**147,606**	**147,606**	
2	**03**	**03**	**01**				**Bend Magnet (BX1_BC1)**					**-**	**7,000**	**-**	**8,111**	**8,111**	
2	03	03	01			LN03010500	Procure Coils (2ea) - Bend Mag (BX1_BC1) SPARES		SPR	SL_MSEG	$$		7,000		8,111	8,111	
2	**03**	**03**	**02**				**Bend Magnet (BX3_LTU)**					**-**	**40,000**	**-**	**46,347**	**46,347**	
2	03	03	02			LN03020500	Procure Coils (2ea) - Bend Mag (BX3_LTU) SPARES		SPR	SL_MSEG	$$		40,000		46,347	46,347	
2	**03**	**03**	**03**				**Bend Magnet (BX2_BC2)**					**-**	**10,000**	**-**	**11,587**	**11,587**	
2	03	03	03			LN03030500	Procure Coils (2ea) - Bend Mag (BX2_BC2) SPARES		SPR	SL_MSEG	$$		10,000		11,587	11,587	
2	**03**	**03**	**04**				**Bend Magnet (BY_LTU)**					**-**	**15,000**	**-**	**17,380**	**17,380**	
2	03	03	04			LN03040500	Procure Coil (1ea) - Bend Mag (BY_LTU) SPARES		SPR	SL_MSEG	$$		15,000		17,380	17,380	
2	**03**	**03**	**05**				**Quad Magnet (Quad_LTU)**					**-**	**10,000**	**-**	**11,587**	**11,587**	
2	03	03	05			LN03050500	Procure Coil (4ea) - Quad Mag (Quad_LTU) SPARES		SPR	SL_MSEG	$$		10,000		11,587	11,587	
2	**03**	**03**	**06**				**Resered**										
2	**03**	**03**	**07**				**Resered**										
2	**03**	**03**	**08**				**Resered**										
2	**03**	**03**	**09**				**Bend Magnet (BYD_LTU)**					**-**	**15,000**	**-**	**17,380**	**17,380**	
2	03	03	09			LN03090500	Procure Coil (2ea) - Bend Mag (BYD_LTU) SPARES		SPR	SL_MSEG	$$		15,000		17,380	17,380	
2	**03**	**03**	**10**				**Reserved**										
2	**03**	**03**	**11**				**Bend Magnet (BYPM_LTU)**					**-**	**15,000**	**-**	**17,834**	**17,834**	
2	03	03	11			LN03110500	Procure Coil (1ea) - Bend Mag (BYMP_LTU) SPARES		SPR	SL_MSEG	$$		15,000		17,834	17,834	
2	**03**	**03**	**12**				**Bend Magnet (BYKIK_LTU)**					**-**	**5,000**	**-**	**5,793**	**5,793**	
2	03	03	12			LN03120500	Procure Coil (1ea) - Bend Mag (BYKIK_LTU) SPARES		SPR	SL_MSEG	$$		5,000		5,793	5,793	
2	**03**	**03**	**13**				**Bend Magnet (BYW_LTU)**					**-**	**10,000**	**-**	**11,587**	**11,587**	
2	03	03	13			LN03130500	Procure Coil (1ea) - Bend Mag (BYW_LTU) SPARES		SPR	SL_MSEG	$$		10,000		11,587	11,587	
2	**03**	**04**					**Linac Vacuum Subsystem**					**-**	**126,080**	**-**	**146,089**	**146,089**	
2	**03**	**04**	**01**				**Linac Vacuum Subsystem Operations Equip**					**-**	**63,679**	**-**	**73,787**	**73,787**	
2	03	04	01			LN04010105	Procure Misc Leybold Leak Detector Equip		PRE	SL_MSEG	$$		29,610		34,309	34,309	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	03	04	01			LN04010060	Procure Forced Aircooling, MSP0136		PRE	SL_MSEG	$$		630		730	730	
2	03	04	01			LN04010055	Procure Emergency Vent, MSP0132		PRE	SL_MSEG	$$		425		493	493	
2	03	04	01			LN04010050	Procure Gauge Tube, Thrmcpl, 2 3/4 CFF, MSP5316		PRE	SL_MSEG	$$		360		417	417	
2	03	04	01			LN04010045	Procure Inverted Magnetron CC Gauge, MSPL9062		PRE	SL_MSEG	$$		1,155		1,338	1,338	
2	03	04	01			LN04010040	Procure Standard RS 485/422 O/I Board, MSPL8490		PRE	SL_MSEG	$$		390		452	452	
2	03	04	01			LN04010035	Procure Remote Input/Output Board, MSPL8324		PRE	SL_MSEG	$$		765		887	887	
2	03	04	01			LN04010030	Procure Setpoint Board, MSP 0130		PRE	SL_MSEG	$$		504		584	584	
2	03	04	01			LN04010025	ProcureCold Cathode Board, MSPL9066		PRE	SL_MSEG	$$		2,165		2,509	2,509	
2	03	04	01			LN04010020	Procure Thermocouple Board, MSP0126		PRE	SL_MSEG	$$		1,215		1,408	1,408	
2	03	04	01			LN04010015	Procure Multigauge Controller, MSP0125		PRE	SL_MSEG	$$		2,130		2,468	2,468	
2	03	04	01			LN04010010	Procure Dry Scroll Pump, MSP1001		PRE	SL_MSEG	$$		9,600		11,123	11,123	
2	03	04	01			LN04010005	Procure Basic Unit, V70LP Turbo, MSP5366		PRE	SL_MSEG	$$		14,730		17,068	17,068	
2	**03**	**04**	**02**				**Linac Beamline Vacuum System**					**-**	**5,162**	**-**	**5,981**	**5,981**	
2	03	04	02			LN04020400	Procure Materials for B/L Vac Sys Spares Kit		SPR	SL_MSEG	$$		5,162		5,981	5,981	
2	**03**	**04**	**03**				**BC1 Vacuum System**					**-**	**11,237**	**-**	**13,021**	**13,021**	
2	03	04	03			LN04030400	Procure Materials for BC1 Vac Sys Spares Kit		SPR	SL_MSEG	$$		11,237		13,021	13,021	
2	**03**	**04**	**04**				**BC2 Vacuum System**					**-**	**16,255**	**-**	**18,834**	**18,834**	
2	03	04	04			LN04040400	Procure Materials for BC2 Vac Sys Spares Kit		SPR	SL_MSEG	$$		16,255		18,834	18,834	
2	**03**	**04**	**05**				**Linac to Undulator (LTU) Vacuum System**					**-**	**25,524**	**-**	**29,575**	**29,575**	
2	03	04	05			LN04050400	Procure Materials for LTU Vac Sys Spares Kit		SPR	SL_MSEG	$$		25,524		29,575	29,575	
2	**03**	**04**	**06**				**Dumpline Vacuum System**					**-**	**4,223**	**-**	**4,893**	**4,893**	
2	03	04	06			LN04060400	Procure Materials for D/L Vac Sys Spares Kit		SPR	SL_MSEG	$$		4,223		4,893	4,893	
2	**03**	**05**					**Linac Electron Diagnostics**					**1,345**	**84,100**	**150,793**	**97,445**	**248,238**	
2	**03**	**05**	**01**				**Wire Scanners**					**98**	**24,000**	**10,868**	**27,808**	**38,676**	
2	03	05	01			LN05010425	Procure Misc Materials - Wire Scann - (2) SPARES		SPR	SL_MSEG	$$		1,000		1,159	1,159	
2	03	05	01			LN05010405	Vendor Fab 1st Lot (2) Spares		SPR	SL_MSEG	$$		11,500		13,325	13,325	
2	03	05	01			LN05010415	Vendor Fab Remaining Lot (2) Spares		SPR	SL_MSEG	$$		11,500		13,325	13,325	
2	03	05	01			LN05010430	Component Fab & Assembly - Wire Scanr (2) Spares		SPR	SL_MFPC	Hrs	4		767		767	
2	03	05	01			LN05010430	Component Fab & Assembly - Wire Scanr (2) Spares		SPR	SL_MFMS	Hrs	26		3,125		3,125	
2	03	05	01			LN05010430	Component Fab & Assembly - Wire Scanr (2) Spares		SPR	SL_MFAT	Hrs	24		2,353		2,353	
2	03	05	01			LN05010445	Perform QC / Metrology (2ea) Spares		SPR	SL_MES	Hrs	9		997		997	
2	03	05	01			LN05010450	Perform Functional Testing - Wire Scn (2) Spares		SPR	SL_CCA	Hrs	9		723		723	
2	03	05	01			LN05010455	Collect Component Performance Data (2ea) Spares		SPR	SL_ME	Hrs	6		777		777	
2	03	05	01			LN05010460	Load Component Data Base (2ea) Spares		SPR	SL_ME	Hrs	4		519		519	
2	03	05	01			LN05010465	Post Process & Test (2ea) Spares		SPR	SL_MFAT	Hrs	16		1,606		1,606	
2	**03**	**05**	**02**				**Beam Position Monitors**					**920**	**29,200**	**102,153**	**33,833**	**135,986**	
2	03	05	02			LN05020800	Procure Component Material - BPMs - (1) SPARE		SPR	SL_MSEG	$$		5,000		5,793	5,793	
2	03	05	02			LN05020600	Procure Component Material - RF BPM - (2) SPARES		SPR	SL_MSEG	$$		20,000		23,174	23,174	
2	03	05	02			LN05020500	Procure Component Material - BPMs - (2) SPARES		SPR	SL_MSEG	$$		1,700		1,970	1,970	
2	03	05	02			LN05020805	Component Fab & Assembly - BPMs (1ea) Spare		SPR	SL_MFPC	Hrs	24		4,598		4,598	
2	03	05	02			LN05020805	Component Fab & Assembly - BPMs (1ea) Spare		SPR	SL_MFMS	Hrs	240		28,799		28,799	
2	03	05	02			LN05020805	Component Fab & Assembly - BPMs (1ea) Spare		SPR	SL_MFAT	Hrs	120		11,744		11,744	
2	03	05	02			LN05020700	Procure Component Material - BPMs - (2) SPARES		SPR	SL_MSEG	$$		2,500		2,897	2,897	
2	03	05	02			LN05020605	Component Fab & Assembly - RFBPMs (2ea) Spares		SPR	SL_MFAT	Hrs	200		19,573		19,573	
2	03	05	02			LN05020705	Component Fab & Assembly - BPMs (2ea) Spares		SPR	SL_MFPC	Hrs	6		1,149		1,149	
2	03	05	02			LN05020705	Component Fab & Assembly - BPMs (2ea) Spares		SPR	SL_MFMS	Hrs	35		4,200		4,200	
2	03	05	02			LN05020705	Component Fab & Assembly - BPMs (2ea) Spares		SPR	SL_MFAT	Hrs	9		881		881	
2	03	05	02			LN05020505	Component Fab & Assembly - BPMs (2ea) Spares		SPR	SL_MFPC	Hrs	4		766		766	
2	03	05	02			LN05020505	Component Fab & Assembly - BPMs (2ea) Spares		SPR	SL_MFMS	Hrs	24		2,880		2,880	
2	03	05	02			LN05020505	Component Fab & Assembly - BPMs (2ea) Spares		SPR	SL_MFAT	Hrs	40		3,915		3,915	
2	03	05	02			LN05020720	Perform QC / Metrology (2ea) Spares		SPR	SL_MES	Hrs	8		864		864	
2	03	05	02			LN05020725	Perform Functional Testing - BPMs (2ea) Spares		SPR	SL_CCA	Hrs	4		313		313	
2	03	05	02			LN05020730	Collect Component Performance Data (2ea) Spares		SPR	SL_ME	Hrs	2		253		253	
2	03	05	02			LN05020735	Load Component Data Base (2ea) Spares		SPR	SL_ME	Hrs	2		253		253	
2	03	05	02			LN05020740	Post Process & Test (2ea) Spares		SPR	SL_MFAT	Hrs	10		979		979	
2	03	05	02			LN05020610	Component Fab & Assembly - RF BPMs		SPR	SL_MFPC	Hrs	24		4,598		4,598	
2	03	05	02			LN05020820	Perform QC / Metrology (1ea) Spare		SPR	SL_MES	Hrs	16		1,727		1,727	
2	03	05	02			LN05020825	Perform Functional Testing - BPMs (1ea) Spare		SPR	SL_CCA	Hrs	16		1,253		1,253	
2	03	05	02			LN05020830	Collect Component Performance Data (1ea) Spare		SPR	SL_ME	Hrs	8		1,011		1,011	
2	03	05	02			LN05020835	Load Component Data Base (1ea) Spare		SPR	SL_ME	Hrs	8		1,011		1,011	
2	03	05	02			LN05020840	Post Process & Test (1ea) Spare		SPR	SL_MFAT	Hrs	24		2,348		2,348	
2	03	05	02			LN05020615	Perform QC / Metrology (2ea) Spares		SPR	SL_MES	Hrs	8		864		864	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	03	05	02			LN05020520	Perform QC / Metrology (2ea) Spares		SPR	SL_MES	Hrs	2		216		216	
2	03	05	02			LN05020525	Perform Functional Testing - BPMs (2ea) Spares		SPR	SL_CCA	Hrs	6		470		470	
2	03	05	02			LN05020620	Perform Functional Testing - RFBPMs (2ea) Spares		SPR	SL_CCA	Hrs	32		2,507		2,507	
2	03	05	02			LN05020530	Collect Component Performance Data (2ea) Spares		SPR	SL_ME	Hrs	2		253		253	
2	03	05	02			LN05020625	Collect Component Performance Data (2ea) Spares		SPR	SL_ME	Hrs	4		505		505	
2	03	05	02			LN05020535	Load Component Data Base (2ea) Spares		SPR	SL_ME	Hrs	2		253		253	
2	03	05	02			LN05020630	Load Component Data Base (2ea) Spares		SPR	SL_ME	Hrs	2		253		253	
2	03	05	02			LN05020540	Post Process & Test (2ea) Spares		SPR	SL_MFAT	Hrs	6		587		587	
2	03	05	02			LN05020635	Post Process & Test (2ea) Spares		SPR	SL_MFAT	Hrs	32		3,131		3,131	
2	**03**	**05**	**03**				**Toroids Beam Charge**					**136**	**1,500**	**15,788**	**1,738**	**17,526**	
2	03	05	03			LN05030300	Procure Component Material - Toroid - (2) SPARES		SPR	SL_MSEG	$$		1,500		1,738	1,738	
2	03	05	03			LN05030310	Component Fab & Assembly - Toroids (2ea) Spares		SPR	SL_MFPC	Hrs	12		2,300		2,300	
2	03	05	03			LN05030310	Component Fab & Assembly - Toroids (2ea) Spares		SPR	SL_MFMS	Hrs	64		7,679		7,679	
2	03	05	03			LN05030310	Component Fab & Assembly - Toroids (2ea) Spares		SPR	SL_MFAT	Hrs	35		3,425		3,425	
2	03	05	03			LN05030330	Perform Functional Testing - Toroid (2ea) Spares		SPR	SL_CCA	Hrs	9		705		705	
2	03	05	03			LN05030335	Collect Component Performance Data (2ea) Spares		SPR	SL_ME	Hrs	2		253		253	
2	03	05	03			LN05030340	Load Component Data Base (2ea) Spares		SPR	SL_ME	Hrs	2		253		253	
2	03	05	03			LN05030345	Post Process & Test (2ea) Spares		SPR	SL_MFAT	Hrs	12		1,174		1,174	
2	**03**	**05**	**04**				**Stoppers Tune Up Dump**					**-**	**4,000**	**-**	**4,635**	**4,635**	
2	03	05	04			LN05040300	Procure Hardware Kit - Stoppers - SPARES		SPR	SL_MSEG	$$		4,000		4,635	4,635	
2	**03**	**05**	**05**				**Profile Monitors**					**77**	**18,400**	**8,101**	**21,320**	**29,421**	
2	03	05	05			LN05050425	Procure Component Material - Profile - (1) SPARE		SPR	SL_MSEG	$$		400		463	463	
2	03	05	05			LN05050405	Vendor Fab 1st Lot (1) Spare		SPR	SL_MSEG	$$		9,000		10,428	10,428	
2	03	05	05			LN05050415	Vendor Fab Remaining Lot (1) Spare		SPR	SL_MSEG	$$		9,000		10,428	10,428	
2	03	05	05			LN05050430	Component Fab & Assembly - Profile Mon (1) Spare		SPR	SL_MFPC	Hrs	4		766		766	
2	03	05	05			LN05050430	Component Fab & Assembly - Profile Mon (1) Spare		SPR	SL_MFMS	Hrs	6		720		720	
2	03	05	05			LN05050430	Component Fab & Assembly - Profile Mon (1) Spare		SPR	SL_MFAT	Hrs	45		4,404		4,404	
2	03	05	05			LN05050445	Perform QC / Metrology (1ea) Spare		SPR	SL_MES	Hrs	6		648		648	
2	03	05	05			LN05050450	Perform Functional Testing - Profile Mo(1) Spare		SPR	SL_CCA	Hrs	6		470		470	
2	03	05	05			LN05050455	Collect Component Performance Data (1ea) Spare		SPR	SL_ME	Hrs	2		253		253	
2	03	05	05			LN05050460	Load Component Data Base (1ea) Spare		SPR	SL_ME	Hrs	2		253		253	
2	03	05	05			LN05050465	Post Process & Test (1ea) Spare		SPR	SL_MFAT	Hrs	6		587		587	
2	**03**	**05**	**06**				**Reserved**										
2	**03**	**05**	**07**				**Bunch Length Monitors**					**74**	**1,000**	**9,508**	**1,159**	**10,666**	
2	03	05	07			LN05070300	Procure Component Mtrl - Bunch Len - (1) SPARE		SPR	SL_MSEG	$$		1,000		1,159	1,159	
2	03	05	07			LN05070305	Component Fab & Assy - Bunch Length (1ea) Spare		SPR	SL_MFPC	Hrs	20		3,832		3,832	
2	03	05	07			LN05070305	Component Fab & Assy - Bunch Length (1ea) Spare		SPR	SL_MFMS	Hrs	4		481		481	
2	03	05	07			LN05070305	Component Fab & Assy - Bunch Length (1ea) Spare		SPR	SL_MFAT	Hrs	30		2,936		2,936	
2	03	05	07			LN05070320	Perform QC / Metrology (1ea) Spare		SPR	SL_MES	Hrs	4		432		432	
2	03	05	07			LN05070325	Perform Func Testing - Bunch Length (1ea) Spare		SPR	SL_CE	Hrs	4		538		538	
2	03	05	07			LN05070330	Collect Component Performance Data (1ea) Spare		SPR	SL_ME	Hrs	2		253		253	
2	03	05	07			LN05070335	Load Component Data Base (1ea) Spare		SPR	SL_ME	Hrs	2		253		253	
2	03	05	07			LN05070340	Post Process & Test (1ea) Spare		SPR	SL_MFAT	Hrs	8		783		783	
2	**03**	**05**	**08**				**Beam Loss Monitors**					**40**	**500**	**4,376**	**579**	**4,955**	
2	03	05	08			LN05080300	Procure Component Material - BLM - (2) SPARES		SPR	SL_MSEG	$$		500		579	579	
2	03	05	08			LN05080302	Component Fab & Assy - Bm Lss Mon (2) Spares		SPR	SL_MFMS	Hrs	20		2,400		2,400	
2	03	05	08			LN05080302	Component Fab & Assy - Bm Lss Mon (2) Spares		SPR	SL_MFAT	Hrs	8		783		783	
2	03	05	08			LN05080308	Perform QC / Metrology (2ea) Spares		SPR	SL_MES	Hrs	4		432		432	
2	03	05	08			LN05080310	Perform Functional Testing - Bm Lss Mo(2) Spares		SPR	SL_CCA	Hrs	4		313		313	
2	03	05	08			LN05080312	Collect Component Performance Data (2ea) Spares		SPR	SL_ME	Hrs	1		126		126	
2	03	05	08			LN05080314	Load Component Data Base (2ea) Spares		SPR	SL_ME	Hrs	1		126		126	
2	03	05	08			LN05080316	Post Process & Test (2ea) Spares		SPR	SL_MFAT	Hrs	2		196		196	
2	**03**	**05**	**09**				**Reserved**										
2	**03**	**05**	**10**				**Reserved**										
2	**03**	**05**	**11**				**Protection Collimators**					**-**	**2,000**	**-**	**2,317**	**2,317**	
2	03	05	11			LN05110400	Procure Hardware - Protection Collimatr - SPARES		SPR	SL_MSEG	$$		2,000		2,317	2,317	
2	**03**	**05**	**12**				**Movable Collimators**					**-**	**2,500**	**-**	**2,897**	**2,897**	
2	03	05	12			LN05120400	Procure Hardware - Movable Collimator - SPARES		SPR	SL_MSEG	$$		2,500		2,897	2,897	
2	**03**	**05**	**13**				**Safety Dump**					**-**	**1,000**	**-**	**1,159**	**1,159**	
2	03	05	13			LN05130400	Procure Hardware - Single Beam Dump - SPARES		SPR	SL_MSEG	$$		1,000		1,159	1,159	
2	**03**	**06**					**Linac RF Subsystem**					**2,552**	**426,500**	**301,697**	**494,769**	**796,466**	
2	**03**	**06**	**01**				**Reserved**										

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	03	06	02				**Reserved**										
2	03	06	03				**Reserved**										
2	03	06	04				**Reserved**										
2	03	06	05				**X-Band High Power System**					**1,832**	**332,500**	**248,665**	**385,853**	**634,518**	
2	03	06	05			LN06052250	Procure Cathode Ion Pump - SPARE		SPR	SL_MSEG	$$		1,000		1,160	1,160	
2	03	06	05			LN06052240	Procure Power Supply Cabling - SPARE		SPR	SL_MSEG	$$		5,000		5,799	5,799	
2	03	06	05			LN06052230	Procure Magnet Power Supply - SPARE		SPR	SL_MSEG	$$		28,000		32,475	32,475	
2	03	06	05			LN06052220	Procure HV Connectors - SPARE		SPR	SL_MSEG	$$		2,000		2,319	2,319	
2	03	06	05			LN06052210	Procure Interlocks - SPARE		SPR	SL_MSEG	$$		3,000		3,479	3,479	
2	03	06	05			LN06052200	Procure Toroid & Misc - SPARE		SPR	SL_MSEG	$$		3,000		3,479	3,479	
2	03	06	05			LN06052190	Procure Heater Isolation - SPARE		SPR	SL_MSEG	$$		4,000		4,640	4,640	
2	03	06	05			LN06052180	Procure Cap Divider - SPARE		SPR	SL_MSEG	$$		2,500		2,900	2,900	
2	03	06	05			LN06052170	Procure Pulsed Transformer - SPARE		SPR	SL_MSEG	$$		20,000		23,197	23,197	
2	03	06	05			LN06052160	Procure Tank - SPARE		SPR	SL_MSEG	$$		16,000		18,557	18,557	
2	03	06	05			LN06051110	Procure Mounting Support - SPARE		SPR	SL_MSEG	$$		4,000		4,640	4,640	
2	03	06	05			LN06051082	Prep Bid Pak - X-Band Klystron		SPR	SL_MDD	Hrs	16		1,200		1,200	35%
2	03	06	05			LN06040125	Procure X-Band Strpline Couplers - SPARE		SPR	SL_MSEG	$$		4,000		4,640	4,640	
2	03	06	05			LN06040095	Procure X-Band Phase & Amp Dectector - SPARE		SPR	SL_MSEG	$$		25,000		28,996	28,996	
2	03	06	05			LN06040075	Procure X-Band 4 X Multiplier - SPARE		SPR	SL_MSEG	$$		10,000		11,599	11,599	
2	03	06	05			LN06040055	Procure X-Band TWT Driver - SPARE		SPR	SL_MSEG	$$		30,000		34,760	34,760	
2	03	06	05			LN06051090	Evaluate Vendor Proposals - Klystron System		SPR	SL_MDD	Hrs	16		1,200		1,200	35%
2	03	06	05			LN06051100	Vendor Fab & Assy -X-Band Klystrons - SPARE		SPR	SL_MSEG	$$		175,000		203,213	203,213	
2	03	06	05			LN06052275	Assemble Tank - SPARE		SPR	SL_KT	Hrs	80		6,045		6,045	
2	03	06	05			LN06051140	Fab & Assemble X-Band Klystron - SPARE		SPR	SL_MFPC	Hrs	800		157,252		157,252	
2	03	06	05			LN06051140	Fab & Assemble X-Band Klystron - SPARE		SPR	SL_KT	Hrs	280		21,159		21,159	
2	03	06	05			LN06051140	Fab & Assemble X-Band Klystron - SPARE		SPR	SL_KE	Hrs	160		22,077		22,077	
2	03	06	05			LN06051140	Fab & Assemble X-Band Klystron - SPARE		SPR	SL_KCA	Hrs	200		16,073		16,073	
2	03	06	05			LN06052280	Dress Klystron - SPARE		SPR	SL_KT	Hrs	120		9,069		9,069	
2	03	06	05			LN06052280	Dress Klystron - SPARE		SPR	SL_KE	Hrs	40		5,519		5,519	
2	03	06	05			LN06052285	Test Klystron / Tank Assembly - SPARE		SPR	SL_KT	Hrs	120		9,069		9,069	
2	03	06	06				**Reserved**										
2	03	06	07				**RF Distribution System**					**720**	**94,000**	**53,032**	**108,916**	**161,948**	
2	03	06	07	01			**Modulator**					**-**	**12,000**	**-**	**13,904**	**13,904**	
2	03	06	07	01		LN06070150	Procure Thyratron & Parts - SPARE		SPR	SL_MSEG	$$		12,000		13,904	13,904	
2	03	06	07	02			**Solid State Sub Booster**					**80**	**20,000**	**5,892**	**23,174**	**29,066**	
2	03	06	07	02		LN06070265	Procure Amplitude Control Electronics - SPARE		SPR	SL_MSEG	$$		10,000		11,587	11,587	
2	03	06	07	02		LN06070260	Procure Phase Control Electronics - SPARE		SPR	SL_MSEG	$$		10,000		11,587	11,587	
2	03	06	07	02		LN06070270	Fab & Test Amplifier - SPARE		SPR	SL_KT	Hrs	80		5,892		5,892	
2	03	06	07	05			**Bunch Length Electronics**					**120**	**30,000**	**8,839**	**34,760**	**43,599**	
2	03	06	07	05		LN06070560	Proc, Fab & Test Bunch Length Electronics- SPARE		SPR	SL_MSEG	$$		30,000		34,760	34,760	
2	03	06	07	05		LN06070560	Proc, Fab & Test Bunch Length Electronics- SPARE		SPR	SL_KT	Hrs	120		8,839		8,839	
2	03	06	07	07			**RF Distribution L2 & L3**					**40**	**2,000**	**2,947**	**2,317**	**5,264**	
2	03	06	07	07		LN06070760	Fab & Test 2W Distribution Amp - SPARE		SPR	SL_MSEG	$$		2,000		2,317	2,317	
2	03	06	07	07		LN06070760	Fab & Test 2W Distribution Amp - SPARE		SPR	SL_KT	Hrs	40		2,947		2,947	
2	03	06	07	08			**RF Fiber Optics Electronics**					**480**	**30,000**	**35,354**	**34,760**	**70,115**	
2	03	06	07	08		LN06070850	Procure, Fab & Test RF FO Electronics		SPR	SL_MSEG	$$		30,000		34,760	34,760	
2	03	06	07	08		LN06070850	Procure, Fab & Test RF FO Electronics		SPR	SL_CT	Hrs	480		35,354		35,354	
2	03	07					**Linac System Commissioning**					**5,912**	**-**	**553,318**	**-**	**553,318**	
2	03	07	01				**Linac L01 System Commissioning**					**480**	**-**	**43,418**	**-**	**43,418**	
2	03	07	01			LN07010525	PPS Checkout Linac		PRE	SL_CT	Hrs	8		589		589	
2	03	07	01			LN07010525	PPS Checkout Linac		PRE	SL_CCA	Hrs	32		2,507		2,507	
2	03	07	01			LN07010535	Search and Lock Linac		PRE	SL_PHPD	Hrs	16		1,338		1,338	
2	03	07	01			LN07010620	Support L01 Commissioning Power Conv		PRE	SL_PCT	Hrs	20		1,473		1,473	
2	03	07	01			LN07010620	Support L01 Commissioning Power Conv		PRE	SL_PCE	Hrs	20		2,689		2,689	
2	03	07	01			LN07010620	Support L01 Commissioning Power Conv		PRE	SL_PCCA	Hrs	40		3,133		3,133	
2	03	07	01			LN07010615	Support L01 Commissioning Survey		PRE	SL_MES	Hrs	32		3,456		3,456	
2	03	07	01			LN07010605	Support L01 Commissioning Mechanical		PRE	SL_MVE	Hrs	16		2,022		2,022	
2	03	07	01			LN07010605	Support L01 Commissioning Mechanical		PRE	SL_MFAT	Hrs	32		3,131		3,131	
2	03	07	01			LN07010570	Support L01 Commissioning RF		PRE	SL_KT	Hrs	16		1,179		1,179	
2	03	07	01			LN07010570	Support L01 Commissioning RF		PRE	SL_KE	Hrs	16		2,152		2,152	
2	03	07	01			LN07010570	Support L01 Commissioning RF		PRE	SL_KCA	Hrs	8		627		627	
2	03	07	01			LN07010545	Commission L01, Operations		PRE	SL_PHPD	Hrs	112		9,373		9,373	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	03	07	01			LN07010540	Commission L01, Physics		PRE	SL_PHS	Hrs	112		9,749		9,749	
2	**03**	**07**	**02**				**Linac BC1 System Commissioning**					**1,232**	**-**	**117,009**	**-**	**117,009**	
2	03	07	02			LN07020625	Support BC1 Comissioning Power Conv		PRE	SL_PCT	Hrs	20		1,507		1,507	
2	03	07	02			LN07020625	Support BC1 Comissioning Power Conv		PRE	SL_PCE	Hrs	40		5,506		5,506	
2	03	07	02			LN07020625	Support BC1 Comissioning Power Conv		PRE	SL_PCCA	Hrs	20		1,604		1,604	
2	03	07	02			LN07020620	Support BC1 Comissioning Survey		PRE	SL_MES	Hrs	32		3,536		3,536	
2	03	07	02			LN07020610	Support BC1 Comissioning Mechanical		PRE	SL_MVE	Hrs	16		2,069		2,069	
2	03	07	02			LN07020610	Support BC1 Comissioning Mechanical		PRE	SL_MFAT	Hrs	32		3,205		3,205	
2	03	07	02			LN07020600	Support BC1 Comissioning Hardware		PRE	SL_CE	Hrs	80		11,010		11,010	
2	03	07	02			LN07020600	Support BC1 Comissioning Hardware		PRE	SL_CCA	Hrs	120		9,620		9,620	
2	03	07	02			LN07020575	Support BC1 Comissioning RF		PRE	SL_KT	Hrs	80		6,030		6,030	
2	03	07	02			LN07020575	Support BC1 Comissioning RF		PRE	SL_KE	Hrs	80		11,010		11,010	
2	03	07	02			LN07020575	Support BC1 Comissioning RF		PRE	SL_KCA	Hrs	40		3,206		3,206	
2	03	07	02			LN07020540	Commission BC1, Operations		PRE	SL_PHPD	Hrs	336		28,776		28,776	
2	03	07	02			LN07020535	Commission BC1, Physics		PRE	SL_PHS	Hrs	336		29,928		29,928	
2	**03**	**07**	**03**				**Linac L02 System Commissioning**					**680**	**-**	**66,884**	**-**	**66,884**	
2	03	07	03			LN07030530	PPS Checkout Linac		PRE	SL_CT	Hrs	8		604		604	
2	03	07	03			LN07030530	PPS Checkout Linac		PRE	SL_CCA	Hrs	32		2,572		2,572	
2	03	07	03			LN07030540	Search and Lock Linac		PRE	SL_PHPD	Hrs	16		1,374		1,374	
2	03	07	03			LN07030625	Support L02 Comissioning Power Conv		PRE	SL_PCT	Hrs	20		1,512		1,512	
2	03	07	03			LN07030625	Support L02 Comissioning Power Conv		PRE	SL_PCE	Hrs	40		5,519		5,519	
2	03	07	03			LN07030625	Support L02 Comissioning Power Conv		PRE	SL_PCCA	Hrs	20		1,607		1,607	
2	03	07	03			LN07030620	Support L02 Comissioning Survey		PRE	SL_MES	Hrs	32		3,545		3,545	
2	03	07	03			LN07030610	Support L02 Comissioning Mechanical		PRE	SL_MVE	Hrs	32		4,148		4,148	
2	03	07	03			LN07030610	Support L02 Comissioning Mechanical		PRE	SL_MFAT	Hrs	16		1,606		1,606	
2	03	07	03			LN07030600	Support L02 Comissioning Hardware		PRE	SL_CE	Hrs	80		11,039		11,039	
2	03	07	03			LN07030600	Support L02 Comissioning Hardware		PRE	SL_CCA	Hrs	120		9,644		9,644	
2	03	07	03			LN07030575	Support L02 Comissioning RF		PRE	SL_KT	Hrs	8		604		604	
2	03	07	03			LN07030575	Support L02 Comissioning RF		PRE	SL_KE	Hrs	16		2,208		2,208	
2	03	07	03			LN07030575	Support L02 Comissioning RF		PRE	SL_KCA	Hrs	16		1,286		1,286	
2	03	07	03			LN07030550	Commission L02, Operations		PRE	SL_PHPD	Hrs	112		9,616		9,616	
2	03	07	03			LN07030545	Commission L02, Physics		PRE	SL_PHS	Hrs	112		10,001		10,001	
2	**03**	**07**	**04**				**Linac BC2 System Commissioning**					**832**	**-**	**76,789**	**-**	**76,789**	
2	03	07	04			LN07040625	Support BC2 Comissioning Power Conv		PRE	SL_PCT	Hrs	20		1,512		1,512	
2	03	07	04			LN07040625	Support BC2 Comissioning Power Conv		PRE	SL_PCE	Hrs	40		5,519		5,519	
2	03	07	04			LN07040625	Support BC2 Comissioning Power Conv		PRE	SL_PCCA	Hrs	20		1,607		1,607	
2	03	07	04			LN07040620	Support BC2 Comissioning Survey		PRE	SL_MES	Hrs	32		3,545		3,545	
2	03	07	04			LN07040610	Support BC2 Comissioning Mechanical		PRE	SL_MVE	Hrs	32		4,148		4,148	
2	03	07	04			LN07040610	Support BC2 Comissioning Mechanical		PRE	SL_MFAT	Hrs	16		1,606		1,606	
2	03	07	04			LN07040550	Commission BC2, Operations		PRE	SL_PHPD	Hrs	336		28,849		28,849	
2	03	07	04			LN07040545	Commission BC2, Physics		PRE	SL_PHS	Hrs	336		30,003		30,003	
2	**03**	**07**	**05**				**Linac L03 System Commissioning**					**648**	**-**	**61,232**	**-**	**61,232**	
2	03	07	05			LN07050605	Support L03 Comissioning Power Conv		PRE	SL_PCT	Hrs	20		1,512		1,512	
2	03	07	05			LN07050605	Support L03 Comissioning Power Conv		PRE	SL_PCE	Hrs	40		5,519		5,519	
2	03	07	05			LN07050605	Support L03 Comissioning Power Conv		PRE	SL_PCCA	Hrs	20		1,607		1,607	
2	03	07	05			LN07050600	Support L03 Comissioning Survey		PRE	SL_MES	Hrs	32		3,545		3,545	
2	03	07	05			LN07050590	Support L03 Comissioning Mechanical		PRE	SL_MVE	Hrs	32		4,148		4,148	
2	03	07	05			LN07050590	Support L03 Comissioning Mechanical		PRE	SL_MFAT	Hrs	16		1,606		1,606	
2	03	07	05			LN07050555	Support L03 Comissioning RF		PRE	SL_KT	Hrs	16		1,209		1,209	
2	03	07	05			LN07050555	Support L03 Comissioning RF		PRE	SL_KE	Hrs	16		2,208		2,208	
2	03	07	05			LN07050555	Support L03 Comissioning RF		PRE	SL_KCA	Hrs	8		643		643	
2	03	07	05			LN07050530	Commission L03, Operations		PRE	SL_PHPD	Hrs	224		19,233		19,233	
2	03	07	05			LN07050525	Commission L03, Physics		PRE	SL_PHS	Hrs	224		20,002		20,002	
2	**03**	**07**	**06**				**Linac LTU System Commissioning**					**1,232**	**-**	**110,600**	**-**	**110,600**	
2	03	07	06			LN07060530	PPS Checkout Linac		PRE	SL_CT	Hrs	8		604		604	
2	03	07	06			LN07060530	PPS Checkout Linac		PRE	SL_CCA	Hrs	32		2,572		2,572	
2	03	07	06			LN07060535	Search and Lock Linac		PRE	SL_PHPD	Hrs	16		1,374		1,374	
2	03	07	06			LN07060595	Support LTU Comissioning Power Conv		PRE	SL_PCT	Hrs	20		1,512		1,512	
2	03	07	06			LN07060595	Support LTU Comissioning Power Conv		PRE	SL_PCE	Hrs	40		5,519		5,519	
2	03	07	06			LN07060595	Support LTU Comissioning Power Conv		PRE	SL_PCCA	Hrs	20		1,607		1,607	
2	03	07	06			LN07060590	Support LTU Comissioning Survey		PRE	SL_MES	Hrs	32		3,545		3,545	
2	03	07	06			LN07060585	Support LTU Comissioning Mechanical		PRE	SL_MVE	Hrs	32		4,148		4,148	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	03	07	06			LN07060585	Support LTU Comissioning Mechanical		PRE	SL_MFAT	Hrs	16		1,606		1,606	
2	03	07	06			LN07060580	Support LTU Comissioning Hardware		PRE	SL_CCA	Hrs	120		9,644		9,644	
2	03	07	06			LN07060545	Commission LTU, Operations		PRE	SL_PHPD	Hrs	448		38,465		38,465	
2	03	07	06			LN07060540	Commission LTU, Physics		PRE	SL_PHS	Hrs	448		40,004		40,004	
2	**03**	**07**	**07**				**Linac E-Dump System Commissioining**					**808**	**-**	**77,387**	**-**	**77,387**	
2	03	07	07			LN07070580	Support E-Dump Comissioning Power Conv		PRE	SL_PCT	Hrs	20		1,512		1,512	
2	03	07	07			LN07070580	Support E-Dump Comissioning Power Conv		PRE	SL_PCE	Hrs	40		5,519		5,519	
2	03	07	07			LN07070580	Support E-Dump Comissioning Power Conv		PRE	SL_PCCA	Hrs	20		1,607		1,607	
2	03	07	07			LN07070575	Support E-Dump Comissioning Survey		PRE	SL_MES	Hrs	32		3,545		3,545	
2	03	07	07			LN07070570	Support E-Dump Comissioning Mechanical		PRE	SL_MVE	Hrs	16		2,074		2,074	
2	03	07	07			LN07070570	Support E-Dump Comissioning Mechanical		PRE	SL_MFAT	Hrs	32		3,213		3,213	
2	03	07	07			LN07070565	Support E-Dump Comissioning Hardware		PRE	SL_CE	Hrs	80		11,039		11,039	
2	03	07	07			LN07070565	Support E-Dump Comissioning Hardware		PRE	SL_CCA	Hrs	120		9,644		9,644	
2	03	07	07			LN07070540	Commission E-Dump, Operations		PRE	SL_PHPD	Hrs	224		19,233		19,233	
2	03	07	07			LN07070535	Commission E-Dump, Physics		PRE	SL_PHS	Hrs	224		20,002		20,002	
2	**04**						**UNDULATOR SYSTEM (OPC)**					**11,636**	**4,347,216**	**1,022,423**	**4,723,529**	**5,745,952**	
2	**04**	**01**					**Undulator System Management & Integration**										
2	**04**	**02**					**Controls**					**-**	**6,000**	**-**	**6,540**	**6,540**	
2	**04**	**02**	**01**				**Controls Management and Integration**										
2	**04**	**02**	**02**				**Motion**										
2	**04**	**02**	**03**				**Signal Analysis**										
2	**04**	**02**	**04**				**Video**										
2	**04**	**02**	**05**				**Data Acquisition and Control**										
2	**04**	**02**	**06**				**Vacuum**										
2	**04**	**02**	**07**				**Machine Protection**					**-**	**6,000**	**-**	**6,540**	**6,540**	
2	04	02	07			UN27_00532	Procure spare signal electronics		SPR	AN_MSEG	$$		1,000		1,090	1,090	45%
2	04	02	07			UN27_00092	Procure Spare MPS Hardware		SPR	AN_MSEG	$$		2,000		2,180	2,180	45%
2	04	02	07			UN27_00324	REC: spare signal electronics		SPR	AN_MSEG	$$		3,000		3,270	3,270	45%
2	**04**	**03**					**Undulator Magnet & Support**					**1,200**	**3,531,816**	**115,359**	**3,849,680**	**3,965,039**	
2	**04**	**03**	**01**				**UND Magnet & Support - Mgmt and Integration**										
2	**04**	**03**	**02**				**First Prototype Undulator & Mfg Plan**										
2	**04**	**03**	**03**				**1st Article Undulators & Long Lead Procurements**					**56**	**771,120**	**5,082**	**840,521**	**845,603**	
2	04	03	03			UN33_20110	RCV: From Vendor - 2nd Half Magnet Blocks 7/20		SPR	AN_MSSC	$$		169,120		184,341	184,341	
2	04	03	03			UN33_10400	Vendor Fab/Assy - Ti Strongback Article 34		SPR	AN_MSSC	$$		2,400		2,616	2,616	
2	04	03	03			UN33_10400	Vendor Fab/Assy - Ti Strongback Article 34		SPR	AN_ME	Hrs	8		726		726	
2	04	03	03			UN33_30110	RCV: From Vendor - 4th Lot Magnet Poles (34-40		SPR	AN_MSSC	$$		235,200		256,368	256,368	
2	04	03	03			UN33_10402	ACCEPT: Factory Acceptance - Ti S/B Article 34		SPR	AN_MSSC	$$		50,000		54,500	54,500	
2	04	03	03			UN33_10408	Vendor Fab/Assy - Ti Strongback Article 35		SPR	AN_MSSC	$$		2,400		2,616	2,616	
2	04	03	03			UN33_10408	Vendor Fab/Assy - Ti Strongback Article 35		SPR	AN_ME	Hrs	8		726		726	
2	04	03	03			UN33_10410	ACCEPT: Factory Acceptance - Ti S/B Article 35		SPR	AN_MSSC	$$		50,000		54,500	54,500	
2	04	03	03			UN33_10420	Vendor Fab/Assy - Ti Strongback Article 36		SPR	AN_MSSC	$$		2,400		2,616	2,616	
2	04	03	03			UN33_10420	Vendor Fab/Assy - Ti Strongback Article 36		SPR	AN_ME	Hrs	8		726		726	
2	04	03	03			UN33_10422	ACCEPT: Factory Acceptance - Ti S/B Article 36		SPR	AN_MSSC	$$		50,000		54,500	54,500	
2	04	03	03			UN33_10428	Vendor Fab/Assy - Ti Strongback Article 37		SPR	AN_MSSC	$$		2,400		2,616	2,616	
2	04	03	03			UN33_10428	Vendor Fab/Assy - Ti Strongback Article 37		SPR	AN_ME	Hrs	8		726		726	
2	04	03	03			UN33_10430	ACCEPT: Factory Acceptance - Ti S/B Article 37		SPR	AN_MSSC	$$		50,000		54,500	54,500	
2	04	03	03			UN33_10440	Vendor Fab/Assy - Ti Strongback Article 38		SPR	AN_MSSC	$$		2,400		2,616	2,616	
2	04	03	03			UN33_10440	Vendor Fab/Assy - Ti Strongback Article 38		SPR	AN_ME	Hrs	8		726		726	
2	04	03	03			UN33_10442	ACCEPT: Factory Acceptance - Ti S/B Article 38		SPR	AN_MSSC	$$		50,000		54,500	54,500	
2	04	03	03			UN33_10448	Vendor Fab/Assy - Ti Strongback Article 39		SPR	AN_MSSC	$$		2,400		2,616	2,616	
2	04	03	03			UN33_10448	Vendor Fab/Assy - Ti Strongback Article 39		SPR	AN_ME	Hrs	8		726		726	
2	04	03	03			UN33_10450	ACCEPT: Factory Acceptance - Ti S/B Article 39		SPR	AN_MSSC	$$		50,000		54,500	54,500	
2	04	03	03			UN33_10460	Vendor Fab/Assy - Ti Strongback Article 40		SPR	AN_MSSC	$$		2,400		2,616	2,616	
2	04	03	03			UN33_10460	Vendor Fab/Assy - Ti Strongback Article 40		SPR	AN_ME	Hrs	8		726		726	
2	04	03	03			UN33_10462	ACCEPT: Factory Acceptance - Ti S/B Article 40		SPR	AN_MSSC	$$		50,000		54,500	54,500	
2	**04**	**03**	**04**				**Production Undulator**					**192**	**2,660,696**	**17,425**	**2,900,159**	**2,917,584**	
2	04	03	04			UN34_10110	Vendor B Fab/Assy - Magnet Assy/Sup Article 34		SPR	AN_MSSC	$$		120		131	131	
2	04	03	04			UN34_10110	Vendor B Fab/Assy - Magnet Assy/Sup Article 34		SPR	AN_ME	Hrs	80		7,261		7,261	
2	04	03	04			UN34_00114	Vendor A Fab/Assy - Magnet Assy/Sup Article 35		SPR	AN_MSSC	$$		120		131	131	
2	04	03	04			UN34_00114	Vendor A Fab/Assy - Magnet Assy/Sup Article 35		SPR	AN_ME	Hrs	40		3,630		3,630	
2	04	03	04			UN34_10112	RCV: From Vendor B - Magnet Assy/Sup Article 3		SPR	AN_MSSC	$$		380,000		414,200	414,200	
2	04	03	04			UN34_10114	Vendor B Fab/Assy - Magnet Assy/Sup Article 36		SPR	AN_MSSC	$$		120		131	131	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	04	03	04			UN34_10114	Vendor B Fab/Assy - Magnet Assy/Sup Article 36		SPR	AN_ME	Hrs	40		3,630		3,630	
2	04	03	04			UN34_00116	RCV: From Vendor A - Magnet Assy/Sup Article 3		SPR	AN_MSSC	$$		380,000		414,200	414,200	
2	04	03	04			UN34_00118	Vendor A Fab/Assy - Magnet Assy/Sup Article 37		SPR	AN_MSSC	$$		160		174	174	
2	04	03	04			UN34_00118	Vendor A Fab/Assy - Magnet Assy/Sup Article 37		SPR	AN_ME	Hrs	8		726		726	
2	04	03	04			UN34_10116	RCV: From Vendor B - Magnet Assy/Sup Article 3		SPR	AN_MSSC	$$		380,000		414,200	414,200	
2	04	03	04			UN34_10118	Vendor B Fab/Assy - Magnet Assy/Sup Article 38		SPR	AN_MSSC	$$		160		174	174	
2	04	03	04			UN34_10118	Vendor B Fab/Assy - Magnet Assy/Sup Article 38		SPR	AN_ME	Hrs	8		726		726	
2	04	03	04			UN34_00120	RCV: From Vendor A - Magnet Assy/Sup Article 3		SPR	AN_MSSC	$$		380,000		414,200	414,200	
2	04	03	04			UN34_00122	Vendor A Fab/Assy - Magnet Assy/Sup Article 39		SPR	AN_MSSC	$$		8		9	9	
2	04	03	04			UN34_00122	Vendor A Fab/Assy - Magnet Assy/Sup Article 39		SPR	AN_ME	Hrs	8		726		726	
2	04	03	04			UN34_10120	RCV: From Vendor B - Magnet Assy/Sup Article 3		SPR	AN_MSSC	$$		380,000		414,200	414,200	
2	04	03	04			UN34_10122	Vendor B Fab/Assy - Magnet Assy/Sup Article 40		SPR	AN_MSSC	$$		8		9	9	
2	04	03	04			UN34_10122	Vendor B Fab/Assy - Magnet Assy/Sup Article 40		SPR	AN_ME	Hrs	8		726		726	
2	04	03	04			UN34_00124	RCV: From Vendor A - Magnet Assy/Sup Article 3		SPR	AN_MSSC	$$		380,000		414,200	414,200	
2	04	03	04			UN34_10124	RCV: From Vendor B - Magnet Assy/Sup Article 4		SPR	AN_MSSC	$$		380,000		414,200	414,200	
2	**04**	**03**	**05**				**Focusing Magnets**					**-**	**100,000**	**-**	**109,000**	**109,000**	
2	04	03	05			UN35_00132	Vendor Fab/Assy - Quads Spares (4-mag, 4-sppt)		SPR	AN_MSSC	$$		100,000		109,000	109,000	
2	**04**	**03**	**06**				**Undulator Magnetic Measurement Facility (SLAC)**					**952**	**-**	**92,852**	**-**	**92,852**	
2	04	03	06			UN36_02750	Magnetic Field Measurement #40 Article at SLAC		SPR	SL_PHSS	Hrs	2		221		221	
2	04	03	06			UN36_02750	Magnetic Field Measurement #40 Article at SLAC		SPR	SL_PHS	Hrs	16		1,393		1,393	
2	04	03	06			UN36_02750	Magnetic Field Measurement #40 Article at SLAC		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN36_02730	Magnetic Field Measurement #39 Article at SLAC		SPR	SL_PHSS	Hrs	2		221		221	
2	04	03	06			UN36_02730	Magnetic Field Measurement #39 Article at SLAC		SPR	SL_PHS	Hrs	16		1,393		1,393	
2	04	03	06			UN36_02730	Magnetic Field Measurement #39 Article at SLAC		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN36_02718	Magnetic Field Measurement #38 Article at SLAC		SPR	SL_PHSS	Hrs	2		221		221	
2	04	03	06			UN36_02718	Magnetic Field Measurement #38 Article at SLAC		SPR	SL_PHS	Hrs	16		1,393		1,393	
2	04	03	06			UN36_02718	Magnetic Field Measurement #38 Article at SLAC		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN36_02710	Magnetic Field Measurement #37 Article at SLAC		SPR	SL_PHSS	Hrs	2		221		221	
2	04	03	06			UN36_02710	Magnetic Field Measurement #37 Article at SLAC		SPR	SL_PHS	Hrs	16		1,393		1,393	
2	04	03	06			UN36_02710	Magnetic Field Measurement #37 Article at SLAC		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN36_02690	Magnetic Field Measurement #36 Article at SLAC		SPR	SL_PHSS	Hrs	2		221		221	
2	04	03	06			UN36_02690	Magnetic Field Measurement #36 Article at SLAC		SPR	SL_PHS	Hrs	16		1,393		1,393	
2	04	03	06			UN36_02690	Magnetic Field Measurement #36 Article at SLAC		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN36_02670	Magnetic Field Measurement #35 Article at SLAC		SPR	SL_PHSS	Hrs	2		221		221	
2	04	03	06			UN36_02670	Magnetic Field Measurement #35 Article at SLAC		SPR	SL_PHS	Hrs	16		1,393		1,393	
2	04	03	06			UN36_02670	Magnetic Field Measurement #35 Article at SLAC		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN36_02650	Magnetic Field Measurement #34 Article at SLAC		SPR	SL_PHSS	Hrs	2		221		221	
2	04	03	06			UN36_02650	Magnetic Field Measurement #34 Article at SLAC		SPR	SL_PHS	Hrs	16		1,393		1,393	
2	04	03	06			UN36_02650	Magnetic Field Measurement #34 Article at SLAC		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN36_02660	Quadrupole #34 Fiducialization		SPR	SL_PHSS	Hrs	2		221		221	
2	04	03	06			UN36_02660	Quadrupole #34 Fiducialization		SPR	SL_PHS	Hrs	4		348		348	
2	04	03	06			UN36_02660	Quadrupole #34 Fiducialization		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN36_02660	Quadrupole #34 Fiducialization		SPR	SL_MES	Hrs	4		432		432	
2	04	03	06			UN36_02680	Quadrupole #35 Fiducialization		SPR	SL_PHSS	Hrs	2		221		221	
2	04	03	06			UN36_02680	Quadrupole #35 Fiducialization		SPR	SL_PHS	Hrs	4		348		348	
2	04	03	06			UN36_02680	Quadrupole #35 Fiducialization		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN36_02680	Quadrupole #35 Fiducialization		SPR	SL_MES	Hrs	4		432		432	
2	04	03	06			UN36_02700	Quadrupole #36 Fiducialization		SPR	SL_PHSS	Hrs	2		221		221	
2	04	03	06			UN36_02700	Quadrupole #36 Fiducialization		SPR	SL_PHS	Hrs	4		348		348	
2	04	03	06			UN36_02700	Quadrupole #36 Fiducialization		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN36_02700	Quadrupole #36 Fiducialization		SPR	SL_MES	Hrs	4		432		432	
2	04	03	06			UN36_02715	Quadrupole #37 Fiducialization		SPR	SL_PHSS	Hrs	2		221		221	
2	04	03	06			UN36_02715	Quadrupole #37 Fiducialization		SPR	SL_PHS	Hrs	4		348		348	
2	04	03	06			UN36_02715	Quadrupole #37 Fiducialization		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN36_02715	Quadrupole #37 Fiducialization		SPR	SL_MES	Hrs	4		432		432	
2	04	03	06			UN36_02720	Quadrupole #38 Fiducialization		SPR	SL_PHSS	Hrs	2		221		221	
2	04	03	06			UN36_02720	Quadrupole #38 Fiducialization		SPR	SL_PHS	Hrs	4		348		348	
2	04	03	06			UN36_02720	Quadrupole #38 Fiducialization		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN36_02720	Quadrupole #38 Fiducialization		SPR	SL_MES	Hrs	4		432		432	
2	04	03	06			UN36_02740	Quadrupole #39 Fiducialization		SPR	SL_PHSS	Hrs	2		221		221	
2	04	03	06			UN36_02740	Quadrupole #39 Fiducialization		SPR	SL_PHS	Hrs	4		348		348	
2	04	03	06			UN36_02740	Quadrupole #39 Fiducialization		SPR	SL_MFAT	Hrs	4		391		391	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	04	03	06			UN36_02740	Quadrupole #39 Fiducialization		SPR	SL_MES	Hrs	4		432		432	
2	04	03	06			UN36_02760	Quadrupole #40 Fiducialization		SPR	SL_PHSS	Hrs	2		221		221	
2	04	03	06			UN36_02760	Quadrupole #40 Fiducialization		SPR	SL_PHS	Hrs	4		348		348	
2	04	03	06			UN36_02760	Quadrupole #40 Fiducialization		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN36_02760	Quadrupole #40 Fiducialization		SPR	SL_MES	Hrs	4		432		432	
2	04	03	06			UN362_3330	Undulator Setup and Alignment - 34		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN362_3430	Undulator Setup and Alignment - 35		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN362_3340	Undulator Measurement and Set Gap - 34		SPR	SL_PHSS	Hrs	4		443		443	
2	04	03	06			UN362_3340	Undulator Measurement and Set Gap - 34		SPR	SL_PHS	Hrs	12		1,045		1,045	
2	04	03	06			UN362_3440	Undulator Measurement and Set Gap - 35		SPR	SL_PHSS	Hrs	4		443		443	
2	04	03	06			UN362_3440	Undulator Measurement and Set Gap - 35		SPR	SL_PHS	Hrs	12		1,045		1,045	
2	04	03	06			UN362_3360	Undulator Measurement/Pre-fiducialization - 34		SPR	SL_PHSS	Hrs	16		1,773		1,773	
2	04	03	06			UN362_3360	Undulator Measurement/Pre-fiducialization - 34		SPR	SL_PHS	Hrs	24		2,089		2,089	
2	04	03	06			UN362_3460	Undulator Measurement/Pre-fiducialization - 35		SPR	SL_PHSS	Hrs	16		1,773		1,773	
2	04	03	06			UN362_3460	Undulator Measurement/Pre-fiducialization - 35		SPR	SL_PHS	Hrs	24		2,089		2,089	
2	04	03	06			UN362_3370	Undulator Setup and Alignment - 34		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN362_3470	Undulator Setup and Alignment - 35		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN362_3380	Undulator Fiducialization - 34		SPR	SL_PHSS	Hrs	4		443		443	
2	04	03	06			UN362_3380	Undulator Fiducialization - 34		SPR	SL_MES	Hrs	8		864		864	
2	04	03	06			UN362_3530	Undulator Setup and Alignment - 36		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN362_3480	Undulator Fiducialization - 35		SPR	SL_PHSS	Hrs	4		443		443	
2	04	03	06			UN362_3480	Undulator Fiducialization - 35		SPR	SL_MES	Hrs	8		864		864	
2	04	03	06			UN362_3390	Undulator/QD/VacCh/BPM/Prealign - 34		SPR	SL_MFAT	Hrs	16		1,566		1,566	
2	04	03	06			UN362_3390	Undulator/QD/VacCh/BPM/Prealign - 34		SPR	SL_MES	Hrs	8		864		864	
2	04	03	06			UN362_3630	Undulator Setup and Alignment - 37		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN362_3540	Undulator Measurement and Set Gap - 36		SPR	SL_PHSS	Hrs	4		443		443	
2	04	03	06			UN362_3540	Undulator Measurement and Set Gap - 36		SPR	SL_PHS	Hrs	12		1,045		1,045	
2	04	03	06			UN362_3490	Undulator/QD/VacCh/BPM/Prealign - 35		SPR	SL_MFAT	Hrs	16		1,566		1,566	
2	04	03	06			UN362_3490	Undulator/QD/VacCh/BPM/Prealign - 35		SPR	SL_MES	Hrs	8		864		864	
2	04	03	06			UN362_3640	Undulator Measurement and Set Gap - 37		SPR	SL_PHSS	Hrs	4		443		443	
2	04	03	06			UN362_3640	Undulator Measurement and Set Gap - 37		SPR	SL_PHS	Hrs	12		1,045		1,045	
2	04	03	06			UN362_3560	Undulator Measurement/Pre-fiducialization - 36		SPR	SL_PHSS	Hrs	16		1,773		1,773	
2	04	03	06			UN362_3560	Undulator Measurement/Pre-fiducialization - 36		SPR	SL_PHS	Hrs	24		2,089		2,089	
2	04	03	06			UN362_3660	Undulator Measurement/Pre-fiducialization - 37		SPR	SL_PHSS	Hrs	16		1,773		1,773	
2	04	03	06			UN362_3660	Undulator Measurement/Pre-fiducialization - 37		SPR	SL_PHS	Hrs	24		2,089		2,089	
2	04	03	06			UN362_3570	Undulator Setup and Alignment - 36		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN362_3670	Undulator Setup and Alignment - 37		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN362_3580	Undulator Fiducialization - 36		SPR	SL_PHSS	Hrs	4		443		443	
2	04	03	06			UN362_3580	Undulator Fiducialization - 36		SPR	SL_MES	Hrs	8		864		864	
2	04	03	06			UN362_3680	Undulator Fiducialization - 37		SPR	SL_PHSS	Hrs	4		443		443	
2	04	03	06			UN362_3680	Undulator Fiducialization - 37		SPR	SL_MES	Hrs	8		864		864	
2	04	03	06			UN362_3590	Undulator/QD/VacCh/BPM/Prealign - 36		SPR	SL_MFAT	Hrs	16		1,566		1,566	
2	04	03	06			UN362_3590	Undulator/QD/VacCh/BPM/Prealign - 36		SPR	SL_MES	Hrs	8		864		864	
2	04	03	06			UN362_3690	Undulator/QD/VacCh/BPM/Prealign - 37		SPR	SL_MFAT	Hrs	16		1,566		1,566	
2	04	03	06			UN362_3690	Undulator/QD/VacCh/BPM/Prealign - 37		SPR	SL_MES	Hrs	8		864		864	
2	04	03	06			UN362_3730	Undulator Setup and Alignment - 38		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN362_3830	Undulator Setup and Alignment - 39		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN362_3740	Undulator Measurement and Set Gap - 38		SPR	SL_PHSS	Hrs	4		443		443	
2	04	03	06			UN362_3740	Undulator Measurement and Set Gap - 38		SPR	SL_PHS	Hrs	12		1,045		1,045	
2	04	03	06			UN362_3840	Undulator Measurement and Set Gap - 39		SPR	SL_PHSS	Hrs	4		443		443	
2	04	03	06			UN362_3840	Undulator Measurement and Set Gap - 39		SPR	SL_PHS	Hrs	12		1,045		1,045	
2	04	03	06			UN362_3760	Undulator Measurement/Pre-fiducialization - 38		SPR	SL_PHSS	Hrs	16		1,773		1,773	
2	04	03	06			UN362_3760	Undulator Measurement/Pre-fiducialization - 38		SPR	SL_PHS	Hrs	24		2,089		2,089	
2	04	03	06			UN362_3860	Undulator Measurement/Pre-fiducialization - 39		SPR	SL_PHSS	Hrs	16		1,773		1,773	
2	04	03	06			UN362_3860	Undulator Measurement/Pre-fiducialization - 39		SPR	SL_PHS	Hrs	24		2,089		2,089	
2	04	03	06			UN362_3770	Undulator Setup and Alignment - 38		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN362_3870	Undulator Setup and Alignment - 39		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN362_3780	Undulator Fiducialization - 38		SPR	SL_PHSS	Hrs	4		443		443	
2	04	03	06			UN362_3780	Undulator Fiducialization - 38		SPR	SL_MES	Hrs	8		864		864	
2	04	03	06			UN362_3880	Undulator Fiducialization - 39		SPR	SL_PHSS	Hrs	4		443		443	
2	04	03	06			UN362_3880	Undulator Fiducialization - 39		SPR	SL_MES	Hrs	8		864		864	
2	04	03	06			UN362_3790	Undulator/QD/VacCh/BPM/Prealign - 38		SPR	SL_MFAT	Hrs	16		1,566		1,566	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	04	03	06			UN362_3790	Undulator/QD/VacCh/BPM/Prealign - 38		SPR	SL_MES	Hrs	8		864		864	
2	04	03	06			UN362_3890	Undulator/QD/VacCh/BPM/Prealign - 39		SPR	SL_MFAT	Hrs	16		1,566		1,566	
2	04	03	06			UN362_3890	Undulator/QD/VacCh/BPM/Prealign - 39		SPR	SL_MES	Hrs	8		864		864	
2	04	03	06			UN362_3930	Undulator Setup and Alignment - 40		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN362_3940	Undulator Measurement and Set Gap - 40		SPR	SL_PHSS	Hrs	4		443		443	
2	04	03	06			UN362_3940	Undulator Measurement and Set Gap - 40		SPR	SL_PHS	Hrs	12		1,045		1,045	
2	04	03	06			UN362_3960	Undulator Measurement/Pre-fiducialization - 40		SPR	SL_PHSS	Hrs	16		1,773		1,773	
2	04	03	06			UN362_3960	Undulator Measurement/Pre-fiducialization - 40		SPR	SL_PHS	Hrs	24		2,089		2,089	
2	04	03	06			UN362_3970	Undulator Setup and Alignment - 40		SPR	SL_MFAT	Hrs	4		391		391	
2	04	03	06			UN362_3980	Undulator Fiducialization - 40		SPR	SL_PHSS	Hrs	4		443		443	
2	04	03	06			UN362_3980	Undulator Fiducialization - 40		SPR	SL_MES	Hrs	8		864		864	
2	04	03	06			UN362_3990	Undulator/QD/VacCh/BPM/Prealign - 40		SPR	SL_MFAT	Hrs	16		1,566		1,566	
2	04	03	06			UN362_3990	Undulator/QD/VacCh/BPM/Prealign - 40		SPR	SL_MES	Hrs	8		864		864	
2	**04**	**03**	**07**				**Reserved**										
2	**04**	**03**	**08**				**Fixed Supports**										
2	**04**	**04**					**Vacuum System**					**-**	**138,400**	**-**	**150,858**	**150,858**	
2	**04**	**04**	**01**				**Reserved**										
2	**04**	**04**	**02**				**Undulator Vacuum Chamber Assembly**					**-**	**35,200**	**-**	**38,368**	**38,368**	
2	04	04	02			UN42_00601	RCV: Chamber Supports		SPR	AN_MSEG	$$		7,200		7,848	7,848	30%
2	04	04	02			UN42_00441	Rec: Remain Lot Production Undulator Chamb (7)		SPR	AN_MSEG	$$		28,000		30,520	30,520	30%
2	**04**	**04**	**03**				**Beam-line Bellows Module Assembly**					**-**	**6,720**	**-**	**7,325**	**7,325**	
2	04	04	03			UN43_00451	Receive Standard Bellows Module (4)		SPR	AN_MSEG	$$		6,720		7,325	7,325	25%
2	**04**	**04**	**04**				**Reserved**										
2	**04**	**04**	**05**				**Short Diagnostic Break (SDB) Assembly**					**-**	**9,637**	**-**	**10,505**	**10,505**	
2	04	04	05			UN45_00333	Rec: SDB Pump Supports		SPR	AN_MSEG	$$		300		327	327	25%
2	04	04	05			UN45_00331	Rec: SDB Chamber Supports		SPR	AN_MSEG	$$		500		545	545	25%
2	04	04	05			UN45_00329	Rec: SDB Ion Pump Cable		SPR	AN_MSEG	$$		540		589	589	25%
2	04	04	05			UN45_00327	Rec: SDB Ion Pump Power Supply		SPR	AN_MSEG	$$		4,996		5,446	5,446	25%
2	04	04	05			UN45_00325	Rec: SDB Ion Pump		SPR	AN_MSEG	$$		1,418		1,546	1,546	25%
2	04	04	05			UN45_00323	Rec: SDB Pump Manifold		SPR	AN_MSEG	$$		915		997	997	25%
2	04	04	05			UN45_00321	Rec: SDB Chamber Weldment Assembly		SPR	AN_MSEG	$$		968		1,055	1,055	25%
2	**04**	**04**	**06**				**Long Diagnostic Break (LDB) Assembly**					**-**	**11,176**	**-**	**12,183**	**12,183**	
2	04	04	06			UN46_00409	Rec: LDB Ion Pump Support (1)		SPR	AN_MSEG	$$		350		382	382	25%
2	04	04	06			UN46_00407	Rec: LDB Chamber Support (1)		SPR	AN_MSEG	$$		750		818	818	25%
2	04	04	06			UN46_00405	Rec: LDB Ion Pump (1)		SPR	AN_MSEG	$$		6,954		7,580	7,580	25%
2	04	04	06			UN46_00403	Rec: LDB Pump Manifold (1)		SPR	AN_MSEG	$$		458		499	499	25%
2	04	04	06			UN46_00401	Rec: LDB Chamber Weldment Assembly (1)		SPR	AN_MSEG	$$		484		528	528	25%
2	04	04	06			UN46_00351	Rec: LDB Valve (2)		SPR	AN_MSEG	$$		2,180		2,376	2,376	25%
2	**04**	**04**	**07**				**Entrance Section Assembly**					**-**	**43,657**	**-**	**47,586**	**47,586**	
2	04	04	07			UN47_00489	Rec: Gate Valve Support		SPR	AN_MSEG	$$		1,200		1,308	1,308	25%
2	04	04	07			UN47_00487	Rec: Ion Pump Support		SPR	AN_MSEG	$$		600		654	654	25%
2	04	04	07			UN47_00485	Rec: Chamber Mount		SPR	AN_MSEG	$$		2,000		2,180	2,180	25%
2	04	04	07			UN47_00483	Rec: Entrance Chamber Support		SPR	AN_MSEG	$$		2,000		2,180	2,180	25%
2	04	04	07			UN47_00481	Rec: RGA		SPR	AN_MSEG	$$		17,000		18,530	18,530	25%
2	04	04	07			UN47_00477	Rec: Valve		SPR	AN_MSEG	$$		1,090		1,188	1,188	25%
2	04	04	07			UN47_00475	Rec: Gate Valve		SPR	AN_MSEG	$$		4,320		4,709	4,709	25%
2	04	04	07			UN47_00473	Rec: Ion Pump Cable		SPR	AN_MSEG	$$		1,080		1,177	1,177	25%
2	04	04	07			UN47_00471	Rec: Ion Pump Controller		SPR	AN_MSEG	$$		4,996		5,446	5,446	25%
2	04	04	07			UN47_00469	Rec: Ion Pump		SPR	AN_MSEG	$$		2,836		3,091	3,091	25%
2	04	04	07			UN47_00467	Rec: Pump Manifold		SPR	AN_MSEG	$$		325		354	354	25%
2	04	04	07			UN47_00465	Rec: Entrance Upstream Chamber		SPR	AN_MSEG	$$		271		295	295	25%
2	04	04	07			UN47_00463	Rec: Entrance Bellows		SPR	AN_MSEG	$$		464		506	506	25%
2	04	04	07			UN47_00461	Rec: Standard Entrance Chamber		SPR	AN_MSEG	$$		1,520		1,657	1,657	25%
2	04	04	07			UN47_00491	Rec: RGA Support		SPR	AN_MSEG	$$		500		545	545	25%
2	04	04	07			UN47_00479	Rec: Vacuum Gauge		SPR	AN_MSEG	$$		3,455		3,766	3,766	25%
2	**04**	**04**	**08**				**Exit Section Assembly**					**-**	**32,010**	**-**	**34,891**	**34,891**	
2	04	04	08			UN48_00479	Rec: Exit Downstream Chamber Support		SPR	AN_MSEG	$$		2,000		2,180	2,180	25%
2	04	04	08			UN48_00477	Rec: Standard Exit Chamber Support		SPR	AN_MSEG	$$		2,000		2,180	2,180	25%
2	04	04	08			UN48_00470	Rec: Roughing Pump		SPR	AN_MSEG	$$		7,500		8,175	8,175	25%
2	04	04	08			UN48_00468	Rec: Turbo Pump		SPR	AN_MSEG	$$		18,448		20,108	20,108	25%
2	04	04	08			UN48_00464	Rec: Exit Downstream Chamber		SPR	AN_MSEG	$$		542		591	591	25%
2	04	04	08			UN48_00461	Rec.: Standard Exit Chamber		SPR	AN_MSEG	$$		1,520		1,657	1,657	25%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	**04**	**04**	**09**				**Reserved**										
2	**04**	**05**					**Undulator System Diagnostics [OPC]**					**4,252**	**671,000**	**288,722**	**716,451**	**1,005,173**	
2	**04**	**05**	**01**				**Reserved**										
2	**04**	**05**	**02**				**E-Beam and X-Ray Profile Diagnostics**					**2,168**	**274,000**	**145,933**	**291,371**	**437,304**	
2	04	05	02			UN502_1390	EBXPD Station Specification		R&D	AN_PHS	Hrs	40		3,345		3,345	36%
2	04	05	02			UN502_1390	EBXPD Station Specification		R&D	AN_ME	Hrs	40		3,345		3,345	36%
2	04	05	02			UN502_1160	Design Prototype EBXPD-IMG		R&D	AN_PHS	Hrs	32		2,754		2,754	36%
2	04	05	02			UN502_1160	Design Prototype EBXPD-IMG		R&D	AN_PHPD	Hrs	60		2,772		2,772	36%
2	04	05	02			UN502_1160	Design Prototype EBXPD-IMG		R&D	AN_ME	Hrs	60		5,163		5,163	36%
2	04	05	02			UN502_1160	Design Prototype EBXPD-IMG		R&D	AN_MDD	Hrs	80		4,680		4,680	36%
2	04	05	02			UN502_0960	Design Prototype EBXPD-XRM		R&D	AN_PHS	Hrs	80		6,884		6,884	36%
2	04	05	02			UN502_0960	Design Prototype EBXPD-XRM		R&D	AN_PHPD	Hrs	80		3,696		3,696	36%
2	04	05	02			UN502_0960	Design Prototype EBXPD-XRM		R&D	AN_ME	Hrs	80		6,884		6,884	36%
2	04	05	02			UN502_0960	Design Prototype EBXPD-XRM		R&D	AN_MDD	Hrs	160		9,360		9,360	36%
2	04	05	02			UN502_1170	Mechanical Analysis		R&D	AN_PHS	Hrs	16		1,377		1,377	36%
2	04	05	02			UN502_1170	Mechanical Analysis		R&D	AN_PHPD	Hrs	24		1,109		1,109	36%
2	04	05	02			UN502_1170	Mechanical Analysis		R&D	AN_ME	Hrs	24		2,065		2,065	36%
2	04	05	02			UN502_1180	Fabricate Prototype EBXPD-IMG		R&D	AN_PHPD	Hrs	32		1,478		1,478	36%
2	04	05	02			UN502_1180	Fabricate Prototype EBXPD-IMG		R&D	AN_MSEG	$$		55,000		56,650	56,650	36%
2	04	05	02			UN502_1180	Fabricate Prototype EBXPD-IMG		R&D	AN_MFMS	Hrs	120		8,395		8,395	36%
2	04	05	02			UN502_1180	Fabricate Prototype EBXPD-IMG		R&D	AN_ME	Hrs	40		3,442		3,442	36%
2	04	05	02			UN502_0840	Design Prototype EBXPD-XRID		R&D	AN_PHS	Hrs	40		3,442		3,442	36%
2	04	05	02			UN502_0840	Design Prototype EBXPD-XRID		R&D	AN_PHPD	Hrs	120		5,544		5,544	36%
2	04	05	02			UN502_0840	Design Prototype EBXPD-XRID		R&D	AN_ME	Hrs	80		6,884		6,884	36%
2	04	05	02			UN502_0840	Design Prototype EBXPD-XRID		R&D	AN_MDD	Hrs	120		7,020		7,020	36%
2	04	05	02			UN502_0970	Mechanical Analysis		R&D	AN_PHS	Hrs	8		688		688	36%
2	04	05	02			UN502_0970	Mechanical Analysis		R&D	AN_PHPD	Hrs	40		1,848		1,848	36%
2	04	05	02			UN502_0970	Mechanical Analysis		R&D	AN_ME	Hrs	32		2,754		2,754	36%
2	04	05	02			UN502_0980	Fabricate Prototype EBXPD-XRM		R&D	AN_PHPD	Hrs	32		1,493		1,493	36%
2	04	05	02			UN502_0980	Fabricate Prototype EBXPD-XRM		R&D	AN_MSEG	$$		55,000		57,221	57,221	36%
2	04	05	02			UN502_0980	Fabricate Prototype EBXPD-XRM		R&D	AN_MFMS	Hrs	120		8,477		8,477	36%
2	04	05	02			UN502_0980	Fabricate Prototype EBXPD-XRM		R&D	AN_ME	Hrs	32		2,780		2,780	36%
2	04	05	02			UN502_1190	Test Prototype EBXPD-IMG		R&D	AN_PHS	Hrs	16		1,377		1,377	36%
2	04	05	02			UN502_1190	Test Prototype EBXPD-IMG		R&D	AN_PHPD	Hrs	40		1,848		1,848	36%
2	04	05	02			UN502_1190	Test Prototype EBXPD-IMG		R&D	AN_MFAT	Hrs	32		1,764		1,764	36%
2	04	05	02			UN502_1190	Test Prototype EBXPD-IMG		R&D	AN_ME	Hrs	16		1,377		1,377	36%
2	04	05	02			UN502_0850	Mechanical Analysis		R&D	AN_PHS	Hrs	16		1,409		1,409	36%
2	04	05	02			UN502_0850	Mechanical Analysis		R&D	AN_PHPD	Hrs	32		1,513		1,513	36%
2	04	05	02			UN502_0850	Mechanical Analysis		R&D	AN_ME	Hrs	32		2,819		2,819	36%
2	04	05	02			UN502_0990	Test Prototype EBXPD-XRM		PRE	AN_PHS	Hrs	32		2,831		2,831	36%
2	04	05	02			UN502_0990	Test Prototype EBXPD-XRM		PRE	AN_PHPD	Hrs	40		1,900		1,900	36%
2	04	05	02			UN502_0990	Test Prototype EBXPD-XRM		PRE	AN_MFAT	Hrs	32		1,813		1,813	36%
2	04	05	02			UN502_0990	Test Prototype EBXPD-XRM		PRE	AN_ME	Hrs	16		1,415		1,415	36%
2	04	05	02			UN502_0860	Fabricate Prototype EBXPD-XRID		PRE	AN_PHPD	Hrs	24		1,140		1,140	36%
2	04	05	02			UN502_0860	Fabricate Prototype EBXPD-XRID		PRE	AN_MSEG	$$		42,000		44,520	44,520	36%
2	04	05	02			UN502_0860	Fabricate Prototype EBXPD-XRID		PRE	AN_MFMS	Hrs	80		5,754		5,754	36%
2	04	05	02			UN502_0860	Fabricate Prototype EBXPD-XRID		PRE	AN_ME	Hrs	24		2,123		2,123	36%
2	04	05	02			UN502_0870	Test Prototype EBXPD-XRID		PRE	AN_PHS	Hrs	24		2,123		2,123	36%
2	04	05	02			UN502_0870	Test Prototype EBXPD-XRID		PRE	AN_PHPD	Hrs	56		2,659		2,659	36%
2	04	05	02			UN502_0870	Test Prototype EBXPD-XRID		PRE	AN_MFAT	Hrs	40		2,266		2,266	36%
2	04	05	02			UN502_0870	Test Prototype EBXPD-XRID		PRE	AN_ME	Hrs	24		2,123		2,123	36%
2	04	05	02			UN502_0612	Rec: Motorized Scanner (1)		SPR	AN_MSEG	$$		9,000		9,810	9,810	36%
2	04	05	02			UN502_0826	Rec: Motorized filter/aperture changer (1)		SPR	AN_MSEG	$$		7,000		7,630	7,630	36%
2	04	05	02			UN502_0819	Rec: Camera assembly and shielding (1)		SPR	AN_MSEG	$$		10,000		10,900	10,900	36%
2	04	05	02			UN502_0815	Rec: Light transport/imaging optics (vac) (1)		SPR	AN_MSEG	$$		9,000		9,810	9,810	36%
2	04	05	02			UN502_0813	Rec: Motorized Shutter (upstream) (1)		SPR	AN_MSEG	$$		7,000		7,630	7,630	36%
2	04	05	02			UN502_0811	Rec: Mirrors (1)		SPR	AN_MSEG	$$		2,000		2,180	2,180	36%
2	04	05	02			UN502_0619	Rec: Photo electron detector (1)		SPR	AN_MSEG	$$		16,000		17,440	17,440	36%
2	04	05	02			UN502_0616	Rec: Wire Rack (1)		SPR	AN_MSEG	$$		5,000		5,450	5,450	36%
2	04	05	02			UN502_0444	Rec: Main translation stage (1)		SPR	AN_MSEG	$$		29,000		31,610	31,610	36%
2	04	05	02			UN502_0432	Rec: Beam Tube and Spring Contact (1)		SPR	AN_MSEG	$$		8,000		8,720	8,720	36%
2	04	05	02			UN502_0275	Rec: EBXPD Support Stand (1)		SPR	AN_MSEG	$$		5,000		5,450	5,450	36%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	04	05	02			UN502_0271	Rec: EBXPD Vacuum Chamber (1)		SPR	AN_MSEG	$$		15,000		16,350	16,350	36%
2	**04**	**05**	**03**				**High-Power X-Ray and Profile Diagnostics (HPD)**					**1,804**	**255,000**	**123,117**	**270,300**	**393,417**	
2	04	05	03			UN503_0770	Specification of HPPD		R&D	AN_PHS	Hrs	32		2,754		2,754	50%
2	04	05	03			UN503_0770	Specification of HPPD		R&D	AN_PHPD	Hrs	40		1,848		1,848	50%
2	04	05	03			UN503_0770	Specification of HPPD		R&D	AN_ME	Hrs	24		2,065		2,065	50%
2	04	05	03			UN503_0780	Analysis and Simulations - HPPD		R&D	AN_PHS	Hrs	40		3,442		3,442	50%
2	04	05	03			UN503_0780	Analysis and Simulations - HPPD		R&D	AN_PHPD	Hrs	80		3,696		3,696	50%
2	04	05	03			UN503_0780	Analysis and Simulations - HPPD		R&D	AN_ME	Hrs	40		3,442		3,442	50%
2	04	05	03			UN503_0790	Literature Research - HPPD		R&D	AN_PHS	Hrs	40		3,442		3,442	50%
2	04	05	03			UN503_0790	Literature Research - HPPD		R&D	AN_PHPD	Hrs	60		2,772		2,772	50%
2	04	05	03			UN503_0800	Study Review and Recommendations - HPPD		R&D	AN_PHS	Hrs	24		2,113		2,113	50%
2	04	05	03			UN503_0800	Study Review and Recommendations - HPPD		R&D	AN_PHPD	Hrs	32		1,512		1,512	50%
2	04	05	03			UN503_0800	Study Review and Recommendations - HPPD		R&D	AN_ME	Hrs	8		704		704	50%
2	04	05	03			UN503_0040	Preliminary Design - PRPT HPPD		PRE	AN_PHS	Hrs	16		1,415		1,415	50%
2	04	05	03			UN503_0040	Preliminary Design - PRPT HPPD		PRE	AN_PHPD	Hrs	40		1,900		1,900	50%
2	04	05	03			UN503_0040	Preliminary Design - PRPT HPPD		PRE	AN_ME	Hrs	80		7,077		7,077	50%
2	04	05	03			UN503_0040	Preliminary Design - PRPT HPPD		PRE	AN_MDD	Hrs	120		7,217		7,217	50%
2	04	05	03			UN503_0050	Design Analysis - PRPT HPPD		PRE	AN_PHS	Hrs	16		1,415		1,415	50%
2	04	05	03			UN503_0050	Design Analysis - PRPT HPPD		PRE	AN_PHPD	Hrs	24		1,140		1,140	50%
2	04	05	03			UN503_0050	Design Analysis - PRPT HPPD		PRE	AN_ME	Hrs	32		2,831		2,831	50%
2	04	05	03			UN503_0050	Design Analysis - PRPT HPPD		PRE	AN_MDD	Hrs	16		962		962	50%
2	04	05	03			UN503_0060	Design Review - PRPT HPPD		PRE	AN_PHS	Hrs	8		708		708	50%
2	04	05	03			UN503_0060	Design Review - PRPT HPPD		PRE	AN_PHPD	Hrs	16		760		760	50%
2	04	05	03			UN503_0060	Design Review - PRPT HPPD		PRE	AN_ME	Hrs	24		2,123		2,123	50%
2	04	05	03			UN503_0060	Design Review - PRPT HPPD		PRE	AN_MDD	Hrs	16		962		962	50%
2	04	05	03			UN503_0070	Final Design - PRPT HPPD		PRE	AN_PHS	Hrs	16		1,415		1,415	50%
2	04	05	03			UN503_0070	Final Design - PRPT HPPD		PRE	AN_PHPD	Hrs	24		1,140		1,140	50%
2	04	05	03			UN503_0070	Final Design - PRPT HPPD		PRE	AN_ME	Hrs	32		2,831		2,831	50%
2	04	05	03			UN503_0070	Final Design - PRPT HPPD		PRE	AN_MDD	Hrs	80		4,811		4,811	50%
2	04	05	03			UN503_0142	Determine Suitable Test Facility - HPPD		PRE	AN_PHS	Hrs	24		2,123		2,123	50%
2	04	05	03			UN503_0142	Determine Suitable Test Facility - HPPD		PRE	AN_PHPD	Hrs	32		1,520		1,520	50%
2	04	05	03			UN503_0142	Determine Suitable Test Facility - HPPD		PRE	AN_ME	Hrs	24		2,123		2,123	50%
2	04	05	03			UN503_0100	Prepare Bid Package - Laser Wire Module		PRE	AN_PHS	Hrs	40		3,538		3,538	50%
2	04	05	03			UN503_0100	Prepare Bid Package - Laser Wire Module		PRE	AN_PHPD	Hrs	40		1,900		1,900	50%
2	04	05	03			UN503_0100	Prepare Bid Package - Laser Wire Module		PRE	AN_ME	Hrs	40		3,538		3,538	50%
2	04	05	03			UN503_0090	Prepare Bid Package - ODR Module		PRE	AN_PHS	Hrs	16		1,415		1,415	50%
2	04	05	03			UN503_0090	Prepare Bid Package - ODR Module		PRE	AN_PHPD	Hrs	16		760		760	50%
2	04	05	03			UN503_0090	Prepare Bid Package - ODR Module		PRE	AN_ME	Hrs	16		1,415		1,415	50%
2	04	05	03			UN503_0152	Assemble Test Station - HPPD		PRE	AN_PHS	Hrs	32		2,831		2,831	50%
2	04	05	03			UN503_0152	Assemble Test Station - HPPD		PRE	AN_PHPD	Hrs	40		1,900		1,900	50%
2	04	05	03			UN503_0152	Assemble Test Station - HPPD		PRE	AN_MFAT	Hrs	80		4,532		4,532	50%
2	04	05	03			UN503_0152	Assemble Test Station - HPPD		PRE	AN_ME	Hrs	32		2,831		2,831	50%
2	04	05	03			UN503_0110	Bid Process - PRPT HPPD		PRE	AN_PHS	Hrs	8		708		708	50%
2	04	05	03			UN503_0110	Bid Process - PRPT HPPD		PRE	AN_PHPD	Hrs	8		380		380	50%
2	04	05	03			UN503_0110	Bid Process - PRPT HPPD		PRE	AN_ME	Hrs	8		708		708	50%
2	04	05	03			UN503_0120	Evaluate Bids - PRPT HPPD		PRE	AN_PHS	Hrs	8		708		708	50%
2	04	05	03			UN503_0120	Evaluate Bids - PRPT HPPD		PRE	AN_PHPD	Hrs	8		380		380	50%
2	04	05	03			UN503_0120	Evaluate Bids - PRPT HPPD		PRE	AN_ME	Hrs	8		708		708	50%
2	04	05	03			UN503_0135	AWARD: ODR Module Sppt		PRE	AN_PHPD	Hrs	8		380		380	50%
2	04	05	03			UN503_0135	AWARD: ODR Module Sppt		PRE	AN_ME	Hrs	8		708		708	50%
2	04	05	03			UN503_0145	AWARD: Laser Wire Module Sppt		PRE	AN_PHPD	Hrs	8		380		380	50%
2	04	05	03			UN503_0145	AWARD: Laser Wire Module Sppt		PRE	AN_ME	Hrs	8		708		708	50%
2	04	05	03			UN503_0141	RCV: PRPT HPPD Components		PRE	AN_MSEG	$$		255,000		270,300	270,300	50%
2	04	05	03			UN503_0150	Intregrate Controls - HPPD		PRE	AN_PHPD	Hrs	40		1,900		1,900	50%
2	04	05	03			UN503_0150	Intregrate Controls - HPPD		PRE	AN_MFAT	Hrs	40		2,266		2,266	50%
2	04	05	03			UN503_0150	Intregrate Controls - HPPD		PRE	AN_ME	Hrs	40		3,538		3,538	50%
2	04	05	03			UN503_0160	Perform Module Testing - HPPD		PRE	AN_PHS	Hrs	40		3,538		3,538	50%
2	04	05	03			UN503_0160	Perform Module Testing - HPPD		PRE	AN_PHPD	Hrs	80		3,799		3,799	50%
2	04	05	03			UN503_0160	Perform Module Testing - HPPD		PRE	AN_ME	Hrs	16		1,415		1,415	50%
2	04	05	03			UN503_0170	Test Measurements Review meeting - HPPD		PRE	AN_PHS	Hrs	16		1,415		1,415	50%
2	04	05	03			UN503_0170	Test Measurements Review meeting - HPPD		PRE	AN_PHPD	Hrs	24		1,140		1,140	50%
2	04	05	03			UN503_0170	Test Measurements Review meeting - HPPD		PRE	AN_ME	Hrs	16		1,415		1,415	50%

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	**04**	**05**	**04**				**End-of-Undulator(EOU) X-ray and Profile diagnost**					**280**	**-**	**19,672**	**-**	**19,672**	
2	04	05	04			UN504_1220	Specification of EOU		R&D	AN_PHS	Hrs	60		5,018		5,018	39%
2	04	05	04			UN504_1220	Specification of EOU		R&D	AN_ME	Hrs	40		3,345		3,345	39%
2	04	05	04			UN504_1230	Organize literature Materials		R&D	AN_PHS	Hrs	32		2,676		2,676	39%
2	04	05	04			UN504_1230	Organize literature Materials		R&D	AN_PHPD	Hrs	60		2,694		2,694	39%
2	04	05	04			UN504_1230	Organize literature Materials		R&D	AN_ME	Hrs	16		1,338		1,338	39%
2	04	05	04			UN504_1240	Conduct Principles of Design Workshop		R&D	AN_PHS	Hrs	24		2,065		2,065	39%
2	04	05	04			UN504_1240	Conduct Principles of Design Workshop		R&D	AN_PHPD	Hrs	40		1,848		1,848	39%
2	04	05	04			UN504_1240	Conduct Principles of Design Workshop		R&D	AN_ME	Hrs	8		688		688	39%
2	**04**	**05**	**05**				**RFBPM**					**-**	**80,000**	**-**	**87,200**	**87,200**	
2	04	05	05			UN505_0215	Rec: RF Cabling (4)		SPR	AN_MSEG	$$		16,000		17,440	17,440	35%
2	04	05	05			UN505_0213	Rec: Support & Alignment Mechanism (4)		SPR	AN_MSEG	$$		32,000		34,880	34,880	35%
2	04	05	05			UN505_0211	Rec: Copper Body Brazement (4)		SPR	AN_MSEG	$$		32,000		34,880	34,880	35%
2	**04**	**05**	**06**				**Reserved**										
2	**04**	**05**	**07**				**Charge Monitor (CM)**					**-**	**11,000**	**-**	**11,990**	**11,990**	
2	04	05	07			UN507_0125	Rec: Charge Monitor Package (1)		SPR	AN_MSEG	$$		11,000		11,990	11,990	25%
2	**04**	**05**	**08**				**Cherenkov Detector**					**-**	**16,000**	**-**	**17,440**	**17,440**	
2	04	05	08			UN508_0105	Rec: Cherenkov Detector (4)		SPR	AN_MSEG	$$		16,000		17,440	17,440	25%
2	**04**	**05**	**09**				**Radiation Detection Monitor (RDM)**					**-**	**35,000**	**-**	**38,150**	**38,150**	
2	04	05	09			UN509_0175	Rec: RDM (1)		SPR	AN_MSEG	$$		35,000		38,150	38,150	40%
2	**04**	**05**	**10**				**Reserved**										
2	**04**	**05**	**11**				**Reserved**										
2	**04**	**06**					**Undulator System Commissioning**					**6,184**	**-**	**618,343**	**-**	**618,343**	
2	**04**	**06**	**01**				**Undulator System Commissioning**					**6,184**	**-**	**618,343**	**-**	**618,343**	
2	04	06	01			UN36_00490	Commission Hydrostatic Level System		PRE	SL_MFAT	Hrs	80		7,631		7,631	
2	04	06	01			UN36_00490	Commission Hydrostatic Level System		PRE	SL_MES	Hrs	320		33,680		33,680	
2	04	06	01			UN36_00490	Commission Hydrostatic Level System		PRE	SL_EE	Hrs	80		10,487		10,487	
2	04	06	01			UN36_00490	Commission Hydrostatic Level System		PRE	SL_CP	Hrs	160		16,958		16,958	
2	04	06	01			UN36_00440	Commission Stretched Wire System Complete		PRE	SL_MFAT	Hrs	80		7,631		7,631	
2	04	06	01			UN36_00440	Commission Stretched Wire System Complete		PRE	SL_MES	Hrs	320		33,680		33,680	
2	04	06	01			UN36_00440	Commission Stretched Wire System Complete		PRE	SL_EE	Hrs	160		20,973		20,973	
2	04	06	01			UN36_00440	Commission Stretched Wire System Complete		PRE	SL_CP	Hrs	160		16,958		16,958	
2	04	06	01			UNUN_00030	Support Commissioning - Physics		PRE	AN_PHS	Hrs	1,280		116,173		116,173	
2	04	06	01			UNUN_00020	Support Commissioning - Mechanical		PRE	AN_ME	Hrs	960		87,130		87,130	
2	04	06	01			UNUN_00010	Support Commissioning - Controls		PRE	AN_CE	Hrs	1,280		123,878		123,878	
2	04	06	01			UN511_0250	Commission Supplemental Shielding		PRE	SL_PHS	Hrs	40		3,482		3,482	
2	04	06	01			UN511_0250	Commission Supplemental Shielding		PRE	SL_MFAT	Hrs	16		1,566		1,566	
2	04	06	01			UN511_0250	Commission Supplemental Shielding		PRE	AN_SEE	Hrs	40		4,880		4,880	
2	04	06	01			UN507_0260	Commission Charge Monitor		PRE	SL_PHS	Hrs	40		3,482		3,482	
2	04	06	01			UN507_0260	Commission Charge Monitor		PRE	SL_MFAT	Hrs	16		1,566		1,566	
2	04	06	01			UN507_0260	Commission Charge Monitor		PRE	AN_SEE	Hrs	16		1,952		1,952	
2	04	06	01			UN505_0370	Commission RFBPM		PRE	SL_PHS	Hrs	40		3,482		3,482	
2	04	06	01			UN505_0370	Commission RFBPM		PRE	SL_MFAT	Hrs	24		2,348		2,348	
2	04	06	01			UN505_0370	Commission RFBPM		PRE	AN_SEE	Hrs	40		4,880		4,880	
2	04	06	01			UN508_0250	Commission Cherenkov Detector		PRE	SL_PHS	Hrs	40		3,482		3,482	
2	04	06	01			UN508_0250	Commission Cherenkov Detector		PRE	SL_MFAT	Hrs	16		1,566		1,566	
2	04	06	01			UN508_0250	Commission Cherenkov Detector		PRE	AN_SEE	Hrs	40		4,880		4,880	
2	04	06	01			UN509_0320	Commission RDM		PRE	SL_PHS	Hrs	40		3,482		3,482	
2	04	06	01			UN509_0320	Commission RDM		PRE	AN_SEE	Hrs	16		1,952		1,952	
2	04	06	01			UN509_0320	Commission RDM		PRE	AN_CE	Hrs	24		2,323		2,323	
2	04	06	01			UN502_1750	Commission EBXPD		PRE	SL_SEE	Hrs	16		2,022		2,022	
2	04	06	01			UN502_1750	Commission EBXPD		PRE	AN_SEE	Hrs	80		9,759		9,759	
2	04	06	01			UN502_1750	Commission EBXPD		PRE	AN_PHS	Hrs	64		5,809		5,809	
2	04	06	01			UN502_1750	Commission EBXPD		PRE	AN_CE	Hrs	64		6,194		6,194	
2	04	06	01			UN43_00620	Commission Std Bel Mod		PRE	SL_SEE	Hrs	24		3,111		3,111	
2	04	06	01			UN43_00620	Commission Std Bel Mod		PRE	AN_SEE	Hrs	24		3,004		3,004	
2	04	06	01			UN43_00620	Commission Std Bel Mod		PRE	AN_PHS	Hrs	16		1,490		1,490	
2	04	06	01			UN44_00580	Commission Std Col		PRE	SL_SEE	Hrs	24		3,111		3,111	
2	04	06	01			UN44_00580	Commission Std Col		PRE	AN_SEE	Hrs	24		3,004		3,004	
2	04	06	01			UN44_00580	Commission Std Col		PRE	AN_PHS	Hrs	16		1,490		1,490	
2	04	06	01			UN504_1620	Commission EOU		PRE	SL_SEE	Hrs	24		3,111		3,111	
2	04	06	01			UN504_1620	Commission EOU		PRE	AN_SEE	Hrs	80		10,014		10,014	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	04	06	01			UN504_1620	Commission EOU		PRE	AN_PHS	Hrs	40		3,725		3,725	
2	04	06	01			UN504_1620	Commission EOU		PRE	AN_CE	Hrs	40		3,972		3,972	
2	04	06	01			UN47_00670	Commission - Entrance Section Assy		PRE	SL_SEE	Hrs	24		3,111		3,111	
2	04	06	01			UN47_00670	Commission - Entrance Section Assy		PRE	AN_SEE	Hrs	24		3,004		3,004	
2	04	06	01			UN47_00670	Commission - Entrance Section Assy		PRE	AN_PHS	Hrs	16		1,490		1,490	
2	04	06	01			UN45_00530	Commission - Short Diag Break Assy		PRE	SL_SEE	Hrs	24		3,111		3,111	
2	04	06	01			UN45_00530	Commission - Short Diag Break Assy		PRE	AN_SEE	Hrs	24		3,004		3,004	
2	04	06	01			UN45_00530	Commission - Short Diag Break Assy		PRE	AN_PHS	Hrs	16		1,490		1,490	
2	04	06	01			UN46_00610	Commission - Long Diag Break Assy		PRE	SL_SEE	Hrs	24		3,111		3,111	
2	04	06	01			UN46_00610	Commission - Long Diag Break Assy		PRE	AN_SEE	Hrs	24		3,004		3,004	
2	04	06	01			UN46_00610	Commission - Long Diag Break Assy		PRE	AN_PHS	Hrs	16		1,490		1,490	
2	04	06	01			UN48_00670	Commission - Exit Section Assy		PRE	SL_SEE	Hrs	24		3,111		3,111	
2	04	06	01			UN48_00670	Commission - Exit Section Assy		PRE	AN_SEE	Hrs	24		3,004		3,004	
2	04	06	01			UN48_00670	Commission - Exit Section Assy		PRE	AN_PHS	Hrs	16		1,490		1,490	
2	04	06	01			UN42_00810	Commission Un Cham		PRE	SL_SEE	Hrs	24		3,111		3,111	
2	04	06	01			UN42_00810	Commission Un Cham		PRE	AN_SEE	Hrs	24		3,004		3,004	
2	04	06	01			UN42_00810	Commission Un Cham		PRE	AN_PHS	Hrs	16		1,490		1,490	
2	**05**						**X-RAY TRANSPORT & DIAGNOSTICS SYSTEMS (OPC)**					**25,062**	**78,000**	**4,681,577**	**98,660**	**4,780,237**	
2	**05**	**01**					**System Management & Integration**					**19,090**	**-**	**3,631,399**	**-**	**3,631,399**	
2	**05**	**01**	**01**				**Management**					**19,090**	**-**	**3,631,399**	**-**	**3,631,399**	
2	05	01	01			XT_3485	R&D - Beamline Electronics & Controls		R&D	LL_EE	Hrs	206		36,378		36,378	15%
2	05	01	01			XT_3445	R&D - Beamline Mechanical Layout		R&D	LL_ME	Hrs	824		145,510		145,510	15%
2	05	01	01			XT_3444	R&D - Component Physics Design		R&D	LL_PHSS	Hrs	1,236		257,545		257,545	15%
2	05	01	01			XT_3444	R&D - Component Physics Design		R&D	LL_ME	Hrs	824		145,510		145,510	15%
2	05	01	01			XT_3454	LLNL - Commissioning Team		PRE	LL_PHS	Hrs	3,200		661,712		661,712	15%
2	05	01	01			XT_3454	LLNL - Commissioning Team		PRE	LL_MFAT	Hrs	3,200		481,220		481,220	15%
2	05	01	01			XT_3454	LLNL - Commissioning Team		PRE	LL_ME	Hrs	3,200		619,288		619,288	15%
2	05	01	01			XT_3454	LLNL - Commissioning Team		PRE	LL_EE	Hrs	3,200		619,288		619,288	15%
2	05	01	01			XT_3454	LLNL - Commissioning Team		PRE	LL_CP	Hrs	3,200		664,948		664,948	15%
2	**05**	**02**					**Controls**										
2	**05**	**02**	**01**				**Reserved**										
2	**05**	**02**	**02**				**Slow Controls**										
2	**05**	**02**	**03**				**Fast Controls**										
2	**05**	**02**	**04**				**Femto Controls**										
2	**05**	**03**					**Mechanical & Vacuum Subsystem**										
2	**05**	**03**	**01**				**Reserved**										
2	**05**	**03**	**02**				**Mech/Vac Front End**										
2	**05**	**03**	**03**				**Mech/Vac Near Hall**										
2	**05**	**03**	**04**				**Mech/Vac Tunnel**										
2	**05**	**03**	**05**				**Mech/Vac Far Hall**										
2	**05**	**04**					**Optical Subsystem**					**988**	**-**	**191,830**	**-**	**191,830**	
2	**05**	**04**	**01**				**Optical Systems Engineering**					**988**	**-**	**191,830**	**-**	**191,830**	
2	05	04	01			XT_2061	R&D - Damage		R&D	LL_PHS	Hrs	988		191,830		191,830	45%
2	**05**	**04**	**02**				**Facility Optics**										
2	**05**	**04**	**03**				**End Station Optics**										
2	**05**	**04**	**04**				**Crystals & Gratings**										
2	**05**	**05**					**Diagnostics Subsystem**					**4,984**	**78,000**	**858,348**	**98,660**	**957,008**	
2	**05**	**05**	**01**				**Reserved**										
2	**05**	**05**	**02**				**Modeling & Simulation**					**1,032**	**-**	**195,677**	**-**	**195,677**	
2	05	05	02			XT_4486	R&D - FEL Monte Carlo		R&D	LL_CP	Hrs	712		135,002		135,002	15%
2	05	05	02			XT_44766	R&D - Spontaneous Monte Carlo - 2		R&D	LL_CP	Hrs	320		60,675		60,675	15%
2	**05**	**05**	**03**				**Facility Diagnostics**					**-**	**50,000**	**-**	**64,500**	**64,500**	
2	05	05	03			XT_4436	Procure Spares - Direct Imager		SPR	LL_MSCS	$$		50,000		64,500	64,500	25%
2	**05**	**05**	**04**				**Commissioning Diagnostics**					**3,952**	**28,000**	**662,671**	**34,160**	**696,831**	
2	05	05	04			XT_445	R&D - Spectral Measurement		R&D	LL_PHS	Hrs	1,976		383,660		383,660	25%
2	05	05	04			XT_445	R&D - Spectral Measurement		R&D	LL_MSEG	$$		28,000		34,160	34,160	25%
2	05	05	04			XT_445	R&D - Spectral Measurement		R&D	LL_MFAT	Hrs	1,976		279,011		279,011	25%
2	**05**	**06**					**Reserved**										
2	**05**	**06**	**01**				**Reserved**										
2	**06**						**X-RAY END STATION SYSTEMS (OPC)**					**17,240**	**750,000**	**1,642,235**	**854,841**	**2,497,076**	
2	**06**	**01**					**Reserved**										
2	**06**	**01**	**01**				**Reserved**										

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	**06**	**02**					**Controls Subsystem**					**2,480**	**-**	**267,605**	**-**	**267,605**	
2	**06**	**02**	**01**				**Cabling**					**400**	**-**	**43,064**	**-**	**43,064**	
2	06	02	01			XE_0451	Commission FEE - Cabling		PRE	SL_TMUE	Hrs	20		2,302		2,302	
2	06	02	01			XE_0451	Commission FEE - Cabling		PRE	SL_CT	Hrs	40		2,947		2,947	
2	06	02	01			XE_0451	Commission FEE - Cabling		PRE	SL_CE	Hrs	40		5,380		5,380	
2	06	02	01			XE_0461	Commission Near Hall - Cabling		PRE	SL_TMUE	Hrs	20		2,302		2,302	
2	06	02	01			XE_0461	Commission Near Hall - Cabling		PRE	SL_CT	Hrs	40		2,947		2,947	
2	06	02	01			XE_0461	Commission Near Hall - Cabling		PRE	SL_CE	Hrs	40		5,380		5,380	
2	06	02	01			XE_0291	Commission Tunnel - Cabling		PRE	SL_TMUE	Hrs	20		2,362		2,362	
2	06	02	01			XE_0291	Commission Tunnel - Cabling		PRE	SL_CT	Hrs	40		3,023		3,023	
2	06	02	01			XE_0291	Commission Tunnel - Cabling		PRE	SL_CE	Hrs	40		5,519		5,519	
2	06	02	01			XE_0241	Commission Far Hall - Cabling		PRE	SL_TMUE	Hrs	20		2,362		2,362	
2	06	02	01			XE_0241	Commission Far Hall - Cabling		PRE	SL_CT	Hrs	40		3,023		3,023	
2	06	02	01			XE_0241	Commission Far Hall - Cabling		PRE	SL_CE	Hrs	40		5,519		5,519	
2	**06**	**02**	**02**				**Network**					**160**	**-**	**17,634**	**-**	**17,634**	
2	06	02	02			XE_2234	Commission - Network		PRE	SL_PHS	Hrs	40		3,572		3,572	
2	06	02	02			XE_2234	Commission - Network		PRE	SL_EE	Hrs	40		5,519		5,519	
2	06	02	02			XE_2234	Commission - Network		PRE	SL_CT	Hrs	40		3,023		3,023	
2	06	02	02			XE_2234	Commission - Network		PRE	SL_CE	Hrs	40		5,519		5,519	
2	**06**	**02**	**03**				**PC Support**					**160**	**-**	**19,074**	**-**	**19,074**	
2	06	02	03			XE_2294	Commission - PC Support		PRE	SL_PHS	Hrs	40		3,572		3,572	
2	06	02	03			XE_2294	Commission - PC Support		PRE	SL_EE	Hrs	40		5,519		5,519	
2	06	02	03			XE_2294	Commission - PC Support		PRE	SL_CP	Hrs	40		4,463		4,463	
2	06	02	03			XE_2294	Commission - PC Support		PRE	SL_CE	Hrs	40		5,519		5,519	
2	**06**	**02**	**04**				**Beamline Controls**					**320**	**-**	**33,153**	**-**	**33,153**	
2	06	02	04			XE_2635	Commission - Beamline Control		PRE	SL_PHS	Hrs	80		7,143		7,143	
2	06	02	04			XE_2635	Commission - Beamline Control		PRE	SL_CT	Hrs	80		6,045		6,045	
2	06	02	04			XE_2635	Commission - Beamline Control		PRE	SL_CP	Hrs	80		8,926		8,926	
2	06	02	04			XE_2635	Commission - Beamline Control		PRE	SL_CE	Hrs	80		11,039		11,039	
2	**06**	**02**	**05**				**X-Ray PPS**					**480**	**-**	**53,680**	**-**	**53,680**	
2	06	02	05			XE_3033	Commission Near Hall - X-Ray PPS		PRE	SL_ME	Hrs	40		5,055		5,055	
2	06	02	05			XE_3033	Commission Near Hall - X-Ray PPS		PRE	SL_CT	Hrs	40		2,947		2,947	
2	06	02	05			XE_3033	Commission Near Hall - X-Ray PPS		PRE	SL_CE	Hrs	40		5,380		5,380	
2	06	02	05			XE_108	Commission FEE - X-Ray PPS		PRE	SL_ME	Hrs	40		5,055		5,055	
2	06	02	05			XE_108	Commission FEE - X-Ray PPS		PRE	SL_CT	Hrs	40		2,947		2,947	
2	06	02	05			XE_108	Commission FEE - X-Ray PPS		PRE	SL_CE	Hrs	40		5,380		5,380	
2	06	02	05			XE_463	Commission Tunnel - X-Ray PPS		PRE	SL_ME	Hrs	40		5,081		5,081	
2	06	02	05			XE_463	Commission Tunnel - X-Ray PPS		PRE	SL_CT	Hrs	40		2,961		2,961	
2	06	02	05			XE_463	Commission Tunnel - X-Ray PPS		PRE	SL_CE	Hrs	40		5,407		5,407	
2	06	02	05			XE_458	Commission Far Hall X-Ray PPS		PRE	SL_ME	Hrs	40		5,088		5,088	
2	06	02	05			XE_458	Commission Far Hall X-Ray PPS		PRE	SL_CT	Hrs	40		2,966		2,966	
2	06	02	05			XE_458	Commission Far Hall X-Ray PPS		PRE	SL_CE	Hrs	40		5,415		5,415	
2	**06**	**02**	**06**				**X-Ray MPS**					**480**	**-**	**53,612**	**-**	**53,612**	
2	06	02	06			XE_5097	Commission Near Hall - X-Ray MPS		PRE	SL_ME	Hrs	40		5,055		5,055	
2	06	02	06			XE_5097	Commission Near Hall - X-Ray MPS		PRE	SL_CT	Hrs	40		2,947		2,947	
2	06	02	06			XE_5097	Commission Near Hall - X-Ray MPS		PRE	SL_CE	Hrs	40		5,380		5,380	
2	06	02	06			XE_5132	Commission FEE - X-Ray MPS		PRE	SL_ME	Hrs	40		5,055		5,055	
2	06	02	06			XE_5132	Commission FEE - X-Ray MPS		PRE	SL_CT	Hrs	40		2,947		2,947	
2	06	02	06			XE_5132	Commission FEE - X-Ray MPS		PRE	SL_CE	Hrs	40		5,380		5,380	
2	06	02	06			XE_5101	Commission Tunnel - X-Ray MPS		PRE	SL_ME	Hrs	40		5,055		5,055	
2	06	02	06			XE_5101	Commission Tunnel - X-Ray MPS		PRE	SL_CT	Hrs	40		2,947		2,947	
2	06	02	06			XE_5101	Commission Tunnel - X-Ray MPS		PRE	SL_CE	Hrs	40		5,380		5,380	
2	06	02	06			XE_5125	Commission Far Hall - X-Ray MPS		PRE	SL_ME	Hrs	40		5,088		5,088	
2	06	02	06			XE_5125	Commission Far Hall - X-Ray MPS		PRE	SL_CT	Hrs	40		2,966		2,966	
2	06	02	06			XE_5125	Commission Far Hall - X-Ray MPS		PRE	SL_CE	Hrs	40		5,415		5,415	
2	**06**	**02**	**07**				**Laser PPS**					**240**	**-**	**23,693**	**-**	**23,693**	
2	06	02	07			XE_2734	Commission Near Hall - Laser PPS		PRE	SL_PHS	Hrs	40		3,482		3,482	
2	06	02	07			XE_2734	Commission Near Hall - Laser PPS		PRE	SL_CT	Hrs	40		2,947		2,947	
2	06	02	07			XE_2734	Commission Near Hall - Laser PPS		PRE	SL_CE	Hrs	40		5,380		5,380	
2	06	02	07			XE_5421	Commission Far Hall - Laser PPS		PRE	SL_PHS	Hrs	40		3,504		3,504	
2	06	02	07			XE_5421	Commission Far Hall - Laser PPS		PRE	SL_CT	Hrs	40		2,966		2,966	
2	06	02	07			XE_5421	Commission Far Hall - Laser PPS		PRE	SL_CE	Hrs	40		5,415		5,415	

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	**06**	**02**	**08**				**User Safeguards**					**240**	**-**	**23,693**	**-**	**23,693**	
2	06	02	08			XE_934	Commission Near Hall - User Safeguards		PRE	SL_PHS	Hrs	40		3,482		3,482	
2	06	02	08			XE_934	Commission Near Hall - User Safeguards		PRE	SL_CT	Hrs	40		2,947		2,947	
2	06	02	08			XE_934	Commission Near Hall - User Safeguards		PRE	SL_CE	Hrs	40		5,380		5,380	
2	06	02	08			XE_884	Commission Far Hall - User Safeguards		PRE	SL_PHS	Hrs	40		3,504		3,504	
2	06	02	08			XE_884	Commission Far Hall - User Safeguards		PRE	SL_CT	Hrs	40		2,966		2,966	
2	06	02	08			XE_884	Commission Far Hall - User Safeguards		PRE	SL_CE	Hrs	40		5,415		5,415	
2	**06**	**03**					**Mechanical/Vacuum Subsystem**					**400**	**-**	**46,103**	**-**	**46,103**	
2	**06**	**03**	**01**				**Reserved**										
2	**06**	**03**	**02**				**Vacuum Components - Mech/Vac**					**160**	**-**	**18,055**	**-**	**18,055**	
2	06	03	02			XE_2986	Commission Turbo Pump - Vacuum		PRE	SL_MVE	Hrs	20		2,527		2,527	
2	06	03	02			XE_2986	Commission Turbo Pump - Vacuum		PRE	SL_MFAT	Hrs	20		1,957		1,957	
2	06	03	02			XE_2818	Commission Valves - Vacuum		PRE	SL_MVE	Hrs	20		2,527		2,527	
2	06	03	02			XE_2818	Commission Valves - Vacuum		PRE	SL_MFAT	Hrs	20		1,957		1,957	
2	06	03	02			XE_2978	Commission Ion Pump - Vacuum		PRE	SL_MVE	Hrs	20		2,527		2,527	
2	06	03	02			XE_2978	Commission Ion Pump - Vacuum		PRE	SL_MFAT	Hrs	20		1,957		1,957	
2	06	03	02			XE_828	Commission Gauges - Vacuum		PRE	SL_MVE	Hrs	20		2,593		2,593	
2	06	03	02			XE_828	Commission Gauges - Vacuum		PRE	SL_MFAT	Hrs	20		2,008		2,008	
2	**06**	**03**	**03**				**Experimental Chambers**					**240**	**-**	**28,048**	**-**	**28,048**	
2	06	03	03			XE_5313	Commission Near Hall Experiment Chamber - Vacuum		PRE	SL_MVE	Hrs	40		5,055		5,055	
2	06	03	03			XE_5313	Commission Near Hall Experiment Chamber - Vacuum		PRE	SL_MFAT	Hrs	40		3,915		3,915	
2	06	03	03			XE_5313	Commission Near Hall Experiment Chamber - Vacuum		PRE	SL_ME	Hrs	40		5,055		5,055	
2	06	03	03			XE_2979	Commission Far Hall Experiment Chamber - Vacuum		PRE	SL_MVE	Hrs	40		5,055		5,055	
2	06	03	03			XE_2979	Commission Far Hall Experiment Chamber - Vacuum		PRE	SL_MFAT	Hrs	40		3,915		3,915	
2	06	03	03			XE_2979	Commission Far Hall Experiment Chamber - Vacuum		PRE	SL_ME	Hrs	40		5,055		5,055	
2	**06**	**04**					**Laser Subsystem**					**2,400**	**-**	**248,419**	**-**	**248,419**	
2	**06**	**04**	**01**				**Oscillator Laser & Pump**					**1,200**	**-**	**118,839**	**-**	**118,839**	
2	06	04	01			XE_55	Commission Far Hall - Oscillator Laser/Pump		PRE	SL_PHS	Hrs	480		42,862		42,862	
2	06	04	01			XE_55	Commission Far Hall - Oscillator Laser/Pump		PRE	SL_CE	Hrs	120		16,558		16,558	
2	06	04	01			XE_7144	Commission Near Hall - Oscillator Laser/Pump		PRE	SL_PHS	Hrs	480		42,862		42,862	
2	06	04	01			XE_7144	Commission Near Hall - Oscillator Laser/Pump		PRE	SL_CE	Hrs	120		16,558		16,558	
2	**06**	**04**	**02**				**Laser Diagnostics**					**60**	**-**	**5,222**	**-**	**5,222**	
2	06	04	02			XE_56	Commission - Laser Diagnostics		PRE	SL_PHS	Hrs	60		5,222		5,222	
2	**06**	**04**	**03**				**Laser Supplies & Optical Transport**					**60**	**-**	**6,387**	**-**	**6,387**	
2	06	04	03			XE_57	Commission - Optic Transport		PRE	SL_PHS	Hrs	20		1,786		1,786	
2	06	04	03			XE_57	Commission - Optic Transport		PRE	SL_MFAT	Hrs	20		2,008		2,008	
2	06	04	03			XE_57	Commission - Optic Transport		PRE	SL_ME	Hrs	20		2,593		2,593	
2	**06**	**04**	**04**				**Laser Timing**					**840**	**-**	**96,732**	**-**	**96,732**	
2	06	04	04			XE_58	Commission Far Hall - Laser Timing		PRE	SL_PHS	Hrs	240		21,431		21,431	
2	06	04	04			XE_58	Commission Far Hall - Laser Timing		PRE	SL_CT	Hrs	120		9,069		9,069	
2	06	04	04			XE_58	Commission Far Hall - Laser Timing		PRE	SL_CE	Hrs	480		66,232		66,232	
2	**06**	**04**	**05**				**Laser Amplifiers**					**240**	**-**	**21,238**	**-**	**21,238**	
2	06	04	05			XE_59	Commission Near Hall - Laser Amplifiers		PRE	SL_PHS	Hrs	120		10,522		10,522	
2	06	04	05			XE_60	Commission Far Hall - Laser Amplifiers		PRE	SL_PHS	Hrs	120		10,716		10,716	
2	**06**	**05**					**X-Ray Detectors**					**1,920**	**-**	**192,905**	**-**	**192,905**	
2	**06**	**05**	**01**				**Beam Imaging**					**360**	**-**	**35,422**	**-**	**35,422**	
2	06	05	01			XE_61	Commission - Beam Imaging		PRE	SL_PHS	Hrs	120		10,445		10,445	
2	06	05	01			XE_61	Commission - Beam Imaging		PRE	SL_EE	Hrs	120		16,139		16,139	
2	06	05	01			XE_61	Commission - Beam Imaging		PRE	SL_CT	Hrs	120		8,839		8,839	
2	**06**	**05**	**02**				**2-D X-Ray Detector**					**480**	**-**	**48,456**	**-**	**48,456**	
2	06	05	02			XE_62	Commission - 2-D X-Ray Detector		PRE	SL_PHS	Hrs	160		14,287		14,287	
2	06	05	02			XE_62	Commission - 2-D X-Ray Detector		PRE	SL_EE	Hrs	160		22,077		22,077	
2	06	05	02			XE_62	Commission - 2-D X-Ray Detector		PRE	SL_CT	Hrs	160		12,092		12,092	
2	**06**	**05**	**03**				**Beam Intensity**					**360**	**-**	**36,343**	**-**	**36,343**	
2	06	05	03			XE_63	Commission - Beam Intensity		PRE	SL_PHS	Hrs	120		10,716		10,716	
2	06	05	03			XE_63	Commission - Beam Intensity		PRE	SL_EE	Hrs	120		16,558		16,558	
2	06	05	03			XE_63	Commission - Beam Intensity		PRE	SL_CT	Hrs	120		9,069		9,069	
2	**06**	**05**	**04**				**Streak Camera**					**720**	**-**	**72,684**	**-**	**72,684**	
2	06	05	04			XE_64	Commission - Streak Camera		PRE	SL_PHS	Hrs	240		21,431		21,431	
2	06	05	04			XE_64	Commission - Streak Camera		PRE	SL_EE	Hrs	240		33,116		33,116	
2	06	05	04			XE_64	Commission - Streak Camera		PRE	SL_CT	Hrs	240		18,137		18,137	
2	**06**	**06**					**X-Ray End Station System Commissioning**										

WBS Level						P3 ID	Description	OBS	Fund Type	Rsc Code	Units	Budgeted Unit Quantity		Fully Burdened and Escalated Cost			Contingency %
												Hours	$$	Labor	M&S	Total (No Conting)	
1	2	3	4	5	6												
2	**06**	**06**	**01**				**X-Ray End Station System Commissioning**										
2	**06**	**07**					**Atomic Physics**					**10,040**	**750,000**	**887,204**	**854,841**	**1,742,045**	
2	**06**	**07**	**01**				**Atomic Physics Samples**					**2,480**	**100,000**	**219,777**	**113,979**	**333,756**	
2	06	07	01			XE_7350	Define AP Samples		R&D	SL_PHS	Hrs	1,000		83,258		83,258	25%
2	06	07	01			XE_73511	Design AP preparation and handling - Samples		PRE	SL_PHS	Hrs	480		40,718		40,718	25%
2	06	07	01			XE_73511	Design AP preparation and handling - Samples		PRE	SL_ME	Hrs	120		14,779		14,779	25%
2	06	07	01			XE_73512	Procurements - AP Samples		PRE	SL_PHS	Hrs	480		41,328		41,328	25%
2	06	07	01			XE_7108	Vendor Fab/Ship - AP Samples		PRE	SL_MSEQ	$$		100,000		113,979	113,979	25%
2	06	07	01			XE_73513	Assembly - AP Samples		PRE	SL_PHS	Hrs	80		6,963		6,963	25%
2	06	07	01			XE_73513	Assembly - AP Samples		PRE	SL_MFAT	Hrs	80		7,829		7,829	25%
2	06	07	01			XE_73513	Assembly - AP Samples		PRE	SL_ME	Hrs	40		5,055		5,055	25%
2	06	07	01			XE_73514	Test AP Sample		PRE	SL_PHS	Hrs	80		6,963		6,963	25%
2	06	07	01			XE_73514	Test AP Sample		PRE	SL_MFAT	Hrs	80		7,829		7,829	25%
2	06	07	01			XE_73514	Test AP Sample		PRE	SL_ME	Hrs	40		5,055		5,055	25%
2	**06**	**07**	**02**				**Atomic Physics Diagnostics**					**2,440**	**500,000**	**212,125**	**569,894**	**782,019**	
2	06	07	02			XE_74100	Define AP Diagnostics		R&D	SL_PHS	Hrs	1,000		83,258		83,258	25%
2	06	07	02			XE_74101	Design AP Diagnostics		PRE	SL_PHS	Hrs	480		40,718		40,718	25%
2	06	07	02			XE_74101	Design AP Diagnostics		PRE	SL_EE	Hrs	120		15,730		15,730	25%
2	06	07	02			XE_74102	Procurements - AP Diagnostics		PRE	SL_PHS	Hrs	480		41,328		41,328	25%
2	06	07	02			XE_7305	Vendor Fab/Ship - AP Diagnostics		PRE	SL_MSEQ	$$		500,000		569,894	569,894	25%
2	06	07	02			XE_74103	Assembly - AP Diagnostics		PRE	SL_PHS	Hrs	80		6,963		6,963	25%
2	06	07	02			XE_74103	Assembly - AP Diagnostics		PRE	SL_EE	Hrs	40		5,380		5,380	25%
2	06	07	02			XE_74103	Assembly - AP Diagnostics		PRE	SL_CT	Hrs	80		5,892		5,892	25%
2	06	07	02			XE_74104	Test AP Diagnostics		PRE	SL_PHS	Hrs	80		6,963		6,963	25%
2	06	07	02			XE_74104	Test AP Diagnostics		PRE	SL_CT	Hrs	80		5,892		5,892	25%
2	**06**	**07**	**03**				**Atomic Physics Data Analysis**					**2,680**	**50,000**	**243,177**	**56,990**	**300,167**	
2	06	07	03			XE_73515	Define AP Data Handling		R&D	SL_PHS	Hrs	1,000		83,258		83,258	25%
2	06	07	03			XE_73516	Design AP Data Handling		PRE	SL_PHS	Hrs	480		40,718		40,718	25%
2	06	07	03			XE_73516	Design AP Data Handling		PRE	SL_EE	Hrs	120		15,730		15,730	25%
2	06	07	03			XE_73516	Design AP Data Handling		PRE	SL_CP	Hrs	240		25,438		25,438	25%
2	06	07	03			XE_73517	Procurements - AP Data Handling		PRE	SL_PHS	Hrs	480		41,328		41,328	25%
2	06	07	03			XE_44559	Vendor Fab/Ship - AP Data Handling		PRE	SL_MSEQ	$$		50,000		56,990	56,990	25%
2	06	07	03			XE_73518	Assembly - AP Data Handling		PRE	SL_PHS	Hrs	80		6,963		6,963	25%
2	06	07	03			XE_73518	Assembly - AP Data Handling		PRE	SL_EE	Hrs	40		5,380		5,380	25%
2	06	07	03			XE_73518	Assembly - AP Data Handling		PRE	SL_CP	Hrs	80		8,699		8,699	25%
2	06	07	03			XE_73519	Test - AP Data Handling		PRE	SL_PHS	Hrs	80		6,963		6,963	25%
2	06	07	03			XE_73519	Test - AP Data Handling		PRE	SL_CP	Hrs	80		8,699		8,699	25%
2	**06**	**07**	**04**				**Atomic Physics Detectors**					**2,440**	**100,000**	**212,125**	**113,979**	**326,104**	
2	06	07	04			XE_73520	Define AP Detectors		R&D	SL_PHS	Hrs	1,000		83,258		83,258	25%
2	06	07	04			XE_73521	Design AP Detectors		PRE	SL_PHS	Hrs	480		40,718		40,718	25%
2	06	07	04			XE_73521	Design AP Detectors		PRE	SL_EE	Hrs	120		15,730		15,730	25%
2	06	07	04			XE_73522	Procurements - AP Detectors		PRE	SL_PHS	Hrs	480		41,328		41,328	25%
2	06	07	04			XE_44564	Vendor Fab/Ship - AP Data Handling		PRE	SL_MSEQ	$$		100,000		113,979	113,979	25%
2	06	07	04			XE_73523	Assembly - AP Detectors		PRE	SL_PHS	Hrs	80		6,963		6,963	25%
2	06	07	04			XE_73523	Assembly - AP Detectors		PRE	SL_EE	Hrs	40		5,380		5,380	25%
2	06	07	04			XE_73523	Assembly - AP Detectors		PRE	SL_CT	Hrs	80		5,892		5,892	25%
2	06	07	04			XE_73524	Test - AP Detectors		PRE	SL_PHS	Hrs	80		6,963		6,963	25%
2	06	07	04			XE_73524	Test - AP Detectors		PRE	SL_CT	Hrs	80		5,892		5,892	25%