

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
9	11		<b>Project X</b>	<b>\$188,942,289</b>	<b>\$554,603,484</b>	<b>\$743,545,773</b>	<b>2369 d</b>	<b>10/1/08</b>	<b>3/13/18</b>				<b>3,167,214.4 hrs</b>	<b>Kerby</b>
119	2.1.1		<b>Project Management</b>	<b>\$19,889,856</b>	<b>\$3,597,000</b>	<b>\$23,486,856</b>	<b>2182 d</b>	<b>7/1/09</b>	<b>3/13/18</b>				<b>321,600 hrs</b>	<b>Kerby</b>
357	3.1.1.1		CD-0	\$0	\$0	\$0	0 d	7/1/09	7/1/09		4SS,239,343,352,332		0 hrs	Kerby
340	4.1.1.2		CD0-CD1	\$1,527,944	\$568,000	\$2,095,944	358 d	7/1/09	12/1/10	3SS	5	Cat 4: Sci/Engr Mgr/IT Mgr[300%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[400%],Cat 2: Mach/Draft/Lead Tech[50%],Cat 1: Clerical/Tech/Operator[50%]	22,912 hrs	Kerby
358	5.1.1.3		CD-1	\$0	\$0	\$0	0 d	12/1/10	12/1/10	4	6SS,23,28		0 hrs	Kerby
341	6.1.1.4		CD1-CD2	\$3,388,792	\$760,000	\$4,148,792	397 d	12/2/10	7/2/12	5SS	7	Cat 4: Sci/Engr Mgr/IT Mgr[600%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[800%],Cat 2: Mach/Draft/Lead Tech,Cat 1: Clerical/Tech/Operator	50,816 hrs	Kerby
359	7.1.1.5		CD-2	\$0	\$0	\$0	0 d	7/2/12	7/2/12	241,247,253,259,265,6	8SS,142,146,148,197,19		0 hrs	Kerby
339	8.1.1.6		CD2-CD3	\$2,981,120	\$415,000	\$3,396,120	272 d	7/3/12	8/1/13	7SS,91FF,169FF,211FF,235FF	9	Cat 4: Sci/Engr Mgr/IT Mgr[600%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[800%],Cat 2: Mach/Draft/Lead Tech[400%],Cat 1: Clerical/Tech/Operator[200%]	47,872 hrs	Kerby
360	9.1.1.7		CD-3	\$0	\$0	\$0	0 d	8/1/13	8/1/13	8	376FS+300 d,377FS+580 d,378FS+780 d,383FS+960 d,10SS,33,42,51,60,61,6		0 hrs	Kerby
338	10.1.1.8		CD3-CD4	\$11,992,000	\$1,854,000	\$13,846,000	1100 d	8/2/13	12/19/17	9SS	11FF	Cat 4: Sci/Engr Mgr/IT Mgr[545%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[1,000%],Cat 2: Mach/Draft/Lead Tech[364%],Cat 1: Clerical/Tech/Operator[364%]	200,000 hrs	Kerby
385	11.1.1.9		CD-4	\$0	\$0	\$0	0 d	3/13/18	3/13/18	10FF,435,17,21,26,31,39,48,57,7			0 hrs	Kerby

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84	12	1.2	LE Linac	\$22,495,803	\$80,213,390	\$102,709,193	2274 d	10/1/08	10/20/17				414,951.4 hrs	Nicol
85	13	1.2.1	Ion Source & LEBT	\$1,846,656	\$7,000,000	\$8,846,656	832 d	7/3/12	10/23/15				32,256 hrs	Nicol
417	14	1.2.1.1	Ion Source & LEBT Design	\$923,328	\$0	\$923,328	250 d	7/3/12	7/1/13	7	15	Cat 1: Clerical/Tech/Operator[202%],Cat 2: Mach/Draft/Lead Tech[202%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[202%],Cat 4: Sci/Engr Mgr/IT Mgr[202%]	16,128 hrs	Nicol
418	15	1.2.1.2	Ion Source & LEBT Material Purch & Delivery	\$0	\$5,000,000	\$5,000,000	250 d	7/2/13	6/30/14	14	16,17SS		0 hrs	Nicol
419	16	1.2.1.3	Ion Source & LEBT Assy & Install	\$923,328	\$0	\$923,328	250 d	10/27/14	10/23/15	15,380	47,38,56	Cat 1: Clerical/Tech/Operator[202%],Cat 2: Mach/Draft/Lead Tech[202%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[202%],Cat 4: Sci/Engr Mgr/IT Mgr[202%]	16,128 hrs	Nicol
484	17	1.2.1.4	Spare Ion Source Equip	\$0	\$2,000,000	\$2,000,000	1 d	7/2/13	7/2/13	15SS	11		0 hrs	Nicol
86	18	1.2.2	RF Quad	\$179,000	\$1,600,000	\$1,779,000	560 d	8/2/13	10/23/15				3,000 hrs	Nicol
420	19	1.2.2.1	RF Quad Material Material Purch & Delivery	\$0	\$800,000	\$800,000	250 d	8/2/13	7/31/14	9	20,21SS		0 hrs	Nicol
421	20	1.2.2.2	RF Quad Assy & Install	\$179,000	\$0	\$179,000	250 d	10/27/14	10/23/15	19,380	47,38,56	Cat 1: Clerical/Tech/Operator[50%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[50%],Cat 4: Sci/Engr Mgr/IT Mgr[50%]	3,000 hrs	Nicol
485	21	1.2.2.3	Spare RFQ	\$0	\$800,000	\$800,000	1 d	8/2/13	8/2/13	19SS	11		0 hrs	Nicol
87	22	1.2.3	MEBT	\$1,049,000	\$2,702,500	\$3,751,500	1104 d	12/1/10	4/28/15				17,000 hrs	Nicol

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422	23	1.2.3.1	MEBT Preliminary Design	\$776,000	\$0	\$776,000	500 d	12/1/10	11/26/12	5	24	Cat 1: Clerical/Tech/Operator[0%],Cat 2: Mach/Draft/Lead Tech,Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls,Cat 4: Sci/Engr Mgr/IT Mgr	12,000 hrs	Nicol
423	24	1.2.3.2	MEBT Material Purch & Delivery	\$0	\$1,902,500	\$1,902,500	250 d	8/2/13	7/31/14	23,9	25,26SS		0 hrs	Nicol
424	25	1.2.3.3	MEBT Assy & Install	\$273,000	\$0	\$273,000	125 d	10/24/14	4/28/15	24,380	47,38,56	Cat 1: Clerical/Tech/Operator[200%],Cat 2: Mach/Draft/Lead Tech[0%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[200%],Cat 4: Sci/Engr Mgr/IT Mgr	5,000 hrs	Nicol
486	26	1.2.3.4	Spare MEBT Parts	\$0	\$800,000	\$800,000	1 d	8/2/13	8/2/13	24SS	11		0 hrs	Nicol
88	27	1.2.4	<b>Room Temperature Section</b>	<b>\$1,315,000</b>	<b>\$3,286,000</b>	<b>\$4,601,000</b>	<b>1104 d</b>	<b>12/1/10</b>	<b>4/28/15</b>				<b>23,000 hrs</b>	<b>Nicol</b>
425	28	1.2.4.1	Room Temperature Section Preliminary Design	\$1,042,000	\$0	\$1,042,000	500 d	12/1/10	11/26/12	5	29	Cat 1: Clerical/Tech/Operator[0%],Cat 2: Mach/Draft/Lead Tech[200%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[200%],Cat 4: Sci/Engr Mgr/IT Mgr[50%]	18,000 hrs	Nicol
426	29	1.2.4.2	Room Temperature Section Material Purch & Delivery	\$0	\$2,386,000	\$2,386,000	250 d	8/2/13	7/31/14	28,9	30,31SS		0 hrs	Nicol
427	30	1.2.4.3	Room Temperature Section Assy & Install	\$273,000	\$0	\$273,000	125 d	10/24/14	4/28/15	29,380	38,47,56	Cat 1: Clerical/Tech/Operator[200%],Cat 2: Mach/Draft/Lead Tech[0%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[200%],Cat 4: Sci/Engr Mgr/IT Mgr	5,000 hrs	Nicol
487	31	1.2.4.4	Spare RT Section Parts	\$0	\$900,000	\$900,000	1 d	8/2/13	8/2/13	29SS	11		0 hrs	Nicol
89	32	1.2.5	<b>SSR1 Cryomodules</b>	<b>\$2,989,536</b>	<b>\$7,685,800</b>	<b>\$10,675,336</b>	<b>874 d</b>	<b>7/3/12</b>	<b>12/28/15</b>				<b>53,984 hrs</b>	<b>Nicol</b>
93	33	1.2.5.1	Raw Niobium	\$0	\$450,000	\$450,000	125 d	8/2/13	2/4/14	9	34		0 hrs	Nicol

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94	34	1.2.5.2	Cavity Fab	\$0	\$1,800,000	\$1,800,000	375 d	2/5/14	7/30/15	33	35SS+60 d		0 hrs	Nicol
95	35	1.2.5.3	Helium Vessel, Processing, Testing	\$1,031,040	\$1,230,000	\$2,261,040	375 d	4/30/14	10/23/15	34SS+60 d	38SS+185 d	Cat 1: Clerical/Tech/Operator[192%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[192%],Cat 4: Sci/Engr Mgr/IT Mgr[192%]	17,280 hrs	Nicol
96	36	1.2.5.4	Solenoids, Current Leads, Instrumentation	\$0	\$389,800	\$389,800	375 d	8/2/13	2/3/15	9	38		0 hrs	Nicol
97	37	1.2.5.5	Cryostat Parts, Supports	\$686,000	\$596,000	\$1,282,000	250 d	8/2/13	7/31/14	9	38	Cat 1: Clerical/Tech/Operator[400%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[200%],Cat 4: Sci/Engr Mgr/IT Mgr	14,000 hrs	Nicol
98	38	1.2.5.6	Installation	\$230,496	\$20,000	\$250,496	42 d	10/26/15	12/28/15	30,16,20,25,35SS+185 d,380,36,37,40	47,56	Cat 1: Clerical/Tech/Operator[800%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[400%],Cat 4: Sci/Engr Mgr/IT Mgr[200%]	4,704 hrs	Nicol
488	39	1.2.5.7	Spare SSR1 cryomodule	\$0	\$3,200,000	\$3,200,000	1 d	9/15/14	9/15/14	95SS	11		0 hrs	Nicol
99	40	1.2.5.8	EDIA	\$1,042,000	\$0	\$1,042,000	250 d	7/3/12	7/1/13	7	38	Cat 2: Mach/Draft/Lead Tech[400%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[400%],Cat 4: Sci/Engr Mgr/IT Mgr	18,000 hrs	Nicol
90	41	1.2.6	<b>SSR2 Cryomodules</b>	<b>\$4,183,977</b>	<b>\$12,859,900</b>	<b>\$17,043,877</b>	<b>1147 d</b>	<b>7/3/12</b>	<b>1/31/17</b>				<b>77,685.6 hrs</b>	<b>Nicol</b>
101	42	1.2.6.1	Raw Niobium	\$0	\$1,089,000	\$1,089,000	125 d	8/2/13	2/4/14	9	43		0 hrs	Nicol
102	43	1.2.6.2	Cavity Fab	\$0	\$4,125,000	\$4,125,000	690 d	2/5/14	10/28/16	42	44SS+60 d,48SS		0 hrs	Nicol
103	44	1.2.6.3	Helium Vessel, Processing, Testing	\$1,887,233	\$2,241,000	\$4,128,233	690 d	4/30/14	1/31/17	43SS+60 d	47SS+230 d	Cat 1: Clerical/Tech/Operator[191%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[191%],Cat 4: Sci/Engr Mgr/IT Mgr[191%]	31,629.6 hrs	Nicol

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104	45	1.2.6.4	Solenoids, current leads, instrumentation	\$0	\$418,800	\$418,800	375 d	8/2/13	2/3/15	9	47		0 hrs	Nicol
105	46	1.2.6.5	Cryostat Parts, Supports	\$1,029,000	\$880,500	\$1,909,500	250 d	8/2/13	7/31/14	9	47	Cat 1: Clerical/Tech/Operator[600%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[300%],Cat 4: Sci/Engr Mgr/IT Mgr[150%]	21,000 hrs	Nicol
106	47	1.2.6.6	Installation	\$345,744	\$30,000	\$375,744	42 d	12/29/15	2/29/16	16,20,25,30,44SS+230 d,38,380,45,46,49	56,435	Cat 1: Clerical/Tech/Operator[1,200%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[600%],Cat 4: Sci/Engr Mgr/IT Mgr[300%]	7,056 hrs	Nicol
489	48	1.2.6.7	Spare SSR2 Cryomodule	\$0	\$4,075,600	\$4,075,600	1 d	2/5/14	2/5/14	43SS	11		0 hrs	Nicol
107	49	1.2.6.8	EDIA	\$922,000	\$0	\$922,000	500 d	7/3/12	6/30/14	7	47	Cat 1: Clerical/Tech/Operator[200%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[200%],Cat 4: Sci/Engr Mgr/IT Mgr[50%]	18,000 hrs	Nicol
91	50	1.2.7	<b>TSR Cryomodules</b>	<b>\$6,061,895</b>	<b>\$17,993,200</b>	<b>\$24,055,095</b>	<b>1332 d</b>	<b>7/3/12</b>	<b>10/20/17</b>				<b>114,572.8 hrs</b>	<b>Nicol</b>
108	51	1.2.7.1	Raw Niobium	\$0	\$2,394,000	\$2,394,000	125 d	8/2/13	2/4/14	9	52		0 hrs	Nicol
109	52	1.2.7.2	Cavity Fab	\$0	\$6,300,000	\$6,300,000	875 d	2/5/14	7/27/17	51	53SS+60 d,57SS		0 hrs	Nicol
110	53	1.2.7.3	Helium Vessel, Processing, Testing	\$2,393,159	\$3,360,000	\$5,753,159	875 d	4/30/14	10/20/17	52SS+60 d	56SS+125 d	Cat 1: Clerical/Tech/Operator[191%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[191%],Cat 4: Sci/Engr Mgr/IT Mgr[191%]	40,108.8 hrs	Nicol
111	54	1.2.7.4	Quadrupoles, current leads, instrumentation	\$0	\$977,200	\$977,200	375 d	8/2/13	2/3/15	9	56		0 hrs	Nicol
112	55	1.2.7.5	Cryostat Parts, Supports	\$2,401,000	\$1,897,000	\$4,298,000	250 d	8/2/13	7/31/14	9	56	Cat 1: Clerical/Tech/Operator[1,400%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[700%],Cat 4: Sci/Engr Mgr/IT Mgr[350%]	49,000 hrs	Nicol

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113	56	1.2.7.6	Installation	\$806,736	\$70,000	\$876,736	42 d	3/1/16	4/27/16	16,20,25,30,47,38,53SS+125 d,380,54,55,58	435	Cat 1: Clerical/Tech/Operator[2,800%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[1,400%],Cat 4: Sci/Engr Mgr/IT Mgr[700%]	16,464 hrs	Nicol
494	57	1.2.7.7	Spare TSR	\$0	\$2,995,000	\$2,995,000	1 d	2/5/14	2/5/14	52SS	11		0 hrs	Nicol
114	58	1.2.7.8	EDIA	\$461,000	\$0	\$461,000	250 d	7/3/12	7/1/13	7SS	56	Cat 1: Clerical/Tech/Operator[200%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[200%],Cat 4: Sci/Engr Mgr/IT Mgr[50%]	9,000 hrs	Nicol
189	59	1.2.8	<b>325 MHz RF and Distribution</b>	<b>\$1,712,000</b>	<b>\$24,561,990</b>	<b>\$26,273,990</b>	<b>832 d</b>	<b>7/3/12</b>	<b>10/23/15</b>				<b>40,000 hrs</b>	<b>Pasquinelli</b>
190	60	1.2.8.1	Klystrons 1-8	\$0	\$4,464,000	\$4,464,000	250 d	8/2/13	7/31/14	9	76,79,73SS		0 hrs	Pasquinelli
191	61	1.2.8.2	Modulator K1-8	\$0	\$2,480,000	\$2,480,000	250 d	8/2/13	7/31/14	9	76,79		0 hrs	Pasquinelli
192	62	1.2.8.3	Circulators K1-8	\$0	\$480,000	\$480,000	125 d	8/2/13	2/4/14	9	76,79		0 hrs	Pasquinelli
193	63	1.2.8.4	Waveguides K1-8	\$0	\$865,580	\$865,580	125 d	8/2/13	2/4/14	9	76,79		0 hrs	Pasquinelli
194	64	1.2.8.5	K1 Transmission	\$0	\$1,175,600	\$1,175,600	125 d	8/2/13	2/4/14	9	76,79		0 hrs	Pasquinelli
195	65	1.2.8.6	K2 Transmission	\$0	\$3,198,400	\$3,198,400	125 d	8/2/13	2/4/14	9	76,79		0 hrs	Pasquinelli
203	66	1.2.8.7	K3 Transmission	\$0	\$2,715,200	\$2,715,200	125 d	8/2/13	2/4/14	9	76,79		0 hrs	Pasquinelli

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204	67	1.2.8.8	K4 Transmission	\$0	\$1,186,400	\$1,186,400	125 d	8/2/13	2/4/14	9		76,79	0 hrs	Pasquinelli
209	68	1.2.8.9	K5 Transmission	\$0	\$1,032,200	\$1,032,200	125 d	8/2/13	2/4/14	9		76,79	0 hrs	Pasquinelli
210	69	1.2.8.10	K6 Transmission	\$0	\$1,032,200	\$1,032,200	125 d	8/2/13	2/4/14	9		76,79	0 hrs	Pasquinelli
211	70	1.2.8.11	K7 Transmission	\$0	\$1,032,200	\$1,032,200	125 d	8/2/13	2/4/14	9		76,79	0 hrs	Pasquinelli
212	71	1.2.8.12	K8 Transmission	\$0	\$949,800	\$949,800	125 d	8/2/13	2/4/14	9		76,79	0 hrs	Pasquinelli
361	72	1.2.8.13	Fanback Vector Sum & Reflected Power	\$0	\$21,610	\$21,610	60 d	8/2/13	10/25/13	9		76,79	0 hrs	Pasquinelli
495	73	1.2.8.14	Spare Klystron / Modulator	\$0	\$3,928,800	\$3,928,800	1 d	8/2/13	8/2/13	60SS		11	0 hrs	Pasquinelli
196	<b>74</b>	<b>1.2.8.15</b>	<b>Klystron Modulator</b>	<b>\$927,000</b>	<b>\$0</b>	<b>\$927,000</b>	<b>772 d</b>	<b>7/3/12</b>	<b>7/30/15</b>				<b>21,000 hrs</b>	<b>Pasquinelli</b>
409	75	1.2.8.15.1	Klystron Modulator Design	\$236,000	\$0	\$236,000	250 d	7/3/12	7/1/13	7		76	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[200%] 4,000 hrs	Pasquinelli
410	76	1.2.8.15.2	Klystron Modulator Fab & Assy	\$691,000	\$0	\$691,000	250 d	8/1/14	7/30/15	60,61,62,63,64,65,66,67,68,69,70	80FF+40 d	Cat 1: Clerical/Tech/Operator[650%].Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[200%]	17,000 hrs	Pasquinelli
213	<b>77</b>	<b>1.2.8.16</b>	<b>Distribution System Labor</b>	<b>\$785,000</b>	<b>\$0</b>	<b>\$785,000</b>	<b>772 d</b>	<b>7/3/12</b>	<b>7/30/15</b>				<b>19,000 hrs</b>	<b>Pasquinelli</b>

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411	78	1.2.8.16.1	Distribution System Design	\$147,500	\$0	\$147,500	250 d	7/3/12	7/1/13	7	79	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[125%]	2,500 hrs	Pasquinelli
412	79	1.2.8.16.2	Distribution System Fab & Assy	\$637,500	\$0	\$637,500	250 d	8/1/14	7/30/15	60,61,62,63,64,65,66,67,68,69,70	435,80FF+40 d	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[125%],Cat 1: Clerical/Tech/Operator[700%]	16,500 hrs	Pasquinelli
413	80	1.2.8.17	Installation	\$0	\$0	\$0	250 d	10/27/14	10/23/15	380,76FF+40 d,79FF+40 d	11		0 hrs	Pasquinelli
322	81	1.2.9	<b>325MHz LLRF</b>	<b>\$820,900</b>	<b>\$999,000</b>	<b>\$1,819,900</b>	<b>1000 d</b>	<b>7/3/12</b>	<b>6/27/16</b>				<b>15,500 hrs</b>	<b>Chase</b>
398	82	1.2.9.1	325 MHz LLRF Final Design	\$354,500	\$0	\$354,500	250 d	7/3/12	7/1/13	7	83,84	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[250%],Cat 1: Clerical/Tech/Operator[85%]	6,700 hrs	Chase
323	83	1.2.9.2	325 MHz Warm Cavities	\$0	\$117,000	\$117,000	125 d	7/2/13	1/2/14	82	85		0 hrs	Chase
324	84	1.2.9.3	325 MHz Cold Cavities	\$0	\$882,000	\$882,000	125 d	7/2/13	1/2/14	82	85		0 hrs	Chase
399	85	1.2.9.4	325 MHz LLRF Fab/Assy/Test	\$148,400	\$0	\$148,400	250 d	1/3/14	12/30/14	83,84	86	Cat 1: Clerical/Tech/Operator[35%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[105%]	2,800 hrs	Chase
400	86	1.2.9.5	325 MHz LLRF Installation & Checkout	\$318,000	\$0	\$318,000	375 d	1/2/15	6/27/16	380,85	11	Cat 1: Clerical/Tech/Operator[50%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[150%]	6,000 hrs	Chase
500	87	1.2.10	<b>LE Linac RD&amp;D Plan</b>	<b>\$2,337,839</b>	<b>\$1,525,000</b>	<b>\$3,862,839</b>	<b>1004 d</b>	<b>10/1/08</b>	<b>9/28/12</b>				<b>37,953 hrs</b>	<b>Nicol</b>
441	88	1.2.10.1	FY09 RD&D Plan	\$35,518	\$0	\$35,518	251 d	10/1/08	9/30/09		89	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[30%]	602 hrs	Nicol



**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
438	89	1.2.10.2	FY10 RD&D Plan	\$568,869	\$455,000	\$1,023,869	252 d	10/1/09	9/30/10	88	90	Cat 4: Sci/Engr Mgr/IT Mgr[200%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls,Cat 2: Mach/Draft/Lead Tech[50%],Cat 1: Clerical/Tech/Operator[81%]	8,679 hrs	Nicol
439	90	1.2.10.3	FY11 RD&D Plan	\$1,077,052	\$700,000	\$1,777,052	251 d	10/1/10	9/30/11	89	91	Cat 4: Sci/Engr Mgr/IT Mgr[290%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[160%],Cat 2: Mach/Draft/Lead Tech[230%],Cat 1: Clerical/Tech/Operator[230%]	18,272 hrs	Nicol
440	91	1.2.10.4	FY12 RD&D Plan	\$656,400	\$370,000	\$1,026,400	250 d	10/3/11	9/28/12	90	8FF	Cat 4: Sci/Engr Mgr/IT Mgr[230%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[80%],Cat 2: Mach/Draft/Lead Tech[80%],Cat 1: Clerical/Tech/Operator[130%]	10,400 hrs	Nicol
115	92	1.3	HE Linac	\$27,096,446	\$195,471,724	\$222,568,170	2344 d	10/1/08	2/6/18				578,026 hrs	
198	93	1.3.1	Beta = 0.81 Cryomodules	\$2,430,140	\$20,264,260	\$22,694,400	927 d	7/3/12	3/15/16				57,300 hrs	
285	94	1.3.1.1	Cavity Fabrication	\$0	\$8,450,000	\$8,450,000	280 d	8/2/13	9/12/14	9	95		0 hrs	
286	95	1.3.1.2	VTS Testing	\$355,080	\$139,260	\$494,340	165 d	9/15/14	5/12/15	94	96FF+5 d,39SS	Cat 1: Clerical/Tech/Operator[600%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls	9,240 hrs	
287	96	1.3.1.3	Cavity Dressing	\$136,500	\$0	\$136,500	165 d	9/22/14	5/19/15	95FF+5 d	97SS+5 d	Cat 1: Clerical/Tech/Operator[295%]	3,900 hrs	
288	97	1.3.1.4	Horizontal Testing	\$608,400	\$320,000	\$928,400	325 d	9/29/14	1/19/16	96SS+5 d	98FF+20 d	Cat 1: Clerical/Tech/Operator[500%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls	15,600 hrs	
293	98	1.3.1.5	String Assembly	\$42,000	\$0	\$42,000	200 d	4/29/15	2/16/16	97FF+20 d	99SS+5 d	Cat 1: Clerical/Tech/Operator[75%]	1,200 hrs	
294	99	1.3.1.6	Cryomodule Assembly	\$309,600	\$0	\$309,600	200 d	5/6/15	2/23/16	98SS+5 d	100SS+15 d,110SS	Cat 1: Clerical/Tech/Operator[300%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[150%]	7,200 hrs	

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
295	100	1.3.1.7	Cryomodule Test	\$374,400	\$200,000	\$574,400	200 d	5/28/15	3/15/16	99SS+15 d	111SS+20 d	Cat 1: Clerical/Tech/Operator[500%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls	9,600 hrs	
297	101	1.3.1.8	Power Couplers	\$0	\$1,560,000	\$1,560,000	1 d	8/2/13	8/2/13	9			0 hrs	
298	102	1.3.1.9	Blade Tuner	\$0	\$1,950,000	\$1,950,000	1 d	8/2/13	8/2/13	9			0 hrs	
299	103	1.3.1.10	Pipes / Connections / He Vessel	\$0	\$3,575,000	\$3,575,000	1 d	8/2/13	8/2/13	9			0 hrs	
300	104	1.3.1.11	HOM Couplers / Instrumentation	\$0	\$600,000	\$600,000	1 d	8/2/13	8/2/13	9			0 hrs	
301	105	1.3.1.12	String Bellows / Pipes	\$0	\$560,000	\$560,000	1 d	8/2/13	8/2/13	9			0 hrs	
312	106	1.3.1.13	Magnets	\$0	\$560,000	\$560,000	1 d	8/2/13	8/2/13	9			0 hrs	
302	107	1.3.1.14	HGRP Weldment / Cryomodule Pipes / Shields	\$0	\$1,350,000	\$1,350,000	1 d	8/2/13	8/2/13	9			0 hrs	
304	108	1.3.1.15	Vacuum Vessel	\$0	\$1,000,000	\$1,000,000	1 d	8/2/13	8/2/13	9			0 hrs	
305	109	1.3.1.16	Design in (RD&D Plan)	\$0	\$0	\$0	1 d	7/3/12	7/3/12	7			0 hrs	
306	110	1.3.1.17	Assembly Oversight	\$310,400	\$0	\$310,400	200 d	5/6/15	2/23/16	99SS		Cat 4: Sci/Engr Mgr/IT Mgr,Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls,Cat 2: Mach/Draft/Lead Tech	4,800 hrs	

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
303	111	1.3.1.18	Installation	\$293,760	\$0	\$293,760	80 d	9/28/15	1/26/16	9,381,100SS+20 d	435,134	Cat 2: Mach/Draft/Lead Tech[800%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls	5,760 hrs	
199	112	1.3.2	<b>Beta = 1.0 Cryomodules</b>	<b>\$10,334,280</b>	<b>\$98,737,400</b>	<b>\$109,071,680</b>	<b>1402 d</b>	<b>7/3/12</b>	<b>2/6/18</b>				<b>238,840 hrs</b>	
269	113	1.3.2.1	Cavity Fabrication 1	\$0	\$44,200,000	\$44,200,000	280 d	8/2/13	9/12/14	9	117FF,114		0 hrs	
267	114	1.3.2.2	VTS Testing 1 (VTS2,3)	\$914,600	\$358,700	\$1,273,300	425 d	9/15/14	5/24/16	113	115SS+5 d,118SS	Cat 1: Clerical/Tech/Operator[600%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls	23,800 hrs	
271	115	1.3.2.3	Cavity Dressing 1	\$657,900	\$0	\$657,900	425 d	9/22/14	6/1/16	114SS+5 d	116SS+5 d,133SS	Cat 1: Clerical/Tech/Operator[300%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[150%]	15,300 hrs	
272	116	1.3.2.4	Horizontal Testing 1 (HTS2,3...)	\$861,120	\$440,000	\$1,301,120	460 d	9/29/14	7/28/16	115SS+5 d	121SS+20 d	Cat 1: Clerical/Tech/Operator[500%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls	22,080 hrs	
270	117	1.3.2.5	Cavity Fabrication 2 (Placeholder)	\$0	\$0	\$0	1 d	9/12/14	9/12/14	113FF			0 hrs	
268	118	1.3.2.6	VTS Testing 2 (VTS 2,3)	\$914,600	\$358,700	\$1,273,300	425 d	9/15/14	5/24/16	114SS	119SS+5 d	Cat 1: Clerical/Tech/Operator[600%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls	23,800 hrs	
264	119	1.3.2.7	Cavity Dressing 2	\$657,900	\$0	\$657,900	425 d	9/22/14	6/1/16	118SS+5 d	120SS+5 d	Cat 1: Clerical/Tech/Operator[300%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[150%]	15,300 hrs	
261	120	1.3.2.8	Horizontal Testing 2 (HTS2,3...)	\$861,120	\$440,000	\$1,301,120	460 d	9/29/14	7/28/16	119SS+5 d	121FF+20 d	Cat 1: Clerical/Tech/Operator[500%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls	22,080 hrs	
273	121	1.3.2.9	String Assembly	\$168,000	\$0	\$168,000	800 d	10/27/14	1/8/18	116SS+20 d,120FF+20 d	122SS+5 d	Cat 1: Clerical/Tech/Operator[75%]	4,800 hrs	

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
274	122	1.3.2.10	Cryomodule Assembly	\$1,427,200	\$0	\$1,427,200	800 d	11/3/14	1/16/18	121SS+5 d	123SS+15 d	Cat 1: Clerical/Tech/Operator[300%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[200%]	32,000 hrs	
275	123	1.3.2.11	Cryomodule Test	\$1,497,600	\$0	\$1,497,600	800 d	11/24/14	2/6/18	122SS+15 d	134SS+20 d	Cat 1: Clerical/Tech/Operator[500%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls	38,400 hrs	
276	124	1.3.2.12	Power Couplers	\$0	\$8,160,000	\$8,160,000	1 d	8/2/13	8/2/13	9			0 hrs	
277	125	1.3.2.13	Blade Tuner	\$0	\$10,200,000	\$10,200,000	1 d	8/2/13	8/2/13	9			0 hrs	
278	126	1.3.2.14	Pipes / Connections / He Vessel	\$0	\$18,700,000	\$18,700,000	1 d	8/2/13	8/2/13	9			0 hrs	
279	127	1.3.2.15	HOM Couplers / Instrumentation	\$0	\$2,400,000	\$2,400,000	1 d	8/2/13	8/2/13	9			0 hrs	
280	128	1.3.2.16	String Bellows / Pipes	\$0	\$2,240,000	\$2,240,000	1 d	8/2/13	8/2/13	9			0 hrs	
311	129	1.3.2.17	Magnets	\$0	\$1,840,000	\$1,840,000	1 d	8/2/13	8/2/13	9			0 hrs	
281	130	1.3.2.18	HGRP Weldment / Cryomodule Pipes / Shields	\$0	\$5,400,000	\$5,400,000	1 d	8/2/13	8/2/13	9			0 hrs	
282	131	1.3.2.19	Vacuum Vessel	\$0	\$4,000,000	\$4,000,000	1 d	8/2/13	8/2/13	9			0 hrs	
308	132	1.3.2.20	Design (ILC)	\$0	\$0	\$0	1 d	7/3/12	7/3/12	7			0 hrs	

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
309	133	1.3.2.21	Assembly Oversight	\$1,272,640	\$0	\$1,272,640	820 d	9/22/14	12/28/17	115SS		Cat 4: Sci/Engr Mgr/IT Mgr,Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls,Cat 2: Mach/Draft/Lead Tech	19,680 hrs	
310	134	1.3.2.22	Installation	\$1,101,600	\$0	\$1,101,600	475 d	1/27/16	12/12/17	111,123SS+20 d,381	435	Cat 2: Mach/Draft/Lead Tech[505%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[63%]	21,600 hrs	
200	135	1.3.3	Debuncher Beta = 1.0 (copper) Cavity	\$585,360	\$1,174,070	\$1,759,430	250 d	8/2/13	7/31/14	9		Cat 1: Clerical/Tech/Operator[186%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[282%],Cat 4: Sci/Engr Mgr/IT Mgr[72%]	10,800 hrs	
201	136	1.3.4	<b>1.3 GHz RF and Distribution</b>	<b>\$8,074,580</b>	<b>\$66,907,204</b>	<b>\$74,981,784</b>	<b>1272 d</b>	<b>7/3/12</b>	<b>7/27/17</b>				<b>172,940 hrs</b>	<b>Reid</b>
214	137	1.3.4.1	Klystrons	\$0	\$16,387,500	\$16,387,500	250 d	8/2/13	7/31/14	9	143SS+90 d,151SS		0 hrs	Reid
202	138	1.3.4.2	HV Modulator	\$2,306,800	\$14,110,500	\$16,417,300	1000 d	8/2/13	7/27/17	9		Cat 1: Clerical/Tech/Operator[335%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[290%]	50,000 hrs	Reid
415	139	1.3.4.3	Solid State Driver Amp	\$17,500	\$920,000	\$937,500	500 d	8/2/13	7/30/15	9		Cat 1: Clerical/Tech/Operator[13%]	500 hrs	Reid
215	140	1.3.4.4	Controls / Monitoring / Cabling / Misc	\$865,600	\$2,787,600	\$3,653,200	1000 d	8/2/13	7/27/17	9		Cat 1: Clerical/Tech/Operator[168%],Cat 2: Mach/Draft/Lead Tech[6%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[70%],Cat 4: Sci/Engr Mgr/IT Mgr[6%]	20,000 hrs	Reid
216	141	1.3.4.5	High Power Station Waveguide	\$0	\$1,357,460	\$1,357,460	1000 d	8/2/13	7/27/17	9			0 hrs	Reid
217	142	1.3.4.6	High Power Station Layouts	\$537,000	\$0	\$537,000	250 d	7/3/12	7/1/13	7	143	Cat 1: Clerical/Tech/Operator[200%],Cat 2: Mach/Draft/Lead Tech[50%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[150%],Cat 4: Sci/Engr Mgr/IT Mgr	10,000 hrs	Reid
219	143	1.3.4.7	High Power Station Testing	\$745,000	\$0	\$745,000	250 d	12/11/13	12/9/14	137SS+90 d,142	144SS+60 d	Cat 1: Clerical/Tech/Operator[400%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[250%],Cat 4: Sci/Engr Mgr/IT Mgr	15,000 hrs	Reid

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
218	144	1.3.4.8	High Power Station Installation	\$1,630,000	\$0	\$1,630,000	250 d	9/28/15	9/23/16	143SS+60 d,381	435	Cat 1: Clerical/Tech/Operator[1,000%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[500%],Cat 4: Sci/Engr Mgr/IT Mgr[200%]	34,000 hrs	Reid
416	145	1.3.4.9	Waveguide Distribution M&S	\$0	\$14,465,344	\$14,465,344	250 d	8/2/13	7/31/14	9	147		0 hrs	Reid
363	146	1.3.4.10	Waveguide Layout Design	\$173,500	\$0	\$173,500	250 d	7/3/12	7/1/13	7	147	Cat 1: Clerical/Tech/Operator[50%],Cat 2: Mach/Draft/Lead Tech[50%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[75%]	3,500 hrs	Reid
221	147	1.3.4.11	Waveguide Distribution Assembly	\$1,525,000	\$0	\$1,525,000	500 d	8/1/14	7/28/16	145,146	148SS+40 d	Cat 1: Clerical/Tech/Operator[600%],Cat 2: Mach/Draft/Lead Tech[25%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[125%],Cat 4: Sci/Engr Mgr/IT Mgr	34,000 hrs	Reid
222	148	1.3.4.12	Waveguide Distribution Tests	\$206,500	\$0	\$206,500	500 d	9/29/14	9/23/16	7,147SS+40 d		Cat 1: Clerical/Tech/Operator[75%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[25%],Cat 4: Sci/Engr Mgr/IT Mgr[13%]	4,500 hrs	Reid
223	149	1.3.4.13	HP Vector Modulators and PS	\$67,680	\$7,756,800	\$7,824,480	750 d	8/2/13	7/28/16	9		Cat 1: Clerical/Tech/Operator[12%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[12%]	1,440 hrs	Reid
362	150	1.3.4.14	1.3 GHz Test Equip/Diagnostic Tools	\$0	\$2,122,000	\$2,122,000	1 d	8/2/13	8/2/13	9			0 hrs	Reid
499	151	1.3.4.15	Spare 1.3 GHz RF	\$0	\$7,000,000	\$7,000,000	1 d	8/2/13	8/2/13	137SS			0 hrs	Reid
197	152	1.3.5	<b>1.3GHz LLRF and Global LLRF Systems</b>	<b>\$1,753,700</b>	<b>\$3,013,790</b>	<b>\$4,767,490</b>	<b>1000 d</b>	<b>4/3/13</b>	<b>3/28/17</b>				<b>33,100 hrs</b>	<b>Chase</b>
317	153	1.3.5.1	Beta = 0.81 LLRF Stations	\$0	\$360,000	\$360,000	125 d	4/2/14	9/26/14	163SS-125 d	162SS-250 d		0 hrs	Chase
318	154	1.3.5.2	Beta = 1 LLRF Stations	\$0	\$1,710,000	\$1,710,000	125 d	4/2/14	9/26/14	163SS-125 d			0 hrs	Chase

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
319	155	1.3.5.3	Cable Plant	\$0	\$305,510	\$305,510	125 d	4/2/14	9/26/14	163SS-125 d			0 hrs	Chase
320	156	1.3.5.4	Master Oscillator	\$0	\$75,000	\$75,000	125 d	4/2/14	9/26/14	163SS-125 d			0 hrs	Chase
315	157	1.3.5.5	Local Oscillator and Distribution	\$0	\$63,200	\$63,200	125 d	4/2/14	9/26/14	163SS-125 d			0 hrs	Chase
316	158	1.3.5.6	Synchronization to MI	\$0	\$80,000	\$80,000	125 d	4/2/14	9/26/14	163SS-125 d			0 hrs	Chase
314	159	1.3.5.7	Phase Reference Line	\$0	\$215,080	\$215,080	125 d	4/2/14	9/26/14	163SS-125 d			0 hrs	Chase
321	160	1.3.5.8	Global Energy Controller	\$0	\$50,000	\$50,000	125 d	4/2/14	9/26/14	163SS-125 d			0 hrs	Chase
313	161	1.3.5.9	Machine Protection	\$0	\$155,000	\$155,000	125 d	4/2/14	9/26/14	163SS-125 d			0 hrs	Chase
401	162	1.3.5.10	1.3 GHz LLRF Final Design	\$354,500	\$0	\$354,500	250 d	4/3/13	4/1/14	153SS-250 d		Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[250%],Cat 1: Clerical/Tech/Operator[85%]	6,700 hrs	Chase
402	163	1.3.5.11	1.3 GHz LLRF Fab/Assy/Test	\$445,200	\$0	\$445,200	250 d	9/29/14	9/25/15	164SS-250 d	153SS-125 d,154SS-125 d,155SS-125 d,156SS-125 d,157SS-125 d,158SS-125	Cat 1: Clerical/Tech/Operator[105%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[315%]	8,400 hrs	Chase
403	164	1.3.5.12	1.3 GHz LLRF Installation & Checkout	\$954,000	\$0	\$954,000	375 d	9/28/15	3/28/17	381	163SS-250 d,435	Cat 1: Clerical/Tech/Operator[150%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[450%]	18,000 hrs	Chase
501	165	1.3.6	HE Linac RD&D Plan	\$3,918,386	\$5,375,000	\$9,293,386	1004 d	10/1/08	9/28/12				65,046 hrs	

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
451	166	1.3.6.1	FY09 RD&D Plan	\$499,346	\$125,000	\$624,346	251 d	10/1/08	9/30/09		167	Cat 2: Mach/Draft/Lead Tech[30%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[180%],Cat 4: Sci/Engr Mgr/IT Mgr[150%]	7,228 hrs	
454	167	1.3.6.2	FY10 RD&D Plan	\$1,067,904	\$650,000	\$1,717,904	252 d	10/1/09	9/30/10	166	168	Cat 1: Clerical/Tech/Operator,Cat 2: Mach/Draft/Lead Tech[150%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[380%],Cat 4: Sci/Engr Mgr/IT Mgr[230%]	17,338 hrs	
453	168	1.3.6.3	FY11 RD&D Plan	\$1,188,736	\$3,250,000	\$4,438,736	251 d	10/1/10	9/30/11	167	169	Cat 1: Clerical/Tech/Operator[150%],Cat 2: Mach/Draft/Lead Tech[300%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[300%],Cat 4: Sci/Engr Mgr/IT Mgr[250%]	20,080 hrs	
452	169	1.3.6.4	FY12 RD&D Plan	\$1,162,400	\$1,350,000	\$2,512,400	250 d	10/3/11	9/28/12	168	8FF	Cat 1: Clerical/Tech/Operator[230%],Cat 2: Mach/Draft/Lead Tech[280%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[280%],Cat 4: Sci/Engr Mgr/IT Mgr[230%]	20,400 hrs	
32	170	1.4	MI/RR	\$12,071,807	\$49,608,550	\$61,680,357	1968 d	10/1/08	8/3/16				209,281 hrs	Kourbanis
25	171	1.4.1	High Level RF Systems MI	\$0	\$31,866,750	\$31,866,750	125 d	8/2/13	2/4/14				0 hrs	Kourbanis
26	172	1.4.1.1	Fundamental RF System	\$0	\$24,384,750	\$24,384,750	125 d	8/2/13	2/4/14	9	177		0 hrs	Kourbanis
27	173	1.4.1.2	Second Harmonic RF System	\$0	\$7,482,000	\$7,482,000	125 d	8/2/13	2/4/14	9	177		0 hrs	Kourbanis
28	174	1.4.2	High Level RF System RR	\$0	\$7,521,000	\$7,521,000	125 d	8/2/13	2/4/14				0 hrs	Kourbanis
29	175	1.4.2.1	Fundamental RF System	\$0	\$5,014,000	\$5,014,000	125 d	8/2/13	2/4/14	9	177		0 hrs	Kourbanis
30	176	1.4.2.2	Second Harmonic RF System	\$0	\$2,507,000	\$2,507,000	125 d	8/2/13	2/4/14	9	177		0 hrs	Kourbanis



**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
31	177	1.4.3	Installation Costs	\$0	\$3,500,000	\$3,500,000	250 d	10/13/14	10/9/15	172,173,175,176,379	178SS		0 hrs	Kourbanis
407	178	1.4.4	MI Beam Pipe Coating	\$707,296	\$200,000	\$907,296	124 d	10/1/15	3/31/16	177SS	11	Cat 1: Clerical/Tech/Operator[1,700%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[200%]	18,848 hrs	Kourbanis
41	179	1.4.5	MI/RR RF Labor	\$2,781,695	\$0	\$2,781,695	754 d	8/2/13	8/3/16				50,449 hrs	Kourbanis
186	180	1.4.5.1	MI/RR RF Labor - Year 1	\$865,161	\$0	\$865,161	253 d	8/2/13	8/5/14	9	181	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[494%],Cat 4: Sci/Engr Mgr/IT Mgr[10%],Cat 2: Mach/Draft/Lead Tech[255%]	15,362 hrs	Kourbanis
185	181	1.4.5.2	MI/RR RF Labor - Year 2	\$910,414	\$0	\$910,414	251 d	8/6/14	8/5/15	180	182	Cat 2: Mach/Draft/Lead Tech[486%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[322%],Cat 4: Sci/Engr Mgr/IT Mgr[24%]	16,707 hrs	Kourbanis
184	182	1.4.5.3	MI/RR RF Labor - Year 3	\$1,006,120	\$0	\$1,006,120	250 d	8/6/15	8/3/16	181	11	Cat 2: Mach/Draft/Lead Tech[461%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[449%],Cat 4: Sci/Engr Mgr/IT Mgr[9%]	18,380 hrs	Kourbanis
42	183	1.4.6	Gamma-t Jump	\$122,860	\$439,100	\$561,960	253 d	8/2/13	8/5/14				2,342 hrs	Kourbanis
43	184	1.4.6.1	Magnets	\$103,240	\$54,100	\$157,340	253 d	8/2/13	8/5/14	9		Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[23%],Cat 2: Mach/Draft/Lead Tech[75%]	1,982 hrs	Kourbanis
44	185	1.4.6.2	Power Supplies	\$19,620	\$315,000	\$334,620	253 d	8/2/13	8/5/14	9		Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[9%],Cat 2: Mach/Draft/Lead Tech[9%]	360 hrs	Kourbanis
45	186	1.4.6.3	Beam Pipe	\$0	\$70,000	\$70,000	253 d	8/2/13	8/5/14	9			0 hrs	Kourbanis
332	187	1.4.7	Recycler Modifications	\$732,373	\$1,415,700	\$2,148,073	667 d	8/2/13	3/31/16				17,141 hrs	Derwent

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
336	188	1.4.7.1	<b>Magnets and Power Supplies</b>	<b>\$107,469</b>	<b>\$280,000</b>	<b>\$387,469</b>	<b>667 d</b>	<b>8/2/13</b>	<b>3/31/16</b>				<b>2,412 hrs</b>	<b>Derwent</b>
342	189	1.4.7.1.1	Magnets and Power Supplies - Stands, Magnet Fab, PS Fab	\$102,519	\$130,000	\$232,519	123 d	8/2/13	1/31/14	9		Cat 1: Clerical/Tech/Operator[125%],Cat 2: Mach/Draft/Lead Tech[50%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[60%]	2,313 hrs	Derwent
343	190	1.4.7.1.2	Magnets and Power Supplies - Cabling	\$4,950	\$150,000	\$154,950	124 d	10/1/15	3/31/16	9		Cat 2: Mach/Draft/Lead Tech[10%]	99 hrs	Derwent
334	191	1.4.7.2	<b>Installation</b>	<b>\$104,269</b>	<b>\$67,200</b>	<b>\$171,469</b>	<b>503 d</b>	<b>4/1/14</b>	<b>3/31/16</b>				<b>2,264 hrs</b>	<b>Derwent</b>
344	192	1.4.7.2.1	Installation - Planning	\$55,808	\$0	\$55,808	128 d	4/1/14	9/30/14	9	193	Cat 2: Mach/Draft/Lead Tech[50%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[50%]	1,024 hrs	Derwent
345	193	1.4.7.2.2	Installation - Magnets, Instrum, Vacuum, Cables	\$48,461	\$67,200	\$115,661	124 d	10/1/15	3/31/16	9,192	435	Cat 1: Clerical/Tech/Operator,Cat 2: Mach/Draft/Lead Tech[10%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[15%]	1,240 hrs	Derwent
337	194	1.4.7.3	<b>Instrumentation</b>	<b>\$19,784</b>	<b>\$247,500</b>	<b>\$267,284</b>	<b>503 d</b>	<b>4/1/14</b>	<b>3/31/16</b>				<b>496 hrs</b>	<b>Derwent</b>
346	195	1.4.7.3.1	Instrumentation - Hardware	\$3,009	\$247,500	\$250,509	128 d	4/1/14	9/30/14	9	348	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[5%]	51 hrs	Derwent
348	196	1.4.7.3.2	Instrumentation - Test	\$6,895	\$0	\$6,895	123 d	10/1/14	3/31/15	7	347	Cat 1: Clerical/Tech/Operator[20%]	197 hrs	Derwent
347	197	1.4.7.3.3	Instrumentation - Installation	\$9,880	\$0	\$9,880	124 d	10/1/15	3/31/16	7	435	Cat 1: Clerical/Tech/Operator[20%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[5%]	248 hrs	Derwent
333	198	1.4.7.4	Recycler Beam Pipe Coating	\$450,368	\$800,000	\$1,250,368	124 d	10/1/15	3/31/16	9		Cat 1: Clerical/Tech/Operator[700%],Cat 2: Mach/Draft/Lead Tech[300%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls	10,912 hrs	Derwent

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
349	199	1.4.7.5	<b>Fast Extraction Kicker</b>	\$50,483	\$21,000	\$71,483	503 d	4/1/14	3/31/16				1,057 hrs	Derwent
350	200	1.4.7.5.1	<b>Kicker Magnets</b>	\$28,449	\$16,000	\$44,449	503 d	4/1/14	3/31/16				603 hrs	Derwent
351	201	1.4.7.5.1.1	Installation Planning	\$15,104	\$0	\$15,104	128 d	4/1/14	9/30/14	7	352	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[25%]	256 hrs	Derwent
352	202	1.4.7.5.1.2	Installation	\$9,880	\$10,000	\$19,880	124 d	10/1/15	3/31/16	9	435	Cat 1: Clerical/Tech/Operator[20%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[5%]	248 hrs	Derwent
353	203	1.4.7.5.1.3	Vacuum	\$3,465	\$6,000	\$9,465	124 d	10/1/15	3/31/16	9		Cat 1: Clerical/Tech/Operator[10%]	99 hrs	Derwent
354	204	1.4.7.5.2	<b>Power Supplies &amp; Controls</b>	\$22,034	\$5,000	\$27,034	503 d	4/1/14	3/31/16				454 hrs	Derwent
355	205	1.4.7.5.2.1	Power Supplies & Controls Planning	\$15,104	\$0	\$15,104	128 d	4/1/14	9/30/14	7		Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[25%]	256 hrs	Derwent
356	206	1.4.7.5.2.2	Installation	\$6,930	\$5,000	\$11,930	124 d	10/1/15	3/31/16	9	435	Cat 1: Clerical/Tech/Operator[20%]	198 hrs	Derwent
502	207	1.4.8	<b>MI/RR RD&amp;D Plan</b>	\$7,727,583	\$4,666,000	\$12,393,583	1004 d	10/1/08	9/28/12				120,501 hrs	Kourbanis
455	208	1.4.8.1	FY09 RD&D Plan	\$1,476,503	\$446,000	\$1,922,503	251 d	10/1/08	9/30/09		209	Cat 1: Clerical/Tech/Operator[50%],Cat 2: Mach/Draft/Lead Tech[80%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[270%],Cat 4: Sci/Engr Mgr/IT Mgr[610%]	20,281 hrs	Kourbanis
456	209	1.4.8.2	FY10 RD&D Plan	\$2,142,700	\$2,200,000	\$4,342,700	252 d	10/1/09	9/30/10	208	210	Cat 1: Clerical/Tech/Operator[260%],Cat 2: Mach/Draft/Lead Tech[300%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[370%],Cat 4: Sci/Engr Mgr/IT Mgr[710%]	33,064 hrs	Kourbanis

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
457	210	1.4.8.3	FY11 RD&D Plan	\$2,257,580	\$1,420,000	\$3,677,580	251 d	10/1/10	9/30/11	209	211	Cat 1: Clerical/Tech/Operator[830%],Cat 2: Mach/Draft/Lead Tech,Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[320%],Cat 4: Sci/Engr Mgr/IT Mgr[700%]	39,156 hrs	Kourbanis
458	211	1.4.8.4	FY12 RD&D Plan	\$1,850,800	\$600,000	\$2,450,800	250 d	10/3/11	9/28/12	210	8FF	Cat 1: Clerical/Tech/Operator[350%],Cat 2: Mach/Draft/Lead Tech,Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[210%],Cat 4: Sci/Engr Mgr/IT Mgr[740%]	28,000 hrs	Kourbanis
10	212	1.5	PX Instrumentation	\$15,645,066	\$7,354,706	\$22,999,772	1942 d	10/1/08	6/27/16				274,210 hrs	Wendt
11	213	1.5.1	Injection thru 325 Mhz	\$0	\$2,211,108	\$2,211,108	180 d	8/2/13	4/22/14				0 hrs	Wendt
12	214	1.5.1.1	LEBT	\$0	\$54,378	\$54,378	180 d	8/2/13	4/22/14	9			0 hrs	Wendt
13	215	1.5.1.2	MEBT	\$0	\$290,060	\$290,060	180 d	8/2/13	4/22/14	9	221SS		0 hrs	Wendt
14	216	1.5.1.3	RT	\$0	\$208,229	\$208,229	180 d	8/2/13	4/22/14	9			0 hrs	Wendt
15	217	1.5.1.4	SSR1	\$0	\$212,100	\$212,100	180 d	8/2/13	4/22/14	9			0 hrs	Wendt
16	218	1.5.1.5	SSR2	\$0	\$264,524	\$264,524	180 d	8/2/13	4/22/14	9			0 hrs	Wendt
17	219	1.5.1.6	TSR1-7	\$0	\$613,424	\$613,424	180 d	8/2/13	4/22/14	9			0 hrs	Wendt
18	220	1.5.1.7	Checkout Diagnostics	\$0	\$208,393	\$208,393	180 d	8/2/13	4/22/14	9			0 hrs	Wendt

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
496	221	1.5.1.8	Spares	\$0	\$360,000	\$360,000	1 d	8/2/13	8/2/13	215SS			0 hrs	Wendt
19	222	1.5.2	1.3 Ghz thru MI	\$0	\$4,273,598	\$4,273,598	180 d	8/2/13	4/22/14				0 hrs	Wendt
20	223	1.5.2.1	S-ILC	\$0	\$202,652	\$202,652	180 d	8/2/13	4/22/14	9	229SS		0 hrs	Wendt
21	224	1.5.2.2	ILC-1	\$0	\$401,301	\$401,301	180 d	8/2/13	4/22/14	9			0 hrs	Wendt
22	225	1.5.2.3	ILC-2	\$0	\$562,932	\$562,932	180 d	8/2/13	4/22/14	9			0 hrs	Wendt
23	226	1.5.2.4	Transport Line	\$0	\$1,876,080	\$1,876,080	180 d	8/2/13	4/22/14	9			0 hrs	Wendt
434	227	1.5.2.5	Recycler (Inj)	\$0	\$290,633	\$290,633	180 d	8/2/13	4/22/14	9			0 hrs	Wendt
24	228	1.5.2.6	Main Injector	\$0	\$240,000	\$240,000	180 d	8/2/13	4/22/14	9			0 hrs	Wendt
497	229	1.5.2.7	Spares	\$0	\$700,000	\$700,000	1 d	8/2/13	8/2/13	223SS			0 hrs	Wendt
46	230	1.5.3	PX Instrumentation Labor	\$12,872,000	\$0	\$12,872,000	1000 d	7/3/12	6/27/16	7		Cat 1: Clerical/Tech/Operator[550%],Cat 2: Mach/Draft/Lead Tech[600%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[1,100%],Cat 4: Sci/Engr Mgr/IT Mgr[550%]	224,000 hrs	Wendt
503	231	1.5.4	PX Instrumentation RD&D Plan	\$2,773,066	\$870,000	\$3,643,066	1004 d	10/1/08	9/28/12				50,210 hrs	Wendt

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
459	232	1.5.4.1	FY09 RD&D Plan	\$619,258	\$235,000	\$854,258	251 d	10/1/08	9/30/09		233	Cat 1: Clerical/Tech/Operator[80%], Cat 2: Mach/Draft/Lead Tech[160%], Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[210%], Cat 4: Sci/Engr Mgr/IT Mgr[90%]	10,843 hrs	Wendt
460	233	1.5.4.2	FY10 RD&D Plan	\$789,655	\$230,000	\$1,019,655	252 d	10/1/09	9/30/10	232	234	Cat 1: Clerical/Tech/Operator, Cat 2: Mach/Draft/Lead Tech[230%], Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[280%], Cat 4: Sci/Engr Mgr/IT Mgr[90%]	14,112 hrs	Wendt
461	234	1.5.4.3	FY11 RD&D Plan	\$745,353	\$215,000	\$960,353	251 d	10/1/10	9/30/11	233	235	Cat 1: Clerical/Tech/Operator[110%], Cat 2: Mach/Draft/Lead Tech[250%], Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[280%], Cat 4: Sci/Engr Mgr/IT Mgr[50%]	13,855 hrs	Wendt
462	235	1.5.4.4	FY12 RD&D Plan	\$618,800	\$190,000	\$808,800	250 d	10/3/11	9/28/12	234	8FF	Cat 1: Clerical/Tech/Operator[80%], Cat 2: Mach/Draft/Lead Tech[230%], Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[210%], Cat 4: Sci/Engr Mgr/IT Mgr[50%]	11,400 hrs	Wendt
1	236	1.6	<b>Controls</b>	<b>\$20,818,858</b>	<b>\$5,607,820</b>	<b>\$26,426,678</b>	<b>2245 d</b>	<b>10/1/08</b>	<b>9/11/17</b>				<b>380,598 hrs</b>	<b>Patrick</b>
47	237	1.6.1	<b>Controls Labor</b>	<b>\$17,035,630</b>	<b>\$0</b>	<b>\$17,035,630</b>	<b>2058 d</b>	<b>7/1/09</b>	<b>9/11/17</b>				<b>301,752 hrs</b>	<b>Patrick</b>
2	238	1.6.1.1	Management	\$854,080	\$0	\$854,080	1256 d	7/3/12	7/5/17	7	11	Cat 4: Sci/Engr Mgr/IT Mgr	10,048 hrs	Patrick
3	239	1.6.1.2	System Requirements & Design (in RD&D plan)	\$0	\$0	\$0	0 d	7/1/09	7/1/09	3	241,247,253,259,265	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[0%], Cat 4: Sci/Engr Mgr/IT Mgr[0%]	0 hrs	Patrick
158	240	1.6.1.3	<b>Hardware</b>	<b>\$5,790,622</b>	<b>\$0</b>	<b>\$5,790,622</b>	<b>2058 d</b>	<b>7/1/09</b>	<b>9/11/17</b>				<b>110,980 hrs</b>	<b>Patrick</b>
4	241	1.6.1.3.1	Hardware - Year 1 (in RD&D plan)	\$0	\$0	\$0	0 d	7/1/09	7/1/09	239	7	Cat 1: Clerical/Tech/Operator[0%], Cat 2: Mach/Draft/Lead Tech[0%], Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[0%]	0 hrs	Patrick
159	242	1.6.1.3.2	Hardware - Year 2	\$1,066,648	\$0	\$1,066,648	253 d	7/3/12	7/5/13	7	243	Cat 1: Clerical/Tech/Operator[150%], Cat 2: Mach/Draft/Lead Tech[300%], Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[550%]	20,240 hrs	Patrick

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
162	243	1.6.1.3.3	Hardware - Year 3	\$1,464,334	\$0	\$1,464,334	251 d	7/8/13	7/7/14	242	244	Cat 1: Clerical/Tech/Operator[225%],Cat 2: Mach/Draft/Lead Tech[475%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[700%]	28,112 hrs	Patrick
161	244	1.6.1.3.4	Hardware - Year 4	\$1,593,000	\$0	\$1,593,000	500 d	7/8/14	7/1/16	243	245	Cat 1: Clerical/Tech/Operator[125%],Cat 2: Mach/Draft/Lead Tech[313%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[300%],Cat 4: Sci/Engr Mgr/IT Mgr[25%]	30,500 hrs	Patrick
160	245	1.6.1.3.5	Hardware - Year 5	\$1,666,640	\$0	\$1,666,640	251 d	9/12/16	9/11/17	244,378	11	Cat 1: Clerical/Tech/Operator[250%],Cat 2: Mach/Draft/Lead Tech[600%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[750%]	32,128 hrs	Patrick
5	246	1.6.1.4	<b>General Computing Infrastructure</b>	<b>\$2,750,192</b>	<b>\$0</b>	<b>\$2,750,192</b>	<b>2058 d</b>	<b>7/1/09</b>	<b>9/11/17</b>				<b>51,220 hrs</b>	<b>Patrick</b>
164	247	1.6.1.4.1	General Computing Infrastructure - Year 1(in RD&D plan)	\$0	\$0	\$0	0 d	7/1/09	7/1/09	239	7	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[0%],Cat 4: Sci/Engr Mgr/IT Mgr[0%]	0 hrs	Patrick
165	248	1.6.1.4.2	General Computing Infrastructure - Year 2	\$530,288	\$0	\$530,288	253 d	7/3/12	7/5/13	7	249	Cat 1: Clerical/Tech/Operator[50%],Cat 2: Mach/Draft/Lead Tech[50%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[300%],Cat 4: Sci/Engr Mgr/IT Mgr[50%]	9,108 hrs	Patrick
166	249	1.6.1.4.3	General Computing Infrastructure - Year 3	\$740,952	\$0	\$740,952	251 d	7/8/13	7/7/14	248	250	Cat 1: Clerical/Tech/Operator[200%],Cat 2: Mach/Draft/Lead Tech,Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[350%],Cat 4: Sci/Engr Mgr/IT Mgr[50%]	14,056 hrs	Patrick
167	250	1.6.1.4.4	General Computing Infrastructure - Year 4	\$738,000	\$0	\$738,000	500 d	7/8/14	7/1/16	249	251	Cat 1: Clerical/Tech/Operator,Cat 2: Mach/Draft/Lead Tech[50%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[175%],Cat 4: Sci/Engr Mgr/IT Mgr[25%]	14,000 hrs	Patrick
168	251	1.6.1.4.5	General Computing Infrastructure - Year 5	\$740,952	\$0	\$740,952	251 d	9/12/16	9/11/17	250,378		Cat 1: Clerical/Tech/Operator[200%],Cat 2: Mach/Draft/Lead Tech,Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[350%],Cat 4: Sci/Engr Mgr/IT Mgr[50%]	14,056 hrs	Patrick
6	252	1.6.1.5	<b>Front-end Software</b>	<b>\$2,902,564</b>	<b>\$0</b>	<b>\$2,902,564</b>	<b>2058 d</b>	<b>7/1/09</b>	<b>9/11/17</b>				<b>49,196 hrs</b>	<b>Patrick</b>
169	253	1.6.1.5.1	Front-end Software - Year 1 (in RD&D plan)	\$0	\$0	\$0	0 d	7/1/09	7/1/09	239	7	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[0%]	0 hrs	Patrick

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
170	254	1.6.1.5.2	Front-end Software - Year 2	\$417,956	\$0	\$417,956	253 d	7/3/12	7/5/13	7	255	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[350%]	7,084 hrs	Patrick
171	255	1.6.1.5.3	Front-end Software - Year 3	\$829,304	\$0	\$829,304	251 d	7/8/13	7/7/14	254	256	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[700%]	14,056 hrs	Patrick
172	256	1.6.1.5.4	Front-end Software - Year 4	\$826,000	\$0	\$826,000	500 d	7/8/14	7/1/16	255	257	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[350%]	14,000 hrs	Patrick
173	257	1.6.1.5.5	Front-end Software - Year 5	\$829,304	\$0	\$829,304	251 d	9/12/16	9/11/17	256,378		Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[700%]	14,056 hrs	Patrick
7	258	1.6.1.6	<b>Central Services</b>	<b>\$2,131,788</b>	<b>\$0</b>	<b>\$2,131,788</b>	<b>2058 d</b>	<b>7/1/09</b>	<b>9/11/17</b>				<b>36,132 hrs</b>	<b>Patrick</b>
174	259	1.6.1.6.1	Central Services - Year 1 (in RD&D plan)	\$0	\$0	\$0	0 d	7/1/09	7/1/09	239	7	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[0%]	0 hrs	Patrick
175	260	1.6.1.6.2	Central Services - Year 2	\$298,540	\$0	\$298,540	253 d	7/3/12	7/5/13	7	261	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[250%]	5,060 hrs	Patrick
176	261	1.6.1.6.3	Central Services - Year 3	\$296,180	\$0	\$296,180	251 d	7/8/13	7/7/14	260	262	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[250%]	5,020 hrs	Patrick
177	262	1.6.1.6.4	Central Services - Year 4	\$767,000	\$0	\$767,000	500 d	7/8/14	7/1/16	261	263	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[325%]	13,000 hrs	Patrick
178	263	1.6.1.6.5	Central Services - Year 5	\$770,068	\$0	\$770,068	251 d	9/12/16	9/11/17	262,378		Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[650%]	13,052 hrs	Patrick
8	264	1.6.1.7	<b>Applications</b>	<b>\$2,606,384</b>	<b>\$0</b>	<b>\$2,606,384</b>	<b>2058 d</b>	<b>7/1/09</b>	<b>9/11/17</b>				<b>44,176 hrs</b>	<b>Patrick</b>



**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
183	265	1.6.1.7.1	Applications - Year 1 (in RD&D plan)	\$0	\$0	\$0	0 d	7/1/09	7/1/09	239	7	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[0%]	0 hrs	Patrick
182	266	1.6.1.7.2	Applications - Year 2	\$417,956	\$0	\$417,956	253 d	7/3/12	7/5/13	7	267	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[350%]	7,084 hrs	Patrick
181	267	1.6.1.7.3	Applications - Year 3	\$533,124	\$0	\$533,124	251 d	7/8/13	7/7/14	266	268	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[450%]	9,036 hrs	Patrick
180	268	1.6.1.7.4	Applications - Year 4	\$826,000	\$0	\$826,000	500 d	7/8/14	7/1/16	267	269	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[350%]	14,000 hrs	Patrick
179	269	1.6.1.7.5	Applications - Year 5	\$829,304	\$0	\$829,304	251 d	9/12/16	9/11/17	268,378		Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[700%]	14,056 hrs	Patrick
365	270	1.6.2	<b>General Controls M&amp;S</b>	<b>\$0</b>	<b>\$1,396,603</b>	<b>\$1,396,603</b>	<b>250 d</b>	<b>8/2/13</b>	<b>7/31/14</b>				<b>0 hrs</b>	<b>Patrick</b>
366	271	1.6.2.1	Control System	\$0	\$1,170,603	\$1,170,603	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
367	272	1.6.2.2	Infrastructure	\$0	\$14,000	\$14,000	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
368	273	1.6.2.3	Timing System	\$0	\$92,000	\$92,000	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
369	274	1.6.2.4	Machine Protection System	\$0	\$20,000	\$20,000	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
370	275	1.6.2.5	Vacuum Controls	\$0	\$0	\$0	250 d	8/2/13	7/31/14	9			0 hrs	Patrick

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
371	276	1.6.2.6	Motion Controls	\$0	\$0	\$0	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
372	277	1.6.2.7	Water System Controls	\$0	\$0	\$0	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
373	278	1.6.2.8	General Purpose DAQ	\$0	\$100,000	\$100,000	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
48	<b>279</b>	<b>1.6.3</b>	<b>Linac Controls M&amp;S</b>	<b>\$0</b>	<b>\$2,593,415</b>	<b>\$2,593,415</b>	<b>1030 d</b>	<b>8/2/13</b>	<b>9/8/17</b>				<b>0 hrs</b>	<b>Patrick</b>
49	280	1.6.3.1	Control System	\$0	\$166,495	\$166,495	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
50	281	1.6.3.2	Infrastructure	\$0	\$836,100	\$836,100	250 d	9/12/16	9/8/17	378			0 hrs	Patrick
51	282	1.6.3.3	Timing System	\$0	\$7,000	\$7,000	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
52	283	1.6.3.4	Machine Protection System	\$0	\$154,000	\$154,000	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
53	284	1.6.3.5	Vacuum Controls	\$0	\$426,000	\$426,000	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
55	285	1.6.3.6	Motion Controls	\$0	\$863,000	\$863,000	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
54	286	1.6.3.7	Water System Controls	\$0	\$19,020	\$19,020	250 d	8/2/13	7/31/14	9			0 hrs	Patrick

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
56	287	1.6.3.8	General Purpose DAQ	\$0	\$121,800	\$121,800	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
57	<b>288</b>	<b>1.6.4</b>	<b>Transfer Line Controls M&amp;S</b>	<b>\$0</b>	<b>\$519,202</b>	<b>\$519,202</b>	<b>1030 d</b>	<b>8/2/13</b>	<b>9/8/17</b>				<b>0 hrs</b>	<b>Patrick</b>
58	289	1.6.4.1	Control System	\$0	\$229,402	\$229,402	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
59	290	1.6.4.2	Infrastructure	\$0	\$123,200	\$123,200	250 d	9/12/16	9/8/17	378			0 hrs	Patrick
60	291	1.6.4.3	Timing System	\$0	\$2,000	\$2,000	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
61	292	1.6.4.4	Machine Protection System	\$0	\$17,000	\$17,000	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
62	293	1.6.4.5	Vacuum Controls	\$0	\$50,000	\$50,000	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
63	294	1.6.4.6	Motion Controls	\$0	\$30,000	\$30,000	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
64	295	1.6.4.7	Water System Controls	\$0	\$8,000	\$8,000	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
65	296	1.6.4.8	General Purpose DAQ	\$0	\$59,600	\$59,600	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
66	<b>297</b>	<b>1.6.5</b>	<b>Recycler Controls M&amp;S</b>	<b>\$0</b>	<b>\$73,200</b>	<b>\$73,200</b>	<b>250 d</b>	<b>8/2/13</b>	<b>7/31/14</b>				<b>0 hrs</b>	<b>Patrick</b>

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
67	298	1.6.5.1	Control System	\$0	\$24,000	\$24,000	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
68	299	1.6.5.2	Infrastructure	\$0	\$0	\$0	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
69	300	1.6.5.3	Timing System	\$0	\$6,000	\$6,000	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
70	301	1.6.5.4	Machine Protection System	\$0	\$0	\$0	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
71	302	1.6.5.5	Vacuum Controls	\$0	\$0	\$0	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
72	303	1.6.5.6	Motion Controls	\$0	\$6,000	\$6,000	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
73	304	1.6.5.7	Water System Controls	\$0	\$0	\$0	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
74	305	1.6.5.8	General Purpose DAQ	\$0	\$37,200	\$37,200	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
75	<b>306</b>	<b>1.6.6</b>	<b>MI Controls M&amp;S</b>	<b>\$0</b>	<b>\$67,200</b>	<b>\$67,200</b>	<b>250 d</b>	<b>8/2/13</b>	<b>7/31/14</b>				<b>0 hrs</b>	<b>Patrick</b>
76	307	1.6.6.1	Control System	\$0	\$24,000	\$24,000	250 d	8/2/13	7/31/14	9		315SS	0 hrs	Patrick
77	308	1.6.6.2	Infrastructure	\$0	\$0	\$0	250 d	8/2/13	7/31/14	9			0 hrs	Patrick

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
78	309	1.6.6.3	Timing System	\$0	\$6,000	\$6,000	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
79	310	1.6.6.4	Machine Protection System	\$0	\$0	\$0	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
80	311	1.6.6.5	Vacuum Controls	\$0	\$0	\$0	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
81	312	1.6.6.6	Motion Controls	\$0	\$0	\$0	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
82	313	1.6.6.7	Water System Controls	\$0	\$0	\$0	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
83	314	1.6.6.8	General Purpose DAQ	\$0	\$37,200	\$37,200	250 d	8/2/13	7/31/14	9			0 hrs	Patrick
498	315	1.6.7	Controls Spares	\$0	\$697,200	\$697,200	1 d	8/2/13	8/2/13	307SS			0 hrs	Patrick
504	<b>316</b>	<b>1.6.8</b>	<b>Controls RD&amp;D Plan</b>	<b>\$3,783,228</b>	<b>\$261,000</b>	<b>\$4,044,228</b>	<b>1004 d</b>	<b>10/1/08</b>	<b>9/28/12</b>				<b>78,846 hrs</b>	<b>Patrick</b>
466	317	1.6.8.1	FY09 RD&D Plan	\$74,888	\$6,000	\$80,888	251 d	10/1/08	9/30/09		318	Cat 4: Sci/Engr Mgr/IT Mgr[30%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[20%]	1,004 hrs	Patrick
465	318	1.6.8.2	FY10 RD&D Plan	\$743,277	\$40,000	\$783,277	252 d	10/1/09	9/30/10	317	319	Cat 1: Clerical/Tech/Operator[400%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[330%],Cat 4: Sci/Engr Mgr/IT Mgr[40%]	15,523 hrs	Patrick
464	319	1.6.8.3	FY11 RD&D Plan	\$1,420,663	\$140,000	\$1,560,663	251 d	10/1/10	9/30/11	318	320	Cat 1: Clerical/Tech/Operator[780%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[650%],Cat 4: Sci/Engr Mgr/IT Mgr[60%]	29,919 hrs	Patrick

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
463	320	1.6.8.4	FY12 RD&D Plan	\$1,544,400	\$75,000	\$1,619,400	250 d	10/3/11	9/28/12	319		Cat 1: Clerical/Tech/Operator[830%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[730%],Cat 4: Sci/Engr Mgr/IT Mgr[60%]	32,400 hrs	Patrick
116	321	1.7	<b>Cryogenics</b>	<b>\$6,679,600</b>	<b>\$40,962,000</b>	<b>\$47,641,600</b>	<b>2254 d</b>	<b>10/1/08</b>	<b>9/22/17</b>				<b>134,879 hrs</b>	<b>Klebaner</b>
225	322	1.7.1	<b>PX Cryogenics Plant</b>	<b>\$1,487,440</b>	<b>\$23,305,000</b>	<b>\$24,792,440</b>	<b>2027 d</b>	<b>7/1/09</b>	<b>7/27/17</b>				<b>29,600 hrs</b>	<b>Klebaner</b>
227	323	1.7.1.1	Warm Compressors	\$0	\$4,412,000	\$4,412,000	420 d	8/2/13	4/7/15	9	329		0 hrs	Klebaner
228	324	1.7.1.2	Cold Box	\$0	\$10,785,000	\$10,785,000	420 d	8/2/13	4/7/15	9	329		0 hrs	Klebaner
229	325	1.7.1.3	Valve Box	\$0	\$525,000	\$525,000	420 d	8/2/13	4/7/15	9	329		0 hrs	Klebaner
226	326	1.7.1.4	Cold Compressors	\$0	\$2,000,000	\$2,000,000	420 d	8/2/13	4/7/15	9	329		0 hrs	Klebaner
230	327	1.7.1.5	LN2 Exchanger / Transfer Lines	\$0	\$370,000	\$370,000	420 d	8/2/13	4/7/15	9	329		0 hrs	Klebaner
231	328	1.7.1.6	Control System	\$0	\$1,204,000	\$1,204,000	420 d	8/2/13	4/7/15	9	329		0 hrs	Klebaner
232	329	1.7.1.7	Installation and Checkout	\$0	\$3,493,000	\$3,493,000	580 d	4/8/15	7/27/17	323,324,325,326,327,328,376	334FF		0 hrs	Klebaner
233	330	1.7.1.8	Spare Parts	\$0	\$516,000	\$516,000	420 d	8/2/13	4/7/15	9			0 hrs	Klebaner

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
244	331	1.7.1.9	<b>Cryo Plant Labor</b>	<b>\$1,487,440</b>	<b>\$0</b>	<b>\$1,487,440</b>	<b>2027 d</b>	<b>7/1/09</b>	<b>7/27/17</b>				<b>29,600 hrs</b>	<b>Klebaner</b>
491	332	1.7.1.9.1	Reqmts & Specs/Risk Assmt/Reqmts Rev	\$378,800	\$0	\$378,800	397 d	7/1/09	2/1/11	3		Cat 2: Mach/Draft/Lead Tech[45%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[164%]	6,640 hrs	Klebaner
386	333	1.7.1.9.2	Syst Des/Des Rev	\$265,160	\$0	\$265,160	272 d	7/3/12	8/1/13	7		Cat 2: Mach/Draft/Lead Tech[68%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[149%]	4,720 hrs	Klebaner
387	334	1.7.1.9.3	Install/Test & Validate/Train & Orc/Syst Integrate	\$843,480	\$0	\$843,480	1000 d	8/2/13	7/27/17	9,329FF	435	Cat 2: Mach/Draft/Lead Tech[17%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[97%],Cat 1: Clerical/Tech/Operator[115%]	18,240 hrs	Klebaner
235	335	1.7.2	<b>PX Distribution</b>	<b>\$2,842,544</b>	<b>\$13,537,000</b>	<b>\$16,379,544</b>	<b>2027 d</b>	<b>7/1/09</b>	<b>7/27/17</b>				<b>61,495 hrs</b>	<b>Klebaner</b>
236	336	1.7.2.1	Tunnel Feed Box	\$0	\$800,000	\$800,000	250 d	2/5/14	2/3/15	9FS+125 d	340		0 hrs	Klebaner
237	337	1.7.2.2	LE Feed / End Caps	\$0	\$500,000	\$500,000	250 d	2/5/14	2/3/15	9FS+125 d	340		0 hrs	Klebaner
238	338	1.7.2.3	HE Feed / End / Segmentation	\$0	\$7,250,000	\$7,250,000	250 d	2/5/14	2/3/15	9FS+125 d	340		0 hrs	Klebaner
239	339	1.7.2.4	Service Transfer Line, Recovery Header, Aux Transfer Line	\$0	\$1,958,000	\$1,958,000	250 d	2/5/14	2/3/15	9FS+125 d	340		0 hrs	Klebaner
240	340	1.7.2.5	Installation	\$0	\$2,029,000	\$2,029,000	420 d	9/28/15	5/31/17	336,337,338,339,381	435		0 hrs	Klebaner
241	341	1.7.2.6	Control / Instrumentation	\$0	\$1,000,000	\$1,000,000	250 d	2/5/14	2/3/15	9FS+125 d			0 hrs	Klebaner

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
245	342	1.7.2.7	<b>Distribution System Labor</b>	<b>\$2,842,544</b>	<b>\$0</b>	<b>\$2,842,544</b>	2027 d	7/1/09	7/27/17				61,495 hrs	Klebaner
492	343	1.7.2.7.1	Reqmts & Specs/Risk Assmt/Reqmts Rev	\$301,304	\$0	\$301,304	397 d	7/1/09	2/1/11	3		Cat 2: Mach/Draft/Lead Tech[26%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[129%],Cat 1: Clerical/Tech/Operator[17%]	5,455 hrs	Klebaner
390	344	1.7.2.7.2	Syst Des/Des Rev	\$799,800	\$0	\$799,800	272 d	7/3/12	8/1/13	7		Cat 2: Mach/Draft/Lead Tech[342%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[248%],Cat 1: Clerical/Tech/Operator[143%]	15,960 hrs	Klebaner
391	345	1.7.2.7.3	Install/Test & Validate/Train & Orc/Syst Integrate	\$1,741,440	\$0	\$1,741,440	1000 d	8/2/13	7/27/17	9	435	Cat 2: Mach/Draft/Lead Tech[31%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[157%],Cat 1: Clerical/Tech/Operator[313%]	40,080 hrs	Klebaner
246	346	1.7.3	<b>PX Ancillary Systems</b>	<b>\$1,637,840</b>	<b>\$2,495,000</b>	<b>\$4,132,840</b>	1312 d	7/3/12	9/22/17				31,720 hrs	Klebaner
247	347	1.7.3.1	Inventory Mgmt, Storage, and Purification	\$0	\$1,140,000	\$1,140,000	125 d	4/1/15	9/25/15	9FS+125 d,196	350		0 hrs	Klebaner
248	348	1.7.3.2	Vacuum, Air, Cooling Towers, Warm Piping	\$0	\$625,000	\$625,000	125 d	10/1/14	4/2/15	9FS+125 d,195	350		0 hrs	Klebaner
249	349	1.7.3.3	Ancillary Controls	\$0	\$200,000	\$200,000	125 d	2/5/14	7/31/14	9FS+125 d	350		0 hrs	Klebaner
250	350	1.7.3.4	Installation	\$0	\$530,000	\$530,000	500 d	9/28/15	9/22/17	376,347,348,349	435		0 hrs	Klebaner
374	351	1.7.3.5	<b>Ancillary Systems Labor</b>	<b>\$1,637,840</b>	<b>\$0</b>	<b>\$1,637,840</b>	1272 d	7/3/12	7/27/17				31,720 hrs	Klebaner
493	352	1.7.3.5.1	Reqmts & Specs/Risk Assmt/Reqmts Rev	\$381,320	\$0	\$381,320	397 d	10/1/14	5/2/16	3,201		Cat 2: Mach/Draft/Lead Tech[111%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[110%]	7,000 hrs	Klebaner



**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
393	353	1.7.3.5.2	Syst Des/Des Rev	\$568,640	\$0	\$568,640	272 d	7/3/12	8/1/13	7		Cat 2: Mach/Draft/Lead Tech[362%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[136%]	10,840 hrs	Klebaner
394	354	1.7.3.5.3	Install/Test & Validate/Train & Orc/Syst Integrate	\$687,880	\$0	\$687,880	1000 d	8/2/13	7/27/17	9	435	Cat 2: Mach/Draft/Lead Tech[6%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[101%],Cat 1: Clerical/Tech/Operator[66%]	13,880 hrs	Klebaner
254	355	1.7.4	<b>PX Testing Cryo Infrastructure</b>	<b>\$0</b>	<b>\$1,000,000</b>	<b>\$1,000,000</b>	<b>1414 d</b>	<b>8/2/10</b>	<b>3/22/16</b>				<b>0 hrs</b>	<b>Klebaner</b>
255	356	1.7.4.1	CMTB Cryoplant	\$0	\$0	\$0	360 d	8/2/10	1/10/12		360		0 hrs	Klebaner
256	357	1.7.4.2	Test Stands	\$0	\$600,000	\$600,000	360 d	8/2/13	1/12/15	9	360		0 hrs	Klebaner
257	358	1.7.4.3	Piping, Purification	\$0	\$0	\$0	360 d	8/2/13	1/12/15	9	360		0 hrs	Klebaner
258	359	1.7.4.4	Controls & Instrumentation	\$0	\$0	\$0	360 d	8/2/13	1/12/15	9	360		0 hrs	Klebaner
260	360	1.7.4.5	Installation	\$0	\$100,000	\$100,000	300 d	1/13/15	3/22/16	356,357,358,359	435		0 hrs	Klebaner
259	361	1.7.4.6	HTS	\$0	\$300,000	\$300,000	250 d	8/2/13	7/31/14	9			0 hrs	Klebaner
375	362	1.7.4.7	<b>Testing Cryo Infrastructure Labor</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>272 d</b>	<b>7/2/12</b>	<b>8/1/13</b>				<b>0 hrs</b>	<b>Klebaner</b>
396	363	1.7.4.7.1	Syst Des/Des Rev	\$0	\$0	\$0	0 d	7/2/12	7/2/12	7	364	Cat 2: Mach/Draft/Lead Tech[0%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[0%],Cat 1: Clerical/Tech/Operator[0%]	0 hrs	Klebaner

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
397	364	1.7.4.7.2	Install/Test & Validate/Train & Orc/Syst Integrate	\$0	\$0	\$0	0 d	8/1/13	8/1/13	9,363	435	Cat 2: Mach/Draft/Lead Tech[0%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[0%],Cat 1: Clerical/Tech/Operator[0%]	0 hrs	Klebaner
505	365	1.7.5	<b>Cryogenics RD&amp;D Plan</b>	<b>\$711,776</b>	<b>\$625,000</b>	<b>\$1,336,776</b>	<b>1004 d</b>	<b>10/1/08</b>	<b>9/28/12</b>				<b>12,064 hrs</b>	<b>Klebaner</b>
467	366	1.7.5.1	FY09 RD&D Plan	\$118,472	\$159,000	\$277,472	251 d	10/1/08	9/30/09		367	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls	2,008 hrs	Klebaner
468	367	1.7.5.2	FY10 RD&D Plan	\$356,832	\$370,000	\$726,832	252 d	10/1/09	9/30/10	366	368	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[300%]	6,048 hrs	Klebaner
469	368	1.7.5.3	FY11 RD&D Plan	\$118,472	\$96,000	\$214,472	251 d	10/1/10	9/30/11	367	369	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls	2,008 hrs	Klebaner
470	369	1.7.5.4	FY12 RD&D Plan	\$118,000	\$0	\$118,000	250 d	10/3/11	9/28/12	368		Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls	2,000 hrs	Klebaner
380	370	1.8	<b>Utilities &amp; Interlocks</b>	<b>\$1,962,620</b>	<b>\$5,663,294</b>	<b>\$7,625,914</b>	<b>250 d</b>	<b>8/2/13</b>	<b>7/31/14</b>				<b>43,660 hrs</b>	
381	371	1.8.1	LCW	\$1,207,960	\$5,163,834	\$6,371,794	250 d	8/2/13	7/31/14	9		Cat 1: Clerical/Tech/Operator[704%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[462%],Cat 4: Sci/Engr Mgr/IT Mgr	25,320 hrs	
382	372	1.8.2	Vacuum	\$541,920	\$236,170	\$778,090	250 d	8/2/13	7/31/14	9		Cat 1: Clerical/Tech/Operator[526%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[104%],Cat 4: Sci/Engr Mgr/IT Mgr[30%]	13,200 hrs	
383	373	1.8.3	Interlocks	\$212,740	\$263,290	\$476,030	250 d	8/2/13	7/31/14	9		Cat 1: Clerical/Tech/Operator[207%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[33%],Cat 4: Sci/Engr Mgr/IT Mgr[17%]	5,140 hrs	
117	374	1.9	<b>Conventional Facilities</b>	<b>\$46,750,000</b>	<b>\$148,609,000</b>	<b>\$195,359,000</b>	<b>2174 d</b>	<b>10/1/08</b>	<b>5/31/17</b>				<b>550,000 hrs</b>	<b>Alber</b>

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
224	375	1.9.1	Construction Management	\$46,750,000	\$0	\$46,750,000	1231 d	7/3/12	5/30/17	7		Cat 4: Sci/Engr Mgr/IT Mgr[5,585%]	550,000 hrs	Alber
379	376	1.9.2	Cryo Service Bldg Occupancy	\$0	\$0	\$0	0 d	10/10/14	10/10/14	9FS+300 d	350,329		0 hrs	Alber
378	377	1.9.3	Half Linac Beam Line & Gallery Occupancy	\$0	\$0	\$0	0 d	11/20/15	11/20/15	9FS+580 d			0 hrs	Alber
377	378	1.9.4	Klystron Gallery Occupancy	\$0	\$0	\$0	0 d	9/9/16	9/9/16	9FS+780 d	281,290,245,251,257,261		0 hrs	Alber
408	379	1.9.5	Break into Main Injector	\$0	\$0	\$0	0 d	10/10/14	10/10/14	9FS+300 d	177		0 hrs	Alber
430	380	1.9.6	Upstream Linac Beam & Gallery 25% Occupancy	\$0	\$0	\$0	0 d	10/24/14	10/24/14	9FS+310 d	38,47,56,16,20,25,30,80,		0 hrs	Alber
431	381	1.9.7	Upstream Linac Beam & Gallery 63% Occupancy	\$0	\$0	\$0	0 d	9/25/15	9/25/15	9FS+540 d	340,111,144,164,134		0 hrs	Alber
432	382	1.9.8	Upstream Linac Beam & Gallery 100% Occupancy	\$0	\$0	\$0	0 d	10/21/16	10/21/16	9FS+810 d			0 hrs	Alber
376	383	1.9.9	All Occupancy Complete	\$0	\$0	\$0	0 d	5/31/17	5/31/17	9FS+960 d			0 hrs	Alber
121	384	1.9.10	<b>Site Work</b>	<b>\$0</b>	<b>\$7,640,000</b>	<b>\$7,640,000</b>	<b>125 d</b>	<b>10/1/13</b>	<b>4/2/14</b>				<b>0 hrs</b>	<b>Alber</b>
122	385	1.9.10.1	Surface Work	\$0	\$3,517,000	\$3,517,000	125 d	10/1/13	4/2/14		387,389,390,391,392,393,		0 hrs	Alber

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
123	386	1.9.10.2	Roads	\$0	\$4,123,000	\$4,123,000	125 d	10/1/13	4/2/14		387,389,390,391,392,393		0 hrs	Alber
124	387	1.9.11	Utilities	\$0	\$21,247,000	\$21,247,000	125 d	4/3/14	9/29/14	385,386			0 hrs	Alber
125	<b>388</b>	<b>1.9.12</b>	<b>Tunnel Enclosures</b>	<b>\$0</b>	<b>\$21,154,000</b>	<b>\$21,154,000</b>	<b>501 d</b>	<b>4/3/14</b>	<b>3/31/16</b>				<b>0 hrs</b>	<b>Alber</b>
126	389	1.9.12.1	Linac Beam Line Enclosure	\$0	\$7,503,000	\$7,503,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber
127	390	1.9.12.2	Linac Beam Absorber	\$0	\$604,000	\$604,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber
138	391	1.9.12.3	Crossing at AP/MR Tunnels	\$0	\$1,750,000	\$1,750,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber
128	392	1.9.12.4	Crossing at MI-65 Svc Bldg	\$0	\$1,250,000	\$1,250,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber
129	393	1.9.12.5	Beam Transport Line Enclosure	\$0	\$6,353,000	\$6,353,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber
139	394	1.9.12.6	Connect to MI Tunnel	\$0	\$211,000	\$211,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber
140	395	1.9.12.7	Injection Beam Abs incl Widening of Encl for 56 ft	\$0	\$885,000	\$885,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber
141	396	1.9.12.8	Access Stairs/Linac (not at bldgs)	\$0	\$450,000	\$450,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
142	397	1.9.12.9	Access Stairs/Transport Line (not at bldgs)	\$0	\$450,000	\$450,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber
143	398	1.9.12.10	Alcoves	\$0	\$1,000,000	\$1,000,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber
144	399	1.9.12.11	Access Tunnel from Center Svc Bldg	\$0	\$698,000	\$698,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber
146	400	1.9.13	Klystron Gallery	\$0	\$12,338,000	\$12,338,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber
147	401	1.9.14	Upstream Svc Bldg	\$0	\$3,358,000	\$3,358,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber
148	402	1.9.15	Typical Svc Bldg	\$0	\$5,940,000	\$5,940,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber
149	403	1.9.16	Arc Svc Bldg	\$0	\$1,725,000	\$1,725,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber
150	404	1.9.17	Cryogenic Svc Bldg	\$0	\$7,575,000	\$7,575,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber
151	405	1.9.18	Debuncher Svc Bldg	\$0	\$1,392,000	\$1,392,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber
152	406	1.9.19	Center Svc Bldg	\$0	\$3,548,000	\$3,548,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber
153	407	1.9.20	Space Offsets	\$0	\$18,000,000	\$18,000,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact	
154	408	1.9.21	MI RF Upgrades Infrastructure	\$0	\$12,000,000	\$12,000,000	501 d	4/3/14	3/31/16	385,386			0 hrs	Alber	
155	409	1.9.22	Cooling Ponds Upgrades	\$0	\$900,000	\$900,000	125 d	10/1/13	4/2/14				0 hrs	Alber	
433	410	1.9.23	Infrastructure Upgrades	\$0	\$20,000,000	\$20,000,000	500 d	10/1/13	9/28/15				0 hrs	Alber	
506	411	1.9.24	<b>Conventional Facilities RD&amp;D Plan</b>	<b>\$0</b>	<b>\$11,792,000</b>	<b>\$11,792,000</b>	<b>1004 d</b>	<b>10/1/08</b>	<b>9/28/12</b>				<b>0 hrs</b>	<b>Alber</b>	
471	412	1.9.24.1	FY09 RD&D Plan	\$0	\$34,000	\$34,000	251 d	10/1/08	9/30/09		413		0 hrs	Alber	
472	413	1.9.24.2	FY10 RD&D Plan	\$0	\$2,707,000	\$2,707,000	252 d	10/1/09	9/30/10	412		414	0 hrs	Alber	
473	414	1.9.24.3	FY11 RD&D Plan	\$0	\$4,478,000	\$4,478,000	251 d	10/1/10	9/30/11	413		415	0 hrs	Alber	
474	415	1.9.24.4	FY12 RD&D Plan	\$0	\$4,573,000	\$4,573,000	250 d	10/3/11	9/28/12	414			0 hrs	Alber	
130	416	1.10	<b>8 GeV</b>	<b>\$8,791,919</b>	<b>\$16,706,000</b>	<b>\$25,497,919</b>	<b>2174 d</b>	<b>10/1/08</b>	<b>5/31/17</b>				<b>157,964 hrs</b>	<b>Johnson</b>	
131	417	1.10.1	<b>Transfer Line</b>	<b>\$3,425,040</b>	<b>\$8,779,000</b>	<b>\$12,204,040</b>	<b>1232 d</b>	<b>7/3/12</b>	<b>5/31/17</b>				<b>70,164 hrs</b>	<b>Johnson</b>	
133	418	1.10.1.1	Component Design/Construction	\$2,761,920	\$8,170,000	\$10,931,920	1050 d	7/3/12	9/7/16	7		419	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[370%],Cat 2: Mach/Draft/Lead Tech[95%],Cat 1: Clerical/Tech/Operator[180%]	54,180 hrs	Johnson

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
414	419	1.10.1.2	Installation	\$663,120	\$609,000	\$1,272,120	180 d	9/12/16	5/31/17	378,418	435	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[200%],Cat 2: Mach/Draft/Lead Tech[160%],Cat 1: Clerical/Tech/Operator[750%]	15,984 hrs	Johnson
134	420	1.10.2	<b>Recycler Injection</b>	<b>\$1,834,584</b>	<b>\$5,047,000</b>	<b>\$6,881,584</b>	<b>1232 d</b>	<b>7/3/12</b>	<b>5/31/17</b>				<b>36,576 hrs</b>	<b>Johnson</b>
136	421	1.10.2.1	Component Design/Construction	\$1,387,680	\$5,034,000	\$6,421,680	1050 d	7/3/12	9/7/16	7	422	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[165%],Cat 2: Mach/Draft/Lead Tech[44%],Cat 1: Clerical/Tech/Operator[114%],Cat 4: Sci/Engr Mgr/IT Mgr[7%]	27,720 hrs	Johnson
405	422	1.10.2.2	Installation	\$446,904	\$13,000	\$459,904	180 d	9/12/16	5/31/17	378,421	435	Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[365%],Cat 2: Mach/Draft/Lead Tech[50%],Cat 1: Clerical/Tech/Operator[200%]	8,856 hrs	Johnson
507	423	1.10.3	<b>8 GeV RD&amp;D Plan</b>	<b>\$3,532,295</b>	<b>\$2,880,000</b>	<b>\$6,412,295</b>	<b>1004 d</b>	<b>10/1/08</b>	<b>9/28/12</b>				<b>51,224 hrs</b>	<b>Johnson</b>
475	424	1.10.3.1	FY09 RD&D Plan	\$1,162,973	\$735,000	\$1,897,973	251 d	10/1/08	9/30/09		425	Cat 2: Mach/Draft/Lead Tech[80%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[280%],Cat 4: Sci/Engr Mgr/IT Mgr[440%]	16,063 hrs	Johnson
476	425	1.10.3.2	FY10 RD&D Plan	\$1,037,242	\$804,000	\$1,841,242	252 d	10/1/09	9/30/10	424	426	Cat 2: Mach/Draft/Lead Tech[80%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[300%],Cat 4: Sci/Engr Mgr/IT Mgr[350%]	14,717 hrs	Johnson
477	426	1.10.3.3	FY11 RD&D Plan	\$720,680	\$748,000	\$1,468,680	251 d	10/1/10	9/30/11	425	427	Cat 2: Mach/Draft/Lead Tech[80%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[310%],Cat 4: Sci/Engr Mgr/IT Mgr[160%]	11,044 hrs	Johnson
478	427	1.10.3.4	FY12 RD&D Plan	\$611,400	\$593,000	\$1,204,400	250 d	10/3/11	9/28/12	426		Cat 2: Mach/Draft/Lead Tech[60%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[280%],Cat 4: Sci/Engr Mgr/IT Mgr[130%]	9,400 hrs	Johnson
483	428	1.11	<b>Integration</b>	<b>\$6,740,314</b>	<b>\$810,000</b>	<b>\$7,550,314</b>	<b>1004 d</b>	<b>10/1/08</b>	<b>9/28/12</b>				<b>102,045 hrs</b>	
508	429	1.11.1	<b>Integration RD&amp;D Plan</b>	<b>\$6,740,314</b>	<b>\$810,000</b>	<b>\$7,550,314</b>	<b>1004 d</b>	<b>10/1/08</b>	<b>9/28/12</b>				<b>102,045 hrs</b>	

**Float = 0**

Uniq	ID	WBS	Task Name	Base Labor	Base M&S	Cost	Dur	Start	Finish	Predecessors	Successors	Resource Names	Hours	Point of Contact
479	430	1.11.1.1	FY09 RD&D Plan	\$1,213,203	\$55,000	\$1,268,203	251 d	10/1/08	9/30/09		431	Cat 1: Clerical/Tech/Operator[130%],Cat 2: Mach/Draft/Lead Tech[90%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[280%],Cat 4: Sci/Engr Mgr/IT Mgr[410%]	18,272 hrs	
480	431	1.11.1.2	FY10 RD&D Plan	\$851,375	\$85,000	\$936,375	252 d	10/1/09	9/30/10	430	432	Cat 1: Clerical/Tech/Operator[70%],Cat 2: Mach/Draft/Lead Tech[60%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[220%],Cat 4: Sci/Engr Mgr/IT Mgr[280%]	12,701 hrs	
481	432	1.11.1.3	FY11 RD&D Plan	\$1,249,936	\$175,000	\$1,424,936	251 d	10/1/10	9/30/11	431	433	Cat 1: Clerical/Tech/Operator[90%],Cat 2: Mach/Draft/Lead Tech[80%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[300%],Cat 4: Sci/Engr Mgr/IT Mgr[440%]	18,272 hrs	
482	433	1.11.1.4	FY12 RD&D Plan	\$3,425,800	\$495,000	\$3,920,800	250 d	10/3/11	9/28/12	432		Cat 1: Clerical/Tech/Operator[500%],Cat 2: Mach/Draft/Lead Tech[90%],Cat 3: Assoc Sci/Eng/Comp Prof/Proj Cntrls[960%],Cat 4: Sci/Engr Mgr/IT Mgr[1,090%]	52,800 hrs	
428	434	1.12	<b>General</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>60 d</b>	<b>12/13/17</b>	<b>3/13/18</b>				<b>0 hrs</b>	
429	435	1.12.1	System Checkout	\$0	\$0	\$0	60 d	12/13/17	3/13/18	47,56,79,111,134,144,197,193,20	11		0 hrs	