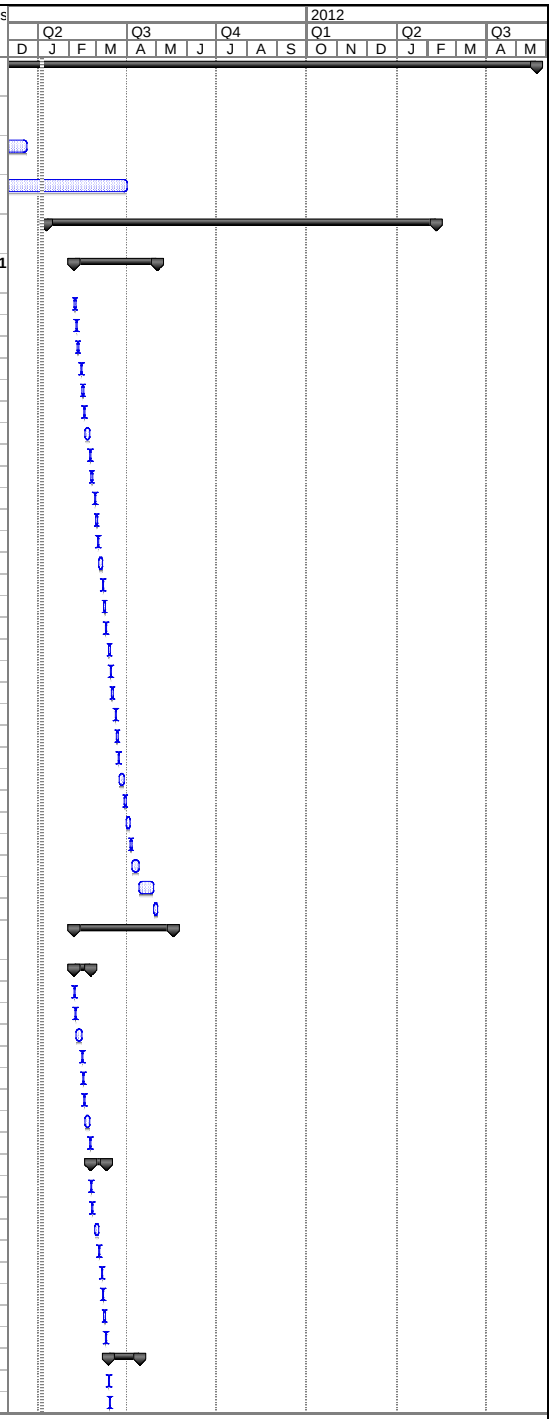
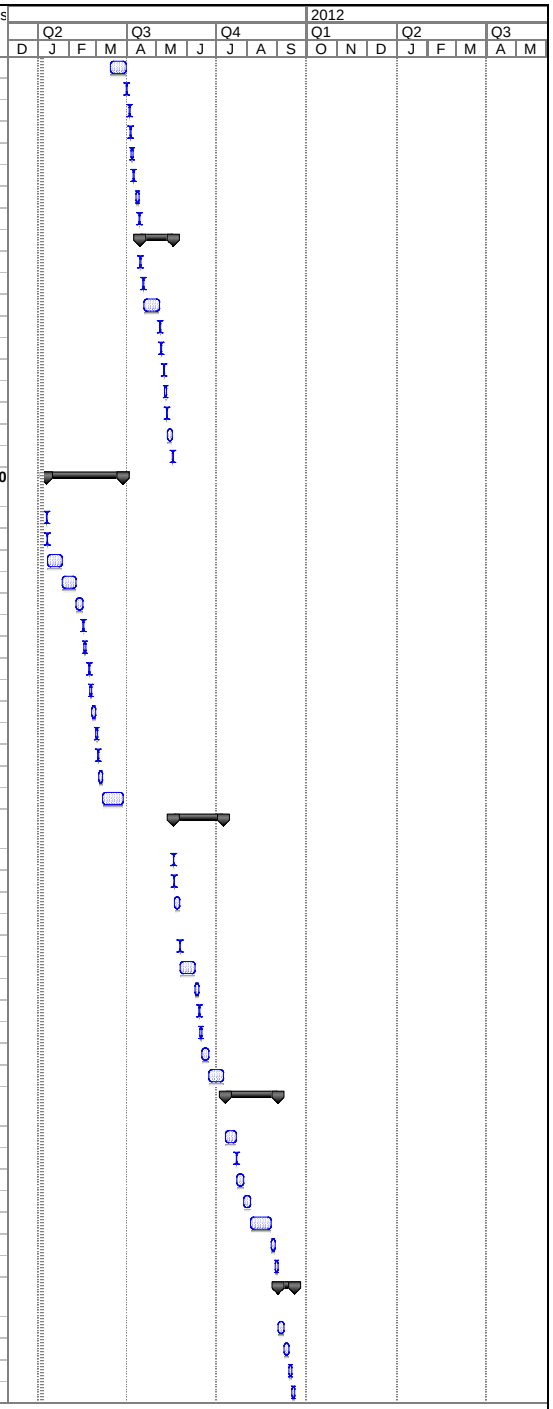
ID	Task Name	Duration	Start	Finish	Predeces
1	**electron lens solenoid**	**544.5 days**	**4/5/10**	**5/22/12**	
2	Preliminary Design	80 days	4/5/10	7/27/10	
3	Final Design	100 days	7/28/10	12/20/10	2
4	Fabrication / Procurement	170 days	7/28/10	4/1/11	2
5	**Magnet #1**	**280.5 days**	**1/10/11**	**2/10/12**	
6	**Solenoid Coil Assembly**	**60 days**	**2/7/11**	**5/2/11**	**4SS+131**
7	insulate tube / cure	2 days	2/7/11	2/8/11	
8	install cable spool, support tube	1 day	2/9/11	2/9/11	7
9	wind double layer 1	2 days	2/10/11	2/11/11	8
10	wrap, cure	1 day	2/14/11	2/14/11	9
11	wind double layer 2	2 days	2/15/11	2/16/11	10
12	wrap, cure	1 day	2/17/11	2/17/11	11
13	wind double layer 3	2 days	2/18/11	2/22/11	12
14	wrap, cure	1 day	2/23/11	2/23/11	13
15	wind double layer 4	2 days	2/24/11	2/25/11	14
16	wrap, cure	1 day	2/28/11	2/28/11	15
17	wind double layer 5	2 days	3/1/11	3/2/11	16
18	wrap, cure	1 day	3/3/11	3/3/11	17
19	wind double layer 6	2 days	3/4/11	3/7/11	18
20	wrap, cure	1 day	3/8/11	3/8/11	19
21	wind double layer 7	2 days	3/9/11	3/10/11	20
22	wrap, cure	1 day	3/11/11	3/11/11	21
23	wind double layer 8	2 days	3/14/11	3/15/11	22
24	wrap, cure	1 day	3/16/11	3/16/11	23
25	wind double layer 9	2 days	3/17/11	3/18/11	24
26	wrap, cure	1 day	3/21/11	3/21/11	25
27	wind double layer 10	2 days	3/22/11	3/23/11	26
28	wrap, cure	1 day	3/24/11	3/24/11	27
29	wind double layer 11, including 4 layer trims	3 days	3/25/11	3/29/11	28
30	wrap, cure	2 days	3/30/11	3/31/11	29
31	over-wrap fiberglass	2 days	4/1/11	4/4/11	30
32	cure	2 days	4/5/11	4/6/11	31
33	machine OD	5 days	4/7/11	4/13/11	32
34	stabilize, install vt's, insulate exiting leads	11 days	4/14/11	4/28/11	33
35	electrical tests	2 days	4/29/11	5/2/11	34
36	**Fringe Field Solenoid Coils**	**72 days**	**2/7/11**	**5/18/11**	
37	**AFF Coil #1**	**12 days**	**2/7/11**	**2/23/11**	
38	insulate hub	1 day	2/7/11	2/7/11	
39	splice, insulate start lead / install hub	1 day	2/8/11	2/8/11	38
40	wind 24 layers	4 days	2/9/11	2/14/11	39
41	splice, insulate exiting lead	1 day	2/15/11	2/15/11	40
42	cure	1 day	2/16/11	2/16/11	41
43	overwrap / cure	1 day	2/17/11	2/17/11	42
44	machine OD	2 days	2/18/11	2/22/11	43
45	electrical tests	1 day	2/23/11	2/23/11	44
46	**AFF Coil #2**	**12 days**	**2/24/11**	**3/11/11**	
47	insulate hub	1 day	2/24/11	2/24/11	45
48	splice, insulate start lead / install hub	1 day	2/25/11	2/25/11	47
49	wind 24 layers	4 days	2/28/11	3/3/11	48
50	splice, insulate exiting lead	1 day	3/4/11	3/4/11	49
51	cure	1 day	3/7/11	3/7/11	50
52	overwrap / cure	1 day	3/8/11	3/8/11	51
53	machine OD	2 days	3/9/11	3/10/11	52
54	electrical tests	1 day	3/11/11	3/11/11	53
55	**FF Coil #1**	**24 days**	**3/14/11**	**4/14/11**	
56	insulate hub	1 day	3/14/11	3/14/11	54
57	splice, insulate start lead / install hub	1 day	3/15/11	3/15/11	56



Project: electron lens solenoid 500A fri
Date: 1/4/11

Task | Progress | Summary | External Tasks | Split
Split | Milestone | Project Summary | External MileTask

ID	Task Name	Duration	Start	Finish	Predeces
58	wind 70 layers	12 days	3/16/11	3/31/11	57
59	splice, insulate exiting lead	1 day	4/1/11	4/1/11	58
60	cure	1 day	4/4/11	4/4/11	59
61	overwrap / cure	1 day	4/5/11	4/5/11	60
62	machine OD	2 days	4/6/11	4/7/11	61
63	electrical tests	1 day	4/8/11	4/8/11	62
64	install diodes, vt's, resistors / wire	3 days	4/11/11	4/13/11	63
65	electrical tests	1 day	4/14/11	4/14/11	64
66	**FF Coil #2**	**24 days**	**4/15/11**	**5/18/11**	
67	insulate hub	1 day	4/15/11	4/15/11	65
68	splice, insulate start lead / install hub	1 day	4/18/11	4/18/11	67
69	wind 70 layers	12 days	4/19/11	5/4/11	68
70	splice, insulate exiting lead	1 day	5/5/11	5/5/11	69
71	cure	1 day	5/6/11	5/6/11	70
72	overwrap / cure	1 day	5/9/11	5/9/11	71
73	machine OD	2 days	5/10/11	5/11/11	72
74	electrical tests	1 day	5/12/11	5/12/11	73
75	install diodes, vt's, resistors / wire	3 days	5/13/11	5/17/11	74
76	electrical tests	1 day	5/18/11	5/18/11	75
77	**Block Corrector Coils**	**54 days**	**1/10/11**	**3/28/11**	**4SS+100**
78	deburr / clean tube	0.5 days	1/10/11	1/10/11	
79	form pushers	0.5 days	1/10/11	1/10/11	78
80	insulate 0.5m/2.5m grooves (20 blocks, 40 ends)	10 days	1/11/11	1/25/11	79
81	wind 4 layer 0.5m coil blocks (20)	10 days	1/26/11	2/8/11	80
82	stabilize / insulate 40 leads	5 days	2/9/11	2/15/11	81
83	electrical tests	1 day	2/16/11	2/16/11	82
84	wind 1 layer 2.5m coil blocks (4)	2 days	2/17/11	2/18/11	83
85	stabilize / insulate 8 leads	1 day	2/22/11	2/22/11	84
86	electrical tests	2 days	2/23/11	2/24/11	85
87	kevlar wrap / cure	2 days	2/25/11	2/28/11	86
88	strip / wrap / prep for cure	2 days	3/1/11	3/2/11	87
89	final cure	1 day	3/3/11	3/3/11	88
90	electrical tests	2 days	3/4/11	3/7/11	89
91	magnetic measurements	15 days	3/8/11	3/28/11	90
92	**Yoke Assembly**	**35 days**	**5/19/11**	**7/8/11**	**6,36,77**
93	install AFF coils onto support tube	0.5 days	5/19/11	5/19/11	
94	install corrector coil assembly	0.5 days	5/19/11	5/19/11	93
95	install yoke, outer support shell	3.5 days	5/20/11	5/25/11	94
96	install NLE bus	0.25 days	5/25/11	5/25/11	95
97	install wiring boards (2)	0.25 days	5/25/11	5/25/11	96
98	wire main solenoid leads (22), vt's (46), diodes (12)	10 days	5/26/11	6/9/11	97
99	wire AFF leads (4), vt's (3)	2 days	6/10/11	6/13/11	98
100	install FF coils	1 day	6/14/11	6/14/11	99
101	wire FF leads (4), vt's (3)	2 days	6/15/11	6/16/11	100
102	electrical tests	5 days	6/17/11	6/23/11	101
103	magnetic / polarity tests	10 days	6/24/11	7/8/11	102
104	**Vertical Cold Test**	**39.5 days**	**7/11/11**	**9/2/11**	**6,92**
105	wiring stand instl and test	9 days	7/11/11	7/21/11	
106	install in dewar	0.5 days	7/22/11	7/22/11	105
107	300K elect test & integ. field msmt	5 days	7/22/11	7/29/11	106
108	cool down to 4.5K	5 days	7/29/11	8/5/11	107
109	4.5K elect, heater, quench, DC loop	15 days	8/5/11	8/26/11	108
110	warmup	2 days	8/26/11	8/30/11	109
111	remove from dewar, test fixture	3 days	8/30/11	9/2/11	110
112	**Cold Mass Assembly**	**11 days**	**9/2/11**	**9/19/11**	**4,104**
113	install / weld end volumes	4 days	9/2/11	9/8/11	
114	install / weld port closures	3 days	9/8/11	9/13/11	113
115	pressure / leak check	3 days	9/13/11	9/16/11	114
116	cut test port closures	1 day	9/16/11	9/19/11	115



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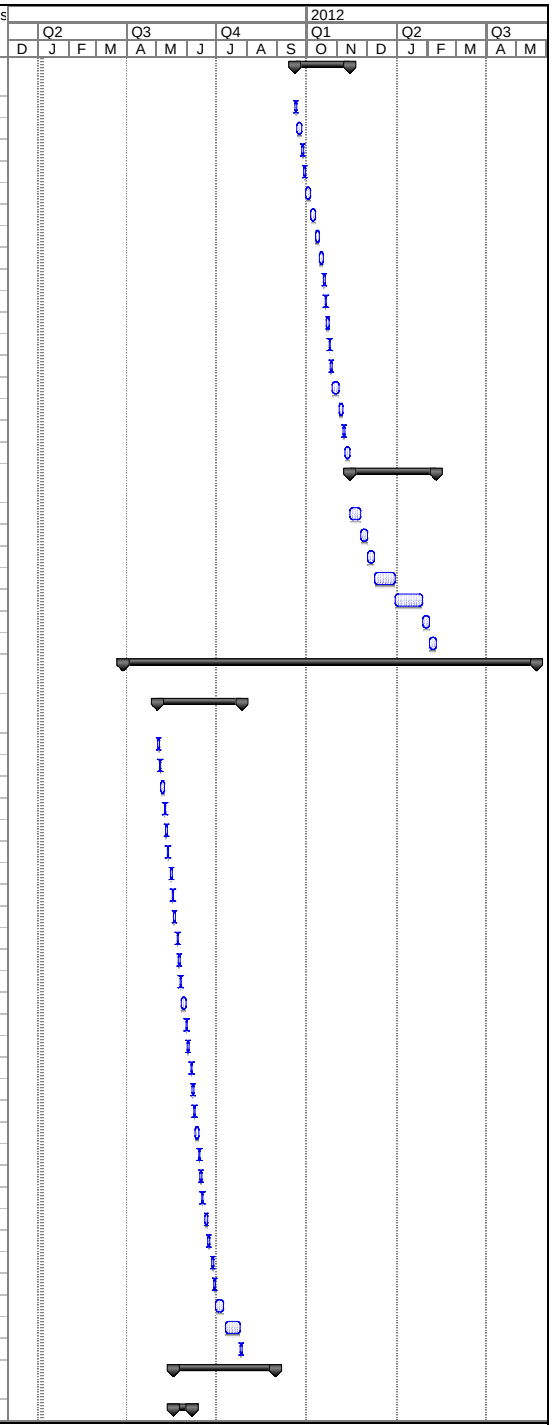
Task | Progress | Summary | External Tasks | Split
Split | Milestone | Project Summary | External MileTask

ID		Task Name	Duration	Start	Finish	Predeces
117		**Magnet Assembly**	**40 days**	**9/19/11**	**11/14/11**	112
118		install CM insulating blankets	2 days	9/19/11	9/21/11	
119		install outer heat shield	3 days	9/21/11	9/26/11	118
120		install magnet insulating blankets	2 days	9/26/11	9/28/11	119
121		install LE vacuum vessel sleeve, tower, He lines	2 days	9/28/11	9/30/11	120
122		connect gas cooled leads (6)	3 days	9/30/11	10/5/11	121
123		connect copper corrector leads (24)	3 days	10/5/11	10/10/11	122
124		connect instrumentation wires	4 days	10/10/11	10/14/11	123
125		electrical tests	2 days	10/14/11	10/18/11	124
126		install cold mass into vacuum vessel	2 days	10/18/11	10/20/11	125
127		install posts	1 day	10/20/11	10/21/11	126
128		install inner heat shield	1 day	10/21/11	10/24/11	127
129		install inner vacuum vessel	1 day	10/24/11	10/25/11	128
130		install vacuum vessel end plates	2 days	10/25/11	10/27/11	129
131		install cryovalve, helium lines	5 days	10/27/11	11/3/11	130
132		connect NLE instrumentation wires	2 days	11/3/11	11/7/11	131
133		electrical tests	2 days	11/7/11	11/9/11	132
134		vaccum leak check testing	3 days	11/9/11	11/14/11	133
135		**Final Magnet Test**	**64 days**	**11/14/11**	**2/10/12**	117
136		power supply, helium connections	9 days	11/14/11	11/25/11	
137		300K elect test & integ. field msmt	5 days	11/25/11	12/2/11	136
138		cooldown	5 days	12/2/11	12/9/11	137
139		4.5K elect, heater, quench, DC loop	15 days	12/9/11	12/30/11	138
140		magnetic measurements	20 days	12/30/11	1/27/12	139
141		warmup	5 days	1/27/12	2/3/12	140
142		disconnect electrical, plumbing	5 days	2/3/12	2/10/12	141
143		**Magnet #2**	**298.5 days**	**3/29/11**	**5/22/12**	
144		**Solenoid Coil Assembly**	**60 days**	**5/3/11**	**7/27/11**	6
145		insulate tube / cure	2 days	5/3/11	5/4/11	
146		install cable spool, support tube	1 day	5/5/11	5/5/11	145
147		wind double layer 1	2 days	5/6/11	5/9/11	146
148		wrap, cure	1 day	5/10/11	5/10/11	147
149		wind double layer 2	2 days	5/11/11	5/12/11	148
150		wrap, cure	1 day	5/13/11	5/13/11	149
151		wind double layer 3	2 days	5/16/11	5/17/11	150
152		wrap, cure	1 day	5/18/11	5/18/11	151
153		wind double layer 4	2 days	5/19/11	5/20/11	152
154		wrap, cure	1 day	5/23/11	5/23/11	153
155		wind double layer 5	2 days	5/24/11	5/25/11	154
156		wrap, cure	1 day	5/26/11	5/26/11	155
157		wind double layer 6	2 days	5/27/11	5/31/11	156
158		wrap, cure	1 day	6/1/11	6/1/11	157
159		wind double layer 7	2 days	6/2/11	6/3/11	158
160		wrap, cure	1 day	6/6/11	6/6/11	159
161		wind double layer 8	2 days	6/7/11	6/8/11	160
162		wrap, cure	1 day	6/9/11	6/9/11	161
163		wind double layer 9	2 days	6/10/11	6/13/11	162
164		wrap, cure	1 day	6/14/11	6/14/11	163
165		wind double layer 10	2 days	6/15/11	6/16/11	164
166		wrap, cure	1 day	6/17/11	6/17/11	165
167		wind double layer 11, including 4 layer trims	3 days	6/20/11	6/22/11	166
168		wrap, cure	2 days	6/23/11	6/24/11	167
169		over-wrap fiberglass	2 days	6/27/11	6/28/11	168
170		cure	2 days	6/29/11	6/30/11	169
171		machine OD	5 days	7/1/11	7/8/11	170
172		stabilize, install vt's, insulate exiting leads	11 days	7/11/11	7/25/11	171
173		electrical tests	2 days	7/26/11	7/27/11	172
174		**Fringe Field Solenoid Coils**	**72 days**	**5/19/11**	**8/30/11**	66
175		**AFF Coil #1**	**12 days**	**5/19/11**	**6/6/11**	



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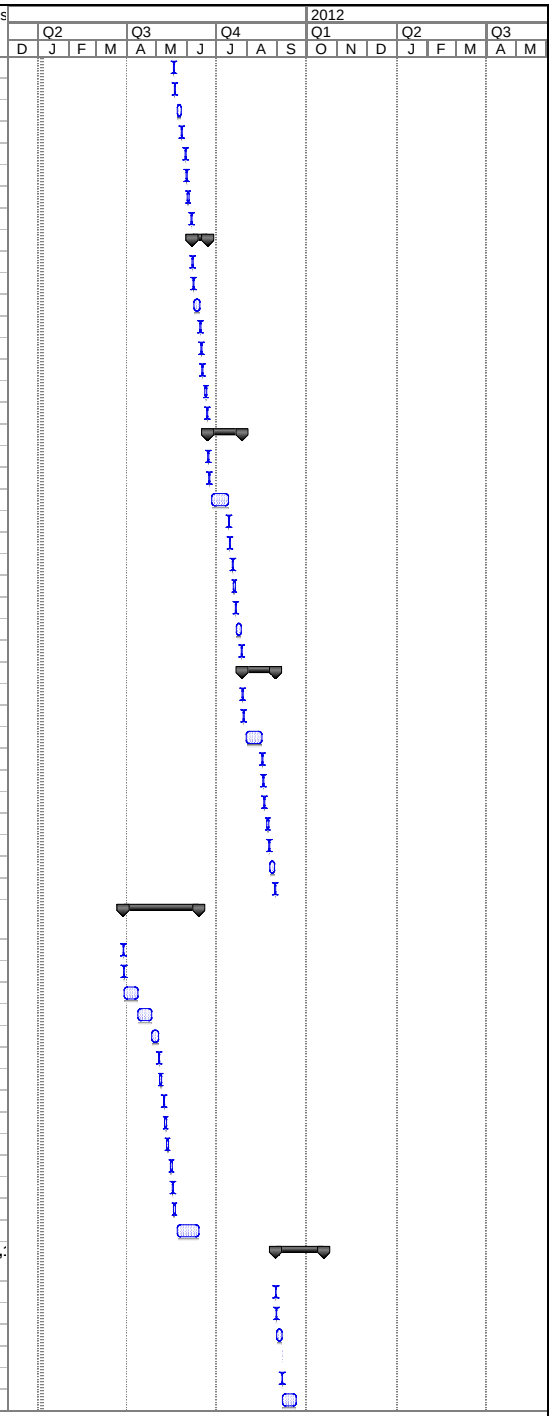
Task | Progress | Summary | External Tasks | Split
Split | Milestone | Project Summary | External MileTask

ID	Task Name	Duration	Start	Finish	Predeces
176	insulate hub	1 day	5/19/11	5/19/11	
177	splice, insulate start lead / install hub	1 day	5/20/11	5/20/11	176
178	wind 24 layers	4 days	5/23/11	5/26/11	177
179	splice, insulate exiting lead	1 day	5/27/11	5/27/11	178
180	cure	1 day	5/31/11	5/31/11	179
181	overwrap / cure	1 day	6/1/11	6/1/11	180
182	machine OD	2 days	6/2/11	6/3/11	181
183	electrical tests	1 day	6/6/11	6/6/11	182
184	**AFF Coil #2**	**12 days**	**6/7/11**	**6/22/11**	
185	insulate hub	1 day	6/7/11	6/7/11	183
186	splice, insulate start lead / install hub	1 day	6/8/11	6/8/11	185
187	wind 24 layers	4 days	6/9/11	6/14/11	186
188	splice, insulate exiting lead	1 day	6/15/11	6/15/11	187
189	cure	1 day	6/16/11	6/16/11	188
190	overwrap / cure	1 day	6/17/11	6/17/11	189
191	machine OD	2 days	6/20/11	6/21/11	190
192	electrical tests	1 day	6/22/11	6/22/11	191
193	**FF Coil #1**	**24 days**	**6/23/11**	**7/27/11**	
194	insulate hub	1 day	6/23/11	6/23/11	192
195	splice, insulate start lead / install hub	1 day	6/24/11	6/24/11	194
196	wind 70 layers	12 days	6/27/11	7/13/11	195
197	splice, insulate exiting lead	1 day	7/14/11	7/14/11	196
198	cure	1 day	7/15/11	7/15/11	197
199	overwrap / cure	1 day	7/18/11	7/18/11	198
200	machine OD	2 days	7/19/11	7/20/11	199
201	electrical tests	1 day	7/21/11	7/21/11	200
202	install diodes, vt's, resistors / wire	3 days	7/22/11	7/26/11	201
203	electrical tests	1 day	7/27/11	7/27/11	202
204	**FF Coil #2**	**24 days**	**7/28/11**	**8/30/11**	
205	insulate hub	1 day	7/28/11	7/28/11	203
206	splice, insulate start lead / install hub	1 day	7/29/11	7/29/11	205
207	wind 70 layers	12 days	8/1/11	8/16/11	206
208	splice, insulate exiting lead	1 day	8/17/11	8/17/11	207
209	cure	1 day	8/18/11	8/18/11	208
210	overwrap / cure	1 day	8/19/11	8/19/11	209
211	machine OD	2 days	8/22/11	8/23/11	210
212	electrical tests	1 day	8/24/11	8/24/11	211
213	install diodes, vt's, resistors / wire	3 days	8/25/11	8/29/11	212
214	electrical tests	1 day	8/30/11	8/30/11	213
215	**Block Corrector Coils**	**54 days**	**3/29/11**	**6/13/11**	
216	deburr / clean tube	0.5 days	3/29/11	3/29/11	77
217	form pushers	0.5 days	3/29/11	3/29/11	216
218	insulate 0.5m/2.5m grooves (20 blocks, 40 ends)	10 days	3/30/11	4/12/11	217
219	wind 4 layer 0.5m coil blocks (20)	10 days	4/13/11	4/26/11	218
220	stabilize / insulate 40 leads	5 days	4/27/11	5/3/11	219
221	electrical tests	1 day	5/4/11	5/4/11	220
222	wind 1 layer 2.5m coil blocks (4)	2 days	5/5/11	5/6/11	221
223	stabilize / insulate 8 leads	1 day	5/9/11	5/9/11	222
224	electrical tests	2 days	5/10/11	5/11/11	223
225	kevlar wrap / cure	2 days	5/12/11	5/13/11	224
226	strip / wrap / prep for cure	2 days	5/16/11	5/17/11	225
227	final cure	1 day	5/18/11	5/18/11	226
228	electrical tests	2 days	5/19/11	5/20/11	227
229	magnetic measurements	15 days	5/23/11	6/13/11	228
230	**Yoke Assembly**	**35 days**	**8/31/11**	**10/18/11**	**215,144,:**
231	install AFF coils onto support tube	0.5 days	8/31/11	8/31/11	
232	install corrector coil assembly	0.5 days	8/31/11	8/31/11	231
233	install yoke, outer support shell	3.5 days	9/1/11	9/6/11	232
234	install NLE bus	0.25 days	9/6/11	9/6/11	233
235	install wiring boards (2)	0.25 days	9/6/11	9/6/11	234
236	wire main solenoid leads (22), vt's (46), diodes (12)	10 days	9/7/11	9/20/11	235



Project: electron lens solenoid 500A fri
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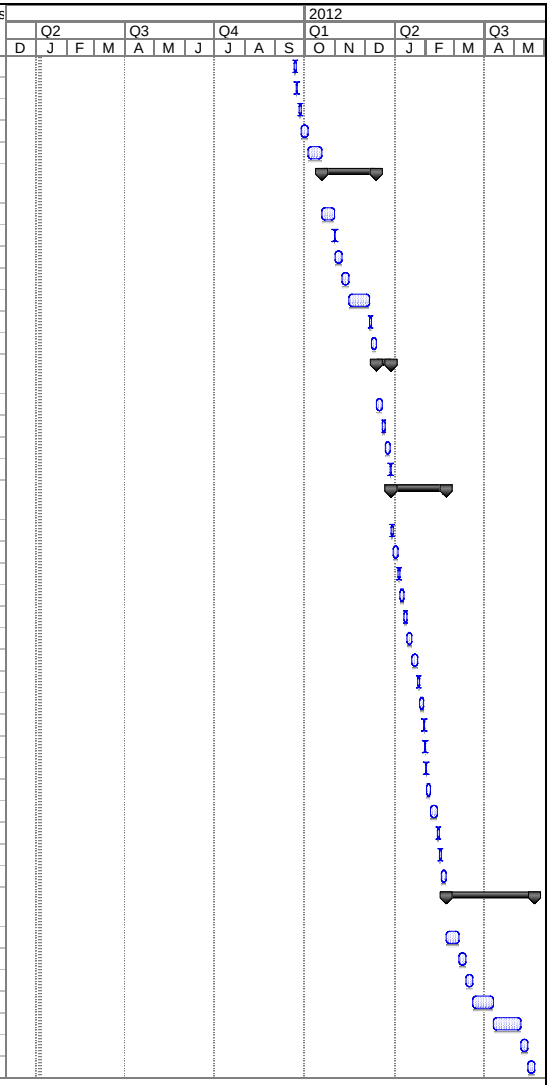
Task | Progress | Summary | External Tasks | Split
Split | Milestone | Project Summary | External MileTask

ID		Task Name	Duration	Start	Finish	Predeces
237		wire AFF leads (4), vt's (3)	2 days	9/21/11	9/22/11	236
238		install FF coils	1 day	9/23/11	9/23/11	237
239		wire FF leads (4), vt's (3)	2 days	9/26/11	9/27/11	238
240		electrical tests	5 days	9/28/11	10/4/11	239
241		magnetic / polarity tests	10 days	10/5/11	10/18/11	240
242		**Vertical Cold Test**	**39.5 days**	**10/19/11**	**12/13/11**	230
243		wiring stand instl and test	9 days	10/19/11	10/31/11	
244		install in dewar	0.5 days	11/1/11	11/1/11	243
245		300K elect test & integ. field msmt	5 days	11/1/11	11/8/11	244
246		cool down to 4.5K	5 days	11/8/11	11/15/11	245
247		4.5K elect, heater, quench, DC loop	15 days	11/15/11	12/6/11	246
248		warmup	2 days	12/6/11	12/8/11	247
249		remove from dewar, test fixture	3 days	12/8/11	12/13/11	248
250		**Cold Mass Assembly**	**11 days**	**12/13/11**	**12/28/11**	242
251		install / weld end volumes	4 days	12/13/11	12/19/11	
252		install / weld port closures	3 days	12/19/11	12/22/11	251
253		pressure / leak check	3 days	12/22/11	12/27/11	252
254		cut test port closures	1 day	12/27/11	12/28/11	253
255		**Magnet Assembly**	**40 days**	**12/28/11**	**2/22/12**	250
256		install CM insulating blankets	2 days	12/28/11	12/30/11	
257		install outer heat shield	3 days	12/30/11	1/4/12	256
258		install magnet insulating blankets	2 days	1/4/12	1/6/12	257
259		install LE vacuum vessel sleeve, tower, He lines	2 days	1/6/12	1/10/12	258
260		connect gas cooled leads (6)	3 days	1/10/12	1/13/12	259
261		connect copper corrector leads (24)	3 days	1/13/12	1/18/12	260
262		connect instrumentation wires	4 days	1/18/12	1/24/12	261
263		electrical tests	2 days	1/24/12	1/26/12	262
264		install cold mass into vacuum vessel	2 days	1/26/12	1/30/12	263
265		install posts	1 day	1/30/12	1/31/12	264
266		install inner heat shield	1 day	1/31/12	2/1/12	265
267		install inner vacuum vessel	1 day	2/1/12	2/2/12	266
268		install vacuum vessel end plates	2 days	2/2/12	2/6/12	267
269		install cryovalve, helium lines	5 days	2/6/12	2/13/12	268
270		connect NLE instrumentation wires	2 days	2/13/12	2/15/12	269
271		electrical tests	2 days	2/15/12	2/17/12	270
272		vaccum leak check testing	3 days	2/17/12	2/22/12	271
273		**Final Magnet Test**	**64 days**	**2/22/12**	**5/22/12**	255
274		power supply, helium connections	9 days	2/22/12	3/6/12	
275		300K elect test & integ. field msmt	5 days	3/6/12	3/13/12	274
276		cooldown	5 days	3/13/12	3/20/12	275
277		4.5K elect, heater, quench, DC loop	15 days	3/20/12	4/10/12	276
278		magnetic measurements	20 days	4/10/12	5/8/12	277
279		warmup	5 days	5/8/12	5/15/12	278
280		disconnect electrical, plumbing	5 days	5/15/12	5/22/12	279



Project: electron lens solenoid 500A fri
Date: 1/4/11

Task | Progress | Summary | External Tasks | Split
Split | Milestone | Project Summary | External MileTask