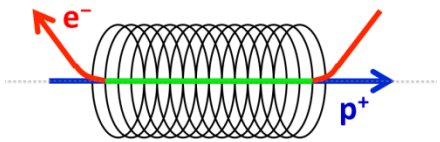
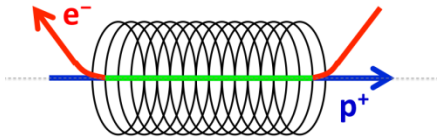


Electron Lens Superconducting Solenoid Status

Michael Anerella

September 11, 2012

eLens – Assembly



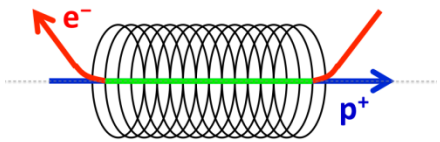
Magnet #1 – Cold Mass Assembly

- end plate mods complete (FT/TVW)
- End plate, tube closure welding underway
- Heat shield installation next
- Pressure / leak check testing afterwards

Magnet #2 – Cold Test Assembly:

- Testing continues

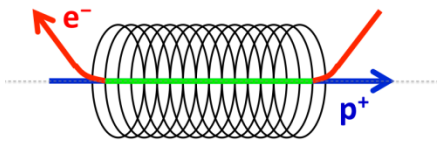
E-Lens Magnet Drawings, Parts



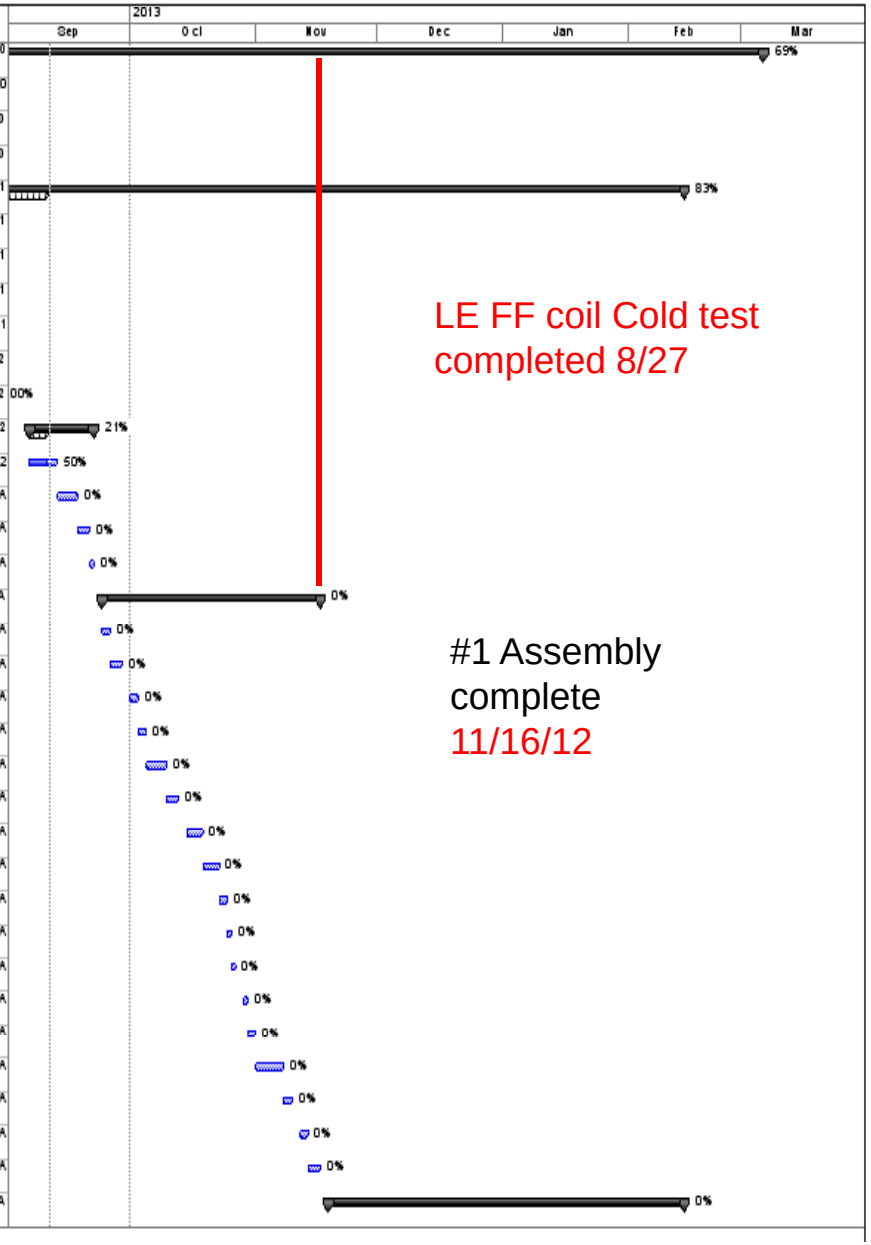
Magnet

- Design work continues - (SP/SS/FC)
  - insertion assy (38010200) – check print complete
  - cryostatted assy (38060200) – check print complete
  - electro-mechanical assy (38060406) – in checking
  - e-lens top assy (38060001) – in checking
  - Insertion fixture additions – complete, parts order in CS (SS)
- Cryostats inspected?
- heat shields sent to CS for final end cutouts, fittings welded ASAP
- (some) Cryostat parts in CS, supporting schedule

Magnet #1 schedule



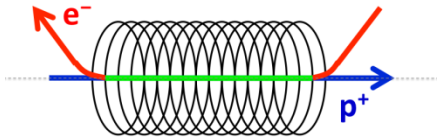
ID		Task Name	Duration	Baseline Start	Baseline Finish	Actual Start
1		**electron lens solenoid**	**738.5 days**	**4/5/10**	**5/22/12**	4/5/10
2	✓	Preliminary Design	80 days	4/5/10	7/27/10	4/5/10
3		**Final Design**	**143.75 days**	**7/28/10**	**3/4/11**	7/28/10
7		**Fabrication / Procurement**	**276 days**	**7/28/10**	**8/31/11**	7/28/10
11		**Magnet #1**	**524 days**	**1/21/11**	**2/10/12**	1/24/11
12		**Solenoid Coil Assembly**	**142 days**	**2/7/11**	**5/2/11**	3/21/11
49		**Fringe Field Solenoid Coils**	**199 days**	**2/7/11**	**5/18/11**	3/14/11
90		**Block Corrector Coils**	**152 days**	**1/21/11**	**4/7/11**	1/24/11
107		**Yoke Assembly**	**100 days**	**5/19/11**	**7/8/11**	10/14/11
123		**Vertical Cold Test**	**80.5 days**	**7/11/11**	**9/2/11**	3/14/12
137	✓	**LE FF coil repair / retest**	**34.5 days**	**NA**	**NA**	7/10/12
146		**Cold Mass Assembly**	**12 days**	**9/2/11**	**9/19/11**	8/8/12
147		install / weld end volumes	5 days	9/2/11	9/8/11	9/6/12
148		install / weld port closures	3 days	9/8/11	9/13/11	NA
149		pressure / leak check	3 days	9/13/11	9/16/11	NA
150		cut test port closures	1 day	9/16/11	9/19/11	NA
151		**Magnet Assembly**	**40 days**	**9/19/11**	**11/14/11**	NA
152		install CM insulating blankets	2 days	9/19/11	9/21/11	NA
153		install outer heat shield	3 days	9/21/11	9/26/11	NA
154		install magnet insulating blankets	2 days	9/26/11	9/28/11	NA
155		install LE vacuum vessel sleeve, tower, He	2 days	9/28/11	9/30/11	NA
156		connect gas cooled leads (10)	3 days	9/30/11	10/5/11	NA
157		connect copper corrector leads (24)	3 days	10/5/11	10/10/11	NA
158		connect instrumentation wires	4 days	10/10/11	10/14/11	NA
159		electrical tests	2 days	10/14/11	10/18/11	NA
160		install cold mass into vacuum vessel	2 days	10/18/11	10/20/11	NA
161		install posts	1 day	10/20/11	10/21/11	NA
162		install inner heat shield	1 day	10/21/11	10/24/11	NA
163		install inner vacuum vessel	1 day	10/24/11	10/25/11	NA
164		install vacuum vessel end plates	2 days	10/25/11	10/27/11	NA
165		install cryovalve, helium lines	5 days	10/27/11	11/3/11	NA
166		connect NLE instrumentation wires	2 days	11/3/11	11/7/11	NA
167		electrical tests	2 days	11/7/11	11/9/11	NA
168		vaccum leak check testing	3 days	11/9/11	11/14/11	NA
169		**Final Magnet Test**	**64 days**	**11/14/11**	**2/10/12**	NA



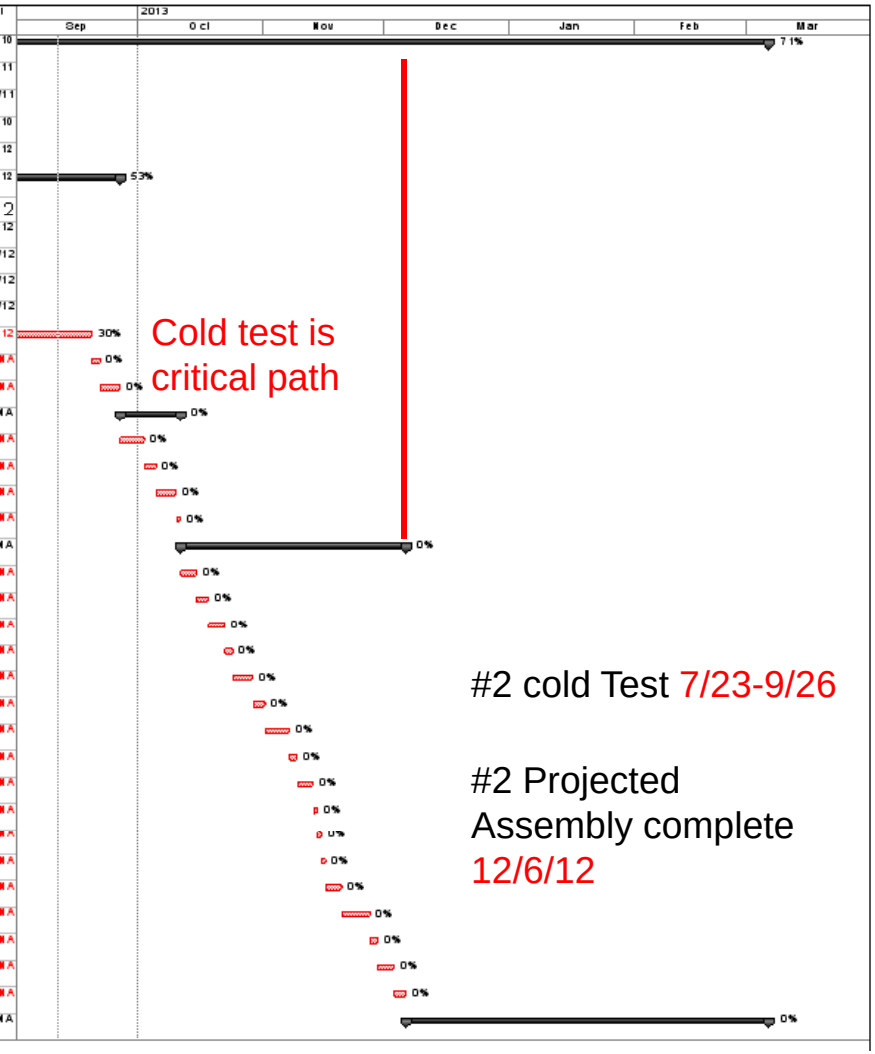
LE FF coil Cold test completed 8/27

#1 Assembly complete 11/16/12

Magnet #2 schedule



ID		Task Name	Duration	Baseline Start	Baseline Finish	Actual Start
177		**Magnet #2**	**612.5 days**	**4/8/11**	**5/22/12**	10/1/10
178		**Solenoid Coil Assembly**	**131 days**	**5/3/11**	**7/27/11**	8/16/11
216		**Fringe Field Solenoid Coils**	**112 days**	**5/19/11**	**8/30/11**	8/2/11
255		**Block Corrector Coils**	**274 days**	**4/8/11**	**6/23/11**	10/1/10
271		**Yoke Assembly**	**71 days**	**8/31/11**	**10/18/11**	8/28/12
287		**Vertical Cold Test**	**47.5 days**	**10/19/11**	**12/13/11**	7/23/12
288	✓	install LE FF coil restraint	1 day	NA	NA	7/23/12
289	✓	wiring stand instl and test	6 days	10/19/11	10/31/11	7/24/12
290	✓	install in dewar	0.5 days	11/1/11	11/1/11	8/1/12
291	✓	300K elect test & integ. field msmt	5 days	11/1/11	11/8/11	8/1/12
292	✓	cool down to 4.5K	5 days	11/8/11	11/15/11	8/8/12
293		4.5K elect, heater, quench, DC loop	25 days	11/15/11	12/6/11	8/15/12
294		warmup	2 days	12/6/11	12/8/11	NA
295		remove from dewar, test fixture	3 days	12/8/11	12/13/11	NA
296		**Cold Mass Assembly**	**11 days**	**12/13/11**	**12/28/11**	NA
297		install / weld end volumes	4 days	12/13/11	12/19/11	NA
298		install / weld port closures	3 days	12/19/11	12/22/11	NA
299		pressure / leak check	3 days	12/22/11	12/27/11	NA
300		cut test port closures	1 day	12/27/11	12/28/11	NA
301		**Magnet Assembly**	**40 days**	**12/28/11**	**2/22/12**	NA
302		install CM insulating blankets	2 days	12/28/11	12/30/11	NA
303		install outer heat shield	3 days	12/30/11	1/4/12	NA
304		install magnet insulating blankets	2 days	1/4/12	1/6/12	NA
305		install LE vacuum vessel sleeve, tower, He	2 days	1/6/12	1/10/12	NA
306		connect gas cooled leads (6)	3 days	1/10/12	1/13/12	NA
307		connect copper corrector leads (24)	3 days	1/13/12	1/18/12	NA
308		connect instrumentation wires	4 days	1/18/12	1/24/12	NA
309		electrical tests	2 days	1/24/12	1/26/12	NA
310		install cold mass into vacuum vessel	2 days	1/26/12	1/30/12	NA
311		install posts	1 day	1/30/12	1/31/12	NA
312		install inner heat shield	1 day	1/31/12	2/1/12	NA
313		install inner vacuum vessel	1 day	2/1/12	2/2/12	NA
314		install vacuum vessel end plates	2 days	2/2/12	2/6/12	NA
315		install cryovalve, helium lines	5 days	2/6/12	2/13/12	NA
316		connect NLE instrumentation wires	2 days	2/13/12	2/15/12	NA
317		electrical tests	2 days	2/15/12	2/17/12	NA
318		vaccum leak check testing	3 days	2/17/12	2/22/12	NA
319		**Final Magnet Test**	**64 days**	**2/22/12**	**5/22/12**	NA



Cold test is critical path

#2 cold Test 7/23-9/26

#2 Projected Assembly complete 12/6/12