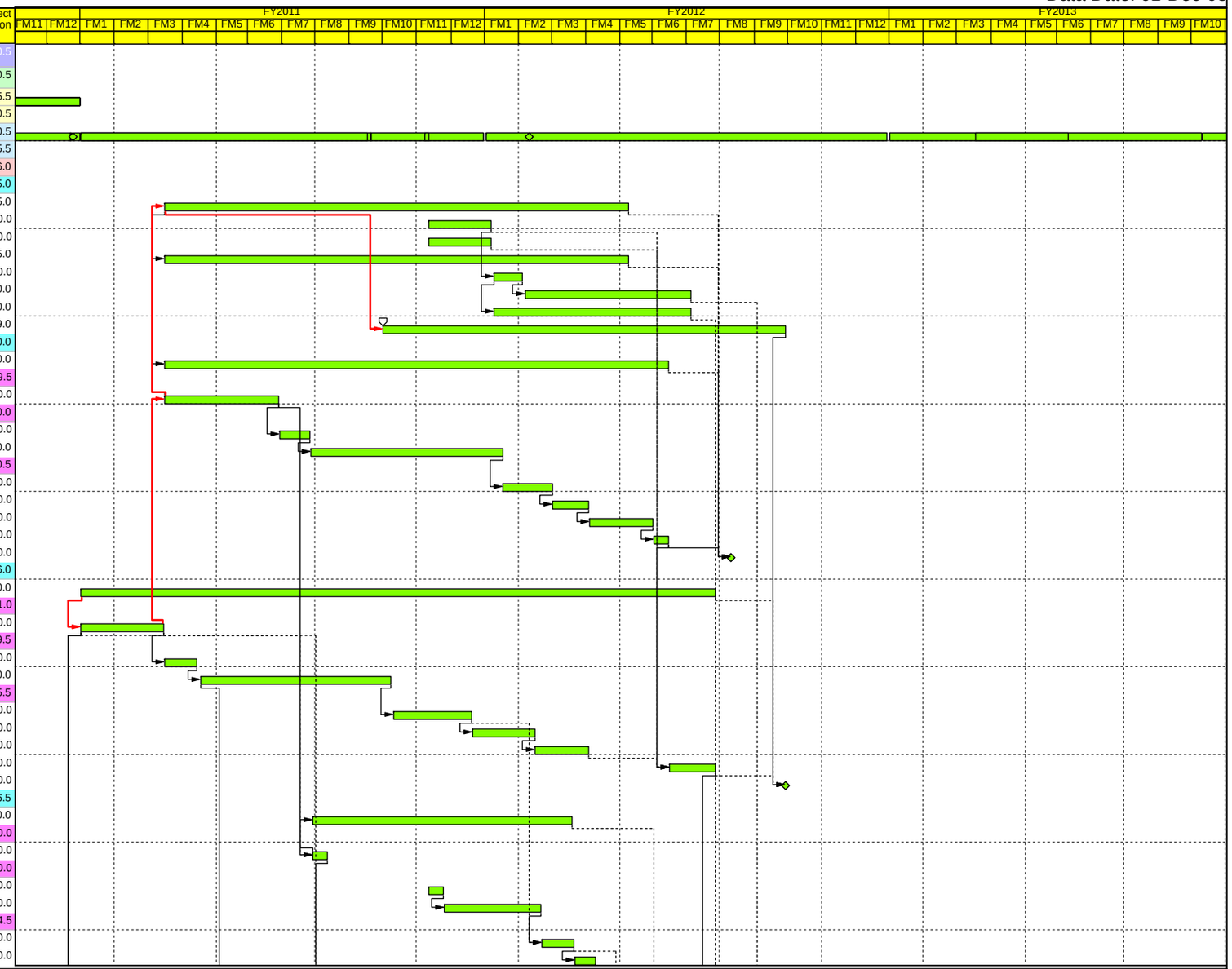
APUL - ACCELERATOR UPGRADE of LHC Baseline D106

Data Date: 01-Dec-08

Activity ID	WBS Acct	Activity Name	Start	Finish	BL Project Duration
Total			01-Dec-08	02-Apr-14	1330.5
APUL - ACCELERATOR UPGRADE of LHC Baseline D106			01-Dec-08	02-Apr-14	1330.5
APUL Early Mgt. & R&D			19-Mar-09	30-Sep-10	385.5
APUL Spare D1 Magnet			01-Dec-08	02-Apr-14	1330.5
APUL D1 Spare Project Management			01-Dec-08	02-Apr-14	1330.5
D1-106 Dipole Magnet Replacement			01-Oct-10	17-Jun-13	675.5
Tooling			01-Oct-10	29-Jun-12	436.0
Tooling Support and Fabrication			16-Dec-10	29-Jun-12	385.0
1000	00805	Project Engineer + Q.A. Oversight	16-Dec-10	08-Feb-12	285.0
1110	00805	Inventory / Stage All	12-Aug-11	07-Oct-11	40.0
1120	00805	Check Solder Fixtures	12-Aug-11	07-Oct-11	40.0
1130	00805	Tooling Engineer L.O.E.	16-Dec-10	08-Feb-12	285.0
1140	00805	Parts Ordering, Tooling Support	10-Oct-11	04-Nov-11	20.0
1150	00805	Parts Fabrication, Tooling Support	07-Nov-11	04-Apr-12	100.0
1160	00805	Mechanical Engineer L.O.E.	10-Oct-11	04-Apr-12	120.0
1170	00805	Tooling Design Software	01-Jul-11*	29-Jun-12	249.0
Winding Machine			16-Dec-10	10-May-12	350.0
1200	00806	Mechanical Engineer L.O.E.	16-Dec-10	15-Mar-12	310.0
Design			16-Dec-10	29-Mar-11	69.5
1210	00806	Design Updates / Drawing Preparation	16-Dec-10	29-Mar-11	70.0
Fabrication			30-Mar-11	17-Oct-11	140.0
1220	00806	Parts Ordering, Winding Machine	30-Mar-11	26-Apr-11	20.0
1230	00806	Parts Fabrication, Winding Machine	27-Apr-11	17-Oct-11	120.0
Installation / Commissioning			18-Oct-11	10-May-12	140.5
1240	00806	Installation, Winding Machine	18-Oct-11	01-Dec-11	30.0
1250	00806	Wiring, Winding machine	02-Dec-11	03-Jan-12	20.0
1260	00806	Programming, Winding Machine	04-Jan-12	01-Mar-12	40.0
1270	00806	Commissioning, Winding machine	02-Mar-12	15-Mar-12	10.0
1290		L2 Milestone - Winding Machine Complete		10-May-12	0.0
Curing Press			01-Oct-10	29-Jun-12	436.0
1300	00807	Mechanical Engineer L.O.E.	01-Oct-10	26-Apr-12	390.0
Design			01-Oct-10	15-Dec-10	51.0
1310	00807	Design Updates / Drawing Preparation	01-Oct-10	15-Dec-10	50.0
Fabrication			16-Dec-10	08-Jul-11	139.5
1320	00807	Parts Ordering, Curing Press	16-Dec-10	14-Jan-11	20.0
1330	00807	Parts Fabrication, Curing Press	18-Jan-11	08-Jul-11	120.0
Installation / Commissioning			11-Jul-11	29-Jun-12	245.5
1340	00807	Installation, Curing Press	11-Jul-11	19-Sep-11	50.0
1350	00807	Wiring, Curing Press	20-Sep-11	15-Nov-11	40.0
1360	00807	Programming, Curing Press	16-Nov-11	03-Jan-12	30.0
1370	00807	Coil Tool Commissioning (3 Coils)	16-Mar-12	26-Apr-12	30.0
1390		L2 Milestone - Curing Press Extension Complete		29-Jun-12	0.0
Collaring Press			29-Apr-11	13-Mar-12	216.5
1400	00808	Mechanical Engineer L.O.E.	29-Apr-11	19-Dec-11	160.0
Design			29-Apr-11	12-May-11	10.0
1410	00808	Design Updates / Drawing Preparation	29-Apr-11	12-May-11	10.0
Fabrication			12-Aug-11	21-Nov-11	70.0
1420	00808	Parts Ordering, Collaring Press	12-Aug-11	25-Aug-11	10.0
1430	00808	Parts Fabrication, Collaring Press	26-Aug-11	21-Nov-11	60.0
Installation / Commissioning			22-Nov-11	13-Mar-12	74.5
1440	00808	Installation, Collaring Press	22-Nov-11	21-Dec-11	20.0
1450	00808	Programming, Collaring Press	22-Dec-11	09-Jan-12	10.0



Remaining Work | Completed Work | WP Summary Bar | Start Constraint
Milestone | Actual Milestone | Level of Effort | Finish Constraint

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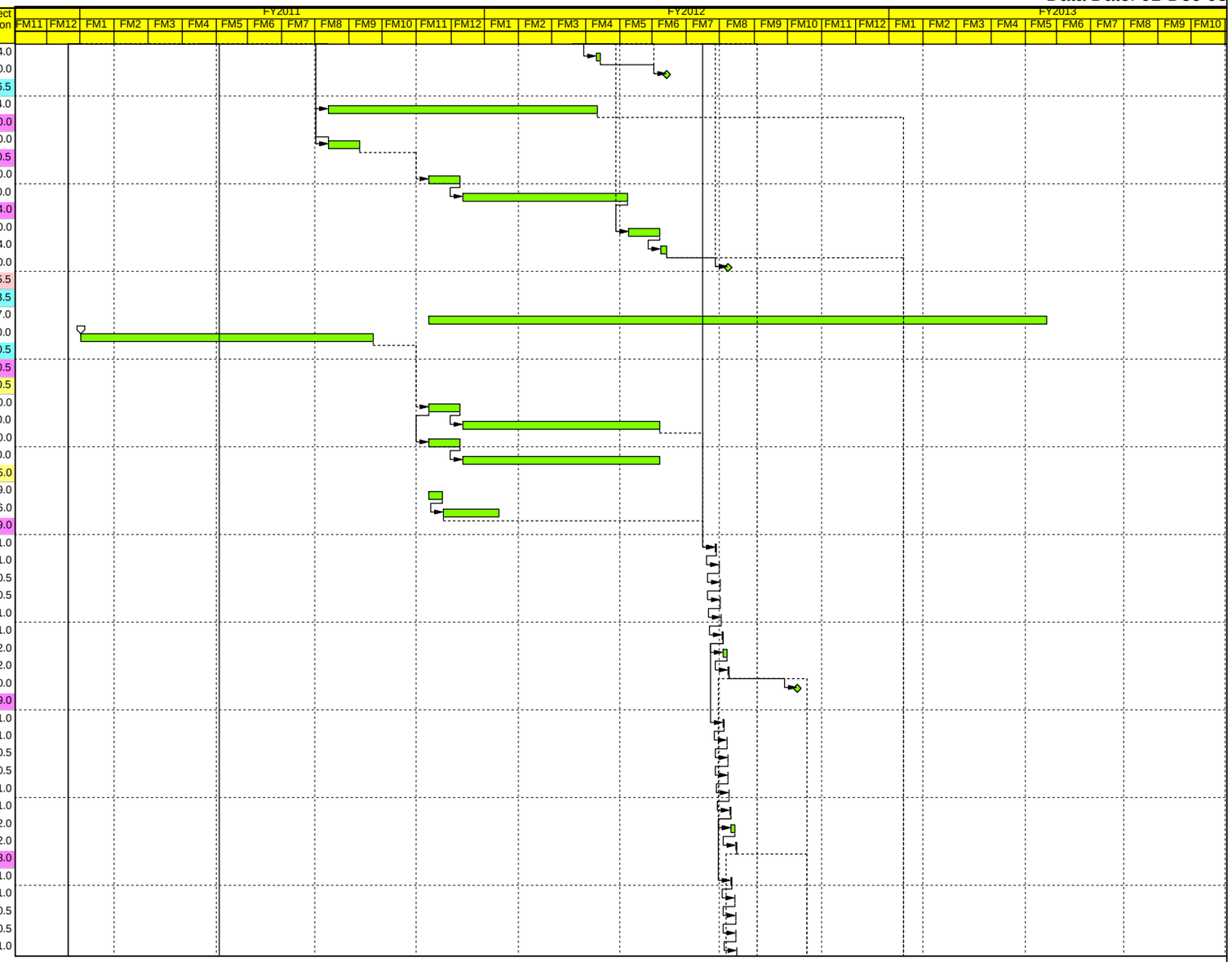
APUL - ACCELERATOR UPGRADE of LHC Baseline D106

Data Date: 01-Dec-08

Activity ID	WBS Acct	Activity Name	Start	Finish	BL Project Duration
1460	00808	Commissioning, Collaring Press	10-Jan-12	13-Jan-12	4.0
1480		L3 Milestone - Collaring Press Complete		13-Mar-12	0.0
Cold Test Tooling			13-May-11	08-May-12	246.5
1500	00809	Mechanical Engineer L.O.E.	13-May-11	11-Jan-12	164.0
Design			13-May-11	10-Jun-11	20.0
1510	00809	Design Updates / Drawing Preparation	13-May-11	10-Jun-11	20.0
Fabrication			12-Aug-11	07-Feb-12	120.5
1520	00809	Parts Ordering, Cold Test Tooling	12-Aug-11	09-Sep-11	20.0
1530	00809	Parts Fabrication, Cold Test Tooling	12-Sep-11	07-Feb-12	100.0
Installation / Commissioning			08-Feb-12	08-May-12	64.0
1540	00809	Installation, Cold Test Tooling	08-Feb-12	07-Mar-12	20.0
1550	00809	Commissioning/Safety Approval Cold Test Tooling	08-Mar-12	13-Mar-12	4.0
1570		L3 Milestone - Cold Test Station Complete		08-May-12	0.0
D1-106 Magnet Assembly & Shipment			01-Oct-10	17-Jun-13	675.5
D1-106 Magnet Assembly Support			01-Oct-10	20-Feb-13	593.5
1800	50162	Project Engineer + Q.A. Oversight	12-Aug-11	20-Feb-13	387.0
1810	50162	Scientific Support	01-Oct-10*	22-Jun-11	180.0
Coil's 1 - 6 Fabrication			12-Aug-11	30-Jul-12	240.5
Coil Materials and Subassemblies			12-Aug-11	07-Mar-12	140.5
Materials			12-Aug-11	07-Mar-12	140.5
1840	50163	Order Coil Parts, #1 - #4	12-Aug-11	09-Sep-11	20.0
1850	50163	Coil Parts Procurement, #1 - #4	12-Sep-11	07-Mar-12	120.0
1855	50164	Order Coil Parts, #5 - #6	12-Aug-11	09-Sep-11	20.0
1856	50164	Coil Parts Procurement, #5 - #6	12-Sep-11	07-Mar-12	120.0
Subassemblies			12-Aug-11	14-Oct-11	45.0
1900	50163	Cable Wrapping	12-Aug-11	24-Aug-11	9.0
1910	50163	Wedge Wrapping, End Parts	25-Aug-11	14-Oct-11	36.0
Coil #1			27-Apr-12	09-Jul-12	49.0
2000	50165	Coil #1 - Install mandrel on winder	27-Apr-12	27-Apr-12	1.0
2010	50165	Coil #1 - Wind coil	30-Apr-12	30-Apr-12	1.0
2020	50165	Coil #1 - Install pushers, liners	01-May-12	01-May-12	0.5
2030	50165	Coil #1 - Move to cure sta. & install in FB	01-May-12	01-May-12	0.5
2040	50165	Coil #1 - Cure	02-May-12	02-May-12	1.0
2050	50165	Coil #1 - Remove from FB & move to test	03-May-12	03-May-12	1.0
2060	50165	Coil #1 - Measure, test	04-May-12	07-May-12	2.0
2070	50165	Coil #1 - Splice, stabilize leads	08-May-12	09-May-12	2.0
2075		L2 Milestone - Coil #1 Complete		09-Jul-12	0.0
Coil #2			04-May-12	16-May-12	9.0
2100	50166	Coil #2 - Install mandrel on winder	04-May-12	04-May-12	1.0
2110	50166	Coil #2 - Wind coil	07-May-12	07-May-12	1.0
2120	50166	Coil #2 - Install pushers, liners	08-May-12	08-May-12	0.5
2130	50166	Coil #2 - Move to cure sta. & install in FB	08-May-12	08-May-12	0.5
2140	50166	Coil #2 - Cure	09-May-12	09-May-12	1.0
2150	50166	Coil #2 - Remove from FB & move to test	10-May-12	10-May-12	1.0
2160	50166	Coil #2 - Measure, test	11-May-12	14-May-12	2.0
2170	50166	Coil #2 - Splice, stabilize leads	15-May-12	16-May-12	2.0
Coil #3			11-May-12	23-May-12	8.0
2200	50167	Coil #3 - Install mandrel on winder	11-May-12	11-May-12	1.0
2210	50167	Coil #3 - Wind coil	14-May-12	14-May-12	1.0
2220	50167	Coil #3 - Install pushers, liners	15-May-12	15-May-12	0.5
2230	50167	Coil #3 - Move to cure sta. & install in FB	15-May-12	15-May-12	0.5
2240	50167	Coil #3 - Cure	16-May-12	16-May-12	1.0



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Milestone | Actual Milestone | Level of Effort | Finish Constraint

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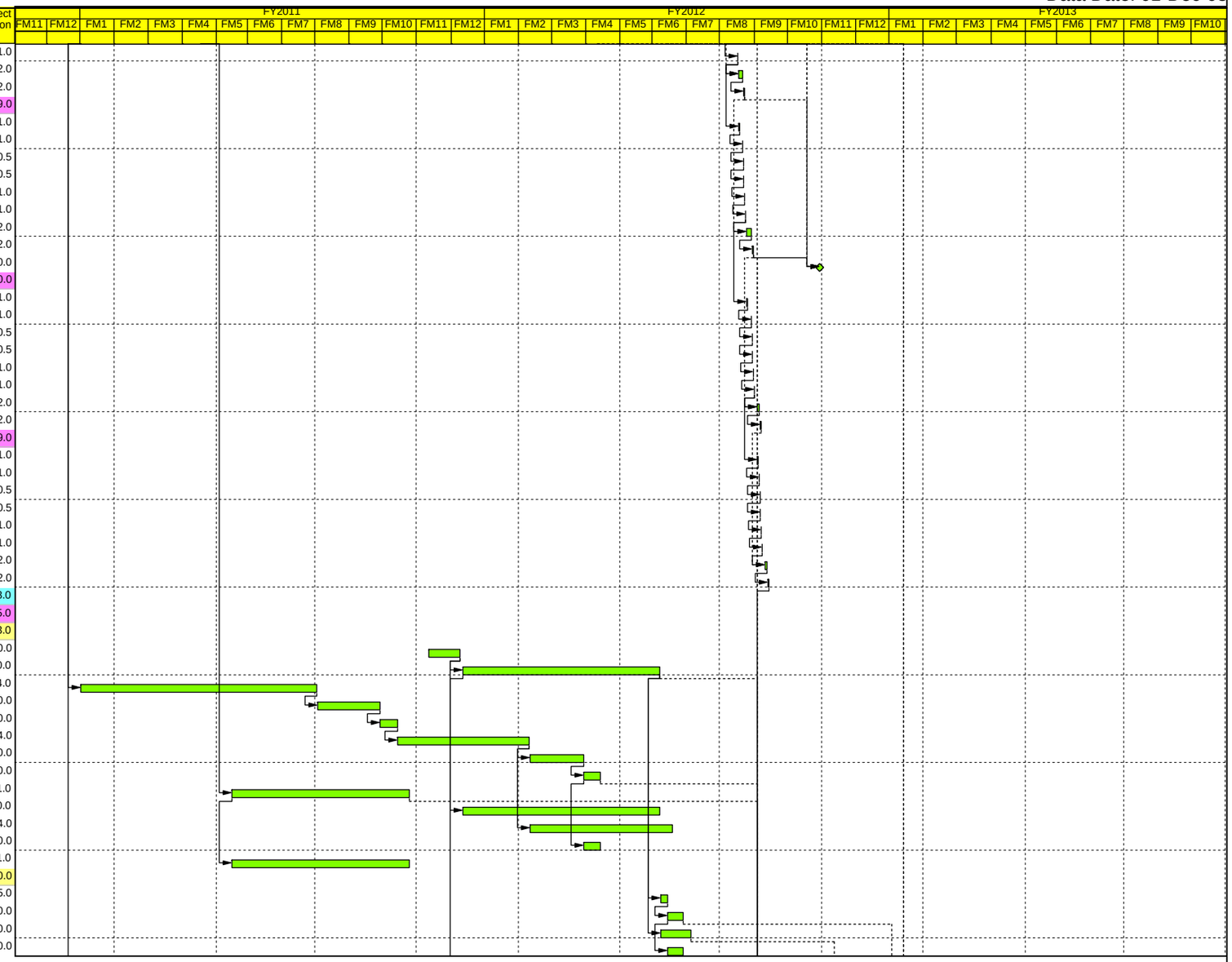
APUL - ACCELERATOR UPGRADE of LHC Baseline D106

Data Date: 01-Dec-08

Activity ID	WBS Acct	Activity Name	Start	Finish	BL Project Duration
2250	50167	Coil #3 - Remove from FB & move to test	17-May-12	17-May-12	1.0
2260	50167	Coil #3 - Measure, test	18-May-12	21-May-12	2.0
2270	50167	Coil #3 - Splice, stabilize leads	22-May-12	23-May-12	2.0
Coil #4			18-May-12	30-Jul-12	49.0
2300	50168	Coil #4 - Install mandrel on winder	18-May-12	18-May-12	1.0
2310	50168	Coil #4 - Wind coil	21-May-12	21-May-12	1.0
2320	50168	Coil #4 - Install pushers, liners	22-May-12	22-May-12	0.5
2330	50168	Coil #4 - Move to cure sta. & install in FB	22-May-12	22-May-12	0.5
2340	50168	Coil #4 - Cure	23-May-12	23-May-12	1.0
2350	50168	Coil #4 - Remove from FB & move to test	24-May-12	24-May-12	1.0
2360	50168	Coil #4 - Measure, test	25-May-12	29-May-12	2.0
2370	50168	Coil #4 - Splice, stabilize leads	30-May-12	31-May-12	2.0
2390		L3 Milestone - Coils #1 thru #4 Completed		30-Jul-12	0.0
Coil #5			25-May-12	07-Jun-12	10.0
2400	50169	Coil #5 - Install mandrel on winder	25-May-12	25-May-12	1.0
2410	50169	Coil #5 - Wind coil	29-May-12	29-May-12	1.0
2420	50169	Coil #5 - Install pushers, liners	30-May-12	30-May-12	0.5
2430	50169	Coil #5 - Move to cure sta. & install in FB	30-May-12	30-May-12	0.5
2440	50169	Coil #5 - Cure	31-May-12	31-May-12	1.0
2450	50169	Coil #5 - Remove from FB & move to test	01-Jun-12	01-Jun-12	1.0
2460	50169	Coil #5 - Measure, test	04-Jun-12	05-Jun-12	2.0
2470	50169	Coil #5 - Splice, stabilize leads	06-Jun-12	07-Jun-12	2.0
Coil #6			04-Jun-12	14-Jun-12	9.0
2500	50170	Coil #6 - Install mandrel on winder	04-Jun-12	04-Jun-12	1.0
2510	50170	Coil #6 - Wind coil	05-Jun-12	05-Jun-12	1.0
2520	50170	Coil #6 - Install pushers, liners	06-Jun-12	06-Jun-12	0.5
2530	50170	Coil #6 - Move to cure sta. & install in FB	06-Jun-12	06-Jun-12	0.5
2540	50170	Coil #6 - Cure	07-Jun-12	07-Jun-12	1.0
2550	50170	Coil #6 - Remove from FB & move to test	08-Jun-12	08-Jun-12	1.0
2560	50170	Coil #6 - Measure, test	11-Jun-12	12-Jun-12	2.0
2570	50170	Coil #6 - Splice, stabilize leads	13-Jun-12	14-Jun-12	2.0
D1-106 Cold Mass			01-Oct-10	12-Dec-12	548.0
D1-106 Cold Mass Materials and Subassemblies			01-Oct-10	04-Apr-12	375.0
Cold Mass Materials			01-Oct-10	19-Mar-12	363.0
2600	50171	Order Cold Mass Parts	12-Aug-11	09-Sep-11	20.0
2610	50171	Cold Mass Parts Procurement	12-Sep-11	07-Mar-12	120.0
2620	50171	Award Yoke Contract	01-Oct-10	02-May-11	144.0
2630	50171	BNL Yoke Steel Shipment to Vendor	03-May-11	28-Jun-11	40.0
2640	50171	First Yoke Samples Arrive at BNL	29-Jun-11	14-Jul-11	10.0
2650	50171	Yokes, Long Lead Procurement	15-Jul-11	10-Nov-11	84.0
2660	50171	D1-106 Yokes Arrive at BNL	11-Nov-11	29-Dec-11	30.0
2670	50171	Yoke Assy	30-Dec-11	13-Jan-12	10.0
2680	50171	Insulator, Long Lead Procurement	15-Feb-11	25-Jul-11	111.0
2685	00834	Cold Mass Parts Procurement, Second C.M.	12-Sep-11	07-Mar-12	120.0
2690	00834	Yokes, Second C.M., Long Lead Procurement	11-Nov-11	19-Mar-12	84.0
2695	00834	Yoke Assy, Second C.M.	30-Dec-11	13-Jan-12	10.0
2700	00834	Insulator, Second C.M., Long Lead Procurement	15-Feb-11	25-Jul-11	111.0
Cold Mass Subassemblies			08-Mar-12	04-Apr-12	20.0
2730	50171	Beam Tube Assy	08-Mar-12	14-Mar-12	5.0
2740	50171	Saturation Shims	15-Mar-12	28-Mar-12	10.0
2750	50171	Flex Joint Assy	08-Mar-12	04-Apr-12	20.0
2755	00834	Saturation Shims, Second C.M.	15-Mar-12	28-Mar-12	10.0



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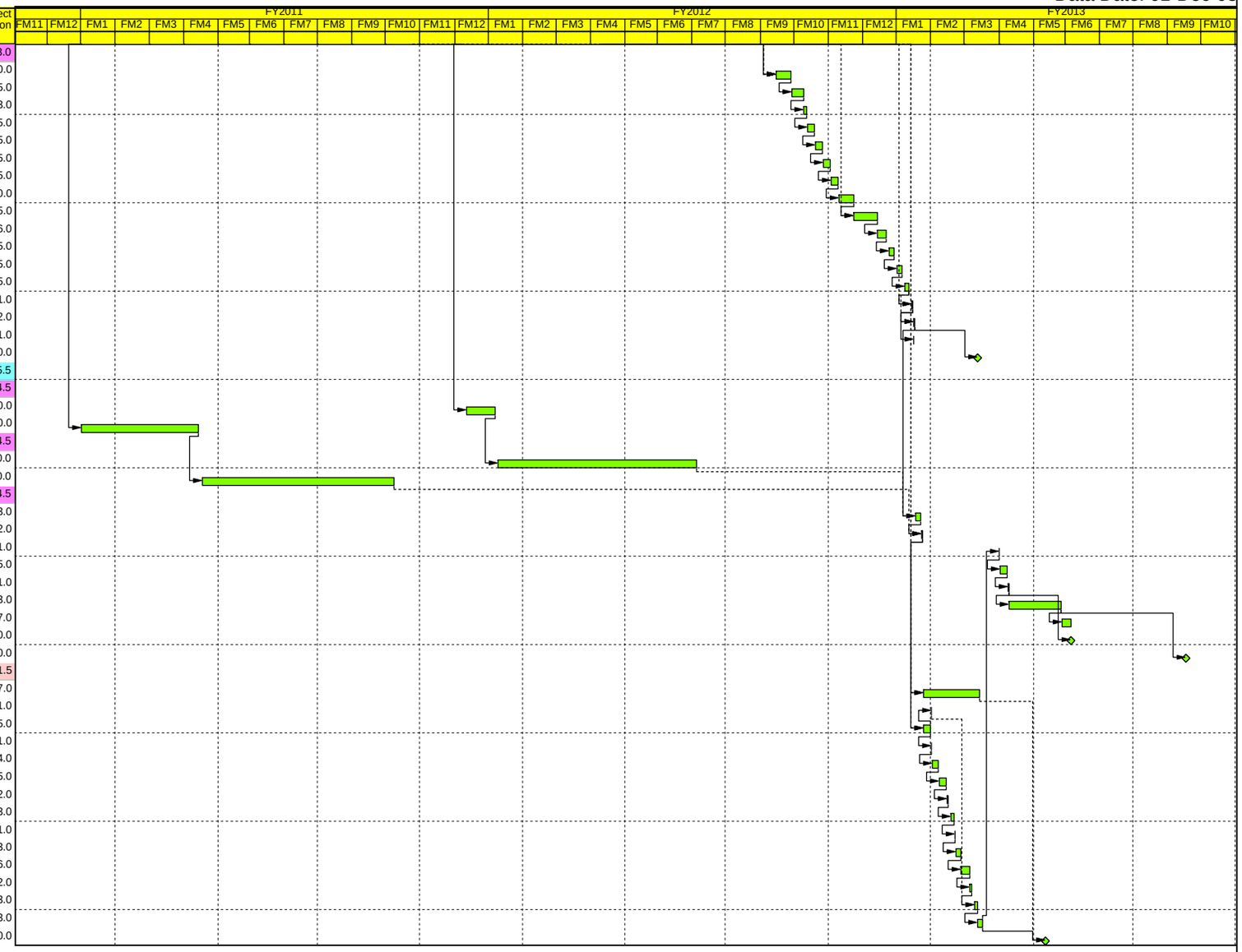
APUL - ACCELERATOR UPGRADE of LHC Baseline D106

Data Date: 01-Dec-08

Activity ID	WBS Acct	Activity Name	Start	Finish	BL Project Duration
D1-106 Cold Mass Assembly			15-Jun-12	12-Dec-12	123.0
2770	50172	Prepare for Collaring	15-Jun-12	28-Jun-12	10.0
2780	50172	Collar	29-Jun-12	09-Jul-12	5.0
2790	50172	Warm magnetic measurements	10-Jul-12	12-Jul-12	3.0
2800	50172	Uncollar	13-Jul-12	19-Jul-12	5.0
2810	50172	Re-Collar	20-Jul-12	26-Jul-12	5.0
2820	50172	Warm magnetic measurements	27-Jul-12	02-Aug-12	5.0
2830	50172	Weld Shells	03-Aug-12	09-Aug-12	5.0
2840	50172	Weld End Plates and Cradles	10-Aug-12	23-Aug-12	10.0
2850	50172	Heat Exchange, EM Assembly	24-Aug-12	13-Sep-12	15.0
2860	50172	Weld End Volumes	14-Sep-12	21-Sep-12	6.0
2870	50172	Inspect/Straighted/Untwist	24-Sep-12	28-Sep-12	5.0
2880	50172	Install Phase Separator	01-Oct-12	05-Oct-12	5.0
2890	50172	Adjust Pipe Position	08-Oct-12	12-Oct-12	5.0
2900	50172	Install Saturation Shims	15-Oct-12	15-Oct-12	1.0
2910	50172	Pressure Leak Test	16-Oct-12	17-Oct-12	2.0
2915	00835	Install Saturation Shims, Second C.M.	16-Oct-12	16-Oct-12	1.0
2920		L2 Milestone - D1-106 Cold Mass Assembly Complete		12-Dec-12	0.0
D1-106 Magnet			01-Oct-10	17-Jun-13	675.5
Magnet Assembly Support			01-Oct-10	07-Oct-11	254.5
3010	50173	Order Magnet Parts	12-Sep-11	07-Oct-11	20.0
3020	50173	Order Cryostat	01-Oct-10	14-Jan-11	70.0
Magnet Materials and Fabrication			18-Jan-11	04-Apr-12	304.5
3030	50174	Magnet Parts, Fabrication	10-Oct-11	04-Apr-12	120.0
3040	50174	Cryostat Long Lead Procurement + Fabrication	18-Jan-11	08-Jul-11	120.0
Magnet Assembly & Shipment			18-Oct-12	17-Jun-13	164.5
3100	50175	Insulate / Install Heat Shield	18-Oct-12	22-Oct-12	3.0
3110	50175	Install in Cryostat	23-Oct-12	24-Oct-12	2.0
3120	50175	Remove / Replace Saturation Shims	01-Jan-13	01-Jan-13	1.0
3130	50175	Preparation for Shipment	02-Jan-13	08-Jan-13	5.0
3140	50175	D1-106 Shipment from BNL	09-Jan-13	09-Jan-13	1.0
3150		D1-106 Cold Mass Arrival at CERN	10-Jan-13	25-Feb-13	33.0
3160		CERN Acceptance Test - D1-106	26-Feb-13	06-Mar-13	7.0
3170		L2 Milestone - D1-106 Magnet Shipped from BNL		06-Mar-13	0.0
3180		L2 Milestone - D1-106 Magnet Arrival at CERN		17-Jun-13	0.0
D1-106 Magnet Testing			25-Oct-12	11-Feb-13	71.5
3200	50176	Project Engineer + Q.A. Oversight	25-Oct-12	14-Dec-12	37.0
3210	50176	D1-106 Magnet Cold Testing Materials	01-Nov-12	01-Nov-12	1.0
3220	50176	Install in Test Stand and Vacuum Test	25-Oct-12	31-Oct-12	5.0
3230	50176	300k Electrical Test and Integ. Field	01-Nov-12	01-Nov-12	1.0
3240	50176	Cool Down to 4.5k	02-Nov-12	07-Nov-12	4.0
3250	50176	Quench Test / Scope Contingency Decision	08-Nov-12	14-Nov-12	5.0
3260	50176	Warmup	15-Nov-12	16-Nov-12	2.0
3270	50176	Electrical Test / Install Warm Bore / Warm Meas.	19-Nov-12	21-Nov-12	3.0
3280	50176	300k Electrical Test and Integ. Field	22-Nov-12	22-Nov-12	1.0
3290	50176	Cool Down to 4.5k	23-Nov-12	27-Nov-12	3.0
3300	50176	DC Loop	28-Nov-12	05-Dec-12	6.0
3310	50176	Warm-up	06-Dec-12	07-Dec-12	2.0
3320	50176	Remove from Test Stand, Final Electric	10-Dec-12	12-Dec-12	3.0
3330	50176	D1-106 Warm Field Angle Measurement	13-Dec-12	17-Dec-12	3.0
3340		L2 Miles.-D1-106 Cold Test Complete/Scope Cont. D...		11-Feb-13	0.0



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