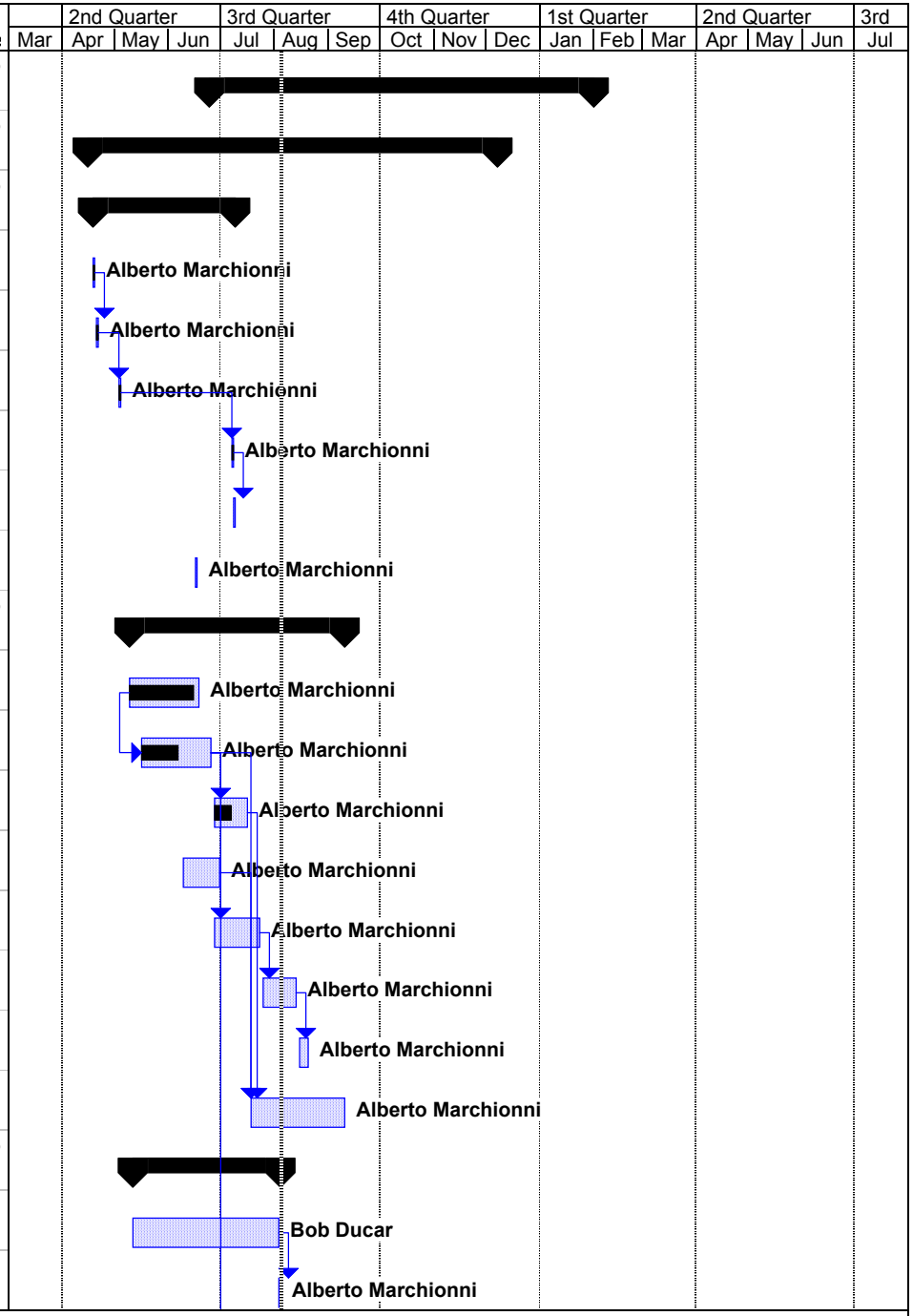
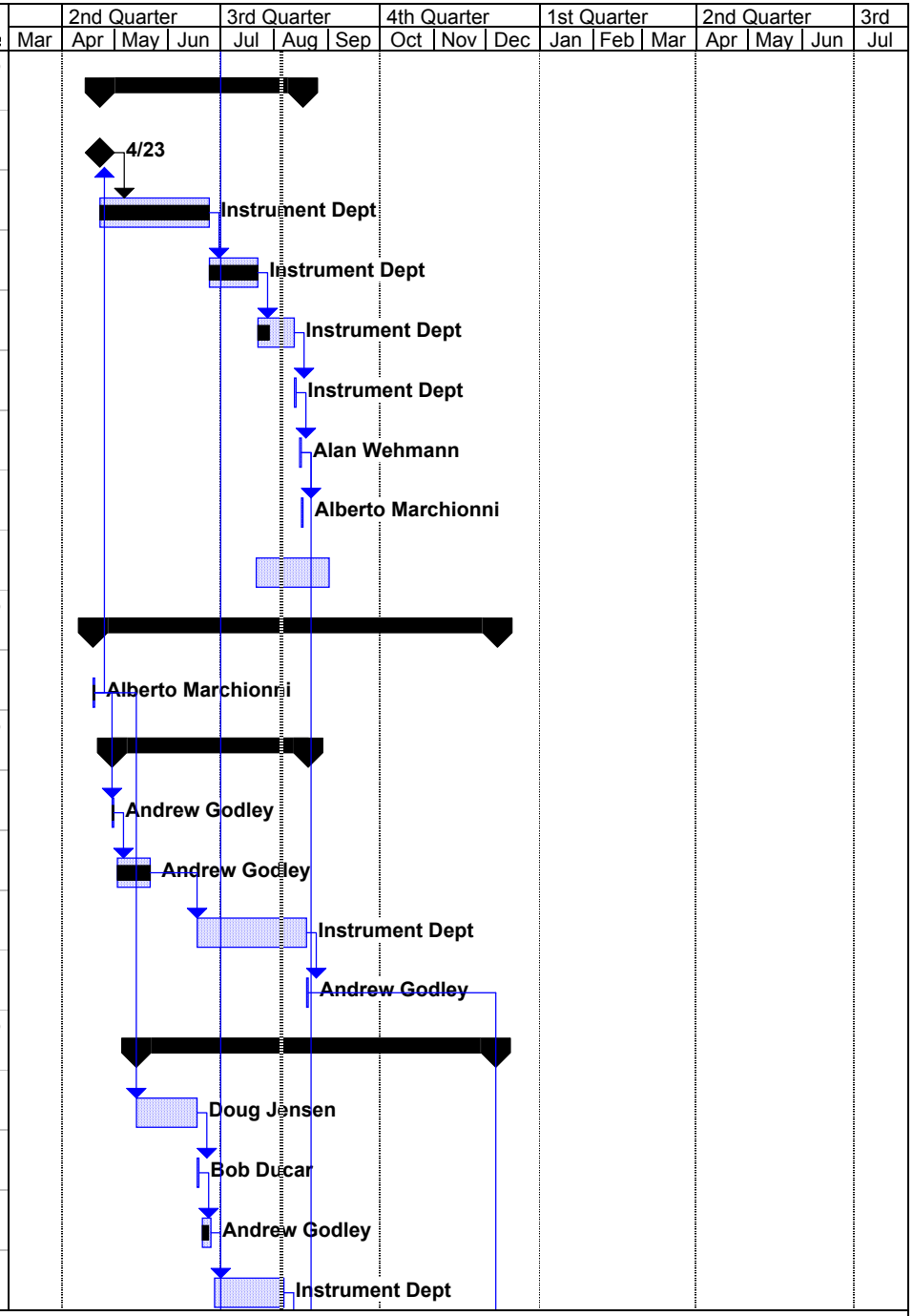
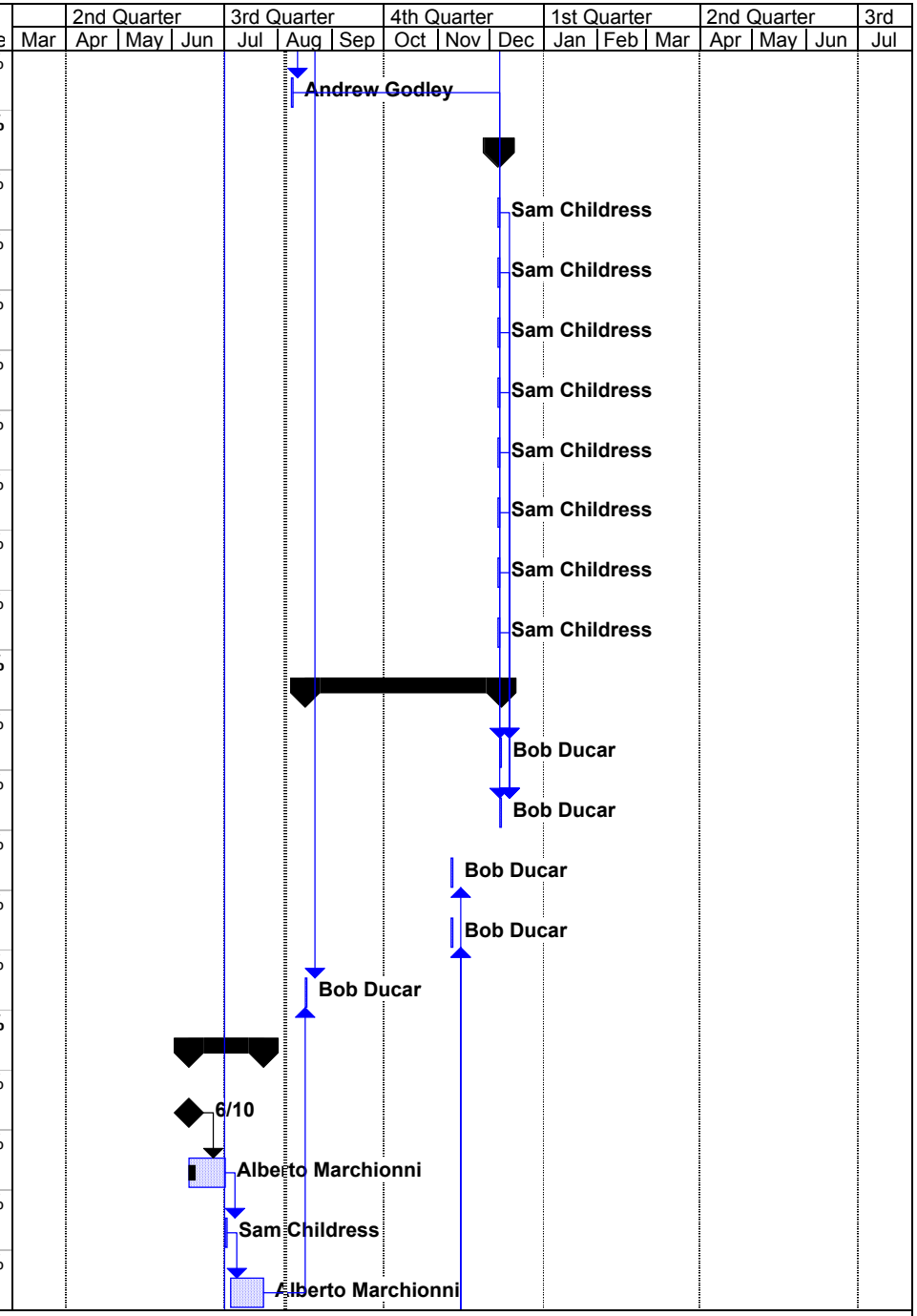
WBS	Task Name	Start	Duration	% Complete
1	**Milestones**	**6/25/04**	**157.5 d**	**0%**
2	**MI Preparation for Commissioning**	**4/16/04**	**168 d**	**28%**
2.1	**Booster Cogging Studies**	**4/19/04**	**60 d**	**80%**
2.1.1	Booster cogging study 1	4/19/04	1 d	100%
2.1.2	Booster cogging study 2	4/21/04	1 d	100%
2.1.3	Booster cogging study 3	5/4/04	1 d	100%
2.1.4	Booster cogging study 4	7/8/04	1 d	100%
2.1.5	Fix booster notcher problem	7/9/04	1 d	0%
2.2	Booster longitudinal dampers on $19 cycle	6/17/04	1 d	0%
2.3	**High Intensity Studies**	**5/10/04**	**90 d**	**29%**
2.3.1	Commission final FPGA board for the transverse damper system	5/10/04	30 d	90%
2.3.2	Study transverse dampers on NuMI cycle $23	5/17/04	30 d	50%
2.3.3	Study longitudinal dampers on NuMI cycle $23	6/28/04	15 d	50%
2.3.4	Fix problem with RF feedback limiters	6/10/04	15 d	0%
2.3.5	Establish tune measurement system	6/28/04	20 d	0%
2.3.6	Recalibrate tune and chromaticity tables	7/26/04	15 d	0%
2.3.7	Set up automatic tune compensation with intensity	8/16/04	5 d	0%
2.3.8	Demonstrate reliable acceleration to 3.3E13 ppp	7/19/04	40 d	0%
2.4	**Revise TCLK scheme $8D**	**5/12/04**	**61 d**	**0%**
2.4.1	BSSB modifications	5/12/04	60 d	0%
2.4.2	Study new $8D cycle	8/4/04	1 d	0%



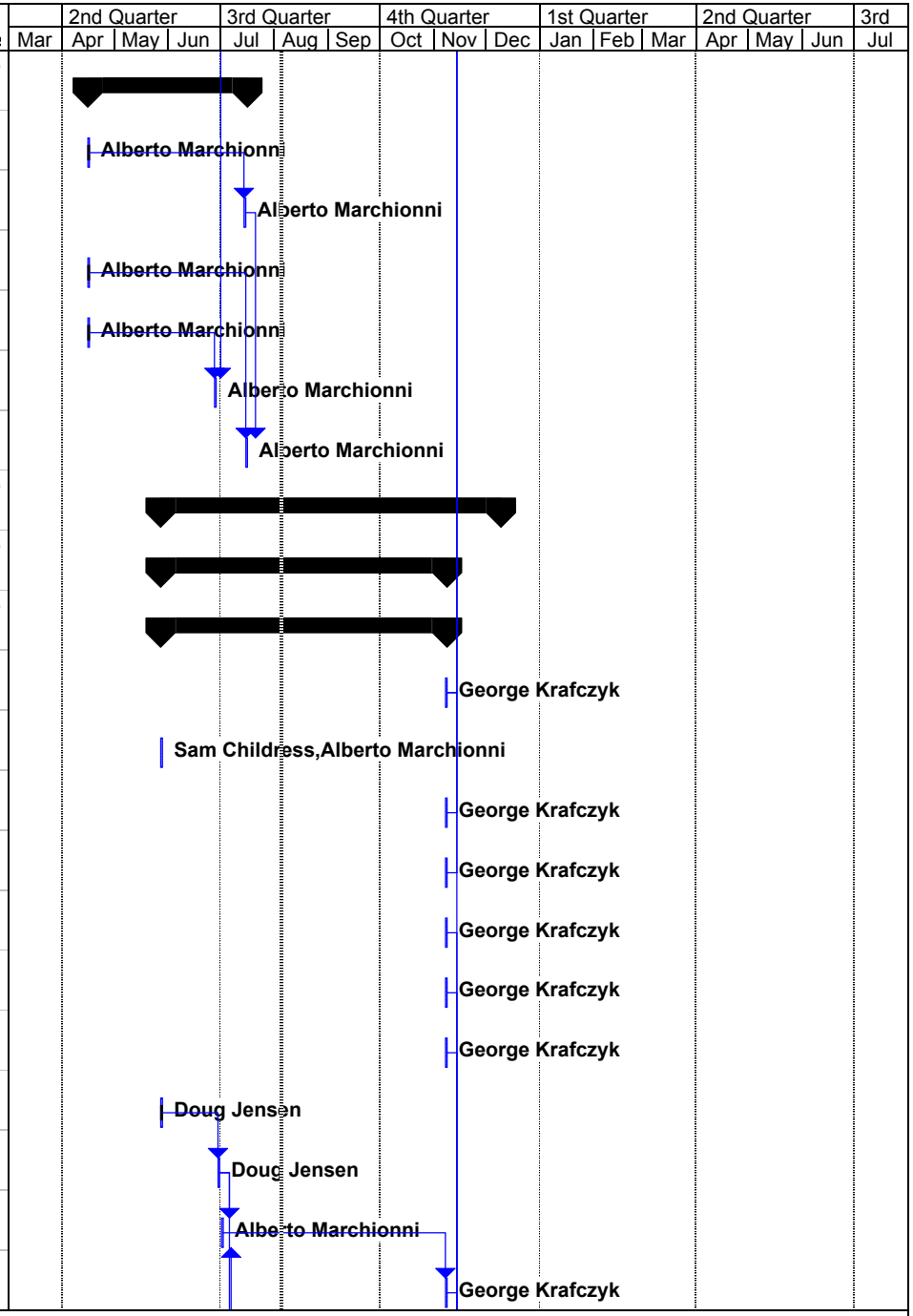
WBS	Task Name	Start	Duration	% Complete
2.5	**Batch by Batch Integrator**	**4/23/04**	**83 d**	**84%**
2.5.1	Finalize specifications	4/23/04	0 d	100%
2.5.2	Design FBBI	4/23/04	45 d	100%
2.5.3	Procurement	6/25/04	20 d	100%
2.5.4	Assembly & testing	7/23/04	15 d	30%
2.5.5	Install FBBI in MI	8/13/04	1 d	0%
2.5.6	Database & parameter page updates	8/16/04	1 d	0%
2.5.7	Calibrate/study FBBI with MI beam	8/17/04	1 d	0%
2.6	Need better resolution on $74	7/22/04	30 d	0%
2.7	**MI "Beam Quality" BPS inputs**	**4/19/04**	**167 d**	**15%**
2.7.1	Conceptual design/review of requirements	4/19/04	1 d	100%
2.7.2	**Extraction region BPM's**	**4/30/04**	**81 d**	**26%**
2.7.2.1	Draft specs for BPM inputs to BPS	4/30/04	1 d	100%
2.7.2.2	Develop specs for BPM batch averaging electronics	5/3/04	15 d	100%
2.7.2.3	Build BPM batch averaging electronics	6/18/04	45 d	0%
2.7.2.4	Study 606, 607, 608, 609 BPM signals as inputs to BPS	8/20/04	1 d	0%
2.7.3	**Extraction region Loss Monitors**	**5/14/04**	**147 d**	**5%**
2.7.3.1	Connect LM's in P1 line & study	5/14/04	25 d	0%
2.7.3.2	Install 608 & 612 LM's in tunnel	6/18/04	1 d	0%
2.7.3.3	Draft specs for LM gating electronics	6/21/04	5 d	70%
2.7.3.4	Build LM gating electronics	6/28/04	30 d	0%



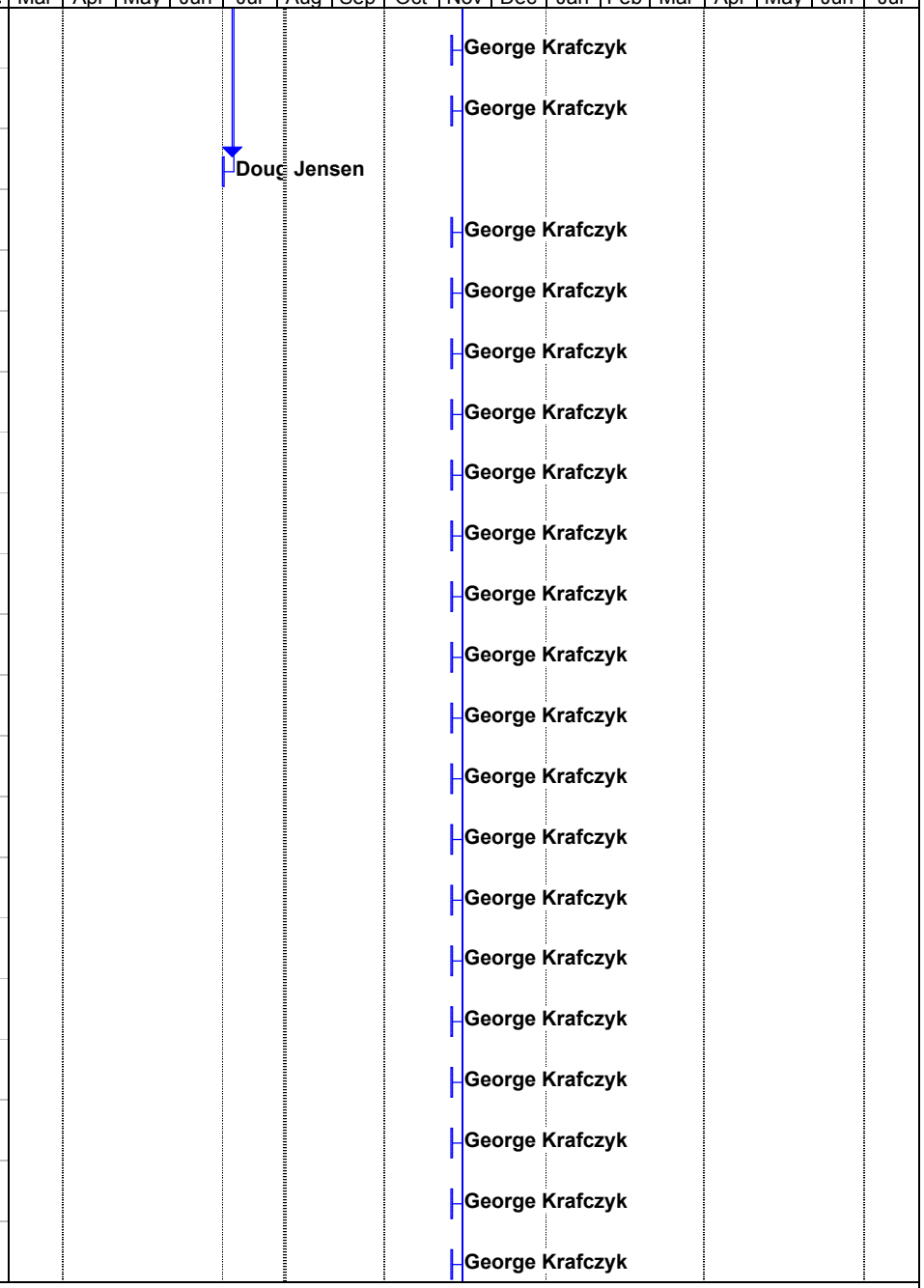
WBS	Task Name	Start	Duration	% Complete
2.7.3.5	Study 608 & 612 LM signals as inputs to BPS	8/9/04	1 d	0%
2.7.3.6	**Checkout LM's**	**12/6/04**	**1 d**	**0%**
2.7.3.6.1	I:LMNKMA	12/6/04	1 d	0%
2.7.3.6.2	I:LMNKMB	12/6/04	1 d	0%
2.7.3.6.3	I:LMNKMC	12/6/04	1 d	0%
2.7.3.6.4	I:LML60	12/6/04	1 d	0%
2.7.3.6.5	I:LML61A	12/6/04	1 d	0%
2.7.3.6.6	I:LML61B	12/6/04	1 d	0%
2.7.3.6.7	E:LMQ608	12/6/04	1 d	0%
2.7.3.6.8	E:LMQ612	12/6/04	1 d	0%
2.7.4	**Checkout Main Injector BPS inputs**	**8/17/04**	**81 d**	**0%**
2.7.4.1	Check 608 & 612 LM inputs	12/7/04	1 d	0%
2.7.4.2	Check MI BPM inputs	12/7/04	1 d	0%
2.7.4.3	Check kicker inputs	11/9/04	1 d	0%
2.7.4.4	Check Lambertson inputs	11/9/04	1 d	0%
2.7.4.5	Check FBI inputs	8/17/04	1 d	0%
2.8	**MI BPM's w NuMI electronics**	**6/10/04**	**31 d**	**5%**
2.8.1	Install prototype transition board on MI BPM 602	6/10/04	0 d	100%
2.8.2	Study prototype BPM electronics	6/11/04	15 d	10%
2.8.3	Install NuMI electronics on MI BPMs 602, 604, 606, 607	7/2/04	1 d	0%
2.8.4	Study production BPM electronics on 4 BPM's	7/5/04	15 d	0%



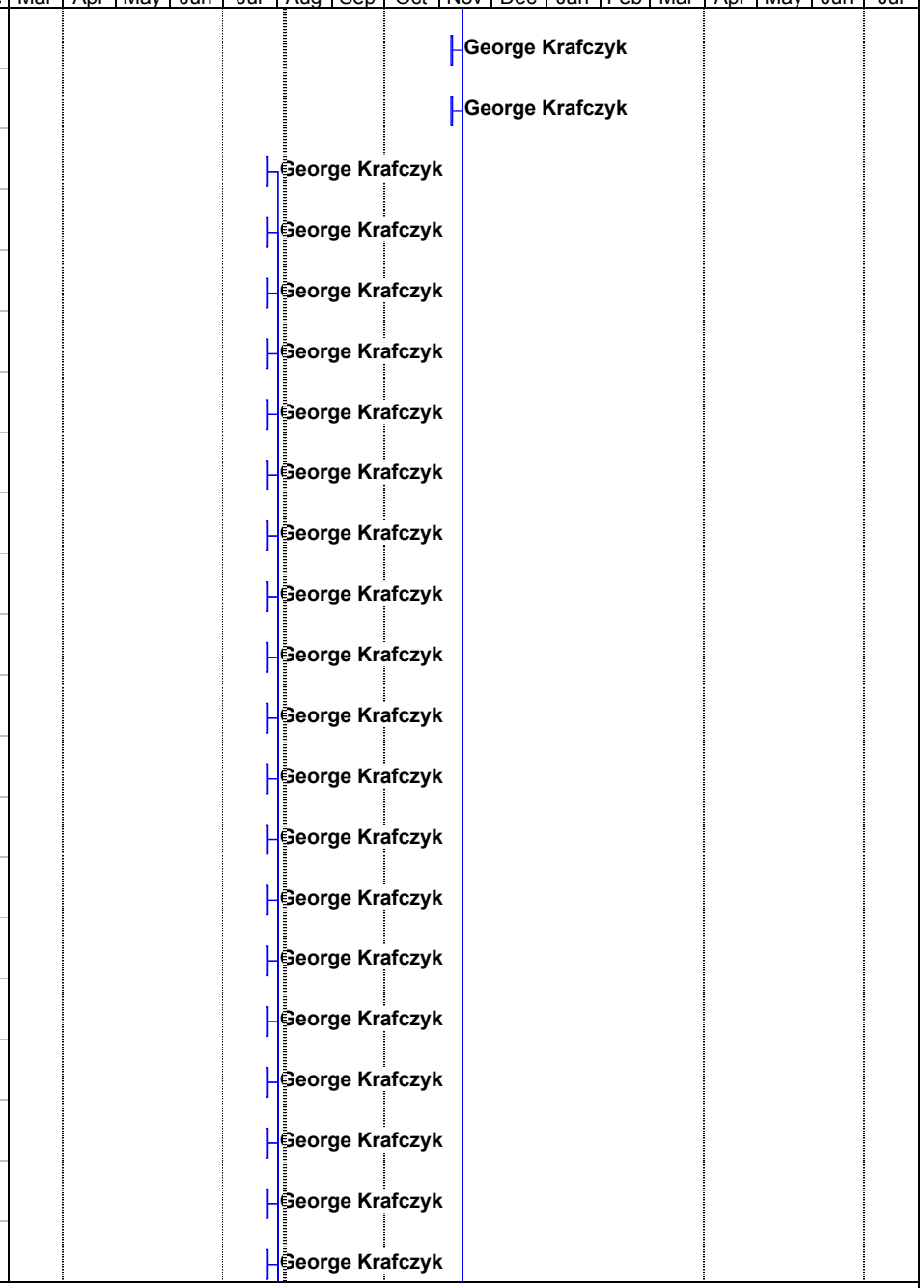
WBS	Task Name	Start	Duration	% Complete
2.9	**Orbit & Extraction Issues**	**4/16/04**	**66 d**	**50%**
2.9.1	Re-tune MI closed orbit to reduce corrector currents - First pass	4/16/04	1 d	100%
2.9.2	Re-tune MI closed orbit to reduce corrector currents - 2nd pass	7/15/04	1 d	0%
2.9.3	Need new corrector time bump slots for NuMI	4/16/04	1 d	100%
2.9.4	Check MI52 rise/fall time - first pass	4/16/04	1 d	100%
2.9.5	Check MI52 rise/fall time - 2nd pass	6/28/04	1 d	0%
2.9.6	Check NuMI extraction bumps	7/16/04	1 d	0%
3	**NuMI Checkout**	**5/28/04**	**140 d**	**1%**
3.1	**Primary Beam**	**5/28/04**	**117 d**	**1%**
3.1.1	**Primary Beam Magnets**	**5/28/04**	**117 d**	**2%**
3.1.1.1	I:KPS6N	11/8/04	1 d	0%
3.1.1.2	Check effect of Lambertson operation on Recycler orbit	5/28/04	1 d	0%
3.1.1.3	I:LAM60	11/8/04	1 d	0%
3.1.1.4	I:LAM61	11/8/04	1 d	0%
3.1.1.5	I:V100 (C-Magnet)	11/8/04	1 d	0%
3.1.1.6	E:QD101	11/8/04	1 d	0%
3.1.1.7	E:HT102	11/8/04	1 d	0%
3.1.1.8	Check residual field at Recycler due to HV101:1,6	5/28/04	1 d	100%
3.1.1.9	Check residual field at Recycler with all HV101 shields in place	6/30/04	1 d	0%
3.1.1.10	Check effect of HV101 on Recycler orbit	7/2/04	1 d	0%
3.1.1.11	E:HV101	11/8/04	1 d	0%



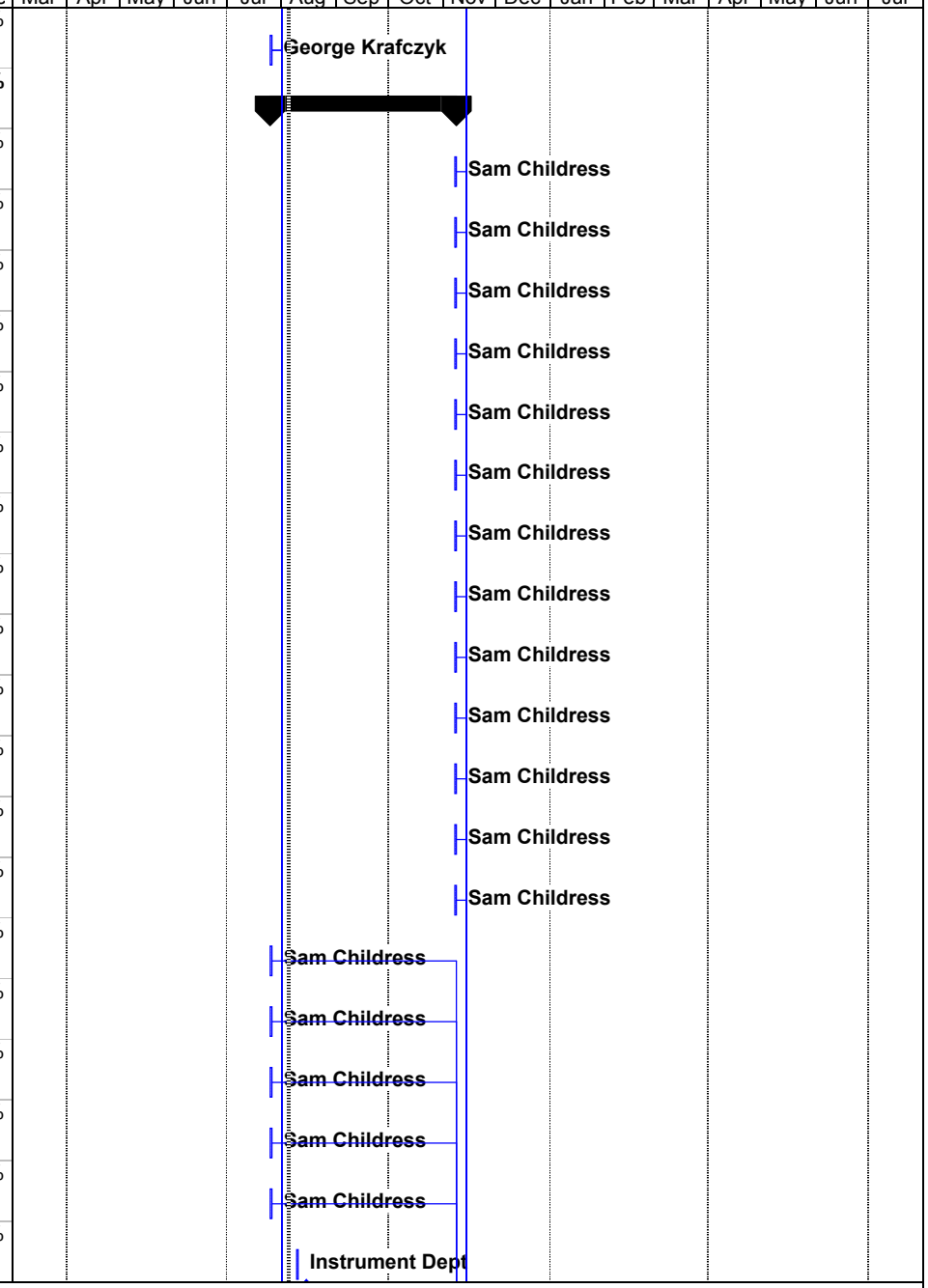
WBS	Task Name	Start	Duration	% Complete
3.1.1.12	E:QF102	11/8/04	1 d	0%
3.1.1.13	E:VT103	11/8/04	1 d	0%
3.1.1.14	Check residual fieds at Recycler from extraction quads	7/1/04	1 d	0%
3.1.1.15	E:QD103	11/8/04	1 d	0%
3.1.1.16	E:QF104	11/8/04	1 d	0%
3.1.1.17	E:H104 (200 turn dipole)	11/8/04	1 d	0%
3.1.1.18	E:QF105	11/8/04	1 d	0%
3.1.1.19	E:HT105	11/8/04	1 d	0%
3.1.1.20	E:QD106	11/8/04	1 d	0%
3.1.1.21	E:VT106	11/8/04	1 d	0%
3.1.1.22	E:QF107	11/8/04	1 d	0%
3.1.1.23	E:HT107	11/8/04	1 d	0%
3.1.1.24	E:VT108	11/8/04	1 d	0%
3.1.1.25	E:QD108	11/8/04	1 d	0%
3.1.1.26	E:V108	11/8/04	1 d	0%
3.1.1.27	E:HT109	11/8/04	1 d	0%
3.1.1.28	E:QF109	11/8/04	1 d	0%
3.1.1.29	E:VT110	11/8/04	1 d	0%
3.1.1.30	E:QD110	11/8/04	1 d	0%
3.1.1.31	E:VT111	11/8/04	1 d	0%
3.1.1.32	E:QD111	11/8/04	1 d	0%



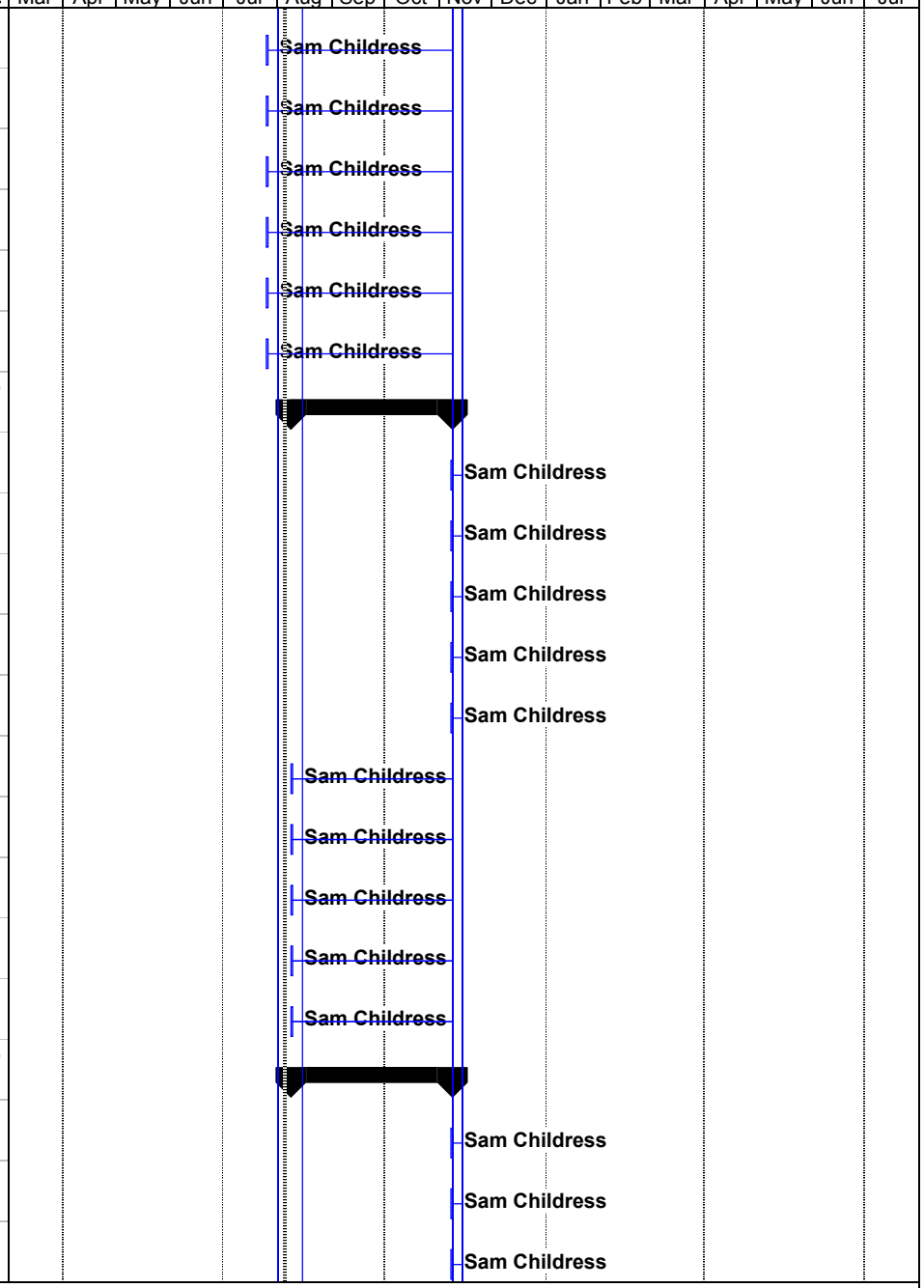
WBS	Task Name	Start	Duration	% Complete
3.1.1.33	E:HT112	11/8/04	1 d	0%
3.1.1.34	E:QF112	11/8/04	1 d	0%
3.1.1.35	E:QD113	7/26/04	1 d	0%
3.1.1.36	E:VT114	7/26/04	1 d	0%
3.1.1.37	E:HT114	7/26/04	1 d	0%
3.1.1.38	E:QF114	7/26/04	1 d	0%
3.1.1.39	E:QF115	7/26/04	1 d	0%
3.1.1.40	E:HT115	7/26/04	1 d	0%
3.1.1.41	E:QD116	7/26/04	1 d	0%
3.1.1.42	E:VT116	7/26/04	1 d	0%
3.1.1.43	E:QF117	7/26/04	1 d	0%
3.1.1.44	E:HT117	7/26/04	1 d	0%
3.1.1.45	E:H117	7/26/04	1 d	0%
3.1.1.46	E:QD118	7/26/04	1 d	0%
3.1.1.47	E:VT118	7/26/04	1 d	0%
3.1.1.48	E:V118	7/26/04	1 d	0%
3.1.1.49	E:HT119	7/26/04	1 d	0%
3.1.1.50	E:QF119	7/26/04	1 d	0%
3.1.1.51	E:QD120	7/26/04	1 d	0%
3.1.1.52	E:QF121	7/26/04	1 d	0%
3.1.1.53	E:HT121	7/26/04	1 d	0%



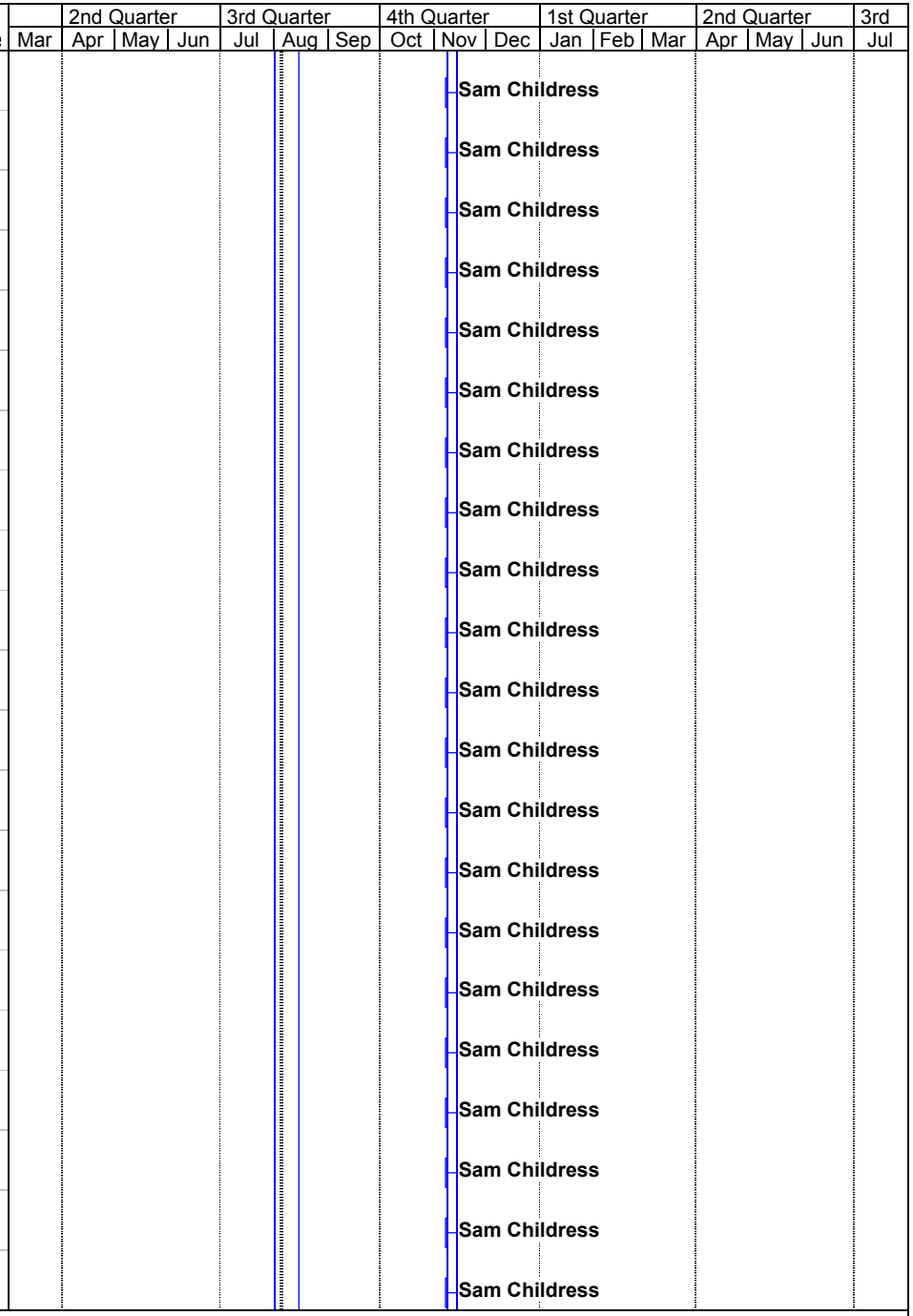
WBS	Task Name	Start	Duration	% Complete
3.1.1.54	E:VT121	7/26/04	1 d	0%
3.1.2	**Beam Position Monitors**	**7/26/04**	**76 d**	**0%**
3.1.2.1	E:VP101	11/8/04	1 d	0%
3.1.2.2	E:HP101	11/8/04	1 d	0%
3.1.2.3	E:HP102	11/8/04	1 d	0%
3.1.2.4	E:VP103	11/8/04	1 d	0%
3.1.2.5	E:HP104	11/8/04	1 d	0%
3.1.2.6	E:HP105	11/8/04	1 d	0%
3.1.2.7	E:VP106	11/8/04	1 d	0%
3.1.2.8	E:HP107	11/8/04	1 d	0%
3.1.2.9	E:VP108	11/8/04	1 d	0%
3.1.2.10	E:HP109	11/8/04	1 d	0%
3.1.2.11	E:VP110	11/8/04	1 d	0%
3.1.2.12	E:VP111	11/8/04	1 d	0%
3.1.2.13	E:HP112	11/8/04	1 d	0%
3.1.2.14	E:VP113	7/26/04	1 d	0%
3.1.2.15	E:HP114	7/26/04	1 d	0%
3.1.2.16	E:HP115	7/26/04	1 d	0%
3.1.2.17	E:VP116	7/26/04	1 d	0%
3.1.2.18	E:HP117	7/26/04	1 d	0%
3.1.2.19	Evaluate effect of image current using network analyzer	8/10/04	1 d	0%



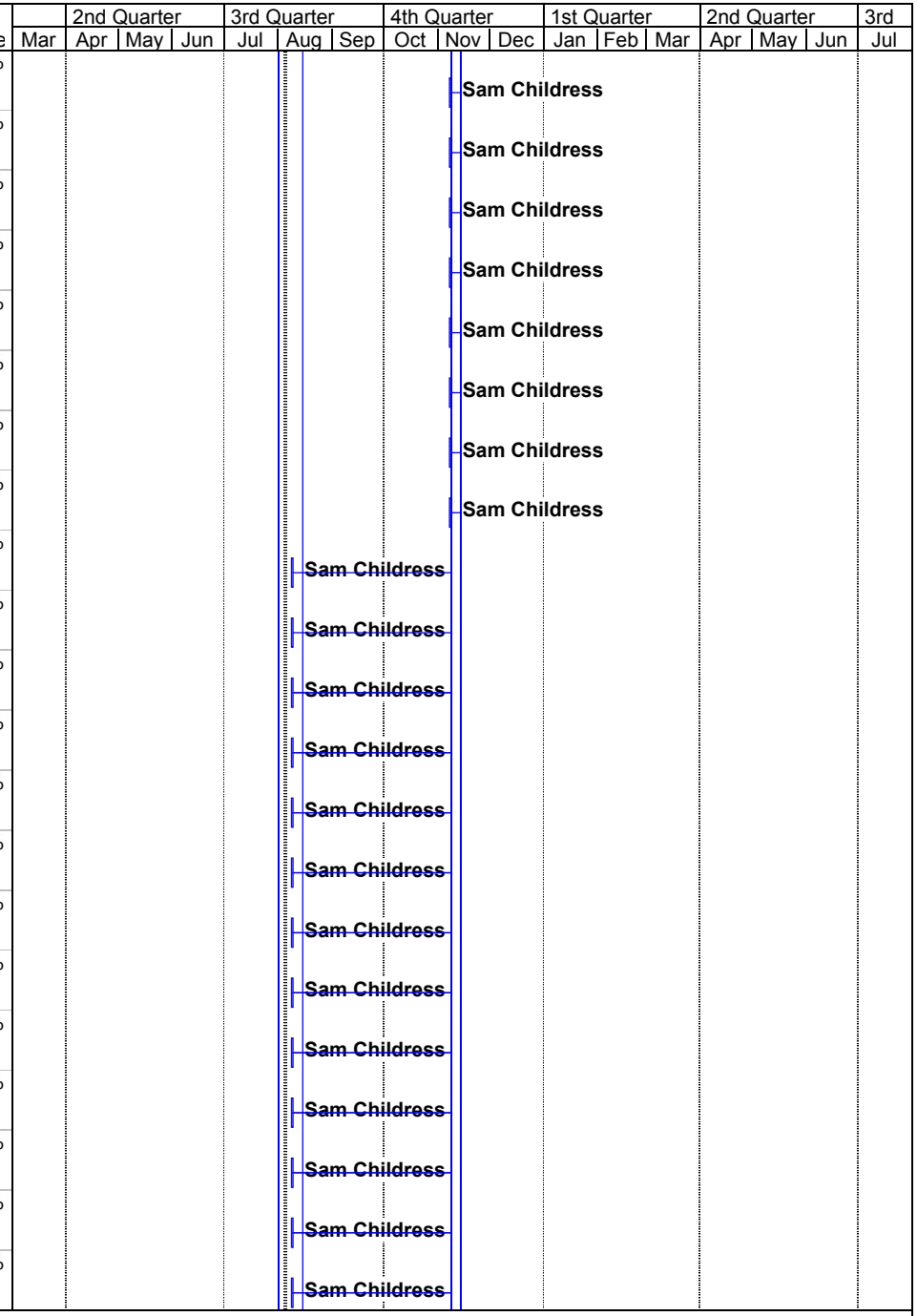
WBS	Task Name	Start	Duration	% Complete
3.1.2.20	E:VP118	7/26/04	1 d	0%
3.1.2.21	E:HP119	7/26/04	1 d	0%
3.1.2.22	E:HP121	7/26/04	1 d	0%
3.1.2.23	E:VP121	7/26/04	1 d	0%
3.1.2.24	E:HPTAR	7/26/04	1 d	0%
3.1.2.25	E:VPTAR	7/26/04	1 d	0%
3.1.3	**Profile Monitors**	**8/9/04**	**66 d**	**0%**
3.1.3.1	E:PM101	11/8/04	1 d	0%
3.1.3.2	E:PM105	11/8/04	1 d	0%
3.1.3.3	E:PM107	11/8/04	1 d	0%
3.1.3.4	E:PM108	11/8/04	1 d	0%
3.1.3.5	E:PM112	11/8/04	1 d	0%
3.1.3.6	E:PM114	8/9/04	1 d	0%
3.1.3.7	E:PM115	8/9/04	1 d	0%
3.1.3.8	E:PM117	8/9/04	1 d	0%
3.1.3.9	E:PM121	8/9/04	1 d	0%
3.1.3.10	E:PMTGT	8/9/04	1 d	0%
3.1.4	**Beam Loss Monitors**	**8/9/04**	**66 d**	**0%**
3.1.4.1	E:LMHV1O - MI60	11/8/04	1 d	0%
3.1.4.2	E:LMHV1R - MI60	11/8/04	1 d	0%
3.1.4.3	E:LMV100	11/8/04	1 d	0%



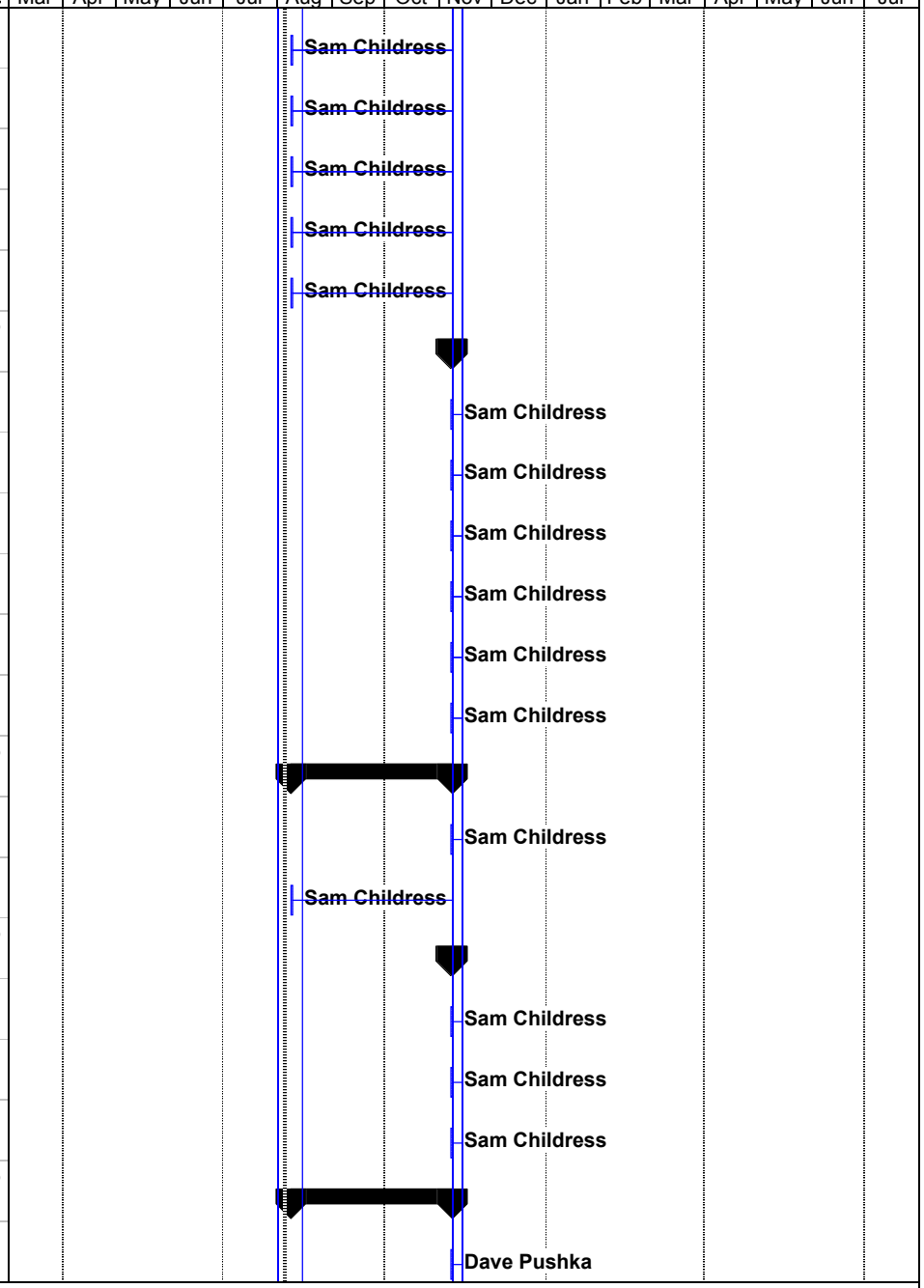
WBS	Task Name	Start	Duration	% Complete
3.1.4.4	E:LMQ101	11/8/04	1 d	0%
3.1.4.5	E:LM1011	11/8/04	1 d	0%
3.1.4.6	E:LM1012	11/8/04	1 d	0%
3.1.4.7	E:LMQ102	11/8/04	1 d	0%
3.1.4.8	E:LMHV2O - MI60	11/8/04	1 d	0%
3.1.4.9	E:LMHV2R - MI60	11/8/04	1 d	0%
3.1.4.10	E:LM1013	11/8/04	1 d	0%
3.1.4.11	E:LM1014	11/8/04	1 d	0%
3.1.4.12	E:LM1015	11/8/04	1 d	0%
3.1.4.13	E:LMQ103	11/8/04	1 d	0%
3.1.4.14	E:LM1016	11/8/04	1 d	0%
3.1.4.15	E:LMQ104	11/8/04	1 d	0%
3.1.4.16	E:LMH104	11/8/04	1 d	0%
3.1.4.17	E:LMQ105	11/8/04	1 d	0%
3.1.4.18	E:LMQ106	11/8/04	1 d	0%
3.1.4.19	E:LMQ107	11/8/04	1 d	0%
3.1.4.20	E:LMHV3O	11/8/04	1 d	0%
3.1.4.21	E:LMHV3R	11/8/04	1 d	0%
3.1.4.22	E:LMQ108	11/8/04	1 d	0%
3.1.4.23	E:LM1081	11/8/04	1 d	0%
3.1.4.24	E:LM1082	11/8/04	1 d	0%



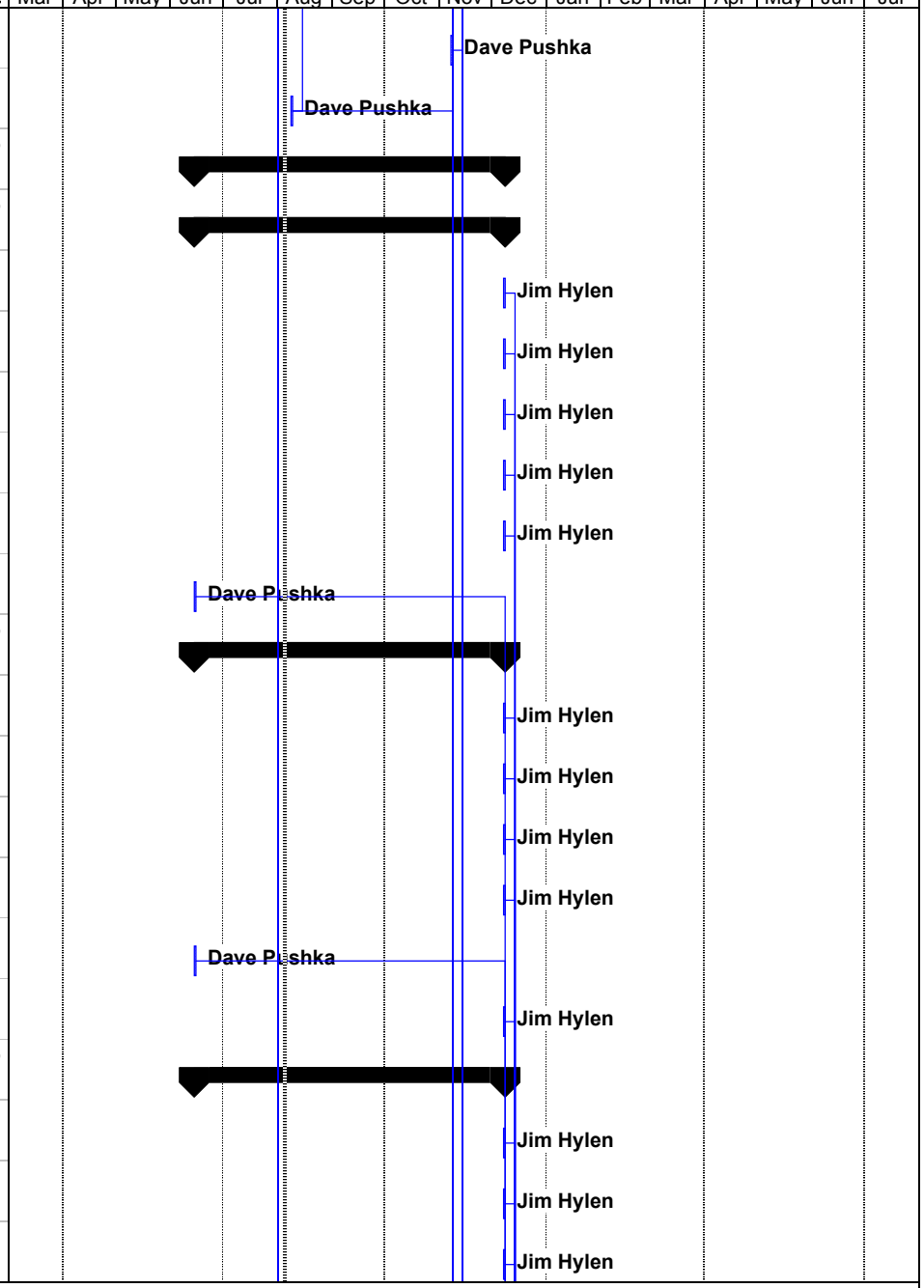
WBS	Task Name	Start	Duration	% Complete
3.1.4.25	E:LMQ109	11/8/04	1 d	0%
3.1.4.26	E:LM1083	11/8/04	1 d	0%
3.1.4.27	E:LM1084	11/8/04	1 d	0%
3.1.4.28	E:LMQ110	11/8/04	1 d	0%
3.1.4.29	E:LM1085	11/8/04	1 d	0%
3.1.4.30	E:LM1086	11/8/04	1 d	0%
3.1.4.31	E:LMQ111	11/8/04	1 d	0%
3.1.4.32	E:LMQ112	11/8/04	1 d	0%
3.1.4.33	E:LMHV4O - MI65	8/9/04	1 d	0%
3.1.4.34	E:LMHV4R - MI65	8/9/04	1 d	0%
3.1.4.35	E:LMQ113	8/9/04	1 d	0%
3.1.4.36	E:LMQ114	8/9/04	1 d	0%
3.1.4.37	E:LMQ115	8/9/04	1 d	0%
3.1.4.38	E:LMQ116	8/9/04	1 d	0%
3.1.4.39	E:LMQ117	8/9/04	1 d	0%
3.1.4.40	E:LMH117	8/9/04	1 d	0%
3.1.4.41	E:LMQ118	8/9/04	1 d	0%
3.1.4.42	E:LM1181	8/9/04	1 d	0%
3.1.4.43	E:LM1182	8/9/04	1 d	0%
3.1.4.44	E:LMQ119	8/9/04	1 d	0%
3.1.4.45	E:LMHV5O	8/9/04	1 d	0%



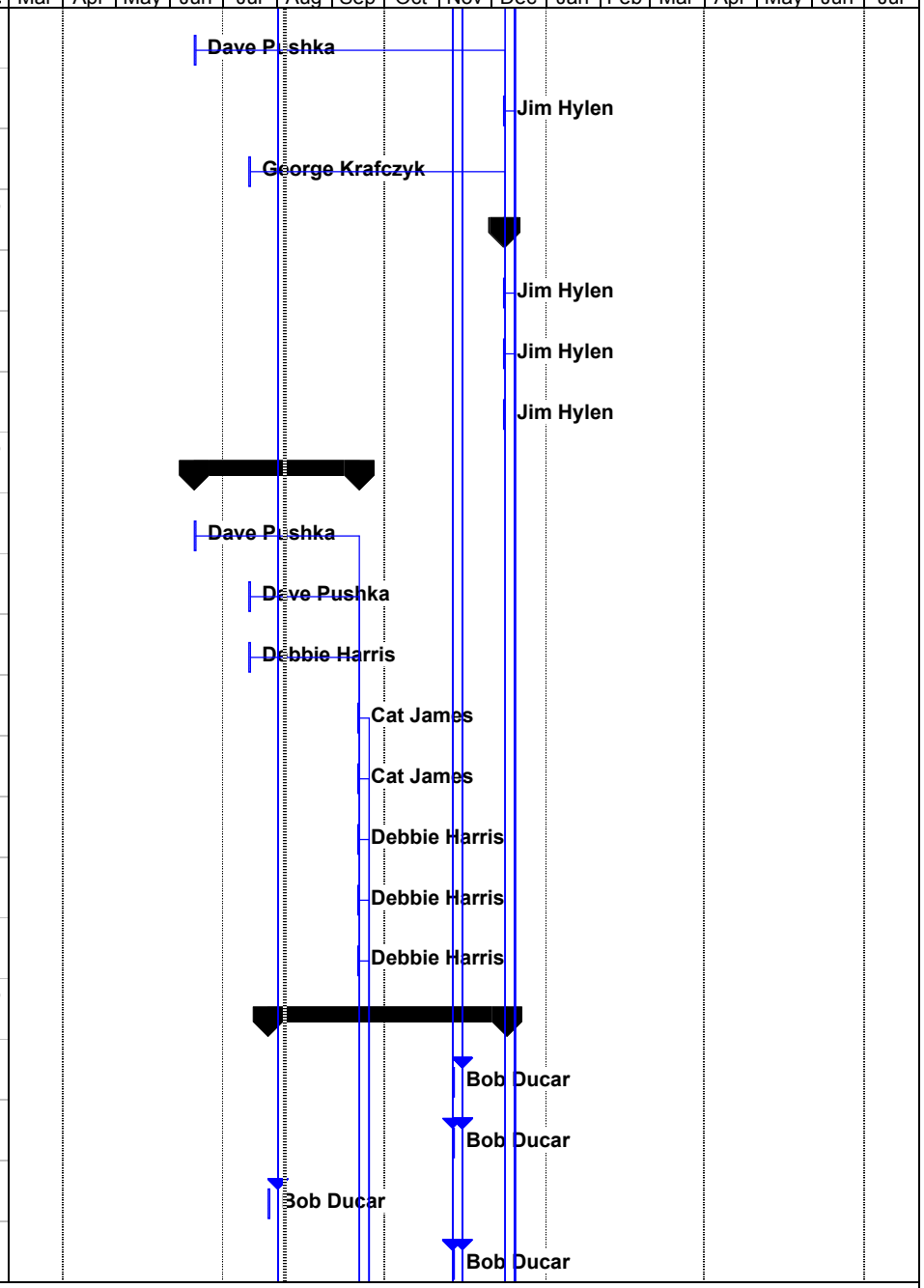
WBS	Task Name	Start	Duration	% Complete
3.1.4.46	E:LMHV5R	8/9/04	1 d	0%
3.1.4.47	E:LM1183	8/9/04	1 d	0%
3.1.4.48	E:LM1184	8/9/04	1 d	0%
3.1.4.49	E:LMQ120	8/9/04	1 d	0%
3.1.4.50	E:LMQ121	8/9/04	1 d	0%
3.1.5	**Total Loss Monitors**	**11/8/04**	**1 d**	**0%**
3.1.5.1	E:TLMNS	11/8/04	1 d	0%
3.1.5.2	E:TLMCTU	11/8/04	1 d	0%
3.1.5.3	E:TLMCTD	11/8/04	1 d	0%
3.1.5.4	E:TLMPT	11/8/04	1 d	0%
3.1.5.5	E:TLMHV	11/8/04	1 d	0%
3.1.5.6	E:TLMGF	11/8/04	1 d	0%
3.1.6	**Toroids**	**8/9/04**	**66 d**	**0%**
3.1.6.1	E:NIUP	11/8/04	1 d	0%
3.1.6.2	E:NIDN	8/9/04	1 d	0%
3.1.7	**Calibration Targets**	**11/8/04**	**1 d**	**0%**
3.1.7.1	E:CT111	11/8/04	1 d	0%
3.1.7.2	E:CT118	11/8/04	1 d	0%
3.1.8	Resistive Wall Monitor	11/8/04	1 d	0%
3.1.9	**Primary beam vacuum system**	**8/9/04**	**66 d**	**0%**
3.1.9.1	Extraction channel vacuum	11/8/04	1 d	0%



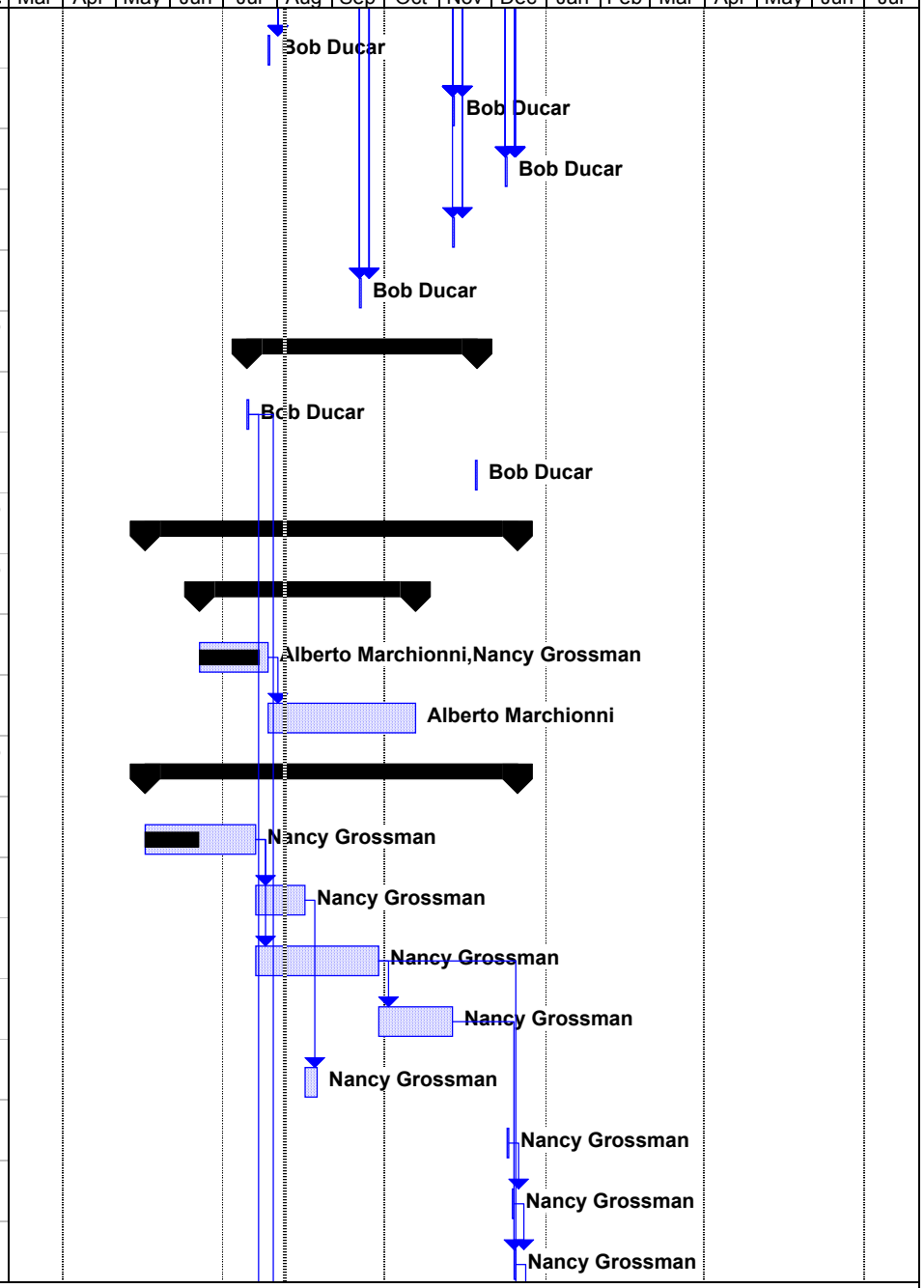
WBS	Task Name	Start	Duration	% Complete
3.1.9.2	Carrier Tunnel vacuum	11/8/04	1 d	0%
3.1.9.3	Pre-target vacuum	8/9/04	1 d	0%
3.2	**Target Hall**	**6/15/04**	**127 d**	**0%**
3.2.1	**Target/Baffle Module**	**6/15/04**	**127 d**	**0%**
3.2.1.1	E:BTHTnn	12/8/04	1 d	0%
3.2.1.2	E:BTHTnn	12/8/04	1 d	0%
3.2.1.3	Target Budal Monitor	12/8/04	1 d	0%
3.2.1.4	Target helium flow/pressure	12/8/04	1 d	0%
3.2.1.5	Target positioning	12/8/04	1 d	0%
3.2.1.6	Target/Baffle RAW system	6/15/04	1 d	0%
3.2.2	**Horn 1 Module**	**6/15/04**	**127 d**	**0%**
3.2.2.1	E:BTHTnn	12/8/04	1 d	0%
3.2.2.2	E:BTHTnn	12/8/04	1 d	0%
3.2.2.3	E:BTHTnn	12/8/04	1 d	0%
3.2.2.4	Horn 1 Bdot system	12/8/04	1 d	0%
3.2.2.5	Horn 1 RAW System	6/15/04	1 d	0%
3.2.2.6	Horn 1 motor controls	12/8/04	1 d	0%
3.2.3	**Horn 2 Module**	**6/15/04**	**127 d**	**0%**
3.2.3.1	E:BTHTnn	12/8/04	1 d	0%
3.2.3.2	E:BTHTnn	12/8/04	1 d	0%
3.2.3.3	Horn 2 Bdot system	12/8/04	1 d	0%



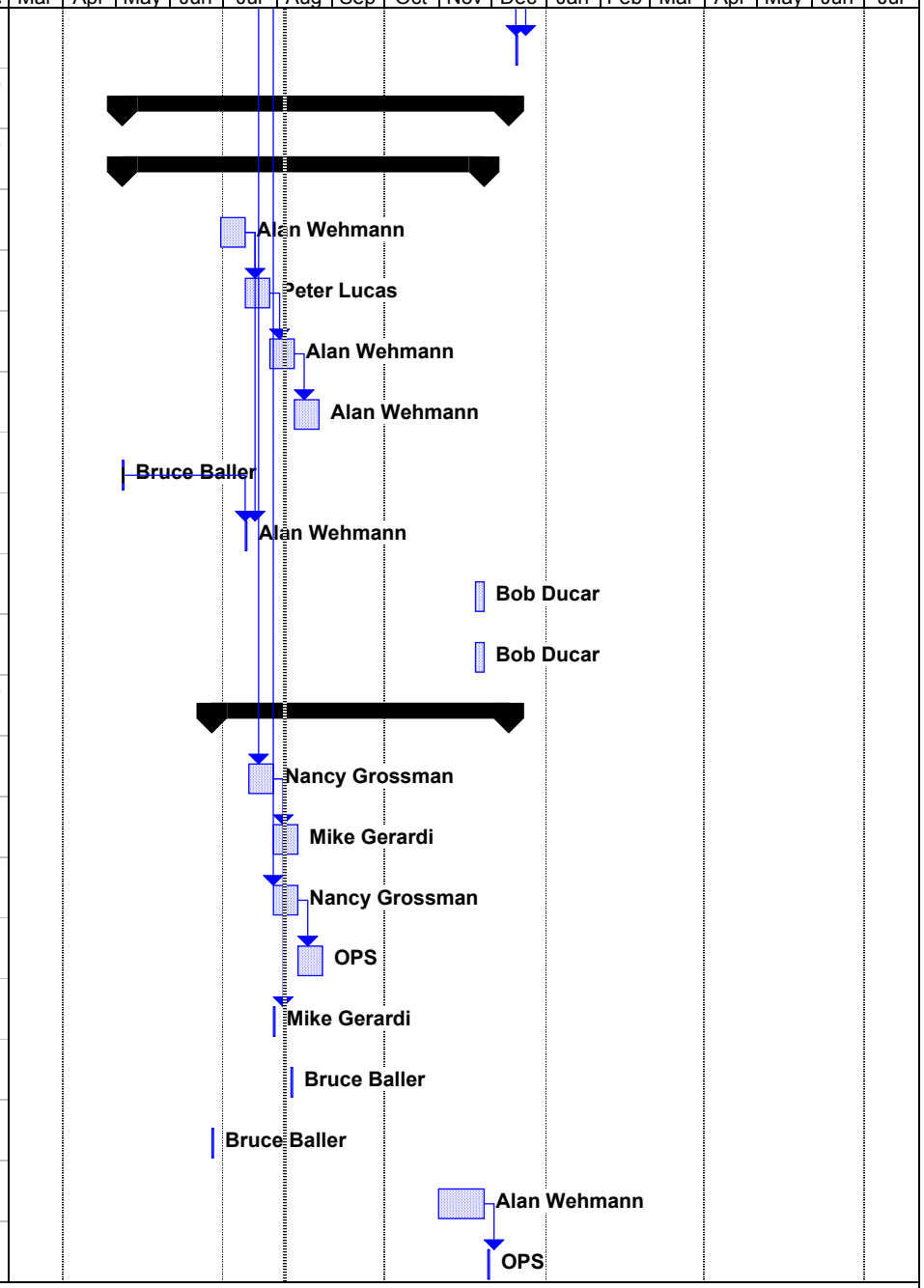
WBS	Task Name	Start	Duration	% Complete
3.2.3.4	Horn 2 RAW System	6/15/04	1 d	0%
3.2.3.5	Horn 2 motor controls	12/8/04	1 d	0%
3.2.4	Horn Power supply	7/16/04	1 d	0%
3.2.5	**Chase Cooling System**	**12/8/04**	**1 d**	**0%**
3.2.5.1	Target pile temperature monitors	12/8/04	1 d	0%
3.2.5.2	Differential pressure monitors	12/8/04	1 d	0%
3.2.5.3	Confirm target pile leak rate is OK	12/8/04	1 d	0%
3.3	**Absorber Area**	**6/15/04**	**68 d**	**0%**
3.3.1	Decay pipe vacuum system checkout	6/15/04	1 d	0%
3.3.2	Checkout Decay Pipe RAW system	7/16/04	1 d	0%
3.3.3	Checkout Hadron Monitor gas and electrical	7/16/04	1 d	0%
3.3.4	Checkout Absorber temperature monitors	9/16/04	1 d	0%
3.3.5	Measure absorber air leak rate	9/16/04	1 d	0%
3.3.6	Checkout muon monitor 1 gas & electrical	9/16/04	1 d	0%
3.3.7	Checkout muon monitor 2 gas & electrical	9/16/04	1 d	0%
3.3.8	Checkout muon monitor 3 gas & electrical	9/16/04	1 d	0%
3.4	**Beam Permit System**	**7/27/04**	**98 d**	**0%**
3.4.1	Check MI/stub magnet inputs	11/9/04	1 d	0%
3.4.2	Check MI/stub instrumentation inputs	11/9/04	1 d	0%
3.4.3	Check CT magnet inputs	7/27/04	1 d	0%
3.4.4	Check CT instrumentation inputs	11/9/04	1 d	0%



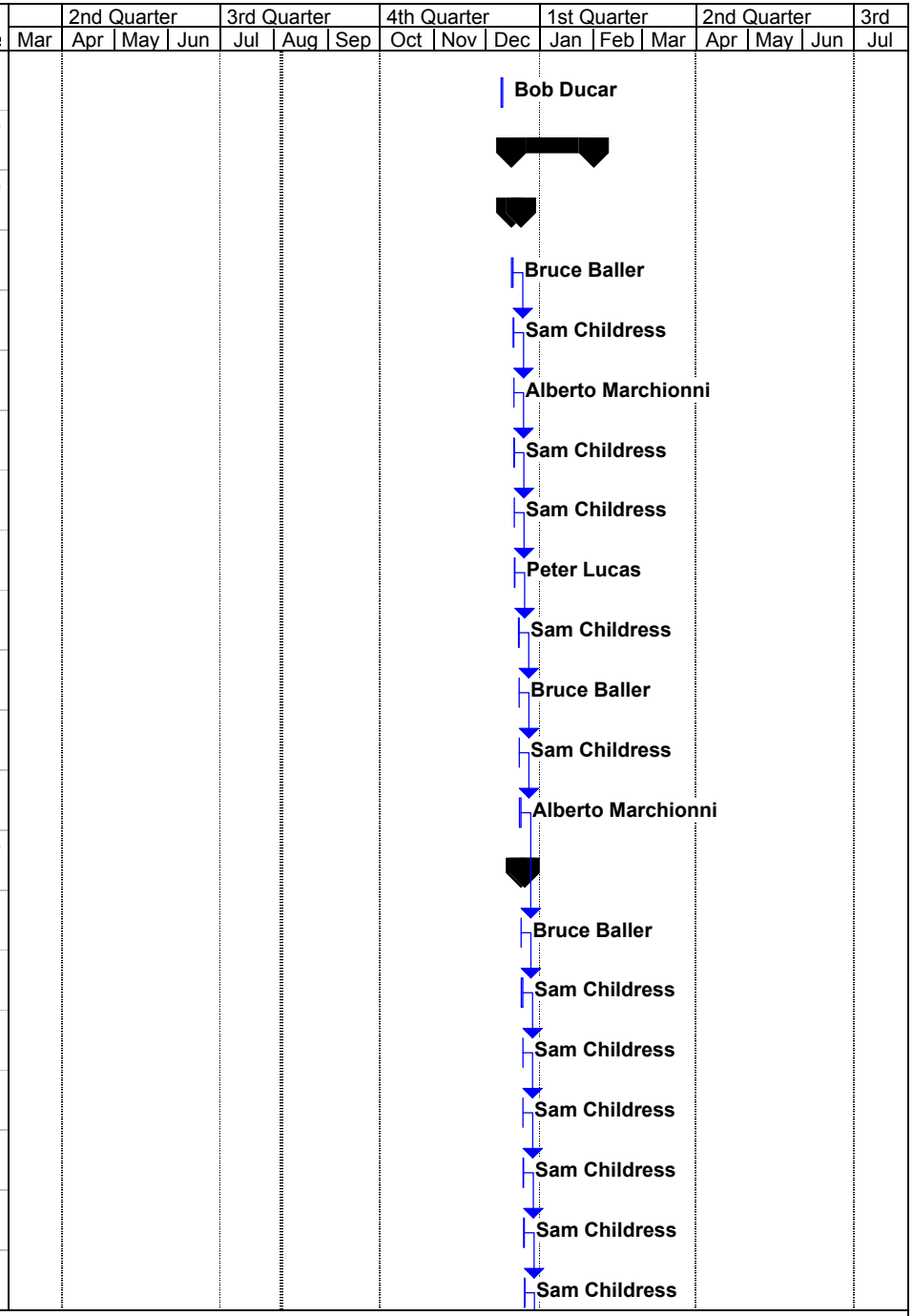
WBS	Task Name	Start	Duration	% Complete
3.4.5	Check pre-tgt magnet inputs	7/27/04	1 d	0%
3.4.6	Check pre-tgt instrumentation inputs	11/9/04	1 d	0%
3.4.7	Check target hall inputs	12/9/04	1 d	0%
3.4.8	Check Upstream utility inputs	11/9/04	1 d	0%
3.4.9	Check absorber area inputs	9/17/04	1 d	0%
3.5	**Safety System**	**7/15/04**	**93 d**	**0%**
3.5.1	All gates, search & secure boxes in place	7/15/04	1 d	0%
3.5.2	Critical device test	11/22/04	1 d	0%
4	**Administrative Approvals**	**5/18/04**	**152 d**	**19%**
4.1	**Main Injector Approvals**	**6/18/04**	**87 d**	**28%**
4.1.1	Update MI Shielding Assessment	6/18/04	27 d	89%
4.1.2	AD approve MI running conditions	7/27/04	60 d	0%
4.2	**NuMI Approvals**	**5/18/04**	**152 d**	**15%**
4.2.1	AD Review Shielding Assessment	5/18/04	45 d	50%
4.2.2	Shielding Assessment to SRSO, Director for Review & Approval	7/20/04	20 d	0%
4.2.3	AD/ES&H Section/PPD review SAD	7/20/04	50 d	0%
4.2.4	Accelerator Readiness Review	9/28/04	30 d	0%
4.2.5	Draft NuMI Running Conditions	8/17/04	5 d	0%
4.2.6	Final walkthrough with NuMI ESH/QA committee	12/10/04	1 d	0%
4.2.7	NuMI ESH/QA Committee letter to AD head declaring NuMI Ready to Operate	12/13/04	1 d	0%
4.2.8	Final Signoffs on SAD (Safety Envelope), ARR at FNAL	12/14/04	1 d	0%



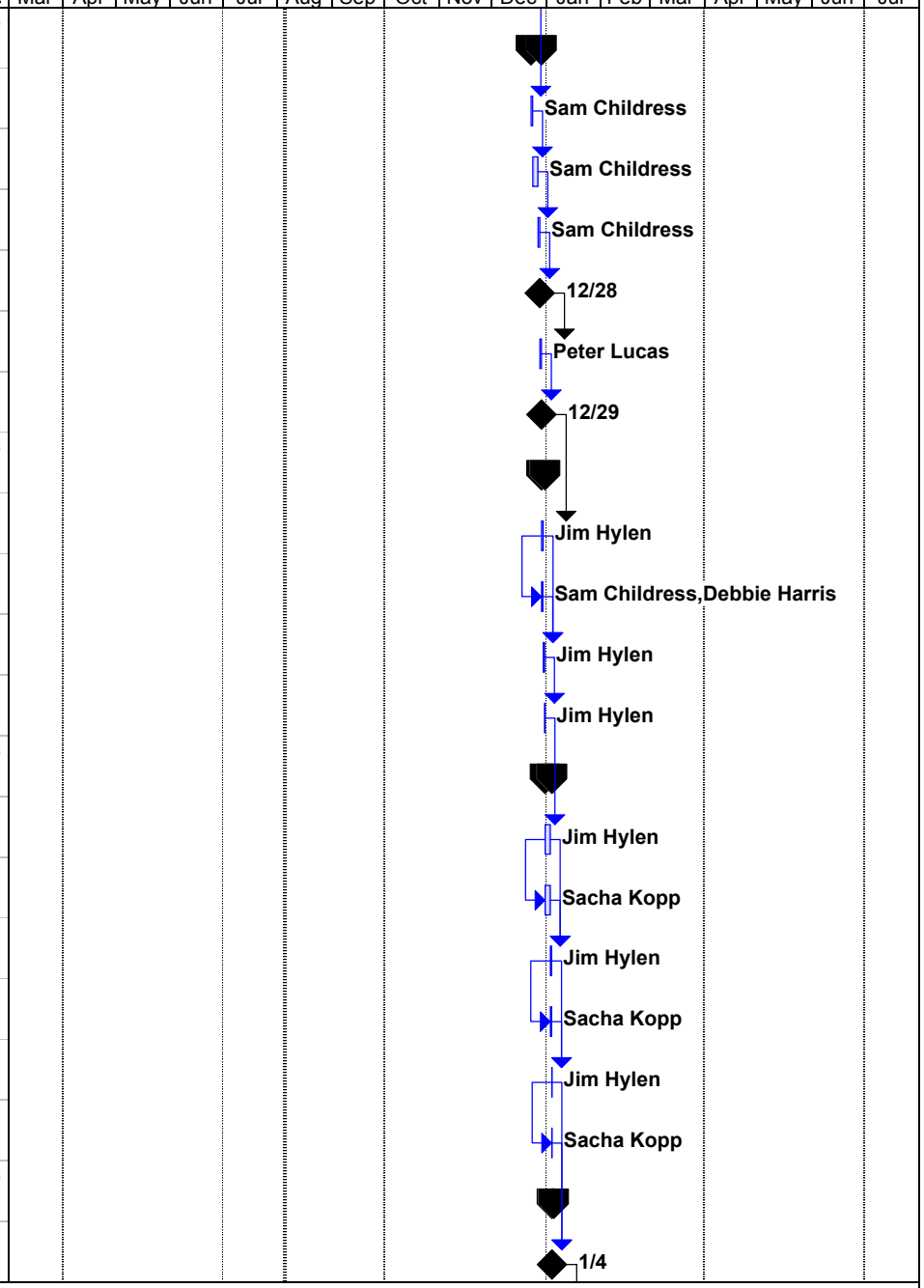
WBS	Task Name	Start	Duration	% Complete
4.2.9	DOE Concurrence on SAD, approval of Safety Envelope	12/15/04	1 d	0%
5	**Operations Preparations**	**5/5/04**	**158 d**	**1%**
5.1	**Controls**	**5/5/04**	**148 d**	**2%**
5.1.1	Database updates	6/30/04	10 d	0%
5.1.2	Setup parameter pages	7/14/04	10 d	0%
5.1.3	Setup alarms & limits	7/28/04	10 d	0%
5.1.4	Setup sequencers	8/11/04	10 d	0%
5.1.5	Define list of devices to data log	5/5/04	1 d	100%
5.1.6	Setup data logger	7/14/04	1 d	0%
5.1.7	Setup BLBM	11/22/04	5 d	0%
5.1.8	Setup BBM	11/22/04	5 d	0%
5.2	**Administration & training**	**6/25/04**	**121 d**	**0%**
5.2.1	Develop Search & Secure procedures	7/16/04	10 d	0%
5.2.2	Search & Secure training	7/30/04	10 d	0%
5.2.3	Develop Emergency Response Procedures	7/30/04	10 d	0%
5.2.4	Emergency Response training	8/13/04	10 d	0%
5.2.5	Define requirements for access Supervised/Controlled	7/30/04	1 d	0%
5.2.6	Define NuMI experts & call-in list	8/9/04	1 d	0%
5.2.7	Define criteria for min instrumentation needed to operate	6/25/04	1 d	0%
5.2.8	Develop NuMI beam Operator training	11/1/04	20 d	0%
5.2.9	Operator training on NuMI commissioning	11/29/04	1 d	0%



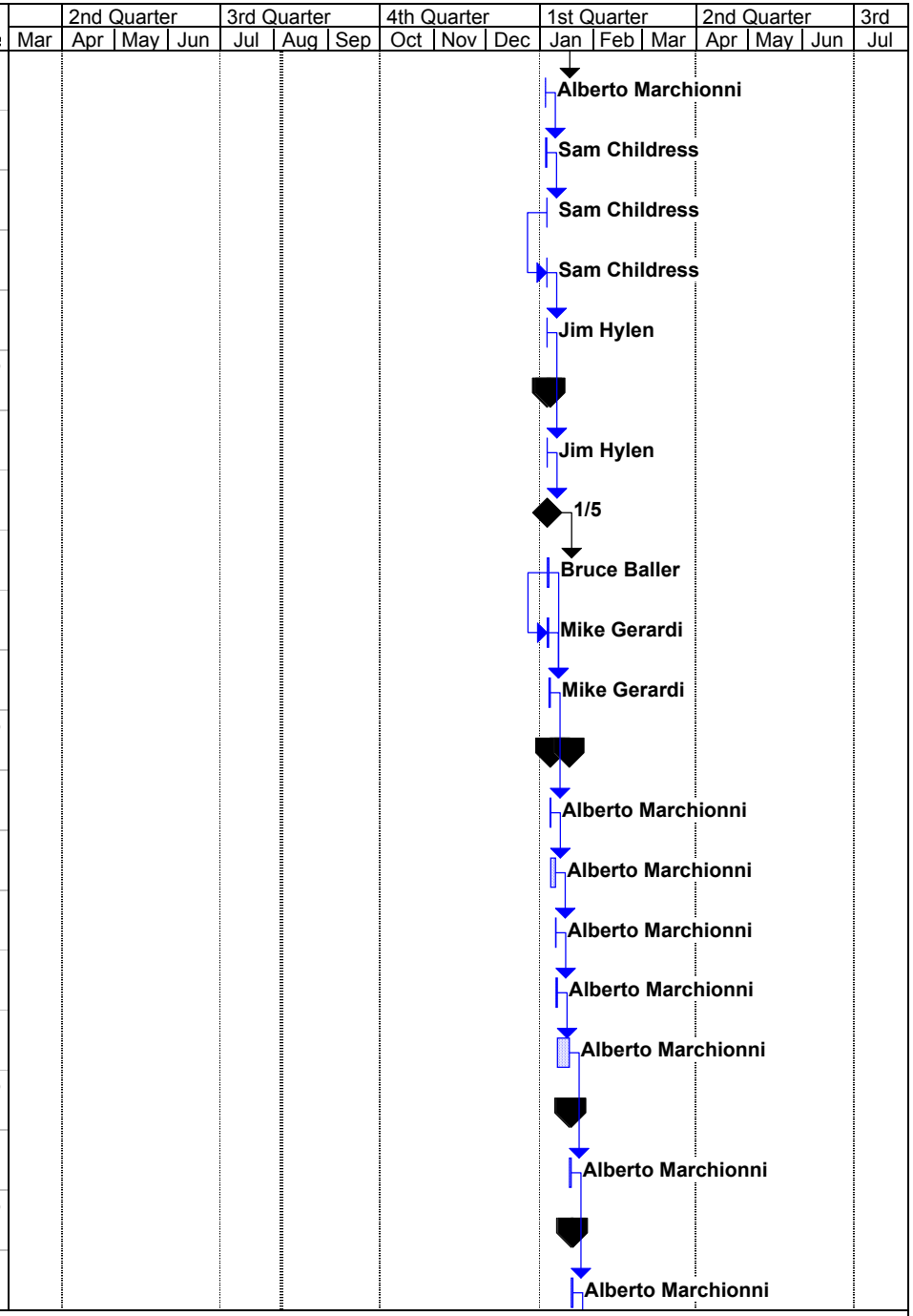
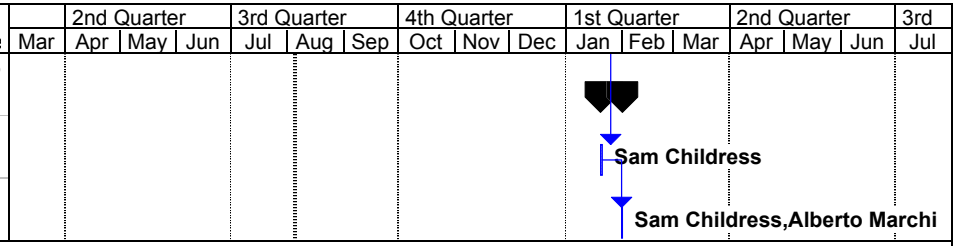
WBS	Task Name	Start	Duration	% Complete
5.2.10	Develop mechanism for physically checking inputs to the BPS 200 module	12/10/04	1 d	0%
6	**NuMI Commissioning**	**12/16/04**	**33.5 d**	**0%**
6.1	**MI & NuMI set up**	**12/16/04**	**3.5 d**	**0%**
6.1.1	Load BPS commissioning file	12/16/04	1 d	0%
6.1.2	Disable NuMI kicker & enable NuMI permit	12/17/04	1 h	0%
6.1.3	Start $23 cycle every 2 minutes. 2 turns, 30 bunches	12/17/04	1 h	0%
6.1.4	Ramp NuMI magnets. Check timing & levels	12/17/04	3 h	0%
6.1.5	Put Profile Monitors IN	12/17/04	1 h	0%
6.1.6	Start Autotune & check magnet readbacks	12/17/04	2 h	0%
6.1.7	Check readback status of all NuMI devices	12/20/04	2 h	0%
6.1.8	Ensure Alarms & Limits, BLBM, BBM running	12/20/04	1 h	0%
6.1.9	Ensure data-logging is on	12/20/04	1 h	0%
6.1.10	Ensure MI beam quality is acceptable	12/20/04	1 d	0%
6.2	**First beam to NuMI**	**12/21/04**	**2.25 d**	**0%**
6.2.1	Enable NuMI kicker	12/21/04	1 h	0%
6.2.2	Tune beam from MI to hadron absorber	12/21/04	1 d	0%
6.2.3	Check losses w PM's in	12/22/04	1 h	0%
6.2.4	Compare losses w PM's out	12/22/04	1 h	0%
6.2.5	PM's put back in	12/22/04	1 h	0%
6.2.6	Check BPM calibration	12/23/04	3 h	0%
6.2.7	Check calibration @ 3E11 ppp	12/23/04	3 h	0%



WBS	Task Name	Start	Duration	% Complete
6.3	**Aperture Scans**	**12/23/04**	**4 d**	**0%**
6.3.1	Scan the Lambertson apertures	12/23/04	1 d	0%
6.3.2	Scan NuMI apertures	12/24/04	1 d	0%
6.3.3	Declare beam transport standard	12/27/04	1 d	0%
6.3.4	Define BPS Golden file	12/28/04	0 d	0%
6.3.5	Validate Auto-tune operation	12/28/04	1 d	0%
6.3.6	Start tuning with correctors	12/29/04	0 d	0%
6.4	**Horn Alignment**	**12/29/04**	**2 d**	**0%**
6.4.1	Check horn 1 neck vert & hor alignment	12/29/04	1 d	0%
6.4.2	Check position monitor response (concurrent)	12/29/04	0.5 d	0%
6.4.3	Check horn 1 DS end alignment	12/30/04	4 h	0%
6.4.4	Check horn 2 US & DS end alignment	12/31/04	4 h	0%
6.5	**Target/Baffle Alignment**	**12/31/04**	**2 d**	**0%**
6.5.1	Scan target in ME position	12/31/04	1 d	0%
6.5.2	Correlate Had Mon response w tgt position (concurrent)	12/31/04	1 d	0%
6.5.3	Scan target in LE position	1/3/05	4 h	0%
6.5.4	Correlate Had Mon response w tgt position (concurrent)	1/3/05	4 h	0%
6.5.5	Scan target in HE position	1/4/05	4 h	0%
6.5.6	Correlate Had Mon response w tgt position (concurrent)	1/4/05	4 h	0%
6.6	**Raise intensity & check calibration**	**1/4/05**	**0.88 d**	**0%**
6.6.1	Authorize operation at 1E12	1/4/05	0 d	0%



WBS	Task Name	Start	Duration	% Complete
6.6.2	Increase intensity to 1E12 ppp	1/4/05	1 h	0%
6.6.3	Check intensity calibration @ 1E12 ppp	1/4/05	2 h	0%
6.6.4	Check loss monitor calibration @ 1E12 ppp	1/5/05	2 h	0%
6.6.5	Check BPM position calibration (concurrent)	1/5/05	2 h	0%
6.6.6	Calibrate the baffle	1/5/05	2 h	0%
6.7	**First neutrinos**	**1/5/05**	**1.63 d**	**0%**
6.7.1	Turn on the horn. Tgt in LE position	1/5/05	1 h	0%
6.7.2	Re-define BPS golden file	1/5/05	0 d	0%
6.7.3	Log neutrinos in ND	1/5/05	1 d	0%
6.7.4	Perform beam-on surveys (concurrent)	1/5/05	4 h	0%
6.7.5	Check residual rates in the tunnel	1/6/05	4 h	0%
6.8	**Multi-batch tuning**	**1/7/05**	**7 d**	**0%**
6.8.1	Check NuMI timing with 2 batches	1/7/05	4 h	0%
6.8.2	Check NuMI timing with 3 batches	1/7/05	4 h	0%
6.8.3	Check NuMI timing with 4 batches	1/10/05	4 h	0%
6.8.4	Check NuMI timing with 5 batches	1/10/05	4 h	0%
6.8.5	Increase NuMI intensity w 5 batches	1/11/05	5 d	0%
6.9	**Reduce cycle time - Mixed mode**	**1/18/05**	**1 d**	**0%**
6.9.1	Test MI "Beam Quality" BPS inputs in mixed mode	1/18/05	1 d	0%
6.10	**Main Injector - High Intensity**	**1/19/05**	**1 d**	**0%**
6.10.1	Upgrade MI loss monitors in NuMI extraction region	1/19/05	1 d	0%



WBS	Task Name	Start	Duration	% Complete
6.11	**Turnover to Operations**	**1/20/05**	**8.25 d**	**0%**
6.11.1	Document tunes/settings, etc	1/20/05	1 d	0%
6.11.2	Document training for future operators	2/1/05	0.5 d	0%