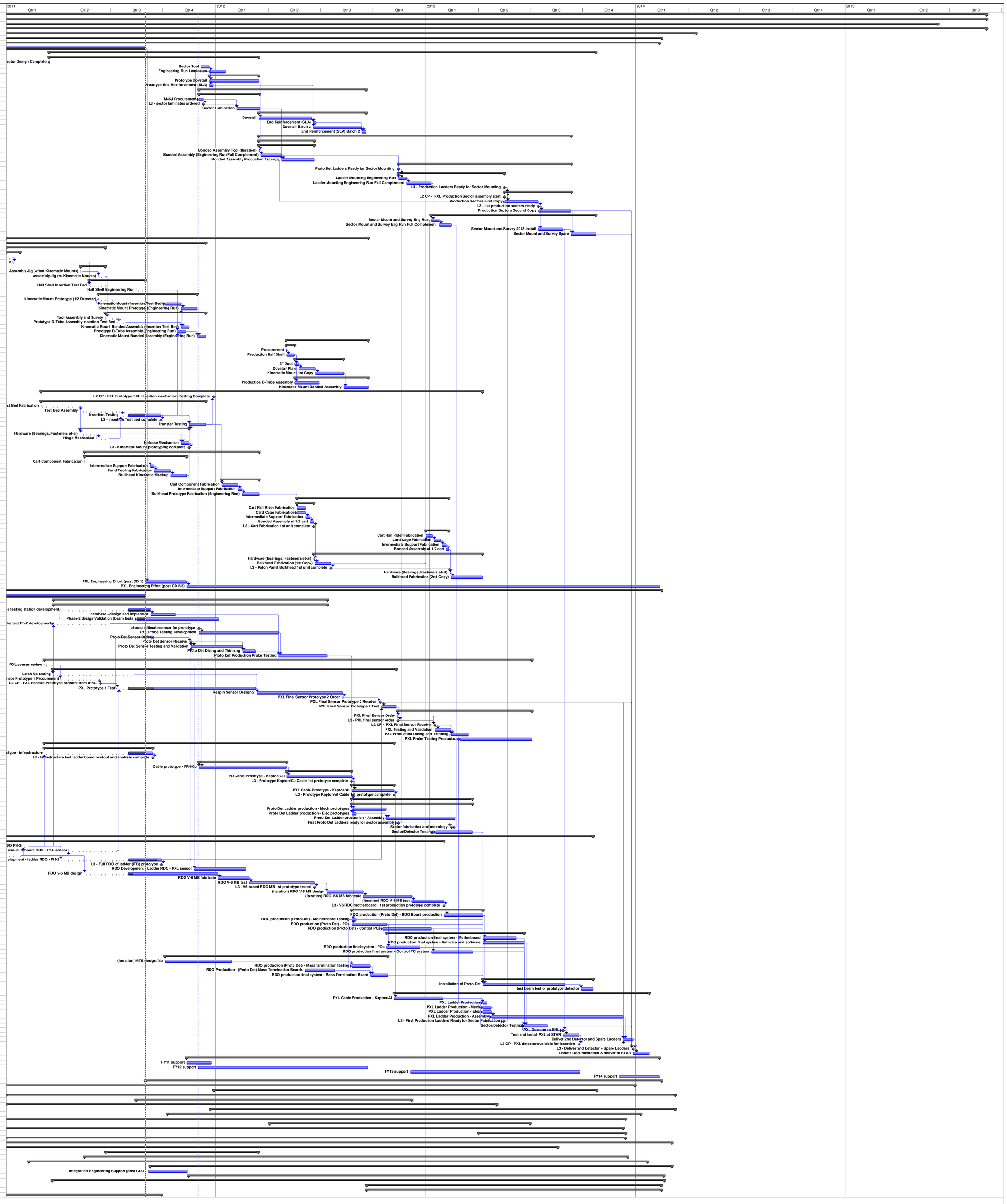
ID	WBS	Task Name
1	1	HFT - MIE and Redirect (TEC)
2	1.1	Management
3	1.1.1	Project Management
24	1.1.2	Reviews/Meetings
36	1.1.3	Funding Milestones
46	1.2	Pixel Detector (PXL)
47	1.2.1	Pixel Mechanics
48	1.2.1.1	Actuals through May 2011
49	1.2.1.2	Module Support (Sector)
50	1.2.1.2.1	Sector Mechanical Prototypes (engineering Run)
51	1.2.1.2.1.1	L2 CP - PXL Prototype Sector Design Complete
52	1.2.1.2.1.2	Sector Tool
53	1.2.1.2.1.3	Engineering Run Laminates
54	1.2.1.2.1.4	Interface Parts (Prototype)
55	1.2.1.2.1.4.1	Prototype Dovetail
56	1.2.1.2.1.4.2	Prototype End Reinforcement (SLA)
57	1.2.1.2.2	Production Sectors
58	1.2.1.2.2.1	Sector Laminates
59	1.2.1.2.2.1.1	M46J Procurement
60	1.2.1.2.2.1.2	L3 - sector laminates ordered
61	1.2.1.2.2.1.3	Sector Lamination
62	1.2.1.2.2.2	Interface Parts
63	1.2.1.2.2.2.1	Dovetail
64	1.2.1.2.2.2.2	End Reinforcement (SLA)
65	1.2.1.2.2.2.3	Dovetail Batch 2
66	1.2.1.2.2.2.4	End Reinforcement (SLA) Batch 2
67	1.2.1.2.3	Sector Assembly
68	1.2.1.2.3.1	Mechanical Sector Assemblies
69	1.2.1.2.3.1.1	Sector Component Assembly
70	1.2.1.2.3.1.1.1	Bonded Assembly Tool (Iteration)
71	1.2.1.2.3.1.1.2	Bonded Assembly (Engineering Run Full Complement)
72	1.2.1.2.3.1.1.3	Bonded Assembly Production 1st copy
73	1.2.1.2.3.2	Electrical Sector Assemblies
74	1.2.1.2.3.2.1	Proto Det Ladders Ready for Sector Mounting
75	1.2.1.2.3.2.2	Engineering Run Sector Assemblies
76	1.2.1.2.3.2.2.1	Ladder Mounting Engineering Run
77	1.2.1.2.3.2.2.2	Ladder Mounting Engineering Run Full Complement
78	1.2.1.2.3.2.2.3	L3 - Production Ladders Ready for Sector Mounting
79	1.2.1.2.3.2.3	Production Sector Assemblies
80	1.2.1.2.3.2.3.1	L2 CP - PXL Production Sector assembly start
81	1.2.1.2.3.2.3.2	Production Sectors First Copy
82	1.2.1.2.3.2.3.3	L3 - 1st production sectors ready
83	1.2.1.2.3.2.3.4	Production Sectors Second Copy
84	1.2.1.2.4	Sector Mount And Survey
85	1.2.1.2.4.1	Sector Mount and Survey Eng Run
86	1.2.1.2.4.2	Sector Mount and Survey Eng Run Full Complement
87	1.2.1.2.4.3	Sector Mount and Survey 2013 Install
88	1.2.1.2.4.4	Sector Mount and Survey Spare
89	1.2.1.3	D-Tube and Kinematic Mounts
90	1.2.1.3.1	Prototype D-Tube
91	1.2.1.3.1.1	Tooling D-Tube Shell
92	1.2.1.3.1.1.1	Half Shell Lamination
93	1.2.1.3.1.1.1.1	Welded Tube Assembly/Machine
94	1.2.1.3.1.1.1.2	Trim Fixture
95	1.2.1.3.1.1.2	Half Shell Bond
96	1.2.1.3.1.1.2.1	Assembly Jig (w/out Kinematic Mounts)
97	1.2.1.3.1.1.2.2	Assembly Jig (w/ Kinematic Mounts)
98	1.2.1.3.1.2	D-Tube Laminate Fabrication
99	1.2.1.3.1.2.1	Half Shell Insertion Test Bed
100	1.2.1.3.1.2.2	Half Shell Engineering Run
101	1.2.1.3.1.3	Prototype Kinematic Mounts
102	1.2.1.3.1.3.1	Kinematic Mount Prototype (1/2 Detector)
103	1.2.1.3.1.3.2	Kinematic Mount (Insertion Test Bed)
104	1.2.1.3.1.3.3	Kinematic Mount Prototype (Engineering Run)
105	1.2.1.3.1.4	D-Tube Bonded Assembly (w/out mounts)
106	1.2.1.3.1.4.1	Tool Assembly and Survey
107	1.2.1.3.1.4.2	Prototype D-Tube Assembly Insertion Test Bed
108	1.2.1.3.1.4.3	Kinematic Mount Bonded Assembly (Insertion Test Bed)
109	1.2.1.3.1.4.4	Prototype D-Tube Assembly (Engineering Run)
110	1.2.1.3.1.4.5	Kinematic Mount Bonded Assembly (Engineering Run)
111	1.2.1.3.2	Production D-Tube and Kinematic Mounts
112	1.2.1.3.2.1	D-Tube Laminates Production
113	1.2.1.3.2.1.1	Procurement
114	1.2.1.3.2.1.2	Production Half Shell
115	1.2.1.3.2.2	Interface Parts (Duct and Dovetail Plate)
116	1.2.1.3.2.2.1	3" Duct
117	1.2.1.3.2.2.2	Dovetail Plate
118	1.2.1.3.2.2.3	Kinematic Mount 1st Copy
119	1.2.1.3.2.3	D-Tube Bonded Assembly
120	1.2.1.3.2.3.1	Production D-Tube Assembly
121	1.2.1.3.2.3.2	Kinematic Mount Bonded Assembly
122	1.2.1.4	Insertion Mechanism and Internal Service Supports
123	1.2.1.4.1	L2 CP - PXL Prototype PXL Insertion mechanism Testing Complete
124	1.2.1.4.2	Insertion Test Bed
125	1.2.1.4.2.1	Test Bed Fabrication
126	1.2.1.4.2.2	Test Bed Assembly
127	1.2.1.4.2.3	Insertion Testing
128	1.2.1.4.2.4	L3 - Insertion Test bed complete
129	1.2.1.4.2.5	Transfer Testing
130	1.2.1.4.3	Prototype Insertion Mechanism
131	1.2.1.4.3.1	Hardware (Bearings, Fasteners et-al)
132	1.2.1.4.3.2	Hinge Mechanism
133	1.2.1.4.3.3	Release Mechanism
134	1.2.1.4.3.4	L3 - Kinematic Mount prototyping complete
135	1.2.1.4.4	Low Mass Cart Prototype
136	1.2.1.4.4.1	Cart Prototype Fabrication (1/2 Detector)
137	1.2.1.4.4.1.1	Cart Component Fabrication
138	1.2.1.4.4.1.2	Intermediate Support Fabrication
139	1.2.1.4.4.1.3	Bond Tooling Fabrication
140	1.2.1.4.4.1.4	Bulkhead Kinematic Mockup
141	1.2.1.4.4.2	Cart Fabrication (Engineering Run)
142	1.2.1.4.4.2.1	Cart Component Fabrication
143	1.2.1.4.4.2.2	Intermediate Support Fabrication
144	1.2.1.4.4.2.3	Bulkhead Prototype Fabrication (Engineering Run)
145	1.2.1.4.5	Production Insertion Mechanism
146	1.2.1.4.5.1	Cart Fabrication (First Unit)
147	1.2.1.4.5.1.1	Cart Rail Rider Fabrication
148	1.2.1.4.5.1.2	Card Cage Fabrication
149	1.2.1.4.5.1.3	Intermediate Support Fabrication
150	1.2.1.4.5.1.4	Bonded Assembly of 1/2 cart
151	1.2.1.4.5.1.5	L3 - Cart Fabrication 1st unit complete
152	1.2.1.4.5.2	Cart Fabrication (Second Unit)
153	1.2.1.4.5.2.1	Cart Rail Rider Fabrication
154	1.2.1.4.5.2.2	Card Cage Fabrication
155	1.2.1.4.5.2.3	Intermediate Support Fabrication
156	1.2.1.4.5.2.4	Bonded Assembly of 1/2 cart
157	1.2.1.4.6	Production Patch Panel Bulkhead
158	1.2.1.4.6.1	Hardware (Bearings, Fasteners et-al)
159	1.2.1.4.6.2	Bulkhead Fabrication (1st Copy)
160	1.2.1.4.6.3	L3 - Patch Panel Bulkhead 1st unit complete
161	1.2.1.4.6.4	Hardware (Bearings, Fasteners et-al)
162	1.2.1.4.6.5	Bulkhead Fabrication (2nd Copy)
163	1.2.1.5	PXL Engineering Effort (post CD 1)
164	1.2.1.6	PXL Engineering Effort (post CD 2/3)
165	1.2.2	Pixel Electronics
166	1.2.2.1	Actuals through May 2011
167	1.2.2.2	Phase-2 Sensor
168	1.2.2.2.1	Proto Det Production
169	1.2.2.2.1.1	Probe testing station development
170	1.2.2.2.1.2	database - design and implement
171	1.2.2.2.1.3	Phase-2 design Validation (beam tests)
172	1.2.2.2.1.4	Probe test Ph-2 development
173	1.2.2.2.1.11	choose ultimate sensor for prototype
174	1.2.2.2.1.17	PXL Probe Testing Development
175	1.2.2.2.1.12	Proto Det Sensor Order
176	1.2.2.2.1.13	Proto Det Sensor Receive
177	1.2.2.2.1.14	Proto Det Sensor Testing and Validation
178	1.2.2.2.1.15	Proto Det Dicing and Thinning
179	1.2.2.2.1.16	Proto Det Production Probe Testing
180	1.2.2.3	PXL Sensor
181	1.2.2.3.1	PXL sensor review
182	1.2.2.3.2	PXL Sensor Prototype
183	1.2.2.3.2.1	Latch Up testing
184	1.2.2.3.2.2	PXL Final Sensor Prototype 1 Procurement
185	1.2.2.3.2.3	L2 CP - PXL Receive Prototype sensors from IPHC
186	1.2.2.3.2.4	PXL Prototype 1 Test
187	1.2.2.3.2.5	Respin Sensor Design 2
188	1.2.2.3.2.6	PXL Final Sensor Prototype 2 Order
189	1.2.2.3.2.7	PXL Final Sensor Prototype 2 Receive
190	1.2.2.3.2.8	PXL Final Sensor Prototype 2 Test
191	1.2.2.3.3	PXL Sensor Production
192	1.2.2.3.3.1	PXL Final Sensor Order
193	1.2.2.3.3.2	L3 - PXL final sensor order
194	1.2.2.3.3.3	L2 CP - PXL Final Sensor Receive
195	1.2.2.3.3.4	PXL Testing and Validation
196	1.2.2.3.3.5	PXL Production Dicing and Thinning
197	1.2.2.3.3.6	PXL Probe Testing Production
198	1.2.2.4	Ladder Cable
199	1.2.2.4.1	Infrastructure Test Cable
200	1.2.2.4.1.1	Cable prototype - infrastructure
201	1.2.2.4.1.2	L3 - Infrastructure test ladder board readout and analysis complete
202	1.2.2.4.2	Prototype Ladder Cable (FR-4)
203	1.2.2.4.2.1	Cable prototype - FR4/Cu
204	1.2.2.4.3	Ladder Cable (Kapton + Cu conductor)
205	1.2.2.4.3.1	PD Cable Prototype - Kapton/Cu
206	1.2.2.4.3.2	L3 - Prototype Kapton/Cu Cable 1st prototype complete
207	1.2.2.4.4	Ladder Cable PXL sensor
208	1.2.2.4.4.2	PXL Cable Prototype - Kapton/Al
209	1.2.2.4.4.3	L3 - Prototype Kapton/Al Cable 1st prototype complete
210	1.2.2.5	Proto Det Ladder Assembly
211	1.2.2.5.1	Ladder Mechanical/Electrical prototypes
212	1.2.2.5.1.1	Proto Det Ladder production - Mech prototypes
213	1.2.2.5.1.2	Proto Det Ladder production - Elec prototypes
214	1.2.2.5.1.3	Proto Det Ladder production - Assembly
215	1.2.2.5.1.4	First Proto Det Ladders ready for sector assembly
216	1.2.2.5.1.5	Sector fabrication and metrology
217	1.2.2.5.1.6	Sector/Detector Testing
218	1.2.2.6	Read-out Electronics
219	1.2.2.6.1	RDO Board
220	1.2.2.6.1.1	RDO Development - individual sensor RDO PH-2
221	1.2.2.6.1.2	RDO Development - Individual sensors RDO - PXL sensor
222	1.2.2.6.1.3	RDO Motherboard Prototype Test
223	1.2.2.6.1.4	RDO development - ladder RDO - PH-2
224	1.2.2.6.1.5	L3 - Full RDO of ladder (ITB) prototype
225	1.2.2.6.1.6	RDO Development - Ladder RDO - PXL sensor
226	1.2.2.6.1.7	RDO V-6 MB design
227	1.2.2.6.1.8	RDO V-6 MB fabricate
228	1.2.2.6.1.9	RDO V-6 MB test
229	1.2.2.6.1.10	L3 - V6 based RDO MB 1st prototype tested
230	1.2.2.6.1.11	(iteration) RDO V-6 MB design
231	1.2.2.6.1.12	(iteration) RDO V-6 MB fabricate
232	1.2.2.6.1.13	(iteration) RDO V-6 MB test
233	1.2.2.6.1.14	L3 - V6 RDO motherboard - 1st production prototype complete
234	1.2.2.6.2	RDO production (Proto Det)
235	1.2.2.6.2.1	RDO production (Proto Det) - RDO Board production
236	1.2.2.6.2.2	RDO production (Proto Det) - Motherboard Testing
237	1.2.2.6.2.3	RDO production (Proto Det) - PCs
238	1.2.2.6.2.4	RDO production (Proto Det) - Control PCs
239	1.2.2.6.3	RDO production final system
240	1.2.2.6.3.1	RDO production final system - Motherboard
241	1.2.2.6.3.2	RDO production final system - firmware and software
242	1.2.2.6.3.3	RDO production final system - PCs
243	1.2.2.6.3.4	RDO production final system - Control PC system
244	1.2.2.6.4	Mass Termination Board
245	1.2.2.6.4.1	(iteration) MTB design/fab
246	1.2.2.6.4.2	RDO production (Proto Det) - Mass termination testing
247	1.2.2.6.4.3	RDO Production - (Proto Det) Mass Termination Boards
248	1.2.2.6.4.4	RDO production final system - Mass Termination Board
249	1.2.2.6.5	Install Proto Det
250	1.2.2.6.5.1	Installation of Proto Det
251	1.2.2.6.5.2	test beam test of prototype detector
252	1.2.2.7	PXL Sensor Ladder Production
253	1.2.2.7.1	PXL Cable Production - Kapton/Al
254	1.2.2.7.2	PXL Ladder Production
255	1.2.2.7.3	PXL Ladder Production - Mech
256	1.2.2.7.4	PXL Ladder Production - Elec
257	1.2.2.7.5	PXL Ladder Production - Assembly
258	1.2.2.7.6	L3 - First Production Ladders Ready for Sector Fabrication
259	1.2.2.7.7	Sector/Detector Testing
260	1.2.2.7.8	PXL Detector to BNL
261	1.2.2.7.9	Test and Install PXL at STAR
262	1.2.2.7.10	Deliver 2nd Detector and Spare Ladders
263	1.2.2.7.11	L2 CP - PXL detector available for insertion
264	1.2.2.7.12	L3 - Deliver 2nd Detector + Spare Ladders
265	1.2.2.7.13	Update Documentation & deliver to STAR
266	1.2.2.8	PXL - UTA Support
267	1.2.2.8.1	FY11 support
268	1.2.2.8.2	FY12 support
269	1.2.2.8.3	FY13 support
270	1.2.2.8.4	FY14 support
271	1.2.2.9	PXL Travel and misc.
273	1.2.3	Detector Assembly
313	1.2.4	Infrastructure
349	1.3	Intermediate Silicon Tracker (IST)
350	1.3.1	Mechanics
369	1.3.2	Electronics
417	1.3.3	Assembly, testing and installation
463	1.3.4	Milestones
487	1.4	Silicon Strip Detector (SSD)
488	1.4.1	Mechanics
493	1.4.2	Electronics
603	1.4.3	Assembly
619	1.4.4	Infrastructure
721	1.5	Integration and Global Supports (IGS)
722	1.5.1	Mechanics
914	1.5.2	Electronics
918	1.5.3	Assembly
958	1.5.4	Integration Infrastructure
1006	1.5.5	Installation
1078	1.5.6	Integration Engineering Support (post CD-1)
1079	1.5.7	Integration Engineering Support (post CD-2/3)
1084	1.5.8	Safety
1114	1.6	Software
1115	1.6.1	Online
1128	2	OPC - R&D Efforts



Project: Heavy Flavor Tracker
Date: Wed 8/31/11

aTask | Critical Task | Progress | Milestone | Summary | Rolled Up Task | Rolled Up Critical Task | Rolled Up Milestone | Rolled Up Progress | Split | External Tasks | Project Summary | Group By Summary | Deadline