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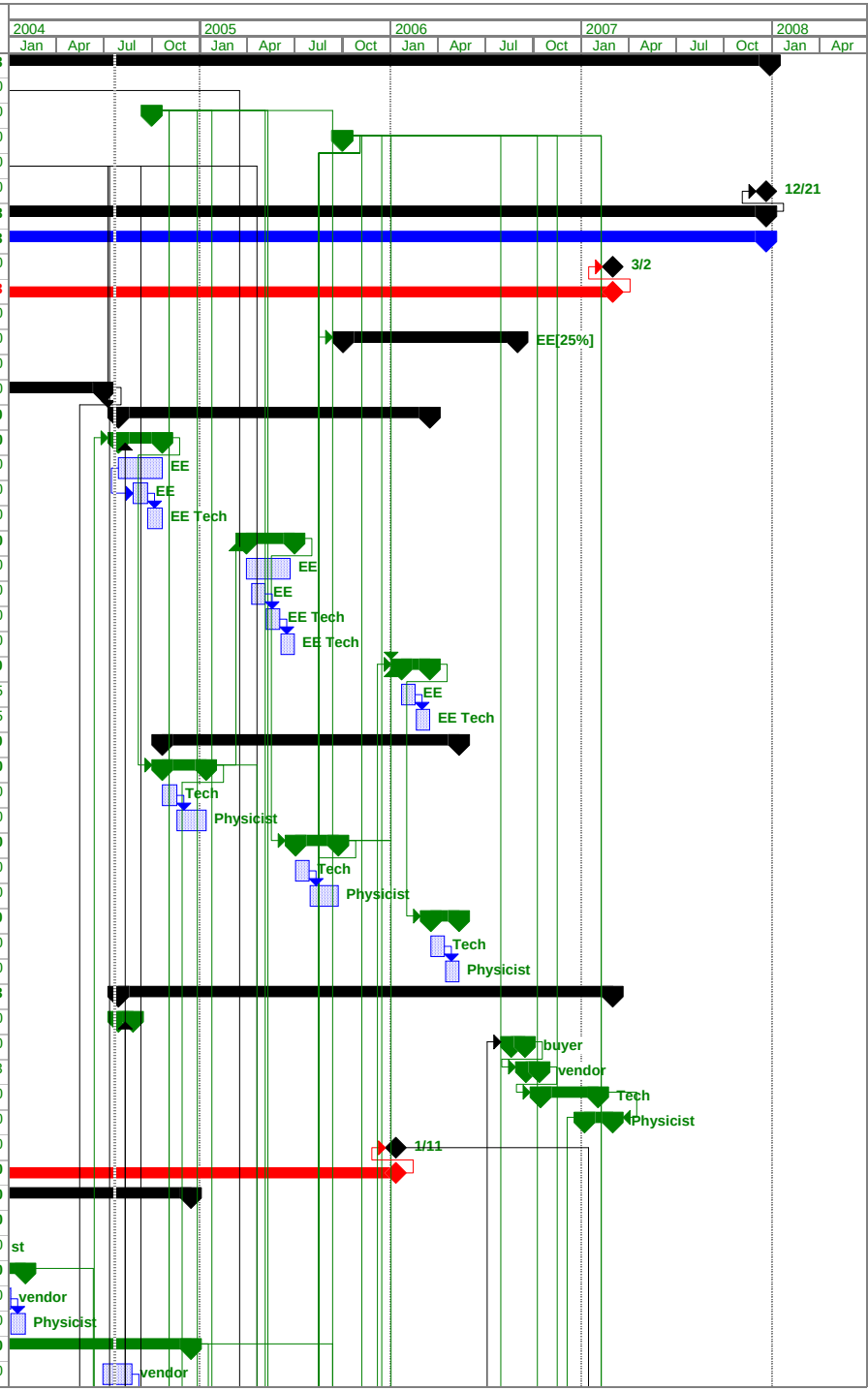
ID	WBS	Task Name	RIKEN Total	Total BNL Funds	DOE	DOE Contingency	Total DOE
1	1	**VTX project**	**2995750**	**480600**	**3,107,750**	**1,047,993**	**4,334,613**
2		RIKEN Construction Funds	0	0	0	0	0
3		DOE BNL Funds	0	0	0	0	0
4		DOE Construction Funds	0	0	0	0	0
5		DOE Generic R&D Funds	0	0	0	0	0
6		MILESTONE - Completion of SILICON BARREL	0	0	0	0	0
7	1.1	**SILICON BARREL**	**2860750**	**268050**	**1,327,750**	**414,518**	**1,826,688**
8	1.1.1	**STRIP**	**1310000**	**268050**	**1,237,750**	**366,893**	**1,683,813**
9		MILESTONE - Strip ROC Card Fabricated	0	0	0	0	0
10	1.1.1.1	**Strip ROC SVX4**	**160000**	**158050**	**320,000**	**108,183**	**456,983**
11	1.1.1.1.1	Review	0	0	0	0	0
12	1.1.1.1.2	Documentation	0	0	45,000	0	49,050
13	1.1.1.1.3	**E&D of Testboard (0th round)**	0	0	0	0	0
14	1.1.1.1.4	**PROTOTYPE of Testboard (0th round)**	0	0	0	0	0
15	1.1.1.1.5	**E&D of Strip ROC Card**	**0**	**141700**	**40,000**	**21,800**	**65,400**
16	1.1.1.1.5.2	**1st round**	**0**	**0**	**0**	**0**	**0**
17	1.1.1.1.5.2.1	firmware	0	0	0	0	0
18	1.1.1.1.5.2.2	circuit diagram	0	0	0	0	0
19	1.1.1.1.5.2.3	layout	0	0	0	0	0
20	1.1.1.1.5.3	**2nd round**	**0**	**141700**	**0**	**0**	**0**
21	1.1.1.1.5.3.1	firmware	0	81750	0	0	0
22	1.1.1.1.5.3.2	circuit diagram	0	27250	0	0	0
23	1.1.1.1.5.3.3	layout	0	16350	0	0	0
24	1.1.1.1.5.3.4	convert code to ASIC	0	16350	0	0	0
25	1.1.1.1.5.4	**final pre-production**	**0**	**0**	**40,000**	**21,800**	**65,400**
26	1.1.1.1.5.4.1	circuit diagram	0	0	25,000	13,625	40,875
27	1.1.1.1.5.4.2	layout	0	0	15,000	8,175	24,525
28	1.1.1.1.6	**PROTOTYPE ROC SVX4**	**0**	**16350**	**22,000**	**11,990**	**35,970**
29	1.1.1.1.6.1	**1st round**	**0**	**0**	**0**	**0**	**0**
30	1.1.1.1.6.1.1	assembly	0	0	0	0	0
31	1.1.1.1.6.1.2	test	0	0	0	0	0
32	1.1.1.1.6.2	**2nd round**	**0**	**16350**	**0**	**0**	**0**
33	1.1.1.1.6.2.15	assembly	0	16350	0	0	0
34	1.1.1.1.6.2.2	test	0	0	0	0	0
35	1.1.1.1.6.3	**final pre-production**	**0**	**0**	**22,000**	**11,990**	**35,970**
36	1.1.1.1.6.3.1	assembly	0	0	22,000	11,990	35,970
37	1.1.1.1.6.3.2	test	0	0	0	0	0
38	1.1.1.1.7	**FABRICATION of Strip ROC Card**	**160000**	**0**	**213,000**	**74,393**	**306,563**
39		order svx4	160000	0	0	0	0
40	1.1.1.1.7.1	order parts (all except svx4)	0	0	0	0	0
41	1.1.1.1.7.2	delivery (incl. parts costs)	0	0	153,000	41,693	208,463
42	1.1.1.1.7.3	assembly	0	0	60,000	32,700	98,100
43	1.1.1.1.7.4	test	0	0	0	0	0
44		MILESTONE - Strip Sensor Fabricated	0	0	0	0	0
45	1.1.1.2	**Strip Sensor**	**1150000**	**0**	**0**	**0**	**0**
46	1.1.1.2.2	**PROTOTYPE of Strip Sensor**	**325000**	**0**	**0**	**0**	**0**
47	1.1.1.2.2.1	**1st round - beam test**	**0**	**0**	**0**	**0**	**0**
48	1.1.1.2.2.1.1	signal/noise, position resolution	0	0	0	0	0
49	1.1.1.2.2.2	**2nd round**	**90000**	**0**	**0**	**0**	**0**
50	1.1.1.2.2.2.1	delivery of sensors	50000	0	0	0	0
51	1.1.1.2.2.2.2	tests	40000	0	0	0	0
52	1.1.1.2.2.3	**final pre-production strip sensor**	**235000**	**0**	**0**	**0**	**0**
53	1.1.1.2.2.3.1	SINTEF pre-production sensor	0	0	0	0	0



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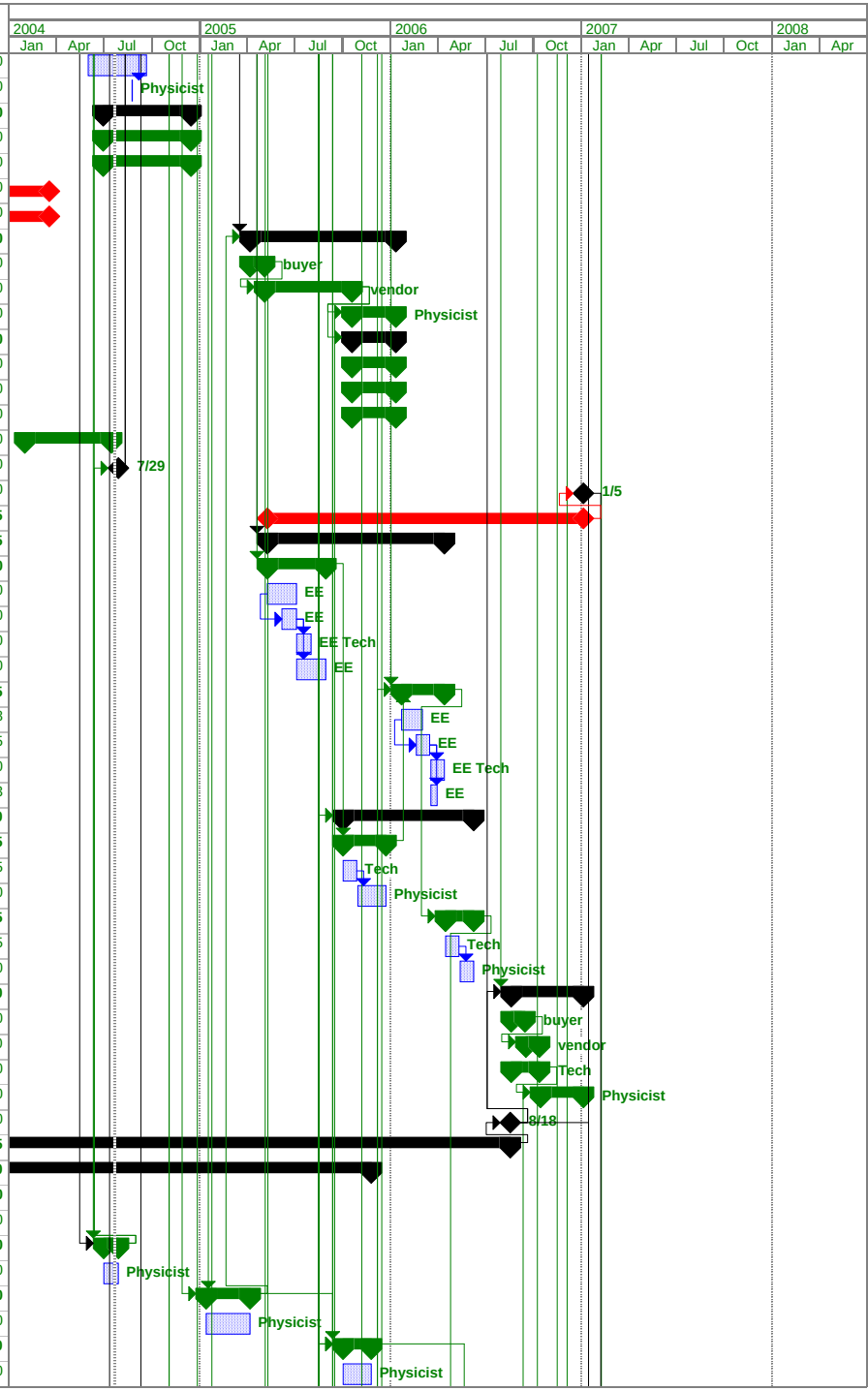
ID	WBS	Task Name	RIKEN Total	Total BNL Funds	DOE	DOE Contingency	Total DOE
54	1.1.1.2.2.3.2	Hamamatsu pre-production sensor	0	0	0	0	0
55	1.1.1.2.2.3.3	tests	0	0	0	0	0
56	**1.1.1.2.2.3.4**	**Q/A of prototype sensor**	**48000**	**0**	**0**	**0**	**0**
57	1.1.1.2.2.3.4.1	sensor Q/A at BNL	30000	0	0	0	0
58	1.1.1.2.2.3.4.2	sensor Q/A at UNM	18000	0	0	0	0
59		SINTEF budget	77000	0	0	0	0
60		Hamamatsu budget	110000	0	0	0	0
61	**1.1.1.2.3**	**FABRICATION of Strip Sensor**	**575000**	**0**	**0**	**0**	**0**
62	1.1.1.2.3.1	order	0	0	0	0	0
63	1.1.1.2.3.2	delivery	540000	0	0	0	0
64	1.1.1.2.3.3	test	0	0	0	0	0
65	**1.1.1.2.3.4**	**Q/A of final sensor**	**35000**	**0**	**0**	**0**	**0**
66	1.1.1.2.3.4.1	Q/A of sensor at BNL	35000	0	0	0	0
67	1.1.1.2.3.4.2	Q/A/ of sensor at UNM	0	0	0	0	0
68	1.1.1.2.3.4.3	Q/A at USB	0	0	0	0	0
69	1.1.1.2.4	Wire bonder	250000	0	0	0	0
70		**DECISION POINT - ROC/Sensors Viability**	0	0	0	0	0
71		MILESTONE - Strip Pilot Fabricated	0	0	0	0	0
72	**1.1.1.3**	**Strip Pilot/FEM**	**0**	**110000**	**373,000**	**77,935**	**484,505**
73	**1.1.1.3.1**	**E&D of Strip Pilot/FEM**	**0**	**110000**	**55,000**	**29,975**	**89,925**
74	**1.1.1.3.1.1**	**1st round**	**0**	**110000**	**0**	**0**	**0**
75	1.1.1.3.1.1.3	PILOT/FEM firmware	0	50000	0	0	0
76	1.1.1.3.1.1.4	PILOT/FEM circuit diagram	0	25000	0	0	0
77	1.1.1.3.1.1.5	PILOT/FEM layout	0	20000	0	0	0
78	1.1.1.3.1.1.6	PILOT/FEM ARCNet coding	0	15000	0	0	0
79	**1.1.1.3.1.2**	**final pre-production**	**0**	**0**	**55,000**	**29,975**	**89,925**
80	1.1.1.3.1.2.3	PILOT/FEM firmware	0	0	22,500	12,263	36,788
81	1.1.1.3.1.2.4	PILOT/FEM circuit diagram	0	0	15,000	8,175	24,525
82	1.1.1.3.1.2.5	PILOT/FEM layout	0	0	10,000	5,450	16,350
83	1.1.1.3.1.2.6	PILOT/FEM ARCNet coding	0	0	7,500	4,088	12,263
84	**1.1.1.3.2**	**PROTOTYPE of Strip Pilot/FEM**	**0**	**0**	**28,000**	**7,630**	**38,150**
85	**1.1.1.3.2.1**	**1st round strip pilot/FEM**	**0**	**0**	**14,000**	**3,815**	**19,075**
86	1.1.1.3.2.1.1	PILOT/FEM assembly	0	0	14,000	3,815	19,075
87	1.1.1.3.2.1.3	testing	0	0	0	0	0
88	**1.1.1.3.2.2**	**final pre-production**	**0**	**0**	**14,000**	**3,815**	**19,075**
89	1.1.1.3.2.2.1	PILOT/FEM assembly	0	0	14,000	3,815	19,075
90	1.1.1.3.2.2.3	testing	0	0	0	0	0
91	**1.1.1.3.3**	**FABRICATION of Strip Pilot/FEM**	**0**	**0**	**290,000**	**40,330**	**356,430**
92	1.1.1.3.3.1	order	0	0	0	0	0
93	1.1.1.3.3.2	delivery PILOT/FEM	0	0	270,000	29,430	323,730
94	1.1.1.3.3.4	assembly PILOT/FEM	0	0	20,000	10,900	32,700
95	1.1.1.3.3.6	test PILOT/FEM	0	0	0	0	0
96		MILESTONE - Strip system tests finished	0	0	0	0	0
97	**1.1.1.4**	**Strip System test**	**0**	**0**	**103,750**	**55,375**	**166,125**
98	**1.1.1.4.1**	**Electronics ROC & Sensor**	**0**	**0**	**40,000**	**23,500**	**70,500**
99	**1.1.1.4.1.2**	**0th round**	**0**	**0**	**0**	**0**	**0**
100	1.1.1.4.1.2.1	signal/noise used viking	0	0	0	0	0
101	**1.1.1.4.1.3**	**1st round system test**	**0**	**0**	**0**	**0**	**0**
102	1.1.1.4.1.3.1	signal/noise, use testboard	0	0	0	0	0
103	**1.1.1.4.1.4**	**2nd round system test**	**0**	**0**	**0**	**0**	**0**
104	1.1.1.4.1.4.1	signal/noise, use 1st round ROC	0	0	0	0	0
105	**1.1.1.4.1.5**	**final pre-production system test**	**0**	**0**	**40,000**	**23,500**	**70,500**
106	1.1.1.4.1.5.1	signal/noise, use 2nd round ROC	0	0	40,000	23,500	70,500



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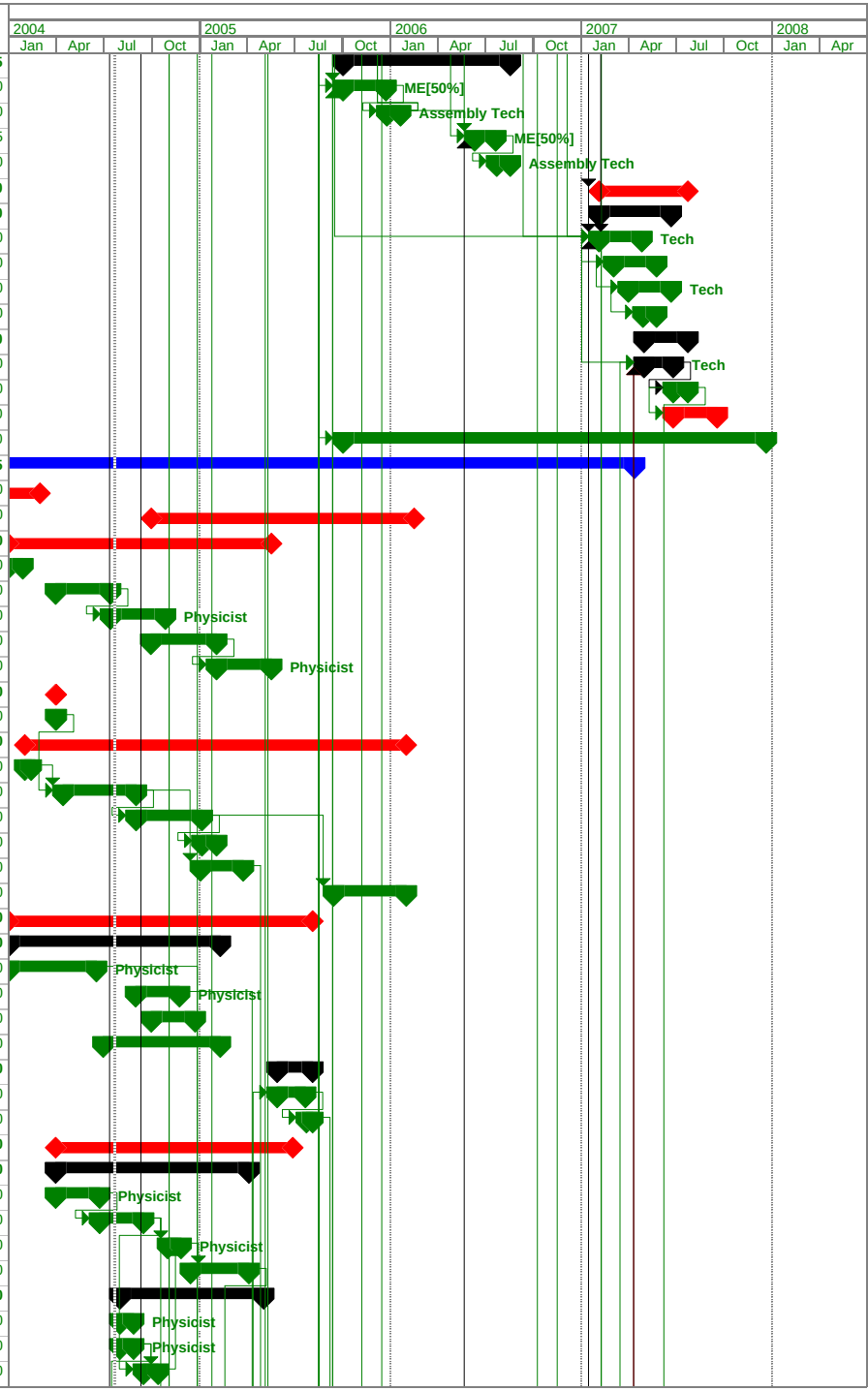
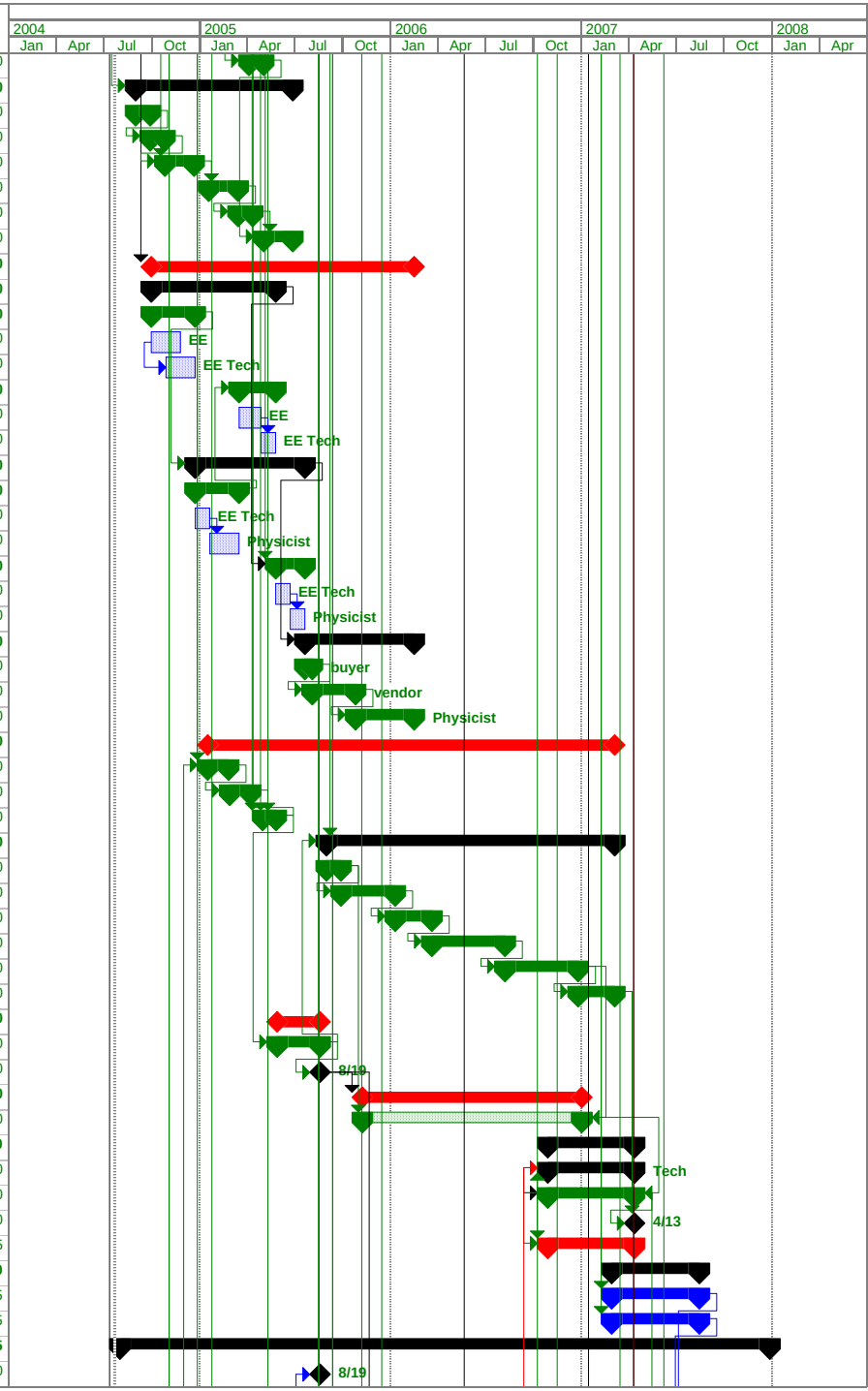
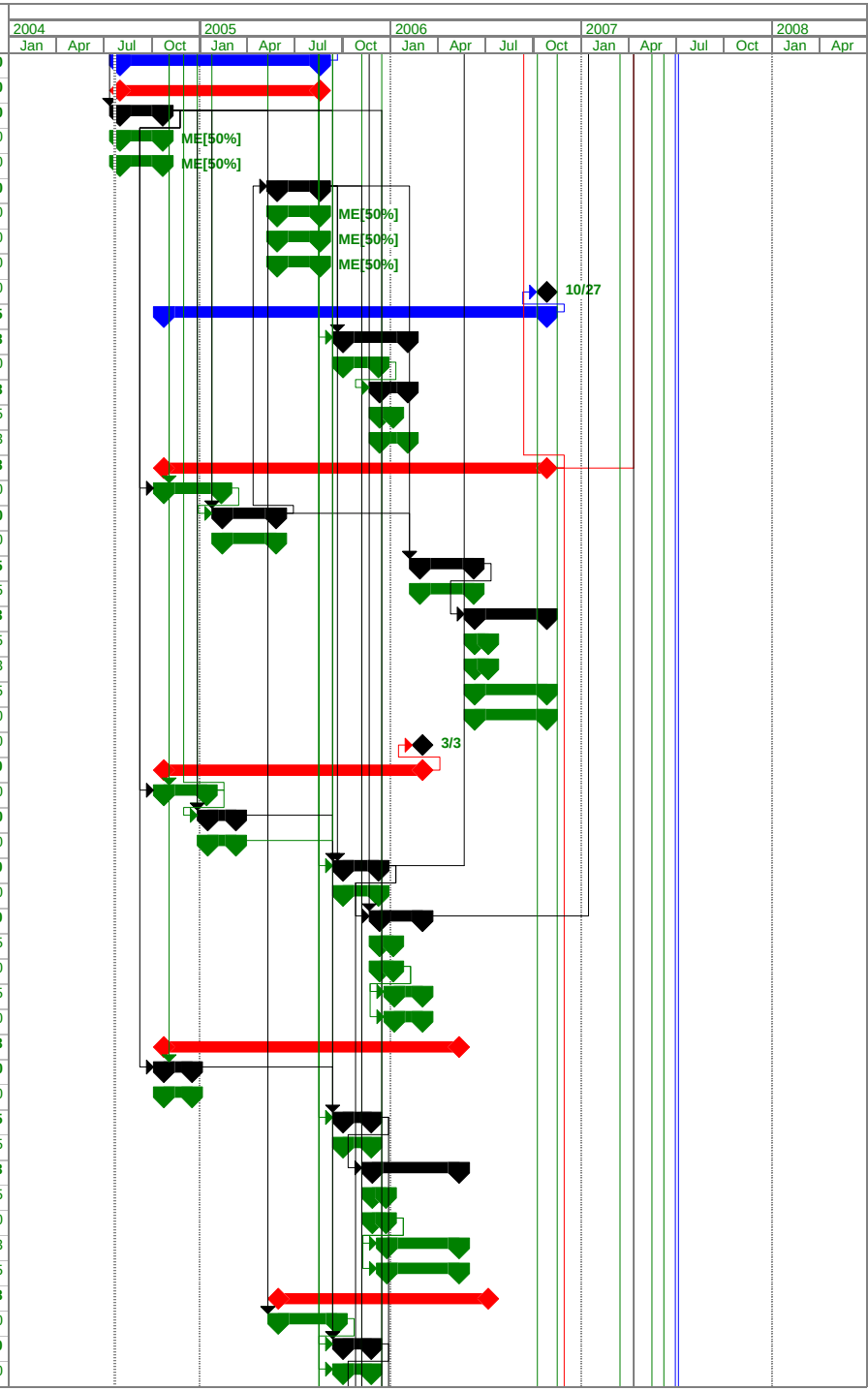
ID	WBS	Task Name	RIKEN Total	Total BNL Funds	DOE	DOE Contingency	Total DOE
107	**1.1.1.4.2**	**Ladder (roc, sensor, bus, pilot, ladder)**	**0**	**0**	**63,750**	**31,875**	**95,625**
108	1.1.1.4.2.1	design of assembly rigs	0	0	22,500	11,250	33,750
109	1.1.1.4.2.2	assembly of test ladder	0	0	20,000	10,000	30,000
110	1.1.1.4.2.3	2nd round design of assembly rigs	0	0	11,250	5,625	16,875
111	1.1.1.4.2.4	assembly of pre-preoduction test ladder	0	0	10,000	5,000	15,000
112	**1.1.1.5**	**Assembly and Testing of Strip**	**0**	**0**	**175,000**	**87,500**	**262,500**
113	**1.1.1.5.1**	**ROC & sensor+pilot+ladder**	**0**	**0**	**100,000**	**50,000**	**150,000**
114	1.1.1.5.1.1	wire bond ROC+Sensor	0	0	30,000	15,000	45,000
115	1.1.1.5.1.2	test wire-bonded ROC+sensor	0	0	30,000	15,000	45,000
116	1.1.1.5.1.3	assembly rocs+pilot on ladder	0	0	30,000	15,000	45,000
117	1.1.1.5.1.4	test assembled ladders	0	0	10,000	5,000	15,000
118	**1.1.1.5.2**	**assemble Ladders on Support**	**0**	**0**	**75,000**	**37,500**	**112,500**
119	1.1.1.5.2.1	align + fix ladders	0	0	60,000	30,000	90,000
120	1.1.1.5.2.2	test	0	0	15,000	7,500	22,500
121	1.1.1.6	Services, LV, racks etc	0	0	66,000	37,900	113,700
122	1.1.1.7	system engineer (50%)	0	0	200,000	0	200,000
123	**1.1.2**	**PIXEL**	**1550750**	**0**	**90,000**	**47,625**	**142,875**
124		RIKEN/CERN MOU	200000	0	0	0	0
125		RIKEN/CERN contract(2)	400000	0	0	0	0
126	**1.1.2.1**	**Pixel Sensors**	**0**	**0**	**0**	**0**	**0**
127	1.1.2.1.1	Design of sensors	0	0	0	0	0
128	1.1.2.1.2	delivery Round 1	0	0	0	0	0
129	1.1.2.1.3	QA round 1	0	0	0	0	0
130	1.1.2.1.4	delivery Round 2	0	0	0	0	0
131	1.1.2.1.5	QA round 2	0	0	0	0	0
132	**1.1.2.2**	**Pixel ROC**	**0**	**0**	**0**	**0**	**0**
133	1.1.2.2.1	Delivery of Pixel ALICE1 Read-out	0	0	0	0	0
134	**1.1.2.3**	**Pixel Sensor assembly**	**160000**	**0**	**0**	**0**	**0**
135	1.1.2.3.1	Probe Station	140000	0	0	0	0
136	1.1.2.3.2	Pixel R/O Q/A for 8 wafer completed	0	0	0	0	0
137	1.1.2.3.3	pixel R/O Q/A for 2nd half of 8 wafer	0	0	0	0	0
138	1.1.2.3.4	move the probe station to RIKEN	20000	0	0	0	0
139	1.1.2.3.5	bump-bonding of first 50 sensor assemblies	0	0	0	0	0
140	1.1.2.3.6	bump bonding of 100 more sensor assmblies	0	0	0	0	0
141	**1.1.2.4**	**Pixel Bus**	**245000**	**0**	**0**	**0**	**0**
142	**1.1.2.4.1**	**PROTOTYPE of Pixel Bus**	**160000**	**0**	**0**	**0**	**0**
143	1.1.2.4.1.1	ALICE bus copy	50000	0	0	0	0
144	1.1.2.4.1.2	PHNX copper bus	30000	0	0	0	0
145	1.1.2.4.1.3	PHNX al bus	30000	0	0	0	0
146		Bus test + preparation	50000	0	0	0	0
147	**1.1.2.4.3**	**FABRICATION of Pixel Bus**	**85000**	**0**	**0**	**0**	**0**
148	1.1.2.4.3.1	fabrication	75000	0	0	0	0
149	1.1.2.4.3.2	testing	10000	0	0	0	0
150	**1.1.2.5**	**Pixel Pilot Module**	**143500**	**0**	**0**	**0**	**0**
151	**1.1.2.5.1**	**Pixel Digital Pilot ASIC**	**25000**	**0**	**0**	**0**	**0**
152	1.1.2.5.1.1	PILOT ASCI desing 1st round	0	0	0	0	0
153	1.1.2.5.1.2	PILOT ASIC 1st round fab	10000	0	0	0	0
154	1.1.2.5.1.3	PILOT ASIC final bug fix	0	0	0	0	0
155	1.1.2.5.1.4	PILOT ASIC final production	15000	0	0	0	0
156	**1.1.2.5.2**	**test of PILOT ASIC**	**37500**	**0**	**0**	**0**	**0**
157	1.1.2.5.2.1	GOL test	12500	0	0	0	0
158	1.1.2.5.2.2	test board design	0	0	0	0	0
159	1.1.2.5.2.3	test of 1st round PILOT ASIC	12500	0	0	0	0

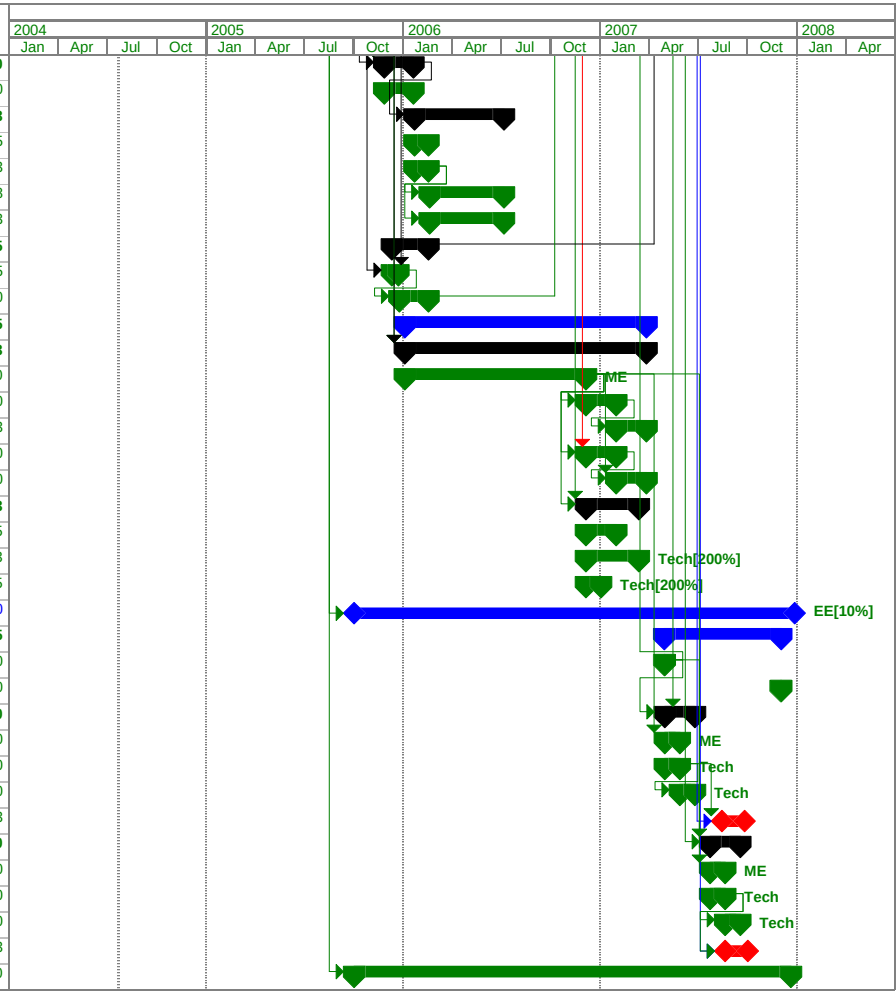


ID	WBS	Task Name	RIKEN Total	Total BNL Funds	DOE	DOE Contingency	Total DOE
160	1.1.2.5.2.4	test of final PILOT ASIC	12500	0	0	0	0
161	**1.1.2.5.3**	**PILOT module MCM**	**81000**	**0**	**0**	**0**	**0**
162	1.1.2.5.3.1	1st round pilot module design	0	0	0	0	0
163	1.1.2.5.3.2	1st round pilot module board fab	13500	0	0	0	0
164	1.1.2.5.3.3	1st round pilot module board test	13500	0	0	0	0
165	1.1.2.5.3.4	final pilot module design	0	0	0	0	0
166	1.1.2.5.3.5	final pilot module board fab	27000	0	0	0	0
167	1.1.2.5.3.6	final PILOT module fab	27000	0	0	0	0
168	**1.1.2.6**	**Pixel FEM**	**236250**	**0**	**0**	**0**	**0**
169	**1.1.2.6.1**	**E&D of Pixel FEM**	**123750**	**0**	**0**	**0**	**0**
170	**1.1.2.6.1.1**	**1st round**	**75000**	**0**	**0**	**0**	**0**
171	1.1.2.6.1.1.1	firmware	45000	0	0	0	0
172	1.1.2.6.1.1.2	circuit diagram	30000	0	0	0	0
173	**1.1.2.6.1.2**	**final round**	**48750**	**0**	**0**	**0**	**0**
174	1.1.2.6.1.2.1	firmware	33750	0	0	0	0
175	1.1.2.6.1.2.2	circuit diagram	15000	0	0	0	0
176	**1.1.2.6.2**	**PROTOTYPE of Pixel FEM**	**37500**	**0**	**0**	**0**	**0**
177	**1.1.2.6.2.1**	**1st round**	**18750**	**0**	**0**	**0**	**0**
178	1.1.2.6.2.1.1	assembly	18750	0	0	0	0
179	1.1.2.6.2.1.2	testing	0	0	0	0	0
180	**1.1.2.6.2.2**	**final round**	**18750**	**0**	**0**	**0**	**0**
181	1.1.2.6.2.2.1	assembly	18750	0	0	0	0
182	1.1.2.6.2.2.2	testing	0	0	0	0	0
183	**1.1.2.6.3**	**FABRICATION of Pixel FEM**	**75000**	**0**	**0**	**0**	**0**
184	1.1.2.6.3.1	order	0	0	0	0	0
185	1.1.2.6.3.2	delivery	75000	0	0	0	0
186	1.1.2.6.3.3	test	0	0	0	0	0
187	**1.1.2.7**	**Pixel ladder (sensor+ROC+bus+pilot MCM)**	**126000**	**0**	**0**	**0**	**0**
188	1.1.2.7.1	Assembly fixture design	24000	0	0	0	0
189		Assembly fixture fab	15000	0	0	0	0
190	1.1.2.7.2	assemble prototype ladder	12000	0	0	0	0
191	**1.1.2.7.3**	**final ladder production**	**75000**	**0**	**0**	**0**	**0**
192		1st PHENIX half ladder	5000	0	0	0	0
193		10 half ladder	10000	0	0	0	0
194		10 half ladder (total 20; 1st layer done)	10000	0	0	0	0
195		20 half ladder (total 40)	20000	0	0	0	0
196		20 half ladder (total 60; 2nd layer done)	20000	0	0	0	0
197		10 spare half ladders	10000	0	0	0	0
198	**1.1.2.8**	**pixel ladder system test**	**10000**	**0**	**0**	**0**	**0**
199	1.1.2.8.1	prototype ladder testing	10000	0	0	0	0
200		MILESTONE - Pixel System Tested (Hybrid+Pilot)	0	0	0	0	0
201	**1.1.2.9**	**Pixel ladder test and Q/A**	**30000**	**0**	**0**	**0**	**0**
202	1.1.2.9.1	test of the produciton ladders	30000	0	0	0	0
203	**1.1.2.10**	**assemble ladders on support**	**0**	**0**	**50,000**	**25,000**	**75,000**
204	1.1.2.10.1	align and fix	0	0	40,000	20,000	60,000
205	1.1.2.10.2	test	0	0	10,000	5,000	15,000
206		MILESTONE - Pixel Assembled and Tested	0	0	0	0	0
207	1.1.2.11	**Services, LV, racks etc**	0	0	40,000	22,625	67,875
208	**1.2**	**DAQ**	**0**	**0**	**270,000**	**147,150**	**441,450**
209	1.2.1	Strip DCM	0	0	195,000	106,275	318,825
210	1.2.2	Pixel DCM	0	0	75,000	40,875	122,625
211	**1.3**	**AUXCILARY SYSTEMS & INTEGRATION**	**135000**	**212550**	**1,510,000**	**486,325**	**2,066,475**
212		MILESTONE - Completion of Specifications	0	0	0	0	0



ID	WBS	Task Name	RIKEN Total	Total BNL Funds	DOE	DOE Contingency	Total DOE
213	**1.3.1**	**Specifications**	**135000**	**0**	**0**	**0**	**0**
214	**1.3.1.1**	**E&D of Specifications**	**135000**	**0**	**0**	**0**	**0**
215	**1.3.1.1.1**	**1st Round**	**54000**	**0**	**0**	**0**	**0**
216	1.3.1.1.1.1	specify heat load	27000	0	0	0	0
217	1.3.1.1.1.3	specify mechanical tolerances/distortions	27000	0	0	0	0
218	**1.3.1.1.2**	**2nd Round**	**81000**	**0**	**0**	**0**	**0**
219	1.3.1.1.2.1	specify heat load	27000	0	0	0	0
220	1.3.1.1.2.3	specify mechanical tolerances/distortions	27000	0	0	0	0
221	1.3.1.1.2.4	inner region contribution	27000	0	0	0	0
222		MILESTONE - Completion of Mechanical Structure	0	0	0	0	0
223	**1.3.2**	**Mechanical Structure**	**0**	**212550**	**585,000**	**215,275**	**852,925**
224	**1.3.2.1**	**Refrigeration System**	**0**	**0**	**85,000**	**36,788**	**129,438**
225	1.3.2.1.1	Design	0	0	50,000	27,250	81,750
226	**1.3.2.1.2**	**Procure**	**0**	**0**	**35,000**	**9,538**	**47,688**
227	1.3.2.1.2.1	Liason	0	0	10,000	2,725	13,625
228	1.3.2.1.2.2	Material	0	0	25,000	6,813	34,063
229	**1.3.2.2**	**Outer Structure**	**0**	**92650**	**160,000**	**53,138**	**227,538**
230	1.3.2.2.1	Engr R&D	0	54500	0	0	0
231	**1.3.2.2.2**	**1st Round**	**0**	**38150**	**0**	**0**	**0**
232	1.3.2.2.2.1	design+prototype	0	38150	0	0	0
233	**1.3.2.2.3**	**2nd Round**	**0**	**0**	**35,000**	**19,075**	**57,225**
234	1.3.2.2.3.1	design+protoype	0	0	35,000	19,075	57,225
235	**1.3.2.2.4**	**procure**	**0**	**0**	**125,000**	**34,063**	**170,313**
236	1.3.2.2.4.1	Liason	0	0	10,000	2,725	13,625
237	1.3.2.2.4.2	Tooling	0	0	45,000	12,263	61,313
238	1.3.2.2.4.3	fabrication	0	0	50,000	13,625	68,125
239	1.3.2.2.4.4	material	0	0	20,000	5,450	27,250
240		MILESTONE - Completion of Ladders	0	0	0	0	0
241	**1.3.2.3**	**barrel ladder staves**	**0**	**59950**	**158,000**	**56,680**	**228,900**
242	1.3.2.3.1	Engr R&D	0	32700	0	0	0
243	**1.3.2.3.2**	**1st Round**	**0**	**27250**	**0**	**0**	**0**
244	1.3.2.3.2.1	design+prototype of barrel ladder	0	27250	0	0	0
245	**1.3.2.3.3**	**2nd Round**	**0**	**0**	**50,000**	**27,250**	**81,750**
246	1.3.2.3.3.1	design+protoype	0	0	50,000	27,250	81,750
247	**1.3.2.3.4**	**procure**	**0**	**0**	**108,000**	**29,430**	**147,150**
248	1.3.2.3.4.1	Liason	0	0	10,000	2,725	13,625
249	1.3.2.3.4.2	Tooling	0	0	20,000	5,450	27,250
250	1.3.2.3.4.3	fabrication	0	0	58,000	15,805	79,025
251	1.3.2.3.4.4	material	0	0	20,000	5,450	27,250
252	**1.3.2.4**	**Ladder support structure**	**0**	**49050**	**110,000**	**42,238**	**162,138**
253	**1.3.2.4.1**	**1st Round**	**0**	**49050**	**0**	**0**	**0**
254	1.3.2.4.1.1	design+prototype	0	49050	0	0	0
255	**1.3.2.4.2**	**2nd Round**	**0**	**0**	**45,000**	**24,525**	**73,575**
256	1.3.2.4.2.1	design+protoype	0	0	45,000	24,525	73,575
257	**1.3.2.4.3**	**procure**	**0**	**0**	**65,000**	**17,713**	**88,563**
258	1.3.2.4.3.1	Liason	0	0	10,000	2,725	13,625
259	1.3.2.4.3.2	Tooling	0	0	20,000	5,450	27,250
260	1.3.2.4.3.3	fabrication	0	0	25,000	6,813	34,063
261	1.3.2.4.3.4	material	0	0	10,000	2,725	13,625
262	**1.3.2.5**	**ladder coolant tubes**	**0**	**10900**	**47,000**	**12,808**	**64,038**
263	1.3.2.5.1	Engr R&D	0	10900	0	0	0
264	**1.3.2.5.2**	**1st Round**	**0**	**0**	**10,000**	**0**	**10,900**
265	1.3.2.5.2.1	design+prototype	0	0	10,000	0	10,900



Wed 7/21/04

ID	WBS	Task Name	RIKEN Total	Total BNL Funds	DOE	DOE Contingency	Total DOE
266	**1.3.2.5.3**	**2nd Round**	**0**	**0**	**10,000**	**5,450**	**16,350**
267	1.3.2.5.3.1	design+protoype	0	0	10,000	5,450	16,350
268	**1.3.2.5.4**	**procure**	**0**	**0**	**27,000**	**7,358**	**36,788**
269	1.3.2.5.4.1	Liason	0	0	2,000	545	2,725
270	1.3.2.5.4.2	Tooling	0	0	5,000	1,363	6,813
271	1.3.2.5.4.3	fabrication	0	0	15,000	4,088	20,438
272	1.3.2.5.4.4	material	0	0	5,000	1,363	6,813
273	**1.3.2.6**	**assembly rig for ladders onto support**	**0**	**0**	**25,000**	**13,625**	**40,875**
274	1.3.2.6.1	design rig	0	0	15,000	8,175	24,525
275	1.3.2.6.2	fabricate rig	0	0	10,000	5,450	16,350
276	**1.3.3**	**Infrastructure**	**0**	**0**	**510,000**	**177,675**	**703,425**
277	**1.3.3.1**	**Installation+support**	**0**	**0**	**265,000**	**49,488**	**318,863**
278	1.3.3.1.1	Engineer+Design	0	0	180,000	28,800	208,800
279	1.3.3.1.2	Beam-pipe	0	0	0	0	0
280	1.3.3.1.3	Beam-pipe support	0	0	5,000	2,938	8,813
281	1.3.3.1.4	Detector Support in CM	0	0	60,000	6,000	66,000
282	1.3.3.1.5	Installation Fixtures	0	0	20,000	11,750	35,250
283	**1.3.3.2**	**Services**	**0**	**0**	**245,000**	**128,188**	**384,563**
284	1.3.3.2.1	Rack Platforms	0	0	100,000	50,875	152,625
285	1.3.3.2.2	Power+water services	0	0	75,000	37,938	113,813
286	1.3.3.2.3	access to interpole region	0	0	70,000	39,375	118,125
287	1.3.4	Environmental Safety & Compliance	0	0	50,000	25,000	75,000
288	**1.3.5**	**Installation**	**0**	**0**	**165,000**	**68,375**	**235,125**
289		IR Open Summer 07	0	0	0	0	0
290		IR close winter 07	0	0	0	0	0
291	**1.3.5.1**	**Install vtx in inner region (pixels)**	**0**	**0**	**35,000**	**17,500**	**52,500**
292	1.3.5.1.1	Installation supervision	0	0	15,000	7,500	22,500
293	1.3.5.1.2	Tech	0	0	10,000	5,000	15,000
294	1.3.5.1.3	survey	0	0	10,000	5,000	15,000
295	1.3.5.2	preops	0	0	50,000	25,438	76,313
296	**1.3.5.3**	**Install vtx in inner region (strip)**	**0**	**0**	**30,000**	**0**	**30,000**
297	1.3.5.3.1	Installation supervision	0	0	15,000	0	15,000
298	1.3.5.3.2	Tech	0	0	10,000	0	10,000
299	1.3.5.3.3	survey	0	0	5,000	0	5,000
300	1.3.5.4	preops	0	0	50,000	25,438	76,313
301	1.3.6	system engineer (50%)	0	0	200,000	0	200,000