E.O. Lawrence Berkeley National Laboratory
GRETINA MONTHLY PROGRESS REPORT
November, 2005

I. DEPUTY CONTRACT PROJ. MGR. ASSESSMENT

1. TECHNICAL AND PROGRAMMATIC PROGRESS AND ACCOMPLISHMENTS

- We have received the vendor estimates for fabrication the quarter spheres with an added ring. The prices similar to the prices we have obtained with just 3 rings. There is also one advantage in using a 4^{th} ring: the finite element analysis has shown that it is slightly stiffer with the additional ring.
- Eurisys has responded our question about the delivery of the first detector module and show a detailed schedule of their work. We observed the they have asked for a 14 month delivery time, which includes one month to add revision that we may ask. Most likely we will not need this additional month, since we are working very closely to them and we don't expect any revision once the module is produced. Therefore, we will assume that the module can be delivered in November/06.
- We completed the Electronics Requirement document and review it. With this we complete a Level 3 milestone.
- Ordered 8 servers for Computing System prototype processor farm
- Preparations toward the DOE Annual review started.

2. ACTIONS

N/A

3. COST AND SCHEDULE STATUS

3.1 VARIANCE ANALYSIS AND PROJECT COST PERFORMANCE REPORTS

		k$	
	Sched	**Act**	**Variance**
MIE Design	1,768.4	1,541.7	226.7
MIE Phase A	1,368.0	1,368.0	- 0 -
OPC	1,200.0	1,182.0	18.0

Variance Statement:

N/A.

Project Impact:

These variances do not impact the MIE completion.

Corrective Action:

N/A

3.2 MILESTONE STATUS

Level	Milestone Description	Schedule Date	Completion Date
1	CD-2A Approve Performance Baseline Range /CD-3A Approve Start of Construction for Long Lead-time Items	FY05 –Q3	June/05
2	Award Detector Module Contract	FY05 – Q4	Sept/05
2	Design and Drawings of Mechanical Support Structure Complete	FY06 – Q2 (updated)	
3	Preliminary Design of Mechanical Support Structure Complete	April/05	May/05
3	Detector Module Drawings Complete	April/05	June/05
3	Detector Module Procurement Specifications Complete	April/05	June/05
3	Electronic Requirement Document Complete	Aug/05	Nov/05
3	Computing Systems Requirement Document Complete	Aug/05	May/05
3	Quarter Sphere Design Complete	Feb/06 (updated)	

3.3 PROJECT CRITICAL PATH ANALYSIS

The detector module procurement is part of the critical path. We have review the schedule for the 1st detector module production and concluded that we can save one month on the delivery time. Eurirys had allocated one month in the end of the schedule to implement any revision we may ask. Most likely we will not ask for any revision. Therefore, we are expecting to receive the 1st module in Nov. 06.

II. DETAIL SUBSYSTEM STATUS

A. WBS 1.1. Mechanical

WBS 1.1.2 Mechanical Design

Technical Progress/Accomplishments

We have received the vendor estimates for fabrication the quarter spheres with an added ring. The prices similar to the prices we have obtained with just 3 rings. There is also one advantage in using a 4th ring: the finite element analysis has shown that it is slightly stiffer with the additional ring.

We have arranged with Oak Ridge National Lab. And Argonne National Lab. on-site meetings to review the installation sites and any other pending point.

The design of the installation of the cable plant to interface with the detector module started. There may be as many as 6 approximately 1/2" diameter cables into each of the four connectors that go to a quad. Design will include a conductive shroud that captures the six cables and also holds a small PC board. The six cables can become a sort of ribbon cable. The ribbon cables from the quads might in turn be bundled into a single massive cable.

Significant Issues/Actions

N/A

WBS 1.1 Variance Analysis (Cumulative To-date) ($k)

Sched	Act	Variance
430.7	308.3	122.4

Variance Discussion

Design of the mechanical support structure is being stretched out in an attempt to minimize the scheduled gap prior to the initiation of production activities and also due to the addition of the 4th ring that required collection of additional prices. It has no impact on the total cost.

B. WBS 1.2 Detector Module

WBS 1.2.1 Procurement

Technical Progress/Accomplishments

N/A

Significant Issues/Actions

Eurisys has responded our question about the delivery of the first detector module and show a detailed schedule of their work. We observed the they have asked for a 14 month delivery time, which includes one month to add revision that we may ask. Most likely we will not need this additional month, since we are working very closely to them and we don't expect any revision once the module is produced. Therefore, we will assume that the module can be delivered in November/06.

WBS 1.2.2 Test/Characterize Module 1

Technical Progress/Accomplishments

We have previously found that the rise time on the outputs of the pre-amplifiers of Prototype II is not the same for all pre-amplifiers. A uniform rise time is important for the signal decomposition algorithm. We researched this feature and concluded that the pre-amplifier is operating as described. They were actually adjusted differently. We will contact Eurisys and make sure they understand the importance of having all amplifiers with approximately the same rise time.

Significant Issues/Actions

N/A

WBS 1.2 Variance Analysis (Cumulative To-date) ($k)

	Sched	Act	Variance
Design	465.1	377.6	87.5
Phase A	1,368.0	1,368.0	- 0 -

Variance Discussion

Detector Engineering and Test efforts have run lower cost than planned to-date. Work continues in understanding the performance of the Prototype II. The Tripple was sent to Eurisys for warranty maintenance.

C. WBS 1.3 Electronics

WBS 1.3.1 and 1.3.2 Requirement Document and Electronics System Prototype

Technical Progress/Accomplishments

The Electronics Requirement document was completed and reviewed. This is a level 3 milestone.

The work in the system architecture continued. We are studying which information to exchange between the trigger system and the digitizers. We arrived to the tentative agreement that the local trigger modules will not process any trigger information, they will actually pass the information to the global trigger module, which will them make a global decision.

Also, we are studying the rise time behavior of the pre-amplifiers connected to Prototype II (P-II). We brought two of these pre-amplifiers to the lab in building 50A and we were able to reproduce the behavior we observed when connected to P-II. We then reviewed the literature and found that they behave as reported. They are actually adjusted differently.

Significant Issues/Actions

N/A

WBS 1.3 Variance Analysis (Cumulative To-date) ($k)

Sched	Act	Variance
88.2	23.7	64.5

Variance Discussion

Initiation of work on Electronics Prototype has been slower than originally planned. Work has begun on the System Architecture, DSP Module, Cables and Power Supplies. No impact on cost or schedule.

D. WBS 1.4 Computing Systems

WBS 1.4.1 Requirement document

Technical Progress/Accomplishments

- Completed

WBS 1.4.2 Computing Systems Prototype

Technical Progress/Accomplishments

- Ordered 8 servers for prototype processor farm
- Completed Python-based framework for end-to-end test
- Completed draft of computing hardware failure modes document

Significant Issues/Actions

N/A

WBS 1.4 Variance Analysis (Cumulative To-date) ($k)

Sched	Act	Variance
13.1	48.2	(35.1)

Variance Discussion

Work in this area has been initiated ahead of planned, as resources are available. No impact on schedule or cost.

E. WBS 1.6 Project Management

WBS 1.6.1 Management

Technical Progress/Accomplishments

Preparations toward the DOE Annual review started.

Significant Issues/Actions

N/A

WBS 1.6.2 General Project Expenses

Technical Progress/Accomplishments

N/A

Significant Issues/Actions

N/A

WBS 1.6 Variance Analysis (Cumulative To-date) ($k)

Sched	Act	Variance
752.1	771.5	(19.4)

Variance Discussion

N/A

E. WBS 1.7 Environment, Safety and Health

WBS 1.7.1

Technical Progress/Accomplishments

Periodic review of ES&H points continue in our management meetings and subsystem meetings.

Significant Issues/Actions

N/A

WBS 1.7 Variance Analysis (Cumulative To-date) ($k)

Sched	Act	Variance
19.2	10.6	9.4

Variance Discussion

The schedule anticipates costs for an ES&H review that has been handled in the normal process of divisional oversight. Thus, the costs associated with this task have not been incurred.

III. Research and Development Status

Computing systems:

- Work continues on the end-to-end test.

Electronics:

- We are testing custom made cables we received. So far our tests show that the performance of the cable meets our requirements. We are preparing to test the cable with the pre-amplifier.
- We will receive the cable assembly with the connector in December.

Significant Issues/Actions

N/A

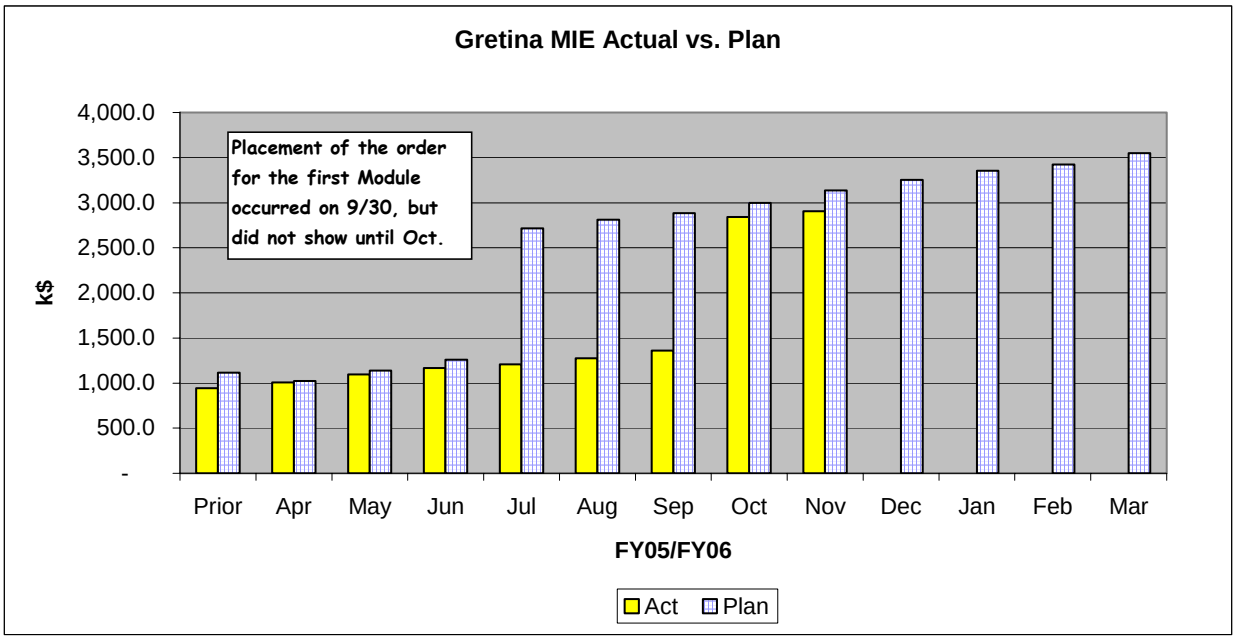
R&D Variance Analysis (Cumulative To-date) ($k)

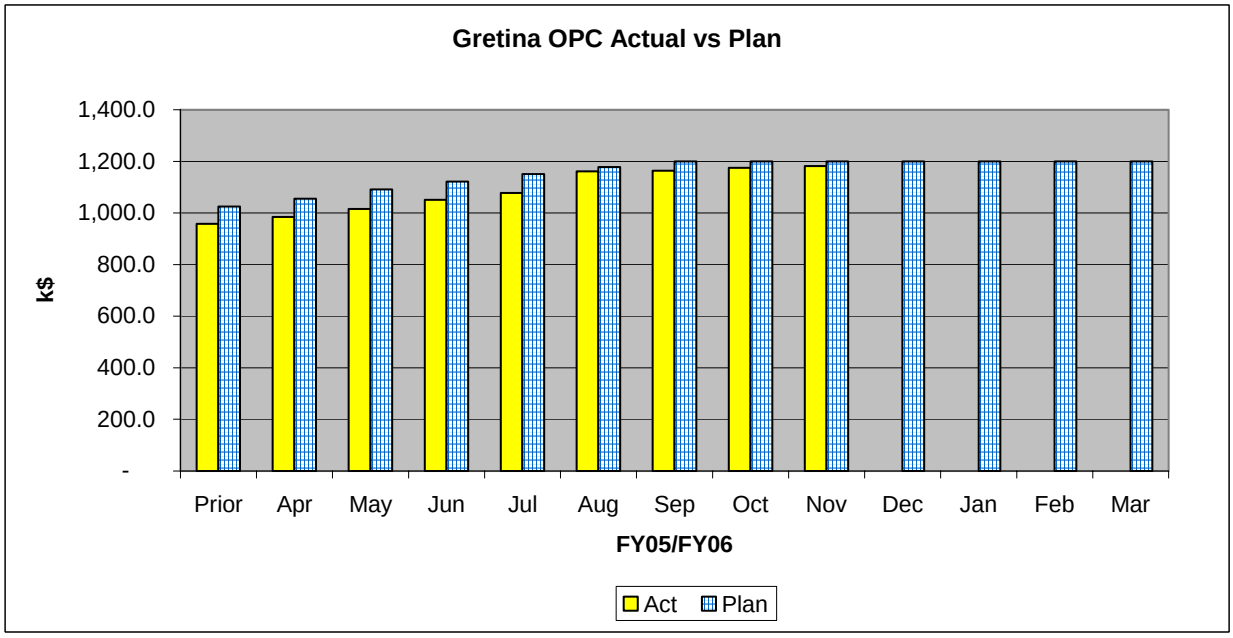
Sched	Act	Variance
1,200.0	1,182.2	17.8

Variance Discussion

N/A

IV. Cost Chart

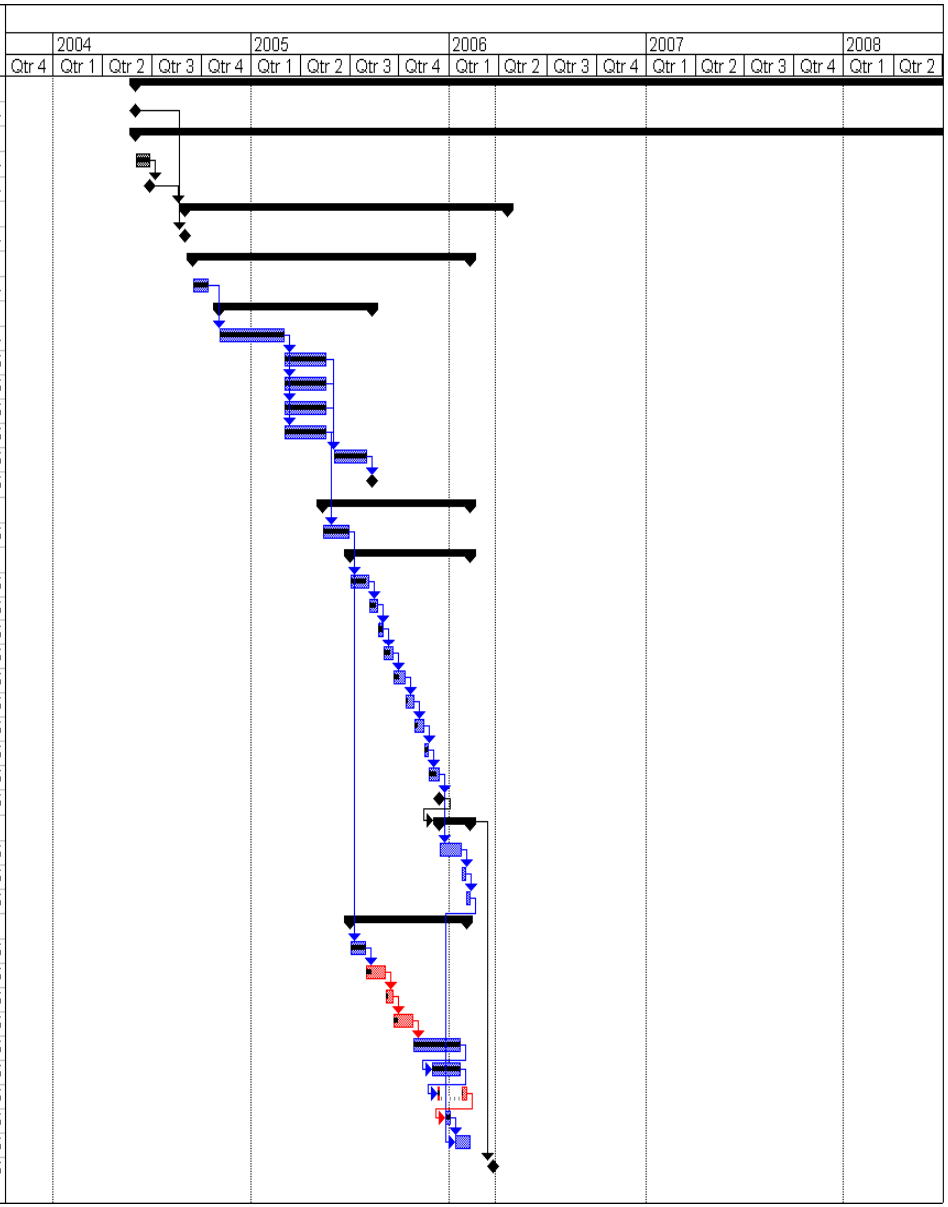




The above charts compare project-to-date budgeted cost with actual for the prior six month period and plan numbers for the succeeding six month period

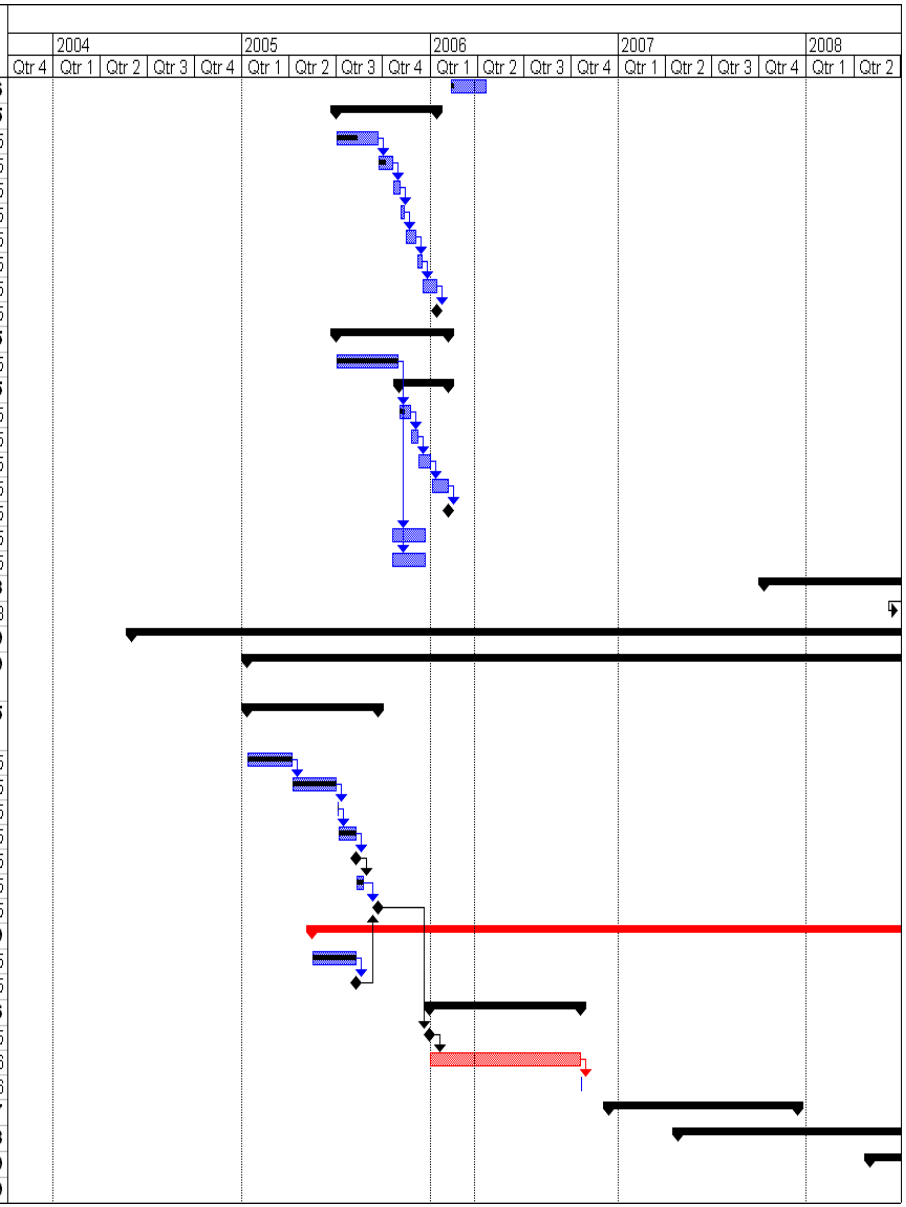
GRETINA Schedule November 2005

ID	Work Breakdown Ref	Task Name	% Complete	Start	Finish
1	1	**GRETINA**	**23%**	**3/1/04**	**9/16/10**
2		**Lvl 1: CD-1**	100%	3/1/04	3/1/04
3	1.1	**Mechanical**	**33%**	**3/1/04**	**4/3/08**
4	1.1.1	Requirement document	100%	3/1/04	3/26/04
5		**Lvl 3: Mech Req Doc Complete**	100%	3/26/04	3/26/04
6	1.1.2	**Design**	**62%**	**6/1/04**	**1/17/06**
7		**Lvl 4: Start Mech design**	100%	6/1/04	6/1/04
8	1.1.2.1	**Support structure**	**79%**	**6/15/04**	**11/9/05**
9		Define requirements/spec	100%	6/15/04	7/13/04
10		**Conceptual Design**	**100%**	**8/2/04**	**5/13/05**
11		General Conceptual Design	100%	8/2/04	11/30/04
12		Split Hemisphere	100%	12/1/04	2/16/05
13		Rotation System	100%	12/1/04	2/16/05
14		Translating Structure	100%	12/1/04	2/16/05
15		Site Interface	100%	12/1/04	2/16/05
16		Complete Conceptual Design	100%	3/1/05	5/2/05
17		**Lvl 3: Conceptual Design Review Compl**	100%	5/13/05	5/13/05
18		**Final design & Drawings**	**62%**	**2/9/05**	**11/9/05**
19		General Final Design	100%	2/9/05	3/31/05
20		**Quarter Spheres**	**45%**	**4/1/05**	**11/9/05**
21		Geometry and Layout	82%	4/1/05	5/5/05
22		FEA	67%	5/5/05	5/23/05
23		Specify Manufacturing Processes	85%	5/23/05	6/1/05
24		Wedge Plates	60%	6/1/05	6/20/05
25		Hexapod Interface Hub	60%	6/20/05	7/12/05
26		Grounding and Electrical Isolation	30%	7/12/05	7/28/05
27		Telephone Poles	35%	7/28/05	8/16/05
28		Alignment Target Balls	70%	8/16/05	8/24/05
29		QuarterSphere Links	60%	8/23/05	9/14/05
30		**Lvl 3: Quartersphere Design Comple**	0%	9/14/05	9/14/05
31		**Fabrication Prints**	**0%**	**9/14/05**	**11/9/05**
32		Quarter Spheres	0%	9/14/05	10/24/05
33		Grounding and Electrical Isolation	0%	10/24/05	11/1/05
34		Telephone Poles	0%	11/1/05	11/9/05
35		**Translation and Rotation**	**74%**	**4/1/05**	**11/2/05**
36		Layout	100%	4/1/05	4/29/05
37		Tee Platform	25%	4/29/05	6/6/05
38		Bearing Housing	45%	6/6/05	6/20/05
39		Axles	22%	6/20/05	7/26/05
40		Lower Strut Clips	100%	7/26/05	10/21/05
41		Upper strut clips	100%	8/29/05	10/21/05
42		RR Car mods - dwg & descr.	22%	9/9/05	11/2/05
43		Strut drawing (tabulated)	100%	9/23/05	10/4/05
44		Design Review	0%	10/12/05	11/9/05
45		**Lvl 2: Complete Design and Drawings of Mech Support Structure**	0%	12/22/05	12/22/05



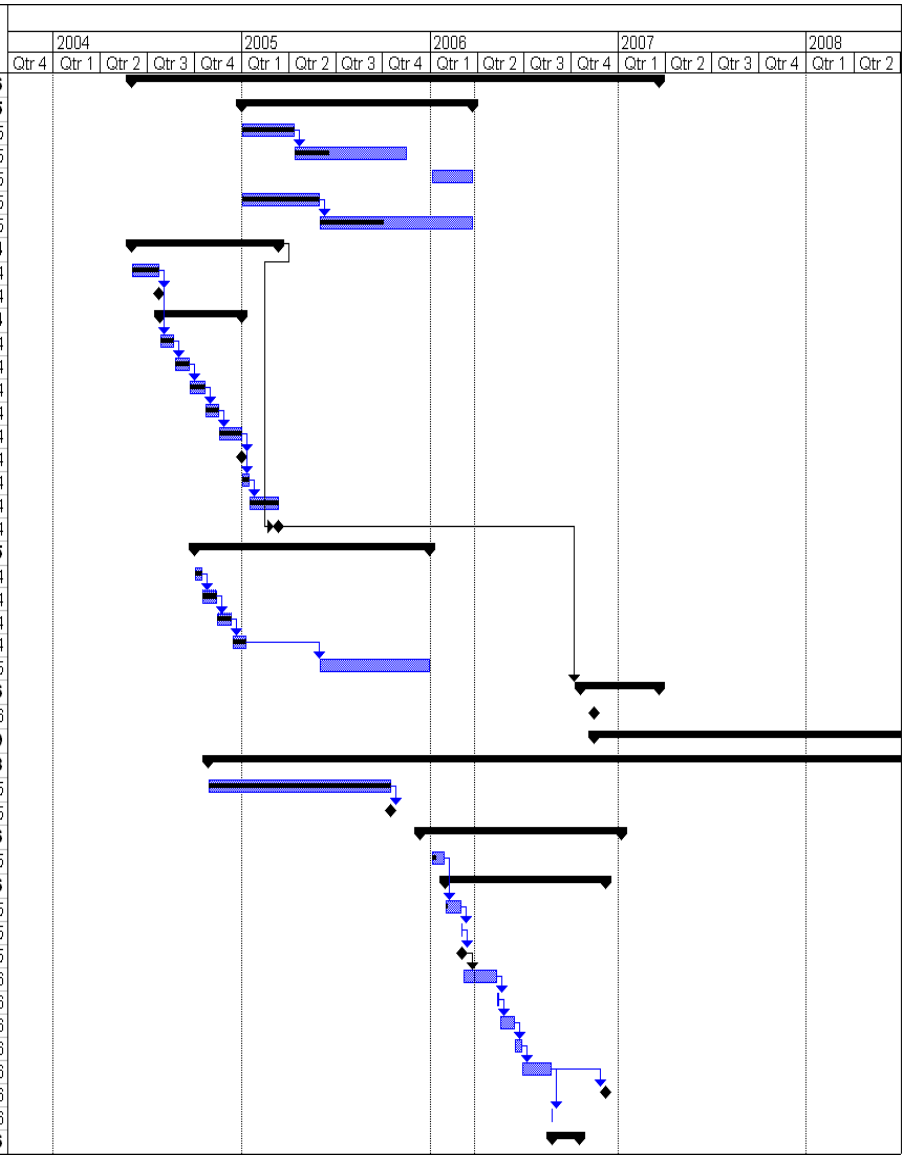
GRETINA Schedule November 2005

ID	Work Breakdown Ref	Task Name	% Complete	Start	Finish
46	**1.1.2.2**	**Detector installation tool**	10%	**11/9/05**	**1/17/06**
47	**1.1.2.3**	**Target chamber Washington Univ.**	**28%**	**4/1/05**	**10/13/05**
48		Define requirements	50%	4/1/05	6/22/05
49		Design Specifications	50%	6/23/05	7/19/05
50		Conceptual design	0%	7/20/05	8/2/05
51		Conceptual design review	0%	8/3/05	8/12/05
52		Final design	0%	8/15/05	9/2/05
53		Final design review	0%	9/6/05	9/15/05
54		Detail Dwgs	0%	9/16/05	10/13/05
55		**Lvl 4:Target Chamber Design Complete**	0%	10/13/05	10/13/05
56	**1.1.2.4**	**LN system**	**38%**	**4/1/05**	**11/4/05**
57		Define requirements/specifications	100%	4/1/05	7/29/05
58		**Mechanical**	**14%**	**8/1/05**	**11/4/05**
59		Conceptual design	55%	8/1/05	8/23/05
60		LN Interface	0%	8/24/05	9/7/05
61		Final design	0%	9/8/05	9/30/05
62		Detail Dwgs	0%	10/3/05	11/4/05
63		**Lvl 4: LN System Mech Design Complete**	0%	11/4/05	11/4/05
64		Electrical	0%	7/18/05	9/21/05
65		Computer control	0%	7/18/05	9/21/05
66	**1.1.3**	**Production**	**0%**	**7/11/07**	**4/3/08**
100		**Lvl 2: Mechanical Production Complete**	0%	4/3/08	4/3/08
101	**1.2**	**Detector Module**	**21%**	**3/1/04**	**9/9/09**
102	**1.2.1**	**Purchasing**	**11%**	**10/11/04**	**6/12/09**
103	**1.2.1.1**	**Detector requirements and procurement specs**	**100%**	**10/11/04**	**6/22/05**
104		Write Detector requirements	100%	10/11/04	1/5/05
105		Define interfaces	100%	1/6/05	4/1/05
106		Define Interfaces ETC	100%	4/4/05	4/4/05
107		Write procurement specification	100%	4/5/05	5/9/05
108		**Lvl 3: Detector Procure Spec Complete**	100%	5/9/05	5/9/05
109		Receive bids	100%	5/10/05	5/23/05
110		**LvL 1: CD 2/3A**	100%	6/22/05	6/22/05
111	**1.2.1.2**	**Detector Procurement**	**3%**	**2/15/05**	**6/12/09**
112		Detector Design Contract	100%	2/15/05	5/9/05
113		**Lvl 3: Detector Module Drawings Comp**	95%	5/9/05	5/9/05
114		**FY05: Detector Module 1**	**0%**	**9/30/05**	**7/19/06**
115		**LvL 2: Award Contract Module 1**	100%	9/30/05	9/30/05
116		Module 1 Fab and Delivery	0%	9/30/05	7/18/06
117		Flat Procurement Burden	0%	7/19/06	7/19/06
118		**FY06: Dectector Module 2**	**0%**	**9/12/06**	**9/14/07**
121		**FY07: Dectector Module 3, 4 & 5**	**0%**	**1/26/07**	**10/16/08**
126		**FY08: Dectector Module 6 & 7**	**0%**	**2/1/08**	**2/13/09**
130		**FY09: Detector Module 7 (Final)**	**0%**	**1/30/09**	**6/12/09**



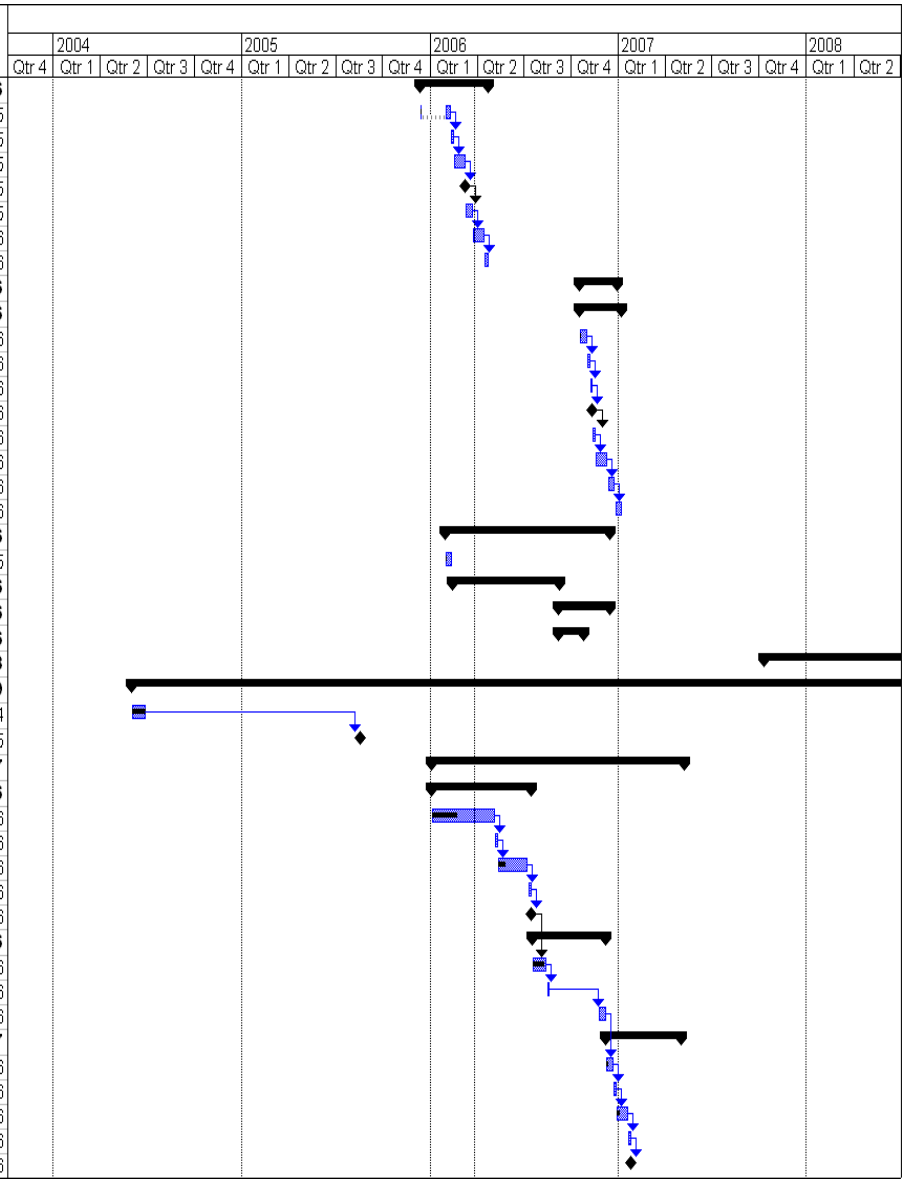
GRETINA Schedule November 2005

ID	Work Breakdown Ref	Task Name	% Complete	Start	Finish
133	**1.2.2**	**Test/Characterize Module 1**	**51%**	**3/1/04**	**12/19/06**
134	**1.2.2.1**	**Detector Engineering and Test**	**51%**	**10/1/04**	**12/22/05**
135		Detector Engineer (FY05)	100%	10/1/04	1/11/05
136		Detector Eng ETC	30%	1/11/05	8/16/05
137		Detector Engineer (FY06)	0%	10/3/05	12/22/05
138		Detector Testing	100%	10/1/04	2/28/05
139		Detector Testing ETC	42%	3/1/05	12/22/05
140	**1.2.2.2**	**Develop test procedures and apparatus**	**100%**	**3/1/04**	**12/10/04**
141		Develop test procedures	100%	3/1/04	4/23/04
142		**Lvl 4: Detector Test Procedures Complete**	100%	4/23/04	4/23/04
143		**Develop test software**	**100%**	**4/26/04**	**9/29/04**
144		Determine energy and time resolution	100%	4/26/04	5/21/04
145		Noise analysis	100%	5/24/04	6/21/04
146		Pulse shape analysis	100%	6/22/04	7/20/04
147		Compare with simulation	100%	7/21/04	8/17/04
148		Interfaces	100%	8/18/04	9/29/04
149		**Lvl 4: Detector Test Software Complete**	100%	9/29/04	9/29/04
150		Assemble test apparatus	100%	9/30/04	10/13/04
151		Tests and performance characterization	100%	10/14/04	12/10/04
152		**Lvl 2: Detector Test Procedures and Apparatus**	100%	12/10/04	12/10/04
153	**1.2.2.3**	**Develop database**	**32%**	**7/1/04**	**9/29/05**
154		Define database requirements	100%	7/1/04	7/15/04
155		Define backup and recovery	100%	7/16/04	8/12/04
156		Select and procure package	100%	8/13/04	9/10/04
157		Customize System	100%	9/13/04	10/8/04
158		Contine support	0%	3/1/05	9/29/05
159	**1.2.2.4**	**Test/characterize Module 1**	**0%**	**7/19/06**	**12/19/06**
164		**Lvl 2: Complete Mod 1 Acceptance Test**	0%	8/15/06	8/15/06
165	**1.2.3**	**Test/Char Mod 2 thru 7**	**0%**	**8/15/06**	**9/9/09**
207	**1.3**	**Electronics**	**19%**	**7/28/04**	**8/13/08**
208	**1.3.1**	Requirement document	100%	7/28/04	7/15/05
209		**Lvl 3: Elec Req. Doc Complete**	0%	7/15/05	7/15/05
210	**1.3.2**	**Electronics Prototype**	**2%**	**9/12/05**	**10/6/06**
211	**1.3.2.1**	System Architecture	40%	10/3/05	10/28/05
212	**1.3.2.3**	**Digital signal processing module**	**2%**	**10/31/05**	**9/6/06**
213		Write requirements and spec documents	15%	10/31/05	11/29/05
214		Review	0%	11/30/05	12/2/05
215		**Lvl 3: DSP Req & Spec Complete**	0%	12/2/05	12/2/05
216		Design and layout	0%	12/5/05	2/7/06
217		Review	0%	2/8/06	2/10/06
218		Procure and assembly	0%	2/14/06	3/13/06
219		Material procured	0%	3/14/06	3/27/06
220		Test	0%	3/28/06	5/22/06
221		**Lvl 2: Complete Test of DSP Proto Mod.**	0%	9/6/06	9/6/06
222		Continue support	0%	5/23/06	5/25/06
223		**Test Stand**	**0%**	**5/26/06**	**7/17/06**



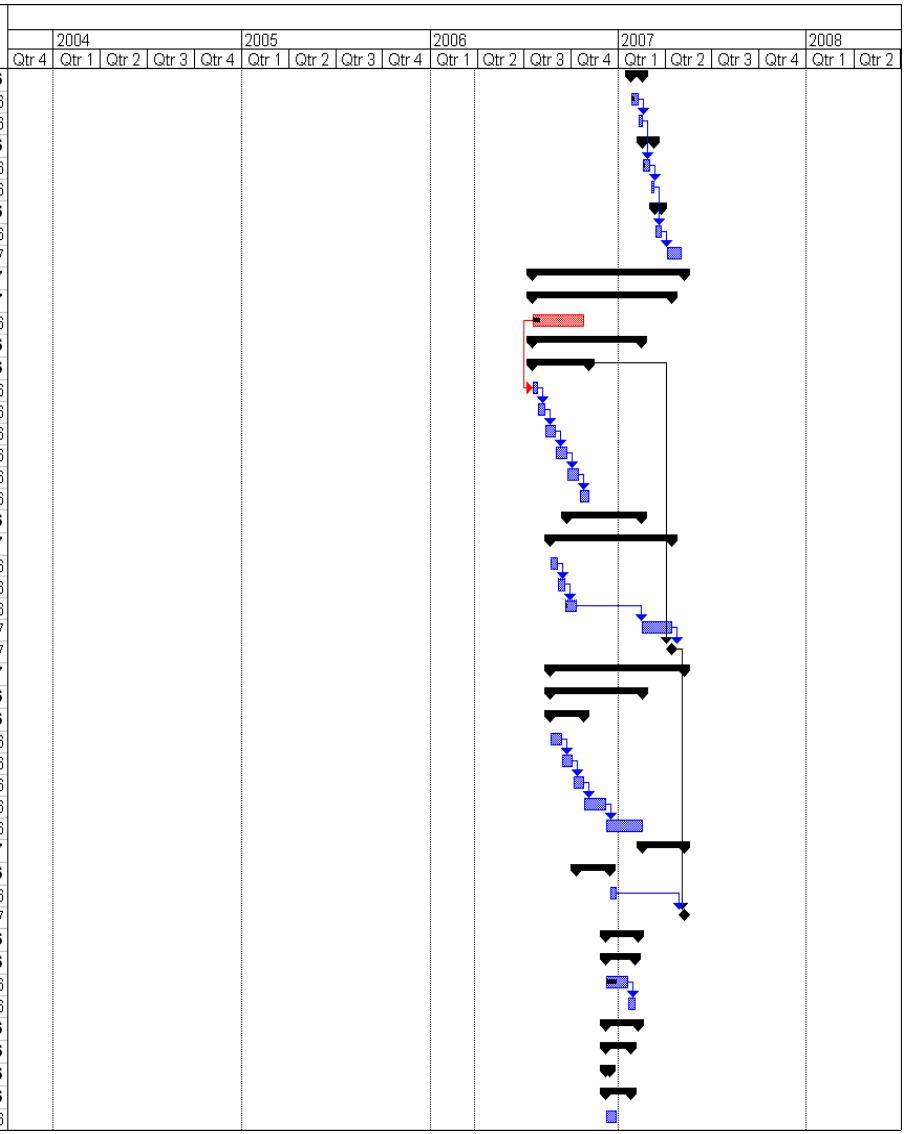
GRETINA Schedule November 2005

ID	Work Breakdown Ref	Task Name	% Complete	Start	Finish
228	**1.3.2.4**	**Cables**	**2%**	**9/12/05**	**1/20/06**
229		Write requirements and specification document	5%	9/12/05	11/9/05
230		Review	0%	11/10/05	11/14/05
231		Design	0%	11/15/05	12/7/05
232		**Lvl 3: Elec Proto Cable Design Complete**	0%	12/7/05	12/7/05
233		Procure and assembly	0%	12/8/05	12/21/05
234		Material procured	0%	12/22/05	1/12/06
235		Test	0%	1/13/06	1/20/06
236	**1.3.2.5**	**Crates**	**0%**	**7/18/06**	**9/29/06**
243	**1.3.2.6**	**Power supplies (low and high voltage)**	**2%**	**7/18/06**	**10/6/06**
244		Write requirements and specification document	10%	7/18/06	7/31/06
245		Selection of supply	0%	8/1/06	8/7/06
246		Review	0%	8/8/06	8/10/06
247		**Lvl 3: Elec Proto Power Supply Selection C**	0%	8/10/06	8/10/06
248		Procure	0%	8/11/06	8/17/06
249		Delivery	0%	8/18/06	9/8/06
250		Material procured	0%	9/11/06	9/22/06
251		Test and evaluate	0%	9/25/06	10/6/06
252	**1.3.2.7**	**Trigger and Timing**	**1%**	**10/31/05**	**9/13/06**
253		Write requirements documents of local and glot	15%	10/31/05	11/11/05
254		**Local trigger and timing**	**0%**	**11/14/05**	**6/9/06**
265		**Global trigger and timing**	**0%**	**6/7/06**	**9/13/06**
274		**Test Stand**	**0%**	**6/7/06**	**7/26/06**
279	**1.3.3**	**Electronics Production**	**0%**	**7/11/07**	**8/13/08**
340	**1.4**	**Computing Systems**	**6%**	**3/1/04**	**4/7/09**
341	**1.4.1**	Requirement document	100%	3/1/04	3/26/04
342		**Lvl 3: Computing Req Doc Complete**	100%	5/18/05	5/18/05
343	**1.4.2**	**CS Prototype**	**10%**	**10/3/05**	**2/6/07**
344	**1.4.2.1**	**System Architecture**	**34%**	**10/3/05**	**4/14/06**
345		Develop Requirements & Specifications	45%	10/3/05	2/2/06
346		Requirements Review	0%	2/3/06	2/9/06
347		Design & Document	20%	2/10/06	4/7/06
348		Design Review	0%	4/10/06	4/14/06
349		**Lvl 3: System Architecture Complete**	0%	4/14/06	4/14/06
350	**1.4.2.2**	**DAQ Specifications and design**	**46%**	**4/17/06**	**9/6/06**
351		Design acquisition system (hw, net, servers)	80%	4/17/06	5/12/06
352		Design Review	0%	5/15/06	5/19/06
353		Design specifications for procurement	0%	8/23/06	9/6/06
354	**1.4.2.3**	**Event Building**	**15%**	**9/7/06**	**1/30/07**
355		Design Requirements & Specifications	25%	9/7/06	9/20/06
356		Requirements Review	0%	9/21/06	9/27/06
357		Design Design & Document (incl test procedure	25%	9/28/06	10/18/06
358		Design Review	0%	10/19/06	10/25/06
359		**Lvl 4: Event Building Design Complete**	0%	10/25/06	10/25/06



GRETINA Schedule November 2005

ID	Work Breakdown Ref	Task Name	% Complete	Start	Finish
360		**Event Sender**	**23%**	**10/26/06**	**11/15/06**
361		Write Code	35%	10/26/06	11/8/06
362		Low Level Debug (master trig)	0%	11/9/06	11/15/06
363		**Event Receiver**	**23%**	**11/16/06**	**12/8/06**
364		Write Code	35%	11/16/06	12/1/06
365		Low Level Debug (DAQ, Trigger)	0%	12/4/06	12/8/06
366		**Master Event Handler**	**10%**	**12/11/06**	**12/22/06**
367		Write Code	10%	12/11/06	12/22/06
368		Integrate, Test & Debug	0%	1/2/07	1/30/07
369	**1.4.2.4**	**Event Processing**	**3%**	**4/17/06**	**2/6/07**
370		**Signal Decomposition**	**4%**	**4/17/06**	**1/11/07**
371		Signal shape parameterization	15%	4/17/06	7/25/06
372		**Design and refine algorithm**	**1%**	**4/17/06**	**11/13/06**
373		**Develop Metrics**	**2%**	**4/17/06**	**8/4/06**
374		Input/Output Format Spec	10%	4/17/06	4/26/06
375		Basis Waveforms	0%	4/27/06	5/10/06
376		Ideal Example Data	0%	5/11/06	6/1/06
377		Real Example Data	0%	6/2/06	6/22/06
378		Common Failure Examples	0%	6/23/06	7/14/06
379		Benchmark Procedures	5%	7/17/06	8/4/06
380		**Evaluate and Refine algorithm**	**0%**	**6/23/06**	**11/13/06**
396	**1.4.2.4**	**Design Interface Program**	**7%**	**5/22/06**	**1/11/07**
397		Write Interface Specs	20%	5/22/06	6/5/06
398		Review	0%	6/6/06	6/19/06
399		Write Code	20%	6/20/06	7/11/06
400		Test & Debug	0%	11/14/06	1/11/07
401		**Lvl 4: Signal Decomposition prototyp**	0%	1/11/07	1/11/07
402		**Tracking**	**0%**	**5/22/06**	**2/6/07**
403		**Design and refine algorithm**	**1%**	**5/22/06**	**11/15/06**
404		**Develop Metrics**	**2%**	**5/22/06**	**7/25/06**
405		Input and Output Format Spec	5%	5/22/06	6/12/06
406		Ideal Example Data	0%	6/13/06	7/3/06
407		Real Example Data	0%	7/5/06	7/25/06
408		Evaluate & Refine Algorithm	0%	7/26/06	9/6/06
409		Code and Test Algorithm	0%	9/7/06	11/15/06
410		**Design Interface Program**	**0%**	**11/16/06**	**2/6/07**
416		**Data Storage**	**0%**	**7/12/06**	**9/13/06**
423		Integrate, Test & Debug	0%	9/14/06	9/27/06
424		**Lvl 3: CS Proto Event Processing Complete**	0%	2/6/07	2/6/07
425	**1.4.2.5**	**Hardware**	**18%**	**9/7/06**	**11/9/06**
426		**Digitizer Readout Computers**	**38%**	**9/7/06**	**11/1/06**
427		Procurement 2 cpu	50%	9/7/06	10/18/06
428		Boot Configuration	0%	10/19/06	11/1/06
429		**Network Equipment (switches, firewall)**	**0%**	**9/7/06**	**11/9/06**
432		**Server**	**0%**	**9/7/06**	**10/25/06**
435		**Workstations (2)**	**0%**	**9/7/06**	**9/14/06**
438		**Processor farm (2 dual cpus)**	**0%**	**9/7/06**	**10/24/06**
442		Misc PCs	0%	9/7/06	9/27/06



GRETINA Schedule November 2005

ID	Work Breakdown Ref	Task Name	% Complete	Start	Finish
443	**1.4.2.6**	**Slow control/monitoring**	**0%**	**9/7/06**	**1/30/07**
444		**Configuration Database**	**0%**	**9/7/06**	**12/8/06**
445		Requirements & Specifications	0%	9/7/06	9/13/06
446		Design & Document (incl test procedures)	0%	9/28/06	10/18/06
447		Review	0%	10/19/06	10/25/06
448		Design Code	0%	11/9/06	11/22/06
449		Test & Debug	0%	11/27/06	12/8/06
450		**Lvl 3: CS Proto Config DB Complete**	0%	12/8/06	12/8/06
451		**Control Interfaces**	**0%**	**12/11/06**	**1/30/07**
452		Design Timing Controls	0%	12/11/06	12/22/06
453		Design Trigger Controls	0%	1/2/07	1/15/07
454		Design Event Processing Controls	0%	1/16/07	1/30/07
455	**1.4.3**	**CS Production**	**0%**	**8/14/07**	**4/7/09**
558	**1.5**	**System Assembly**	**0%**	**4/4/07**	**9/16/10**
612	**1.6**	**Project Management**	**24%**	**3/1/04**	**9/16/10**
613	**1.6.1**	**Management**	**23%**	**3/1/04**	**9/16/10**
614	**1.6.1.1**	**Initial phase (FY04-FY05)**	**100%**	**3/1/04**	**9/30/05**
615		Contractor Project Manager - FY04	100%	3/1/04	9/30/04
616		CPM - FY05	100%	10/1/04	2/28/05
617		CPM - FY05 ETC	100%	3/1/05	9/30/05
618		Project Engineer - FY04	100%	3/1/04	9/30/04
619		Proj Engineer - FY05	100%	10/1/04	2/28/05
620		Proj Engineer - FY05 ETC	100%	3/1/05	9/30/05
621		Project Control Analyst - FY04	100%	3/1/04	9/30/04
622		Project Controls Analyst - FY05	100%	10/1/04	2/28/05
623		Project Controls Analyst - FY05 ETC	100%	3/1/05	9/30/05
624	**1.6.1.2**	**Long term**	**4%**	**10/3/05**	**9/30/09**
625		Contractor Project Manager	4%	10/3/05	9/30/09
626		Project Engineer	4%	10/3/05	9/30/09
627		Project Control Analyst	4%	10/3/05	9/30/09
628	**1.6.1.3**	**Final phase (~0.5 of FY10)**	**0%**	**10/1/09**	**9/16/10**
633	**1.6.1.4**	Quality Assurance Manager	10%	4/1/05	12/22/09
634	**1.6.1.5**	**Subsystem Managers**	**23%**	**3/1/04**	**11/3/09**
635		Design Phase	100%	6/1/04	2/28/05
636		Design ETC	68%	3/1/05	3/27/06
637		Mechanical (Production)	0%	8/14/07	9/4/08
638		Detector	32%	3/1/04	9/3/09
639		Electronics	8%	8/1/05	8/13/09
640		Computing Systems	8%	8/1/05	8/13/09
641		Systems assembly	0%	6/15/09	11/3/09
642	**1.6.2**	**General Project Expenses**	**25%**	**3/1/04**	**4/15/10**
643	**1.6.2.1**	Network security & remote access	27%	5/20/04	1/20/10
644	**1.6.2.2**	System Support	27%	5/20/04	1/20/10
645	**1.6.2.3**	**Misc. Expenses**	100%	5/20/04	2/28/05
646		Misc Exp ETC	15%	3/1/05	1/20/10
647		LDRD Tax	15%	3/1/04	4/15/10
648	**1.6.2.4**	**Travel**	**29%**	**3/1/04**	**9/30/09**
659	**1.7**	**Environment and Safety**	**42%**	**3/1/04**	**2/1/10**