

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

**I. DEPUTY CONTRACT PROJ. MGR. ASSESSMENT**

**1. TECHNICAL AND PROGRAMMATIC PROGRESS AND ACCOMPLISHMENTS**

- We have achieved the Level 1 milestone: CD-2A Approve Performance Baseline Range /CD-3A Approve Start of Construction for Long Lead-time Items
- We have completed the following level 3 milestones:
  - Detector Module Drawings Complete
  - Detector Module Procurement Specifications Complete
- Detector procurement:
  - LBNL procurement decided to do a new RFQ. The award of the first detector was originally scheduled for July 05. Probably now the order will be placed in Sept 05. This delay should not impact the Level 2 milestone, which has completion scheduled for the 4<sup>th</sup> quarter of FY06.
  - All forms for the detector RFQ have been completed.
  - The request for quotation was placed and we are expecting the Canberra/Eurisys response by August 8.
- The requirements for the LN system are completed.

**2. ACTIONS**

N/A

**3. COST AND SCHEDULE STATUS**

**3.1 VARIANCE ANALYSIS AND PROJECT COST PERFORMANCE REPORTS**

	<u>Sched</u>	<u>Act</u>	<u>Variance</u>
MIE Design	1,349.1	1,208.5	140.6
MIE Phase A	1,368.0	- 0 -	1,368.0
OPC	1,150.5	1,077.7	72.8

**Variance Statement:**

Actual costs shown include accruals for Detector Design of \$159k and Liens totaling \$46k.

**Project Impact:**

These variances do not impact the MIE completion.

**Corrective Action:**

For MIE Phase A, we are in constant contact with LBNL Procurement and monitoring the progress on the procurement of first detector module. Request For Quotation (RFQ) was placed and we are currently waiting for the Canberra/Eurisys response. Award is anticipated by mid-September. For the rest, no action needed. Costs for detector design and LN System work will be recorded/accrued when received.

**3.2 MILESTONE STATUS**

<b>Level</b>	<b>Milestone Description</b>	<b>Schedule Date</b>	<b>Completion Date</b>
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	
2	Design and Drawings of Mechanical Support Structure Complete	FY06 – Q1	
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	
3	Computing Systems Requirement Document Complete	Aug/05	May/05
3	Quarter Sphere Design Complete	Sept/05	

**3.3 PROJECT CRITICAL PATH ANALYSIS**

The critical path continues to be the production and delivery of the Detector Modules. Placement of the order for the first detector is anticipated to be Sept/2005.

## **II. DETAIL SUBSYSTEM STATUS**

### **A. WBS 1.1. Mechanical**

#### **WBS 1.1.2 Mechanical Design**

##### **Technical Progress/Accomplishments**

- The LN requirements document is complete and approved.
- Additional quotes for outside fabrication of quarter spheres have been received.
- The methodology for alignment and joining of quarter spheres is progressing.
- The development of drawings on the maximum envelop of the target chamber is progressing.
- We are detailing the rotation and translation layout of the spheres.

##### **Significant Issues/Actions**

- We are investigating heat transfer options with the quad detector module design.

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

<u>Sched</u>	<u>Act</u>	<u>Variance</u>
330.4	275.8	54.6

##### **Variance Discussion**

The design final design of the quarter spheres is progressing slower than originally scheduled. However, this delay does not impact the completion of the project.

### **B. WBS 1.2 Detector Module**

#### **WBS 1.2.1 Procurement**

##### **Technical Progress/Accomplishments**

N/A

### **Significant Issues/Actions**

Placement of the award for the first detector module is being aggressively pursued. We are in constant contact with LBNL Procurement and monitoring the progress on the procurement of first detector module. A Request For Quotation (RFQ) was issued and we are currently waiting for the Canberra/Eurisys response. Award is anticipated by mid-September.

### **WBS 1.2.2 Test/Characterize Module 1**

#### **Technical Progress/Accomplishments**

Effort on the characterization of the triple detector cluster continued.

#### **Significant Issues/Actions**

N/A

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

	<u>Sched</u>	<u>Act</u>	<u>Variance</u>
Design	372.0	286.0	86.0
Phase A	1,368.0	- 0 -	1,368.0

#### **Variance Discussion**

Detector Engineering and Test efforts have run lower cost than planned to-date. Phase A schedule reflects the planned award of the first Detector Module.

### **C. WBS 1.3 Electronics**

#### **WBS 1.3.1 Requirement Document**

##### **Technical Progress/Accomplishments**

We have continued the revision of the Electronics Requirement document with members of ORNL, ANL and LBNL.

##### **Significant Issues/Actions**

N/A

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

<u>Sched</u>	<u>Act</u>	<u>Variance</u>
9.2	8.4	0.8

## **Variance Discussion**

N/A

## **D. WBS 1.4 Computing Systems**

### **WBS 1.4.1 Requirement document**

#### **Technical Progress/Accomplishments**

The computing requirement document was finalized and reviewed. We met a L3 milestone three months ahead of schedule.

#### **Significant Issues/Actions**

N/A

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

<b><u>Sched</u></b>	<b><u>Act</u></b>	<b><u>Variance</u></b>
9.1	6.1	3.0

## **Variance Discussion**

We completed the present work without spending all funds budgeted for this task.

## **E. WBS 1.6 Project Management**

### **WBS 1.6.1 Management**

#### **Technical Progress/Accomplishments**

- We received CD2A/3A. This is a level 1 milestone.
- Detector procurement:
  - LBNL procurement decided to issue a new RFQ. The award of the first detector was originally scheduled for July 05. Probably now the order will be placed in Sept 05. This delay should not impact the Level 2 milestone, which has completion scheduled for the 4<sup>th</sup> quarter of FY06.
  - All forms for the detector RFQ have been completed.
  - The request for quotation was placed and we are expecting Canberra/Eurisys response for August 8.
  - Procurement is working on the “buy American” form.

### **Significant Issues/Actions**

The procurement of the first detector module will be delayed. LBNL Procurement decided to generate a new RFQ, and it took time to complete the package. Presently we expect to place the order by middle of September (instead of middle of July).

### **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)**

<u>Sched</u>	<u>Act</u>	<u>Variance</u>
609.2	622.9	(13.7)

#### **Variance Discussion**

We have used substantial effort to complete the documentation for the CD2A/3A review. This is the primary driver for the current variance. It is anticipated that reduced effort levels in this area will be required in coming months, thus allowing recovery of this variance.

### **E. WBS 1.7 Environment, Safety and Health**

#### **WBS 1.7.1**

#### **Technical Progress/Accomplishments**

#### **Significant Issues/Actions**

N/A

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

<u>Sched</u>	<u>Act</u>	<u>Variance</u>
19.2	9.4	9.8

#### **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:

- We received the tape backup system.
- EPICS-based DAQ implementation is progressing.
- Procurement of the prototype processor farm is being reviewed. It may require an upgrade of the air conditioning system of room 134.
- Work on the decomposition algorithm continues. Plans to integrate it with the rest of the prototype data acquisition have started.

#### Electronics:

- We have received the order for a set of custom-made cables to connect the pre-amplifiers with the readout electronics. We are preparing to test them.
- Also, we are researching possible connectors to connect the detector module with the readout electronics and we are doing good progress.

#### Significant Issues/Actions

N/A

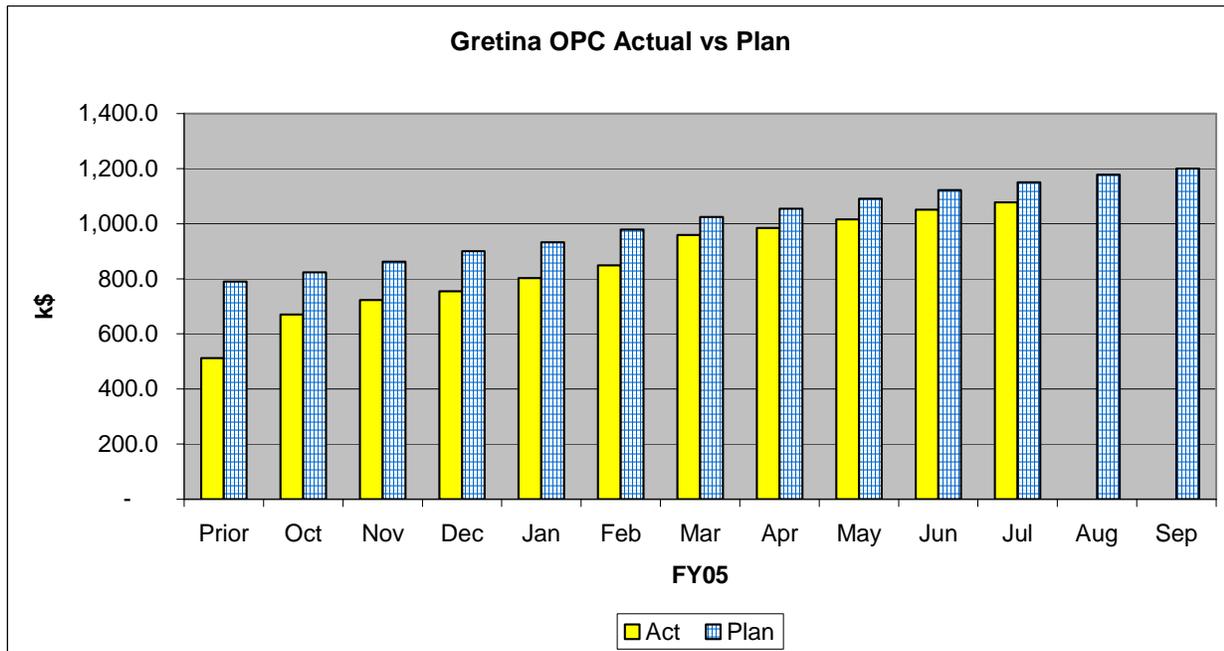
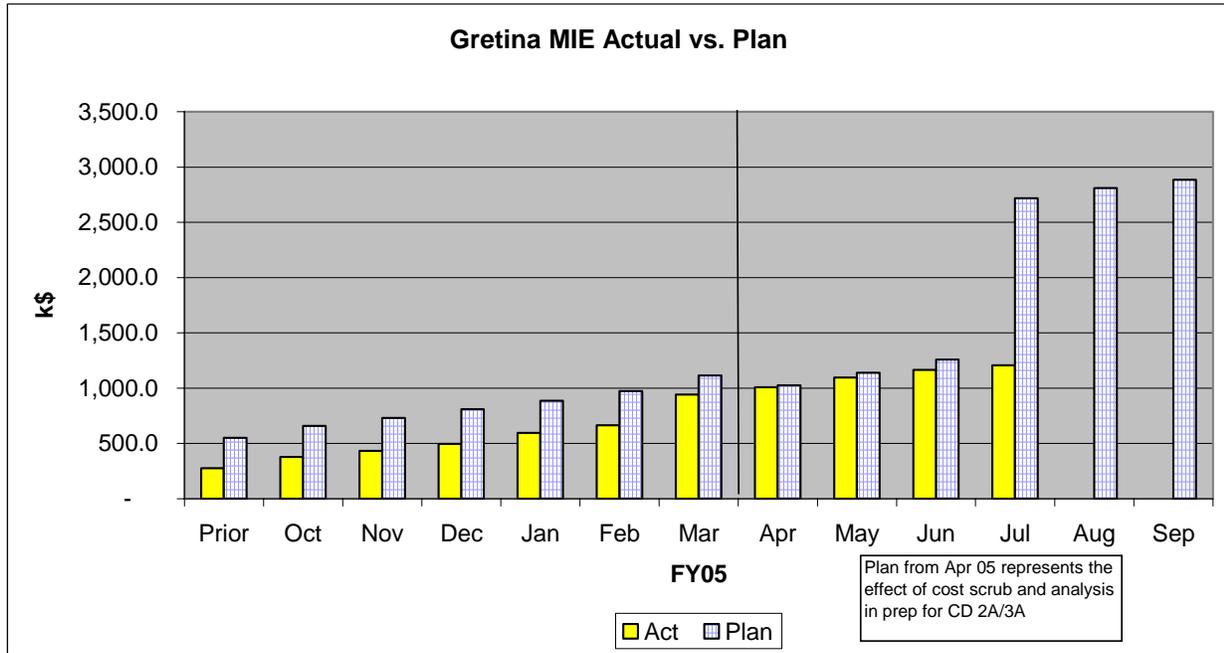
#### R&D Variance Analysis (Cumulative To-date) (\$k)

<u>Sched</u>	<u>Act</u>	<u>Variance</u>
1150.5	1,077.7	72.8

#### Variance Discussion

N/A

## IV. Cost Chart



The above charts compare project-to-date budgeted cost with actual for the FY05 time period

## GRETINA Schedule July 2005

ID	Work Breakdown Ref	Task Name	% Complete	Start	Finish	2005												2006				2007				2008							
						Qtr 2				Qtr 3				Qtr 4				Qtr 1				Qtr 2				Qtr 3				Qtr 4			
						Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1								
1	1	<b>GRETINA</b>	<b>18%</b>	<b>3/1/04</b>	<b>9/16/10</b>																												
2		<b>Lvl 1: CD-1</b>	100%	3/1/04	3/1/04																												
3	1.1	<b>Mechanical</b>	<b>27%</b>	<b>3/1/04</b>	<b>4/3/08</b>																												
4	1.1.1	Requirement document	100%	3/1/04	3/26/04																												
5		<b>Lvl 3: Mech Req Doc Complete</b>	100%	3/26/04	3/26/04																												
6	1.1.2	<b>Design</b>	<b>52%</b>	<b>6/1/04</b>	<b>1/17/06</b>																												
7		<b>Lvl 4: Start Mech design</b>	100%	6/1/04	6/1/04																												
8	1.1.2.1	<b>Support structure</b>	<b>72%</b>	<b>6/15/04</b>	<b>11/9/05</b>																												
9		Define requirements/spec	100%	6/15/04	7/13/04																												
10		<b>Conceptual Design</b>	<b>100%</b>	<b>8/2/04</b>	<b>5/13/05</b>																												
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		<b>Lvl 3: Conceptual Design Review Complete</b>	100%	5/13/05	5/13/05																												
18		<b>Final design &amp; Drawings</b>	<b>44%</b>	<b>2/9/05</b>	<b>11/9/05</b>																												
19		General Final Design	100%	2/9/05	3/31/05																												
20		<b>Quarter Spheres</b>	<b>42%</b>	<b>4/1/05</b>	<b>11/9/05</b>																												
21		Geometry and Layout	75%	4/1/05	5/5/05																												
22		FEA	60%	5/5/05	5/23/05																												
23		Specify Manufacturing Processes	50%	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	65%	8/16/05	8/23/05																												
29		QuarterSphere Links	55%	8/23/05	9/14/05																												
30		<b>Lvl 3: Quartersphere Design Complete</b>	0%	9/14/05	9/14/05																												
31		<b>Fabrication Prints</b>	<b>0%</b>	<b>9/14/05</b>	<b>11/9/05</b>																												
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		<b>Translation and Rotation</b>	<b>37%</b>	<b>4/1/05</b>	<b>10/4/05</b>																												
36		Layout	100%	4/1/05	4/29/05																												
37		Tee Platform	20%	4/29/05	6/6/05																												
38		Bearing Housing	20%	6/6/05	6/20/05																												
39		Axles	10%	6/20/05	7/26/05																												
40		Lower Strut Clips	30%	7/26/05	8/29/05																												
41		Weldment - RR car and strut clips	20%	8/29/05	9/9/05																												
42		RR Car mods - dwg & descr.	20%	9/9/05	9/23/05																												
43		Strut drawing (tabulated)	100%	9/23/05	10/4/05																												
44		Design Review	0%	10/12/05	11/9/05																												
45		<b>Lvl 2: Complete Design and Drawings of Mech Support Structure</b>	0%	12/22/05	12/22/05																												



