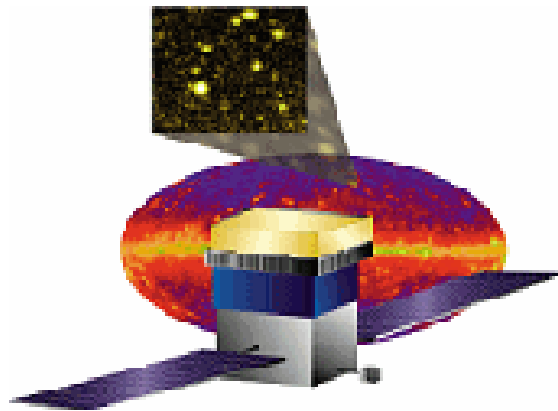


Monthly Progress Report

(Month Ending June 2005)

GLAST Large Area Telescope (LAT)



LAT-MR-06937-01

August 2, 2005

1.0 Introduction

This monthly progress report is submitted to the GLAST Project Office at the Goddard Space Flight Center and the Department of Energy SLAC Site Office. The report summarizes LAT project status as of the end of June, 2005.

2.0 Recent Progress and Status

4.1.4 Tracker

Six Tracker towers are integrated into the flight grid (first through fifth, and the seventh). The sixth tower was delayed for EMI taping (manpower) and an issue with the clock duty cycle margin for one side of one multichip module. The eighth and ninth towers are awaiting cables. Assembly of the tenth tower has commenced.

Tray panels for more than eleven towers are in hand. Parts and materials are being procured for the two spare towers.

All flight sidewalls have been delivered. Ladder production is nearly complete, with 2,207 ladders assembled and tested, enough for more than fifteen towers. Ladders for the remaining towers are built and are being tested.

Multichip module (MCM) production is expected to complete in mid-July. Enough MCMs for the flight towers are already in hand.

Flight cable assembly is still slow, and towers continue to be assembled with cables missing. The second cable vendor will alter their process to adapt the drilling program and subsequent outer-layer etch-and-plate to each individual cable, after making X-ray measurements of the inner-layer pads. This will delay their delivery by about three weeks, but the vendor will work to improve delivery time.

4.1.5 Calorimeter

Pre-ship reviews on the last Calorimeter modules were completed, and all modules have now been shipped to SLAC. All ATDP reports have been completed.

4.1.6 Anticoincidence Detector

The ACD is integrated. All 194 detector channels have been connected to their electronics and verified to be functional and light-tight. The micrometeoroid shield is installed. A pre-environmental test review was conducted. Functional and performance testing of the ACD is underway; some data anomalies and test script errors are being resolved.

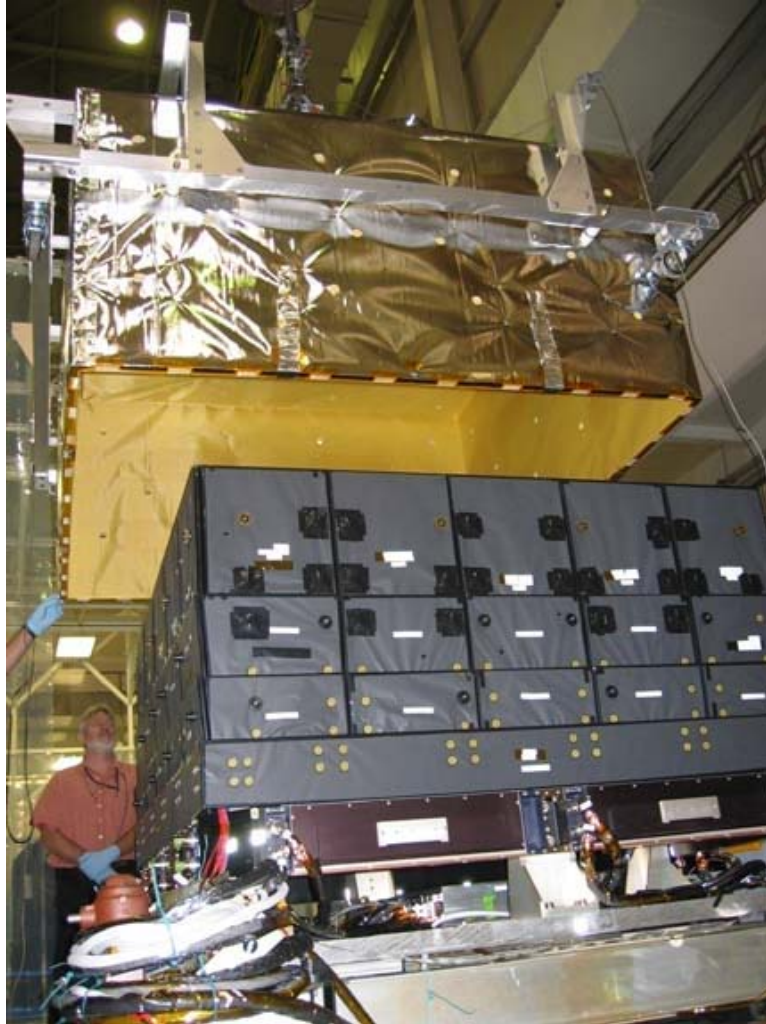


Figure : Installation of the ACD micrometeoroid shield.

4.1.7 Electronics, Data Acquisition, and Flight Software

The first seven tower electronics modules (TEMs) and tower power supplies (TPSs) have now been delivered to Integration & Test. The eighth and ninth are ready for review. The tenth and eleventh have finished thermal vacuum testing, and are ready for final testing. The twelfth and thirteenth have commenced thermal vacuum testing; the fourteenth is ready for thermal vacuum testing.

The first power distribution unit (PDU) was successfully operated in a thermal chamber over temperature. It has been shipped back to the assembler for final assembly, but is sidelined by other priorities. Flying-probe testing of the first GASU is completed. The GASU power supply and DAQ boards have been integrated; the EGSE harness is being assembled.

There are now enough spacecraft interface board (SIB) EEPROMs on hand for the five flight boards; spares are on order.

The harness is being assembled, and nearly complete.

The thermal-testing support package for the Lockheed radiator thermal test is expected to be complete in early July. This package includes interfaces with flight software, the LAT Test Executive (LATTE), and power. It also includes a standalone test stand, documentation, and an acceptance test.

Six prototypes of the virtual spacecraft simulator are running. Work has been halted, pending flight production acceptance test setups for the GASU and LAT communication board, as well as thermal vacuum testing.

A flight software build with configuration-controlled packages was completed, including mode control with main-feed on and power on and off. Twenty four of 40 packages have been placed under package-level configuration control and the flight software test team is running draft test scripts against this baseline. Work on the thermal control test system is completed. Corrections for telemetry were made in the LAT thermal control. Time hack services have been tested on a setup with flight RAD750 CPUs. Several features were added to the LAT instrument manager mode controller package, and were tested. The VXWorks operating system was upgraded, allowing C++ support and allowing time-stamps to be driven by GPS time. The first public version of the event/gamma filter code was released. Compression algorithms for the LAT event formats have been prototyped, and code was written to output events in a variety of formats. The 1553 bus-controller driver for the virtual spacecraft simulator was upgraded.

4.1.8 Mechanical Systems

The second grid machining has been inspected, with satisfactory results. The helicoil inspection and installation is complete. The contract for the static load test was awarded. The radiators are complete, except for heater and instrumentation installation. Completion of the spare variable control heat pipes will be determined after acoustic and sine vibration testing. Ground support equipment for the radiators and cross-LAT (X-LAT) plate is in progress. A test readiness review was conducted to address facility and flight hardware readiness for vibration/acoustic test. The pre-ship review package for the X-LAT (cross-LAT) plate is being prepared, and the shipping container is completed.

4.1.9 Integration & Test (I&T)

Six towers are now installed in the flight grid. Receiving tests were performed on three Tracker towers, eleven Calorimeters and three TEM/TPSs. Four-tower testing was performed, and preparations were made for six-tower testing. Shear plate and cable tray installation for four towers was completed. The grid cooler was assembled, checked out, and installed. Version 4.9.0 of the LAT Test Executive (LATTE) was released for the Anticoincidence Detector. Housekeeping multi-pen strip-chart graphical user interface version 2.0 was deployed for real-time monitoring. A new version of the E-logbook was released.

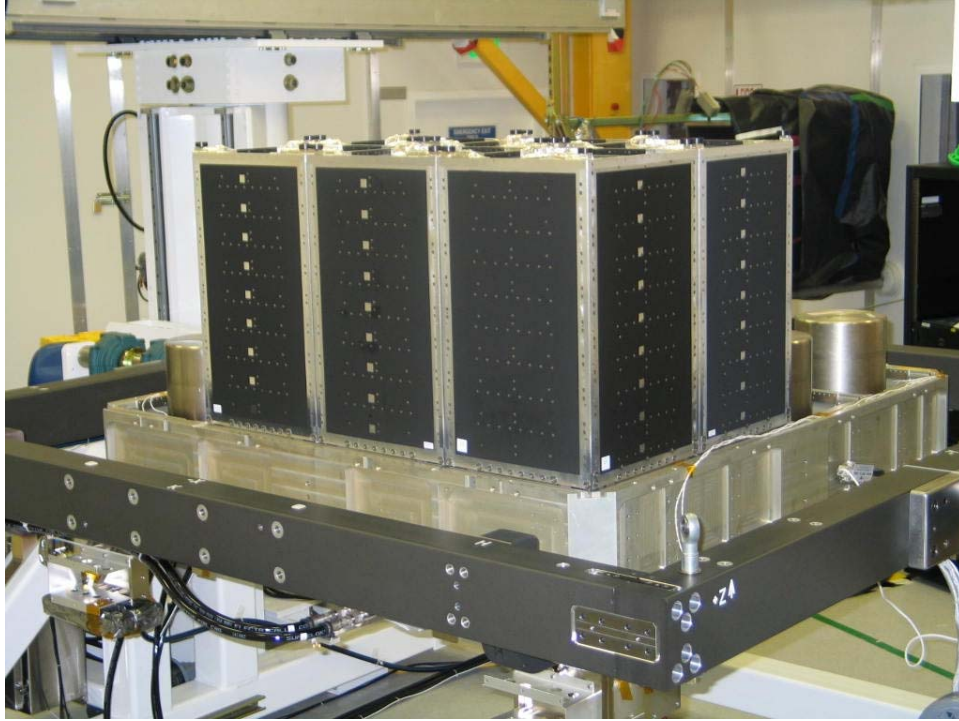


Figure 2: Six towers installed in the flight grid after survey completed. LAT ground cooling is installed.

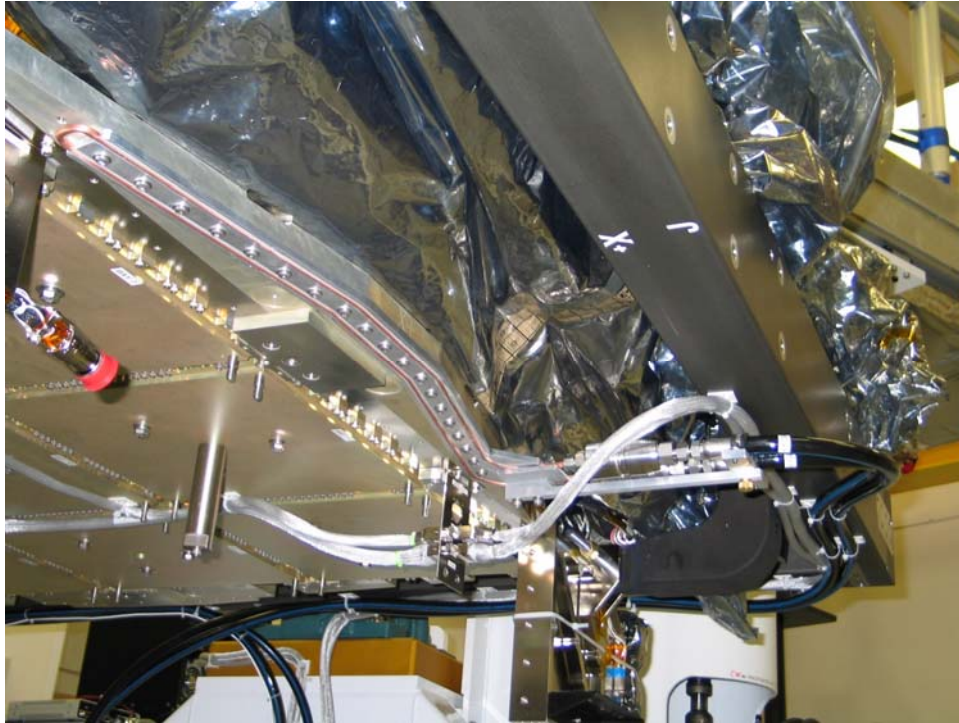


Figure 3: Details of the LAT ground cooling installation.

4.1.B Instrument Science Operations Center

The first software release was completed and the second ground readiness test was conducted successfully. The next software release is planned for late August; it will include increased mission planning functionality. Housekeeping trending database access tools were updated. Information gathering for the configuration and calibration databases is underway. Agreement was reached on the content of the instrument configuration contained in the LAT science stream. Biweekly meetings are being held with the SLAC computer services group to coordinate computer/service support issues. A 32-TB disk array and Oracle servers will be delivered soon. Hiring activities are in progress for a software developer, a test engineer, and an engineering physicist for instrument analysis support.

3.0 Schedule Status

The critical path for the project is the fabrication of components of the Spacecraft Interface Unit and Event Processing Unit. There are 10 days of float to the shipment of the LAT. A workaround plan is in place to start the checkout of flight configuration in October.

The status of significant milestones is summarized in Attachments 1 and 2. Attachment 1 presents the status of the Level 1 and Level 2 milestones. The pre-environmental test review and pre-ship review milestones (1M1000700 and 1M1000120) have been delayed as a result of this critical path.

Attachment 2 shows the status of the remaining Level 3 milestones. The following level 3 milestones were completed during this reporting period:

Milestone Number	Description	Date Completed
1M79001050	Flight TEM Assy 3	6/2/05
1M79002050	Flight TEM PS Assy 3	6/2/05
1M79001060	Flight TEM Assy 4	6/6/05
1M79002060	Flight TEM PS Assy 4	6/6/05
1M79001070	Flight TEM Assy 5	6/6/05
1M79002070	Flight TEM PS Assy 5	6/6/05
1M1000251	Flight Tracker Tower 4 RFI	6/9/05
1M1000260	Flight Tracker Tower 5 RFI	6/9/05
1MRTS100	Calorimeter Module 13 Ready to Ship	6/10/05
1MRTS110	Calorimeter Module 14 Ready to Ship	6/10/05
1MRTS120	Calorimeter Module 15 Ready to Ship (Spare)	6/10/05
1MRTS130	Calorimeter Module 16 Ready to Ship (Spare)	6/10/05
1M7941270	Ground System Interface Test Start	6/28/05

Unfavorable variance projections greater than one week are discussed below, listed by responsible subsystem.

4.1.4 Tracker

The remaining Tracker towers have been delayed due to cable delivery delays. The primary cable vendor is producing a 10% yield. The second cable vendor is also experiencing manufacturing problems. These delays are being somewhat mitigated by assembling and testing towers without cables, adding the cables when available.

4.1.6 Anticoincidence Detector

The ACD test scripts (1M1001000) milestone has been delayed due to the need for additional testing, and as more is learned about the performance of the ACD electronics. This milestone will be completed shortly after the ACD is fully assembled and tested.

Issues with the test scripts and test data have been encountered during performance testing, resulting in a delay in the delivery of the ACD (1M1000410). These issues have now been largely resolved with assistance from the LAT online team. Because the ACD environmental tests are sequential activities with already-tight schedules, it will be difficult to recover any time.

4.1.7 Electronics

The following milestones have been delayed at the assembly vendor. The main issue is the quality of the solder assembly of the cPCI connectors onto the cPCI boards. The LAT project continues to work with the vendor to improve the situation. Connector assembly at an alternate vendor was contracted and is in progress.

- Flight PDU Box (1M17942000)
- Flight GASU Box (1M7941070)
- LCB Flight Units (1M7R050)
- Flight Event Processor Units (1M7941090)
- Flight EPU/SIUs (1M7R040, 1M7R010, 1M7R020, 1M7R030, 1M7941080)

As of publication of this report, ten TEM/TPS modules have completed testing and documentation and passed review. Testing of five more modules has been completed, but the collection of documentation from the vendor was delayed due to vacation schedules.

The harness (1M7941110) has been delayed due to cable parts shortages, and is expected to be completed by the end of August.

The flight software demonstrations will be replaced as measures of progress by the running of real test scripts that will be used for the flight software formal qualification testing (FQT).

Delays in flight software, and the addition of a Virtual Spacecraft Simulator to make LAT control/readout simpler for installation and test have led to the delay of the milestone for final electronics ground support equipment (1M7941440).

4.1.8 Mechanical Systems

In December 2004, SLAC directed Lockheed Martin to postpone work on test-related activities and focus on the completion of flight hardware. The test-related activities have restarted, however this resulted in delay to the completion of the X-LAT plate (1M941710).

SLAC accepted Lockheed Martin's recommendation to perform thermal cycling testing instead of thermal vacuum testing of the X-LAT plate as a cost saving measure. Additional time was required to qualify non-destructive inspection techniques for hardware configuration. These techniques were used before and after thermal cycling tests to verify that there was no degradation in the X-LAT bonds.

Radiator delivery (milestone 1M941720) has slipped due to the extra time required to install instrumentation harnesses onto the Radiators. There were also facility issues at both the acoustic (broken parts) and vibration (program conflicts) test areas at Lockheed. These issues are being resolved.

4.1.9 Integration & Test

Variances to the "Ready to Ship" and subsequent milestones are driven by the critical path for the project, as described above.

4.0 Financial Status

Attachment 3 depicts the costs, commitments, and performance through the end of the current reporting period.

Attachments 4 and 5 summarize the actual costs through the current period, by WBS level 3 and institution, respectively.

5.0 Performance Status (Comparison to Project Baseline)

Attachment 6 is a Cost Performance Report (CPR) for the end of the current reporting period, by WBS level 3. The CPR shows the time-phased budget to date (BCWS), the earned value (BCWP), and the actual costs through the end of the month (ACWP). Attachment 7 shows the same information for each participating DOE- and/or NASA-funded institution. The schedule variance is equal to the difference between the budget-to-date and the earned value and represents a measure of the ahead (positive) or behind (negative) schedule position. The cost variance is equal to the difference between the earned value and the actual costs.

Attachment 8 shows performance analysis (by WBS level 3), including trends in the schedule and cost variances from the previous period. Cumulative cost variances exceeding 10% of the BCWP and cumulative schedule variances exceeding 10% of BCWS (favorable and unfavorable) are discussed below.

4.1.C Education & Public Outreach

The favorable cost variance is due to outstanding commitments which have not yet been costed. This is not a concern at this time.

6.0 Change Control and Contingency Analysis

A summary of change requests approved and implemented during this period (Level 3 and above), including the impacts on the LAT contingency, is below.

Change Request No.	Description	Submitted By	Current Status	Contingency Impact ¹
LAT-XR-06364-01	Changes to Tracker Subsystem L3 Spec.	R. Bright	Approved	N/A
LAT-XR-06387-01	Changes to the LAT Perf. & Operations Test Plan	P. Hascall	Approved	N/A
LAT-XR-06561-01	Flight Software Specification Updates	M. DeKlotz	Approved	N/A
LAT-XR-06636-01	ACD Power Revision	G. Unger	Approved	N/A
LAT-XR-06698-01	Changes to Tracker Subsystem L3 Power Consumption Spec.	R. Bright	Approved	N/A
LAT-XR-06717-01	Update ACD-LAT ICD	R. Bielawski	Approved	N/A
LAT-XR-06733-02	EMI Test Waivers for ACD	D. Thompson	Approved	N/A
LAT-XR-06769-01	Waiver for ACD Thermal Balance Test	T. Johnson	Approved	N/A
LAT-XR-06775-01	Changes to LAT Mech Sys IDD ACD-LAT Interface	M. Nordby	Approved	N/A
LAT-XR-06880-01	Redistribute HEPL Budget between 4.1.1 and 4.1.D	T. Boysen	Approved	\$0K

The cost baseline through FY05 is \$154,025K Funding applicable to that baseline is \$155,809K; the resulting contingency is \$1,784K.

7.0 Staffing

Attachment 9 demonstrates the staffing plan funded by DOE/NASA, and reports of actual manpower received. This report includes contracted labor which is bookkept as M&S.

¹ A positive number indicates a draw on contingency.

Actual incremental ACD FTEs for the month exceeded plan, due to the schedule delay described in section 3.0. A correction was made for the previous month's incremental actual headcount.

Contractor hours from prior months were billed to the Calorimeter this period (their accuracy is being investigated). The baseline plan contains only the last Calorimeter milestone in the month of June, with all previous milestones in prior months. In reality, last four were delivered in June, requiring more labor than planned in this month. The final milestone was achieved within two days of its baseline date.

More manpower than planned was required in Electronics this period due to the delay in flight assembly for the cPCI solder quality issue; thermal vacuum shift personnel have been required for a longer term than planned.

The underrun in Integration & Test labor is due to more vacation taken than planned during the period.

Hardware delays have prevented the planned rampdown of Performance & Safety Assurance staff from occurring at this time.

Attachment 2 Future Level 3 Milestones Page 1 of 3

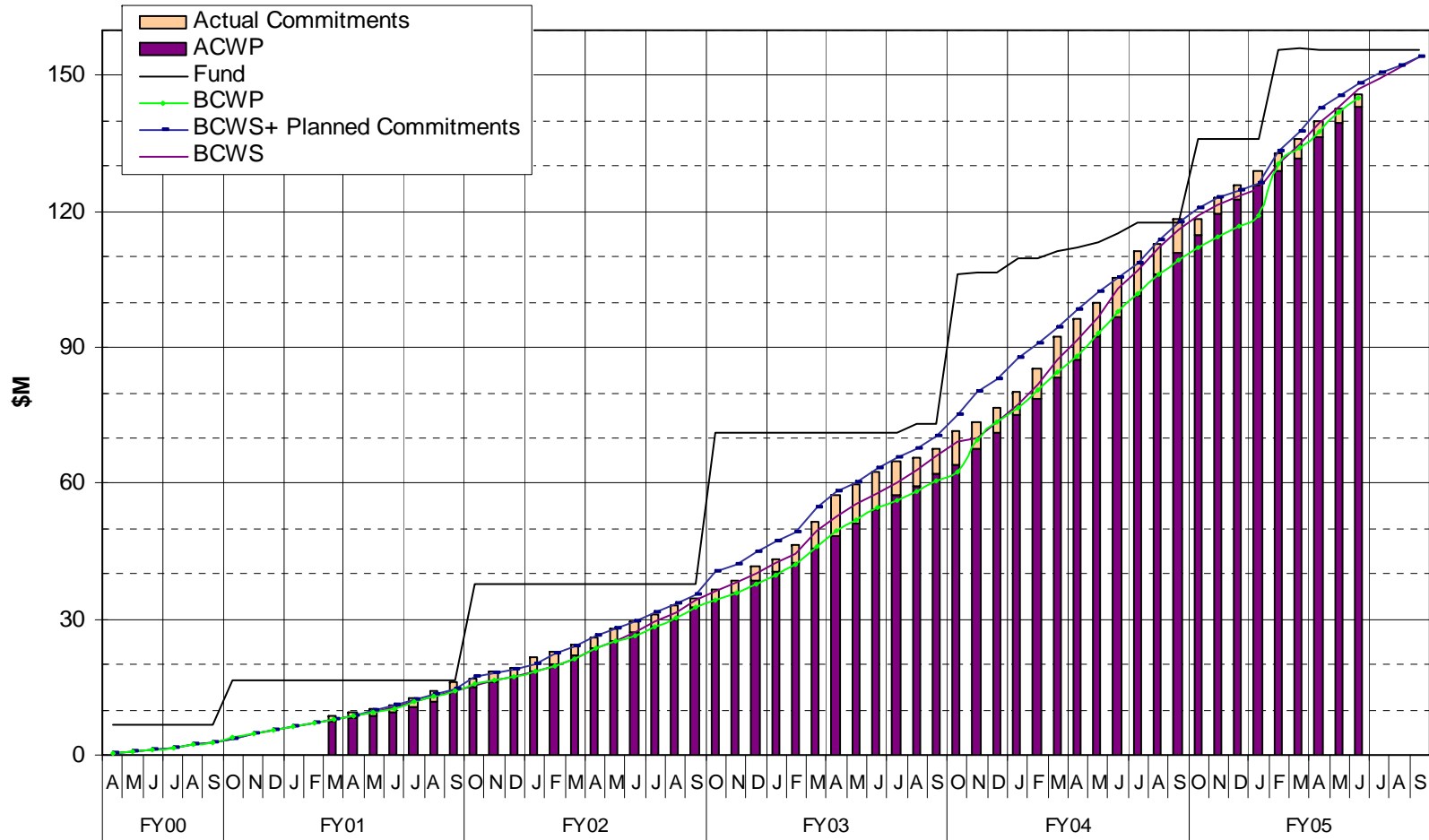
Activity ID	Activity Description	Target Finish Date	Variance	Scheduled Finish Date	Timeline														
					FY04 Q4	Q1	Q2	Q3	Q4	FY05 Q1	Q2	Q3	FY06 Q1	Q2	Q3				
Instrument Project Office (Level 3)																			
4.1.1 Instrument Management																			
1M1001920	Pre-Environmental Test Review	12/20/05	-10	01/11/06														▽	
4.1.4 Tracker																			
1M1000261	Flight Tracker Tower 6 RFI	06/16/05	-31	08/01/05														•	
1M1000270	Flight Tracker Tower 7 RFI	06/27/05	-48	09/02/05														▽	
1M1000271	Flight Tracker Tower 8 RFI	07/06/05	-45	09/08/05														▽	
1M1000280	Flight Tracker Tower 9 RFI	07/15/05	-40	09/12/05														•	
1M1000281	Flight Tracker Tower 10 RFI	07/26/05	-35	09/14/05														▽	
1M1000290	Flight Tracker Tower 11 RFI	08/04/05	-28	09/14/05														•	
1M1000291	Flight Tracker Tower 12 RFI	08/15/05	-24	09/19/05														▽	
1M1000300	Flight Tracker Tower 13 RFI	08/24/05	-19	09/21/05														•	
1M1000301	Flight Tracker Tower 14 RFI	09/02/05	-14	09/23/05														▽	
1M1000310	Flight Tracker Tower 15 RFI	09/13/05	-21	10/12/05														•	
1M1000311	Flight Tracker Tower 16 RFI	09/22/05	-20	10/20/05														▽	
4.1.6 ACD																			
1M1001000	ACD Test Scripts (from ACD to I&T)	03/15/05*	-91	07/22/05														▽	
1M1000410	ACD Flight Unit at SLAC, Tested/Inspected & RFI	07/15/05	-20	08/12/05														•	
4.1.7 Electronics																			
1M7941440	Final EGSE incl S/C Sim, FSW-Elec to I&T	04/01/05	-102	08/25/05														•	
1M79270	Demo: Mode Control	04/22/05	-87	08/25/05														▽	
1M79220	Demo: Charge Injection Calibration	04/29/05	-63	07/29/05														•	
1M79240	Demo: Event Integrity and Delivery	05/06/05	-75	08/23/05														▽	
1M79280	Demo: Diagnostics	05/06/05	-86	09/08/05														•	
1M79260	Demo: GRB Detection and Response	05/20/05	-84	09/20/05														▽	
1M79001080	Flight TEM Assy 6: Elec to I&T	05/27/05	-38	07/22/05														•	
1M79002080	Flight TEM PS Assy 6: Elec to I&T	05/27/05	-38	07/22/05														▽	
1M79001090	Flight TEM Assy 7: Elec to I&T	06/06/05	-33	07/22/05														•	
1M79002090	Flight TEM PS Assy 7: Elec to I&T	06/06/05	-33	07/22/05														▽	
1M79001100	Flight TEM Assy 8: Elec to I&T	06/13/05	-28	07/22/05														•	
1M79002100	Flight TEM PS Assy 8: Elec to I&T	06/13/05	-28	07/22/05														▽	
1M79001110	Flight TEM Assy 9: Elec to I&T	06/20/05	-23	07/22/05														•	
1M79002110	Flight TEM PS Assy 9: Elec to I&T	06/20/05	-23	07/22/05														▽	
1M79001120	Flight TEM Assy 10: Elec to I&T	06/27/05	-18	07/22/05														•	
Run Date: 07/25/05 17:31					GLAST LAT PROJECT Project Milestones (Level 3) Planned Milestones					0719 LTX2 - MS3 (planned) FLX1- MS (L3)					Sheet 1 of 3				
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Attachment 2
Future Level 3 Milestones
Page 2 of 3

Activity ID	Activity Description	Target Finish Date	Variance	Scheduled Finish Date	Gantt Chart									
					FY04 Q4	FY05 Q1	FY05 Q2	FY05 Q3	FY05 Q4	FY06 Q1	FY06 Q2	FY06 Q3		
1M79002120	Flight TEM PS Assy 10: Elec to I&T	06/27/05	-18	07/22/05					▽					
1M7942000	Flight PDU Box-Elec to I&T	07/01/05	-65	10/04/05					▽					
1M79001130	Flight TEM Assy 11: Elec to I&T	07/05/05	-13	07/22/05					▽					
1M79002130	Flight TEM PS Assy 11: Elec to I&T	07/05/05	-13	07/22/05					▽					
1M7941110	Flight Harness-Elec to I&T	07/05/05	-40	08/30/05					▽					
1M79001140	Flight TEM Assy 12: Elec to I&T	07/12/05	-8	07/22/05					▽					
1M79002140	Flight TEM PS Assy 12: Elec to I&T	07/12/05	-8	07/22/05					▽					
1M79001150	Flight TEM Assy 13: Elec to I&T	07/19/05	-3	07/22/05					▽					
1M79002150	Flight TEM PS Assy 13: Elec to I&T	07/19/05	-3	07/22/05					▽					
1M7941070	Flight GASU Box-Elec to I&T	07/19/05	-49	09/27/05					▽					
1M7R050	LCB Flight Units - Elec to Elec	07/20/05	-57	10/10/05					▽					
1M79001160	Flight TEM Assy 14: Elec to I&T	07/26/05	-8	08/05/05					▽					
1M79002160	Flight TEM PS Assy 14: Elec to I&T	07/26/05	-8	08/05/05					▽					
1M79001170	Flight TEM Assy 15: Elec to I&T	08/02/05	-3	08/05/05					▽					
1M79002170	Flight TEM PS Assy 15: Elec to I&T	08/02/05	-3	08/05/05					▽					
1M79001180	Flight TEM Assy 16: Elec to I&T	08/09/05	-3	08/12/05					▽					
1M79002180	Flight TEM PS Assy 16: Elec to I&T	08/09/05	-3	08/12/05					▽					
1M7941090	Flight Event Processor Units-Elec to I&T	08/19/05	-62	11/16/05					▽					
1M7R040	1st Flight EPU/SIU-Elec to I&T	08/19/05	-62	11/16/05					▽					
1M7R010	2nd Flight EPU/SIU-Elec to I&T	08/24/05	-64	11/23/05					▽					
1M7R020	3rd Flight EPU/SIU-Elec to I&T	08/26/05	-62	11/23/05					▽					
1M7R030	4th Flight EPU/SIU-Elec to I&T	08/30/05	-63	11/30/05					▽					
1M7941080	5th Flight EPU/SIU-Elec to I&T	09/02/05	-60	11/30/05					▽					
4.1.8 Mechanical														
1M941710	X-LAT Thermal Plate RFI from Mech to I&T	04/20/05	-65	07/22/05				•	▽					
1M941720	Radiators ready for I&T (from Mech to I&T)	07/22/05	-17	08/16/05					▽					
4.1.9 I&T														
1M99030	Start 8 Tower Comprehensive Performance Test	06/20/05	-31	08/03/05				•	▽					
1M1001740	Online FU S/W Final Release-I&T to ISOC	07/14/05	0	07/14/05					▽					
1M99040	Start 16 Tower Comprehensive Performance Test	09/07/05	-21	10/06/05					▽					
1M1000130	LAT Ready to Ship to NRL for Env Test	12/20/05	-10	01/11/06						•		▽		
1M19010	Ship LAT to NRL for Env Test	01/03/06	-12	01/15/06								▽		
1M19020	LAT EMI/EMC Test	02/01/06	-30	03/03/06								▽		
1M19030	LAT Sine Vibe	02/14/06	5	02/09/06								▽		
Run Date	07/25/05 17:31	GLAST LAT PROJECT Project Milestones (Level 3) Planned Milestones							07/19 LTX2 - MS3 (planned) FLX1- MS (L3)	Sheet 2 of 3				
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Attachment 3

Budget vs Actuals vs Performance DOE + NASA Project Expenditures 4.1 LAT



**Attachment 4
LAT Costs, through June 2005, by WBS**

Monthly Contractor Financial Management Report								Report for Month Ending: 6/30/2005		
To: Kevin Grady, GLAST Project Manager (NASA) Ev Valle, LAT Project Manager (DOE)					From: Tanya Boysen, LAT Project Controls Manager			Budget Value		
								Cost:	Fee:	
								0	0	
LAT3 GLAST LAT Project		Type:							Fund Limitation: 0	
Reporting Category	Cost Incurred				Estimated Cost			4/3/2000	Billing	
	During Month		Cum. to Date		Detail		Balance of Budget	Estimated Final Cost		Unfilled Orders Outstanding
	Actual	Planned	Actual	Planned	JUL05	AUG05		Project Estimate	Budget Value	
4.1.1 INSTRUMENT MANAGEMENT	451	452	16,610	16,908	299	307	563	17,778	17,778	
4.1.2 SYSTEM ENGINEERING	178	163	7,255	7,214	150	154	88	7,647	7,647	
4.1.4 TRACKER	527	768	19,923	20,926	352	235	1,191	21,702	21,702	
4.1.5 CALORIMETER	267	226	21,466	22,057	166	201	762	22,594	22,594	
4.1.6 ANTICOINCIDENCE DETECTOR	221	216	17,355	17,761	56	50	506	17,968	17,968	
4.1.7 ELECTRONICS	776	767	26,924	27,861	434	353	1,184	28,894	28,894	
4.1.8 MECHANICAL SYSTEMS	577	485	15,820	15,739	412	500	134	16,866	16,866	
4.1.9 INTEGRATION & TEST	208	416	7,715	8,030	555	291	891	9,451	9,451	
4.1.A PERFORMANCE AND SAFETY ASSURANCE	142	111	3,644	3,587	81	93	28	3,846	3,846	
4.1.B LAT INSTRUMENT OPERATIONS CENTER	-10	5	310	322	5	5	15	334	334	
4.1.C EDUCATION AND PUBLIC OUTREACH	110	73	2,193	2,470	67	77	347	2,684	2,684	
4.1.D SCIENCE ANALYSIS SOFTWARE	61	-57	2,603	2,708	74	80	180	2,936	2,936	
4.1.E SUBORBITAL FLIGHT TEST	0	0	1,325	1,325	0	0	0	1,325	1,325	
Gen. and Admin.	0	0	0	0	0	0	0	0	0	
Total	3,508	3,625	143,142	146,908	2,650	2,344	5,889	154,025	154,025	

Attachment 5
LAT Costs, through June 2005, by Organization and Cost Code

Monthly Contractor Financial Management Report								Report for Month Ending: 6/30/2005		
To: Kevin Grady, GLAST Project Manager (NASA) Ev Valle, LAT Project Manager (DOE)				From: Tanya Boysen, LAT Project Controls Manager				Budget Value		
								Cost: 0	Fee: 0	
LAT3 GLAST LAT Project		Type:						Fund Limitation: 0		
Reporting Category	Cost Incurred				Estimated Cost			4/3/2000	Billing	
	During Month		Cum. to Date		Detail		Balance of Budget	Estimated Final Cost		Unfilled Orders Outstanding
	Actual	Planned	Actual	Planned	JUL05	AUG05		Project Estimate	Budget Value	
DG *** GSFC	343	254	18,937	19,538	91	89	738	19,856	19,856	
DH *** HEPL	129	214	7,699	7,917	253	268	454	8,674	8,674	
DL *** SLAC	2,550	2,620	85,588	87,492	1,866	1,540	3,273	92,267	92,267	
DN *** NRL	358	454	26,113	26,798	365	360	986	27,825	27,825	
DO *** Financial Plan Transfer/Sub Ou	0	0	59	59	0	0	0	59	59	
DS *** SSU	101	73	2,170	2,443	66	76	341	2,654	2,654	
DT *** Texas A&M	0	0	15	15	0	0	0	15	15	
DU *** UCSC	17	1	2,352	2,394	1	1	43	2,396	2,396	
DW *** UW	9	9	208	252	9	10	53	279	279	
Total	3,508	3,625	143,142	146,908	2,650	2,344	5,889	154,025	154,025	

Reporting Category	Cost Incurred/Hours Worked				Estimated Cost/Hours to Complete			Estimated Final Cost/Hours		Unfilled Orders Outstanding
	During Month		Cum. to Date		Detail		Balance of Budget	Estimated Final Cost/Hours		
	Actual	Planned	Actual	Planned	JUL05	AUG05		Project Estimate	Budget Value	
RL LABOR	1,358	1,183	68,172	68,606	1,069	1,126	1,405	71,773	71,773	
RT TRAVEL	37	92	1,698	2,316	75	81	693	2,547	2,547	
RM MATERIAL & SERVICES	2,113	2,346	70,887	73,443	1,502	1,134	3,575	77,098	77,098	
RX MPS & LAB TAX	0	4	2,386	2,543	3	3	215	2,607	2,607	
Total	3,508	3,625	143,142	146,908	2,650	2,344	5,889	154,025	154,025	

**Attachment 6
LAT Performance, through June 2005, by WBS**

Cost Performance Report - Work Breakdown Structure													
Contractor: Location:					Contract Type/No:			Project Name/No: GLAST LAT Project		Report Period: 5/31/2005 6/30/2005			
Quantity	Negotiated Cost		Est. Cost Authorized Unpriced Work		Tgt. Profit/ Fee %	Tgt. Price	Est Price	Share Ratio	Contract Ceiling	Estimated Contract Ceiling			
1	0		0		0	0	0		0	0			
CAPW[3]	Current Period					Cumulative to Date					At Completion		
	Budgeted Cost		Actual Cost Work	Variance		Budgeted Cost		Actual Cost Work	Variance		Budgeted	Latest Revised Estimate	Variance
	Work Scheduled	Work Performed		Schedule	Cost	Work Scheduled	Work Performed		Schedule	Cost			
Item	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
4.1.1 INSTRUMENT MANAGEMENT	452	452	451	0	1	16,908	16,908	16,610	0	298	17,778	17,778	0
4.1.2 SYSTEM ENGINEERING	163	163	178	0	-14	7,214	7,214	7,255	0	-41	7,647	7,647	0
4.1.4 TRACKER	768	575	527	-193	48	20,926	20,251	19,923	-676	327	21,702	21,702	0
4.1.5 CALORIMETER	226	236	267	10	-31	22,057	22,032	21,466	-25	566	22,594	22,594	0
4.1.6 ANTICOINCIDENCE DETECTOR	216	226	221	11	6	17,761	17,551	17,355	-211	195	17,968	17,968	0
4.1.7 ELECTRONICS	767	488	776	-279	-288	27,861	26,889	26,924	-972	-35	28,894	28,894	0
4.1.8 MECHANICAL SYSTEMS	485	458	577	-27	-119	15,739	15,708	15,820	-31	-112	16,866	16,866	0
4.1.9 INTEGRATION & TEST	416	401	208	-16	193	8,030	7,986	7,715	-43	272	9,451	9,451	0
4.1.A PERFORMANCE AND SAFETY ASSESSMENT	111	111	142	0	-32	3,587	3,587	3,644	0	-57	3,846	3,846	0
4.1.B LAT INSTRUMENT OPERATIONS CONTROL	5	5	-10	0	15	322	322	310	0	13	334	334	0
4.1.C EDUCATION AND PUBLIC OUTREACH	73	73	110	0	-36	2,470	2,470	2,193	0	277	2,684	2,684	0
4.1.D SCIENCE ANALYSIS SOFTWARE	-57	-57	61	0	-118	2,708	2,708	2,603	0	105	2,936	2,936	0
4.1.E SUBORBITAL FLIGHT TEST	0	0	0	0	0	1,325	1,325	1,325	0	0	1,325	1,325	0
Gen. and Admin.	0	0	0	0	0	0	0	0	0	0	0	0	0
Undist. Budget											0	0	0
Sub Total	3,625	3,132	3,508	-494	-376	146,908	144,951	143,142	-1,958	1,808	154,025	154,025	0
Contingency											1,784	1,784	0
Total	3,625	3,132	3,508	-494	-376	146,908	144,951	143,142	-1,958	1,808	155,809	155,809	0

**Attachment 7
LAT Performance, through June 2005, by Organization**

Cost Performance Report - Work Breakdown Structure													
Contractor: Location:				Contract Type/No:				Project Name/No: GLAST LAT Project		Report Period: 5/31/2005 6/30/2005			
Quantity	Negotiated Cost		Est. Cost Authorized Unpriced Work		Tgt. Profit/ Fee %	Tgt. Price	Est Price	Share Ratio	Contract Ceiling	Estimated Contract Ceiling			
1	0		0		0	0	0		0	0			
OBS[1] Item	Current Period					Cumulative to Date					At Completion		
	Budgeted Cost		Actual Cost	Variance		Budgeted Cost		Actual Cost	Variance		Budgeted	Latest Revised Estimate	Variance
	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Work Scheduled	Work Performed	Work Performed	Schedule	Cost			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
DG *** GSFC	254	265	343	11	-78	19,538	19,328	18,937	-211	391	19,856	19,856	0
DH *** HEPL	214	214	129	0	85	7,917	7,917	7,699	0	218	8,674	8,674	0
DL *** SLAC	2,620	2,109	2,550	-511	-441	87,492	85,782	85,588	-1,710	194	92,267	92,267	0
DN *** NRL	454	461	358	7	103	26,798	26,761	26,113	-37	648	27,825	27,825	0
DO *** Financial Plan	0	0	0	0	0	59	59	59	0	0	59	59	0
DS *** SSU	73	73	101	0	-29	2,443	2,443	2,170	0	272	2,654	2,654	0
DT *** Texas A&M	0	0	0	0	0	15	15	15	0	0	15	15	0
DU *** UCSC	1	1	17	0	-16	2,394	2,394	2,352	0	42	2,396	2,396	0
DW *** UW	9	9	9	0	0	252	252	208	0	44	279	279	0
Gen. and Admin.	0	0	0	0	0	0	0	0	0	0	0	0	0
Undist. Budget											0	0	0
Sub Total	3,625	3,132	3,508	-494	-376	146,908	144,951	143,142	-1,958	1,808	154,025	154,025	0
Contingency											1,784	1,784	0
Total	3,625	3,132	3,508	-494	-376	146,908	144,951	143,142	-1,958	1,808	155,809	155,809	0

**Attachment 8
LAT Performance Analysis, June 2005**

	WBS	BAC	BCWS	BCWP	ACWP	SV \$	CV \$	% BCWS	% BCWP	% ACWP	SPI Trend	CPI Trend	SPI	CPI	Cpi_Fcst	CpiSpi_Fcst
1	4.1	154,025	146,908	144,951	143,142	-1,958	1,808	95.38	94.11	92.93	↓	↓	0.987	1.013	152,104	152,225
2	4.1.1	17,778	16,908	16,908	16,610	0	298	95.11	95.11	93.43	↔	↔	1.000	1.018	17,464	17,464
3	4.1.2	7,647	7,214	7,214	7,255	0	-41	94.33	94.33	94.87	↔	↓	1.000	0.994	7,691	7,691
4	4.1.4	21,702	20,926	20,251	19,923	-676	327	96.43	93.31	91.80	↓	↑	0.968	1.016	21,351	21,399
5	4.1.5	22,594	22,057	22,032	21,466	-25	566	97.62	97.51	95.01	↑	↔	0.999	1.026	22,014	22,015
6	4.1.6	17,968	17,761	17,551	17,355	-211	195	98.85	97.68	96.59	↔	↔	0.988	1.011	17,768	17,773
7	4.1.7	28,894	27,861	26,889	26,924	-972	-35	96.43	93.06	93.18	↓	↓	0.965	0.999	28,931	29,004
8	4.1.8	16,866	15,739	15,708	15,820	-31	-112	93.32	93.14	93.80	↓	↓	0.998	0.993	16,986	16,988
9	4.1.9	9,451	8,030	7,986	7,715	-43	272	84.96	84.50	81.62	↓	↑	0.995	1.035	9,130	9,138
10	4.1.A	3,846	3,587	3,587	3,644	0	-57	93.27	93.27	94.75	↔	↓	1.000	0.984	3,907	3,907
11	4.1.B	334	322	322	310	0	13	96.47	96.47	92.70	↔	↑	1.000	1.041	321	321
12	4.1.C	2,684	2,470	2,470	2,193	0	277	92.03	92.03	81.71	↔	↓	1.000	1.126	2,383	2,383
13	4.1.D	2,936	2,708	2,708	2,603	0	105	92.22	92.22	88.63	↔	↓	1.000	1.041	2,822	2,822
14	4.1.E	1,325	1,325	1,325	1,325	0	0	100.00	100.00	99.98	↔	↔	1.000	1.000	1,325	1,325





LEGEND

BAC: Budget At Complete
 BCWS: Budgeted Cost of Work Scheduled (to date)
 BCWP: Budgeted Cost of Work Performed (to date)
 ACWP: Actual Cost of Work Performed (to date)

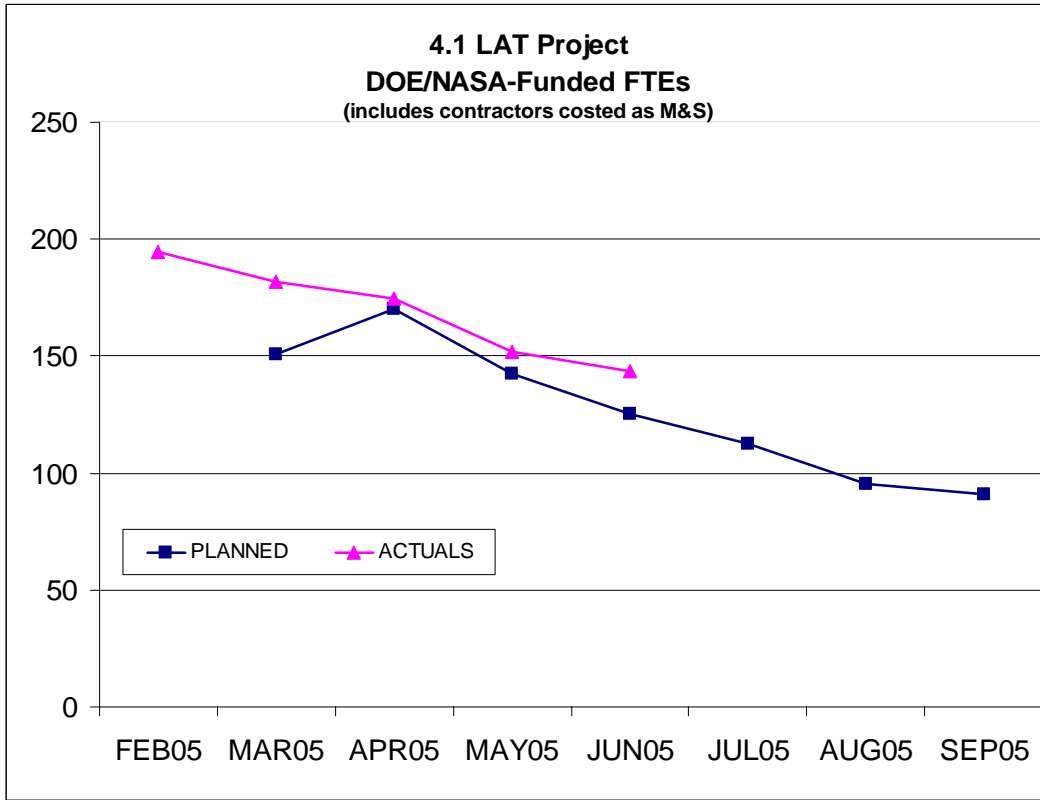
SV \$: Schedule Variance = BCWP - BCWS
 CV \$: Cost Variance = BCWP - ACWP
 SPI: Schedule Performance Index = BCWP/BCWS
 CPI: Cost Performance Index = BCWP/ACWP

% BCWS: Percent Scheduled = BCWS/BAC
 % BCWP: Percent Complete = BCWP/BAC
 % ACWP: Percent Spent = ACWP/BAC

Cpi_Fcst: CPI (to date) EAC Forecast = BAC / CPI
 CpiSpi_Fcst: Combination CPI and SPI EAC Forecast = ACWP + (BAC - BCWP) / (CPI * SPI)

	Worse than .85		Between .95 and 1.10
	Between .85 and .95		Better than 1.10
SPI and CPI Change Thresholds			

Attachment 9 LAT Manpower



FTEs BY SUBSYSTEM		FEB05	MAR05	APR05	MAY05	JUN05	JUL05	AUG05	SEP05
4.1.1 INSTRUMENT MANAGEMENT	PLANNED		19.2	19.2	19.2	18.7	19.4	16.1	16.1
	ACTUALS	19.7	23.4	19.2	18.4	16.8	0.0	0.0	0.0
4.1.2 SYSTEM ENGINEERING	PLANNED		10.2	10.3	10.3	10.3	10.3	9.2	8.2
	ACTUALS	10.5	10.1	9.8	8.8	9.6	0.0	0.0	0.0
4.1.4 TRACKER	PLANNED		16.8	16.6	12.7	10.7	9.9	9.2	9.2
	ACTUALS	17.0	15.4	15.9	13.9	9.1	0.0	0.0	0.0
4.1.5 CALORIMETER	PLANNED		18.7	19.6	13.4	9.9	7.6	8.1	7.4
	ACTUALS	23.8	19.8	21.6	11.5	15.1	0.0	0.0	0.0
4.1.6 ANTICOINCIDENCE DETECTOR	PLANNED		16.4	39.0	26.4	22.1	11.6	3.2	3.6
	ACTUALS	36.2	33.1	29.8	37.1	28.2	0.0	0.0	0.0
4.1.7 ELECTRONICS	PLANNED		28.8	22.1	22.8	18.3	15.4	12.8	11.8
	ACTUALS	36.7	35.2	32.5	27.8	24.5	0.0	0.0	0.0
4.1.8 MECHANICAL SYSTEMS	PLANNED		6.0	6.4	1.7	4.1	7.2	5.9	4.3
	ACTUALS	3.7	3.2	3.9	3.6	4.2	0.0	0.0	0.0
4.1.9 INTEGRATION & TEST	PLANNED		15.3	17.2	16.2	16.3	16.4	16.5	15.9
	ACTUALS	20.5	23.0	19.1	13.9	12.4	0.0	0.0	0.0
4.1.A PERFORMANCE AND SAFETY ASSURANCE	PLANNED		12.5	12.3	9.9	5.9	4.9	4.9	4.9
	ACTUALS	12.6	12.4	12.1	11.5	11.3	0.0	0.0	0.0
4.1.B LAT INSTRUMENT SCIENCE OPERATIONS CENTER	PLANNED		0.2	0.2	0.2	0.2	0.2	0.2	0.1
	ACTUALS	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
4.1.C EDUCATION AND PUBLIC OUTREACH	PLANNED		1.5	2.0	4.3	4.1	4.5	3.9	4.3
	ACTUALS	10.1	3.3	7.1	2.3	7.9	0.0	0.0	0.0
4.1.D SCIENCE ANALYSIS SOFTWARE	PLANNED		5.3	5.3	5.1	4.9	5.3	5.2	5.2
	ACTUALS	3.8	2.6	3.7	3.1	4.4	0.0	0.0	0.0
Grand Totals:	PLANNED		150.8	170.3	142.3	125.5	112.7	95.2	91.0
	ACTUALS	194.5	181.6	174.8	152.0	143.6			