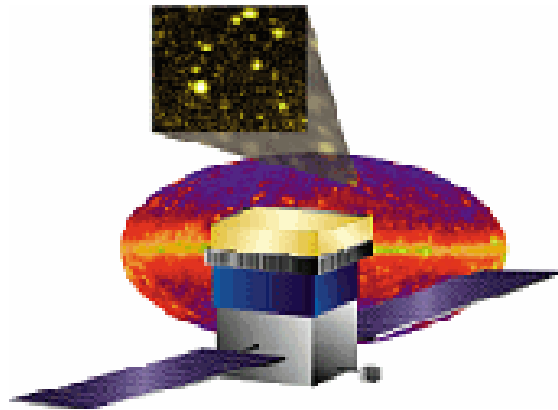


Monthly Progress Report

(Month Ending August 2003)

GLAST Large Area Telescope (LAT)



LAT-MR-02484-01

October 2, 2003

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 August, 2003.

2.0 Recent Progress and Status

The baseline change proposal was presented to the DOE's Energy Systems Acquisition Advisory Board. Critical Decision 3 was approved September 3, 2003.

4.1.4 Tracker

All flight ASICs have been received, wafer testing is completed (minus readout controller spares), and wafer lapping is in progress. Production changes and tooling modifications to the multichip module (MCM) front-end electronics are being tested. The MCM production contract is being negotiated. Fifty preproduction MCM printed wiring boards were found to be defective and rejected. Issues with passage of the flex-circuit cables through the grid were resolved, and the layout is almost final. Software was tested for analog performance testing of the MCMs. Progress was made on the MCM burn-in station. Cosmic-ray tests with the mini-tower were completed in Pisa; a pre-ship review was conducted; the mini-tower was shipped to SLAC and is being tested. Problems causing the failure of the engineering model sidewall fabrication were reviewed and appear to be understood. A test panel will be fabricated and coupon tests will be performed, incorporating all lessons learned. A static test plan was developed, using the existing bottom tray and static test fixture.

4.1.5 Calorimeter

The Calorimeter engineering model (EM) was delivered to SLAC. Post-ship functional testing showed no change in performance, and the model was successfully inserted into the 1x4 grid. Over 300 CsI crystals have been fully tested and shipped to NRL; some minor quality issues are being addressed. Samples from eight boules have passed the radiation hardness test, and will enter the flight production line in September. Prototype photodiode assembly tooling has been manufactured and tested, and a vendor for manufacture has been selected. Twenty-five crystal detector elements (CDEs) have been bonded for training and tooling tests; optical tests have been completed on four CDEs and bond shear strength tests have been completed on two CDEs. Twelve copies of flight CDE bonding tooling have been manufactured. The remaining 38 copies of flight CDE manufacturing tooling has been submitted for fabrication. The first model carbon composite structure has been manufactured, using flight-like tooling and autoclave. Radiation test boards for the analog front end electronics (AFEE) have been completed. The ASIC burn-in procedure and board design were completed. ASIC verification plans are being reviewed. Revisions to the engineering model AFEE schematic have been completed, and a prototype board is expected in September.

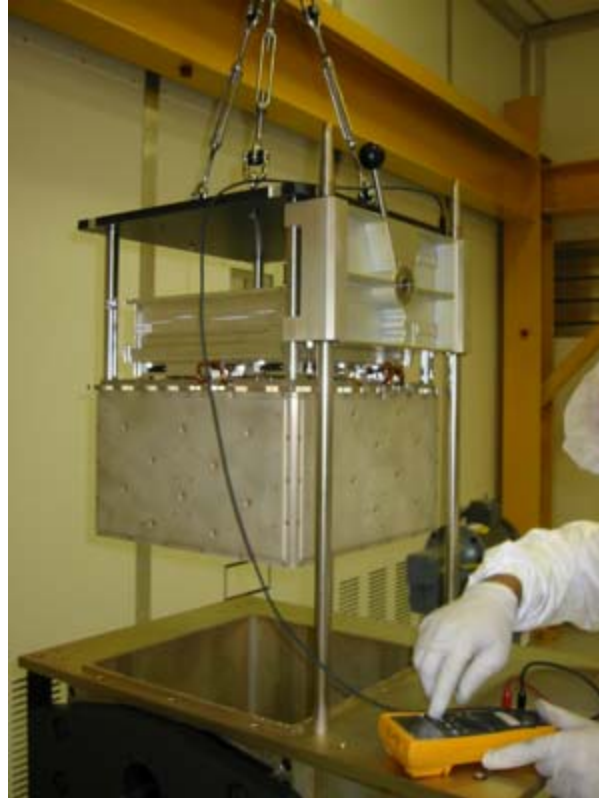


Figure 1: Trial insertion of Calorimeter Engineering Model into one-bay grid.

4.1.6 Anticoincidence Detector

Version 5 of the analog front end ASIC was tested and meets requirements when operated at 3.6 Volts. A new front end electronics card layout is complete and being fabricated. The high voltage bias supply underwent vibration testing with no problems discovered; the thermal vacuum test is in progress. The new phototube assembly design is light-light; the corona test is in progress. Contracts were awarded for the photomultiplier tube housing and resistor network cover manufacture. The first batch of resistor networks were populated using flight processes. Issues discovered during the base electronics assembly fit check were resolved, and parts have been submitted for fabrication. The new base frame channel design is complete and fabrication is underway. One full-size flight composite shell panel has been completed, and a manufacturing readiness review conducted. The tile detector assembly (TDA) waveshifting fiber and clear fiber connectors have been fabricated. Fabrication and assembly of the clear fiber cables has commenced. Tooling and fabrication procedures for the TDA tiedowns have been completed.

4.1.7 Electronics

The power distribution unit continues to be tested. The high-voltage section on the power conversion board of the Tower Engineering Model (TEM) power supply has been fabricated. The flight-model TEM with ASICs has been tested for functionality. The crate cPCI backplane is in fabrication. The test bed mechanical platform has been fabricated. A

"proof of principle" test was conducted for a command/telemetry database editor. The test stand for initial power distribution units was constructed. A kernel/board support package was powered up and loaded into the first RAD750 CPU board.

4.1.8 Mechanical Systems

The 1x4 grid was received, and is being tested. The order has been placed for the flight grid and grid box assembly machining. The Calorimeter-grid interface conceptual design has been completed. The cross-LAT thermal interface conceptual design has also been completed, and the cross-LAT thermal interface engineering model testing has commenced.



Figure 2: 1x4 grid test setup.

4.1.9 Integration & Test

Work progressed on the LAT Integration Facility (humidity control, air conditioning, power distribution, internet connections, meeting room, tools, etc.). The 1x1 grid bay was finalized to the most recent specifications. EGSE (electrical ground support equipment) online workstation software Version 1.7 was released; it includes single event display and reporting. The Calorimeter EM and Tracker mini-tower were received. The Calorimeter EM script migration is underway.

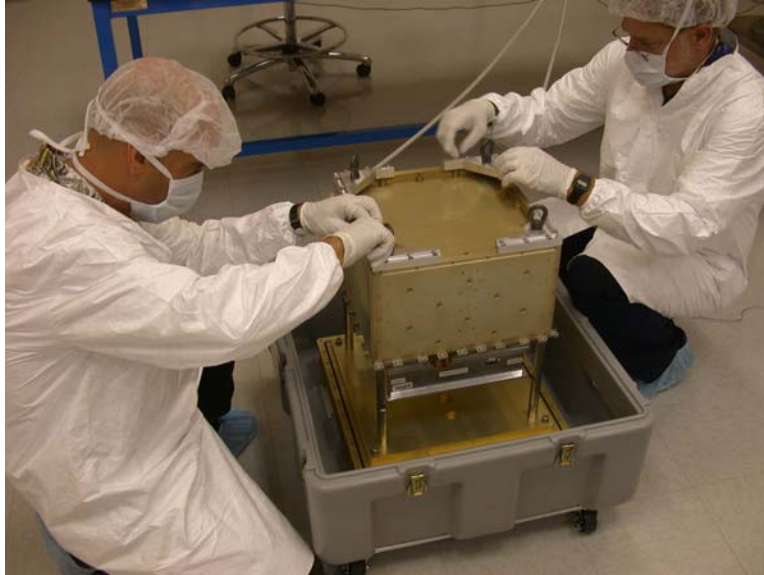


Figure 3: Installing lift brackets to lift Calorimeter out of shipping container.

3.0 Schedule Status

The status of significant milestones identified in the Project Management Plan (LAT-MD-00054-08) for the LAT project is summarized in Attachments 1 and 2. Attachment 1 presents the status of the Level 1 and Level 2 milestones. Attachment 2 shows the status of the Level 3 milestones planned to occur during the six months preceding and following the current month. Unfavorable variance projections greater than one week to the future milestones are discussed below.

CD-3 Approval (1M1P000030)

Baseline/Target Finish: 07/15/03 Projected Finish: 09/03/03 Variance: -50 days
CD-3 was approved on September 3, 2003.

Engineering Model (1x4) Grid (1M1001380)

Baseline/Target Finish: 12/02/02 Projected Finish: 10/01/03 Variance: -205 days
Lack of sufficient manpower, vendor machine failure, and design maturity of the Calorimeter-grid interface definition have impacted the delivery of this milestone. An existing 1x1 grid bay mockup will be used to develop test procedures and electrical ground support equipment (EGSE). The 1x4 grid has been received at SLAC, and is being tested prior to delivery to I&T. (As of publication of this report, it is awaiting the Tracker vibe drill fixture, which will be modified to drill the 1x4 grid; the 1x4 grid's delivery is further delayed, until mid-November.)

Tracker Engineering Model (1M1001430)

Baseline/Target Finish: 12/09/02 Projected Finish: 11/14/03 Variance: -232 days
The delivery of the full Tracker EM has been delayed by the redesign of the bottom tray. In the meantime, the upgraded EM minitower has been delivered to I&T, and will be

used with the aforementioned 1x1 grid bay mockup to develop test procedures and EGSE. The delay of the full tower can be accommodated in the I&T schedule with no further impact.

GEM H/W Driver, Final Version, Elex to I&T/Online (1M1001390)

Baseline/Target Finish: 01/07/03 Projected Finish: 09/02/03 Variance: -165 days
Resources have been diverted from the completion of this milestone to other tasks with higher priority. The need for additional hardware testing is also a factor in the delay. This delay can be accommodated in the Integration & Test schedule with no further impact.

EGSE EM2 Release, Electronics to I&T (1M7941150)

Baseline/Target Finish: 06/12/03 Projected Finish: 09/15/03 Variance: -65 days
Resources have been diverted from the completion of this milestone to other tasks with higher priority, most notably the power supply design. This delay can be accommodated in the Integration & Test schedule with no further impact.

MCMs for EM2 from Tracker to Electronics (1M1000910)

Baseline/Target Finish: 07/18/03 Projected Finish: 09/15/03 Variance: -40 days
The multichip module (MCM) procurement has been delayed by subcontract negotiations and availability of parts. The Electronics subsystem will accommodate this delay by manufacturing 36 MCMs without pitch adaptors.

EM2 Tower Engineering Model from Electronics to Calorimeter (1M75000000)

Baseline/Target Finish: 08/25/03 Projected Finish: 11/17/03 Variance: -59 days
This item is needed for the calibration unit; which will be rescheduled in accordance with the approved change in the beam test schedule.

Calibration Unit Spacecraft Simulator from Electronics to I&T (1M19500400)

Baseline/Target Finish: 08/29/03 Projected Finish: 02/02/04 Variance: -100 days
This item is needed for the calibration unit; which will be rescheduled in accordance with the approved change in the beam test schedule.

Calorimeter Engineering Model Returned to NRL (1M1001520)

Baseline/Target Finish: 09/08/03 Projected Finish: 10/15/03 Variance: -27 days
The return of the Calorimeter EM to NRL has been delayed by the delivery of the Calorimeter EM to I&T.

EM2 Tower EM Qual Towers A,B from Electronics to Tracker (1M1000920)

Baseline/Target Finish: 10/16/03 Projected Finish: 11/17/03 Variance: -22 days
Given the delay in Tracker modules A&B (see below), resources have been diverted from this task to address other priorities. This is not a schedule driver for the Tracker tower deliveries at this time.

EGSE Calibration Unit Release – Electronics to I&T (1M7941160)

Baseline/Target Finish: 01/14/04 Projected Finish: 04/12/04 Variance: -61 days

This item is needed for the calibration unit; which will be rescheduled in accordance with the approved change in the beam test schedule.

Tracker Modules A& B Ready for Integration (1M1000200)

Baseline/Target Finish: 02/17/04 Projected Finish: 05/28/04 Variance: -73 days

The delay is primarily due to a delay in MCM procurement contract negotiations and availability of parts (see above). There have also been issues in the bottom tray design and tower sidewall fabrication that are to be resolved in October.

Calorimeter Modules A& B Ready for Integration (1M1000210)

Baseline/Target Finish: 02/17/04 Projected Finish: 06/21/04 Variance: -88 days

Withdrawal of French support for CDE manufacturing has delayed Calorimeter deliveries to LAT Integration & Test. The pending replan of the LAT project will take this under consideration.

Flight Spacecraft Simulator from Electronics to I&T (1M19500540)

Baseline/Target Finish: 002/27/04 Projected Finish: 07/22/04 Variance: -102 days

At the time the baseline date was determined, the spacecraft vendor had not been selected. The agreed delivery to the spacecraft vendor is spring 2004; the forecast schedule will be updated to reflect this next reporting period.

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. The hours worked/FTE lines include only DOE/NASA-funded labor

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.

4.1.5 Calorimeter

The schedule variance is largely due to a delay in the flight analog front-end electronics boards; the ASICs are not expected to be received until October or November, so this variance will persist until the project plan is reprogrammed.

4.1.6 Anticoincidence Detector

The flight shell and tile detector assembly tiedown procurements were not received on schedule (not considered critical path). Manpower was diverted from the MGSE design work to support the tile shell assembly design. A recovery plan is underway which preserves the MGSE design work, but it is expected that MGSE hardware procurements will be deferred until next fiscal year.

The unfavorable cost variance is due to higher labor costs than planned for the tile shell assembly and base electronics assembly (BEA) work. Contract labor support is being reduced in favor of NASA/Goddard civil servant labor, where appropriate. The GLAST mission has provided funding to appropriate ACD items, contributing to the favorable cost variance in the current period.

4.1.7 Electronics

The unfavorable cost variance is due to an advance payment required by British Aerospace for the flight processors. This advance payment was not in the baseline schedule, rather, payment was planned to occur when the items were received.

4.1.8 Mechanical Systems

The unfavorable schedule variance is due to filling key engineering and design positions slower than planned. These positions have been filled, however, additional personnel may be required to recover schedule. There has also been a delay in placement of the Lockheed Martin Phase II subcontract (now placed). This variance is expected to decrease after the radiator Manufacturing Readiness Review in November.

4.1.A Performance & Safety Assurance

The favorable cost variance is due to the delay in the hire of a part-time parts engineer at NRL (now on board), specific mission-assurance-related activities being covered by other LAT subsystems, less travel taken than planned, and invoicing delays.

4.1.B Instrument Operations Center

The schedule variance results from a delay in hiring additional planned resources. Recruitment for a regular subsystem manager (non-acting) is underway at SLAC, which is the first step towards increasing the staffing. The pending replan of the LAT project includes incorporating much of the IOC cost into the SLAC operating budget; this will alleviate the positive cost variance.

4.1.D Science Analysis Software

Hiring delays at Stanford/HEPL and GSFC have resulted in a favorable cost variance. These hires have now been completed.

6.0 Change Control and Contingency Analysis

No change requests were approved by the LAT Configuration Control Board during this period. The fabrication phase cost baseline remains at \$107.7M. In anticipation of the pending replan of the project, funding has been increased to \$133.2M; the resulting contingency is \$25.5M.

7.0 Staffing

Attachments 9-10 demonstrate the staffing plan, and reports of actual manpower received. Note from Attachment 10 that not all participating organizations are providing manpower data.

Attachment 2 Level 3 Milestones (One-Year View) Page 1 of 2

Activity ID	Activity Description	Target Finish Date	Variance	Scheduled Finish Date	AV	ND	FY03				FY04					
							Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Instrument Project Office (Level 3)																
1M1001380	Delivery of EM (1X4) Grids & TMS GE	12/02/02*	-205	10/01/03*	8	9										
1M1001430	Delv of TKRE Mb S LACI & TMS E	12/09/02*	-232	11/14/03*	4	9										
1M1001390	GEM/hw div er. final ver ELX tol & T/Online	01/07/03	-165	09/02/03	7	9										
1M7941350	High Voltage Power Supply (Bd & Pnts) A CD to Elec	02/03/03*	-66	05/07/03A	6	7										
1M7941380	EGSE Workstation / Software # (I & T to A CD)	03/03/03*	216	04/15/02A	9	6										
1M7941320	(2) ACD Electronics Modules - EM2 (Elec to ACD)	04/24/03	59	01/30/03A	7	6										
1M1001490	SIS description ELX to I&T	04/30/03*	23	03/28/03A	7	9										
1M1001500	Online EM2 release # 1 to FS W	04/30/03	-32	06/16/03A	9	7										
1M19500500	CUIPS - ELX tol & T/Online	04/30/03*	11	04/15/03A	7	9										
1M7941340	(11) FR EEBds & AS ICS (1) Full Tested Bd-E M2	05/07/03*	-8	05/19/03A	6	7										
1M7941150	EGSE EM2 Release - Elec to I&T	06/12/03*	-65	09/15/03*	7	9										
1M1001570	CUMonte Carlo sim from SA S b I & T/SVA C	06/13/03*	156	10/22/02A	D	9										
1M1001550	Online EM2 release # 2 to ELX	06/26/03	0	06/28/03A	9	7										
1M59000000	EM from CAL to I&T	07/07/03*	-23	08/07/03A	5	9										
1M1000910	(36) MC Msfor EM2 from Traker to Elec	07/18/03	-40	09/15/03	4	7										
1M75000000	(6) EM2 TEM from Elec to CAL	08/25/03	-59	11/17/03	7	5										
1M19500400	CUS/ C Simulator - ELX to I&T/Online	08/29/03*	-100	02/02/04*	7	9										
1M1001520	EMCAL Return to NRL (arrives on dock)	09/08/03*	-27	10/15/03	9	5										
1M1000920	EM2 TEM for Qual To Wes A. B from Elec to Tracker	10/16/03*	-22	11/17/03*	7	4										
1M7941160	EGSE Calibration Unit Release Elec to I&T	01/14/04	-61	04/12/04	7	9										
1M005480	IOCC DR	02/17/04*	0	02/17/04*	B	B										
1M1000200	Tracker Modules A & B RFI (for Calibration)	02/17/04*	-73	05/28/04*	4	9										
1M1000210	Calibrator Modules A & B RFI (for Calibration)	02/17/04*	-88	06/21/04*	5	9										
1M1000990	ACD Calibration Test Unit at SLAC, Tested & RFI	02/17/04*	0	02/17/04*	6	9										
1M7941120	EM2 TEM As sv AB - Elec to I&T	02/17/04*	0	02/17/04*	7	9										

Run Date 09/29/03 23:05

GLAST/LAT PROJECT
Project Milestones (Level 3)
1 Year View (+/- 6m)

0916
LTX1 - MS (L3)
FLX1 - MS (L3)

Sheet 1 of 2

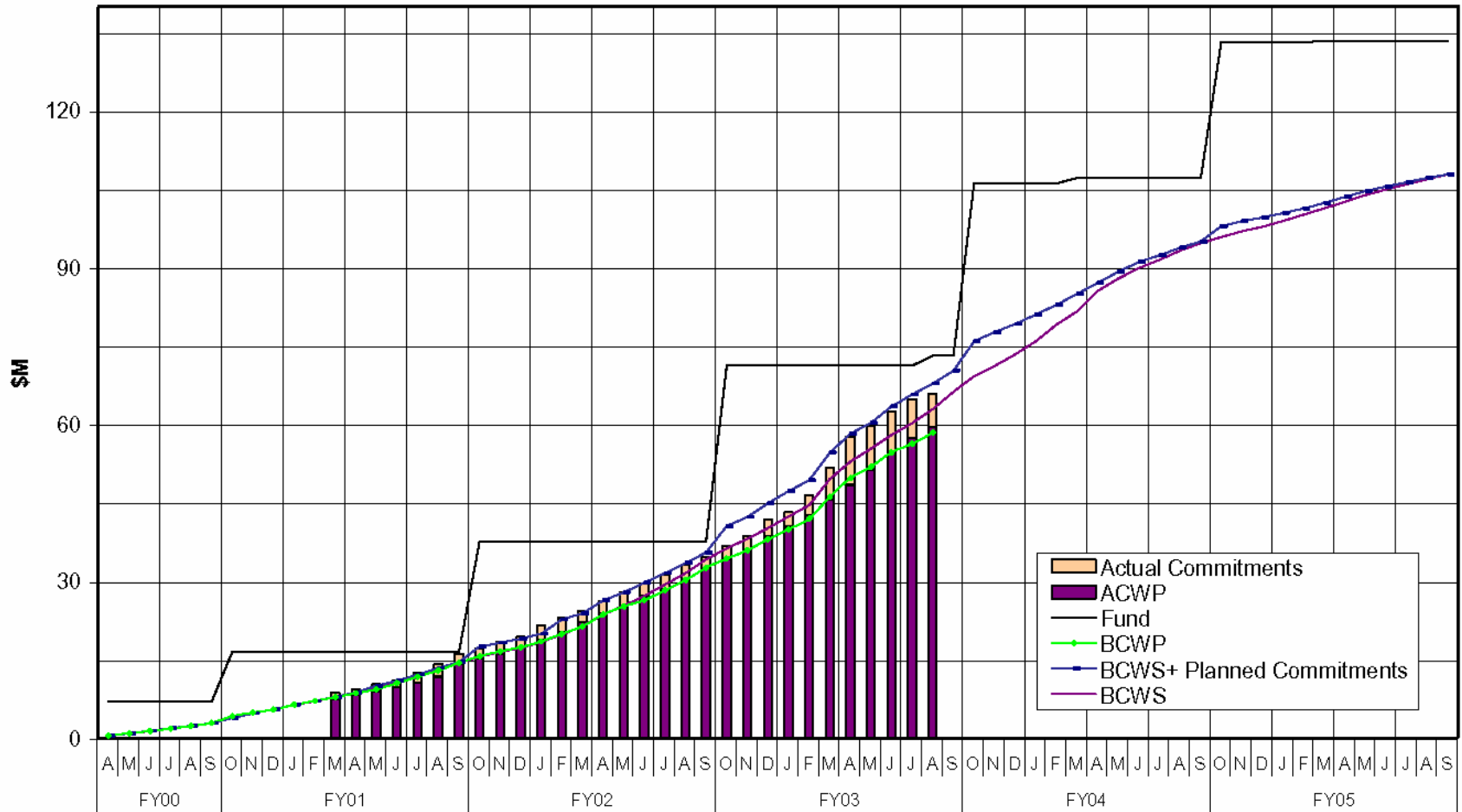
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Attachment 2
Level 3 Milestones (One-Year View)
Page 2 of 2

Activity ID	Activity Description	Target Finish Date	Variance	Scheduled Finish Date	AV	ND	FY03				FY04											
							Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4							
Instrument Project Office (Level 3)																						
1M7941130	EM TEMPS Assy A,BEI ectol& T	02/17/04*	0	02/17/04*	7	9																
1M19500540	Fit SC Simulator-E LX bl& T	02/27/04*	-102	07/22/04*	7	9																
Run Date							09/29/03 23:05				GLASTLATPROJECT Project Milestones (Level 3) 1 Year View (+/- 6mo)				0916 LTX1 - MS (L3) FLX1 - MS (L3)				Sheet 2 of 2			
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Attachment 3

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



**Attachment 4
LAT Costs, through August 2003, by WBS**

Monthly Contractor Financial Management Report								Report for Month Ending: 8/31/2003		
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		Type:					Fund Limitation:			
GLAST LAT Project							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	SEP03	OCT03		Project Estimate	Budget Value	
4.1.1 INSTRUMENT MANAGEMENT	301	341	8,954	8,895	342	328	5,733	15,357	15,357	
4.1.2 SYSTEM ENGINEERING	90	166	3,645	3,939	315	162	2,330	6,453	6,453	
4.1.4 TRACKER	216	197	8,917	9,178	223	240	1,343	10,722	10,722	
4.1.5 CALORIMETER	416	345	9,643	10,623	505	731	6,951	17,830	17,830	
4.1.6 ANTICOINCIDENCE DETECTOR	43	400	8,621	8,896	677	449	2,278	12,025	12,025	
4.1.7 ELECTRONICS	385	379	7,245	6,630	213	204	9,010	16,672	16,672	
4.1.8 MECHANICAL SYSTEMS	428	355	5,452	6,462	395	317	4,209	10,373	10,373	
4.1.9 INTEGRATION & TEST	169	278	2,236	2,459	210	229	3,913	6,588	6,588	
4.1.A PERFORMANCE AND SAFETY ASSURANCE	-12	55	788	1,004	55	50	715	1,607	1,607	
4.1.B LAT INSTRUMENT OPERATIONS CENTER	0	31	263	703	63	38	2,148	2,512	2,512	
4.1.C EDUCATION AND PUBLIC OUTREACH	66	45	952	1,064	110	81	1,540	2,684	2,684	
4.1.D SCIENCE ANALYSIS SOFTWARE	65	70	1,389	1,646	106	69	2,032	3,595	3,595	
4.1.E SUBORBITAL FLIGHT TEST	0	0	1,325	1,321	0	0	-4	1,321	1,321	
Gen. and Admin.	0	0	0	0	0	0	0	0	0	
Total	2,165	2,663	59,429	62,818	3,214	2,898	42,196	107,737	107,737	

Attachment 5
LAT Costs, through August 2003, by Organization and Cost Code

Monthly Contractor Financial Management Report								Report for Month Ending: 8/31/2003	
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 Contract	Estimated Final Cost	Unfilled Orders Outstanding
	Actual	Planned	Actual	Planned	SEP03	OCT03		Project Estimate	
DG *** GSFC	59	428	9,614	10,295	705	500	3,754	14,573	14,573
DH *** HEPL	98	200	3,777	4,564	344	173	4,903	9,197	9,197
DL *** SLAC	1,370	1,464	31,331	31,011	1,340	1,219	20,172	54,061	54,061
DN *** NRL	515	480	11,898	13,956	670	876	10,856	24,300	24,300
DO *** Financial Plan Transfer/Sub Out	6	0	38	32	0	0	-6	32	32
DS *** SSU	61	45	947	1,059	108	77	1,476	2,609	2,609
DT *** Texas A&M	0	0	15	16	0	0	0	16	16
DU *** UCSC	57	37	1,759	1,818	37	42	829	2,666	2,666
DW *** UW	0	8	49	67	8	9	217	283	283
Total	2,165	2,663	59,429	62,818	3,214	2,898	42,196	107,737	107,737

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	Project Estimate	Budget Value	
	Actual	Planned	Actual	Planned	SEP03	OCT03		Project Estimate	Budget Value	
RL LABOR	848	1,179	32,995	33,739	1,221	1,099	23,188	58,503	58,503	
<i>FTE (DOE/NASA)</i>	<i>122.7</i>	<i>100.1</i>	<i>2,924.3</i>	<i>2,947.7</i>	<i>109.0</i>	<i>88.0</i>	<i>1,923.9</i>	<i>5,045.2</i>	<i>5,045.2</i>	
<i>HOURS (DOE/NASA)</i>	<i>20,606</i>	<i>16,825</i>	<i>491,174</i>	<i>487,053</i>	<i>18,242</i>	<i>16,234</i>	<i>307,177</i>	<i>832,828</i>	<i>832,828</i>	
RT TRAVEL	98	67	889	1,578	76	83	2,258	3,306	3,306	
RM MATERIAL & SERVICES	1,215	1,311	23,593	25,245	1,811	1,699	15,033	42,137	42,137	
RX MPS & LAB TAX	5	105	1,951	2,256	105	16	1,719	3,791	3,791	
Total (not incl FTE/Hours)	2,165	2,663	59,429	62,818	3,214	2,898	42,196	107,737	107,737	

**Attachment 6
LAT Performance, through August 2003, by WBS**

Cost Performance Report - Work Breakdown Structure													
Contractor: Location:						Contract Type/No:			Project Name/No: GLAST LAT Project		Report Period: 7/31/2003 8/31/2003		
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	
Item	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)
4.1.1 INSTRUMENT MANAGEMENT	341	341	301	0	40	8,895	8,895	8,954	0	-60	15,357	15,357	0
4.1.2 SYSTEM ENGINEERING	166	166	90	0	76	3,939	3,939	3,645	0	293	6,453	6,453	0
4.1.4 TRACKER	197	122	216	-74	-94	9,178	8,570	8,917	-608	-347	10,722	10,722	0
4.1.5 CALORIMETER	345	217	416	-127	-198	10,623	9,384	9,643	-1,239	-259	17,830	17,830	0
4.1.6 ANTICOINCIDENCE DETECTOR	400	258	43	-142	215	8,896	7,476	8,621	-1,420	-1,145	12,025	12,025	0
4.1.7 ELECTRONICS	379	332	385	-47	-53	6,630	6,647	7,245	17	-598	16,672	16,672	0
4.1.8 MECHANICAL SYSTEMS	355	338	428	-17	-90	6,462	5,638	5,452	-823	186	10,373	10,373	0
4.1.9 INTEGRATION & TEST	278	172	169	-106	2	2,459	2,277	2,236	-182	41	6,588	6,588	0
4.1.A PERFORMANCE AND SAFETY ASSURA	55	55	-12	0	68	1,004	1,004	788	0	216	1,607	1,607	0
4.1.B LAT INSTRUMENT OPERATIONS CENTE	31	11	0	-20	11	703	587	263	-116	324	2,512	2,512	0
4.1.C EDUCATION AND PUBLIC OUTREACH	45	29	66	-16	-37	1,064	999	952	-65	46	2,684	2,684	0
4.1.D SCIENCE ANALYSIS SOFTWARE	70	78	65	8	13	1,646	1,613	1,389	-34	224	3,595	3,595	0
4.1.E SUBORBITAL FLIGHT TEST	0	0	0	0	0	1,321	1,321	1,325	0	-4	1,321	1,321	0
Gen. and Admin.	0	0	0	0	0	0	0	0	0	0	0	0	0
Undist. Budget											0	0	0
Sub Total	2,663	2,120	2,165	-543	-46	62,818	58,348	59,429	-4,469	-1,081	107,737	107,737	0
Contingency											13,783	13,783	
Total	2,663	2,120	2,165	-543	-46	62,818	58,348	59,429	-4,469	-1,081	121,520	121,520	

Attachment 7
LAT Performance, through August 2003, by Organization

Cost Performance Report - Organization													
Contractor: Location:				Contract Type/No:				Project Name/No: GLAST LAT Project		Report Period: 7/31/2003 8/31/2003			
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	0			
OBS Item	Current Period					Cumulative to Date					At Completion		
	Budgeted Cost		Actual Cost Work Performed	Variance		Budgeted Cost		Actual Cost Work Performed	Variance		Budgeted	Latest Revised Estimate	Variance
	Work Scheduled	Work Performed		Schedule	Cost	Work Scheduled	Work Performed		Schedule	Cost			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
DG *** GSFC	428	286	59	-142	227	10,295	8,874	9,614	-1,420	-739	14,573	14,573	0
DH *** HEPL	200	168	98	-33	70	4,564	4,382	3,777	-182	605	9,197	9,197	0
DL *** SLAC	1,464	1,120	1,370	-345	-250	31,011	29,357	31,331	-1,654	-1,974	54,061	54,061	0
DN *** NRL	480	471	515	-10	-44	13,956	12,827	11,898	-1,129	929	24,300	24,300	0
DO *** Financial Plan	0	0	6	0	-6	32	32	38	0	-6	32	32	0
DS *** SSU	45	29	61	-16	-32	1,059	996	947	-63	49	2,609	2,609	0
DT *** Texas A&M	0	0	0	0	0	16	16	15	0	0	16	16	0
DU *** UCSC	37	38	57	2	-19	1,818	1,797	1,759	-21	38	2,666	2,666	0
DW *** UW	8	8	0	0	8	67	67	49	0	18	283	283	0
Gen. and Admin.	0	0	0	0	0	0	0	0	0	0	0	0	0
Undist. Budget											0	0	0
Sub Total	2,663	2,120	2,165	-543	-46	62,818	58,348	59,429	-4,469	-1,081	107,737	107,737	0
Contingency											13,783	13,783	
Total	2,663	2,120	2,165	-543	-46	62,818	58,348	59,429	-4,469	-1,081	121,520	121,520	

Attachment 8 LAT Performance Analysis, August 2003

	WBS	BAC	BCWS	BCWP	ACWP	SV \$	CV \$	% BCWS	% BCWP	% ACWP	SPI Trend	CPI Trend	SPI	CPI	Cpi_Fcst	CpiSpi_Fcst
1	4.1	107,737	62,818	58,348	59,429	-4,469	-1,081	58.31	54.16	55.16	↔	↔	0.929	0.982	109,733	113,586
2	4.1.1	15,357	8,895	8,895	8,954	0	-60	57.92	57.92	58.31	↔	↑	1.000	0.993	15,459	15,459
3	4.1.2	6,453	3,939	3,939	3,645	0	293	61.04	61.04	56.49	↔	↑	1.000	1.080	5,972	5,972
4	4.1.4	10,722	9,178	8,570	8,917	-608	-347	85.59	79.93	83.16	↓	↓	0.934	0.961	11,156	11,315
5	4.1.5	17,830	10,623	9,384	9,643	-1,239	-259	59.58	52.63	54.08	↔	↓	0.883	0.973	18,322	19,468
6	4.1.6	12,025	8,896	7,476	8,621	-1,420	-1,145	73.98	62.17	71.69	↔	↑	0.840	0.867	13,867	14,863
7	4.1.7	16,672	6,630	6,647	7,245	17	-598	39.77	39.87	43.46	↓	↔	1.003	0.918	18,170	18,143
8	4.1.8	10,373	6,462	5,638	5,452	-823	186	62.29	54.36	52.56	↔	↓	0.873	1.034	10,030	10,698
9	4.1.9	6,588	2,459	2,277	2,236	-182	41	37.33	34.57	33.94	↓	↔	0.926	1.018	6,469	6,807
10	4.1.A	1,607	1,004	1,004	788	0	216	62.46	62.46	48.99	↔	↑	1.000	1.275	1,261	1,261
11	4.1.B	2,512	703	587	263	-116	324	27.97	23.37	10.48	↓	↔	0.836	2.229	1,127	1,297
12	4.1.C	2,684	1,064	999	952	-65	46	39.63	37.21	35.48	↓	↓	0.939	1.049	2,559	2,663
13	4.1.D	3,595	1,646	1,613	1,389	-34	224	45.78	44.85	38.62	↑	↔	0.980	1.161	3,096	3,132
14	4.1.E	1,321	1,321	1,321	1,325	0	-4	100.00	100.00	100.29	↔	↔	1.000	0.997	1,325	1,325

LEGEND

BAC: Budget At Complete, SV \$: Schedule Variance = BCWP - BCWS, % BCWS: Percent Scheduled = BCWS/BAC

BCWS: Budgeted Cost of Work Scheduled (to date), CV \$: Cost Variance = BCWP - ACWP, % BCWP: Percent Complete = BCWP/BAC

BCWP: Budgeted Cost of Work Performed (to date), SPI: Schedule Performance Index = BCWP/BCWS, % ACWP: Percent Spent = ACWP/BAC

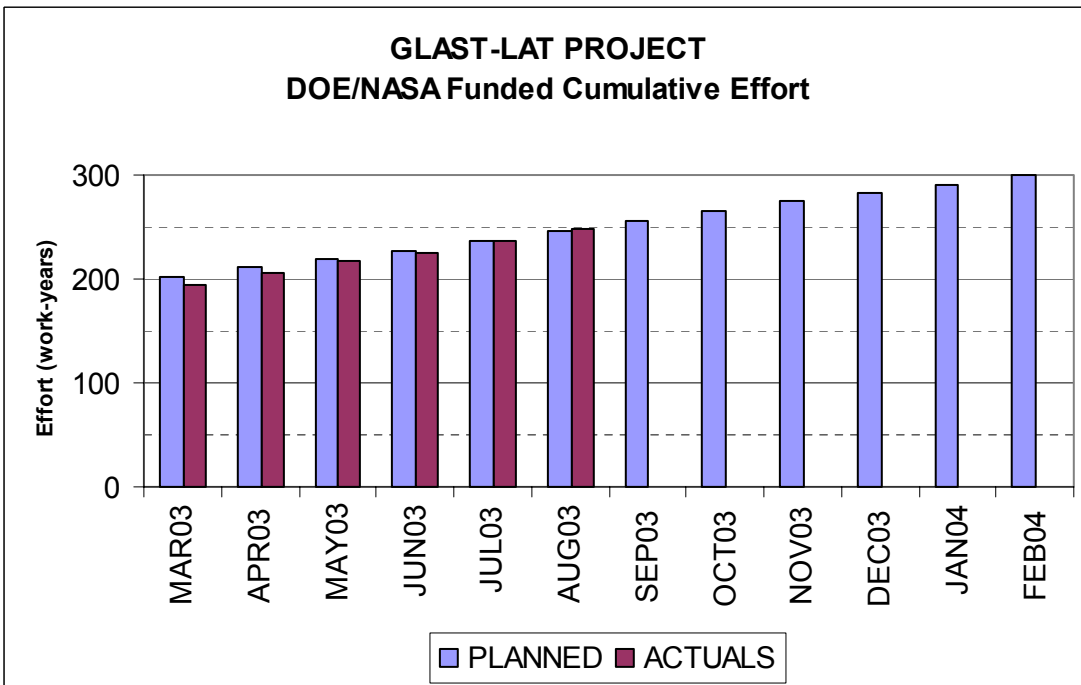
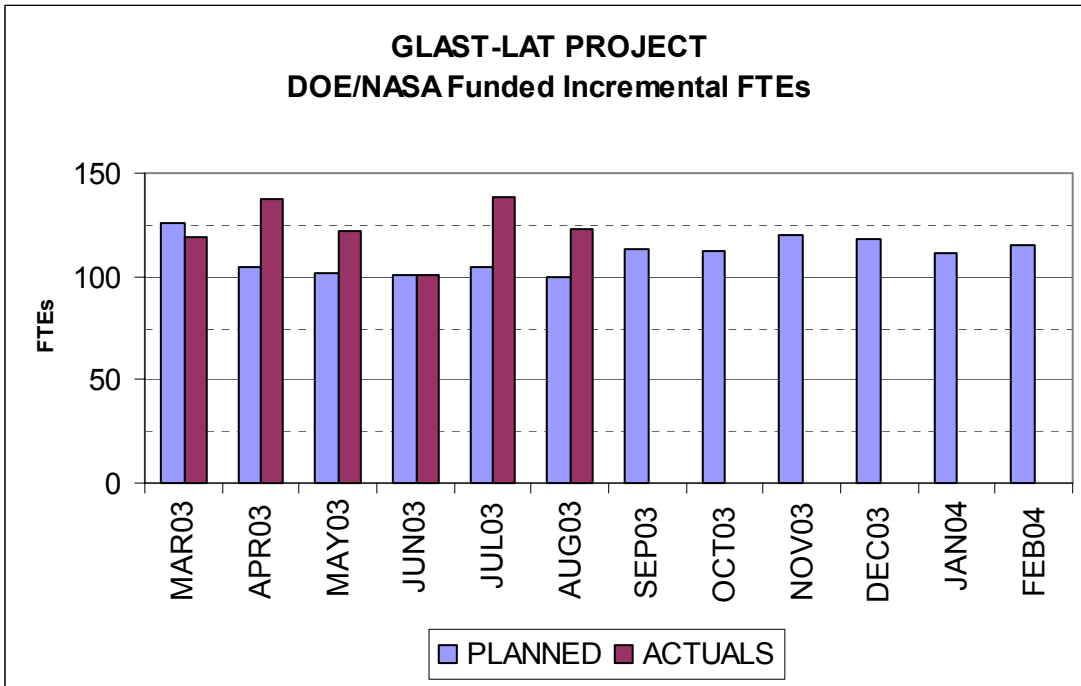
ACWP: Actual Cost of Work Performed (to date), CPI: Cost Performance Index = BCWP/ACWP

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 (DOE/NASA-Funded)**



Attachment 10
LAT Manpower Data, through August 2003, by Organization

Program: LAT3		Description: GLAST LAT Project		Approval: Program Manager Functional Manager Cost Account Manager												
Run Date: 9/30/2003		Status Date: 8/31/2003														
			PRIOR	MAR03	APR03	MAY03	JUN03	JUL03	AUG03	Cum-to- Date	SEP03	OCT03	NOV03	DEC03	JAN04	FEB04
OBS																
DG *** GSFC																
	FTE	PLANNED	515.1	38.8	25.4	22.7	22.4	17.6	18.6	660.6	22.0	22.2	19.8	20.8	22.7	22.3
		ACTUALS	466.3	29.8	42.5	29.0	11.8	52.6	39.3	671.3	0.0	0.0	0.0	0.0	0.0	0.0
DH *** HEPL																
	FTE	PLANNED	245.5	6.7	7.5	7.7	6.4	7.2	6.6	287.5	8.8	7.2	5.9	7.7	7.7	10.8
		ACTUALS	200.0	3.9	2.9	3.6	3.3	5.1	4.5	223.3	0.0	0.0	0.0	0.0	0.0	0.0
DL *** SLAC																
	FTE	PLANNED	1075.3	79.9	63.2	61.3	56.1	60.9	62.4	1459.0	64.7	62.7	62.8	59.3	54.1	56.2
		ACTUALS	1007.8	64.6	64.1	62.7	55.8	50.3	52.2	1357.5	0.0	0.0	0.0	0.0	0.0	0.0
DN *** NRL																
	FTE	PLANNED	525.9	18.8	18.5	19.8	26.7	28.7	21.9	660.1	25.8	32.5	43.7	40.1	33.2	30.0
		ACTUALS	521.8	23.1	23.5	26.0	30.3	27.3	25.7	677.6	0.0	0.0	0.0	0.0	0.0	0.0
DS *** SSU																
	FTE	PLANNED	53.4	2.0	1.9	2.9	2.9	2.9	2.9	68.7	2.9	2.3	2.4	2.3	2.3	2.3
		ACTUALS	59.9	4.5	4.3	3.3	1.3	2.5	4.4	80.1	0.0	0.0	0.0	0.0	0.0	0.0
DU *** UCSC																
	FTE	PLANNED	181.9	-2.9	5.7	4.8	4.7	4.5	4.5	203.2	4.5	4.5	4.5	4.5	4.5	4.5
		ACTUALS	215.2	3.3	9.3	8.4	6.9	7.1	6.4	256.6	0.0	0.0	0.0	0.0	0.0	0.0
DW *** UW																
	FTE	PLANNED	34.1	0.4	0.4	0.4	0.4	0.4	0.4	36.5	0.4	0.4	0.4	0.4	0.4	0.4
		ACTUALS	2.2	1.0	1.0	0.0	1.7	1.1	0.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0
FF *** France																
	FTE	PLANNED	818.2	31.3	31.3	31.2	31.0	31.0	31.0	1004.9	31.0	31.4	31.4	24.1	14.2	14.5
		ACTUALS								0.0						
FI *** Italy																
	FTE	PLANNED	315.4	13.7	18.9	19.2	13.0	11.1	12.0	403.3	14.1	14.8	15.3	15.1	13.4	11.3
		ACTUALS	223.8	10.9	10.9	10.9	10.9	10.9	10.9	288.9	0.0	0.0	0.0	0.0	0.0	0.0
FJ *** Japan																
	FTE	PLANNED	80.9	2.8	2.8	2.8	1.1	1.0	1.0	92.3	1.0	1.0	1.0	1.0	1.0	1.0
		ACTUALS	58.0	1.8	1.8	1.8	1.8	1.8	1.8	68.5	0.0	0.0	0.0	0.0	0.0	0.0
FK *** Sweden																
	FTE	PLANNED	63.8	5.1	5.1	5.1	5.1	5.1	5.1	94.4	5.1	5.1	5.1	3.8	3.5	3.6
		ACTUALS								0.0						
Grand Totals:																
		PLANNED	3909.5	196.4	180.7	177.7	169.7	170.2	166.3	4970.5	180.1	184.2	192.4	179.1	156.9	156.9
		ACTUALS	2754.9	142.8	160.3	145.6	123.6	158.6	145.1	3630.8	0.0	0.0	0.0	0.0	0.0	0.0
4.1 GLAST LAT																
	Contributed	PLANNED	1598.4	71.0	76.4	76.0	69.5	65.5	66.1	2022.8	67.0	72.3	72.5	60.6	45.3	42.2
		ACTUALS	570.1	23.6	23.2	23.8	22.8	20.6	22.5	706.5	0.0	0.0	0.0	0.0	0.0	0.0
	Funded	PLANNED	2311.1	125.4	104.3	101.8	100.3	104.7	100.1	2947.7	113.1	111.9	119.9	118.5	111.6	114.7
		ACTUALS	2184.8	119.2	137.0	121.8	100.8	138.0	122.7	2924.3	0.0	0.0	0.0	0.0	0.0	0.0
Grand Totals:																
		PLANNED	3909.4	196.4	180.7	177.8	169.8	170.2	166.3	4970.5	180.1	184.1	192.4	179.1	156.9	156.9
		ACTUALS	2754.9	142.8	160.2	145.6	123.6	158.6	145.1	3630.8	0.0	0.0	0.0	0.0	0.0	0.0