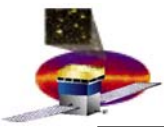


GLAST Large Area Telescope: I & T Input to Monthly Technical/Cost/Schedule Review 04/27/04

**Elliott Bloom
SU-SLAC
Subsystem Manager**

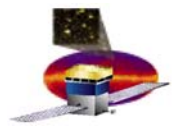
**Brian Grist
SU-SLAC
Subsystem Engineer**

**elliott@slac.stanford.edu, bgrist@slac.stanford.edu
650-926-2469 650-926-2998**

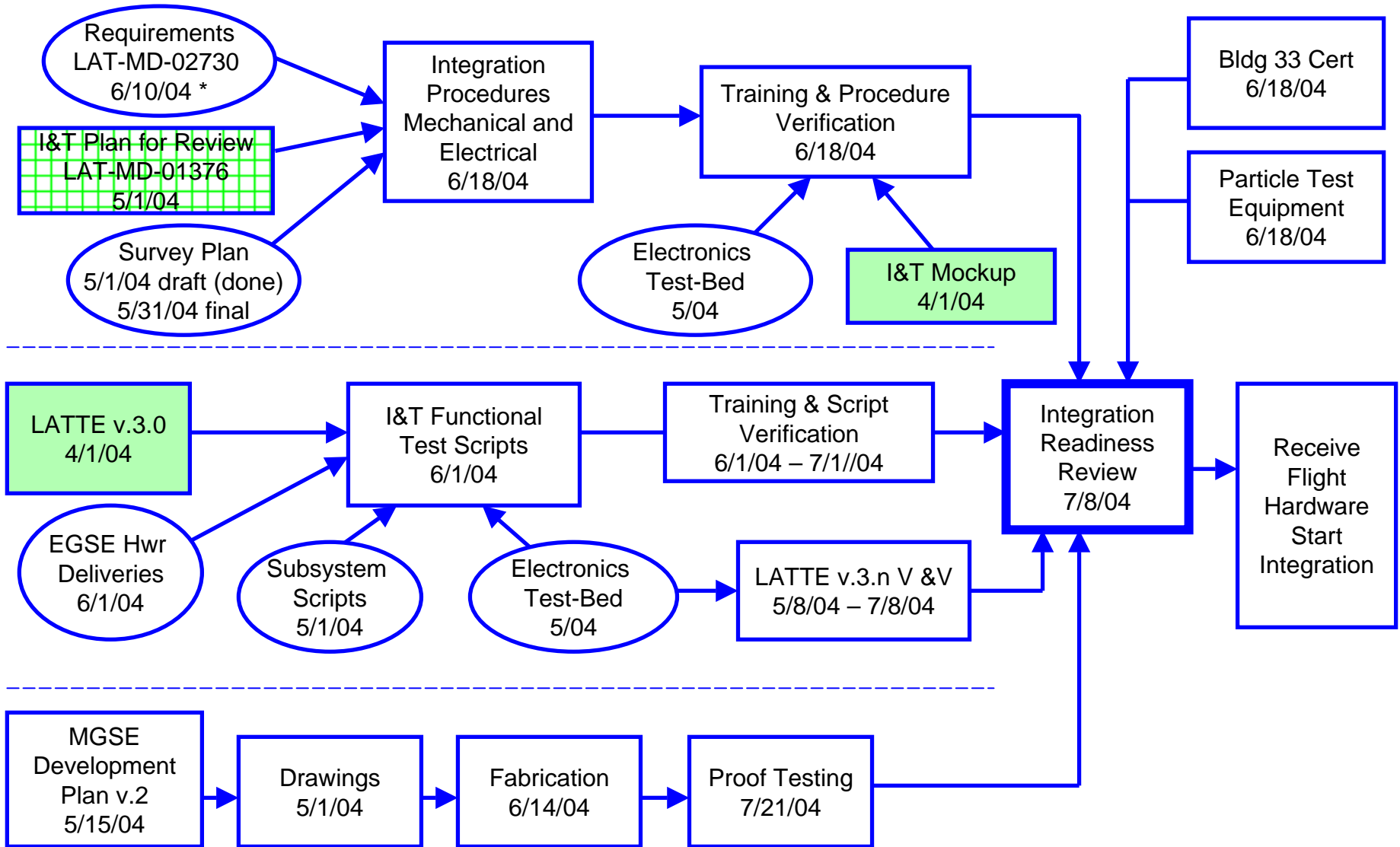


Last Month's Accomplishments

- Released LATTE 3.1.0
- Supported GASU preparation and shipment to ACD
- Basic training for cable integration sequence complete using I&T training mockup
- Requisition in process for LAT Support Stand
- Metrology Bay shipped to SLAC.
- Ordered drive components for LAT Support Stand
- Van de Graff repaired, operates at EM rates
- SVAC supported SAS workshop at NRL



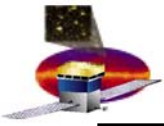
I&T Overview to Start of Integration / Key-Milestone for Next 3 Months



* Final though two tower CPT, releases to support integration procedure development

IFCT – Electrical Test Action Items

Electrical Test Action Items					
Status on 4/26 (L. Wai)					
TASK	Actionee	Start Date	ECD	Training	Notes
Electrical Technician Hiring	Horwitz	12-Apr	28-May		New ads out; offer in HR
Breakout box plan/design/procurement	GSFC/I&T	12-Apr	28-May		Need boxes by 28-May;
EGSE Setup and Validation Procedures	Horwitz	26-Apr	14-May		see LAT-TD-2861 ELX EGSE acc. test
Interface Verification Plan and Procedures	Horwitz	3-May	21-May		Test on BOB, EM boxes
TKR-CAL module single bay time-in test procedure	Wai/Horwitz	26-Apr	4-Jun		Scintillator paddles, other electronics
Trending diagnostic parameters definition	Wai	23-Apr	30-Apr		Input into test procedures docs
Tracker module test procedure PS-03290	Wai/Horwitz	21-Apr	7-May		Test on Mini-Tower; e-mail Lucas
Cal Module test procedure PS-03287	Wai/Horwitz	21-Apr	14-May		Test on Mini-Cal
Single bay LPT PS-03271	Wai/Horwitz	3-May	21-May		Test on integrated Mini-Tower + Mini-Cal
Bay 8 and 9 LPT per procedure PS-03272	Wai/Horwitz	3-May	28-May		Test on ELX Test Bed
Bay 8 and 9 CPT per procedure PS-3276	Wai/Horwitz	3-May	4-Jun		Test on ELX Test Bed
Multi-bay LPT	Wai/Horwitz	3-May	11-Jun		Test on ELX Test Bed
Test metric / trending database plan def'n/implement	Wai	26-Apr	28-May		Need to talk to Eduardo & Ric
Hardware to connect EGSE over longer distance	Associate	26-Apr	15-Jun		
EMI environment of room 104, bld 33	Horwitz	26-Apr	30-Jun		Perform 1 measurement before IRR
Absolute time accuracy test procedure	Wai/Horwitz	26-Apr	28-May		Scintillator paddles, other electronics
Electrical Technician Training/Validation	Horwitz	31-May	25-Jun		
TEM/PSU/GASU/PDU module test training	Horwitz	31-May	25-Jun		
Check back-up power generator specs	Horwitz	22-Apr			Ask Dino



IFCT - Facility Action Item list

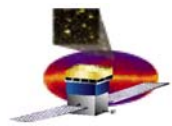
Item	ECD	Notes
non-controlled storage plan	4/23/2004	Need to send Lowell detailed needs list with requirements for quality of space (how clean)
Service corridor procedures	4/23/2004	Requested Leo to execute
Control room computer setup	4/30/2004	Need to get Ken to install 2 workstations / 4 monitors
Backup vacuum pump installation	4/30/2004	Need to call Sean to finalize installation date
ECS backup server installation	4/30/2004	Need to call Sean to finalize installation date
Cleanroom AC hot water back-up boiler plan	4/30/2004	Need estimate from Jim Winston
Network Firewall configuration	4/30/2004	Need back-up tape server rules setup by Jean Pierre
xyplex / workstation firewall rules implementation	5/7/2004	Need to setup meeting w/ Ric and Jean Pierre
Incorporate webcam photos into time-lapse videos	5/31/2004	Jean Pierre is checking into MS Media software
Clean tent installation	5/31/2004	Clean tent parts estimated arrival 4/30
ACD test / repair support plan & implementation	5/31/2004	Eliazar is working on this; need to forward to him Jim La's list
ELX Thermal Chamber Installation	5/31/2004	Leo; waiting for thermal chamber delivery
ELX T-Vac Installation	5/31/2004	Leo will present sideways proposal presented
Building 33 Back-Up Power Generators	5/31/2004	Charlotte is checking on lab funding for transfer switch
Building 33 Substation	9/30/2004	Power outage for 1-2 weeks at end of September

IFCT - Mechanical Integration Readiness Action Items

TASK	Actionee	Draft ECD	Inputs	Training	Notes
Survey Procedures LAT-PS-1586	Borden	26-Mar	7-May	4-Jun	Need inputs from Catherine Lecocq by 30-Apr; send to Natalie for sign-off on 30-Apr
Tracker Integration Procedures LAT-PS-03058	Borden	26-Mar	28-May	21-May	Tracker Mock-Up ECD 14-May; in-house manufacturing of parts/tools in process; need status on cone tooling (Arthur)
Calorimeter Integration Procedures LAT-PS-03027	Ortiz	26-Mar	30-Apr	4-May	Send to Natalie on 26-Apr for sign-off 30-Apr
Room 104 Access Procedure	Ortiz	26-Apr	30-Apr		Send to Natalie on 26-Apr for sign-off 30-Apr
Critical Operations Procedure	Ortiz	30-Apr	14-May		Send to Natalie on 30-Apr for sign-off 7-May
Fastener Torquing Procedure	Ortiz	7-May	21-May		
Van de Graaff test floor configuration setup procedure	Ortiz	14-May	28-May		Send to Natalie on 14-May for sign-off 21-May
Flight Hardware Bag and Purge Procedure	Ortiz	21-May	4-Jun		
Tem/TemPS Shimming Procedure LAT-PS-03062	Ortiz	28-May	11-Jun	4-May	Need Eric to assemble Met bay by 30-Apr
Status cable lists DS-02611	Borden	23-Apr	30-Apr	4-May	Final meeting on 21-Apr; waiting for sign-off
Status cable layout schematic	Borden	30-Apr		4-May	Need drawing updated
NASA cable crimp training determination	Ortiz	30-Apr		7-Jul	Identify who will be trained from Joe
Top level AIDS sign-off	Ortiz	23-Apr	30-Apr		Eliazar will ask Joe
Facility readiness review for flight parts	QA	12-May			Larry has to call Darren to set a date
GPR onto rotation Stand per MGSE Procedure XXX	Gawehn	23-May	22-Jun	4-Jul	Eric's date
Grid integration into GPR per MGSE procedure XXX	Gawehn	23-May	22-Jun	4-Jul	Eric's date
Load Mass simulators into GRID	Gawehn	30-May	29-Jun	4-Jul	Eric's date
Specify floor laptop for e-logbook					
Electronic Logbook	Wai	7-Apr	28-May	May	Install latte 3.0 on computer near mock-up
Mate De-Mate Log	Wai	28-May			Need permission from Eduardo to use Xin
Component Installation Log	Wai	28-May			Need permission from Eduardo to use Xin
Menning Plate procedures	Ortiz	4-Jun	11-Jun		
Grid heat pipe assembly	Campell				2-3 techs from 5-Aug thru 27-Sept
Adjustable benches for electrical techs					

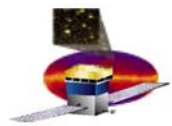
MGSE Drawing Release Status (1 of 2)

LAT I&T MGSE Item	Stress Analysis		Design - Drafting			Procurement		Assembly		Ready / Comments
	Status	Report	Modeled	Detailed	Released	Ordered	In-House	Status	Proof Test	
4x4 Integration Stand										96 Dwgs Total
4x4 Rotation / Support Stand	√		√	90%		75%	Jun 15			(55 dwgs)
Personnel Access Platforms			65%	15%		30%	Jun 15			(41 dwgs)
Grid Perimeter Ring - Brackets	√		√	99%			Jun 22			6 dwgs
Support Shaft - Flange Assemblies	√		√	99%		50%	Jun 22			5 dwgs
Z Axis Up Lift Fixture										12 Dwgs
Z Axis Up Lift Spreader	√		√	98%			Jun 29			
Z Axis Up Tension Rod Assemblies			√	98%		20%	Jun 29			
Z Axis Horizontal Lift Fixture										9 Dwgs
Z Axis Horizontal Lift Spreader	√		√	98%						
Z Axis Horizontal Shackles	√		√	98%		30%				
Crane Scale Height Modification	√		√	98%		30%	May 19			3 Dwgs
4x4 MGSE Proof Test Assemblies							Jun 29			
CAL -Z Up Lift Fixture	√		√	√	√	√	√	√	√	Complete
CAL Alignment Tool	√		√	√		√	√	√	n/a	Complete
CAL Alignment Rods	√		√	√		90%				2 Dwgs
CAL Inversion Stand / Interface	√		√	√	√	√	√	√	√	Final Shaft in Machining
E-Box Shimming										
Metrology Bay with Stand	n/a		√	√	√	√			n/a	Shipped Apr. 14
Clamps, Align Rods, Lift Eyes, etc	n/a		√	√	√	√	90%		n/a	Clamps in Anodize

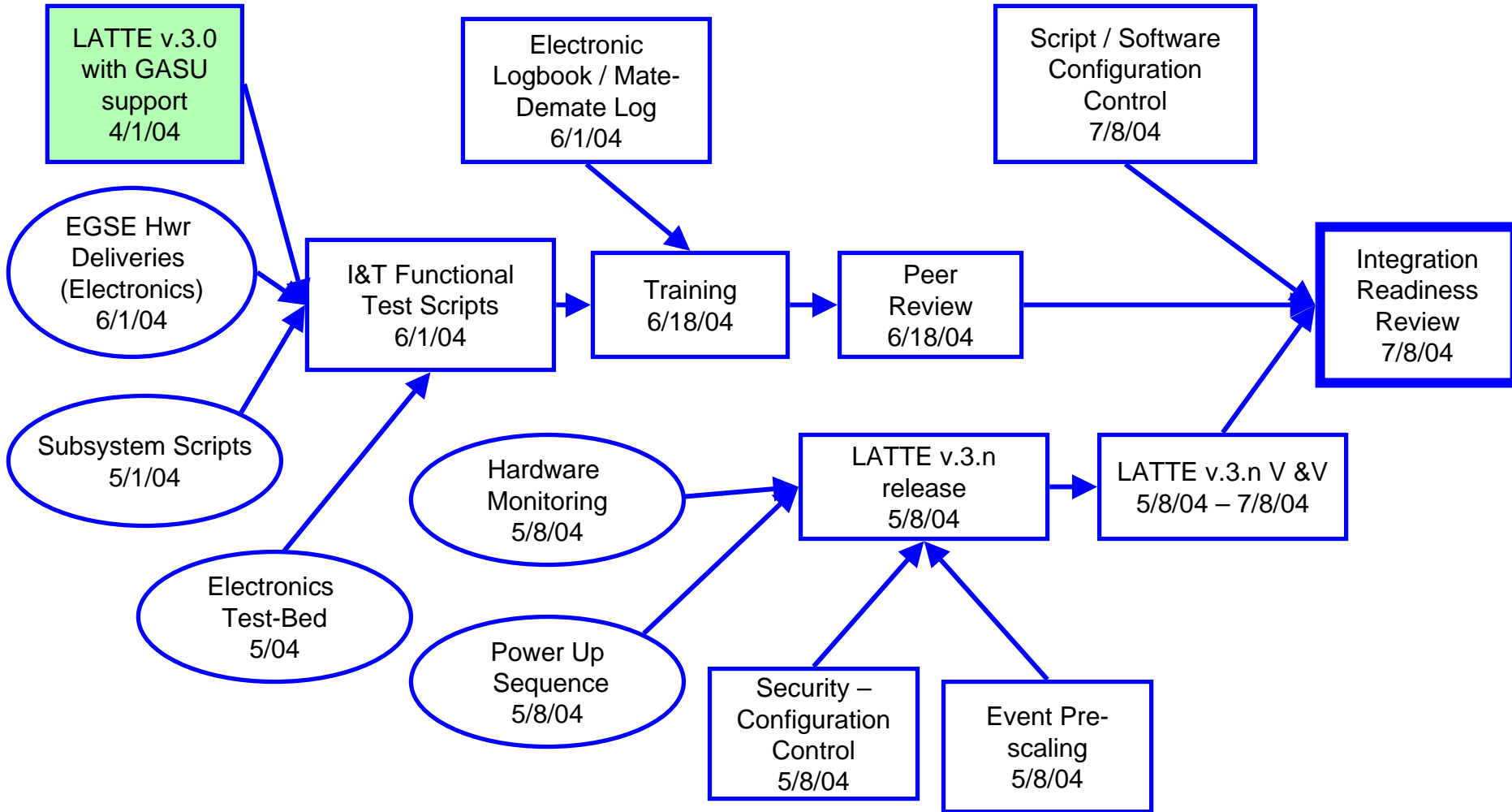


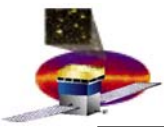
MGSE Drawing Release Status (2 of 2)

LAT I&T MGSE Item	Stress Analysis		Design - Drafting			Procurement		Assembly		Ready / Comments
	Status	Report	Modeled	Detailed	Released	Ordered	In-House	Status	Proof Test	
TWR Mass Simulators	√	√	√	99%			Jun 22		n/a	
EM-2 Single Bay (TKR Interface Plate)	√	n/a							n/a	3 weeks from TKR IF Def'n 2 Dwgs 10 dwgs
1x4 Lift Fixture										
1x4 Lift Spreader	√		√	80%			Jun 22			
1x4 Tension Rod Assemblies			√	80%		20%	Jun 22			
TKR - TKR No Touch at Ascent Tool									n/a	1 Dwg
4x4 Horiz Braces / Counter Wt Support			80%							
Menning Plate Installation Equipment									n/a	
Interim E-Box Support Brackets									n/a	
ACD Low Profile Integration Stand										
Lift Spreader Storage Brackets			10%						n/a	
Lift Spreader Transport Boxes									n/a	
LAT Transport Container	50%									
LAT EMI Test Stand										
LAT Sine-Vibe Test Interface										
LAT T-Vac Test Stand										



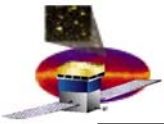
Electrical Ground Support Equipment (EGSE) / Online Flow





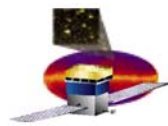
Online Status (1 of 2)

- **GASU support**
 - **Completed:**
 - Trigger software interface
 - ACD script migration
 - EBF (now called LDF) package update
 - Significant schedule drift (~ 1 month) due to complexities of hardware and firmware debugging and thorough testing
 - Required more than full time support from Jim Panetta
 - “New” jobs:
 - Veto rate counters for ACD in two forms based on FSW
 - Multiplexed registers => command server work
 - Dedicated event data analysis => event server work
- **Hardware Monitoring**
 - Leverage off of electronics subsystem work
 - Online is involved in its design and is providing support
 - However, ELX requirements are different than Online’s
 - Online requires Housekeeping server from FSW
 - Currently being worked on
 - ELX monitoring package is modular, it is expected to drop right in
 - No dedicated work by Online on this problem so far

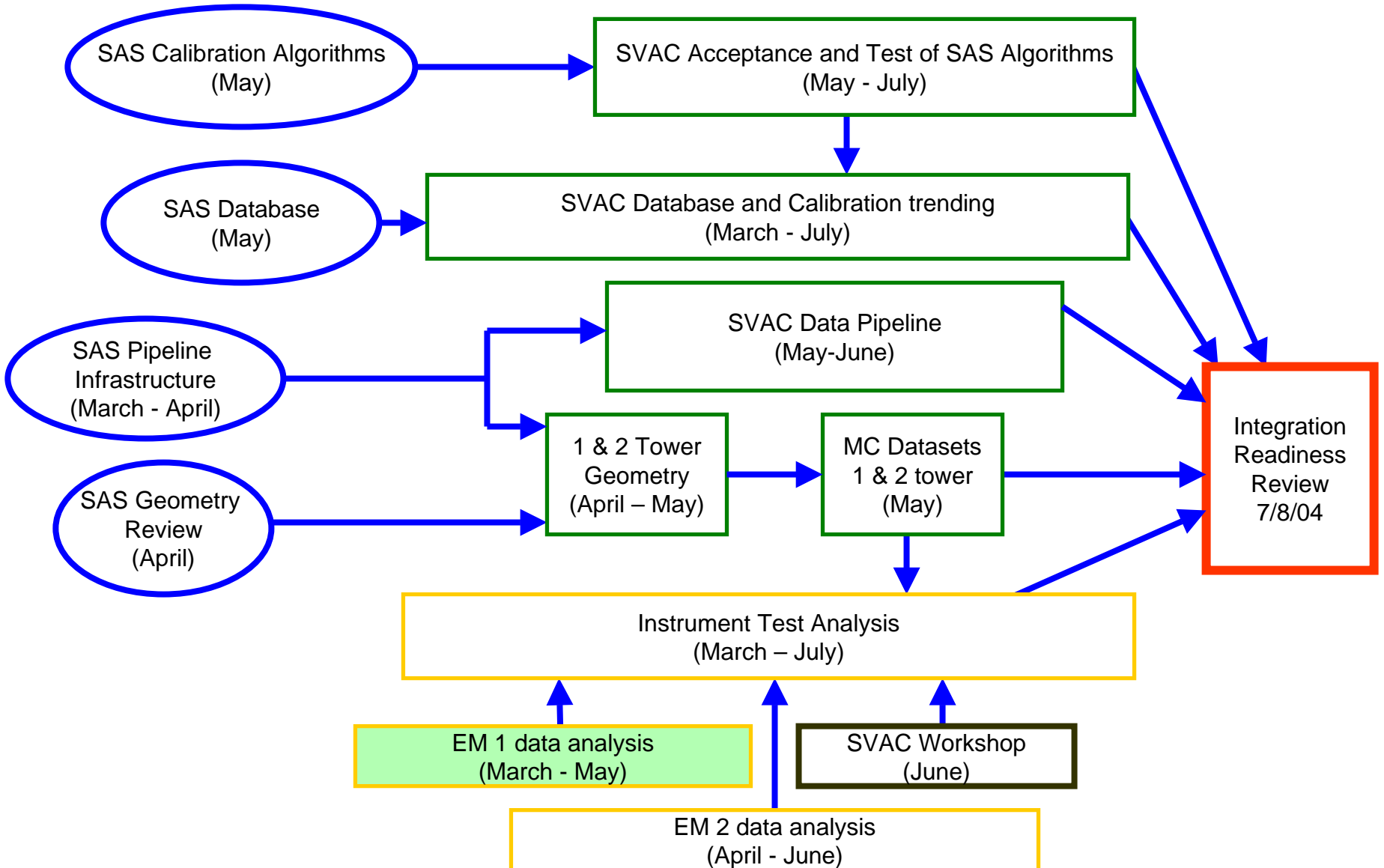


Online Status (2 of 2)

- **Power-up sequence**
 - Sequencing code to be provided by FSW and triggered by LATTE
 - Two options:
 - ELX Power Management System
 - FSW supplied code
 - First option is in progress
 - No involvement by Online until interface is described
- **Electronic Logbook**
 - Stand-alone version is in beta release
 - Have released the beta version with LATTE 3
 - Beta version needs testing and review
 - Security on both stand-alone and web versions needs to be revisited
- **Release mechanism for subsystem test scripts**
 - Completed
 - Included in LATTE 3 releases
 - In use by CAL
- **Items to be worked**
 - Event prescaling in Event Server
 - Subsystem scripts
 - None received (needed 5/1/04)
 - Some ELX available for the picking but no time to pick
 - Ditto TKR
 - CAL says “soon”
 - ACD still has issues with ITAR and won’t release to online
 - I&T: No time to make progress
 - LATTE security against unauthorized changes
 - OPUS – automated data file transfer
 - Validation and Verification - Due to start in May



Science Verification, Analysis, and Calibration (SVAC) - Roadmap



SVAC Status

• Software Workshop at NRL

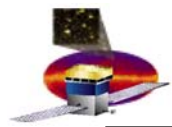
- CAL reconstruction.
- Data analysis and calibrations from GSI and SLAC EM data
- In-flight calibration preparation using GCR
- Flight Integration
 - Some algorithms in SVAC-Plan LAT-MD-00446 delivered by NRL to I&T by the end of May: C14, C15, C18, C19/20

• External Dependencies

- SAS Algorithms
 - in progress by TKR and CAL, Xin Chen working with ACD/SAS groups to bring ACD to the same level as TKR and CAL
- SAS Database
 - SAS is implementing some changes requested by I&T. SVAC has not spent sufficient time on this item yet.
- SAS OPUS Pipeline
 - SAS will be available for discussions with I&T 2 weeks from now (on schedule)
- SAS Geometry Review
 - Started discussions with SAS/CAL @ NRL
- ONLINE/LDF
 - SAS reads ACD “data” from version V04-01-00 and now starting to work with new release (V05-00-00)

• Current Work

- MC simulations
 - Generating MC for 2 towers
 - Studying variables and reconstruction code
- SVAC Database
 - Implementing library changes
 - Discussed with CAL group @ NRL
 - Preparing for discussions with ISOC/SAS/Online/TKR
- SVAC Workshop @ SLAC (June 7 and 8)
- EM Data Analysis
 - Discussions with TKR on possible strip charge sharing issues
 - Preparing for ACD calibrations with 2 tiles



Hire Status for recent open positions

- **Have been filling 11 positions**
 - **6 Hired**
 - **2 have offers in work**
 - **2 Continuing Search**
 - **1 Just Posted**

New Position Status

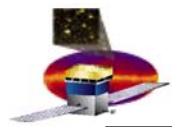
Status as of: 4/26/2004 15:14

Req Written
 Req. Approved
 Job Posted
 Interviewees Selected
 Interviews Scheduled
 Interviews Complete
 Hired

Job Req#	Job Title	Req Written	Req. Approved	Job Posted	Interviewees Selected	Interviews Scheduled	Interviews Complete	Hired	Action Needed	Actionee
22395	IFCT, Electrical Engineer	●	●	●	●	●	●	●		
22396	IFCT, Electrical Technician	●	●	●	●	○	○	○	Continuing search	Tim, Elliott, Brian, Larry, Gunther
22397	IFCT, Electrical Technician	●	●	●	●	○	○	○	Continuing search	Tim, Elliott, Brian, Larry, Gunther
22398	IFCT, Electrical Technician	●	●	●	●	●	●	●	Offer in work	Tim
22399	IFCT, Mechanical Technician, Lead	●	●	●	●	●	●	●		
22400	IFCT, Mechanical Technician	●	●	●	●	●	●	●		
24265	IFCT, Mechanical Technician	●	●	●	●	●	●	●		
29264	SVAC, Engineering Physicist	●	●	●	●	●	●	●		
29406	SVAC, Engineering Physicist	●	●	●	●	●	●	●		
29420	ONLINE, Engineering Physicist	●	●	●	●	●	●	○	Offer in work	Tim
29483	I&T Engineering Manager	●	●	●	○	○	○	○	New position	Elliott, Dick

- Not started
- ◐ In-Process
- Complete

Jobs are posted on SLAC website at
<http://www-public.slac.stanford.edu/hr/jobs/search.asp>



Cost and Schedule Status

	WBS	BAC	BCWS	BCWP	ACWP	SV \$	CV \$	% BCWS	% BCWP	% ACWP	SPI Trend	CPI Trend	SPI	CPI	Cpi_Fcst	CpiSpi_Fcst
65	4.1.9	7,373	3,418	3,348	3,322	-71	26	46.36	45.40	45.05	↓	↓	0.979	1.008	7,316	7,400

- **Cumulative Schedule Variance**

- **Work Scheduled: 3418 k\$**
- **Work Performed: 3348 k\$**
- **Schedule Variance: -71k\$ (-2.9%)**
 - ~8 k\$ for 1x4 lift fixture
 - ~10 k\$ for LAT Grid Perimeter Ring and Attach Brackets
 - ~11 k\$ for Proof Test of LAT Support stand
 - ~9 k\$ for LAT lifting fixture
 - ~30 k\$ for Misc. Equipment and Fixtures
- **Specific actions to maintain zero schedule variance:**
 - Approve and implement change request LAT-XR-03452-01 to reschedule and re-plan MGSE. CR is approved by I&T manager and currently resides with Controls.

- **Cumulative Cost Variance**

- **Work Performed: 3348 k\$**
- **Actual Cost: 3322 k\$**
- **Cost Variance: +26k\$ (+0.8%)**