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STANFORD GP-B/LOCKHEED MARTIN

VANDENBERG AIR FORCE BASE

JOINT OPERATING PROCEDURE FOR OPERATIONS CONDUCTED AT BUILDINGS 1605, 1610, AND THE MST

P1049 B
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REVISION RECORD

REVISION	*ECO*	*PAGES*	*DATE*
A	1436	Include changes to reflect current operations, change names and contact numbers.	8/7/03
B	1476	Update to reflect new roles and responsibilities.	2/17/04

Purpose:

The purpose of this Joint Operating Procedure is to provide a single set of instructions for the Lockheed Martin and Stanford GP-B personnel to follow during Vandenberg Air Force Base Operations. Additionally, this document will provide information necessary to ensure all individuals assigned to VAFB operations can be easily notified incase of emergency.

Applicability:

This document applies to all personnel involved in the performance of test procedures at Vandenberg Air Force Base facilities. The primary facilities to be used by the Gravity Probe-B program are buildings 1605, 1610 and the MST. Office space and a conference room are provided in building 836 and the Astroshack

General

Responsibilities:

Overall Gravity Probe-B Program Management responsibilities will be the responsibility of Mr. Gaylord Green of Stanford University. Mr. Jeff Vanden Beukel will be the Lockheed Martin Lead for GP-B activities. In their absence at VAFB, Mr.Green and Mr.Vanden Beukel will designate an appropriate representative.

Mr. Brad Jones will be the lead for VAFB activities. The lead will be the single point of contact for all activities conducted at VAFB and will coordinate GP-B activities with other organizations.

The following individuals have been assigned as permanent members of the GP-B VAFB Launch Team and will reside in the VAFB area during GP-B Launch Processing

STANFORD PERSONNEL

NAME	AREA OF ASSIGNMENT
Jim Burns	Scheduling
Ned Calder	CRYO (Test Lead, may fill in as Operations Lead)
Gordon Huffer	VAFB Integration
Brad Jones	VAFB Lead
Russ Leese	CRYO
Dave Murray	CRYO
Dorrene Ross	Quality Assurance
Mike Taber	CRYO (Test Lead, may fill in as Operations Lead)
Herb Smith	Quality Assurance

LOCKHEED PERSONNEL

NAME	AREA OF ASSIGNMENT
Patrick Bossio	EGSE
Richard Campbell	Electrical Engineer (may fill in as Operations Lead)
Ray Howard	Technician
Russell Katz	Operations Lead
Thanh Ly	EGSE
Howard Saunders	EGSE
Mike Schemerhorn	Engineer
Mike Sisley	Quality Lead
Dale Stephens	Technician
Samuel Swihart	Technician (may fill in as Operations Lead)
Tom Welsh	Manufacturing Lead (may fill in as Operations Lead)
Jerd Bright	EGSE
Jeff Vanden Beukel	Program Management/Operations Lead
Francis Lee	Contamination Control
Jerry Aguinaldo	Vehicle Test Engineer (may fill in as Operations Lead)

The personnel listed below have been assigned as members of the GP-B VAFB Launch Team and will participate in VAFB activities as required.

STANFORD PERSONNEL

NAME	AREA OF ASSIGNMENT
Rob Brumley	Program Management
Ken Bower	GMA (Test Lead)
Dave Frank	CRYO
Chris Gray	GMA (Test Lead)
Gaylord Green	Program Manager
Jim Maddox	CRYO
John Mester	Program Management
Mike Murray	CRYO
Greg Scott	GMA
Ted Martinez	GMA
Chuck Warren	CRYO

LOCKHEED PERSONNEL

NAME	AREA OF ASSIGNMENT
Mark Anderson	Technician
Armando Cortez	Quality
Stephen Goo	Quality
Harv Moskowitz	System Safety
Jim Nix	Quality

Several VAFB organizations will have direct interface with the GP-B Program during accomplishment of our responsibilities at VAFB. The following individuals, their responsibility and organization are as follows:

VAFB PERSONNEL

NAME	TITLE	RESPONSIBILITY/ ORGANIZATION
Julie Schneringer	Launch Site Integration Manager	NASA
Ed Henry	Launch Site Support Engineer	ANALEX
Doug Newsome	Safety Manager	NASA KSC LSPSMA Safety
Rex Gray	Mission Assurance	NASA/ANALEX System Safety
Robert Garnett	System Safety Engineer	SRS Info Services (30SW/SES)
Dan Strub	Range Safety System Integration	USAF/30SW/SES

Normal Shift Operations

Normal shift hours for all Gravity Probe-B personnel working at VAFB will be from 7:00 AM (0700 hours) to 4:00 PM (1600 hours). VAFB regulations allow individuals to work no more than 12 hours per day and 60 hours per week. Critical personnel may work up to 16 hours on a single shift (with permission from Program Management and NASA Safety) Individuals who work a 16 hour shift must have a minimum of 8 hours rest time before coming back on duty.

Field Site Activities

At 0715 hours each morning a scheduling meeting will be held in the ASTRO Shack Attendance at the meeting will be as follows:

- VAFB Lead (Mandatory)
- Scheduler (Mandatory)
- Test Lead (Mandatory - May be call in)
- Quality Assurance (Mandatory)
- Launch Operations Lead (Mandatory - May be call in)
- VAFB System Safety Engineer (Optional)
- ANALEX System Safety (Optional)
- Launch Site Integration Manager (Optional)
- Boeing (Optional)
- MSFC (Optional)
- 30OG/RMS/RMQS (Optional)

The purpose of the morning meeting will be to accomplish the following functions:

- Designate the Operations Lead for the shifts.
  - The Operations Lead will be responsible for reporting the crewing for the shifts.
- Discuss the overall schedule status.
- Discuss the previous days activities
  - What was accomplished?
  - What scheduled activities were not accomplished and when will they be accomplished?
  - Were any TARS/D-Logs/Discrepancy Reports written, what were they, and what is the plan for their closure?

- Discuss daily scheduled activities
  - What activities are scheduled for the day's operations?
  - Are the operations hazardous or non-hazardous?
  - If hazardous and ANALEX Safety or NASA Safety are not at the meeting verify that they received proper notification, if not they must be notified prior to start of operations.
  - One or two shift Operation? If two shift, who is the 2nd shift Lead? If this is a one-shift operation but it is expected to extend over 12 hours permission must be received from NASA Safety.
  - What activities are scheduled for the next 72 hours?
  - If hazardous operations are scheduled for the next day, notify ANALEX Safety or NASA.
  - Is any special support required? (i.e. crane, lifts)

- Prior to closeout of the meeting it is imperative that all agree to the scheduled activities to be performed and that a single point of contact at the field site has been established.
- All action items resulting from the daily meeting will be tracked by the VAFB Lead until closure.

NOTE: A schedule will be maintained on the wall in the meeting area. This schedule will display all activities that must be completed through launch day operations. The scheduler has the responsibility to ensure the chart is properly maintained and reflects all activities that have been completed.

- The GP-B VAFB Lead will be responsible for ensuring meeting minutes are taken and distributed to the appropriate individuals at MSFC, Stanford, and Lockheed Martin.

Field Site Activities Buildings 1605, 1610 and MST

- **Operations Lead**

  The single point of contact for all activities being performed for any field site operation. The Operations Lead will be responsible for the following activities:

  - The onsite Operations Lead will be the single point of contact for all activities conducted in the operational area. Approval to enter the Field Site operations area must be approved by the Operations lead. Additionally, the Operations Lead will perform all incident reporting to the VAFB Lead.

  - Prior to the start of any procedure the Operations Lead will brief all individuals on the activities to be performed.

  - Enter the procedure(s) to be run in the operations log. (See Attachment #1) A copy of the previous day's operations log will be delivered to the VAFB Lead at every morning meeting.

    NOTE: PERMISSION MUST BE OBTAINED FROM NASA SAFETY WHEN TWO HAZARDOUS PROCEDURES ARE TO BE ACCOMPLISHED AT THE SAME TIME

  - If more than one procedure is to be run the Operations Lead will establish a point of contact with the test lead responsible for the accomplishment of the second procedure. Close coordination between the activities must be maintained.

  - Maintain the daily log of activities accomplished at the facility. At the end of each shift a log entry will be made to indicate vehicle status and configuration.

  - Verify all test equipment (i.e. GSE) is properly secured.

  - Prior to the start of daily activities the log will be reviewed to ensure

vehicle status has not changed.

- If there is a change of shift, a thorough briefing of the vehicle status will be provided to the on-coming test team by the Operations Lead or appropriate Test Lead.

- If there is a break in activities (i.e. lunch) the Operations Lead will ensure the vehicle is in a safe condition before releasing the test team.

- The Operations Lead will notify management of all discrepancy reports.

- If for any reason the Operations Lead must leave the work area an individual will be designated to perform the Operation Lead responsibilities.

- **Test Lead**

The Test Lead will be the individual responsible for the actual performance of the Procedure to be accomplished. In performing this responsibility the Test Lead will:

- Ensure all team members are qualified for the task being performed.

- Ensure all tasks are performed in a safe manner.

- Verify the revision level of the procedure being accomplished is the latest revision released.

- Perform the pre-test checklist (if applicable)

- If the procedure being ran is hazardous, ensure that NASA Safety is on site and that the proper notifications have been completed. If NASA Safety is not on site notify the Operations Lead.

- Verify that proper ESD practices are used throughout all operations.

- Verify that all tools are properly tethered. Ensure tools are placed back into the proper storage area after usage.

- Supervise the performance of the test procedure.

- Coordinate breaks with the Operations Lead.

- Notify the Operations Lead of all nonconformances.

- When a test procedure/operations order is completed turn the completed documents over to quality.

- Ensure the operations log is complete at the end of shift.

- Perform a shift change-over briefing (if applicable) (Attachment 2)

- **Quality**

  - Participate in Pre/Post test briefings.

  - Maintain the as-run copy of the test procedure at all times during testing.

  - Review and approve all procedure redlines. If the procedure is hazardous ensure that NASA Safety concurs with the redlines to be incorporated.

  - Coordinate with the Test Lead if steps in the procedure are to be run out of sequence.

  - Monitor all nonconformances and ensure they are appropriately identified.

  - Review all completed documentation for completion, traceability of actions taken, and proper signatures. Ensure all closed documentation is maintained in the quality data center in building 836.

- **End of Shift Operations**

  - In addition to the requirements listed above, the following items should be accomplished by the test team at the end of the days activities:

    - Assure that the test article and test equipment are in a safe condition prior to vacating the work area.

    - Assemble the test paperwork and attachments to the Procedures or Operation Orders, including Discrepancy Reports, D-Logs, and TARS.

    - Ensure all activities are incorporated into test records.

    - Prepare the test floor for the next existing event. This includes, the return of test equipment to proper storage, area clean up and verification that the proper equipment is available for the next days activities.

Emergency Actions

In the event of any emergency that requires facility evacuation, direction to reenter the facility will only be provided by Facility Safety.

In the event of illness or injury dial 911.

Mishap Notification

- A Gravity Probe-B accident/incident/mishap is defined as an unplanned occurrence that results in personal injury and/or damage to program hardware or program facilities. Additionally, the program defines the categories of Major Accident, Major Incident, and Mishap as those which require the notification of MSFC, GP-B Program management and the Program Safety Officer. These categories are defined as:
  - **Major accident**: An unplanned occurrence which results in death, serious injury, or major property damage (i.e. damage of $100,000 or more to property, including the product).
  - **Major incident**: An unplanned occurrence which by characteristics or frequency has major potential even though property damage or injury did not occur.
  - **Mishap:** A test failure, if the damage encountered was unexpected or unanticipated, or if the failure is likely to have significant program impact or visibility.
- The process to be followed at the time of an accident/incident/mishap involving GP-B personnel, mission essential hardware, support equipment, facilities, and processes is to ensure that proper notification is provided to the Gravity Probe-B customer. Without exception MSFC management will be notified within 24 hours. Additional reports, if needed, shall be provided and should contain (as a minimum) the following items:
  - Location
  - Date and Time
  - Description of the mishap including extent of hardware and facility damage (if applicable).
  - Identification of personnel injuries.
  - Description of Government facility/equipment, if any, involved.
  - Causes and contributing factors.
  - Recurring control action implemented or recommended.
  - Notification to be given in the event of an Accident/Incident/Mishap.

- All Gravity Probe-B personnel who witness or are involved in a accident/incident/mishap, shall report it immediately to their supervisor/manager. If emergency services are required **call 911.**

- The on-scene person-in-charge (i.e. Operations Lead, Test Lead) notifies the following persons in the order shown.

- It is the responsibility of the first person notified to contact MSFC, Stanford, Lockheed Martin and NASA/KSC Safety.

(1) Stanford Program Personnel

Primary: Gaylord Green
Office: 650-725-8911
Cell: 408-483-4574
Home: 408-866-7789

Alternate Brad Jones
Cell: 650-804-5098
Hotel: 805-735-8311

(2) Lockheed Program Personnel

Primary Jeff Vanden Beukel
Cell: 408-718-0222

Alternate Mike Sisley
Cell: 650-438-0373

(3) Safety Harv Moskowitz
Office: 650-354-5390
Page: 650-967-0813
Home: 650-317-7931

(4) MSFC Personnel

Rex Geveden
Office: 256-544-1969
Cell: 256-714-6258

Tony Lyons
Office: 256-544-2281
Cell: 256-520-2576

Ed Ingraham

Office: 650-723-6586
Cell: 650-218-3399

Buddy Randolph
Office: 256-544-9533

Richard Gurr
Office: 858-677-6496
Cell: 760-815-1221

(5) VAFB Personnel

Julie Schneringer
Office: 805-605-3820
Cell: 805-452-9110

Doug Newsome
Office: 805-605-3320
Pager: 877-508-5133

Summary

The steps outlined in this procedure provide proven techniques designed to maximize the opportunity for mission success. The steps listed should serve to improve all testing activities conducted by the Gravity Probe-B Team. All test team members are encouraged to review all operating procedures and where possible make recommendations for improvement. It is imperative that all procedures be performed in a professional manner with our goal being the successful launch of the Gravity Probe B Space Vehicle.

ATTACHMENT #1 GRAVITY PROBE B JOINT LOG OF OPERATIONS

LOG LM	NUMBER SU	ENTRY DATE/TIME	DESCRIPTION OF TASK	P-DOC OP NUMBER	COMPLETION DATE/TIME	ENTERED BY

ATTACHMENT 2

CHANGEOVER CHECKLIST

THE FOLLOWING ITEMS WILL BE PERFORMED WHEN A TEST IS IN PROGRESS AND TEST RESPONSIBILITIES ARE TRANSFERRED TO ANOTHER CREW:

The following items will be briefed to the oncoming crew: **COMPLETED**

What is the status of the vehicle

- **Has the vehicle been secured.** _____
  - **Are there any operations that were not completely performed. Explain in detail** _____
  - **Is there any item/condition that must be accomplished prior to continuing the procedure** _____
  - **Is there any items (i.e. test tools, equipment, supplies PPE) that are not available for the test** _____
  - **Have all support services been coordinated with (i.e. crane support, Boeing, Safety)** _____
  - **Are all drawings/procedures available.** _____
- **Exact status of the testing in pr0gress**
  - **Procedure being ran.** _____
  - **Last step in procedure accomplished** _____
  - **Hazardous or non hazardous procedure** _____
  - **Next step in procedure to be accomplished** _____
  - **Were any steps ran out of sequence If yes explain in detail.** _____
- **Status of paperwork**
  - **Is the procedure being accomplished up to date (I.e. all steps bought off, redlines bought off, Proper dates entered)** _____
  - **Has a TAR/D-Log item been written** _____
  - **What is the status of the TAR/D-Log** _____
  - **Has a Discrepancy Report been written** _____
  - **Is the Discrepancy Report a Major or Minor** _____

CHANGE OVER CHECKLIST (CONT.)

COMPLETED

- **If the Discrepancy Report is a Major have the proper individuals been notified.** _____

- **Are there any operations to be performed that have not been previously scheduled** _____

AFTER COMPLETION OF THIS CHECKLIST BOTH THE TEAM LEAD PROVIDING THE BRIEFING AND THE TEAM LEAD RECEIVING THE BRIEFING WILL SIGN BELOW:

1ST SHIFT TEST LEAD_____DATE:_____

ON COMING SHIFT TEST LEAD_____DATE:_____

ON COMING SHIFT TEST LEAD_____DATE:_____