SWALES AEROSPACE
Beltsville, Maryland 20705

THEMIS System Change Notice

SCN#: *008*
Date: 19 March 2004

Proposed Change Level (1, 2, 3, 4): 2	**Lead Engineer:** Ajluni
Proposed Change: Add pressurant tank with associated propulsion components and additional fuel	**Subsystem:** McCullough

Reason for Change: Increase project probe dry mass and/or delta V margins.

Probe allowable launch mass will change from 132 kg to 134 kg. Maximum Probe fuel load will go from 39.64 kg (see SCN007) to 48 kg. Provides delta-V up to 860-880 m/s (dep. on ACS usage). Probe bus dry mass allocation increases by 3.079 kg, from 49.86 to 52.939 Kg. Supports full utilization of the launch vehicle mass to orbit capability.

Reference Documentation Summary

See attached power point file Themis_RCS_RePressFinal Rev2.ppt dated 19 March 2004.

Subsystem Impacted: (**Bold** indicates an impact)

ACS	C&DH	**Mechanical**	**Propulsion**	Booms	IDPU S/W
Battery	**EGSE**	MGSE	RF Comm	EFI	SST
Bus	**Harness**	**Mission Ops**	Solar Array	ESA	SCM
Avionics Unit	I&T	Power	Thermal	FGM	
BUS S/W	Launch Vehicle			IDPU	

Minutes Summary (Systems Engineering Meeting):

The attached power point file was reviewed with UCB systems and management as well as GSFC on 18 March. All agreed to approve the addition of the pressurant tank. UCB also directed Swales not to pursue titanium fasteners as a further mass reduction due to high cost and moderate schedule risk.

Note UCB has impacts as well including added complexity on the axial boom for the tank mechanical interfaces. Mission operations impacts include operator training and maneuver planning as well as the added complexity of operating the probes in different configurations as each consumes fuel (and initiates repressurization) at a different phase of the mission.

Approval

PROPRIETARY YES: NO ☐

Project Manager _____ Date

Systems _____

Impacted Subsystem Lead _____

Distribution

- Subsystem trades (level 4) can be made within the resources of the subsystem. Systems Engineer insight and involvement.
- Trades that impact subsystem/system interfaces or resource allocations (level 3/level 2) require concurrence by the Configuration Control Board (CCB): Principal Investigator, Project Manager, Mission Systems Engineer (MSE), Probe Systems Engineer, Mission Operations Manager and affected Team Leads. GSFC Mission Manager insight.
- Trades that impact Level 1 *baseline* science/programmatic requirements must include approval by Principal Investigator and GSFC Mission Manager.
- Trades that impact Level 1 *minimum* science/programmatic requirements must include approval by NASA HQ.

Date