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*Norm Augustine Panel
Review of U.S. Human Space Flight Plans Committee
NASA Headquarters
300 E St SW
Washington DC 20024-3210
Email: hq-humanspaceflight@mail.nasa.gov*

Sub: ARES platform-architecture intended for inclusion in "Review of United States Human Space Flight Plans".

Dear Norm Augustine and other members of the blue-ribbon panel,

Please find the patent pending "Architecture for Reusable Exploration Systems: ARES" platform document to be included in your review of United States Human Space Flight plans that you are undertaking with this communication. It is also meant to serve as the Constellation-2.0/Ares-2.0/Apollo-2.0 architecture proposal that will be an enhancement of the current NASA Constellation/Ares program.

This letter is supported by the following attachments

- * Copy of "Architecture for Reusable Exploration Systems: ARES" patent application
- * Copy of in-process patent application termed "Continuous Space SAFETY".

Several launch systems providing point solutions have been brought before the panel. These systems while good in their specific focus do not help to take human space flight activities to the next stage of architectural evolution that is safe, innovative, affordable and sustainable. The ARES platform being presented before the committee is a comprehensive, innovative and evolutionary architecture that overcomes the deficiencies of the proposals presented heretofore and addresses all of the following aspects of the committee's charter:

- Expedite a new U.S. capability to support utilization of the International Space Station
- Support missions to the Moon and other destinations beyond low Earth orbit (LEO)
- Stimulate commercial space flight capability
- Fit within the current budget profile for NASA exploration activities

With the launch systems that have been presented so far before the committee, the committee is required to choose between several unpleasant options and their combinations:

- (a) These systems do not support the full range of capabilities from low earth orbit, missions to the moon and destinations beyond low earth orbit. For example none of the systems presented so far support planetary exploration. *The ARES architecture addresses all of the missions needs.*
- (b) All of the systems presented so far will be very expensive and every launch will involve discarding hundreds of millions of dollars worth of hardware. *The ARES architecture takes reusability and responsiveness to the next level while drastically reducing the development and operational costs to the extent that it will be most economical. **United States through the committee's recommendations does not need to choose to resort to massive layoffs to support expensive launch systems that will be thrown away every launch.** The ARES architecture is designed to retain and effectively utilize the human talent to be continuously innovative in building the next generation of reusable and responsive human space flight capabilities.*

The ARES platform not only serves as a next generation architecture for space exploration, but also seeks to unify different camps inside and outside NASA under one umbrella:

1. The architecture is named ARES (acronym) and the current Ares I and Ares V proponents have a lot to like and publicly support.
 - All systems in the ARES platform support the Ares principle of separation of crew and cargo. In fact cargo space launch systems are separately designated with a "C" nomenclature.
 - It includes a versatile and safe crew exploration vehicle VECTOR that is designed to be the basis for Orion Block-2 capsules.
 - The ARES-1 series have more capability than the Ares-1 vehicle for not only, launching human rated Apollo, Orion and Vector class vehicles but also, next generation of orbital space planes.
 - The ARES-3C launch system (with a minimum of 9 engines) can launch larger and heavier sub-systems than the proposed Ares-V vehicle and serve as a first step towards planetary space exploration.
2. Since ARES is shuttle derived, it will find natural support within the SDLV (Shuttle Derived Launch Vehicle) community.
 - The ARES-1C series will continue to support both precious return cargo and equivalent or greater up-mass capacity than the Shuttle system and support the International Space Station.
3. ARES platform is designed for reuse and can help evolve the current EELVs, and newer systems such as SpaceX Falcon and others into next generation of RLVs under its architecture umbrella to provide redundant space exploration capabilities.

The ARES platform not only seeks to support NASA but also strengthen it. So any criticism of NASA in general is unfair. NASA has made an excellent decision to decouple crew and cargo launch. It has made advances in crew exploration vehicle design. It has fielded a number of systems (a) Ares (b) Direct (c) Shuttle Side mount options and others before the committee. NASA has made progress on five segment solid booster that may be used as a part of ARES architecture for extra heavy lift. Hence all work that NASA has put in so far towards planning for the Space Shuttle's retirement can be positioned to be a part of the larger ARES platform efforts.

Most space exploration architectures go through multiple versions. Witness the existing expendable launch vehicles and evolved expendable launch vehicles (versions 1.0-3.0 of Direct proposal). In order to enhance the Constellation/Ares program, and transition to Version 2.0 architecture, the enclosed patent-pending architecture is proposed to serve as a launching pad.

The ARES platform-architecture being presented before the committee ensures that our nation is on a vigorous and sustainable path to achieving its boldest aspirations in space.

Sincerely,

Dinesh S. Atreya
Signature

PS-1 (Post Script 1):

The information contained herein can be made publicly available.

PS-2: Transcript of Patent Application to USPTO

EFS-Web Receipt for 61226768

USPTO received your submission at 10:17 ET on 20JUL2009.