Sustaining America’s Exploration Program: An Industry Perspective

Presented by:
Michael Rudolphi
ATK Aerospace Systems

www.atk.com

The 4th Annual Wernher von Braun Memorial Symposium
October 24, 2011 – Huntsville, Alabama
Industry Readiness Perspective

- Industrial base for Solid Propulsion is strong
  - Manufacturing multiple products for multiple customers
- ATK is well on the way to qualification of human rated five segment booster
  - Three development motors tested
- Supplier base is healthy and eager to support
- Serious considerations and adjustments have been made to support Affordability
- ATK has maintained sufficient critical skills to execute the program safely

Flexible
Evolvable
Affordable

- Modular/Flexible vehicle architecture
- Fly any vehicle configuration depending on mission specific destination and payload requirements
- Support Future explorations beyond LEO

ATK Endorses NASA’s three point plan
First Steps

- Establish and maintain an acceptable Baseline
  - Start Design, development and testing as soon as possible
    Best chance to maintain schedule

- Industry is committed
  - One common goal to restore United States Space Program

Interdependent relationship with NASA and contractors
  - Allow contractors to work closely to ensure affordable solutions are discovered

- Look for contracting efficiencies and improvements
  - Capitalize on lessons-learned from Shuttle and Constellation programs to reduce cost growth and schedule slips

- Industry commitment to affordability
  - Change previous operation practices to lower costs and streamline processes

Safety remains paramount
Leveraging progress to date

Five Segment Booster Development

DM-1 – Ambient Temperature
• Met all ballistic requirements with 3.6M lbs max thrust
• Successfully demonstrated 46 test objectives through 658 instrumentation channels

DM-2 – Cold Temperature (42°F)
• Demonstrated ballistic repeatability and redesigned joint performance at cold temperatures
• Successfully demonstrated 52 test objectives through 764 instrumentation channels

DM-3 – Hot Temperature (92°F)
• Highest pressure ever measures on a shuttle derived solid rocket motor (approx 1000 psi)
• Successfully demonstrated 37 test objectives to date through 979 instrumentation channels
Consolidation Efforts
- Consolidated Work Centers
- Restructured 49 crews/work cells to 17
- Restructured 17 IPTs to 10
- Realigned Engineering, S&MA, and Operations to matrix-based orgs serving multiple programs
- Consolidated and closed more than 200 buildings

Streamlining Processes and Procedures Efforts
- Utilized Value Stream Map Process targeting
  - Touch and support and labor
  - Materials and supply chain
- Re-evaluated heritage processes towards a commercial approach
“My friends there was dancing here in the streets of Huntsville when our first satellite orbited the earth. There was dancing again when the first Americans landed on the moon. I'd like to ask you, don't hang up your dancing slippers.”  

Werner von Braun