Teammates On the Engineering Services Contract (ESC)

Denotes Small Business
Engineering Services Contract at Kennedy Space Center

Space Launch Systems (SLS) Program Support

• **Ground Systems**
  – Design Engineering
  – Fabrication
  – Installation
  – Testing
  – Verification and Validation
  – Design Certification and Turnover to Operations

• **Facilities and Ground Support Equipment**
  – Launch Equipment Test Facility
  – Multi-Purpose Processing Facility
  – Vehicle Assembly Building
  – Mobile Launcher
  – Crawler Transporter
  – Launch Control Center
  – Launch Pad

• **Command and Control Software**
  – Spaceport Command and Control System (SCCS)
  – Ground Systems Programmable Logical Controller (PLC) Software
Preparing KSC for Next Phase of Space Exploration

**Mobile Launcher**
- Designed 10 launch accessories and 50 subsystems
- Procured subsystems hardware
- Developed installation designs

**MPPF**
- Refurbished/upgraded processing facility for Orion
- Designed processing equipment

**Crawler Transporter**
- Managed major upgrades to CT-2 for use with SLS
- Designed subsystem mods

**VAB**
- Supported NASA project management of facility mods
- Designed Handling and Access GSE

**Launch Control Center**
- Developed SCCS launch control software
- Designed and managed hardware installation in two firing rooms

**Launch Pads**
- Supported NASA project management of Pad B structural mods
- Managed modification of several systems

**LETF**
- Refurbished/constructed testing structures
- Tested Mobile Launcher arms/accessories
Crawler Transporter Case Study

Opportunities exist for companies with unique skill sets to contract with other companies and with federal government.
NASA’s Workhorses

- NASA has 2 crawlers at KSC that were built in 1965 to move the Saturn V rocket from the Vehicle Assembly Building to Launch Pad 39
- After the moon landing and Skylab program, the CTs were used for 30 years to transport Space Shuttles to the launch pads
- The refurbished CT-2 will transport NASA’s Space Launch System rocket and launch tower to Pad 39B, its heaviest cargo yet
The CT Upgrade Project

- **Refurb increased CT carrying capacity from 12 million to 18 million pounds**
  - CT itself weights 6.6 million pounds (= 1,000 pickup trucks)
  - CT height – varies from 20 to 26 feet, based on position of jacking, equalization and leveling cylinders
  - CT dimensions are the size of a baseball infield
  - Top speed = 1 mph loaded, 2 mph unloaded
  - To date, CT-2 has travelled 2,236 miles

- **CT-2 upgrades took more than 4 years**
  - Removed & Replaced Traction Roller Assemblies
  - Installed new Jacking and Leveling Cylinders
  - Refurbished 16 gear boxes, including replacement of bearings

- **Service Life extension projects – new AC generators, upgraded control, fluids and electrical systems**
Background

• ESC given $50M+ Task Order to help NASA upgrade the Crawler Transporter for the Space Launch Program

• Approach was to subcontract portions of the work to companies with specific skill sets

• Major activities
  – Piping systems design and installation
  – Engineering support
  – Overall management and integration of activities

• ESC subcontracted many activities
  – Hydraulic cylinder design and manufacture
  – Traction roller component fabrication
  – Traction roller removal / installation
  – Gearbox component removal / installation
  – Gearbox component refurbishment
Traction Roller Upgrade – L&H

Roller Removal

Field Machining
Traction Roller Upgrade – L&H

Component Fabrication

Installed Units
Gearbox upgrades – L&H

Gear Removal

Gear refurbishment
Gearbox upgrades – L&H

Field Weld and Machining

Gears Installed
Hydraulic Jacking and Leveling System – Hunger

Factory Assembly

Factory Testing
Hydraulic System (JEL) Upgrade – Hunger

Cylinder Installation

Installed Cylinders
Crawler Move Coverage

TRT - 3:30
Date - 03/21/17
Super(s) - NASA
Center Contact - Derrick Matthews 321-867-2468
For more info, www.nasa.gov/kennedy
Small Business – By the Numbers

• 43% of ESC contract revenue was awarded to small business (goal - 33%)
  – Total value from 2001 to 2017 - $379,741,051

• Small Business Subcategories
  – Small Disadvantaged
  – Veteran-Owned
  – Women-Owned
  – Service Disabled Veteran-owned
  – Historically Black College or University
  – HUBZone – Historically Underutilized Business Zones

• NASA Small Business
  – KSC awarded 12.4% in 2017 – $276 million
  – NASA wide awarded 16% in 2017 – $2.7 billion
# Cross-Agency Socioeconomic Goal Status

**September FY17**  
Data generated by NASA OSBP, October 11, 2017, from FPDS-NG

<table>
<thead>
<tr>
<th>Agency/Location</th>
<th>Small Business</th>
<th>SDB</th>
<th>WOSB</th>
<th>HUBZone</th>
<th>SDVOSB</th>
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</thead>
<tbody>
<tr>
<td>NASA Combined</td>
<td>16.0% / 16.2%</td>
<td>5.0% / 7.6%</td>
<td>5.0% / 4.3%</td>
<td>3.0% / 0.5%</td>
<td>3.0% / 1.0%</td>
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<tr>
<td>Ames (CA)</td>
<td>41.5% / 32.5%</td>
<td>15.3% / 23.7%</td>
<td>6.9% / 8.4%</td>
<td>0.6% / 0.9%</td>
<td>1.2% / 0.5%</td>
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<tr>
<td>Armstrong (CA)</td>
<td>43.4% / 41.0%</td>
<td>16.6% / 22.3%</td>
<td>3.4% / 9.1%</td>
<td>4.7% / 4.7%</td>
<td>4.8% / 8.9%</td>
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<tr>
<td>Glenn (OH)</td>
<td>60.0% / 77.9%</td>
<td>43.7% / 57.0%</td>
<td>18.8% / 16.7%</td>
<td>1.7% / 3.6%</td>
<td>1.7% / 2.3%</td>
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<tr>
<td>Goddard/HQ (MD)</td>
<td>22.8% / 25.1%</td>
<td>14.5% / 13.8%</td>
<td>3.0% / 4.1%</td>
<td>0.3% / 0.1%</td>
<td>0.4% / 0.3%</td>
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<td>Johnson (TX)</td>
<td>5.1% / 5.6%</td>
<td>3.1% / 2.0%</td>
<td>3.1% / 3.3%</td>
<td>0.3% / 0.1%</td>
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<td>Kennedy (FL)</td>
<td>6.2% / 12.4%</td>
<td>2.3% / 4.2%</td>
<td>0.6% / 1.5%</td>
<td>0.3% / 0.8%</td>
<td>0.3% / 0.7%</td>
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<td>Langley (VA)</td>
<td>29.9% / 38.5%</td>
<td>5.4% / 8.1%</td>
<td>10.8% / 26.5%</td>
<td>0.3% / 0.6%</td>
<td>0.3% / 0.6%</td>
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<td>Marshall (AL)</td>
<td>12.2% / 13.8%</td>
<td>4.8% / 6.4%</td>
<td>3.3% / 4.5%</td>
<td>0.3% / 0.3%</td>
<td>3.0% / 3.6%</td>
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<tr>
<td>Stennis (MS)</td>
<td>21.5% / 37.1%</td>
<td>15.0% / 26.9%</td>
<td>11.8% / 15.9%</td>
<td>1.5% / 8.1%</td>
<td>2.0% / 6.5%</td>
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NASA Agency FY17

Prime Goals vs. Actual Percentages
Data generated October 11, 2017 from FPDS-NG

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<tr>
<th>CATEGORY</th>
<th>DOLLARS</th>
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<tr>
<td>TOTAL DOLLARS</td>
<td>$16,717,281,452</td>
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<tr>
<td>SMALL BUSINESS</td>
<td>$2,707,550,103</td>
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<tr>
<td>SDB</td>
<td>$1,269,865,718</td>
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<td>WOSB</td>
<td>$722,914,053</td>
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<td>HUBZone</td>
<td>$77,697,198</td>
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<td>SDVOSB</td>
<td>$167,573,295</td>
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Goals vs. Actual Percentages:
- Small Business: 16.00% vs. 16.2%
- SDB: 5.0% vs. 5.0%
- WOSB: 5.0% vs. 4.3%
- HUBZone: 3.0% vs. 0.5%
- SDVOSB: 3.0% vs. 1.0%
Central Industry Assistance Office

- Home of KSC’s Small Business Office
  - Outreach to industry
  - Source of information for those seeking procurement opportunities
  - Primary focus on small business

- Lead: Joyce C. McDowell, Small business specialist
  - 321-867-3437
  - Ksc-smallbusiness@mail.nasa.gov
  - General Info: 321-867-7353

- KSC Prime Contractor Board
  - Provides Joint Counseling to vendors
  - Subcontracting to Primes - increasingly the best opportunity for small biz
## KSC PRIME CONTRACTOR LIST AND ADDITIONAL CONTACTS

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Description</th>
<th>M/C</th>
<th>Contact Information</th>
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<tbody>
<tr>
<td>Abacus Technology Corporation (SB)</td>
<td>(Information Mgmt. and Comm. Support)</td>
<td>Mike Hewell</td>
<td><a href="mailto:Mike.Hewell@nasa.gov">Mike.Hewell@nasa.gov</a></td>
<td>1/31/2018</td>
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<tr>
<td>AECOM (LB)</td>
<td>(Institutional Service Contract)</td>
<td>Janice Ellis</td>
<td><a href="mailto:Janice.ellis@nasa.gov">Janice.ellis@nasa.gov</a></td>
<td>9/30/2018</td>
</tr>
<tr>
<td>A.i. solutions, Inc. (LB)</td>
<td>(Expendable Launch Vehicle Integrated Support III)</td>
<td>Oliver Rye</td>
<td><a href="mailto:oliver.r.rye@nasa.gov">oliver.r.rye@nasa.gov</a></td>
<td>9/30/2018</td>
</tr>
<tr>
<td>A-P-T Research, Inc. (SB)</td>
<td>(S-MASSII)</td>
<td>Elizabeth Cherry</td>
<td><a href="mailto:Elizabeth.c.cherry@nasa.gov">Elizabeth.c.cherry@nasa.gov</a></td>
<td>9/30/2017</td>
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<tr>
<td>AECOM (LB)</td>
<td>(Laboratory Support Services and Operations)</td>
<td>Susan Germano</td>
<td><a href="mailto:susan.germano@aecom.com">susan.germano@aecom.com</a></td>
<td>9/30/2019</td>
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<tr>
<td>DNC Parks &amp; Resorts at KSC, Inc. (LB)</td>
<td>(KSC Visitor Complex)</td>
<td>Darlene Koenig</td>
<td><a href="mailto:dkoenig@dncinc.com">dkoenig@dncinc.com</a></td>
<td>4/20/2030</td>
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<tr>
<td>Integrated Mission Support Services (SB)</td>
<td>(KEMCON)</td>
<td>Domingo Rivera</td>
<td><a href="mailto:Domingo.rivera@nasa.gov">Domingo.rivera@nasa.gov</a></td>
<td>9/30/2020</td>
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<tr>
<td>Chenega Infinity, LLC (SB)</td>
<td>(KSC Protective Services Contract II)</td>
<td>Regina Costlow</td>
<td><a href="mailto:Regina.Costlow-1@nasa.gov">Regina.Costlow-1@nasa.gov</a></td>
<td>9/30/2021</td>
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<tr>
<td>Millennium Engineering and Integration Co. (LB)</td>
<td>(Kennedy LXII Support)</td>
<td>Jim Gray</td>
<td><a href="mailto:James.a.gray@nasa.gov">James.a.gray@nasa.gov</a></td>
<td>1/31/2019</td>
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<tr>
<td>New Directions Technologies (SB)</td>
<td>(Information Technology Support Services-2)</td>
<td>Mark Fuersst</td>
<td><a href="mailto:mark.a.fuersst@nasa.gov">mark.a.fuersst@nasa.gov</a></td>
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<td>Jacobs Technology (LB)</td>
<td>(Test and Operations Support Contract)</td>
<td>Colleen Gates</td>
<td><a href="mailto:Deidra.T.whealn@nasa.gov">Deidra.T.whealn@nasa.gov</a></td>
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<td>Apache-Logical JV (SB, 8A)</td>
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<td>Tara S. Miller</td>
<td><a href="mailto:tara.s.miller@nasa.gov">tara.s.miller@nasa.gov</a></td>
<td>02/28/2022</td>
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<td>United Launch Services, Inc. (LB)</td>
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<td>Susan T. Czere</td>
<td><a href="mailto:Susan.t.czere@ulalaunch.com">Susan.t.czere@ulalaunch.com</a></td>
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<td>Apache-Logical JV (SB, 8A)</td>
<td>(KSC Institutional Support Services IV)</td>
<td>Tara S. Miller</td>
<td><a href="mailto:tara.s.miller@nasa.gov">tara.s.miller@nasa.gov</a></td>
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