



GSDO

GROUND SYSTEMS
DEVELOPMENT & OPERATIONS

EXPLORATION BEGINS HERE



PROGRAM HIGHLIGHTS • JUNE 2014

At NASA's Kennedy Space Center in Florida, the Ground Systems Development and Operations (GSDO) Program Office is leading the center's transformation from a historically government-only launch complex to a spaceport bustling with activity involving government and commercial vehicles alike. GSDO is tasked with developing and using the complex equipment required to safely handle a variety of rockets and spacecraft during assembly, transport and launch. For more information about GSDO accomplishments happening around the center, visit <http://go.nasa.gov/groundsystems>.

GSDO Ops & Planning Prepares for NASA's Space Launch System

NASA's Ground Systems Development and Operations (GSDO) Program is working to transform Kennedy Space Center to support processing and launch of the agency's Space Launch System (SLS) and Orion spacecraft in Fiscal Year 2018. GSDO operations and planning is an integral component to achieving this goal.

Work is primarily distributed across the Analysis and Integration Team and three GSDO Integrated Product Teams (IPTs): Vehicle Integration and Launch (VIL), Offline Processing and Infrastructure, and Command, Control, Communication and Range (C3R). Each has roles in development and operations and also shares their combined efforts with the SLS and Orion Programs and other NASA centers.

VIL is responsible for planning how GSDO will integrate, test and launch the SLS and Orion spacecraft. Using a ground operations planning database, the team is working to determine how best to integrate the boosters, the launch vehicle and the Orion spacecraft.

The Operations Integration Branch is responsible for planning and managing operations which includes performing 3-D modeling of how the launch vehicle will be processed in the Vehicle Assembly Building, transported to Launch Pad 39B and prepared for launch.

C3R is developing the Launch Control System, which is the command and control system, for SLS, Orion, and ground support equipment and its subsystems. The communications systems at Kennedy have been evaluated and are being upgraded as required.

For the complete story, visit <http://go.nasa.gov/1vTd4UU>.



A computer-aided design image of NASA's Space Launch System and Orion spacecraft being stacked in the Vehicle Assembly Building high bay at Kennedy Space Center.

GSDO, Corrosion Lab Test Coatings for Aluminum Ground Support Equipment

Kennedy Space Center continues to transform into a multi-user spaceport of the future, and many of the center's facilities are undergoing upgrades and modifications to support processing and launch of NASA's Space Launch System and Orion capsule in 2017 and beyond.

The Technology Evaluation for Environmental Risk Mitigation (TEERM) Principal Center in NASA's Environmental Management Division has partnered with the Ground Systems Development and Operations Program to investigate alternative coatings that could serve as an option to replace the current hexavalent chromium coatings, also called hex-chrome, on aluminum structures, including large enclosures that house electronics throughout the center.

"It is rewarding to partner with the TEERM team as they continue to successfully research alternatives that benefit the environment and reduce corrosion control costs at the center," said Bill Simmonds, GSDO project manager for Environment and Infrastructure.

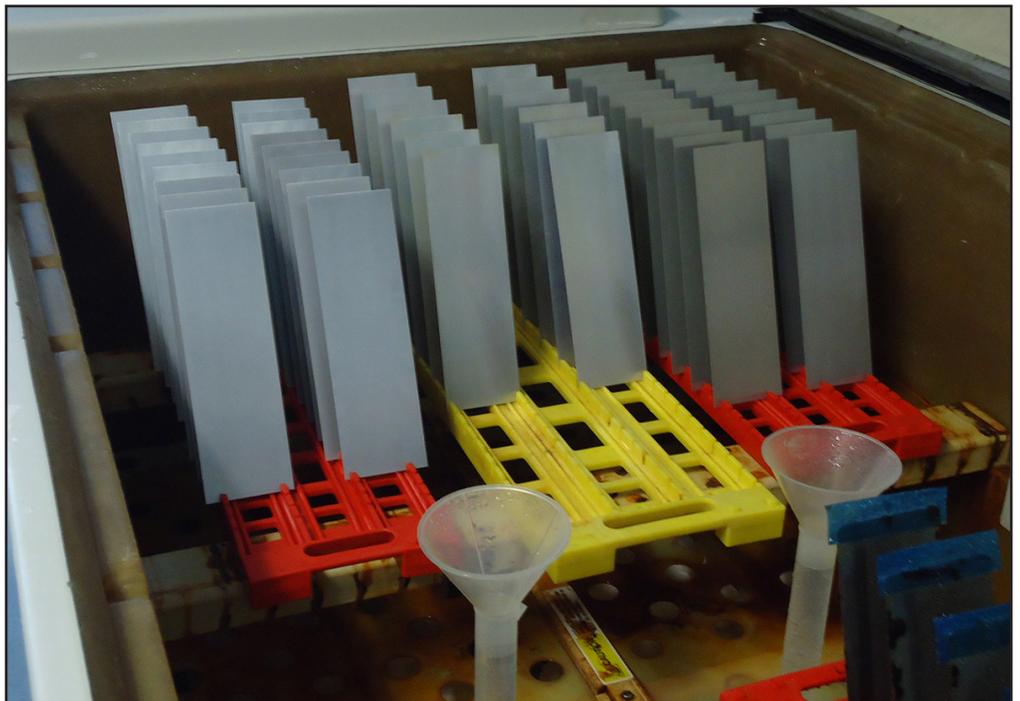
Kurt Kessel, a project manager with ITB Inc. is overseeing the testing of alternative coating samples at the Corrosion Technology Lab in the Operations and Checkout Building and the Beachside Atmospheric Test Facility. The project is a continuation of work begun during the Space Shuttle Program.

"There are many variables that need to be considered when looking at primers and coatings for flight or ground support equipment," Kessel said. "We are gathering test results and sharing them with GSDO on a monthly basis."

Results of the alternative coating tests will be shared with other NASA centers, the U.S. Air Force and other government agencies, and the European Space Agency.



Three different coating systems were applied to aluminum test panels July 18, 2013, and placed at the Beachside Test Facility at NASA's Kennedy Space Center in Florida. Photo credit: IHA/Kurt Kessel



Alternative corrosion control coatings were applied to aluminum test panels Dec. 13, 2012, and placed in a salt spray chamber in the Corrosion Technology Lab at the Operations and Checkout Building at NASA's Kennedy Space Center in Florida. Photo credit: IHA/Kurt Kessel

For the complete story, visit <http://go.nasa.gov/1jLVxYZ>.

Launch Complex 39B Refurbishment Contract Awarded

NASA has awarded a contract to Precision Mechanical Inc. of Cocoa, Florida, to refurbish the Environmental Control System (ECS) at Launch Complex 39B. The firm-fixed price contract with two options was awarded June 30 and has a maximum value of \$11.23 million with a performance period of 412 days.

The completed ECS will provide conditioned clean purge air to various compartments of the new Space Launch System vehicle. The refurbishment/replacement includes the following components: chillers, large volume blowers, high-pressure ducts, piping, industrial process PLC-based controls, humidifiers and boilers, and associated electrical equipment.

All cooling tower equipment including fill, fans, gear boxes, pumps, valves, piping, grating and handrails will be replaced and the concrete structure repaired or refurbished.

The project also will include two options for the installation of four additional compartment purge circuits and appurtenances from the main distribution plenum to above the pad surface and the replacement of existing post-cooling coils for three cooling chambers.



An aerial view taken May 6, 2013, from the southwest looking toward the northeast, shows the entire Launch Pad 39B area at Kennedy Space Center with the Atlantic Ocean in the background. Photo credit: NASA/Kim Shiflett



Inside Firing Room 4 at Kennedy Space Center's Launch Control Center on June 11, the outer walls and window framing for the four separate firing rooms on the main floor have been completed. Three rows of upper-level management consoles remain and could be used as a fifth firing room. GSDO is overseeing the efforts to create a new firing room based on a multi-user concept. Photo credit: NASA/Daniel Casper



A crane is used to lift a section of the metal structure away from the ML on June 11. The ML is being modified and strengthened to accommodate the weight, size and thrust at launch of NASA's Space Launch System, or SLS, and Orion spacecraft. Photo credit: NASA/Daniel Casper

Employee Spotlight --- Jeremy Graeber

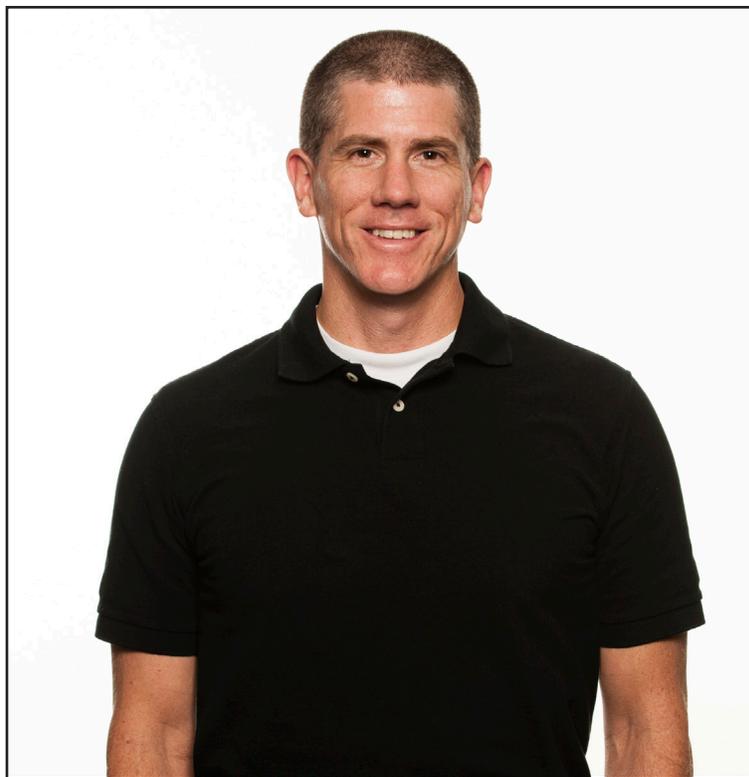
Jeremy Graeber, an engineer in GSDO, recently was assigned as senior operations lead for the Exploration Flight Test-1 (EFT-1) Landing and Recovery Operations. In this role, he will help develop and lead the Operations Team that will recover the Orion spacecraft for EFT-1.

"There are many things I like about this job. The exceptional individuals that I work with make this job very rewarding," Graeber said. "The new challenge that I have been asked to take on with EFT-1 Landing and Recovery is very exciting, and I am looking forward to helping this outstanding team."

Graeber came to Kennedy Space Center about 18 years ago. His first eight years were with United Space Alliance as a fuel cell system engineer for the Space Shuttle Program. His last 10 years have been with NASA in a few different roles, including a NASA Space Shuttle Launch Test Director. He was one of just four certified NASA test directors responsible for leading the shuttle team during the planning, scheduling and execution of the shuttle launch countdown.

As NASA marked T-6 months and counting for EFT-1, Graeber said it's very exciting to see this part of GSDO transition from planning to operations and knowing that the rest of the program will be making the same transition as it gets closer to Exploration Mission-1 on NASA's Space Launch System and Orion spacecraft.

Graeber is an avid triathlete, soccer player and coach (flag football, soccer and volleyball) for his children. His



first car, which he still owns, is a 1967 Datsun 1600 convertible.

Graeber and his wife, Stephanie, have three children, Olivia, 13, Jenna, 11, and Jack, 8. They have a 95-pound boxer and Labrador mix named Stella.



Charlie Blackwell-Thompson, second from left, chief of the Program Interface Office in the Ground Processing Directorate, and Phillip Meade, chief of Operations and Planning, also in Ground Processing, received recognition from Kennedy Space Center's Technology Transfer Office on June 9 for their patented invention, "Methods and Systems for Advanced Spaceport Information Management." Blackwell-Thompson provides near full time support to GSDO and specifically serves as the lead of the Launch Integration Cross Program Team and the Ground Operations and Launch (GOAL) teams. At right is Kennedy Deputy Director Janet Petro. At left is Kennedy Chief Technologist Karen Thompson.