



GSDO
GROUND SYSTEMS
DEVELOPMENT & OPERATIONS

EXPLORATION BEGINS HERE



PROGRAM HIGHLIGHTS • APRIL 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>.

Firing Room 4 Will Feature Multi-User Concept Layout

A metamorphosis is taking place inside Firing Room 4 (FR4) in the Launch Control Center at NASA's Kennedy Space Center in Florida. The Ground Systems Development and Operations (GSDO) Program is overseeing the work to create a new firing room as part of NASA's effort to transform Kennedy into a multi-user spaceport.

Unlike previous work at Kennedy focusing on a single kind of launch system, such as the Saturn V rocket or space shuttle, engineers are preparing the spaceport's infrastructure to support several different spacecraft and rockets in development for human exploration.

The new concept for FR4 will feature four separate firing room areas to serve NASA and potential commercial or private users' needs. Eight-foot-high walls will divide the rooms, with each room measuring 30 by 32 feet. Each room will have a door and large window with privacy blinds. Interconnecting doors will allow users access to more space if needed.

In November 2013, work began to reconfigure the room that supported shuttle launches for its future purpose. All of the main floor launch consoles and some upper-level consoles were removed, along with all of the shuttle-era cables and wiring beneath the floor. Completely new wiring and subflooring has been installed. High above, the ceiling tiles have been removed, exposing conduits and wiring.

"The new construction shows life and we're moving forward," said Steve Cox, the GSDO element operations manager for the Launch Control Center.

Construction workers are busy installing the supports so that the walls can be added. The room has been measured off and steel beams dot the floor in an orderly fashion.

"We have a plan. We have a purpose and a focus," Cox said. "We're providing the tools that will allow others to do their job more efficiently."

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



Construction workers have installed the framing and some of the inner walls inside Firing Room 4 in the Launch Control Center.

New Coatings Tested for Kennedy Facilities and Structures

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 (GSDO) Program at Kennedy Space Center to investigate and test a variety of protective coatings that would serve as a barrier between the center's carbon steel on facilities, launch structures, and ground support equipment and the harsh corrosive environment.

According to many published studies of marine environments throughout the country and other parts of the world, Kennedy has one of the highest corrosion rates.

"The incorporation of environmentally responsible materials is a key component of the GSDO Program's goal to make Kennedy a sustainable spaceport of the future," said Joni Richards, TEERM Program manager. "TEERM is actively helping to address one of the biggest concerns, corrosion, by qualifying greener alternatives to protect steel structures and ground support equipment."

Currently, many of Kennedy's structures are protected with coatings that work well preserving steel but contain hazardous chemicals that could harm the environment. New spray-on coating systems are being investigated as GSDO prepares the center to process and launch the next generation of rockets and spacecraft for NASA and commercial missions.

For Stage 1 testing, 10 coatings were selected based on requirements such as ease of application, what kind of surface preparation is needed and surface appearance under magnification. The samples were applied to panels at the Beachside Atmospheric Test Facility at the Corrosion Technology Lab. They were exposed to the marine atmosphere for 18 months.



A protective coating is sprayed on a sample panel for testing at the Beachside Atmospheric Test Facility.

At the end of the first round of tests earlier this year, three of the coating samples showed acceptable performance. The next step will be to expose these samples to liquid oxygen and hypergols to test their compatibility.

"GSDO is dedicated to performing its mission using the most sustainable and cost-effective technologies," said Bill Simmonds, GSDO project manager for Environment and Infrastructure.

For the complete story, visit <http://go.nasa.gov/1mm06jA>



NASA Kennedy Space Center's Beachside Atmospheric Test Facility at the Corrosion Technology Lab currently is being used to test a variety of protective coatings for the center's carbon steel structures.



Inside the Vehicle Assembly Building at Kennedy Space Center, ground support technicians monitored the progress as an overhead crane lifted a sprocket shaft assembly away from the crawler-transporter 2 on April 17. A section of the treads were removed to allow access to the sprocket assemblies.



Modifications continued on the Mobile Launcher (ML) on April 22 at the Mobile Launcher Park Site at Kennedy Space Center. Construction workers on lifts prepared to cut and weld sections of the metal walls on the exterior of the ML.



Modifications continued on the Multi-Payload Processing Facility at Kennedy Space Center. The high bay entrance was recently enlarged and a new door installed. Construction workers are installing new siding around the entrance. The extensive upgrades and modernizations will support processing of Orion spacecraft for NASA's exploration missions. The 19,647-square-foot building, originally constructed in 1995, primarily will be used for Orion hypergolic fueling, ammonia servicing and high-pressure gas servicing and checkout before being transported to the Vehicle Assembly Building for integration with the Space Launch System.

Employee Spotlight - Russell Stoewe

Russell Stoewe is the crawler-transporter (CT) project manager in the Engineering Directorate at Kennedy Space Center. In this position, Stoewe leads the requirements development and verification/validation processes on the crawler upgrades projects. Upgrades and modifications to CT2 are being done so that it can carry the increased weight of NASA's Space Launch System and Orion spacecraft.

Stoewe began his career at Kennedy 13 years ago and worked on the Space Shuttle Program as an operations engineer and project manager.

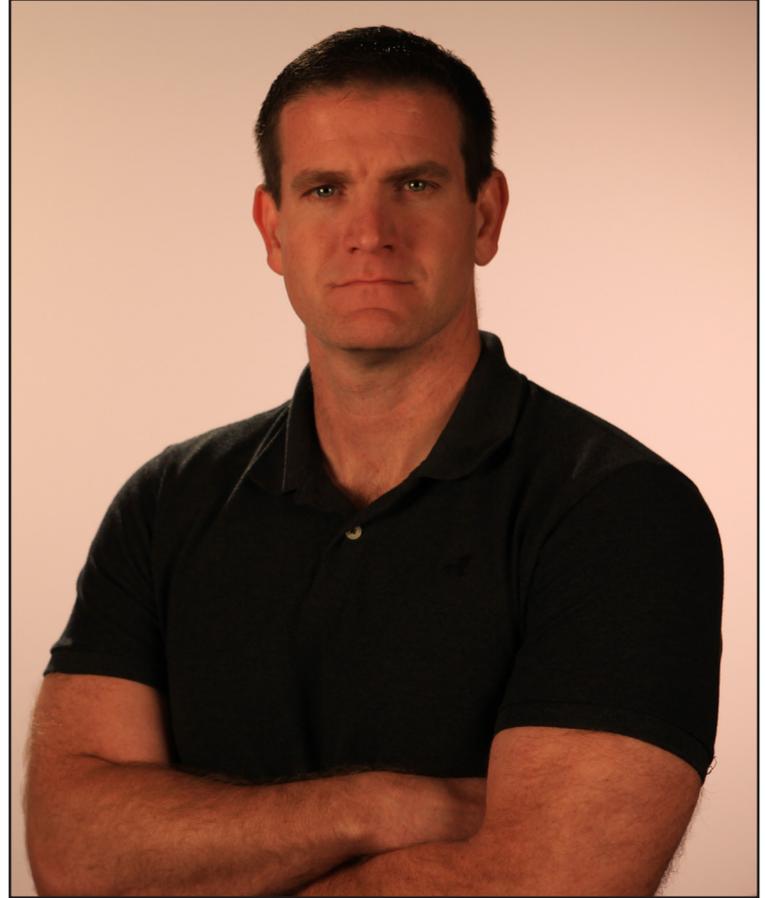
"One of my favorite memories working at Kennedy was the last space shuttle rollout, STS-135, in 2011," said Stoewe. "The amount of support from the community that watched from the turn basin was amazing, and having my family see the operation was a perfect way to close out the program."

Stoewe said he appreciates the opportunity to work for NASA at the most prestigious space agency in the world.

"It's a good feeling knowing that I am helping to provide a vital service to mankind's exploration of the cosmos," Stoewe said.

His first car was a blue 1988 Honda Accord. After graduation from college, his first purchase was a grey 2001 Mustang.

Stoewe lives in Oviedo. His hobbies include baseball and running marathons. He also is a published author. His first book, "Number 181," was published in 2012,



and the second, "Tin Man," was published in 2013.

His family includes parents Russell and Patricia, sister Michelle, and niece and nephew Elyse and Evan.



On April 17, ground support technicians used a special work stand to guide an ice-covered roller bearing shaft for insertion on the crawler-transporter 2 inside the Vehicle Assembly Building at Kennedy Space Center.