Space Systems Company – Michoud Operations

LOCKHEED MARTIN

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# Mission Success Bulletin

January 28, 2009

on-line

http://www.lockheedmartin.com/michoud/

# STS-119 first to launch in busy year

It appears 2009 is going to be a bustling year that continually gains momentum. Already, Kennedy Space Center is a hub of activity with Space Shuttle *Discovery* at the pad standing by to launch February 12; ET-130 mated to the Solid Rocket Boosters in preparation for its May 12th launch; and the center preparing to receive ET-131 from Michoud in late February.

Currently, six shuttle missions comprise the shuttle launch schedule although at press time, NASA is again reviewing the 2009 flight manifest:

- STS-119/ET-127 – February 12
- STS-125/ET-130 – May 12 (Hubble mission)
- STS-127/ET-131 – May 15
- STS-128/ET-132 – August 6
- STS-129/ET-133 – November 12
- STS-130/ET-134 – December 10

"It's an ambitious schedule that will require continued high levels of performance from the team – performance that they are demonstrating every day in producing safe, high quality tanks," says **Mark Bryant**, ET program manager.

First up is *Discovery* and ET-127. *Discovery* rolled to the pad two weeks ago to begin launch operations for its flight to the International Space Station. The Orbiter will deliver the starboard 6 truss segment and the final set of solar arrays for the space station.

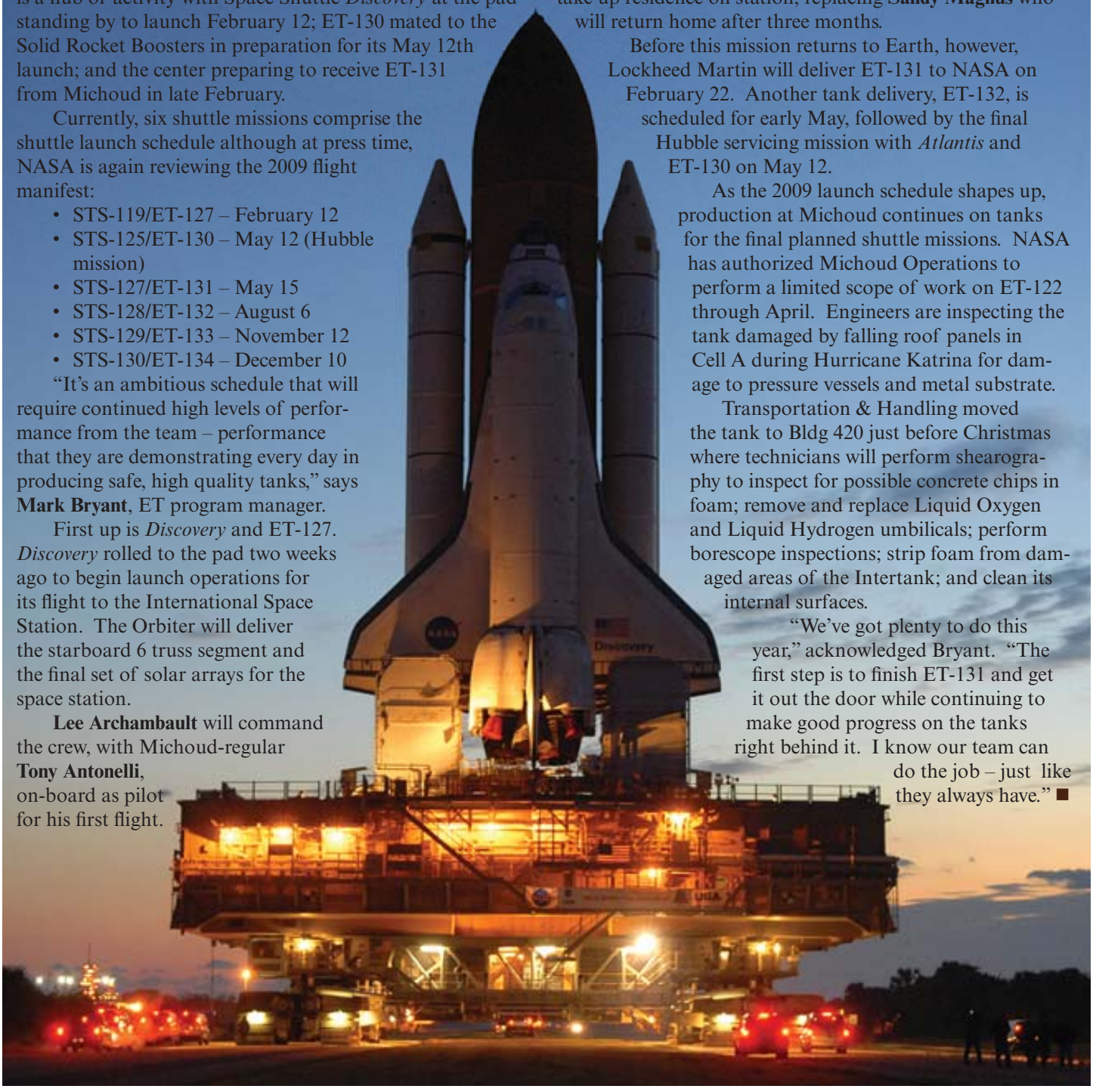
**Lee Archambault** will command the crew, with Michoud-regular **Tony Antonelli**, on-board as pilot for his first flight. Five mission specialists complete the crew of seven. One of those, **Koichi Wakata**, will be the first Japanese astronaut to take up residence on station, replacing **Sandy Magnus** who will return home after three months.

Before this mission returns to Earth, however, Lockheed Martin will deliver ET-131 to NASA on February 22. Another tank delivery, ET-132, is scheduled for early May, followed by the final Hubble servicing mission with *Atlantis* and ET-130 on May 12.

As the 2009 launch schedule shapes up, production at Michoud continues on tanks for the final planned shuttle missions. NASA has authorized Michoud Operations to perform a limited scope of work on ET-122 through April. Engineers are inspecting the tank damaged by falling roof panels in Cell A during Hurricane Katrina for damage to pressure vessels and metal substrate.

Transportation & Handling moved the tank to Bldg 420 just before Christmas where technicians will perform shearography to inspect for possible concrete chips in foam; remove and replace Liquid Oxygen and Liquid Hydrogen umbilicals; perform borescope inspections; strip foam from damaged areas of the Intertank; and clean its internal surfaces.

"We've got plenty to do this year," acknowledged Bryant. "The first step is to finish ET-131 and get it out the door while continuing to make good progress on the tanks right behind it. I know our team can do the job – just like they always have." ■



# STS-126 astronaut praises tank performance

*Mission Specialist Heidemarie Stefanyshyn-Piper*

A journey of 6.5 million miles began with launch on November 14. And two months later, STS-126 Mission Specialist **Heidemarie Stefanyshyn-Piper** visited Michoud to describe her multi-million mile mission to the workforce.

During her presentation, the astronaut applauded the performance of ET-129 and congratulated the workforce on the successful launch. "Every job here at Michoud contributes to the success of a mission, not just the folks physically working on the tanks. From the person who prepares meals through the purchasing department, I thank you for your work and contributions to Mission Success."

She also acknowledged the perseverance and teamwork required for human spaceflight. "I got to space because of the hard work of each of you. It's a team effort. I was just the lucky one to take the ride up."

Stefanyshyn-Piper described her ascent on a spectacular night with the full moon as a backdrop. Of the tens of thousands who also witnessed the launch were Launch Honorees and 103 other Michoud employees who had never seen a launch before in person.

After docking at the International Space Station, the hard work of the mission began. Mission activities could be summed up as an "Extreme Home Improvement." The crew performed four spacewalks with Stefanyshyn-Piper stepping out into space three of those times.

During the spacewalks, astronauts performed repairs to the starboard Solar Alpha Rotary Joint (SARJ) and lubricated the port SARJ. They also mounted a new external camera on the Kibo module and prepared it to receive the Japanese external experiment facility that will arrive on a future mission.

The astronauts also stayed busy transferring over 15,000 pounds of supplies and performing science experiments. The re-supply mission was the largest delivery ever made to the ISS. The amount of cargo is roughly equal to what a tractor trailer truck carries. The cargo included additional crew quarters, an exercise machine, and a new water recycling system, which was installed. The crew returned water samples to Earth for analysis. The mission sets the stage for the space station to expand from a three- to a six-person resident crew.

While on orbit, the crew celebrated Thanksgiving with a dehydrated turkey dinner as well as three other notable events: NASA's 50th anniversary, the space station's 10th anniversary, and eight years of human presence aboard the ISS.

**Chip Jones**, NASA Michoud chief operating officer, also briefly addressed employees at the General Assembly. "Looking out across the crowd, there are a lot of folks here who put in a lot of dedicated hours and a lot of hard work to get ET-129 together and prepared for its launch. On behalf of NASA, I would like to personally thank you for your dedication." ■

# Children's Hospital thanks Lockheed Martin

***Fall Fest booth volunteers pose around a Chuck Jones Warner Brothers print that Roger Gorman of Children's Hospital presented to Lockheed Martin in recognition of the $3,820 received that the booths raised at Fall Fest in November. Pictured from left to right front row: Richard Turner, Annvernette Graham and Lisa Thonn. Second row: Dee Willick, Denise Younger, Gorman, Manny Zulueta and Beth Rodrique. Third row: Glen Gilmore, Claud Fuller, John Arseneaux and Hank Knighton.***

# Lockheed Martin hosts Constellation supplier fair

Approximately 150 suppliers in the Huntsville area participated in a Constellation Program Small Business Fair on January 13 to explore opportunities in support of NASA's next generation launch vehicles – *Ares V* cargo launch vehicle, *Altair* lunar lander and *Orion* crew exploration vehicle.

Lockheed Martin sponsored the fair, which featured presentations from **Ron Wetmore**, vice president, Exploration Systems, on *Ares V*; **Brian Duffy**, vice president & program manager, on *Altair*; and **Larry Price**, deputy program manager, on *Orion*.

*Ares V* Phase 1 procurement for preliminary design and definition will offer five work packages – 1) the Payload Shroud to protect the *Altair* lunar lander during launch, 2) the Earth Departure Stage, 3) the core stage, and 4) Avionics and Software. The fifth package includes a first-stage concept for an upgraded Solid Rocket Booster.

"The *Ares V* will fly two missions a year and have five times the lift capability of a *Delta IV* heavy," Wetmore said in describing the giant *Ares V* heavy lift and cargo rocket. "It's like putting the volume of seven semi tractor-trailer trucks in it. It's that powerful. The *Ares I* and *Ares V* lunar mission will also have a 60 percent greater capability than the *Saturn V* that launched men to the moon."

On February 9, the Request for Proposal (RFP) is due back to NASA, and Wetmore anticipates a NASA base award in the spring this year. The period of performance for *Ares V* initial design support work begins with an 18-month period with two option years in October 2010 and October 2011.

Much is still to be defined about the *Altair* lunar lander that will launch aboard *Ares V*, Brian Duffy told suppliers. The draft RFP – seeking design and conceptual development information – came out December 16. NASA will release the final RFP on or about January 28 with a proposal due date of February 25. The agency expects a contract award announcement June 3.

*Altair* will rendezvous with *Orion* in low Earth orbit and be able to transport four astronauts to the moon's surface, provide life support and a base for initial weeklong exploration missions and then return the crew to *Orion* to come back to Earth. Duffy described the conceptual lander vehicle as the size of a two-story home. He said there will be several different versions of the lander – the cargo variant, sortie variant and outpost variant.

"We'll start small with a seven-day trip, but eventually we'll ask astronauts to survive on the moon for 210 days. And that will require a lot of infrastructure on the lunar surface."

Duffy told suppliers, "Lockheed Martin is interested in building the best team so that we can help NASA be successful and the country be successful."

Lockheed Martin won the *Orion* contract on August 31, 2006, and work is proceeding at industry team sites around the country. *Orion* will be able to carry up to six astronauts and cargo to the International Space Station and four astronauts to the moon and Mars.

*Orion* is comprised of four main components: Crew Module for astronauts and cargo; Service Module for propulsion, electrical power and fluids storage; Spacecraft Adapter, the structural transition to *Ares I*; and Launch Abort System for emergency escape if needed during launch.

Larry Price compared the similar-looking Constellation crew capsule to the *Apollo* capsule 40 years ago. Then, the moon was a destination with a crew of three – two of whom went to the moon – on a three-day mission, and NASA had to land in the equatorial region. In the Constellation program, the moon is a stepping stone to Mars with a crew of four; all of whom can go to the moon, land anywhere on the lunar surface and stay for six months.

In an interview afterward, Price said, "We're an exploring species, and we need to have the tools to go out in the universe and look at what's there – besides just looking in telescopes and sending robots out."

Many of the suppliers said they learned much about the Constellation Program and indicated the fair had been a good opportunity to network with Lockheed Martin and their peers. ■

# Space Systems execs paint mural at partner school

With painters' jumpsuits zipped and hitched, 75 members of **Joanne Maguire's** executive staff, their guests and friends painted a space-themed mural at Jefferson Elementary School on December 6.

**Shannon Jurado**, a Michoud Operations graphic artist, created the mural concept that depicted the External Tank and Space Shuttle, International Space Station, Mars rovers, and other Space Systems programs and hardware. Jurado projected computer images of the concept onto school walls, then traced them to prepare each element of the huge 17-foot long, 8-foot high mural for painting.

Twenty-one different colors of paint corresponding with mural numbers showed the amateur artists which color to use. While many of the participants had no previous mural experience, the paint-by-number approach – on a massive scale – rapidly turned engineers into artists.

The painters were determined to finish the mural before they left New Orleans, and many stayed later than planned to complete the project. Because of the overwhelming turnout, volunteers also painted school walls and doors in other hallways.

At the end of the long day of painting, Maguire's volunteers were presented with black berets to thank them for their efforts and recognize their newly-acquired skill as artists.

Approximately 400 students attend the elementary school and upon their return on Monday morning, many uttered "cool" after seeing the two large murals, which filled one part of the school's central hallway.

Lockheed Martin and Jefferson Elementary have a 25-year partnership that includes employee presentations and Space Week activities each year. ■

*Dennis Little (left) SSC vice president, Production, and Jim Crocker, vice president, Sensing & Exploration Systems, carefully paint the mural at Jefferson Elementary.*

# EVO board members ready to serve in 2009

*This group will lead the Employee Volunteer Organization board this year. From left are Marissa Billings, treasurer, charter & bylaws; Netsy Wheeler, appreciationlrecognition committee member; Ashley Black, president; Rogers Whitlock, secretary; Marjorie Bilinski, appreciationlrecognition; Brian DeJan, vice-president; Alissa Johnson, publicity; and Leonard Wiggins, past president.*

# Green Belt training focuses on process improvement

The colored-belt ranking system in martial arts has always been a way to symbolize a student's progress in becoming a master. In business and manufacturing there are less obvious ways of distinguishing a student from a master. But Lockheed Martin has incorporated a ranking system that leads process improvement students on their way to becoming efficiency masters.

Michoud conducted a Green Belt training course December 1-5 to teach the fundamentals of Lean & Six Sigma process improvement techniques. These management methodologies stress cost and waste reduction to limit manufacturing defects and improve quality. Many Fortune 500 companies use these with great results.

At Michoud and throughout Lockheed Martin, Lean & Six Sigma techniques are combined along with LM21 Operational Excellence practices to yield management tools specific to our businesses.


*Mike McGehee (from left), Chris Dougherty and Ralph Tortorich interface during a Green Belt trainee exercise.*

The 36 Green Belt trainees learned the LM21-accepted 8-step process called the "Path for Excellence" that helps managers and directors solve problems and work through roadblocks. This tool begins with identifying and prioritizing opportunities for improvement and steps users through quantifiable and measurable points that lead to success goals, and ultimately, manufacturing excellence.

The Green Belt course is highly interactive and team based with emphasis on teaching trainees how to problem-solve. "Training is practical, activity-oriented knowledge – not just from a lecture," says **Bob Bruce**, the Michoud contact for Space Systems Operational Excellence.

Participants work with peers and certified Black Belts to complete practice exercises. After exiting the classroom, trainees must take an on-line exam to test their newly-gained knowledge. Trained Green Belts are then assigned a mentor and required to observe implementation of the 8-step process. The final step, and real test of a Green Belt's knowledge, comes by leading an actual structured improvement activity. After completion, Green Belts can then earn their true certification.

Green Belt certification has become a Space Systems requirement for leadership promotion. Level 5, 6, and 7 promotion candidates must become Green Belt trainees within a year of selection. Lockheed Martin is dedicated to continuing the LM21 Operational Excellence practices and encourages leadership to understand the methodology that has brought the company such great success.

Many universities and on-line schools offer Green Belt training. However, the special recipe of Lean, Six Sigma, and LM21 values offered in Lockheed Martin's Green Belt certification makes it the recognized course for Michoud employees. "Green Belt training is important for how we deliver today and how we strive to improve that process – but also how we design and deliver future products and services and how we define the most effective and efficient processes," Bruce explained.

If interested in the training, talk with your manager or director to begin the acceptance and training process. ■

# Marshall team evaluates Michoud for Contractor Excellence Award

*Michoud Operations is again a finalist for the Marshall Space Flight Center Contractor Excellence Award. A NASA evaluation team toured the facility on December 10 from Marshall. Bottom row from left: Terry Roberts, Paula Hartley (team lead and Michoud director, Safety & Product Assurance), Philisha Stephens, Elaine Hamner and Patrick Rasco. Second row: Susan Cloud, Nikhat Shahzad and Steve Tesney. Third row: Willie Love, Andrea Nunn and Scott Schutzenhofer.*

## Lockheed Martin Blood Drive

January 26 – 30, 2009

Bldg. 350 – East Cafeteria Monday – Tuesday 8am - 3pm

Bldg. 102 – Special Events Room
Wednesday 8am – 3pm Thursday 8am – 5pm
Friday 12 noon – 3pm

**Third Shift**
Please select a day to donate and
your appointment will be prioritized first at 8am.

# "Doing it Safely" campaign winners

*Steve Wilson*

**Steve Wilson** of Transportation & Handling is the November/December Grand Prize winner of the "Are you Safe? Doing it Safely" Campaign, which will continue this year.

While enroute to an assignment, Wilson noticed a subcontractor unloading and storing propane tanks in an unauthorized area. Wilson notified Safety and averted a potential hazard by instructing the contractor to move the tanks to the proper storage location. He also quickly alerted his supervisor. His actions demonstrated a personal commitment to doing it safely.

The Doing it Safely promotion is designed to encourage employee safety by rewarding those who work safely. Employees who are observed performing safe work activities may be recognized and receive gift cards from the Safety Department, which are redeemable for a designer hat or backpack. Bi-weekly winners will be recognized in future issues of *Info SPACE*. The following are bi-weekly November/December winners to date:

- **Wesley Clampitt**
- **Honore Chelette**

## Launch Honorees named for STS-119 liftoff

Thomas Barrett
Gary Bennett
Lon Chaney (Supplier)
John DesForges
Steve Franklin
Sandra Hindman
Philip Knight
Rose LaLanne
Patrick Martin
John McDonald
Clifton Mitchell
James Quirin
Pam Rouleau
Vivian Tolliver
Dave Turnage

# LMLA officers selected for new year

*The Lockheed Martin Leadership Association officers for this year include front row from left: Glenda Pates, recognition awards; Alissa Johnson, community services; Karen Poy, president; Andrea Jumonville, treasurer; and Steve Stefancik, parliamentarian. Top row: Roseann Augustine, on-site programs; Larry Knauer, LMLA executive sponsor; Deborah Ong and Lisa Blaum, professional development; Chinh Hoang, regional development; Mark Knoblach, NMA Southwest Area chairman; Marjorie Bilinski, membership; and Christina Houghton, communications. Not pictured: Albert Poree, vice president; Debra Houchin, secretary; Steven Deblasio, regional development, Kevin Barré, American Speech Contest; Sonya Johnson, off-site programs; and Don Romero, past president.*

## Emergency Information

To find out work status at Michoud, go to www.mafstatus.com
or call 257-1MAF or 1-800-611-3116, check ETV or listen to WWL-870 radio or visit
wwl.com or watch WWL-TV, Channel 4 or go to wwltv.com

# Two honored with Silver Snoopy awards

**Dan Walkowski** received a Silver Snoopy award for his achievement as a Safety staff engineer lead and for his leadership and guidance of the Performance Evaluation organizational function.

**George Ragas** was recognized for his support of Mechanical Assembly's Intertank area. His technical knowledge along with his willingness to train other team members on the proper Intertank assembly methods was the key reason that ET-137's Intertank was delivered on time.

*Dan Walkowski (left) and George Ragas display their Snoopies.*

# Holiday luncheon enjoyed by all

*Vice President Manny Zulueta (right) greets employees who dined on baked chicken breast with apple almond stuffing, garlic mashed potatoes, sautéed corn, rolls and cake at the holiday luncheon on December 17 in the factory. Aramark prepared 1,800 meals, and they went quickly.*

# Milestones

*Employees celebrating anniversaries with Lockheed Martin in February 2009*

**35 Years**
Rey Abadie

**30 Years**
D'Andrea Bass
Robert Bierhorst
Gerald Craft
Barklay Emmons
Edwin Gornor
Stanley Jones
James Little
Chris Pembo
John Smith

**25 Years**
Jim Feeley
Jeffery Ginn
Deborah Lorino
Mark McCloskey
Dina Michel
Carl Mundell
Keith Tassin

**20 Years**
Marianne Dann
Kevin DuBose
Julio Nunez
John Taylor
Andrew Tracey

**15 Years**
Bernie White

**10 Years**
Kristie Bergeron
Joseph Blake
Charlene Martin-Dauphin

**5 Years**
Glenn Daubert
Tyra Hebert
Joe Kennedy
Elisa Redfield

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