

Leaders convene to chart course for Michoud Operations

Real-time decisions and actions required in turbulent times

Michoud Operations leaders gathered off-site last week to better understand an evolving environment, which will ultimately shape the future of the business. Their goal – try to retain jobs while helping employees find jobs ... a task made difficult by unresolved NASA direction.

Just as the finishing touches were applied to the meeting charts; another revelation was announced. A NASA Authorization Bill had been unanimously passed with strong bipartisan support in the U.S. Senate Committee on Commerce, Science and Transportation – an apparent compromise from months of wrangling among the players. On the surface the bill contains hopeful opportunities for Michoud, but unfortunately it faces a long and potentially rough road to final passage.

Mark Bryant, vice president, External Tank Project, began the Off-site by thanking and praising the External Tank team, “We overcame the hardships of Katrina – no one gave us a chance but we stepped up to the plate and met the challenges of the TPS learning curves, met delivery schedules, and perfected this vehicle. This team is performing at its best today! Your performance is key to our consideration for ET follow-on work and heavy lift in the future.”

Important work on the ET program remains at the forefront of our priorities.

ET-122 is in Building 420 with a scheduled September delivery milestone. The remaining outlook for ETs is to fly ET-137 this fall and ET-138 in the first quarter of 2011. No ET-122 manifest exists at this time but that could potentially change with

the final passage of the NASA Authorization Bill. A group of employees will be retained under a Launch and Landing Proposal through March 31, 2011 to assure that critical skills are retained until these two missions are flown. That proposal is now under review at MSFC and is expected to be announced soon. Following that announcement, discussions with employees will ensue.

Highlights of the NASA Authorization Bill add a Shuttle flight next year, call for the development of a Heavy Lift Vehicle (HLV) for exploration missions starting

next year, continue the development of *Orion* to its original design, and begin limited development of commercial taxis to the International Space Station.

Another item of program interest that is gaining momentum at MSFC is a renewed desire to refurbish ET-94, which is a test article. The Shuttle Program Management team examined it on a recent trip to the facility. The Michoud team is conducting preliminary work as they await a Technical Directive (TD) to authorize additional work on the tank through September 30. The initial work scope would largely



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involve removal of all Final Assembly installed hardware and the return of ET-94 to Cell A for de-splice. If full authorization is ultimately received in a timely fashion, ET-94 could potentially be delivered as early as October 2011.

NASA is also assessing what it would take to complete the build of ET-139. An initial assessment has begun to determine what is needed to complete the tank for possible use as a heavy lift propulsion test article. Should MSFC authorize its build in the future, it would add additional jobs.

Negotiations and assessments on ET-94 will not prevent the issuing of WARN notices next week to employees with September 30th ET end dates. When the TD is received from MSFC, certain employees with July and August ET end dates will have their WARN notices revised to September 30.

Special Off-site guest **John Honeycutt**, manager of the External Tank Project Office at MSFC, offered his perspective and appreciation of the ET workforce as they finish their work on ET-122. “You are at the top of contractors to work with. You are finishing strong amidst hardships. Keep it up. Maintain your rigor. You all have developed really good processes. You are easy to work with and very responsive.”

Kathy Schubert from NASA Glenn Research Center also made a presentation on the *Orion* Program. “*Orion* is real and with the completion of the Ground Test Article at MAF, we can finally now see hardware.” She described the excitement of working in a dynamic environment of tracking, managing and



ET-94 awaits a move into Final Assembly Position 1 as part of a refurbishment assessment. If authorized, initial work would largely involve removal of all Final Assembly installed hardware and the return of ET-94 to Cell A for de-splice.

juggling requirements. Concurrently, the team is identifying and mitigating risks and is in relentless pursuit of process improvements to achieve mass reduction.

Before concluding, Schubert offered final words of praise for the *Orion* team. “NASA has an outstanding customer relationship with the Michoud Team. You have a talented workforce that is dedicated, inven-

tive, responsive and passionate and has a ‘Can Do’ attitude.”

Mike Gnau, manager, Business Development, presented a briefing of Space Systems Human Space Flight (HSF) New Business Pursuits. Imperatives are clear – keep *Orion* sold; focus on affordability and solid relationships with customers and Capitol Hill.

Under a new Concept of Operations, Human Space Flight will only bid on work that aligns with its core business; no longer will the fabrication of ship or airplane parts be considered. Michoud will no longer bid new business or receive local IR&D and NBAE funds. These activities will be functions of the Denver campus. Currently, HSF is working to develop a Small Lift Vehicle based on previous “fly back” technology studies conducted at Michoud.

Leaders spent the afternoon delving into action plans for addressing issues affecting the business, customers and their employees. They renewed their commitment to help their employees in their job searches, promised to communicate up and down, and to help shape the customer’s game.

In closing, **Manny Zulueta**, vice president and site executive, announced that the formation of a new organizational structure for Michoud was under way and would be presented in August. He thanked the Michoud team and offered his encouragement, “Our performance has been exceptional! Corporate and other business areas have taken notice and praise your efforts. Thank you for what you have done. Keep up the great work and let’s Finish Strong®!”

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Huge crowd commemorates ET-138 and 37-year ET program

Sea of handkerchiefs and second-lining employees escort tank toward barge

On a sweltering summer morning, a throng of 1,200 gathered to say ‘goodbye’ to External Tank-138, the final production tank that Lockheed Martin workers built for NASA. In that number were over 200 retirees and former employees who constructed many of the External Tanks (ET) during the 37-year program. Retirees mingled with current employees, renewing friendships and telling old war stories. For many, the end of the program is sad but yet a time to be proud of all our accomplishments.

With ET-138 serving as a backdrop to the July 8th rollout ceremony, speakers praised the tank and the Lockheed Martin and NASA employees who built it.

“In ET-138, we firmly believe that we are delivering to NASA the best tank we’ve ever built,” commented **Mark Bryant**, Lockheed Martin ET vice president who also doubled as the event’s emcee. “Human space flight is a high risk, high reward business. And our employees take their responsibility very seriously.”

Joanne Maguire, Space Systems executive vice



Space Systems EVP Joanne Maguire praises employees for their perseverance.

president, supported Bryant in his remarks. “The accomplishments of the External Tank team are legend,” she said. “The challenges and hardships you have overcome have been monumental. And our respect and gratitude to the team is immeasurable.”

NASA officials also commended employees. “A lot like that tank, the workforce here is the backbone of the Space Shuttle program,” said **Bill Hill**, assistant associate administrator of the shuttle program at NASA Headquarters.

“The real remarkable thing here isn’t the engineering or the technology -- it’s you guys,” echoed **Robert Lightfoot**, director, Marshall Space Flight Center.

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A wave of employees follows ET-138 as it rolls out.

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Retirees reflect on ET's career

Eugene Horak, a 42-year employee who served as Reliability Engineering Director and who returned from Colorado to see ET-138 roll out, describes his feelings: "Joy and happiness, knowing all the good work that went on at this facility. It's joyful and sad to see all the employees who worked so hard to achieve the accomplishments that they did and the outstanding work. It's a pleasure to be here and see that rejoicing."

Rush Studinski, who like Horak served in several different locations, retired in 1992 as a resident contract administrator after 35 years with Lockheed Martin. He drove in from Lufkin, Texas to see the tank roll out. "I worked at Michoud from 1974 to just after the first shuttle accident in 1986. In Procurement, I bought many of the major tools where we fabricated the tank. I also bought the entire inter-tank assembly, the hydrogen tank barrel panels, and hardware and software. It was very nostalgic to see this last tank. The ET was one of the best projects that ever happened in government procurement."

Lonnie Harness came to work at Michoud in 1982 and retired as manager of Transportation 26 years later. "It's the end of an era. I spent a lot of my life out here. It's strange to be on this side of the line watching the tank move instead of moving it myself. It's a bittersweet moment."

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For many, the end of the program prompts an emotional response. "Working here has not just been a job; it's been a mission," asserted **Terry Lee**, an associate production manager. "We've put our hearts and souls into this. We're a family. The astronauts are part of our family."

These are the kinds of words that astronaut commander **Mark Kelly** likes to hear. Kelly, a veteran of three shuttle flights, and his STS-134 crew are currently scheduled to launch with ET-138 on February 26 next year. "I think most folks just think of the ET as an empty fuel tank, and it's really a lot more than that. It is a complicated piece of hardware, and I am amazed that it works so well every time."

After the ceremony, the **Storyville Stompers** led hundreds of handkerchief-waving, second-lining employees wearing their Finish Strong® t-shirts as they followed the tank on its rollout path. Some



Commander Mark Kelly says tanks are of utmost quality.

participants twirled colored umbrellas to celebrate and also to try and stay out of the sun. ET-138 departed Michoud Harbor several hours later and reached Kennedy Space Center on July 13.

"It's a tremendous feeling of accomplishment, knowing that we're at this point," summed up **Jeff Pilet**, ET chief engineer. "We're finishing strong."



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Representing Michoud at Space Systems Awards Night in Denver on June 12 were 12 individuals and two teams. Congratulations to all for their extraordinary achievements over the past year.

Exceptional Service



Suzette Archie

For providing counsel on benefits and compensation matters to a transitioning workforce as the Space Shuttle contract comes to an end at Michoud. She conducts monthly

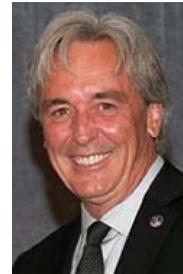
briefings and provides one-on-one consultations.



Dave Buras

For engineering support of the External Tank program at Michoud and Kennedy Space Center. His infinite understanding of the production build flow contributed to the

success of the ET program and the safety of Space Shuttle missions.



Randy Prisco

For Non-Destructive Evaluation support of the ET Thermal Protection System (TPS). He is recognized as the subject matter expert in this area.



Antoinette Verrett

For outstanding schedule turnaround on the ET Super Lightweight Ablator Operations while achieving all Thermal Protection Product delivery deadlines.

Full Spectrum Leadership



Kathleen Wakefield

For sustained exemplary performance as the ET Thermal Protection System ablator technician during final assembly and test.



Jim Bray

For steadfast commitment to the Orion program's success as leader of the new Crew and Service Module Integrated Product Team. His proactive and strategic

leadership style helps shape the future and delivers results to the customer.



Deborah Brown

For delivering information technology (IT) solutions with 100 percent availability during each shuttle flight. She energized the team, aligned resources, adapted

IT deliverables to enhance network capabilities, and built effective customer relationships.



Shelly O'Neal

For superior performance as a manufacturing supervisor in Final Assembly, holding himself accountable for completing assignments and meeting customer

requirements. His team contributed to successful delivery of five External Tanks.

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Team Excellence

External Tank Final Assembly Collaborative Work Cell Team

For identifying and generating efficiencies in the Space Shuttle External Tank Final Assembly build process. Darren Bergeron, Craig Dooley, Bill Gilbert, Nick Gilliam, Lynette St. Ann, Alva Williams, Frederick Williams

Tom Kilroy - team lead



Human Space Flight Michoud Transition Team

For transition of Michoud Operations accounting, cost, and schedule reporting systems to Space Systems Company systems. Lisa Amys, Margaret Christensen, Birtina Clayburn, Chad Dragon, Adam Falcone, John Homan, Connie H. Johnson, Jennifer Puglisi, Linda Savage Regan, Terry Slattery, Ryan Smith

Jim Dutton - team lead



Technical Excellence



David Carver

For developing and refining tools and techniques supporting ET processing, launch, and post-flight assessments, improving efficiency by 20 percent.



Wes Martin

For applying Friction Stir Welding technology on the Orion crew module. His knowledge and dedication enabled successful first-time welds on complex hardware.

hardware.

Mission Success



Ken Phillips

For having the courage and concern with hardware integrity to immediately report inappropriate actions during the manufacturing of External Tank flight hardware.

As a result of his actions, the issue was corrected before launch.

LM21



Paul Mckean

For demonstrating LM21 expertise and leadership in a dynamic team environment, improving part throughput by 60 percent in the Fabrication Collaborative Work Cell for the ET. A Black Belt instructor, Paul instilled Lean and Six Sigma thinking into the team by overseeing events that reduced cycle time, improved quality, and eliminated unnecessary work while providing a foundation for participants' future assignments.

And a special shout-out to Wanda Sigur for receiving the Ed Taft Diversity Leadership Award

For promoting inclusion through teamwork, mentoring, developing talent, and driving cultural change within her organization. Wanda reaches across lines of business to achieve collaborative and innovative solutions. She also reaches out to her community, serving on the University of New Orleans Advisory Board and the University of Louisiana Mechanical Engineering Department Industrial Advisory Board.

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External Tank-122, the current launch-on-need tank for the STS-134/ET-138 mission on February 26, 2011, exited Final Assembly on July 16 and headed for its final processing in Test & Checkout, Building 420. Now that ET-138 reached Kennedy

Space Center last week, all eyes are focused on ET-122. Lockheed Martin is scheduled to deliver the tank to NASA on September 30.



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ET-122 and how its logo came about

The history of ET-122 is unique among all External Tanks. Delivered to NASA in November 2002, the tank was ready to ship to KSC, but ET storage at the Cape was full. So ET-122 would wait to ship from Michoud until February 2003 after Space Shuttle *Columbia* landed from its STS-107 mission.

With the loss of *Columbia*, NASA halted all ET shipments until the investigation and Return to Flight activities concluded. ET-122 remained at Michoud until its RTF modifications began in mid-2005. On August 29, ET-122 stood in Cell A of the Vertical Assembly Building when Hurricane Katrina came crashing through. The storm tore up the VAB's roof with much of the debris falling into Cell A, causing considerable damage to the tank.

After an extensive damage assessment and repair plan development, Lockheed Martin received direction from NASA in November 2008 to restore ET-122 to flight condition. In post-Katrina days, the fleur de lis had become the symbol of the people of New Orleans and surrounding areas, a resurrection from the hurricane damage we sustained.

To help motivate the work force, ET-122 Missile Mother **John DesForges** started thinking about a symbol representing ET-122's Katrina history. With encouragement from ET Vice President **Mark Bryant**, he sketched several concepts and presented his best attempt to **Jon Irving**, Lockheed Martin's graphic artist.

"Jon turned it into a masterpiece," DesForges says. The final artwork shows the restored ET-122 in flight with a shuttle on its back flying out of the eye of the hurricane. The art also includes Lockheed Martin and NASA logos, demonstrating the close teamwork necessary to perform this restoration.

Lockheed Martin and NASA liked the logo and authorized its use in motivational posters to celebrate the tank's restoration. NASA Space Shuttle Manager **John Shannon** was so impressed with the logo that he requested it be painted on the Intertank access door. The logo now became ET-122's official insignia. After Engineering resolved some initial technical issues, Irving painted the insignia on the Intertank ac-



ET-122 Missile Mother John DeForges (left) and graphic designer Jon Irving who painted the ET-122 logo on the Intertank access door

cess door in an isolated area of the SOFI shop, chosen for its cleanliness and environmental controls.

Today, ET-122 is being resurrected from the wounds of Hurricane Katrina, just as many Michoud employees have restored their lives after Katrina. To signify this accomplishment ET-122 is the only ET that will proudly carry its own insignia.

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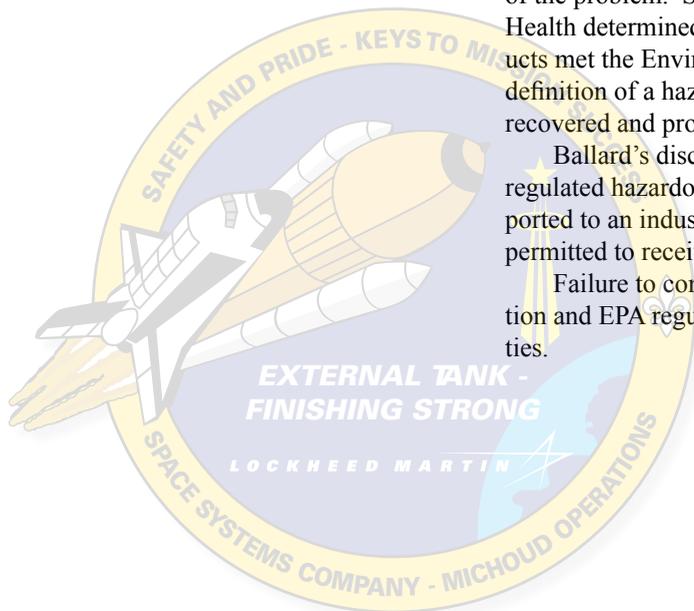
Ballard wins “Doing It Safely” monthly award

Morgan Ballard of Production Operations is the “Doing It Safely” monthly winner. While on the job, he discovered improperly discarded chemical products inside the industrial waste container that is staged at the Building 103, South Loading Dock.

Trained and aware of the proper disposal procedures, Ballard notified his supervisor, informing him of the problem. Subsequently, Environment, Safety & Health determined that the mishandled chemical products met the Environmental Protection Agency’s (EPA) definition of a hazardous waste. The containers were recovered and properly managed.

Ballard’s discovery and quick response prevented regulated hazardous waste from being improperly transported to an industrial solid waste landfill that is not permitted to receive chemical waste streams.

Failure to comply with Department of Transportation and EPA regulations can result in fines and penalties.



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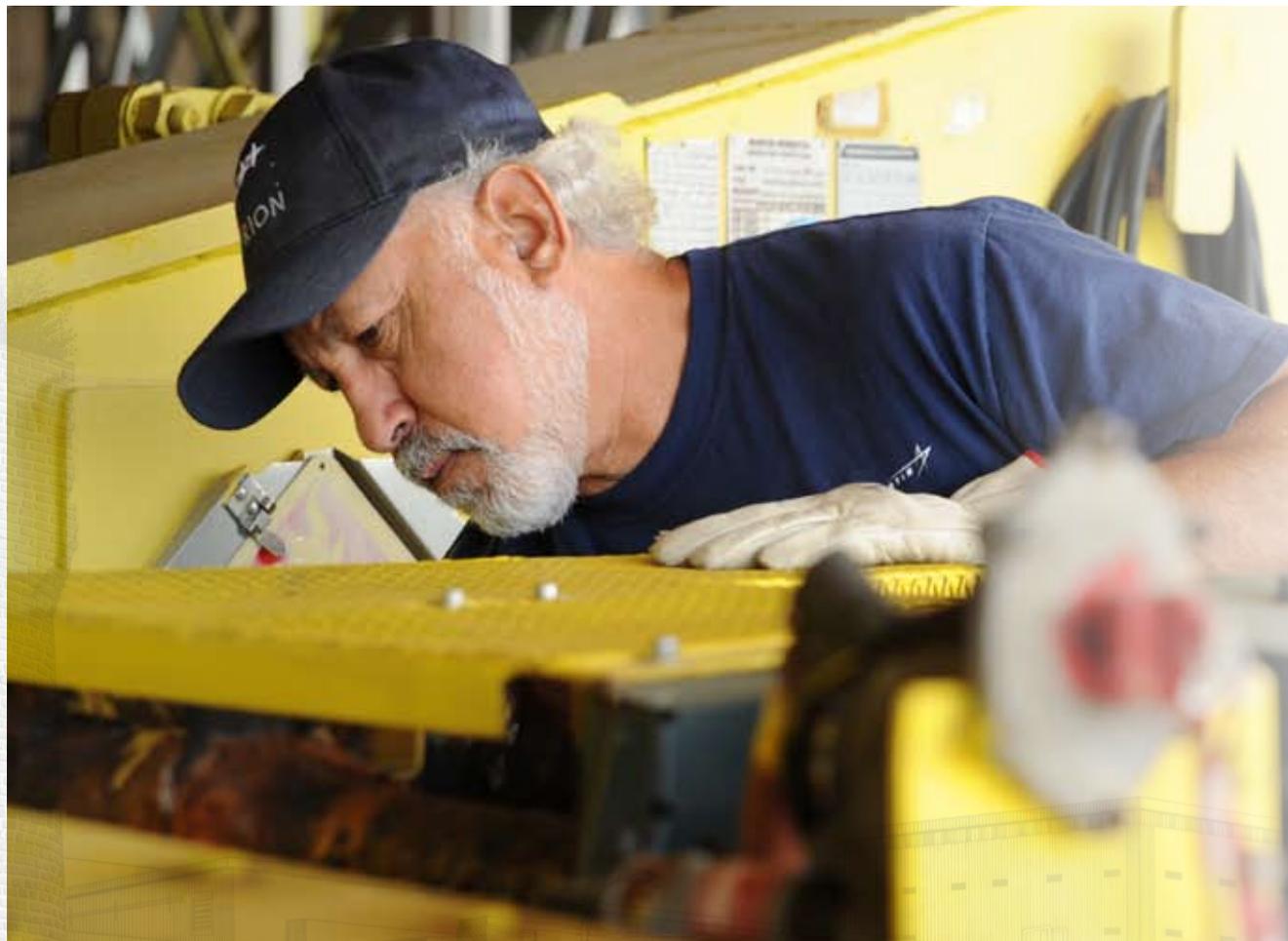
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1	4/25/08	Base Incentive
2	5/31/08	STS-124 launch/land 6/14/08
3	7/10/08	ET-127 delivery
4	8/6/08	ET-129 delivery
5	11/14/08	STS-126 launch/land 11/30/08
6	11/19/08	ET-130 delivery
7	2/14/09	ET-131 delivery
8	3/15/09	STS-119 launch/land 3/28/09
9	4/28/09	ET-132 delivery
10	5/11/09	STS-125 launch/land 5/24/09
11	7/15/09	STS-127 launch/land 7/31/09
12	7/29/09	ET-133 delivery
13	8/28/09	STS-128 launch/land 9/11/09
14	10/14/09	ET-134 delivery
15	11/16/09	STS-129 launch/land 11/27/09
16	12/20/09	ET-135 delivery
17	2/8/10	STS-130 launch/land 2/21/10
18	2/24/10	ET-136 delivery
19	4/5/10	STS-131 launch/land 4/20/10
20	4/30/10	ET-137 delivery
21	5/14/10	STS-132 launch/land 5/26/10
22	6/25/10	ET-138 delivery

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HR placement status

Career Transition Center

- Continued partnership with State of Louisiana with support from Drake Beam Morin
- Coordinated 135 course enrollments in state-funded Training & Education classes at \$880K
- Trained 180 employees
- First Response services/support for layoffs

Proactive Job Placement Efforts

- External Job Fair
 - 11 Companies, 350 Attendees
- LM Aeronautics Job Fair/Hiring Event
- Virtual Job Fair held July 6 for SSC Orion/Michoud employees
 - 161 employees invited, 66 took advantage, and to date 6 offers extended
- LM Internal Job Placement Activity
 - 441 applications, 366 interviews, 124 offers (99 accepts), 16 declines and 9 response TBD
- NASA OHC Federal Employment Process Workshops
 - 250+ attendees
- Weekly Transition Strategy Meetings with other Lockheed Martin Business Areas

Space Shuttle schedule



Mission	Launch Date	Tank Delivery Date
STS-133	November 1, 2010	ET-137 April 30, 2010
STS-134	February 26, 2011	ET-138 June 25, 2010 ET-122* September 30, 2010

** Launch-on-need tank for STS-134/ET-138*

Milestones

Employees celebrating anniversaries with Lockheed Martin in August 2010

35 Years

Cyril Augustin

10 Years

Shane Southern

30 Years

Terry Coleman
Ronald Howard
Ken James

5 Years

Jason Calmes
Addison Motch

25 Years

Jack Brown
Dawn Diecidue-Connors
Rodney Spence

20 Years

James Brodsky
Holly Hebert

15 Years

Joe Arves

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Published by the Communications Department

Lockheed Martin Space Systems Company – Michoud Operations

Director of Communications: Marion LaNasa **Editor:** Harry Wadsworth

Graphics, Photography: Kevin Barré, Eric Bordelon, André Bourdier, Chip Howat (Jacobs), Jon Irving, Brian Peterson, Ryan Martin (Johnson Service Group), Steve Seipel (Jacobs)

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