

MISSION SUCCESS[®]

June 28, 2001 MICHOUD OPERATIONS BULLETIN



ET-117 crack investigation nears completion *Team identifies three potential causes*

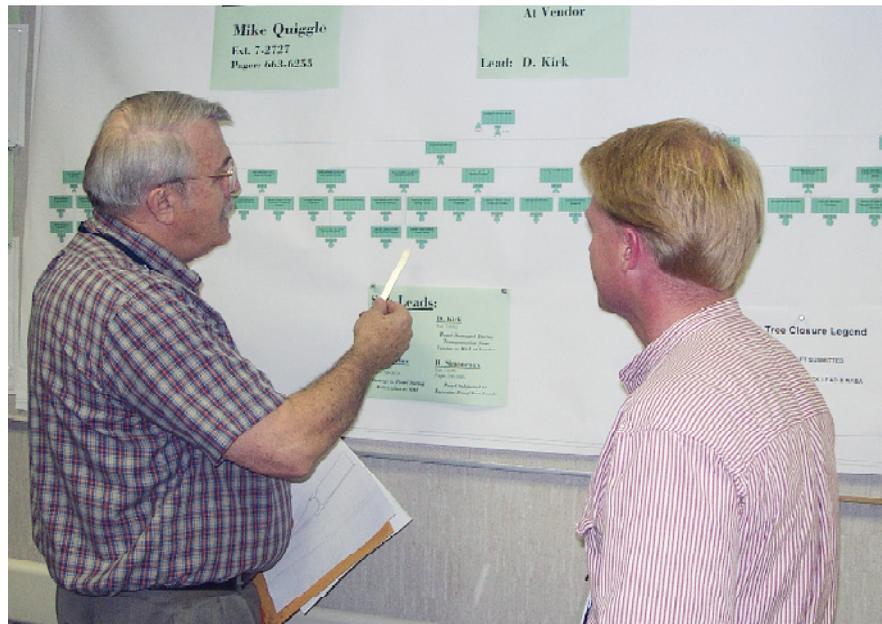
A team of NASA and Michoud Operations personnel has eliminated most probable causes for two cracks found in the ET-117 LH2 tank.

The cracks were found June 2 in horizontal ribs that connect to stringers in the orthogrid structure inside barrel 3. A Lockheed Martin mechanic made the find during a routine post-proof inspection. Both cracks run about one inch in length.

The multi-discipline team developed a fault tree with 325 items. Responses to all items have been submitted and evaluated by a senior review team.

At this time, three fault tree items remain in a 'yellow' condition: debris under a chill bar at the 5016 tool; object obstruction during tank rotation in the major weld tool; and inadvertent, unreported impact.

Resolution of the ET-117 LH2 tank crack issue is considered a constraint to the launch of STS-104 (currently scheduled for July 12) and will be the subject of a flight rationale presentation at the Flight Readiness Review on June 28.



Michoud Chief Engineer Gale Copeland and NASA ET Chief Engineer Neil Otte close out fault tree items in the ET-117 crack investigation.

Since the cracks were found, the ET-117 LH2 tank has undergone a meticulous inspection and review process. Following a leak check in Building 451, two specimen panels, a control sample and one containing the cracks were removed from the barrel panel for closer inspection. Subsequent tests and analyses indicate no issues with the design or alloy material.

Concurrently, other ETs in production also have been inspected. No similar findings have been discovered in any External Tank.

“Through test and analysis, we

confirmed our design and material,” said **Ron Wetmore**, vice president, External Tank project. “Our proof and post-proof processes verify that we have no issues

regarding delivered hardware. “In over 20 years of flight, the ET has never

delayed a Space Shuttle launch. Despite the issues with ET-117, it is our intent to validate that the fleet is ready for flight, and continue this outstanding record. This could not be possible without the dedication and commitment of the entire NASA/Lockheed Martin investigation team.”

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Senator impressed with hardware and people



Dwarfed by massive External Tank hardware, U.S. Senator Mary Landrieu of Louisiana talks with Michoud employees Jeff Beale (center) and Gordon Meadors during her recent Michoud visit. Landrieu toured the ET production line and was briefed on the latest aerospace technologies born in her home town. She noted employees' positive attitudes and expressed the pride she feels during every Space Shuttle launch.

LMPeople Payroll goes on-line

Beginning July 2, Lockheed Martin employees will be able to perform numerous payroll functions through the LMPeople Self Service website at <http://lmpeople.global.lmco.com>

These functions include the capability to change tax withholdings and enroll in or change direct deposits, U.S. Savings Bonds deductions and charitable contributions. All current withholding, deduction and direct deposit elections will automatically be transferred to LMPeople Payroll. Employees do not have to re-designate these elections.

Once implemented, some employees may notice a slight difference in their deductions and net pay. That's because LMPeople carries an employee's hourly rate to six decimal places rather than the current system's four decimal places.

There are also differences in methods used to calculate taxes. The transition to LMPeople Payroll coincides with some new payroll policies and practices, explained on

the self service website.

Employees will continue receiving weekly pay statements in the mail. Please note: the pay day is changing from Thursday to Friday. In addition, an electronic pay statement will be on the self service site where pay information will be stored on a rolling six-month basis. An employee's job title and social security number will appear on the electronic statement and descriptions for earnings and deductions have also been modified slightly.

Detailed information on some pay statement categories, such as leave plan balances, Savings Bonds purchases and charitable contributions will be on the website rather than the printed statement.

Additional information is available in the new LMPeople Human Resources and Payroll Reference Guide or by calling the LMPeople Employee Service Center Monday through Friday 8 a.m. to 6 p.m. (Eastern time) at 866-LMPEOPL or by e-mail at Fc-LM-ESC@lmco.com

Michoud to raise quality standard

Plans are under way to upgrade Michoud Operations' ISO 9001 registration originally created in 1994 to the new 2000 standard.

To transition to the new system, British Standards Institution will conduct four continuing assessments over a two-year period, beginning in September. During the four visits, Michoud must prove its conformance with ISO 9001:2000.

Michoud's plan is to upgrade to the new standard during the March 2003 continuing assessment audit. Michoud became ISO-certified in 1999.

The impact of the new requirements in ISO 9001:2000 is limited to the way Michoud does business. However, the revisions represent a significant change in structure, approach and language. ISO 9001:2000 has a greater focus on the need for continual improvement of the quality management system and customer satisfaction.

Savings Bonds campaign closes strong

Michoud Operations has completed a successful 2001 U.S. Savings Bonds campaign. With the final results almost in, Michoud's campaign is approaching 90 percent employee participation. This exceeds the corporate goal of 85 percent employee participation. Check the final results on EWS.

Michoud also surpassed its 50 percent goal for employees who up their weekly purchase of Savings Bonds by at least a quarter. Over 51 percent of employees signed-up.

Grand prize winners for this year's campaign win a weekend for two in Sandestin, Florida.

Sandestin Winners:
Keith Campo
Theodore Hemelt
Netsy Wheeler

Stephenson envisions bright future for Michoud ET production to continue through 2015; NCAM key to materials development

During his recent visit to the NASA Michoud Assembly Facility, **Art Stephenson**, director, Marshall Space Flight Center (MSFC), addressed employees and presented his vision and future for Michoud Operations — a road to advanced manufacturing.

Recalling 104 shuttle flights with 100 percent Mission Success, Stephenson praised the evolution of continuous improvements in the External Tank from a standard weight to super lightweight tank, to the implementation of Friction Stir Welding later this year. "Michoud and Lockheed Martin have consistently met the challenge of delivering tanks on schedule — and your record is truly outstanding — and I expect to see these tanks fly for many years to come."

The goals of the new Space Launch Initiative's 2nd Generation Reusable Launch Vehicle program under way at MSFC are to provide safer, more reliable and more affordable launch vehicles for the future, he said.

As part of these initiatives, Stephenson expects the shuttle to evolve in parallel with the

development of new launch vehicles, and to fly well into the year 2015 and beyond.

Routine access to space is a goal for everyone and their children, he explained. Initiatives for a 3rd Generation Reusable Launch Vehicle program (25-30 years out) include revolutionary concepts of air-breathing propulsion and

magnetic levitation lift-off.

As this technology unfolds, Stephenson challenged Michoud to "be world leaders in manufacturing through the National Center for Advanced Manufacturing (NCAM); to work with us to find lighter, stronger and more capable materials as you have done with the tank evolution."

NCAM is the tool to move Michoud in the long-term direction of developing advanced composite structures and tanks for these programs, he predicted. Although it may be different hardware, NASA will rely on Michoud's experience and knowhow to get the agency where it needs to go, he said.

Stephenson invited Michoud to get involved in nanotechnology, the development of materials atom by atom. This technology produces structures 100 times stronger, and advance manufacturing will inevitably evolve into this technology.

In closing, Stephenson said, "You are doing a great job. We need you, the shuttle program needs you, and you've got a long history ahead of you as you stay in the forefront of advanced manufacturing technology."



"...your record is truly outstanding — and I expect to see these tanks fly for many years to come."

— Art Stephenson

Soliciting? — Not in the workplace please !

The question has recently come up regarding solicitation and distribution of materials and literature at Michoud Operations. This also applies to personal and charitable fund raising. Michoud's "Rules and Safety Regulations" prohibit solicitation and distribution on company property.

Michoud directives provide for exceptions related to national or local fund drives as authorized by

management.

However, soliciting for profit or personal business interests is prohibited. Also, soliciting for unauthorized charities, schools or community booster clubs is in violation of the policy.

The Ethics Office and Helpline is a resource for employees who have questions about business conduct and policies or who want to report wrongdoing. Employees should

first take their concerns directly to their supervisor, work their issues through the open door policy or contact the appropriate authority for assistance.

If you have questions, contact Ethics officer **Feltus Kennedy** at 7-3842 or Lockheed Martin's Corporate Ethics Office at its 24-hour number, 1-800-LM-ETHIC or 1-800-563-8442.



Mayor recognizes Michoud's environmental progress
Jennifer Wall of Facilities and Environmental Operations (left) and Marion LaNasa, director of Communications (right), receive the Mayor's 2001 Sustainable Business Award from Mayor Marc Morial for Michoud's outstanding environmental programming.

Try VoTS for calls

Three little words, "I'm with NASA," will enable you to set up your own audio conference, thanks to NASA Voice Teleconferencing Services (VoTS). NASA implemented this service as the most cost-effective measure for employees and contractors, which can be utilized globally - not just on NASA centers or facilities.

For first-time users, it's recommended that you visit NISN VoTS web site at http://www.nisn.nasa.gov/Doc_Repos/vots/index.html so you know what information is required. To make requests on-line, an account needs to be established and confirmed by MCI Worldcom. Contact VoTS Customer Advocate Diane Hammons at (256) 961-9402 or diane.hammons@csoconline.com for questions.

Michoud receives higher Award Fee ratings

NASA cites operations as "Very Good" and "Excellent"

The External Tank (ET) project received improved award fee ratings for the period from Oct. 1, 2000 through March 31, 2001.

NASA recognized Michoud Operations with a composite score of 92.05 percent, with ratings of "Excellent" and "Very Good" for the components that were evaluated.

NASA rated 5th Buy activities with an 88.4 percent score and a rating of "Very Good." The 6th Buy Production component earned a score of 91.4 percent, Michoud Assembly Facility Operation & Maintenance a 96.9 percent and Friction Stir Weld a score of 91.5 percent. NASA rated all three parts of the 6th Buy as "Excellent."

"This recognition of our efforts over the last performance period by our customer is gratifying," said **Ron Wetmore**, vice president, ET project. "Hard work and attention to detail are vital to improved scores. Now more than ever, due to recent issues like ET-118 barrel 4 low material thickness and ET-120 liquid oxygen tank arc burn, those qualities are key to future award fee success."

Altogether, the Project Performance Evaluation Board noted close to 100 areas of strength for Michoud Operations, with a more than 5 to 1 ratio of strengths versus weaknesses.

Award Fee Scores		
October 1, 2000 -- March 31, 2001		
5th Buy	Very Good	88.4 %
6th Buy - Production	Excellent	91.4 %
6th Buy - MAF Oper. & Maintenance	Excellent	96.9 %
6th Buy - Friction Stir Weld	Excellent	91.5 %

For 5th Buy, NASA recognized Michoud for delivering three ETs on or ahead of schedule and launching four Space Shuttle ETs with no delays to launch schedule. Areas of significant strength included Michoud's handling of ET-108 at KSC after gear grease splattered on the tank from an overhead crane. The report noted special efforts to remove the grease and the engineering analysis and tests performed afterward to assure the tank's flight worthiness.

Other significant strengths included the installation of a permanent delivery system to support Major Weld with argon gas, and Lockheed Martin and the government successfully negotiating Forward Pricing Rates. Areas of significant weakness noted

an unauthorized weld repair on ET-121 liquid hydrogen aft dome and a second proof test for the ET-117 liquid oxygen tank.

For 6th Buy, significant strengths noted the aggressive and innovative approach taken in implementing digital X-ray into ET production and the receipt of nearly 68,000 parts of which only 32 were non-conforming.

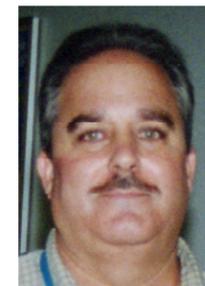
Other major accomplishments included the paper reduction initiative; joining Aeronautics in concluding a 6th Buy agreement with a vendor for Aluminum-Lithium and 2219 alloys; hosting an outstanding Supplier Conference; completing the 6th Buy contract; and exceeding contract goals for small, small disadvantaged and women-owned businesses.

Additional positives included addressing all identified safety issues, being free of environmental fines or penalties, reducing hazardous waste disposal by 35 percent, ensuring no environmental hazards in Friction Stir Weld (FSW) excavation area, completing FSW foundation designs early and aggressively moving on FSW construction.

No significant weaknesses were noted for 6th Buy. Several minor weaknesses included a new supplier's shortage of dome caps and an excessive gap between the Solid Rocket Booster beam and thrust panel on ET-123 Intertank.

Miller honored with President's Award

Kenny Miller of Facilities & Environmental Operations received a President's Award from **Dennis Deel** in a recent ceremony.



Kenny Miller

Miller was cited for his sustained outstanding leadership as the Project Engineer on the four-phased effort to replace the Building 103 480-

volt electrical distribution system that provides power to all critical areas of External Tank production.

"Through Kenny's leadership, the electrical distribution system has been totally replaced since 1997 without impact to ET production," said Deel. "He has demonstrated remarkable dedication, teamwork and a 'can do' attitude that overcame numerous obstacles."

Equally as important to our NASA customer, Miller met cost and schedule goals throughout the \$9.1 million project.

Keep the Cycle going !

MAF recovers 450 tons of wood, paper & cardboard

Over the years, Michoud Operations has implemented programs that reduce energy usage, prevent pollution, recycle materials and reduce waste. In support of NASA's Affirmative Procurement Program and as part of the 6th Buy contract, Michoud is stepping up to increase the purchase of recycled goods and services that are environmentally preferred.

Buying goods with recycled content "keeps the cycle going" by expanding markets for materials collected for recycling, increasing product availability, decreasing costs, lessening the need for landfills and reducing the need for virgin materials, some of which are non-renewable.

So the next time you order supplies, ask about recycled material content products and purchase them for the office and the home to "close the circle" (reduce,

reuse, recycle, buy recycled). If you need more information, call the Environmental office at 257-5257. They're the experts on recycling.

And, since we're on the subject of recycling... Michoud has recycled over 450 tons of materials since the program expanded last year,

reducing the amount of trash to be landfilled. While this is a good first step, there's potential for much more to be collected, and it can't be done without the involvement of every employee. If your department hasn't started recycling or if you're unclear on what to recycle, call **Jennifer Wall** at 7-1018 in Facilities Environmental Management.

As consumers, it's going to cost us plenty to get rid of garbage as landfills are quickly filling up. So if a better environment doesn't motivate you, maybe a thinner wallet will.

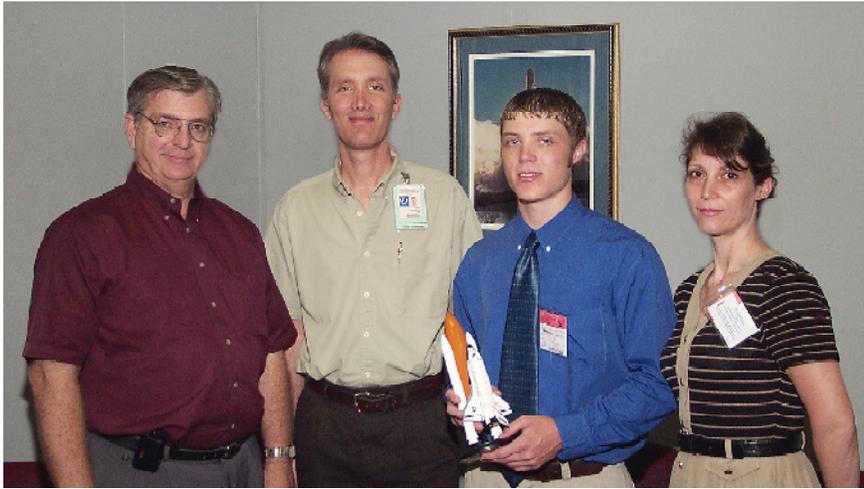


Be prepared for hurricanes

The unexpected deluge from Tropical Storm Allison was a forceful reminder that hurricane season is upon us. In the past 30 years, inland flooding has been responsible for more than half the deaths associated with tropical storms.

With an active storm season predicted this year, it's important to prepare both at home and at work. Hurricane checklists and tracking maps can usually be found at convenience and grocery stores.

To check Work Status, dial 257-1MAF (1623). Also, WWL-AM radio (870 kHz) and WWL-TV are the stations primarily used for emergency announcements.



2001 LM Scholarship awarded

Nathaniel Capdepon (second from right) has been awarded a Lockheed Martin scholarship. A Slidell High School graduate, he plans to study environmental law at Tulane University this fall. Nathaniel is a National Merit Finalist and finished in the top one-half of one percent of all high school graduates. He is pictured with his parents, Craig (Production Operations) and Stephane Capdepon, and Michoud president Dennis Deel (left).

MILESTONES

Employees celebrating anniversaries with Lockheed Martin in May and June:

30 years

Abel Losoya
Darol Westphal

Willie Barnes
Dan Boudreaux
Royal Brooks
Daniel Bryant

25 years

Alan Arthur
Gary Haaga
Gary Lattanzi
Carl Marshall
Dwayne Payne
Selestine Smith

John Cicchetto
Richard Cooley
Christine Cooper
Mack Cuenca
Royce Daniels
Byron Davis
Larry Dequire
Richard Ellis

20 years

Troy Alexander
Jeanette Arabie
Michael Armstrong
Brian Avenel

Lawrence Eloie
John Fogg
Stephen Fricke
Claud Fuller
Robert Fuller

Joseph Gebbia
Theresa Gioia
Albert Green
George Harris
Troy Harrison
Andy Hayes
Michael Hayes
Lloyd Held
Miles Herleikson
Webster Hill
Sandra Hindman
Ray Irby
Eduardo Jocson
Dale Johnson
Barbara Lafayette
James Langevin
Rodney Lemoine
Dolly Lott
Sheila Malabad
Mary Mangiaracina
Patrick Martin
Simon McNeill
William Meinders
Zachary Melton

Leon Messa
Kenneth Michael
James Moffett
Stephen Molero
Michael Moore
Charlie Novitsky
Ernest Nunez
Jean Paille
Patrick Pansano
Jerome Pax
Michael Pohlman
Richard Poticher
Max Rabalais
Barry Readeau
Ronald Reightler
John Rhodes
Bernadette Richards
Thomas Robbins
Darryl Schackai
Bruce Schmit
Rony Sewell
Henry Seymour
James Sharp
Daryl Smith

Danny St. Romain
Joseph Stephenson
Danny Stockstill
Joseph Taylor
Cleveland Thomas
Nick Waterwall
Ronald Wetmore
Gary Wild
Gregory Woods
Richard Zehner

15 years

Emile Evans
Avert Williford

10 years

Robert Bogdan
Benjamin Brekeen
Trista Nash

5 years

Oscar Estalles
Randy Haynes

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