

# MISSION SUCCESS<sup>®</sup>

## BULLETIN

December 17, 1999

### X-33 metal tank helps reduce layoff by half

The unexpected opportunity to begin design work on two X-33 metal liquid hydrogen tanks helped reduce by half the anticipated 300-person Michoud Space Systems' work force reduction announced November 1.

Of the total 149 employees affected by the reduction, 110 (73.8 percent) volunteered for layoff. Hourly workers made up 12.7 percent of those affected.

"A reduction of any size is very difficult, but to lose 149 valuable employees at this time is extremely unfortunate," said Randy Tassin, Vice President for Reusable Launch Systems. "We are pleased, however, that the negative impact could be minimized by the addition of the X-33 metal liquid hydrogen tank work."

Michoud Space Systems has received authority to continue study of the metal liquid hydrogen tank under an intra-Lockheed Martin work transfer agreement (IWTA) with the Skunk Works through December 17. At time of publication, a full authority to proceed in design and assembly of the X-33 liquid hydrogen tanks had yet to arrive, but it could follow shortly.

Metal tanks may be necessary for the X-33 because of the November 3 failure of one of the vehicle's two composite liquid hydrogen tanks during proof testing at NASA Marshall Space Flight Center. NASA and Lockheed Martin plan to make an official decision on the

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*Michoud Space Systems engineer Yeung Lee (left) discusses X-34 tank structural issues with Orbital Sciences Corporation representatives Gary Harris (middle) and Richard Kutyn.*

### X-34 LO2 tank PDR complete

The Preliminary Design Review (PDR) for the X-34 Composite Forward Liquid Oxygen (LO2) Tank program was successfully completed at Michoud Assembly Facility (MAF) on Friday, December 10. In attendance were representatives of Michoud Space Systems, NASA/Marshall Space Flight Center and the X-34 Technology Demonstrator program prime contractor, Orbital Sciences Corporation.

The X-34 is one of a series of unmanned experimental vehicles being built by NASA and industry to test advanced aerospace technologies that could lead to future reusable space launch vehicles.

The Composite Forward LO2 Tank program for the X-34 is on a fast track. NASA issued Michoud Space Systems the authority to proceed on the design, fabrication and ground test of the tank on September 30, and delivery of the com-

pleted flight tank is scheduled for October 31, 2000.

The program is well on its way with two major reviews, the Systems Requirements Review (SRR) in November and the recent PDR, now completed.

Most design work is finished and the program's current focus is on fabricating tank components. Sub-contractors will produce some parts, such as the barrel. Michoud Space Systems will manufacture all other parts, including the internal domes and a number of smaller components, at MAF. Michoud personnel will assemble the tank at Marshall, and a NASA team will perform the testing, also to take place at Marshall.

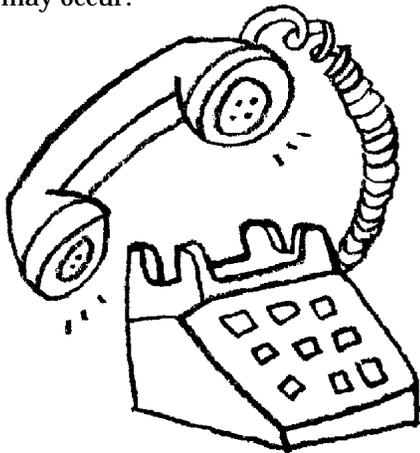
Following the Systems Requirements Review in November, the tank team partners developed a plan to build and test a pathfinder

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# Help smooth the way to Y2K

Employees can help make the transition to the new year a smooth one by exercising common sense when using Lockheed Martin computing and telephone systems.

"In general, employees should avoid unnecessary use of company computing, e-mail and telephone systems during the December 31 through January 2 time frame," advises **Nancy Bramble**, Lockheed Martin Enterprise Information Systems (EIS) Business Continuity program manager. "The less these systems are in use during the Y2K rollover period, the faster we'll be able to recover from any disruption that may occur."



## Before leaving for the holidays, employees are advised to:

- *Shut down your personal computer.*

Because of the risk of unanticipated power outages, EIS strongly recommends that you shut down (not unplug) your desktop personal computer or laptop before leaving work, unless you are specifically directed not to.

- *Remember your passwords.*

Make an extra effort to remember them over the holidays; in fact, you might want to jot them down to help you remember, but *make certain* that they are in a secure

place. Try to avoid changing any passwords through January 4.

- *Back up and clean up e-mail, and turn off auto-forwarding.*

Disable any auto-forwarding, which could spread viruses. Back up your critical messages in both your "Inbox" and "Sent Messages" by copying them to your hard disk or personal folders, and delete any unneeded messages. It's a good idea to clean out your mailbox (Inbox and Sent Messages) to free up storage space.

- *Limit e-mail usage.*

During the Year 2000 transition, restrict your use of company e-mail to important business needs only. This is especially true for messages to or from non-Lockheed Martin mailboxes.

- *Be alert for viruses.*

Before opening, forwarding or replying to any e-mail message, take a moment to look for evidence of a possible virus, such as multiple copies of the same message, messages from people you don't know, attached files that you aren't expecting, etc. Don't open any message you're unsure about. And, make sure your virus protection software is up to date (check with your local desktop support team if you're not sure).

- *Telephone, voice mail troubleshooting.*

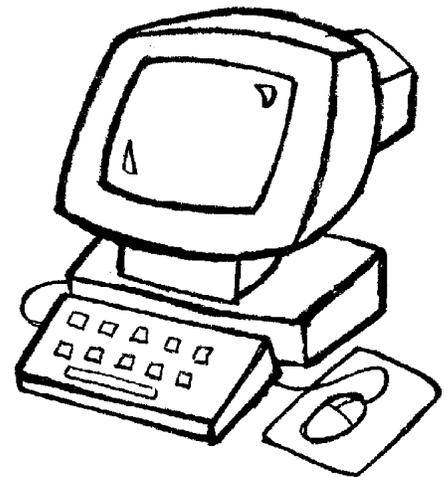
Check your voice mailbox and delete any unneeded or archived messages. If you're in the office during the transition, do NOT pick up the phone just to check for a dial tone or call a Lockheed Martin phone number to see if you can get through. In doing so, you're adding to the already high volume that phone companies are predicting for December 31 - January 1. When you get back to work, check your voice mail before using any

computing systems or equipment. Listen carefully for any broadcast messages or alerts concerning Y2K-related problems.

- *Remote access dial-in.*

Check the expiration date on your Secure ID card to make sure the card will still be valid into the new year.

Avoid dialing into the Lockheed Martin network during the December 30 - January 2 weekend unless you have an important business reason for doing so. Please do NOT dial in just to check your e-mail or "surf the Web."



## Miscellaneous

- Check your pager to make sure it's working and has fresh batteries.
- Know where to check for company status and news; e.g., a radio station, a Web site, a telephone information line or your manager.
- Make a hard copy of important phone contact lists including your manager, team members and the Enterprise Service Desk (800-435-7063) and local help desk numbers.
- Don't send electronic holiday or New Year greeting cards or mass mailers with attachments. They can clog up the e-mail system.

Remember, if you do encounter a

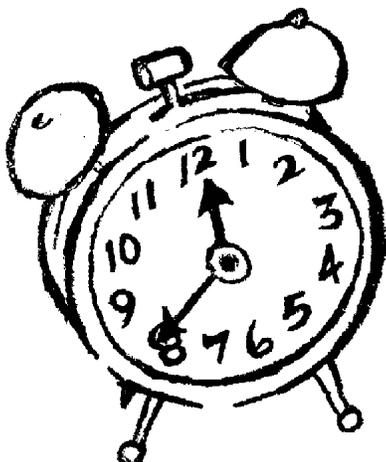
problem with a Lockheed Martin computer system or service, call the Enterprise Service Desk at 1-800-435-7063 or the telephone number you normally use for problem assistance. By taking a few steps now, you can help to ensure a smooth transition to the new year for you and Lockheed Martin.

For additional information about Lockheed Martin's Y2K preparations, visit:  
<http://Y2K.global.lmco.com>

## To minimize Y2K problems, take these simple steps

### For Y2K readiness at work

- Create a backup of important computer systems and information that reside on your workstation after the last update is made or before the scheduled facility outage at 6 p.m. on December 31, 1999.



- Make a hard copy printout of critical data you may need if your workstation is not available during the first week of January 2000.
- Review emergency response procedures for essential computer systems with your supervisor.

### For personal Y2K readiness

The American Red Cross has developed a checklist of some easy steps you can take to prepare for possible disruptions.

#### Recommendations include:

- Check with manufacturers of essential computer-controlled electronic equipment in your home to see if the equipment may be affected.

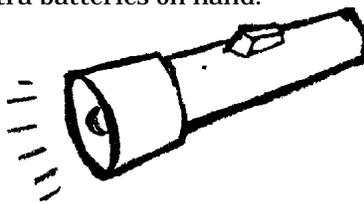


- Stock disaster supplies to last several days to a week for yourself and those who live with you. This may include nonperishable foods, stored water, and an ample supply of prescription and nonprescription medications that you regularly use.

- Have some extra cash or traveler's checks on hand in case electronic transactions involving ATM cards, credit cards and the like cannot be processed.

- Keep your automobile gas tank above half full.

- Have plenty of flashlights and extra batteries on hand.



- Examine your smoke alarms now.

- Have extra blankets, coats, hats, and gloves to keep warm.

- Be prepared to relocate to a shelter for warmth and protection during a prolonged power outage.

- Check with the emergency service providers in your community to see if there is more information available about how your community is preparing for any potential problems.

For a complete listing of recommendations, see [www.pbs.org/y2kontarget/y2kfaq.html](http://www.pbs.org/y2kontarget/y2kfaq.html).

### For official work status:

- Call (504)257-1MAF or 1-800-611-3116
- Check EWS
- Listen to WWL-870 or WWL-TV
- Access the MAF Site Status web site at: [www.mafstatus.com](http://www.mafstatus.com)

### Upon return to work, after Y2K rollover

- After your workstation is up, verify that the system date is accurate.
- Be alert to any date-related problems that may appear. Report problems to the following numbers:
  - Facilities system (e.g., lighting, heating, air conditioning, elevator, etc.) failures to the Michoud Facilities Help Desk at **257-HELP**.
  - Computer hardware system failures to the MIS Customer Services at **257-3184**.
  - Closed shop computer software system failures to the MIS Customer Services at **257-3184**.
  - Open shop computer software system failures to the System Developer.
- Follow applicable emergency response procedures in the event of a system failure.

# Be accident free in 2000

*Charlie Garner, Director, Huntsville Technical Operations continues the Mission Success Bulletin's series of articles on safety.*

With the year 2000 clearly in sight, one can't help but reflect on the accomplishments that have been made in this century, from horse and buggy to the moon and back.

Since Michoud Space Systems began work on the External Tank over 26 years ago, we have delivered tanks to meet the NASA manifest and have constantly advanced technology to meet NASA's evolving technical needs.

Given the potentially hazardous situations we are exposed to on a daily basis in our work and personal environments, it is amazing to me that Michoud Space Systems employees have been able to achieve such an outstanding safety record – one of the best in the world! This is largely due to our exceptional Safety Program and our skilled and conscientious employees.

But even with all the advances in technology this century, our outstanding Safety Program and our high-caliber employees, we have not been able to eliminate accidents altogether.

In fact we still experience accidents and incidents caused by the same factors that were causing them 100 years ago. Inattention, failure to obtain/maintain clearance, complacency and failure to follow procedures or good shop practices still plague us.

We do not experience new accident causes — different names just appear in the reports. All of these accidents and incidents can be prevented, but it takes everyone to accomplish this goal.

Don't think that you, as an individual, are immune to injuries, or that incidents won't happen to



## Safety award presented to Huntsville Technical Operations

*Carolyn Griner, Deputy Director of Marshall Space Flight Center, presents a NASA Safety Award to **Charlie Garner**, Director, Lockheed Martin Michoud Space Systems, Huntsville Technical Operations. Griner presented the award to Lockheed Martin personnel at Huntsville for the period January 8, 1993 through November 30, 1998. During this period, Huntsville Technical Operations worked in excess of 1,000,000 man-hours in support of numerous NASA and Michoud Assembly Facility projects, in highly industrialized and hazardous work environments, without sustaining a day-away-from-work injury.*

you. They can and do happen to normal, hard working people every day. It is incumbent upon each and every one of us, as we enter the new millennium, to bring a positive safety attitude with us to eliminate the potential for accidents and incidents, and ensure the success of future space endeavors.

If I can impart only one thought in this message, it is to **take the time to be safe**. This is a constant theme of our Safety Program, and covers a lot of situations. I emphasize this every time we have a Department Safety Meeting at MSFC. Use the AESOP mini-huddle technique presented in the recent Human Error Prevention training. We know the hazards, and we know the rules. Think about the task at hand. If it doesn't feel right, don't

do it. Call a timeout and discuss it with your supervisor and co-workers. Get the concern that is bothering you corrected, or get an understanding of why the situation is OK as it is.

As much as we must be conscious of schedules, no one will ever get in trouble for holding up a job to resolve a safety concern. I do my best to make sure our employees at MSFC understand that management is sincere about this.

Remember we are starting the New Year and the new millennium with a clean slate; we are accident free in 2000. Let us all as individuals and teams do our best to keep it that way.

On behalf of Huntsville Technical Operations personnel, to our co-workers at MAF and KSC, I wish you a Merry Christmas and a Happy and Safe New Year.

## Layoff reduced

*Continued from Page 1*

correct path for X-33 recovery at the completion of the ongoing tank damage investigation. The investigation — currently under way at NASA Marshall — is expected to be completed in January.

Tassin expects that a metal liquid hydrogen tank activity would run 20 months and would peak with about 150-200 employees engaged on the project. The first flight tank would be delivered within 18 months of receiving the authority to proceed.

“It is an exciting opportunity for Michoud Space Systems to again have an important role in the X-33 program,” said Tassin. “Our work on the metal liquid hydrogen tanks could be critical in getting the X-33 technology demonstration vehicle back on track and moving again toward flight test. It is an important job, but one I know we will successfully complete.”

## X-34 tank review

*Continued from Page 1*

tank to qualify the composite materials, the proposed manufacturing processes and the design of the X-34 flight tank.

The fiber placement of the pathfinder's tank barrel was completed in early December, and dome fabrication is due to begin in January.

Pressure and cryogenic testing of the pathfinder is set for the late April to early August time frame. Testing for the X-34 flight tank is scheduled for mid- to late August, and will also consist of pressure and cryogenic testing.

The PDR attendees generated 13 action items and set a schedule for addressing each item as the review ended.

**Matt Wallo**, Michoud Space Systems' X-34 Composite LO2 Tank program manager, concluded the PDR by stating, “This has been a good review. We will address these actions and press on with building the tank.”

## ET team honored by National Space Club - Huntsville

The National Space Club of Huntsville recently honored the Space Shuttle External Tank team for developing the Super Lightweight Tank (SLWT).

The club presented the team with its most prestigious honor, the **Dr. Wernher von Braun Space Flight Award**, on the occasion of its twelfth Annual Celebration held recently at the Von Braun Civic Center in Huntsville.

“Congratulations to the entire Lockheed Martin External Tank team for the extraordinary work that culminated in the presentation of the Dr. Wernher von Braun Space Flight Award,” said **Art Stephenson**, Director, Marshall Space Flight Center. “I am so proud of the team's accomplishments.”

The National Space Club-Huntsville presented the award to recognize the NASA/Lockheed Martin team's success in reducing



*The Dr. Wernher von Braun Space Flight Award*

the weight of the tank by some 7,500 pounds. This achievement has made it possible for the Space Shuttle to fly cargo to the high inclination orbit of the International Space Station.

Awards given by the National Space Club recognize significant achievements in advancing America's leadership in space.

## To receive or not to receive?

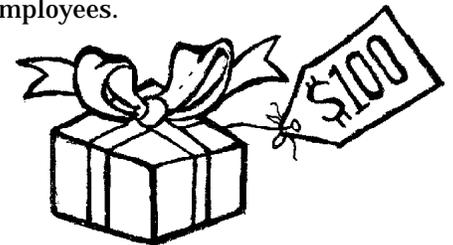
With the year-end holiday season arrived, employees should take a few moments to review Lockheed Martin's policy on giving and receiving gifts.

“The sale of Lockheed Martin products and services should always be free from even the perception that favorable treatment was sought, received, or given in exchange for the furnishing or receipt of business courtesies,” states *Setting the Standard*, the guide to the Corporation's code of ethics and business conduct.

The code prohibits employees from “accepting compensation, honoraria, funds or monetary instruments in any form or amount, or any tangible gift (including tickets to sporting, recreational, or other events) that has a market value of \$100 or more, from any entity or any person that does or

seeks to do business with the Company, unless specifically approved by his or her supervisor, and the business unit's Ethics Officer or the Corporate Office of Ethics and Business Conduct.”

Solicitations of gifts are always prohibited. Additionally, other restrictions apply for business courtesies offered by Lockheed Martin employees.



If you have a question about the propriety of giving or receiving any gift, gratuity or courtesy, contact Michoud Space Systems' Ethics Officer, **Stuart Stine**, 7-3842. The current version of the Corporate policy regarding these issues (CPS-008) can be found on the Intranet at: <http://policy.global.lmco.com/p3/lockmart/index.html>

*Have a  
Safe and  
Happy  
Holiday*

## MILESTONES

Employees celebrating milestone anniversaries with Lockheed Martin in December include:

### **30 years**

Terry Hibbard

### **25 years**

Herman Shiloh

### **20 years**

Elias Atilano  
Bennie Ferrell  
Donald Kerlec  
Antoine Revere  
Terry Sherman  
Eugene Sweet

### **15 years**

Donald Baxter  
Lanson Chien  
Brian Piekarski  
Michael Schaefer  
Michael Steiner  
Cheryl Sullivan

## EMPLOYEE VOLUNTEER ORGANIZATION

November 13 brought out our faithful Litter Watch Crew to once again give the Bayou Sauvage Wildlife Refuge a badly needed face-lift.

Fourteen employees, one retiree and one relative came out and picked up 72 fifty-five gallon bags of trash and numerous other exotic items thrown by the roadside including tires, TVs and even an old ringer-type washing machine.

Among the mosquito-bitten were 83-year old retiree and veteran Litter Watcher **Lou Muehlberger; Rob Carey, Bill**



*Retiree Lou Muehlberger*



*Don Romero (right), and Mike Gnau bag trash along Highway 11.*

**Turpin, Ray Lacour and John Fisher**, Facilities and Environmental Operations; **John Beicher**, MIS; **Chet Hirstius**, Human Resources; **Margaret Pepersack, Charles Holding, Cynthia Pustanio and Blake Meinders**, Technical Operations; Blake's mother, **Garnet Meinders; John Rosche and Don Romero**, Planning & Control; and **Michael Gnau**, Business Development; and **Gordon Dyer**, Public Affairs.

After a great tailgate party at the end of clean-up, the crew members turned with a jerk, and were heard to say, "this is enough trash cleaning for one millennium" as they flew out of sight.

## MISSION SUCCESS<sup>®</sup> BULLETIN

Volume 18, Number 12  
December 17, 1999

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*Mission Success Bulletin* is published  
by the Public Affairs Department.

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