

February 24, 1989      Number 4



**Facilitators  
ready for COR**



## COR team arrives Monday

The Air Force Contract Management (AFCMD) Contractor Operations Review (COR) team, led by Charles Kjelland, will arrive Monday at the Astronautics Group for a two-week review. Kjelland's team will consist of approximately 55 members from AFCMD headquarters and various Air Force Plant Representative's Offices (AFPRO) around the country.

Peter B. Teets, Astronautics Group president, and Stanley F. Albrecht, vice president of plant operations and COR team leader, will present the inbriefing to the AFCMD/COR team, and the review of Astronautics Group operations will begin Monday.

Outbriefings presented by the AFCMD to the Astronautics Group's eight segments will be March 9, and Kjelland will give his summary outbriefing to Teets on March 10.

Final AFCMD/COR results will be sent from Maj. Gen. Charles P. Skipton, AFCMD commander, to Teets shortly after the review is completed. ■

## Product integrity is an all-hands effort

One major focus of the contractor operations review (COR) will be in the area of product integrity, Rick Malone, product integrity segment lead and manager of product assurance integration, said.

"At least half of the investigators will be in factory areas, evaluating hardware build documentation and processes," Malone said.

Product integrity evaluates whether our products meet the contractual requirements called out in engineering drawings, processes and process plans, Malone said. "All functions contribute to this objective, therefore our product integrity grade really measures how effective we are as a team."

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***"... half of the investigators will be in factory areas, evaluating hardware build documentation and processes."***  
—Rick Malone

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For the upcoming COR, the product integrity team, made up of members from several functional areas, has used Astronautics Group inspection procedures for inspecting hardware, working instructions, production processing, and end-item inspections and tests, Malone said.

The Air Force COR team will examine hardware, both before and after it has been inspected by the Astronautics Group, to assess manufacturing and quality assurance performance.

"We welcome any comments or concerns employees may have in preparing for the Air Force review of product integrity," Malone said. He can be reached at Ext. 7-4363. ■



### Illegal parkers get towed

A private towing service prepares to haul an illegally parked vehicle, near the General Purpose Lab trailers, to the upper parking lot across from the Research and Development Lab. During the past two weeks, nearly 50 vehicles have been towed from the GPL and Vertical Test Facility areas Ron Halcomb, of Safety, said. "The situation has become so bad that emergency equipment, such as fire engines and ambulances, and delivery trucks have no access to these facilities," Halcomb said. "Not only is it monetarily costly to the company, but this lack of discipline could also cost us a human life or an entire building." He said the situation must be corrected prior to the upcoming COR review. "If the auditors see that we have a disrespect for our own procedures, imagine how they might think we adhere to contractual obligations." Halcomb said the towing will continue until the situation has been corrected.

## Employees get hints for COR interviews

Employee interviews will be one of the most important parts of the AFCMD Contractor Operations Review (COR) review next week. Any employee may be contacted by the COR team as part of the audit to determine how well individuals follow policies, procedures and practices. Auditors from the COR team will visit employees in many work areas to ask questions regarding specific work methods.

The manner in which employees respond to these individuals can have a major impact on the outcome of the audit and future business. It is very important for employees to respond professionally and courteously, and to cooperate by supplying the requested information. The following is a set of guidelines for responding appropriately in a COR interview:

- AFCMD team members will be accompanied by a designated Astronautics Group COR facilitator. The team member must indicate a "need to know" before anyone is obligated to answer a question. Thus, employees are still obligated to maintain awareness of security requirements. AFCMD members cannot criticize an employee for declining to answer a question that might involve classified or proprietary data.
- The AFCMD auditors have a "show me" attitude. As much as possible, they will want to see how business is actually conducted

instead of listening to vague descriptions. Reviewers will want to get as close as possible to actual products and work processes.

- They will want to know if the employee has access to, and understands, work instructions. This includes new employees as well.
- Employees should be open, candid and honest, and should accommodate the auditor's schedule.
- When answering questions, employees should not show or tell more than is asked for. Simply be concise. Any questions concerning proprietary information should first be discussed with the COR team escort.
- Do not interrupt while questions are being stated. This may result in your failure to fully understand what is really being asked.
- Express your initial response as a question clarifying what the reviewer is asking. Re-state the question as you understand it and ask if you have it right.
- If you don't know the answer, refer the question to your immediate supervisor or ask for time to gather the proper information.
- Nothing should be signed by anyone other than a qualified Astronautics Group COR team member.
- Show professional standards: knowledge, energy and high personal standards. ■





### Grogan addresses CWA

*Barbara Grogan, president and CEO of Western Industrial Contractors, talks to members of the Career Women's Association during their annual meeting last week. One of Grogan's main points during her talk was, "You may make mistakes, but the only failure is not trying." About 98 people, most of whom were Martin Marietta employees, attended the meeting.*

## 30th anniversary of Titan observed

As Martin Marietta prepares to launch the newest member of the Titan family for the Air Force, the recent 30th anniversary of the first Titan launch was cause for celebration and reminiscing.

The first Titan I ICBM soared from launch complex 15 at Cape Canaveral Air Force Station, Florida, on Feb. 6, 1959, introducing the nation's first two-stage ICBM. At the time it was the most powerful delivery system in the United States' nuclear arsenal.

Only the first stage was fueled on that test launch, while the second stage tanks were filled with water for added weight.

"We certainly were plowing new ground with a two-stage vehicle," Gareth D. Flora, Space Launch Systems president and former Titan engineer, said.

Although the first flight was only 300 miles down the Atlantic Tracking Range, it wasn't long before the rocket traveled at speeds up to 17,000 mph, hurling dummy warheads on the way.

Eventually, after 48 successful launches, the Titan I gave way to the larger, more powerful

Titan II ICBM and today's Titan launch vehicles. Thus far, 311 Titans have been launched.

Currently, Martin Marietta builds and launches three Titan systems—the Titan II, III, and IV.

The Titan II was developed for the Air Force in the early 1960s as an ICBM and subsequently modified for the ten manned orbital missions of the National Aeronautics and Space Administration's Project Gemini. Today, deactivated Titan II ICBMs are being converted to launch vehicles for small payloads.

The Titan III has been the Air Force's principal launch vehicle for critical national security payloads since 1964. The latest operational version of the Titan III—the Titan 34D—is currently in use by the Air Force, and another version of the Titan III is being built for commercial use.

The newest and largest Titan launch vehicle is the Titan IV, designed to provide assured access to space as a complement to the Space Shuttle. A growth version of the Titan 34D, the Titan IV can launch large payloads. ■

## Colonel McCabe addresses employees

To all employees:

The Air Force Contract Management Division (AFCMD) will conduct a Contractor Operations Review (COR) at Martin Marietta Astronautics Group from Feb. 27 through March 10. The job of the COR team is to evaluate how well Martin Marietta is complying with contractual requirements and assuring product integrity.

Martin Marietta looks at complying with contract requirements and product integrity as the cornerstones of Mission Success through Total Quality. To the Air Force, this means product adherence to contract specifications.

For the COR, AFCMD pulls together a team of 50 of its best experts. They come from AFPROs at other contractors, AFCMD headquarters, and other government agencies familiar with your type work.

They will conduct a multifunctional review of your entire Denver operation. By March 10, they will have assessed your commitment to Mission Success and Total Quality Management. No big secret to how they do it. They just look at the contract and compare it to what Martin Marietta's written procedures and practices say—and to the work actually produced.

If everything matches up—that's good. If it doesn't—that's not.

A COR isn't a "witch hunt," and shouldn't be taken as one. It's just an opportunity for you to show your commitment to Mission Success through Total Quality. That means that each one of you has an important job. Whether it's producing perfect drawings, keeping the factory areas clean, machining perfect parts, or assuring that only vendors who produce quality components are part of the Martin Marietta team—*every* job is critical to providing quality products at a reasonable cost.

I am confident that each of you has the ability and the skills to meet this challenge. And I'm confident that, working together as a team, you will meet it.

**John B. McCabe, Colonel, USAF  
Air Force Plant Representative**

## Ethics reminder

In addition to referring ethics questions or concerns to management, employees have the option of contacting the Astronautics Group ethics offices at Ext. 7-4530, or the corporate director of ethics at (800) 338-4427. The Department of Defense (DOD) also maintains a toll-free line at (800) 424-9098 for reporting fraud, waste and security violations relative to DOD contracts.

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# Titan IV rolls in at Vandenberg

The first Titan IV space launch vehicle rolled into Vandenberg Air Force Base, Calif., Feb. 16, opening a new chapter in the history of expendable space launch programs at the base.

Gareth D. Flora, Space Launch Systems president, and Brig. Gen. Thomas W. Honeywill, Space and Missile Test Organization commander, jointly recognized the arrival of the newest Titan.

"The Titan IV, America's booster, brings the nation a greatly enhanced launch capability on the West Coast and is a continuation of the great partnership between the Air Force and the professional contractor launch team in place at Vandenberg," Flora said.

Gen. Honeywill added, "The Titan family of expendable launch vehicles have gone from being merely an alternative to being the backbone of the Department of Defense's space launch program.

Built at the Astronautics Group's Waterton facilities, the vehicle is an improved version of the Titan 34D space launch system.

The Titan IV is the nation's largest and most powerful expendable launch vehicle. It will be launched from both the east and west coasts, with the first launch scheduled this year. ■



## Titan IV rolls into Vandenberg

Employees at Vandenberg Air Force Base, Calif., attended the Titan IV roll-in ceremony Feb. 16. Brig. Gen. Thomas W. Honeywill, Space and Missile Test Organization commander; Felix J. Schefler, director of Vandenberg Operations, and Gareth D. Flora, Space Launch Systems president, were among those on hand to recognize the arrival of the newest Titan. The Titan IV expendable launch vehicle will be launched from both the East And West Coasts.

## Company engineers study Mars Rover concept

The first object from Earth that walks on Mars may be a spider-like robot known as the "walking beam."

Martin Marietta engineers in Denver are studying the seven-legged concept for a future NASA initiative mission called the Mars Rover Sample Return (MRSR) mission. Scheduled for the late 1990s, this mission will send an unmanned rover to the surface of Mars to collect soil samples and return them to Earth for analysis.

In December, Martin Marietta Space Systems received a nine-month extension to a contract with NASA's Jet Propulsion Laboratory to focus on the walking beam design. Under a related company-funded research contract, engineers are building a working scale model of the walking beam for tests in a large laboratory sandbox to simulate soil conditions on Mars.

The walking beam is one of several concepts Martin Marietta has conceived and studied for NASA since the company first began rover studies in 1987. Last year, analysis covered the broad range of wheeled, tracked, and walking vehicles. For studies this year, NASA asked the company to single out one concept and perform a detailed evaluation.

The walking beam is a collapsible, T-beam structure that will store easily in the lander spacecraft and move safely over a variety of terrain. For special maneuvers, Earth controllers will use the vehicle's cameras and sensors to direct its motion. But this isn't practical for extended trips to diverse sites—radio command signals from Earth can take up to 20 minutes to reach Mars, severely affecting rover range. So the vehicle will be equipped with artificial intelligence computers that will be able to "see"

ahead of the vehicle and plan a path for the rover.

On board the rover will be robotic arms that will pick up soil and rock samples. The arms will then place the sample into instruments on the rover for on-site analysis. Because there is only limited space and weight available, the rover can keep only the samples of most scientific interest and discard the rest.

Dr. Andrew J. Spiessbach, Space Systems MRSR rover study manager, said his group also has developed a unique computer program called the Integrated Mobility and Navigation Evaluation Tool (IMANET). This system has modeled different types of Martian terrain based on photographs from the Viking program of the 1970s and studies by planetary geologists. Four types of Martian terrain are currently modeled—a lava flow, dunes, a channel and crater terrain—which engineers have used to evaluate both wheeled and walking concepts.

Perhaps the best tool to assess rover performance will be the scale model being built for testing this summer.

"It's hard to get accurate estimates of performance from artist's sketches and concept descriptions," Spiessbach said. "The scale model will provide concrete data to show the viability of the MRSR rover."

Spiessbach, a Martin Marietta employee for ten years, has worked in a number of research and technology areas in the corporation, both in Orlando and in Denver. To him, the rover project is a unique opportunity to apply 20 years of experience in artificial intelligence, robotics, and imaging.

—by Jeff Fister

## Corporate briefs

### Corporation gets contract to produce vision systems

Martin Marietta Corporation has been awarded an \$87.9 million U.S. Army contract to produce 72 additional night navigation and targeting systems for the Apache attack helicopter.

The contract brings to 685 the total ordered since 1976 of the Target Acquisition Designation Sight/Pilot Night Vision Sensor System, known as TADS/PNVIS. Martin Marietta Electronics Systems in Orlando, Fla., produces 10 of the electro-optic systems a month and had delivered 488 systems to the Army through the end of 1988. The new contract extends TADS/PNVIS production through February 1991.

### Data Systems receives new five-year contract

Martin Marietta Data Systems announced it has received a new five-year, \$23 million contract to continue management of automated data processing facilities and support services for the Department of Energy's Western Areas Power Administration (WAPA) in Golden.

Deliveries of the thin-line arrays will begin in October 1990 and continue through 1993.

The system provides a daylike video picture in darkness and poor weather, permitting Apache crews to fly a few feet off the ground and pinpoint targets for laser-guided missiles and projectiles. ■





*Don't make up an answer—you aren't expected to know everything. If you don't know, say so, and go to the person who is best qualified to answer the question.*

## On the cover

Mac MacTaggart, jig bore operator (left), explains to John Grace, chief of detail fabrication and a COR facilitator (right), and Rick Malone, manager of product assurance integration and COR product integrity segment lead, how he produces the edges of a defense system truss.

About 200 facilitators will play a vital role in next week's COR audit.

"The facilitator is the auditor's contact with the company," Grace said. "He must escort the auditor at all times, remembering that the facilitator carries the weight of the company on his shoulders."

Facilitators will be extremely busy during COR. In addition to escorting auditors and keeping management informed, they must also attend daily briefings of audit findings to clear up any misunderstandings or provide answers to any open questions.

Randy Sprague, COR administrator, said, "Facilitators set the tone for the audit. They represent Martin Marietta professionalism at its best."

## Questions and answers on COR

*(Editor's note: Stanley F. Albrecht, vice president of Plant Operations and COR team leader for the Astronautics Group, recently answered some pertinent questions about the upcoming review.)*

**Q: When we say COR, what are we talking about?**

A: A contractor operations review (COR) is a thorough systems review at a defense contractor's plant site to determine if contract requirements are being met. COR is supervised by the Air Force Contract Management Division (AFCMD), located at Kirtland Air Force Base, Albuquerque, N.M. The review includes representatives from all functional areas, such as engineering and manufacturing. COR will review policies, procedures and practices for top-down adequacy and compliance, and products from bottom-up, starting with hands-on hardware inspection. Overall, the review complements the daily supervision provided by the Air Force Plant Representative Office (AFPRO).

**Q: Is COR strictly a management concern?**

A: No. Management is responsible for assuring that we comply with the terms and conditions of our contracts in producing quality products. An all-green COR, or top-grade performance, assuring quality products that are acceptable to the Air Force, requires each employee to know the policies and procedures of his or her job.

**Q: What do we hope to achieve during this review?**

A: The goal of COR is to demonstrate to the Department of Defense that Martin Marietta is a top-flight contractor.

**Q: Why is the Air Force conducting CORs?**

A: A COR is one method the Air Force can use to assure taxpayers that they are getting the best possible product from a defense contractor.

**Q: Are we being singled out by the Air Force?**

A: No. Every contractor facility administered by an AFPRO unit has been audited by a COR team. Since August 1984, more than 50 CORs have been accomplished at AFCMD contractor facilities, including two at the Astronautics Group. Each contractor can expect a COR visit at least every three to four years.

**Q: How are employees from Martin Marietta expected to respond to COR questions?**

A: Give direct, factual answers to the reviewers, and respond only with facts you know. No guessing. If you do not have the answer, ask your supervisor.

**Q: What actions can be taken in the event of a poor review?**

A: Remedial actions to correct deficiencies found during COR visits require the contractor to correct root causes. Eventually, if the contractor does not take timely, appropriate, corrective action, the AFPRO can:

- Issue management system deficiency reports to the contractor;
- Issue a letter of concern to the contractor identifying major problem areas;
- Issue a "notice of intent" to the contractor that it intends to disapprove the contractor's management system(s) if problems remain uncorrected;
- Disapprove the contractor's management system(s) due to noncompliance with the terms of the contract;
- Reduce or suspend progress payments due to noncompliance with contract requirements; and,
- Refuse to accept hardware when it has not been built to government specifications and standards.

**Q: What will the review cover?**

A: The COR will look at the quality of our operations and the capabilities and attitudes of our employees. The quality of our operations includes such things as the effectiveness of our systems and procedures and the adequacy of our facilities. Moreover, the investigations are product-oriented, encompassing both deliverable hardware and the outputs of contractor management systems.





### CABPES gets company support

Orlando Hooks, Space Systems engineer (left), and Ralph Barr, director of EEO and Affirmative Action (right), present Arlene Booker, president of the Colorado Association of Black Professional Engineers and Scientists (CABPES), with a \$2,500 check from the Astronautics Group to help the group expand programs and support a centralized headquarters. Hooks, the Martin Marietta CABPES liaison, and Booker said CABPES has two goals: to stimulate and develop interest among elementary, junior and senior high school, and college students from black and other minority communities to pursue engineering or applied science as a profession; and to promote and protect the interests of black and other minority engineers and scientists.

## Employee services/recreation

**Fitness Classes**—Openings are available for morning sessions and some afternoon classes that begin Feb. 27 at the Deer Creek fitness center. Employees can register for the six-week sessions at the Employee Services office, room 3B314 at Deer Creek, or pick up a registration form in the recreation racks.

**Photography Club**—Platte Canyon Photography Club members will meet at 7 p.m., Monday, Feb. 27, at the Public Service Building, 10001 W. Hampden. Prospective members are welcome. Eastman Kodak tapes of professional photographers demonstrating studio photography techniques will be shown. Members are reminded to bring slides or prints for evaluation for the cafeteria project.

**Satellite Ski Club**—The club is having a cross-country ski and winter camping trip on March 4. Contact Steve Ahmann, Ext. 7-4397. Day trips are scheduled to St. Johns Trail on March 18, contact Rich Nicholson, Ext. 1-6982; and to Mayflower Gulch on March 25, contact Frank Farrell, Ext. 1-1576.

**Smoking Cessation Classes**—This year enjoy a breath of fresh air. The American Cancer Society's "Fresh Start" program is

available free to all Martin Marietta and Air Force personnel, their spouses and dependents. Classes consist of four meetings from 5-6:30 p.m., March 6, 9, 13 and 16, at Goddard Middle School. To register, call the Employee Services office, Ext. 7-6750.

**Mile High L5 Space Society**—The group will meet at 7 p.m., Monday, March 6, at the Public Service building, 10001 W. Hampden. Martin Marietta engineer Ed Rodriguez will speak about the Advanced Launch System. For information, contact Barry Tuell, Ext. 7-8137.

**Saddle Club**—Ridgeriders Club members will meet at 7 p.m., Tuesday, March 7, in the clubhouse at the recreation area. For information, contact Mary Smith, Ext. 1-8154, or Joe Carroll, Ext. 1-7800.

**Radio Club**—Waterton Amateur Radio Society club members will meet at 5 p.m., Tuesday, March 7, at the Hamshack in the recreation area.

**Scuba Club**—Upcoming dive trips are scheduled for Cozumel, March 26—April 2 and May 19—26, and Bonne Terre Mine, St. Louis, Mo., April 28—30. For details, contact Bob Rowe, Ext. 7-6589, or Carol Claypool, Ext. 7-4194.

## Engineer disputes article on environmental issues

(Editors note: On Jan. 29 The Denver Post published an article on environmental issues at the Waterton facility. The story was based in part, on an interview with Greg Starkebaum, a former state official who is now an environmental engineer in the private sector. On Feb. 12 The Post published a letter from Starkebaum taking issues with some points in the article. Following is his entire letter to the editor.)

I insist on some redress to a grievance concerning staff writer Tom Graf's Jan. 29 story ("Engineer claims firm's release...") wherein I was misrepresented.

After spending a long, frustrating interview trying to explain a few problems surrounding the Martin Marietta Waterton Plant environmental assessment and cleanup work, I was extremely irritated to find oversimplifications and two ridiculously incorrect statements attributed to me. The main errors are in the paragraph where Mr. Graf has me yammering about how "...pollution (is) all around the plant. The closure plans are not adequate at all. (etc.)"

These quotes are incorrect both factually (I did not say those words) and by being totally out of the context (historical health assessment) in which I may have said something remotely similar.

For evidence, why would I claim the closure plans (for several old waste management units) to be "not adequate at all," when I have spent much of the last three years working with the company to get the closure plans developed and approved? And I know Mr. Graf listened to my description of the groundwater collection and treatment systems installed over the last three years, which have pretty effectively stopped further contamination of Kassler groundwater. But he (or someone from your staff?) chose to leave out the complicated facts in favor of incorrect but sensational quotes.

You should sentence Mr. Graf to a six-month grounding at EPA and the Health Department before allowing him further opportunities for public misbehavior.

Greg Starkebaum  
Littleton

## "Lunch and Learn" seminars begin next week

Employee services/recreation is sponsoring a series of "Lunch and Learn Seminars," beginning in March.

Robert Gleser, M.D., founder and medical director of HealthMark, will discuss "Life, Oh how you'll miss it when it's gone," Wednesday, March 1, in the auditorium at the Deer Creek Facility, and Friday, March 3, in the Engineering Building presentation room.

Susan Stevens, director of nutrition for HealthMark, will talk about "Cholesterol—Myths and Facts," Thursday, March 2, at SSB in the sixth floor presentation room, and Tuesday, March 7, at Littleton Systems Center in Room 107.

Each of the seminars will run from 11-11:45 a.m. and noon-12:45 p.m. and fruit will be provided for dessert. ■