

May 23, 1986 Number 10



Peacekeeper scores silo success

The U.S. Air Force completed the twelfth test launch of the Peacekeeper missile May 21 from Vandenberg Air Force Base, California. The missile was launched at 9 a.m. PDT and flew 4000 miles to a target area within the Kwajalein Missile Test Range in the Pacific Ocean.

The 30-minute flight marked the first time a Peacekeeper missile has carried a full load of 10 unarmed MK21 reentry vehicles. This flight analyzed the functional performance of missile systems including propulsion, reentry, guidance and control, flight safety instrumentation, and launch facilities.

This was the last test flight to use develop-

mental hardware. Further test flights will use fully operational flight and support equipment. However, all Peacekeeper test flights will continue to carry unarmed reentry vehicles as well as a command destruct package to ensure it can be destroyed safely if it strays from the planned flight path.

The Peacekeeper is a four-stage intercontinental ballistic missile designed to modernize the U.S. ICBM force. When operational, the Peacekeeper will carry 10 independently targetable reentry vehicles with a range exceeding 6000 miles. It is significantly advanced over the existing Minuteman missile in range, accuracy, and payload capability.

All of the Peacekeeper flight tests, managed by the Ballistic Missile Office, Norton AFB, California, have been designed to verify system performance. Test objectives of each flight have gradually shifted from component functional performance to systems and operational objectives.

Continuing operational test and evaluation are being conducted by the Air Force Operational Test and Evaluation Center, Kirtland AFB, New Mexico. Initial operational capability of 10 Peacekeeper missiles at F.E. Warren AFB, Wyoming, is planned for December. ■

Environmental plan accelerated

Denver Aerospace has accelerated its continuing program to bring all environmental facilities into compliance with hazardous waste management and clean water laws.

"It is our intent now and in the future to meet or exceed all environmental requirements," said Richard E. Weber, vice president, personnel and facilities.

"To that end, we are making a concerted effort to improve our environmental facilities and operations, as well as to train all our hazardous waste management and wastewater treatment personnel."

Weber said signing of an agreement with the Colorado Department of Health (CDH) recently will allow the company to dedicate more of its time and resources to working environmental management requirements. The agreement includes a \$1.24 million penalty for past alleged violations of the Colorado Hazardous Waste Act and the Colorado Water Quality Control Act, \$500,000 of which was suspended.

The company agreed to pay \$500,000 for alleged hazardous waste violations, and \$119,500 for alleged water quality violations. Weber noted that suspension of \$500,000 of the penalty was because of the way in which the company has been cooperating with CDH to address environmental issues.

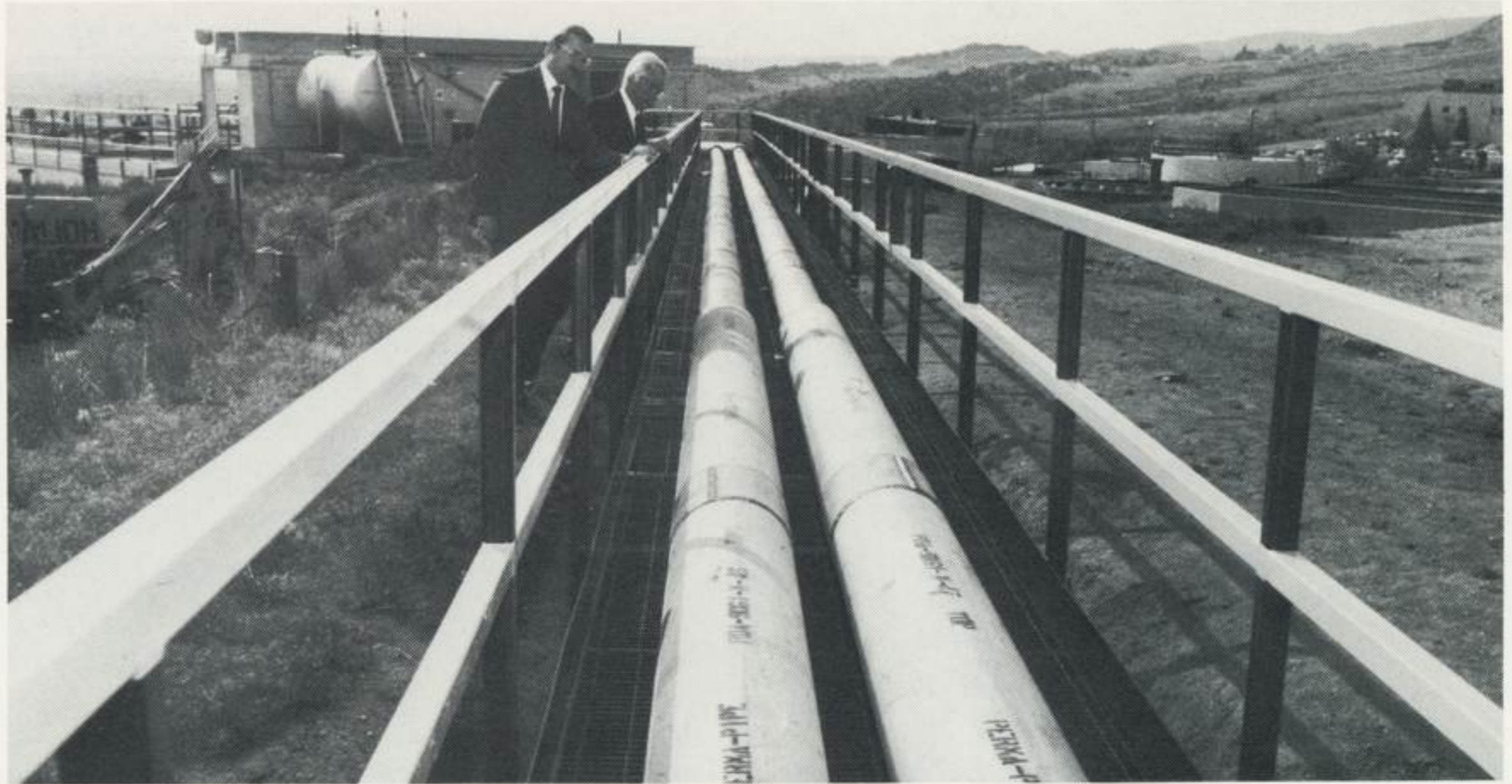
Part of the penalty will be used for environmental research programs, which Weber said the company found particularly gratifying. Eighty thousand dollars will be used to support environmental research at the Colorado School of Mines, \$20,000 will be used to support the Colorado Toxics Forum coordinated by the Keystone Center, and another \$20,000 will be given to the Tri-County District Health Department to survey small-quantity generators of hazardous wastes and assist them in environmental controls.

"Now that these past issues have been resolved, we can devote even greater attention to our program announced earlier this year to upgrade environmental facilities and continue groundwater cleanup efforts begun in 1985," said Tom Pharo, director, environmental management.

That program will include upgrading or replacement of all hazardous waste management facilities at the Waterton plant, including sumps, underground tanks, above-ground tanks, and piping.

Design work will be completed by June 30, and most of the construction will be completed by the end of the year, according to company officials.

Pharo said a number of steps already have been taken to correct environmental problems. They include design and installation of a \$1 million system to intercept contaminated groundwater between the main plant at Waterton and the Kassler water treatment plant, completion of \$700,000 double-walled waste transfer lines with a leak detection system between the chemical milling area of the factory and the waste treatment plant, upgrading of the hazardous waste barrel storage area,



Thomas J. Pharo, right, director, environmental management department, examines double-walled pipeline system with Darrell J. Elliott, manager of compliance programs. The system, designed by facilities engineering, is made up of a pipe within a pipe, one to carry acid and one to carry alkaline wastes from the chemical milling area of the factory to the waste treatment plant.

and improvements and added capacity at the domestic wastewater treatment facility.

Other planned actions include the following:

- Modification and refurbishment of the chemical processing area of the company's factory.
- Installation of a second groundwater interception and treatment facility. The first one was completed in 1985 at a cost of

\$1.2 million.

- Construction of a secondary containment system for the company's waste treatment plant to protect Filter Gulch in the event of a spill.
- Construction of an environmental laboratory to analyze waste and groundwater on-site.

Ethics office opens in Denver

Winant (Si) Sidle, corporate ethics director, is in Denver for 4 to 6 weeks to establish an Ethics office, which opened May 21.

The office is being established by the corporation to monitor corporate performance under the Martin Marietta Code of Ethics and Standards of Conduct, and to resolve concerns presented to the office by Martin Marietta employees.

Sidle is at the Waterton facility in Room 122B of the engineering building, and his Denver Aerospace telephone number is Ext 7-4530 or Ext 7-6348.

Sidle's permanent office is in Orlando and

he will still be available through his normal telephone numbers at that location: 1-800-3ETHICS and MARCALL 356-9400.

The Ethics Code calls on every employee to report any violation or apparent violation of the Code. The corporation strongly encourages employees to work with their supervisors in making such reports, but in addition, provides to employees the right to report violations directly to the Corporate Ethics Office. Anonymity is absolutely guaranteed. Sidle also is available to provide interpretations to the Code when necessary.

Credit union offers new loan plans

The Red Rocks Federal Credit Union is offering a special computer loan for members interested in the purchase of a Zenith Computer System.

The Credit Union will finance 75% of the selling price of the system, which does not include sales tax, for 24 months at 13%, with a maximum loan amount of \$4000.

In addition, the Credit Union has a new-car purchase plan, referred to as Invoice Plus.

Although this plan is available through specific dealerships, it includes GM, Jeeps,

Chrysler, Ford, Hyundai, Mercedes, Nissan/Datsun, Subaru, Suzuki, Volkswagen, Volvo, Toyota, and Honda.

Domestic cars are priced at \$225 over factory invoice, selected domestics at 4% over factory invoice plus dealer-installed items, imports 4% to 8% over factory invoice, and some specialty vehicles, such as 4x4s, from 8% to 14% over factory invoice.

Call Ext 7-6000 or 7-0589 for more information.

Company to build instrument to analyze Mars' surface

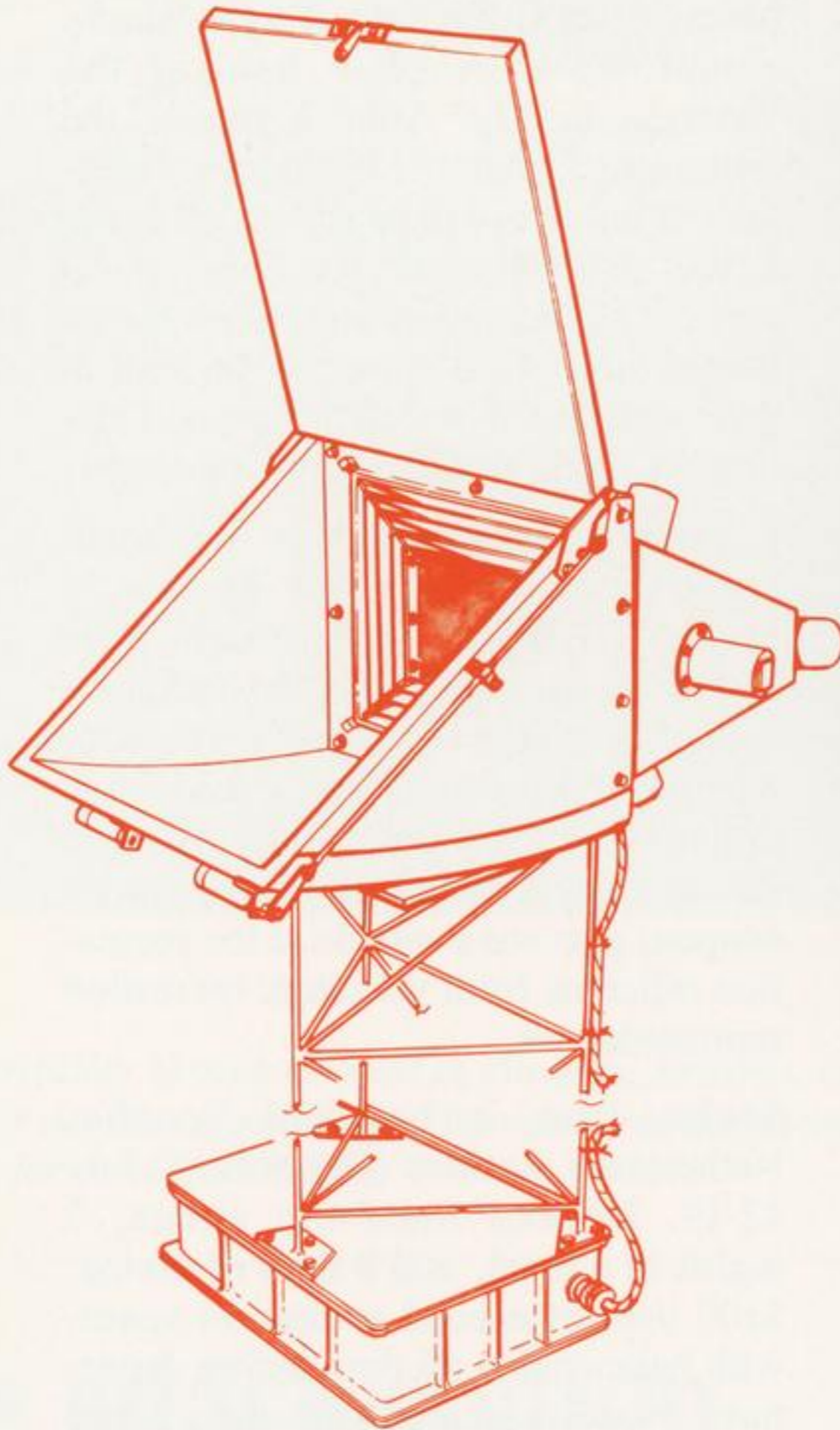
A gamma-ray spectrometer designed to analyze the surface of Mars will be built by Martin Marietta under an \$8.5 million contract awarded by the NASA Goddard Space Flight Center in Maryland.

The gamma-ray spectrometer is one of the instruments to be carried into orbit around the red planet aboard the Mars Observer mission, now scheduled by NASA for launch in 1991. As part of the contract, Denver Aerospace will design, develop, build, test, and integrate the instrument into the spacecraft, and will participate in analyzing the data and operation of the instrument after its rendezvous with Mars.

While in orbit around Mars, the gamma-ray spectrometer will analyze the composition of the planet's surface by measuring the spectral content of gamma rays emitted from the surface. Gamma rays are produced by cosmic rays bombarding a planet, and are a precise measure of the elemental composition of a planet's surface.

The major portion of work on the spectrometer will be performed at Denver. The company has contracted with Lawrence Berkeley Laboratories at the University of California for fabrication of the germanium crystal that is the heart of the spectrometer. RCA Corporation won the contract to build the Mars Observer spacecraft.

Martin Marietta also is building the Transfer Orbit Stage, under contract to Orbital Sciences Corporation, which was selected as the upper stage booster to be used on the Mars Observer mission. The company also built the Viking spacecraft, which was the first to land on the surface of Mars in 1976.



Mars Observer gamma-ray spectrometer

Program manager for the gamma-ray spectrometer is Jose Padilla. Dr. Benton C. Clark was the proposal manager. Approximately 12 persons will be involved in the program at Denver Aerospace, rising to about 50 during the hardware design and fabrication stages. ■



Bernard trains another volunteer for the Denver Audubon Society.

Volunteer helps urban children

This spring 60 Audubon Society volunteers are exploring nature with more than 500 children at schools, clubs, and community centers throughout Denver. Steve Bernard, a senior engineer in systems support for Small ICBM, is one of them and has played a key role in making the Denver Audubon Society's program a success.

He has been a volunteer with the Audubon's Urban Education Project since it began one and a half years ago. The project introduces urban children to plants and animals in their neighborhoods and teaches them ways to observe and learn about nature on their own.

Bernard has helped youngsters at the Ford-Warren Library discover how many different kinds of plants, insects, and spiders live in their back yards, nearby vacant lots, and parks. He's explored the neighborhood near Mile High Stadium with boys from the Johnson Building Boys Club. Together they built birdfeeders and investigated the patterns of insects.

In addition to his work with children, the Audubon Society said Bernard has helped the program grow with his enthusiastic involvement and new ideas. He's photographed kids and volunteers in action and trained additional volunteers. He's also found ways for the project to link with other community groups such as the Boy Scouts and Denver Zoo.

Bernard joined Martin Marietta in 1980 as an environmental scientist and biologist, and then obtained an engineering degree. "This project helps me keep in touch with my background, and I have a lot of fun doing it," Bernard said. "In 1987, we hope to teach 2000 kids about their environment in new ways." ■



Canaveral operations takes first place

Martin Marietta employees' entry in the Great Indian River Raft Race owned the "fast lane" before a crowd of 20,000 attending the recent Titusville, Florida festival. Dubbed Half-Fast, the sleek catamaran-styled raft is shown pulling into the dock after taking first place in the Open Class event, some 300 yards ahead of the rest. The raft was built by a team of 30 Canaveral Operations employees. W. E. Fields, director, is seated on the front of the raft.



Col. Masson, second from right, presents Air Force award to Martin Marietta. Accepting for the Company are, left to right, Peter B. Teets, Denver Aerospace president, Herbert L. Watkins, manager of materiel, and Stanley F. Albrecht, vice president of production operations.

Small/minority business contracts merit top Air Force award

Denver Aerospace has been cited by the U.S. Air Force for its support of small and minority businesses. Martin Marietta awarded more than \$222 million in subcontracts during the past fiscal year to small and minority businesses.

The annual competitive award for "The Outstanding Contractor in Socioeconomic Program Participation" for fiscal year 1985 was presented recently to Denver Aerospace by the Air Force Headquarters Contract Management Division.

Martin Marietta's \$200 million in awards to small business firms represents approximately 39% of its subcontracting in fiscal 1985. Approximately \$22 million in subcontracts were awarded to minority-owned businesses during the same period.

As a result of these efforts, Denver Aerospace received an "excellent" rating in the Small Business Subcontracting program for the Air Force, and received the top award in competition with 24 major Air Force contractors. ■

Future space needs outlined

Richard E. Brackeen, vice president of Space Launch Systems, led a senior technical management team presentation recently to the DOD/NASA Joint Steering Group on Space Transportation.

It was held at NASA's Langley Research Center in Virginia. Space Launch System (SLS) employees who supported the presentation to top-level government representatives included Joseph T. Keeley, director of advanced programs; Leroy F. Nichalson, director of the space transportation architecture study; Arthur C. Morrissey, director of business development; and M. Brown Riley, manager of advanced programs, business development.

Those in attendance included The Honorable E.C. (Pete) Aldridge, undersecretary of the Air Force; Rear Admiral Richard Truly, NASA's newly appointed chief of space flight; Jesse Moore, former chief, space flight, and now director at Johnson Space Flight Center; Col. William Zersen, USAF systems com-

mand and senior DOD member of the Joint Steering Group; Paul Holloway, senior NASA member of the Joint Steering Group; Lt. Gen. James A. Abrahamson, director of strategic defense initiative organization (SDIO); and Maj. Gen. Donald G. Kutyna, director, space systems and command control communications headquarters, USAF.

The Joint Steering Group was commissioned by President Reagan to develop initial concepts and plans for second-generation space transportation systems for the United States. The space transportation architecture study (STAS), of which Martin Marietta is one of four competitors, is studying a variety of options for future vehicles, operations and logistics systems, and mission control systems.

Particular attention is focused on the role of advanced technology development plans to support these future space systems. A presentation on these subjects was made by Nichalson at the Space Congress in Cocoa Beach, Florida on April 25. ■

News briefs

Michoud Aerospace gains new controller

James R. Weston has been named controller for Michoud Aerospace in New Orleans, LA.

Before his new assignment, Weston, employed by Denver Aerospace for 20 years, was manager of accounting and treasury. He replaces Eugene F. Ahern, who will retire in June.

New human resource manager named

Dr. Donald Q. Brodie was named manager of human resources development, effective Monday, May 5. He reports to Richard E. Weber, vice president, personnel and facilities.

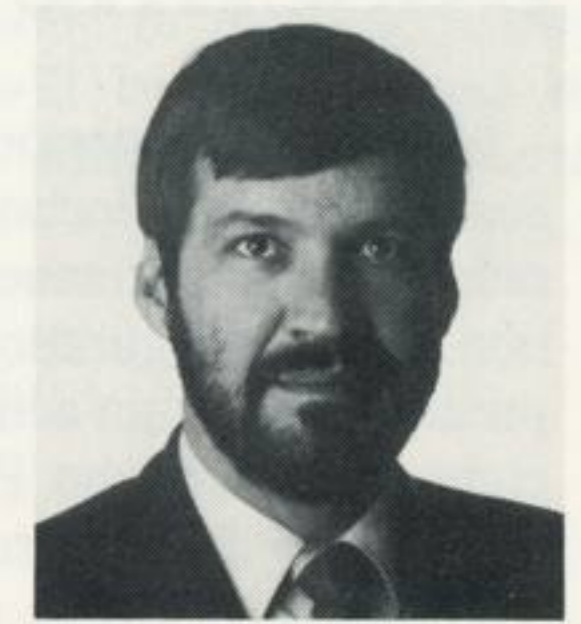
Brodie is responsible for the suggestion program, educational services, organization and management development, and program managers' development.

He holds a PhD in sociology with emphasis in statistics and organization behavior from the University of Pittsburgh. He also holds a certificate in human resources management.

Grigson wins award for project referral

William H. Grigson is the Project Referral winner for April.

Grigson, an employee of Martin Marietta for almost 8 years, is with Information and Communications Systems (I&CS) as a systems



William H. Grigson

engineering manager. He spent his first 6 years with Denver Aerospace on the Air Force OASIS project in Boston, MA.

His referral, Brian Lewis, is a system engineer in special projects with I&CS. The drawing entitles Grigson to receive \$2000 and a trip to Kennedy Space Center, FL.

Fletcher returns as NASA chief

James C. Fletcher has been named NASA administrator for the second time. He also served as the head of NASA from 1971 to 1977.

Fletcher is on record as being in favor of building a space shuttle to replace the Challenger, as well as buying additional unmanned rockets to make up for time lost in bringing the space shuttle fleet back to full strength.

He replaces William R. Graham, temporary administrator, who returns to his former position as deputy administrator for NASA.



Mobility test bed delivered to Yuma

The latest mobility test bed was tested at the Caterpillar Testing Ground in Phoenix, Arizona, and then shipped to Yuma, Arizona, for testing under Air Force guidance. The vehicle is representative of the hard mobile launcher (HML) design for the Small ICBM.

Radio operators test satellite

This month, an international team of amateur radio operators and space enthusiasts has assembled in the Denver area to complete the integration and test of the AMSAT Phase III C satellite. Starting on Memorial Day, May 26, and continuing through June 9, the amateur-built satellite will undergo thermal vacuum testing at the Waterton facility.

Radio operators have been involved with the amateur space program from the start of the international space race. OSCAR 1 (Orbital Satellite Carrying Amateur Radio) a simple radio beacon satellite, was successfully launched in 1961. OSCAR 5, carrying a radio transponder or relay, flew on a Titan IIIC in January 1970, and allowed radio amateurs around the world to converse with each other.

The current satellite project, Phase III C, is scheduled for launch on an Ariane IV test vehicle in early November 1986. It will be placed in high elliptical orbit to provide hemispheric coverage of the Earth for several hours at a time. "This will allow predictable, reliable communications that can support national and international emergency communication needs," said Jack Crabtree, AMSAT committee chairman and coordinator, and Denver Aerospace group senior engineer.

These projects are conducted by AMSAT, the Amateur Radio Satellite Corporation, an international nonprofit scientific/educational organization with headquarters in Washington, D.C. Funding is provided by organization dues, contributions, volunteer labor, and donated materials and services. Denver Aerospace is donating the use of the thermal vacuum test facilities and labor for the Phase III C thermal vacuum test program.

The Waterton Amateur Radio Society, a Denver Aerospace recreational organization, is coordinating and acting as host to the Phase III C satellite program team. Members and other employee volunteers will perform tasks ranging from escort duty to monitoring the spacecraft's telemetry and conducting performance tests during the thermal vacuum test program. The society has been involved with the project for about a year, planning and coordinating the program, Crabtree said. Other employees involved with the program include Don Lund and Dave Cowdin, the society's president. ■

PSP enrollment forms due May 30

All employees planning to enroll or modify their Performance Sharing Plan forms must return them to the employee benefits office (mail stop 1343) by May 30 to make the change effective July 1.

NASA announces space station baseline configuration

NASA administrator Dr. James C. Fletcher has announced selection of a baseline configuration for the permanently manned space station. This configuration will be used to guide preliminary design activities for the remaining eight months of the Phase B (definition and preliminary design) studies.

The announcement came on May 14 after more than a year of study by NASA centers and contractor teams. During that time the overall architecture of the station was defined and specific subsystems for operating the space station were chosen.

President Reagan directed NASA in January 1984 to develop a permanently manned space station within a decade. Definition of space station architecture and subsystems began in April 1985 with the selection of eight U.S. aerospace companies to perform detailed definition and preliminary design studies under contract to four NASA centers. The space station reference configuration used as a starting point for conducting the definition studies included unmanned free-flying platforms and a manned base called the "power tower."

Important changes in the reference configuration of the space station have been made in response to user requirements. The "dual keel" space station provides for a better microgravity environment (10- μ g's for all modules), increases useable area on the structure for attaching external payloads, allows better pointing accuracy because of the stiffer structure,

and reduces traffic through the laboratory modules.

As part of their definition activities, NASA and the contractors also studied the approach of initially man-tending the space station by phasing in the permanently manned aspects of the program over a 3-to-5-year period. The current planning scenario for the baseline configuration can incorporate this man-tended approach, enabling a future decision on phasing in the permanently manned feature of the station. A report on this man-tended approach has been submitted to Congress.

A total of 14 space shuttle flights will be required for assembly of the baseline space station configuration. Attached payloads and the laboratory module are scheduled to be carried up early in the assembly sequence to conduct early scientific operations before the addition of the habitation module. Two additional flights from the West Coast will be required to place the two planned polar platforms into orbit.

The current schedule calls for NASA to begin development of the space station in October, 1986, with the contracts for actual hardware development slated for negotiation and signature in the spring of 1987. First element launch would occur in 1993 with a useful, permanently habitable station in place in 1994. The remaining elements required to complete assembly of the Space Station would be launched over the next two years. ■

Employee services/recreation

Computers—The Waterton Computer Club will hold its semiannual Computer Swap and Shop on June 20. The meeting will be held at 7 p.m. at the general-purpose clubhouse behind the softball fields in the recreation area. From Hwy 75, turn at the sign for Wood & Sons Construction Company, and follow the road up to the recreation area. Contact Jan Gostling, Ext 7-5363 or 973-2599, for reservations.

Radio—The Waterton Amateur Radio Society will meet at 5 p.m. Tuesday, June 3, in the hamshack (west of the recreation clubroom).

Auto emission testing—Auto emission testing at work locations will be held June 2-4. Detailed schedules are in all recreation racks. Monday, June 2, Waterton facility; Tuesday, June 3, Greenwood Commons & LSC; and Wednesday, June 3, DSC.

Riding—The Ridge Riders Saddle Club regularly schedules meetings the first Tuesday of each month at 7:30 p.m. in the clubroom at the recreation area. For information, call Irene Woodzell, Ext 7-5804, or Mary Smith, Ext 1-8155.

Archery—The next meeting of the Red Rock Bowmen will be 4:45 p.m. Tuesday, June 10, in the clubroom at the recreation area.

Public speaking—LSC Toastmasters meet every Thursday at noon in Room 103 at the Littleton Systems Center facility.

Weight Watchers—Thirty-four employees (10 men and 24 women) are participating in the first Weight Watchers at Work program held at the Waterton facility. After 2 weeks, the group lost a total of 159 pounds. Information sessions will be scheduled in the future at other work locations. If 20 persons pay \$56 each in advance for an 8-week session, a class can be held at their worksite. Watch for date and locations of future informational meetings.

Lakeside Amusement Park—Discount coupons are available for Fridays in May or Mondays through Fridays, June 5 through August 29 at the Lakeside Amusement Park. Free gate admission; rates are reduced to \$5 on rides Monday through Friday nights. Stock car race discount coupons (\$1.50 discount with coupon) also are available at the recreation office or from volunteer recreation representatives.

Scuba—Dive in beautiful Bonaire, Netherlands Antilles (Caribbean), July 12-19. Includes round-trip airfare, 7 nights in a hotel, and 8 days of diving. \$100 deposit needed to reserve space, with balance due 45 days before departure. Nondivers are welcome. Space available for 15 persons. For details, call Jack Wegert, Ext 7-1952.

Hunting—The Skyline Hunting and Fishing Club will meet at 5:00 p.m. Monday, June 9 at the clubroom in the recreation area.

'Congratulations! 90% goal exceeded'

The percentage of participation in the U.S. Savings Bond Payroll Deduction Program increased from 71% at the start of the campaign to 90.4% at its conclusion. A total of 10,241 local Denver Aerospace employees are now enrolled.

"It is absolutely fantastic the way Martin Marietta employees rise to the challenge of meeting mission success," said Stanley F. Albrecht, vice president of Production Operations and 1986 bond drive chairman for Denver Aerospace. "My sincere thanks to our employees' commitment and support of the bond program."

Overall, 12,258 Denver Aerospace employees enrolled in the bond program—a participation count of 91.4%. Continuing their previous performance of past years, Canaveral Operations finished at 99% and Vandenberg Operations at 97%.

Employees who did not sign payroll deductions cards during the campaign may do so at any time by contacting their department administrators.

Albrecht thanked all the bond drive campaign workers "who worked so hard to ensure that the message got to our employees so they could make their decision to participate. Another task done extremely well."

The employee award drawing for 27 \$100 bonds donated by Denver Aerospace will be held today in the lobby of the Engineering Building. Winners will be notified and reported in the next edition of the *Martin Marietta News*. ■



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Call Ext. 5364 with information or suggestions for articles, or call one of the following coordinators.

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Craig Hospital receives corporate donation

Dennis O'Malley, left, executive director of Craig Hospital, and Lisa Darly, a patient and a former professional ice skater, accept a check for \$10,000 presented by Gareth D. Flora, vice president of Business Development. The donation from the Martin Marietta Corporation Foundation will go toward the hospital's educational programs for patients, their families, and staff personnel.