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MARTIN MARIETTA
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DENVER AEROSPACE



FILE aboard orbiter on shortened mission

The FILE—feature identification and location experiment—was aboard Space Shuttle Columbia on its shortened mission. It was one of seven scientific experiments Astronauts Joseph Engle and Richard Truly conducted during the flight.

Six of the seven were called "quite successful" despite the reduced mission time. Only one, a bioengineering test with dwarf sunflowers, was unsuccessful. And that was because the experiment needed the full five days planned for the mission so the plants could germinate.

FILE, designed, built, and tested here, recorded video images and photographs of Earth. It analyzes the images to determine what percentage of each image is in each of four categories: bare land, clouds and snow, water, and vegetation.

Other Denver Aerospace equipment used on the mission also performed well. The external tank successfully provided fuel for the orbiter's engines and then was jettisoned, tumbling into the Indian Ocean.

The parachute system developed to safely return the solid rocket boosters to Earth for reuse, operated successfully and the parachutes were recovered. Divers were hampered in their efforts to recover the boosters because of high seas whipped by 20 knots winds.

On the cover

Viewed across part of the ecologically rich Banana River salt marsh that frames launch pad 39A in natural beauty, Space Shuttle Columbia sheds its ties with Earth, bound for orbit and a special place in the history of the space program. The launch at approximately 8:10 am (MST) November 12 marked the first manned flight aboard a previously orbited spacecraft. Astronauts Joseph Engle and Richard Truly were the crew of the second Space Shuttle mission as it carried its first payload, the OSTA-1 pallet of remote Earth sensing experiments, including FILE which was designed, built, and tested here, and the remote manipulator system. See additional launch photograph on page six.

Trudy Dion, center, was honored recently by representatives of the Belle Bonfils Memorial Blood Center for her eight years as coordinator of the mobile blood program here. Presenting the cake were Mary Beth L'Abbe, left, and Ronald Bergin, right, consultants to the blood center. Lori A. Sharp has assumed the coordinator's role and reports that 289 pints of blood were donated to the center in the recent visit—the most collected in a two-day visit since 1975. Blood from the center may be requested for employees and their immediate families through the medical department.



Space launch systems completes realignment

A major reorganization of the space launch systems division has been completed, realigning functions to meet the changing emphasis of the division's work.

"The division has a major role in the Space Shuttle as well as our continuing key role in the production of Titan launch vehicles," said C.E.

FOS earns incentive, bonus award fees

Work on the faint object spectrograph (FOS) from April 1 to September 30 this year has earned an incentive award fee and a bonus together totaling 105 percent of the available award fee.

The bonus award was for "outstanding technical achievement" on the program. Louis H. Ripp, program manager, said the bonus recognized that "for the first time, there were no technical problems for which there were no solutions."

The contract was awarded in late 1978.

The FOS is one of the principle scientific instruments being developed for use with space telescopes. It will be used to study physical properties and motions of faint stars and galaxies several billion light-years away.

Delivery is scheduled for March 1983, with first flight aboard Space Shuttle planned for early 1985.

Carnahan, vice president and general manager of the division. "We have realigned our functions to reflect a product rather than a geographic organization."

The changes include:

Felix J. Scheffler becomes director of launch vehicles. He was director of Canaveral operations. He will be responsible for all Titan work, including manufacturing, procurement, and materiel as well as the operations in California and Florida.

Otha L. Jones moves to Denver as director of business operations for the division. He was director of Vandenberg operations.

Robert D. Rhodus, who was in charge of Shuttle activation activities at Vandenberg, becomes director of Canaveral operations.

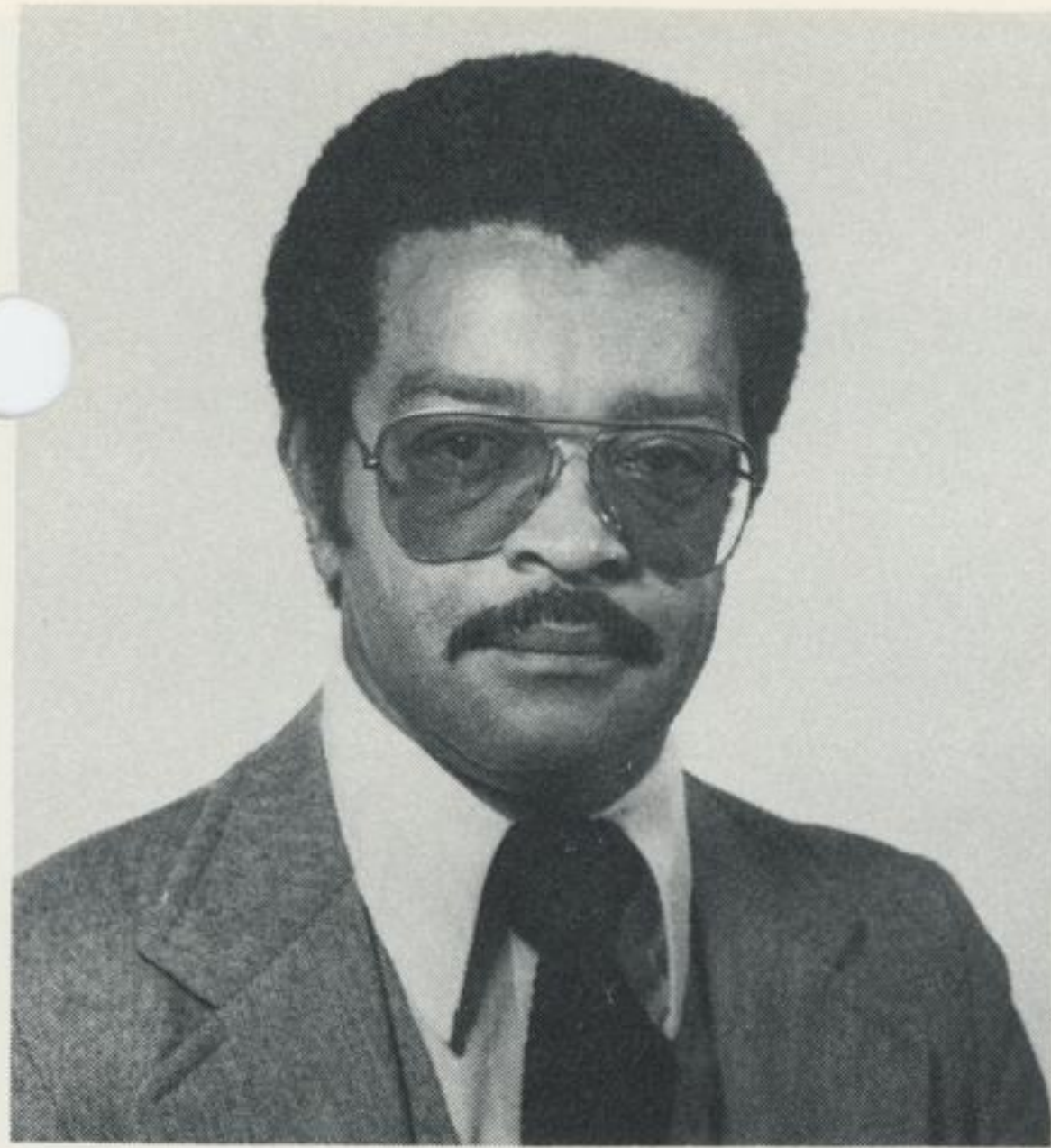
John P. Murphy has been named director of Vandenberg operations. He was formerly manager of test operations there.

Kenneth E. Zitek, who headed the Titan operations in Denver, is now director of program integration on the Shuttle ground support system, reporting to Fred Hudoff, at Vandenberg.

J.R. Cook, formerly director of test in Denver, has moved to Vandenberg as director of software and operations.

John E. Kimpton will move to Vandenberg to replace Rhodus.

Leroy F. Nicholson has been named director of program development for the division.



T.J. Perry

Employee serves as visiting professor

T.J. Perry, personnel, was recently a visiting professor in the National Urban League's Black Executive Exchange Program. He lectured on labor economics at Mississippi Valley State University in Itta Bena October 29-30.

The program offers credit courses at traditionally black universities and colleges to broaden student awareness of career options. Visiting professors are used to bridge the gap between textbook theory and the world of work.

Perry has an MBA from Pepperdine University as well as a certificate in management from the University of Southern California.

Final drawing held for Las Vegas trips

An employee in Denver and one in Vandenberg have won the final drawings for trips to Las Vegas in "The Name Game Program."

Eric Dietrich, an engineer in the artificial intelligence group of technical operations, is the winning Denver employee. Jack A. Troutman, chief engineer in the ground support system program, was the Vandenberg employee.

The two became eligible for the drawing for the all expense paid trip for two by submitting a qualified referral in the program.

Final drawing in "The Name Game" program, which ends December 7, will be for a vacation for two in Tahiti.

In the Las Vegas trip drawing, 77 employees in Denver and 251 offsite were eligible.

Deadline set for award entries

Entry deadline for papers in the publications award program has been set for January 4, 1982. Eligible papers may be submitted anytime up to the deadline.

Entries should be submitted in 10 legible copies and be accompanied by a completed publications award entry form. A publications clearance form (DEN846870) also is required with the entry form.

Forms and information may be obtained from R.W. Walker, organization and management development, Eng. 225, Ext. 3395, Mail No. 1318.

Articles published between January 1 and December 31, 1981, are eligible for awards. Signed articles appearing in professional, technical, or trade periodicals, journals, books, papers, or bound proceedings may be submitted. Publications are to be related to the author's professional function in his assigned duties.

Entries will be evaluated on the basis of creativity, quality of content, benefit to company, and mode of expression.



Kenneth Shupe, left, and Roy Groff, right, assemble the forward half of the central baffle for the Space Telescope before its delivery this month. The secondary baffle assembly was also delivered. Denver Aerospace is responsible for the design and fabrication for the light baffle assemblies for the instrument. Main baffle design is nearing completion. Robert Thompson is program manager for the project.



Thomas R. Tracey

Employee honored for solar development

Thomas R. Tracey, manager of solar thermal receiver/storage development, has been honored by the U.S. Department of Energy for his work on solar thermal central receivers.

Tracey was cited "for his management of projects to establish the technical and economic feasibility of Solar Central Receiver Systems utilizing molten nitrate salts as a heat transfer liquid. Under his competent direction the project team designed, fabricated, and tested a 5MWt molten salt solar receiver, logging over 500 hours of successful, safe, and reliable operation."

The Solar Thermal Technology Awards Program was established to honor individuals who have made significant contributions towards helping the Division of Solar Thermal Technology of the Department of Energy meet its goals and objectives.

In a letter to Gerald Braun, director of DOE's Solar Thermal Energy Systems division, A.E. Hawkins, vice president for solar energy systems said, "We all share in Tom's pleasure in receiving this award and are especially pleased that you and your committee have taken the occasion to recognize this contribution."

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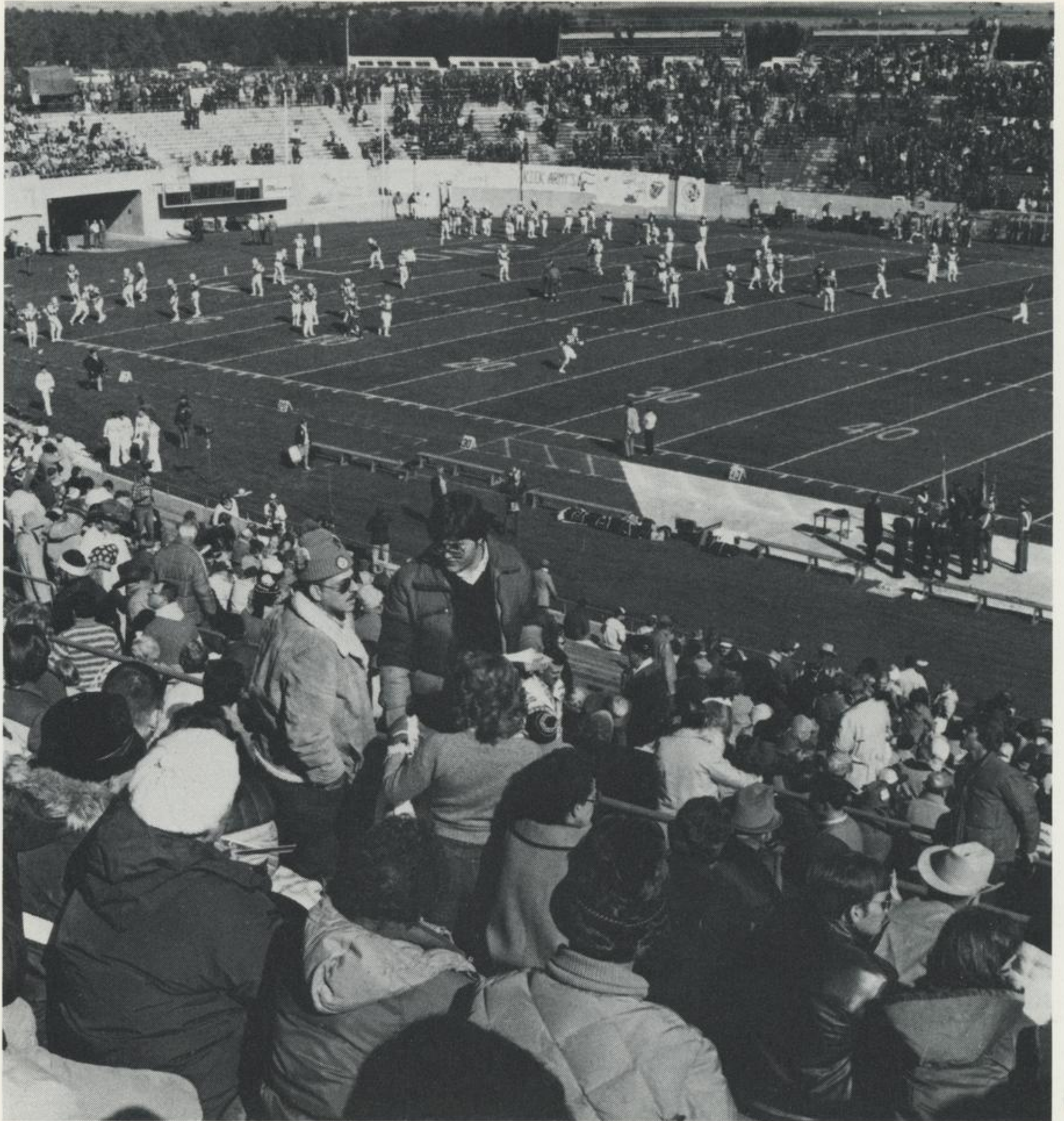
November 20, 1981

Security briefings held for SLS employees; others reminded of requirements

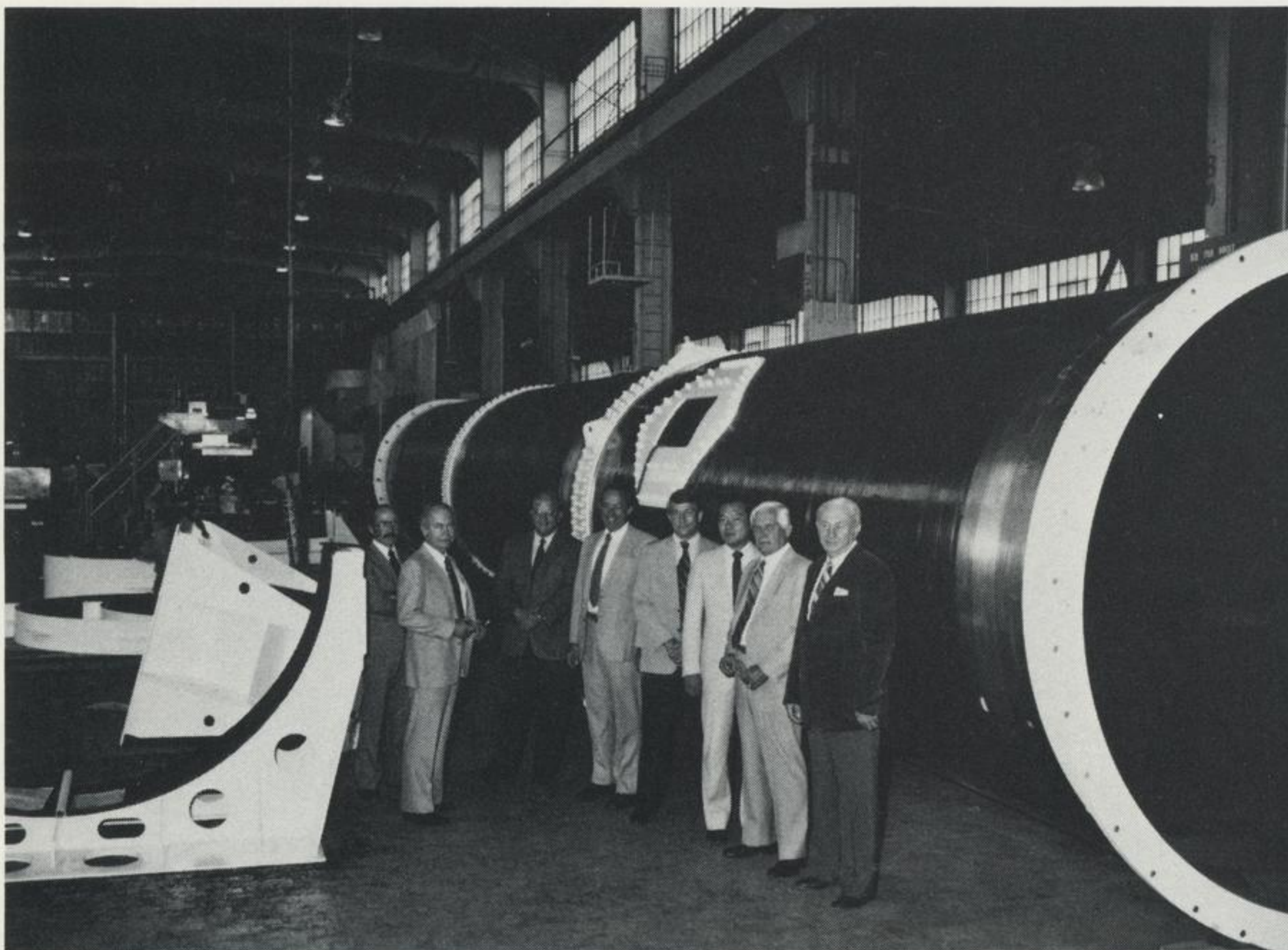
While security briefings are being held for space launch systems division employees at Greenwood Commons because of some unique requirements there, the security office is reminding all employees of the need to observe all regulations.

Although a recent Department of Defense inspection was generally favorable, some areas of concern were noted. To overcome these concerns, employees are asked to be aware of certain requirements. Among them:

- Employees and visitors must wear badges at all times while on Martin Marietta property, including leased facilities.
- Visitors with "Escort" badges must be accompanied by a badged employee at all times. U.S. citizens must be escorted within structures; non-U.S. citizens must be escorted both inside structures and while traveling on company property.
- When marking in-house generated classified documents, follow carefully the directions in the Denver Aerospace Security Manual.
- Notify visitor control and complete all paperwork for classified visits to other firms or government agencies at least seven days in advance of the visit.
- Notify security of any planned travel to or through a communist country at least 30 days before the visit.



Two thousand employees who were awarded tickets for the Air Force-Army football game at the Air Force Academy await the opening kickoff. Tickets were distributed to departments to be given to high-performing employees in appreciation of their good work.



Strategic systems division representatives were in California recently for the acceptance of the first development test article of the MX launch canister. The canister, shown behind the visitors in this photo, is being built by the Westinghouse Marine Division in Sunnyvale. It will go to the Nevada Test Site for tests. In the photograph from here are G. William Diehl, Harold E. Gartrell, William A. Rose, James A. Sterhardt, H. Edwin Sparhawk, Robert H. Fujiu, B. Lee Bogema, and George W. Laws.

Denver Aerospace acquires Mineral Avenue facility

Martin Marietta has purchased the Michelin property on Mineral Avenue near the intersection of South Broadway and County Line Road.

The new facility will add 425,000 square feet of space for offices, light manufacturing, assembly, and test.

Modifications to the building are expected to be underway through the third quarter of 1982. Under terms of the sale, Michelin will be using about one-third of the structure for storage until November 1982.

Educators tour facilities, send thanks for hospitality

Participants in the 21st Annual Conference on Elementary School Issues in Large Cities toured Denver Aerospace facilities during their October meeting in Denver. The 33 who visited here all head elementary school programs in their home areas. They represented school districts from across the U.S. and in Canada.

Following their visit, each participant signed a letter thanking Fitzroy Newsum of the public relations department for hosting their visit and briefing them on programs here.

Lightweight tank in production at Michoud

A modified external tank will increase the Space Shuttle's payload-carrying capability by about 6000 pounds. The increased capacity is equal to the weight trimmed by work done at the Michoud division, making the new lightweight tank 6000 pounds lighter than the ones used on the initial Columbia flights.

The tank for the maiden flight of the Space Shuttle weighed about 77,000 pounds—1000 pounds less than the NASA-specified weight limit. The second tank weighed 200 pounds less.

"In 1979, we began working with NASA to trim 6000 pounds from the tank's weight," said William Barrett, manager of lightweight tank work. "Actually, with most of the engineering work done and fabrication started on the first four lightweight tanks, we are predicting a 6400-pound reduction, leaving a 400-pound margin for contingencies."

The first lightweight tank is scheduled for delivery in September 1982, for the sixth Space Shuttle mission.

"We have used several methods to trim the 6000 pounds," Barrett said. "One was to make design changes as a result of our successful structural tests."

The changes include elimination of selected stringers, using fewer ring stiffeners, and modifying major frames in the liquid hydrogen tank.

Some fabrication techniques have been changed. For example, dome caps on the first tanks were chemically milled on only one side. Now the caps will be milled on both sides to reduce thickness and weight, without sacrificing the required strength.

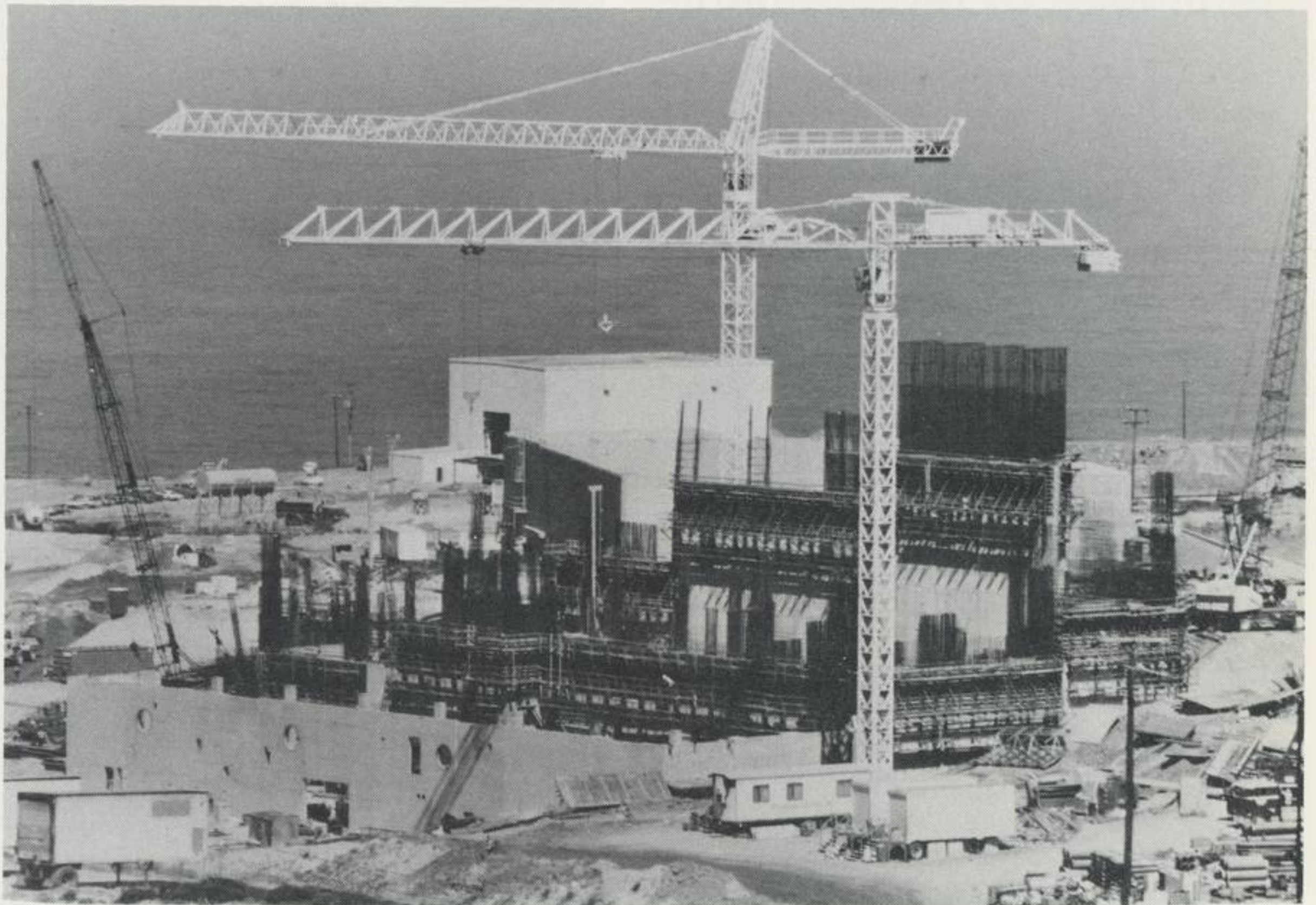
Taking advantage of recent developments in the metals field, the weight of the aft solid rocket booster attachments was reduced by using a stronger, less expensive titanium alloy.

Operational and test data also allowed engineers to eliminate an anti-geyser line used in the liquid oxygen fill system, and to relocate the hydrogen pressurization line.

The most obvious change is in the tank's color. The lightweight tank will be light brown rather than white. Six hundred pounds of latex paint will be missing from the tank's surface. It was found that the external tank's thermal protection system was adequate without the paint.

Workers are modifying tools to accommodate the new lightweight tanks and engineers are evaluating additional weight-saving measures. Among the changes being considered are removal of the slosh baffle in the liquid oxygen tank—a 1000 pound saving—and elimination of cable trays by routing electrical cabling through the tank's interior.

Composite materials may be substituted for some heavier metal parts if costs goals can be achieved as well.



Space Shuttle launch facilities at Vandenberg Air Force Base—similar to those at Kennedy Space Center—are progressing toward the 1984 target completion date. The first launch is slated for 1985.

Winter is coming; employees urged to be prepared

The safety organization is urging employees to prepare their vehicles, their driving habits, and their footwear for winter driving and walking.

"The crisp, cool morning air reminds us that winter weather will soon be upon us," says safety's Robert B. Morgan. "Reduced visibility, ice, snow, slush, and cold winds combine to take a heavy toll in vehicle and pedestrian accidents.

"Now is the time to take the precautions that will keep you from becoming a vehicle or pedestrian accident statistic," Morgan added.

Vehicles should be checked to be sure they can stand the rigors of cold weather. Radiators, batteries, heaters and defoggers, windshield wipers, tires, and brakes are among items to be examined. Survival gear, like shovels, blankets, tow straps, and flashlights should be carried in the vehicle.

Driving habits need to be ready for winter, too. Review the tips in the driver manual, or check with safety for tips on safe winter driving.

Icy sidewalks and roadways call for extra care in walking. Proper footwear can prevent accidents. Slip-over boots that grip on snow or ice can prevent falls. Walk only in designated areas. Open-toed shoes invite frostbite and broken toes.

Vandenberg prepared for future Shuttle role

When the frequency of Space Shuttle mission is increased, some of the flights of the nation's space transportation system will begin and land at Vandenberg Air Force Base.

Denver Aerospace was selected by the Air Force in 1976 to integrate the Shuttle launch and landing facility at Vandenberg. The facilities, similar to those at Florida's Kennedy Space Center, will be used for missions requiring high inclination or polar orbits.

Under development is a massive ground support system, consisting of 13 major facilities ranging from the launch pad to the flight crew support facility.

As it did at KSC, Denver Aerospace has developed and is installing the checkout, control, and monitor subsystem and will provide application software that will manage Shuttle ground activities up to liftoff. In addition, the company is responsible for launch site payload integration which includes the identification of payload requirements, mission planning, and processing procedures.

Progress in these areas is already evident, with the major system designs nearly completed and construction of ground facilities under way.

The Air Force, with Denver Aerospace as its integration contractor, will direct the activities of thousands of engineers, technicians, and support people at the project's peak.

Vandenberg facilities will provide complete shuttle and payload assembly, launch, landing, and refurbishment capabilities when they become operational in the middle of this decade.



Earlier this year David Padilla stopped an attack on a female employee as she stood at a city bus stop and held her attacker until police arrived. In the photo, Padilla, left, is receiving a Spot Award check from A.L. Arnt for his "unselfish act of assistance" to another employee.

New buildings planned for Vandenberg offices

Attractive new quarters will be erected soon for administrative personnel on the Space Shuttle program at Vandenberg operations.

A contract has been awarded Pepsi Co. Building Systems, Inc. for the fabrication, installation, and lease of two 104,000 square foot modular buildings. The administrative modular complex will be located at New Mexico and Thirteenth streets on the Vandenberg Air Force Base.

The first building is scheduled for completion and occupancy in February 1982; the second will be ready in April 1982.



Columbia climbs toward a return visit to space in this unique photograph taken on lift-off November 12.



Evening education registration changes

Changes have been made in the registration for the evening education program beginning with Spring 1982 semester.

All registration will be done by class instructors from 5:00 pm to 8:00 pm January 12 or January 20 at the Goddard Middle School cafeteria, 3800 W. Berry Avenue, Littleton.

Pre-registrations and telephone registrations will no longer be accepted. Each student must register personally on one of the two registration dates.

Buildings similar to this one will be erected at Vandenberg Air Force Base to provide more than 200,000 square feet of administrative office space for the space launch systems division employees.