

August 5, 1989

1989 Family Open House

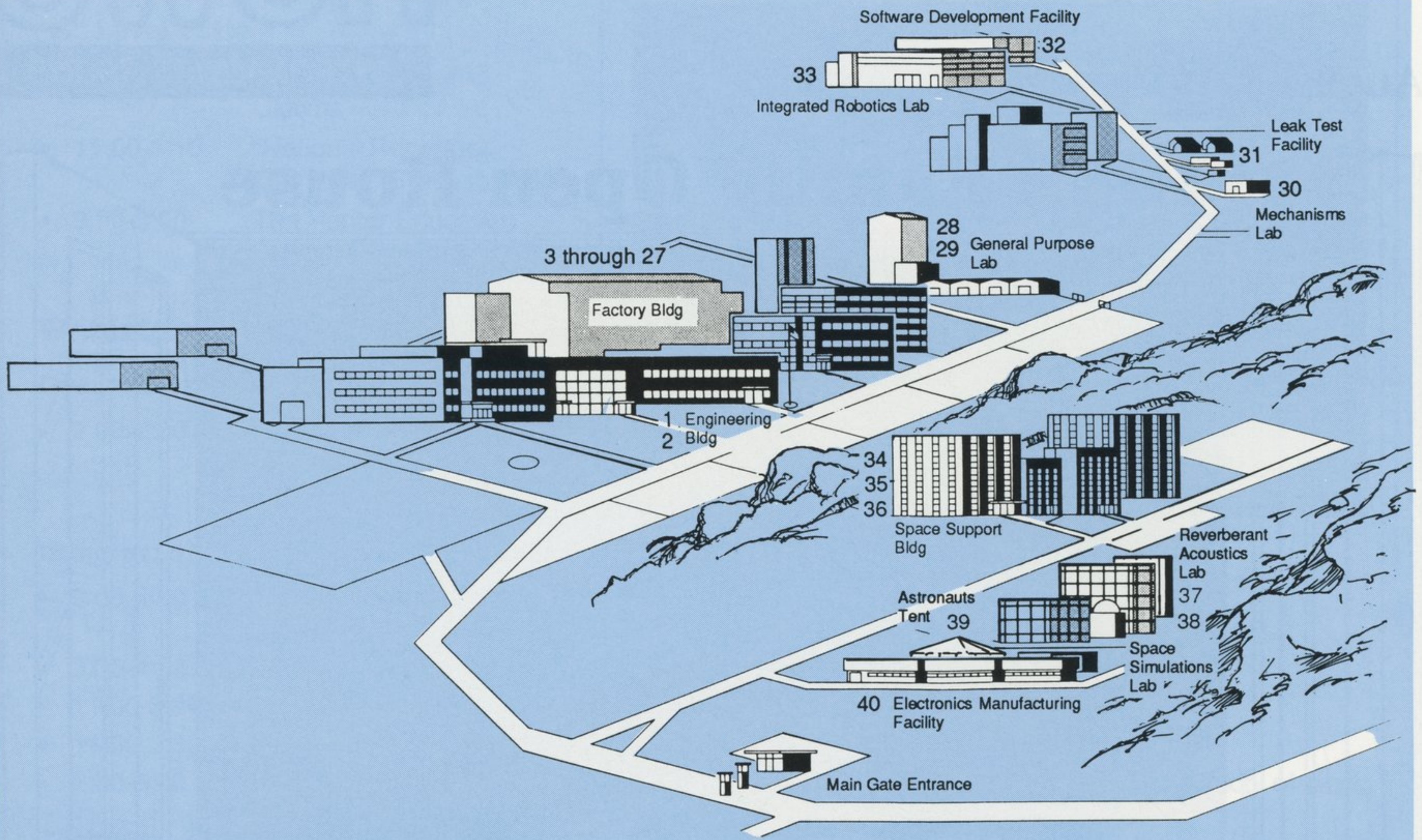
Welcome!



Deer Creek Facility

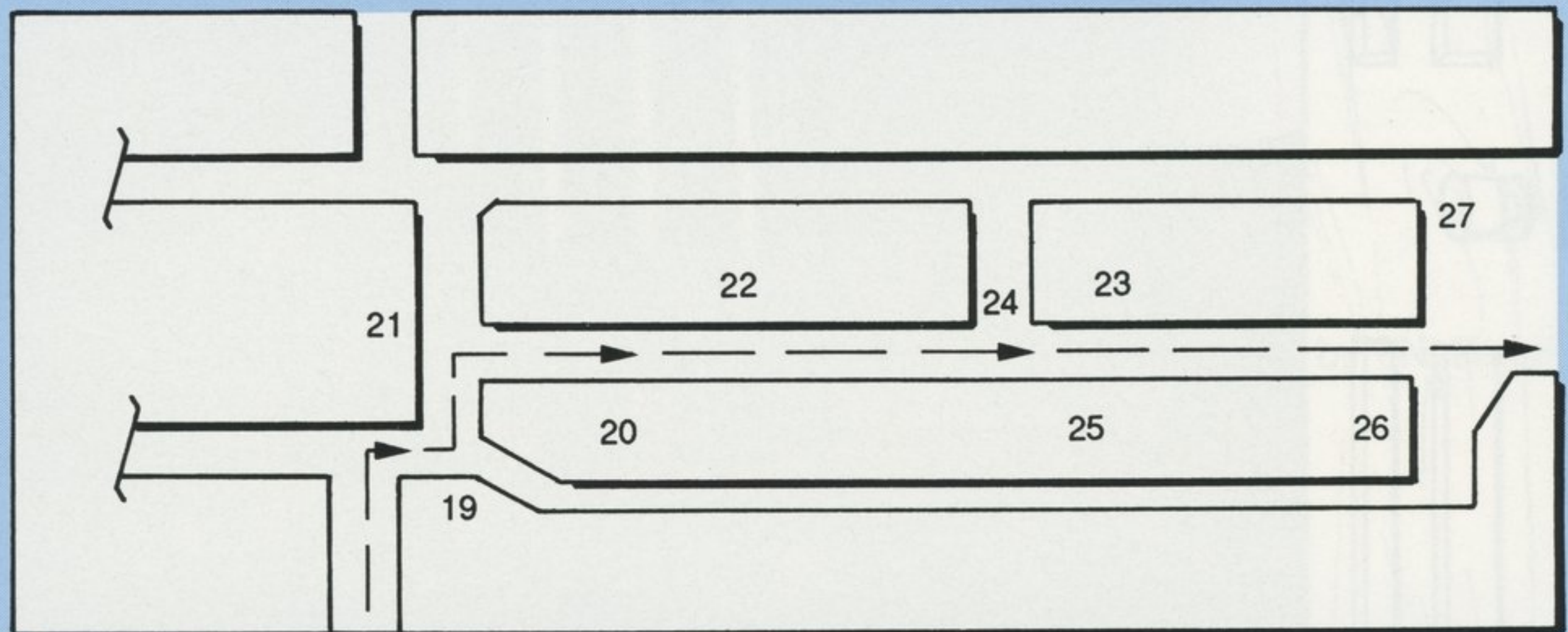
inspiration Informa By Open House committee Part of the past themselves

Sites, facilities along Family Open House tour route



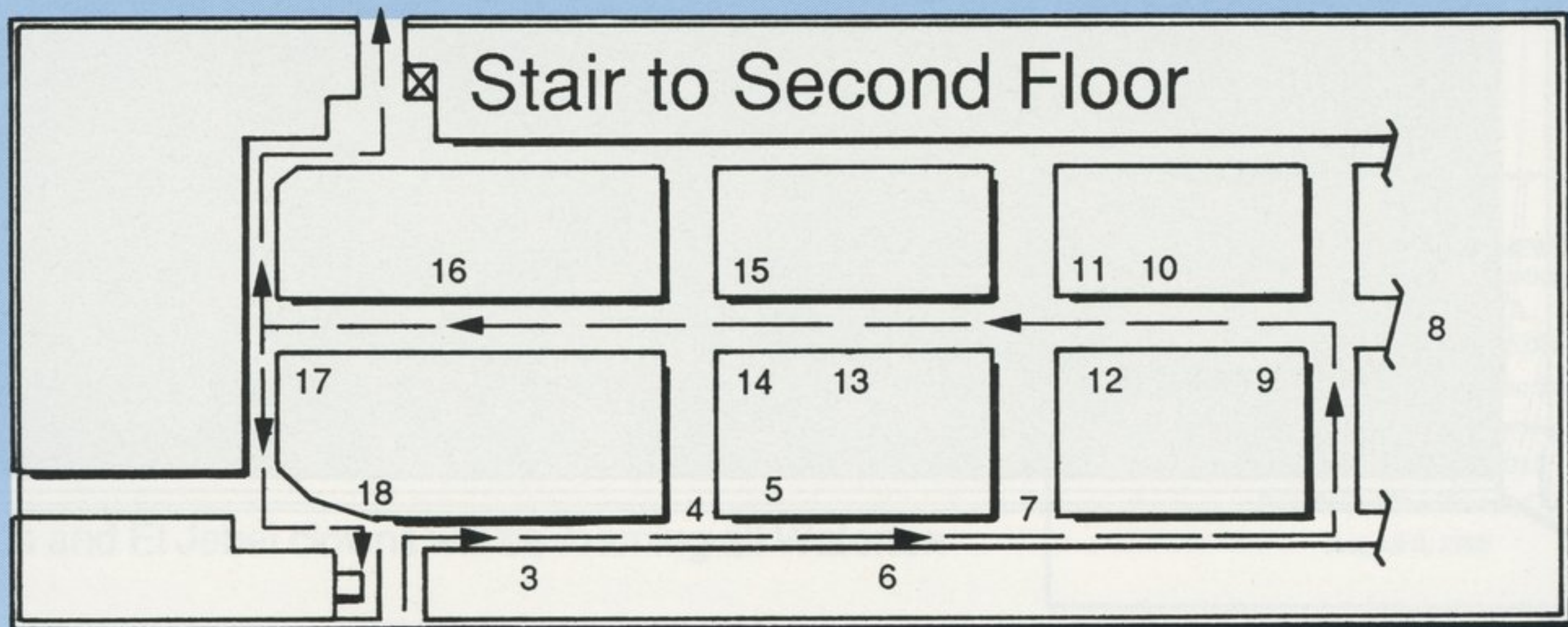
Factory Building

Second Floor



First Floor

Enter from Cafeteria Aisle



Legend, explanations to map and diagrams

Engineering Building

- 1 Lobby—Greetings
- 2 Second Floor—Cafeteria (Theater)
 - Films

Factory Building

First Floor:

- 3 Laser Display
- 4-7 Precision Manufacturing on Milling and Drill Press
- 8 Chem Milling Display
- 9-15 Precision Manufacturing on Lathes
- 16 Amada CNC Punch Press
- 17 Hufford Stretch Press
- 18 Pacific Forming Press—32 feet Long, 30-ton Capacity

Second Floor:

- 19 Non-Destructive Testing
- 20 Vertical Weld
- 21 Major Weld—Titan Components
- 22 Commercial Titan
- 23 Tanks and Subassemblies
- 24 Titan Video—Large Screen
- 25 Titan II
- 26 Safety
- 27 Automated Storage and Retrieval

General Purpose Laboratory (GPL)

- 28 Vertical Test Facility (VTF)
 - Commercial Titan
 - Commercial Titan Payload Fairing
 - Mini Hydra Spin Dome
 - Structural Test
- 29 Space Operations Simulator
 - Simulator
 - Mars Mission Map
 - Shuttle Orbiter Aft Cargo Bay
 - PAM with Sting Docking Device

Mechanisms Lab

- 30 Autonomous Land Vehicle

Leak Test Facility

- 31 ALS

Software Development Facility

- 32 High Bay
 - Martin I Airplane
 - Mars Walker

Integrated Robotics Lab

- 33 20-foot Modular Unit Flight Telerobotic Servicer (FTS)
 - FTS Full-Scale Model
 - Space Systems Video

Space Support Building (SSB)

- 34 SSB Cafeteria Education Center—Displays
 - Martin Marietta/DAC—BSA Explorer Students
 - U.S. Space Foundation—Young Astronauts
 - Junior Achievement
 - National Space Society
- 35 Manned Maneuvering Unit (Flight Article)
 - Propellant Management Devices
- 36 Graphic Art Exhibit
 - Art Contest Display

Reverberant Acoustic Laboratory (RAL)

- 37 Internal Exhibits
 - AFA/Air Force Programs
 - AIAA/NASA Programs
 - Magellan—Full-Scale Model
 - Video of Astronautics Group Programs

Space Simulations Laboratory

- 38 Vacuum Chamber
 - Transfer Orbit Stage (Flight Article)
- 39 Astronauts Tent
 - Mary Cleave and Mark Lee
 - STS 30 Flight Experience
- 40 Electronics Manufacturing Facility (EMF)
 - EMF Manufacturing Process and Products
 - Data Systems Display



Main plant at Waterton

Astronautics Group enjoys strong start for 1989, lo

When the first Titan IV space launch vehicle successfully blasted off from Cape Canaveral Air Force Station, Fla., on June 14, 1989, it carried with it the Astronautics Group's continued tradition of providing our country with expendable vehicles for critical national security payloads.

In a year that has included several new contract awards, seen the 18th consecutive successful Peacekeeper test launch, and seen the deployment of the Magellan spacecraft from the Space Shuttle Atlantis, the Astronautics Group can boast of the past and be excited about the future.

The Titan IV is built by Space Launch Systems for the Air Force. The company is now under contract to build 23 vehicles, and negotiations are underway to increase that number to as many as 49.

Titan IV is an improved, more powerful version of the highly successful Titan space launch vehicle and is in position to provide the primary access to space for critical national security missions.

However, the Titan tradition is not limited to Titan IV. The corporation announced in August 1986 that it was offering for sale a commercial version of the Titan. In May 1987, Martin Marietta Commercial Titan, Inc., was formed to commercially market a version of the Titan III. This fall, Commercial Titan will get underway by launching two communication satellites: JCSAT-2, for the Japan Communications Satellite Co., and a British military Skynet 4A. Future missions will carry two INTELSAT VI satellites and the Mars Observer Spacecraft.

Titan II is also alive and thriving. The Titan II space launch vehicle is a modified Titan II ICBM that will be used to launch Air Force, NASA, and other government satellites into orbit from the West Coast. Space Launch Systems has a contract to convert 14 Titan II ICBMs to expendable launch vehicles by modifying the missiles and

the ground equipment needed to launch them. The first Titan II was successfully launched from Vandenberg Air Force Base, Calif., on Sept. 8, 1988, carrying a classified payload. The Strategic Defense Initiative Organization will use an enhanced Titan II for a Mid-Course Space Experiment in about three years.

Space Systems' Magellan spacecraft is well on its way to Venus, following successful deployment on May 4, 1989, from the Space Shuttle Atlantis. Designed to provide detailed information on the origin, evolution, and present state of that planet, Magellan will reach Venus next August. Magellan will map the planet for at least eight months, providing three-dimensional images of the planet's surface.

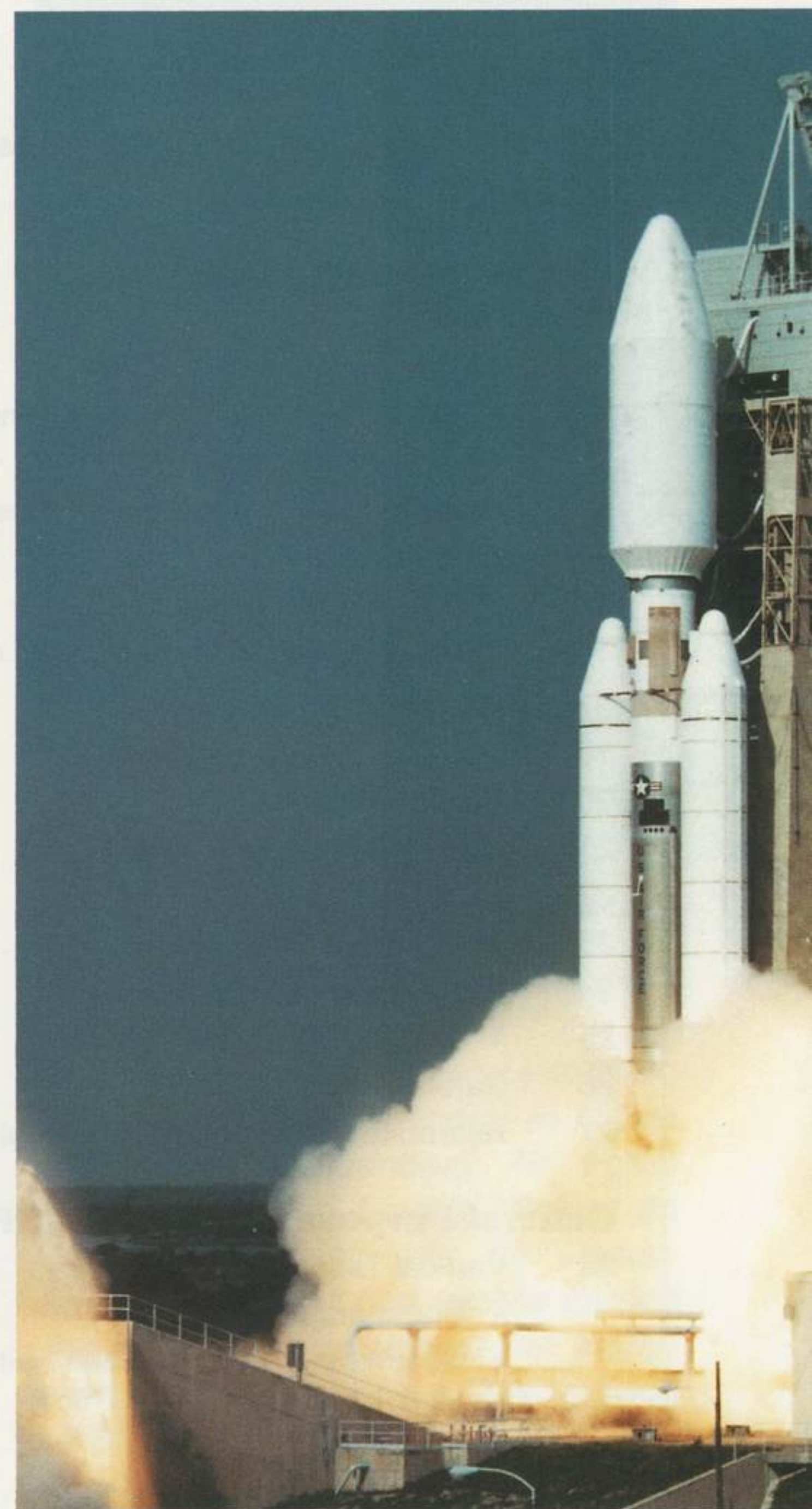
Strategic Systems has completed system design, analysis, development, and fabrication of instrumentation and flight system safety (IFSS) for the Peacekeeper intercontinental ballistic missile, including the flight test and evaluation program at Vandenberg Air Force Base, Calif.

Peacekeeper successfully completed its 18th flight test mission earlier this year.

In addition to Peacekeeper, Strategic Systems provides similar support for the Small ICBM program, which flew for the first time May 11, 1989.

The Astronautics Group is also researching a number of programs for the Strategic Defense Initiative effort, including the Zenith Star space-based laser, the Space-Based Interceptor and various technologies.

For the U.S. Army's Strategic Defense Command in Huntsville, Ala., Space Systems is using the Rapid Retargeting/Precision Pointing Laboratory (R2P2) to test the ability of extremely sensitive space systems to precisely and rapidly point from one target to another. The laboratory provides a national research test bed for elements of space-based defense systems.



America's new workhorse

The first Titan IV space launch vehicle roared into the sky at Cape Canaveral Air Force Station, Fla.

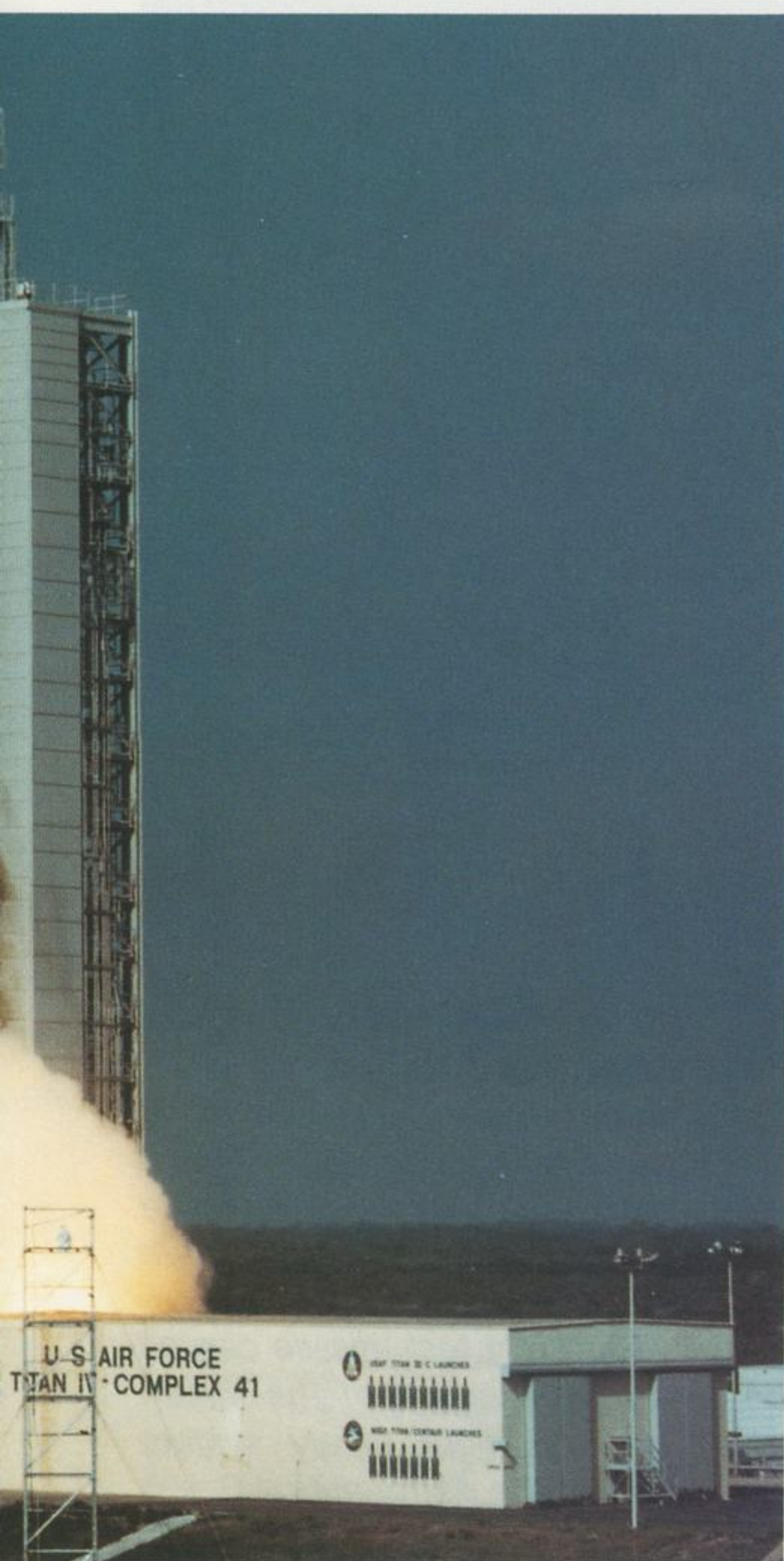
The Astronautics Group is also working toward the future on several exciting, new programs, including the Advanced Launch System (ALS), Flight Telerobotic Servicer (FTS), and planetary exploration.

The Advanced Launch System could be the next-generation heavy lift space launch system for the United States. A team led by Martin Marietta was one of three contractors selected by the Air Force in August 1988 for the award of a Phase II contract for system design and technology demonstrations.

NASA's Goddard Space Flight Center has selected Space Systems to build the Flight Telerobotic

(Continued on page 5)

ooks to the future



space on June 14, 1989, from Launch Complex

(Continued from page 4)

Servicer. FTS will be a multi-armed robot used to assemble the Space Station Freedom in the mid-1990s.

The contract calls for test flights of servicer components on the Shuttle in 1991 and 1993, with delivery of the final unit for Space Station use in the mid-1990s.

Other Astronautics Group spacecraft projects include instruments for the Galileo probe to study Jupiter, the Faint Object Spectrograph for the Hubble Space Telescope, and a Tethered Satellite System designed to deploy satellites from the Space Shuttle orbiter and retrieve them using a tether up to 62 miles long. ■

Teets welcomes 1989 Family Open House visitors

It is a pleasure to welcome Astronautics Group and Information Systems Group employees and their families, as well as retirees, and employees and families of the Air Force Plant Representative Office to our 1989 Family Open House.

We are opening our doors in the middle of an exciting year of growth and space exploration. With our Magellan spacecraft more than 15 million miles from Earth and traveling at a speed of 15,000 mph, in relation to the Earth, as it heads to Venus, the successful launch of the first Titan IV space launch vehicle, and the 18th consecutive successful Peacekeeper test launch, everyone associated with Martin Marietta has plenty of reason to be proud.

Personally, I take pride in our commitment to continue building superior products through the implementation of Total Quality Management. We have many new and upgraded facilities, not to mention our products, to show today, and I am pleased that you are taking advantage of this opportunity.

Enjoy your visit, and thanks for your ongoing diligence and contributions to our success.

Very truly yours,

Peter B. Teets
Astronautics Group President

Employees help Astronautics Group maintain its responsibility to the local community

Astronautics Group employees provide support for a variety of community-related activities each year.

By contributing to the United Way, purchasing U.S. Savings Bonds, and volunteering time and support for local organizations, employees have enabled the Astronautics Group to be one of the primary support forces in the Denver community.

This year more than 90 percent of the Group's employees are purchasing U.S. Savings Bonds. Bonds not only help support our country but also provide a sound and solid investment opportunity. ■

As preparations continue for the upcoming Mile High United Way campaign, Astronautics Group employees can proudly look back to last year's contribution of \$1.8 million to the United Way for many worthy causes.

In addition, employees volunteer time for the Colorado Special Olympics, Volunteers for Outdoor Colorado, the March of Dimes, and other civic organizations.

These contributions to the community are not new to the Astronautics Group. They represent a long-standing commitment to the community and society that clearly says that the Astronautics Group cares. ■

Tour starts at three locations; special gifts provided on route

Today's tour of the main plant officially begins in the lobby of the Engineering building, but guests may pick up the tour at the following locations:

- Engineering Building—Lobby
 - Space Support Building/Electronic Manufacturing Facility Complex
 - Integrated Robotics Lab/Advanced Computer Lab Complex
- Employees and guests will be able to obtain a variety of commemorative souvenirs during today's activities.

A special Family Open House clock is available for employees who obtain a coupon in the Engineering Building lobby.

Following is a lists of souvenirs and locations for each:

- *Special Clock* (with Coupon)

- Technical Support Building
- *Open House Poster* Technical Support Building*
- *Child's Coloring Book* Technical Support Building*
- *Shuttle Glider Kit* Technical Support Building*
- *Historical Brochure* Technical Support Building*
- *Magellan Color Litho* Reverberant Acoustic Lab
- *Titan Key Chain/Money Clip* First Floor Factory
- *Titan IV Color Litho* Second Floor Factory
- *Atlantis/Magellan Astronauts Color Memento* Astronauts Tent (See Map, Page 2)

*Included in a special 1989 Family Open House carrying bag. ■



Peacekeeper

Peacekeeper Flight Test Missile 18 was successfully launched in March 1989 from Vandenberg Air Force Base, Calif. The launch marked an 18-for-18 success rate for Peacekeeper. The flight test missile carried the production version of the instrumentation and flight safety system (IFSS), which the Astronautics Group builds.



FTS at work on Freedom

This artist's concept shows NASA's Flight Telerobotic Servicer (FTS) repairing a component of the Space Station Freedom in the mid-1990s. Space Systems has been awarded a contract by NASA's Goddard Space Flight Center to design and build the servicer, a space robot which will help astronauts assemble the Space Station and will eventually be used to repair the Station and other satellites.

Martin Marietta's economic impact

Economic Impact (Colorado)

Capital Assets (1988)	\$544.6 million
Colorado Payroll (1988)	\$606.6 million
Colorado Purchases (1988)	\$243.4 million
Withholding for Colorado Taxes (1988)	\$23.7 million
Property Taxes (1988)	\$4.8 million

Martin Marietta Colorado Employment (As of Jan. 1, 1989)

Astronautics Group	11,770
Information Systems Group	3,294
TOTAL CORPORATION	15,064

Shuttle astronauts at Main Plant today

NASA astronauts Dr. Mary Cleave and U.S. Air Force Maj. Mark Lee, who flew on the STS-30 mission to launch Magellan, are conducting a variety of presentations today in the Astronauts Tent in the parking lot near the Electronic Manufacturing Facility (EMF).

Before the Magellan mission, Cleave was a mission specialist on the crew of STS 61-B, which launched Nov. 26, 1985 from Kennedy Space Center. For STS-30, Cleave was a mission specialist onboard the orbiter Atlantis, which launched on May 4, 1989 and deployed the Magellan spacecraft that same day. Cleave has logged 262 hours in space.

Lee was also a mission specialist for STS-30. He has been a NASA astronaut for more than five years, and with the completion of his first flight has recorded 97 hours in space.

Cleave will speak at 9, 10, and 11 a.m. Lee will speak at 12, 1, and 2 p.m. ■

Most facilities accessible today

The Deer Creek Facility will be open for tours from 8 a.m. to 3 p.m., while Littleton Systems Center (LSC)—including View Points I and II, Southbridge, and GEPS—and all of SouthPark West will be open from 9 a.m. to noon for today's Family Open House.

At Deer Creek, guests will tour the lobby area filled with scale models, view a brief video and adjourn to the patio on the "A" level for food and entertainment.

Employees and their families can observe product demonstrations in the high bay area at LSC and tour the Information Network Laboratory.

At SouthPark West I, a video featuring the first Titan IV launch will be shown during the open house hours in the Management Information Center. ■



Magellan deployed

On May 4, 1989, the Martin Marietta-built Magellan spacecraft was deployed from the cargo bay of the Space Shuttle Atlantis for the start of a 795-million-mile journey to the planet Venus.

Astronautics Group beefs up safety precautions for open house

All Astronautics Group medical facilities are fully staffed and operating today for the safety of everyone attending this year's open house.

Two ambulances, a paramedic crew, the company doctor, and an air life helicopter are also on hand to provide assistance if needed, Ron Halcomb, of Safety, said. Also, three nurses will be on roving patrol for additional support.

In case of an emergency, help can be provided by the volunteer workers dressed in red shirts, the Family Open House committee dressed in blue blazers and red ties, or the

guards and hostesses. Emergency numbers that are always in operation are: Main Plant, 911; Littleton Systems Center, Ext. 7-0911, and Deer Creek, Ext. 1-4911.

"Our employees and guests today should, for their own safety, stay within the confines of the roped areas and drink plenty of liquids," Halcomb said. "We have more medical coverage today than we have during normal operating hours."

"I'm also encouraging everyone to pace themselves during the day," he said. ■

Entertainment—Family Open House August 5, 1989

Deer Creek

"A" Level Patio

- 8:00-3:00 Keystone Kops and Clowns
- 11:00-2:15 "National Repertory Orchestra" String Quartet
- 9:00-5:00 The Raptor Education Foundation—Presentation of Live Birds

Waterton

Over Waterton Facilities

- 2:00-2:30 Aerobic Demonstration by Martin Marietta Employees

Integrated Robotics Lab—Tent/Stage

- 9:00-4:00 Keystone Kops and Clowns
- 9:30-4:30 Walking, Talking Robot—"Glib"
- 11:00-3:00 The Birds of Prey Rehabilitation Foundation—Presentation of Live Birds
- 11:00-2:30 "National Repertory Orchestra" Brass Quintet—Light Classical and Pops
- 2:30-5:00 "Denver City Claim Jumpers" Dixieland Jazz Group from University of Denver School of Music

Technical Support Building—Tent/Stage

- 9:00-11:00 Trish Allen—"Rocky Mountain Jugglers"
- 9:30-4:30 Walking, Talking Robot—"Fame"
- 11:00-2:30 "National Repertory Orchestra" Marimba Jazz Group
- 3:00-3:45 "National Repertory Orchestra"—Full Orchestra Concert
- 3:00-6:00 Abby Lawrence Balloon Sculptures/Balloon Hats
- 4:00-6:00 "Nelson Range II" Jazz Group

Space Systems Laboratory—Tent/Stage

- 10:00-2:40 "Peach Fuzz"—Performing 50s and 60s Music (20-Minute Break Each Hour Filled by "National Repertory Orchestra" Bassoon Quartet)
- 3:00-5:30 "Night Train" Quartet—Instrumental and Vocals

Electronic Manufacturing Facility III—Tent/Patio

- 10:00-1:00 "Funny Business"—Three Performances; Juggling, Magic, Illusions, etc.
- 1:15-5:15 Tony Carpenter and Janet Rayor—Stilt Walking, Unicycling, Juggling and Singing
- 9:00-2:30 Astronauts Mary Cleave and Mark Lee—Presentations on the Hour

Space Support Building—Education Center

- 9:00-4:00 "WIF" Space Character
- 8:00-5:00 Youth Clubs and Martin Marietta Special Interest Clubs

(Note: Keystone Kops and El Jebel clowns will be roaming all Waterton tour areas.)



Members of the National Repertory Orchestra

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