



“Rock steady”
FBM customer lauds partnership



Service with a smile
Excitement builds for fifth Hubble telescope tune-up



Disturbance free
Behind the scenes of major warehouse move



Beyond compliance
Small businesses, giant impact



Eyewitness
Sherry Nelson gets the picture

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Space Systems Company

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New Horizons

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From crust to core, new NASA mission will map the Moon as never before

In 1998 the Lockheed Martin-built NASA Lunar Prospector spacecraft mapped the surface composition of the Moon. Since then, Lockheed Martin has built many spacecraft that have flown to other worlds, but there hasn't been another lunar mission in its portfolio. With a renewed interest in the Moon, NASA is dedicating its next Discovery mission – slated for 2011 – to visit Earth's closest celestial neighbor, and Lockheed Martin is on the team.

The Gravity Recovery And Interior Laboratory (GRAIL) mission will create a global, high-accuracy, high-resolution lunar gravity map providing new understanding of the history and internal structure of the Moon – from crust to core.

Under the Sensing and Exploration Systems line of business, Lockheed Martin will design, build, and support operations of the twin spacecraft for the mission. The \$375-million program is led by principal investigator Maria Zuber of the Massachusetts Institute of Technology's (MIT) Department of Earth, Atmospheric and Planetary Sciences. NASA's Jet Propulsion Laboratory (JPL) will manage the mission and develop the science instrumentation.

GRAIL will utilize two identical spacecraft orbiting the Moon in a low polar orbit. The spacecraft are based on

the flight-proven XSS-11 technology demonstration satellite developed for the Air Force Research Laboratory. They will use Ka-band ranging instruments to send signals to each other and then relay the data back to Earth to be analyzed. Scientists will examine the minute differences in distance the signals travel between the spacecraft. This will give unprecedented insight into the variations of gravity over the entire Moon.

“After the three-month mission is completed, we will know the lunar gravitational field better than we know Earth's,” says MIT's Zuber. The same technology could be applied to future missions to map the gravitational fields of other interesting worlds such as Mars, where it could reveal the exchange of carbon dioxide between the polar caps and atmosphere or the movement of flowing subsurface water, Zuber adds.

The technology used in the mission is a direct spinoff from the highly successful Gravity Recovery and Climate Experiment (GRACE) mission, which has been mapping Earth's gravitational field since 2002. An important difference is that GRAIL needs to calibrate the timing of the spacecraft accurately without the Earth-orbiting GRACE satellites used.



Program manager John Henk, left, and chief systems engineer Stu Spath take a close look at the actual-size mock-up of the GRAIL spacecraft including its various instruments and batteries.

The team adapted a technique that involves precise measurements of radio signals developed and refined by JPL in successive interplanetary science missions. The resulting measurements will map the Moon's gravitational field up to 1,000 times more accurately than any previous mapping.

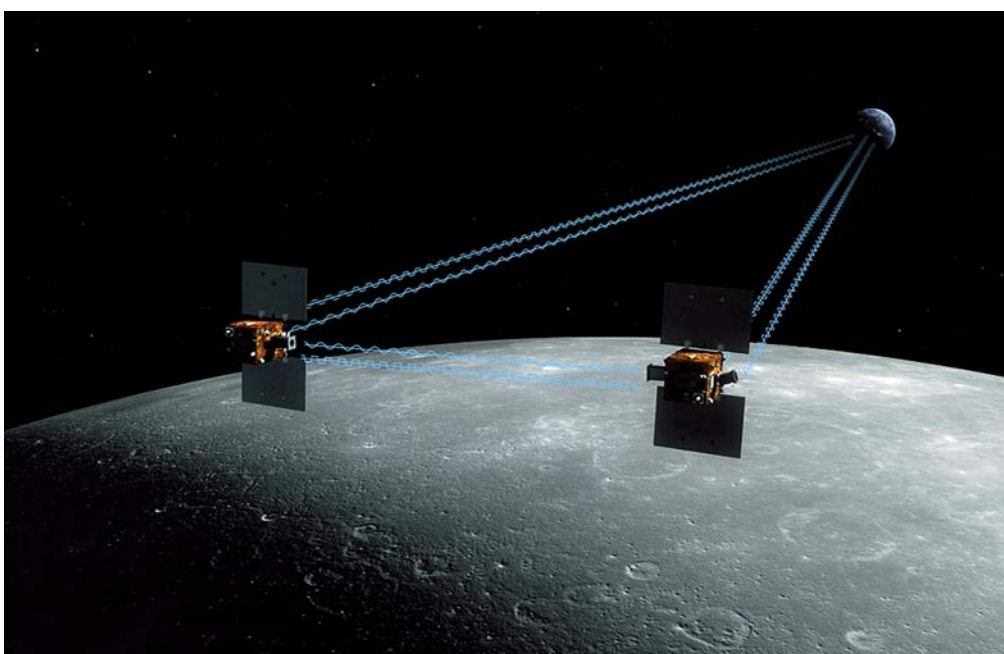
“GRAIL will be the fifth Discovery mission we will have the privilege of working on,” says John Henk, GRAIL program manager at Space Systems Company. “Every mission we develop has unique challenges. The key to the success of this mission will be developing two very smooth-running spacecraft to allow for precise intra-spacecraft distance measurements that indicate minute variations in the Moon's gravity during their orbits.” The other four Discovery missions SSC has been involved with are Lunar Prospector, Pathfinder aeroshell, Stardust, and Genesis.

Even though humans have walked on the Moon, it's still a mysterious place, says Jim Crocker, vice president of Sensing and Exploration Systems. “There's significant

international interest in the Moon. Currently China and Japan have spacecraft orbiting the Moon with a third, from India, to arrive soon. When the United States goes to the Moon later this year, we will pick up where Lunar Prospector left off. The Moon is now a focus destination for many nations, and our Orion crew exploration vehicle will play a critical role in the return of humans to its surface. But before we step back on the regolith, robotic missions such as GRAIL will be sent as precursors that will allow for deeper science and understanding of both the Moon and Earth.”

In addition to MIT and JPL, GRAIL's science team includes NASA Goddard Space Flight Center, the Carnegie Institution of Washington, the University of Arizona, the University of Paris, and the Southwest Research Institute.

– Gary Napier



Artistic rendering shows the Gravity Recovery And Interior Laboratory (GRAIL) mission.

Partnership, rigorous self-inspection make ‘rock steady’ program unmatched anywhere, says FBM customer

How does the customer for one of our longest, largest, and most successful programs view the government-contractor relationship for the Fleet Ballistic Missile (FBM)? As a partnership.

“It is a partnership that is unique in the United States, and it’s unique in the Royal Navy, as well, because it is the same partnership,” Rear Adm. Stephen E. Johnson, the director of U.S. Navy Strategic Systems Programs, told Space Systems employees earlier this year. He was the featured speaker in a Customer Spotlight All Hands meeting hosted by Tory Bruno, vice president and general manager of Strategic and Missile Defense Systems. Approximately 1,000 employees attended this event – half in person in Sunnyvale and half via webcast from other campuses.

“This is an unbelievably successful program,” Johnson said in discussing the program’s most recent milestone – the 120th consecutive successful test launch of the Trident II D5 missile in November 2007. “You are the people that make it successful,” he said. “Our submarine force, our nation, our Navy are grateful.”

Asked what accounts for the success, he responded, “The ability to deliver consistently the same quality, year after year, for 18 or 20 years is somewhat a function of the original design. It is the people who have consistently maintained that rigorous self-inspection – the most difficult thing to do in the world, by the way. That’s the key.”



Rear Adm. Stephen E. Johnson, Space Systems Company’s FBM customer, speaks to employees in Sunnyvale and other locations via webcast.

Johnson also answered questions on the future of the FBM program, including the Trident II D5 Life Extension missile – “the one you’re working on right now is our footprint for the next 35 years.” He discussed the advantages of conventional submarine-launched missiles for prompt global strike missions.

He noted that the “day-after-day meticulous nature that exists nowhere else” is carried forward as we look at new systems. “That’s the treasure. That’s our strength.” He added, “Sometimes it’s our weakness. We have to be cognizant of that, especially as we go into these new development areas. But it is our strength, and it is unmatched anywhere else.”

Johnson concluded by saying, “You are working on a rock-steady program that we need to give, each and every day, the same attention to. Safety is a minute-by-minute business for us. I think the future of follow-on work is extremely bright, and I surely look forward to the work.”

– Lynn Fisher

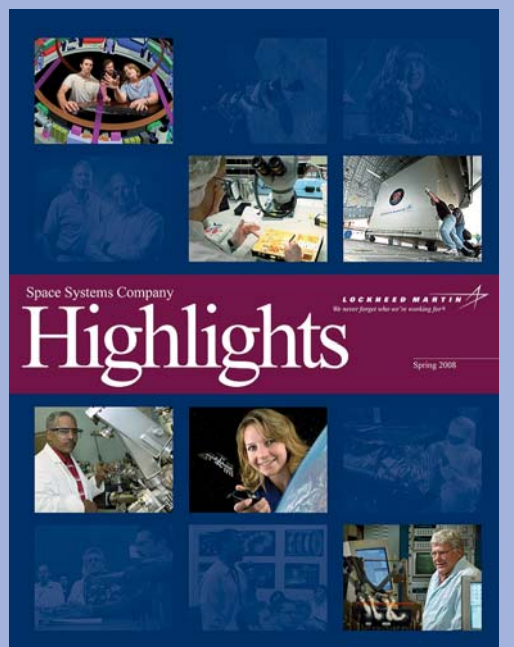


Visitors get a tour of Space Systems Company’s new Fleet Maintenance Facility, the first building in Sunnyvale, Calif., to receive the U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) New Construction Silver Certification. The certification is based on ratings in six categories: sustainability; water efficiency; energy efficiency and atmospheric quality; use of materials and resources; indoor environmental quality; and innovations in upgrades, operations, and maintenance. The Fleet Maintenance Facility is 8,000

square feet in area, with canopies covering two 20- by 40-foot bays and two 20- by 80-foot bays for large vehicles and trucks. The garage floor can accommodate 70,000 pounds for heavy trucks and forklifts. The car wash captures and reuses 80 percent of the water. Other sustainable features include recycled steel in the building itself; cool roof; certified wood doors; recycled content in carpets, office, partitions, and furnishings; energy-efficient light panels and lighting controls; LED parking lot lights; and the reuse of reclaimed water in toilets and for landscaping.

Highlights

The 28-page full-color magazine recapping Space Systems Company’s program events and milestones of 2007, is now available in campus lobbies and online at www.lockheedmartin.com/highlights.



Servicing Hubble: Practice makes perfect

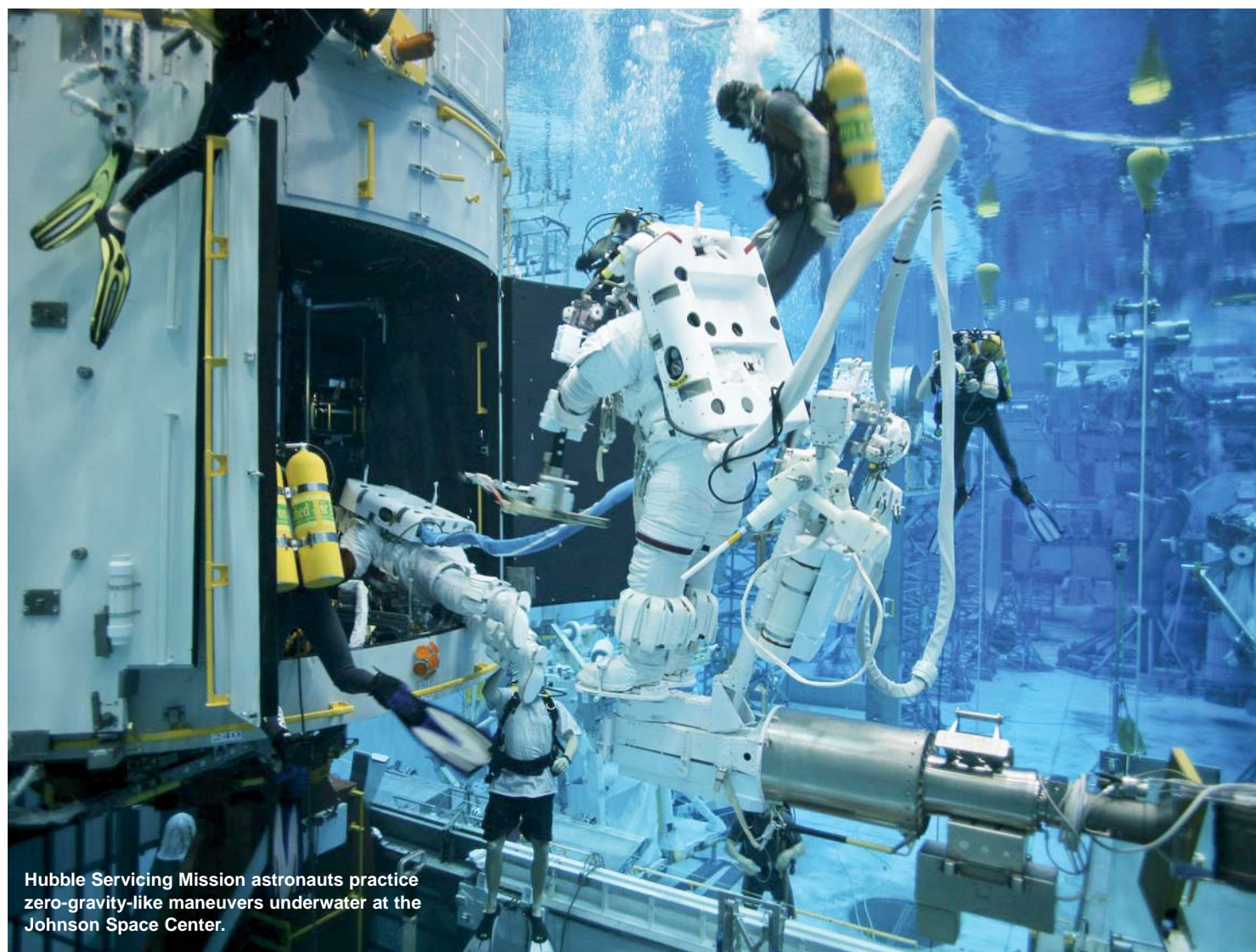
It's an enormous underwater facility that simulates outer space, and it's only one of many venues used to train the astronauts who will service the Hubble Space Telescope (HST) this summer. They will launch aboard the Space Shuttle Atlantis on August 28 for a final visit to NASA's premier orbiting observatory.

The Neutral Buoyancy Laboratory (NBL) at the NASA Johnson Space Center (JSC) in Houston, Tex., houses an enormous water tank 202 feet long, 102 feet wide, and 40 feet deep. It contains 6.2 million gallons of purified water, which is completely filtered and recycled every 19.5 hours.

The water is so clear that – to a space-suited astronaut – it appears almost invisible, increasing the impression of floating in space. Underwater high-fidelity, full-scale mockups of Hubble, the flight support system upon which it rests, the various equipment carriers, the shuttle's Remote Manipulator System (more commonly called the robotic arm), and the shuttle payload bay enable the crew to practice the entire sequence of tasks necessary to upgrade and repair the telescope.

“As our hardware development activities are winding down, the Lockheed Martin team is focusing now on the tasks that need to be accomplished to upgrade and repair Hubble on Servicing Mission 4 (SM4),” said Dennis Connolly, Lockheed Martin HST program manager. “Our goal is to sharply hone our training, planning, and choreography to provide peak performance capabilities to the astronauts who will do the job in space.”

The NASA Goddard Space Flight Center (GSFC) in Greenbelt, Md., is responsible for implementing the HST Servicing Program, and Lockheed Martin engineers work side by side with Goddard colleagues and subcontractors in the preparation of the mission and support training of the astronaut crew. When the astronauts go underwater at the NBL in Houston, GSFC, Lockheed Martin, and subcontractor engineers – fully dive certified – go with them.



Hubble Servicing Mission astronauts practice zero-gravity-like maneuvers underwater at the Johnson Space Center.

The practice sessions are not merely rote repetitions of individual servicing tasks. The precise replication of the on-orbit configuration underwater allows the astronauts and their trainers to try out new ideas and spacewalking techniques, develop the most efficient means to accomplish the various repairs and upgrades, and test new equipment and tools built specifically for the tasks at hand. The four spacewalkers on the SM4 mission will each have spent at least 14 hours training in the NBL for every hour they spend performing those tasks in space. Moreover, before the astronauts ever went into the water, the GSFC/Lockheed Martin engineering team had already spent 20 hours in the tank for every hour of work performed during an actual spacewalk. Underwater, they developed the tasks, techniques, and tools that will be used on the mission.

Other training aids at JSC help recreate orbital conditions for the Atlantis crew. In the weightlessness of space, the tiniest movement can set

instruments weighing several hundred pounds into motion. Astronauts use virtual reality technologies to practice handling large masses in space. This kind of ultra-realistic simulation enables the spacewalkers to “see” themselves next to the telescope as their partners maneuver them into position with the robotic arm and to practice the careful handling and nudging of instruments into their proper locations.

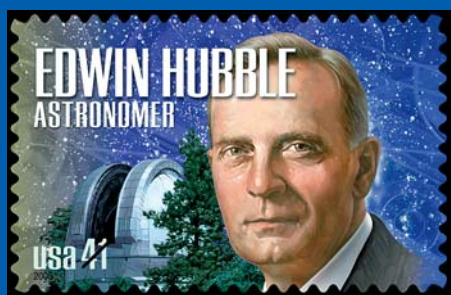
The Atlantis crew is also doing hands-on training at Goddard with the actual flight hardware and instruments they will take up to Hubble in August. Each morning begins with an overview of the day's activities, followed by hours in the clean room working with the flight hardware and honing their techniques. At day's end the astronauts undergo a de-brief with Hubble engineers and a discussion of lessons learned.

But in the end, it's all about flying up to Hubble and performing the tasks and techniques their intensive training has prepared them to do.

On SM4 astronauts will install two new science instruments – the Wide Field Camera 3 and the Cosmic Origins Spectrograph. They will replace all six of Hubble's gyroscopes and all six of its nickel-hydrogen batteries. The crew will attempt to repair the Advanced Camera for Surveys by installing two new circuit boards and fix the Space Telescope Imaging Spectrograph by replacing a low-voltage power supply. They will also install a refurbished fine guidance sensor, new outer blanket layer insulation panels, and a soft-capture mechanism that will aid in Hubble's de-orbit at the end of its life.

The repairs, replacements, and upgrades the Atlantis crew will undertake on their 11-day mission to the Hubble Space Telescope – which was built and integrated at Space Systems Company in Sunnyvale – are expected to enable the venerable observatory to continue probing the deepest realms of the universe for at least five more years.

– *Buddy Nelson*



The U.S. Postal Service has acknowledged the contributions of some of the most impressive scientific achievements of the 20th century with the issuance of its second series of American Scientists stamps. Among the four featured scientists is **Edwin Hubble** (1889–1953), the astronomer for whom the Hubble Space Telescope was named. Hubble played a pivotal role in deciphering the vast and complex nature of the universe. His meticulous studies of spiral nebulae proved the existence of galaxies other than our own Milky Way, paving the way for a revolutionary new understanding that the cosmos contains myriad separate galaxies or “island universes.” Also featured in American Scientists stamps are theoretical physicist **John Bardeen** (1908–1991), biochemist **Gerty Cori** (1896–1957), and structural chemist **Linus Pauling** (1901–1994). These stamps may be purchased in post offices, online at <http://www.usps.com/>, and by phone at 800-STAMP-24.



SSC's Phoenix Mars Lander flight operations team in Denver has been conducting a series of operational readiness dress rehearsals in preparation for the spacecraft's May 25 descent onto the Red Planet. The team, pictured here in early March, participated in its ninth of ten operational readiness tests, which include around-the-clock operations, trajectory correction maneuvers, pre-programmed “anomalies,” and the countdown to touchdown: seven suspenseful minutes of entry, descent, and landing. Phoenix was launched in August 2007, and the same team has been busy operating the spacecraft during its 422-million-mile journey ever since.

Meet the 2008 Diversity Maturity Model (DMM) Response Team

Throughout the year Space Systems Company (SSC) engages in a variety of activities aimed at ensuring the company achieves its goal of a fully inclusive workplace. While creating this culture of inclusiveness takes a concerted effort from everyone, 25 employees serve on the Diversity Maturity Model (DMM) Response Team, which looks at the findings in the annual DMM results and develops a plan of action to address areas identified for improvement.

SSC's progress toward its goal of achieving a fully inclusive environment is gauged using a DMM measurement developed by the Lockheed Martin Executive Diversity Council. The score is derived from three areas: an employee survey, organizational self-assessment with peer review, and objective statistical demographic data. This year's DMM Response Team is primarily focused on addressing issues raised in the employee survey, which represents 60 percent of the rating.

Last year the DMM Response Team's efforts helped the company earn a 3.4 on a scale of 1 to 5, up half a point from the 2006 assessment of 2.9. According to the scale used to interpret these scores, a "3" rating indicates that the practice of inclusion is "fully integrated into the company's overall business strategy, and starting to be implemented." Diversity councils, mentoring, affinity groups, and learning resources have contributed to furthering an inclusive work environment.

Members of the DMM Response Team also serve on one of four sub-teams: Leadership Commitment, Organization Climate and Culture, Workforce Strategy and Development, and Customer Experience Management. Each sub-team is responsible for enhancing or increasing inclusiveness practices associated with their particular characteristic and meets throughout the year to assess their progress. For example, the Customer Experience Management team is looking at finding ways to improve the employee's understanding of who the customer is, what the customer wants, and the customer's perception of our performance.



Leadership Commitment

The Leadership Commitment team is focused on diversity efforts centered on SSC's overall business strategy, leadership participation, and involvement in diversity activities, supplier diversity, and overall leadership accountability. From left: Kelly Condon, Katrina Smolka, Sylvia Simpson, Michael Chang, Eileen Gibbons, Joyce Steakley, and Kathy Campbell. (Not pictured: Vanessa Williams)

Corporate has set the SSC goal of 3.6 for 2008, and the company and the DMM Response Team are in high gear to achieve it. That said, cautions Karin Roache, director of Human Resources Strategic and Special Projects, it is the concept behind the number that is most important. "DMM is more than a number. It is really about the day-to-day experience of each employee with their leader and coworkers and the environment in which they work."



Karin Roache, SSC DMM Response Team program director, and Vanessa Williams, Workforce Diversity senior manager, have been Response Team members since 2004.



Customer Experience Management

The Customer Experience Management team is focused on providing expert and innovative solutions to our customer requirements to create business success. From left: Joe Dimercurio, Chris Jewell, and Aprille Lucero. (Not pictured: Amy Schardt and Tom Larson)

Comments or suggestions for the DMM Response Team?

Go to the Diversity Web site at http://diversity.ssc.lmco.com/index_dssc.htm and click on "Ask Diversity."



Workforce Strategy and Development

The Workforce Strategy and Development team is focused on diversity efforts centered on recruitment, talent pools, retention, and talent development. Back row from left: Sherry Stripling, Monica Walsh, Twanda Vaughn, Tim Fennell. Front row: Gary Barbosa and Jill Moeller. (Not pictured: Vanessa Williams)



Organization Climate and Culture

The Organizational Climate and Culture team is focused on diversity efforts centered on the company's vision/mission, rewards and recognition programs, company process, social support, and employee participation and involvement in diversity activities. Back row from left: Suraj Rawal, Angela Boggs, Carole Cameron, Jennie Tran, and Debra Short. Front row: Deb Helton. (Not pictured: Evan McCollum)

"Are we there yet?"

Some thoughts on progress from members of the Diversity Maturity Model Response Team

Vanessa Williams (Response Team member since 2004): Over the years I have observed two very significant aspects in the evolving SSC culture of inclusiveness: infrastructure and leadership. The establishment of some formal infrastructure such as the Diversity Councils, the DMM, and affinity groups combined with the leadership commitment demonstrates that SSC is serious that inclusiveness is not only the right thing to do but also the smart thing to do.

Tim Fennell (Response Team member since 2007): I think there is a growing awareness of the resources available for all employees to take charge of their own careers and professional development.

Evan McCollum (Response Team member since 2004): Space Systems is a much more diverse team than when I joined the company several years ago. More importantly, I think there is a lot of evidence that employees at all levels are much more accepting of others with different backgrounds, experiences, and ideas.

Amy Schardt (Response Team member since 2007): As a newer employee with the company, I am encouraged to see such an emphasis placed on workplace diversity. In the years to come, a culture of inclusiveness will be vital in maintaining our competitive advantage as a company because diversity stimulates workplace creativity, which improves business performance. Everyone brings different ideas to the table, allowing companies to tackle problems from a variety of angles.

Christopher Jewell (Response Team member since 2006): I've been impressed with the company's inclusion of young people, both from a new employee standpoint and getting existing employees stretch opportunities.

Joyce Steakley (Response Team member since 2006): The Diversity Dialogues have engaged every employee with thought-provoking questions to keep the discussion going. People have opened up, and everyone feels included.

Jennie Tran (Response Team member since 2008): There is definitely a more visible, concerted executive effort to increase communications to all employees.

Michael Chang (Response Team member since 2006): There's been a much more concerted effort to reach out to procurement community members to place contract awards with small businesses for goods and services.

Twanda Vaughn (Response Team member since 2004): The biggest change I've seen is the overall focus on inclusion in our behaviors and in our processes. There is a greater awareness and consideration of inclusiveness in daily interactions.

Aprille Lucero (Response Team member since 2005): We have grown from a small core group to a critical mass of people aware of and working to improve diversity and inclusion. Our vision of everyone being engaged is being achieved as the critical mass grows.

Kelly Condon (Response Team member since 2004): I've seen the financial and human resources, not to mention energy, dedicated to diversity grow exponentially in the last seven years. It used to be that our Sunnyvale campus had the monopoly on diversity within Space Systems Company. Today, throughout Space Systems, we have seven diversity councils, a 28-member DMM Response Team, several dedicated diversity personnel, 14 affinity groups, a significant Diversity Council budget, and funded diversity recognition programs. It's a whole new day!

Karin Roache (Response Team member since 2004): Senior leadership is really engaged in communicating the diversity and inclusion message. Many have instituted best practices within their business unit that others can model. Our challenge remains for all levels of leadership to provide employees a day-to-day experience of an environment of inclusion and respect, enhancing their skills, valuing their ideas, and providing them challenging assignments.

Quest for Excellence: Behind the Scenes

Applying critical thought, exercising sound judgment, leveraging previous experience, and delivering as promised every step of the way to 100 percent mission success

When the entire contents of SSC's central warehouse in California were moved to a brand new, state-of-the-art building on the Sunnyvale campus, it was all about the planning to ensure zero interruption of service to the programs and product centers. By the end of little more than a weekend, 22,000 line items were ensconced in their new home. Piece of cake? No way. Superb choreography, contingency planning, and dress rehearsals got the job done without a hitch. Barbara Martinez, Receiving and Inventory Management senior manager, tells the story.



Barbara Martinez led a team of more than 50 people who accomplished a major warehouse move without injury to employees, schedule disturbance to programs, or damage to hardware.

“Plan, plan, plan.” “No detail is too small.” “Deal with it before we get to it.” These were the “mantras” that played in my head for the months leading up to the move.

Much of our inventory is critical flight hardware. We had three imperatives from the outset. Number one: Support production needs before, during, and after the move. We are the lifeline, and there is no margin for interruption in service. Number two: It would be an injury-free move. The number of people in motion – about 50 – using heavy equipment, trucks, and forklifts in congested areas necessitated highly detailed staging and orchestration. Number three: There would be no damage or impairment to flight hardware.

The baseline premise of our planning was that we would know at every point in time during the move where everything was in case any of our programs and product centers needed something. Our team that supports the inventory software system developed reportage for us based on bar-code scanning as we were pulling and storing during the move.

We were very inclusive in our planning – we didn't go at it alone. Our internal customers were involved, discussing the elements of the plan including how we were going to protect their hardware, how to reach us by landline, cell phones, and in person if they needed product while the move was under way. We collaborated with teams from Facilities, Transportation, Safety, Quality, Packaging Engineering and Inventory Software, and Hardware Systems Support. We consulted with the packaging engineering team on the best way to package and protect

each item of material and the people who were going to be moving it. Then we practiced with the storage containers to make sure everyone

knew how to pack, open, and reuse them. We practiced with our old and new Automated Storage Systems to get our timing down. With that, we had our

expected throughput time in order to choreograph each step of the move.

Planning gave us the structure and confidence to know that we had carefully considered everything and run through multiple scenarios. We had an executable plan and backup plans if we needed them.

We did indeed need to implement several of our “Plan B” scenarios. That, too, went smoothly, keeping the team moving and switching gears seamlessly. Thirty-five-hundred forklift moves and 65 truckloads later, we were fully operational by Tuesday morning.

There were lots of high-fives, and the team spirit was palpable. It wasn't just about getting the move accomplished. That one-and-a-half-mile journey from the old warehouse to the new one was hard work, yes, but it was executed flawlessly because we were rehearsed and ready. People experienced the pride that comes with knowing we were “firing on all cylinders.” We did what we set out to do: No interruption in service to the programs, no injuries to people, and no loss or damage to hardware. You won't hear anyone on our team saying there's such a thing as too much planning!

Space Systems Company Executive Vice President Joanne Maguire reiterates the key messages from her annual State of the Business presentation in an exclusive one-on-one interview with Employee Television's Jeff Richmond. See the interview on the

Lockheed Martin intranet at <http://mdimedia.eis.lmco.com/OnDemand/>.

“I'm very proud and privileged to lead Space Systems Company and the 18,293 men and women who make it go, day in and day out,” Maguire said to SSC leaders gathered in person in Denver and via web-cast to other SSC campuses across the U.S. “Our competitive and strategic imperatives for 2008 are – first and foremost – to ferociously defend, evolve, leverage, and expand our core businesses, and to create some adjacencies.” Read more excerpts from Maguire's State of the

Business speech at <http://news.ssc.lmco.com/myview/Archive.shtml> (intranet users only).



Little engines that can

Small businesses add fuel to local economies and agility to large companies

If you are one of thousands of small business owners vying for a piece of Space Systems Company's subcontract work, you'd better have one of the company's nine Supplier Diversity advocates on your speed dial. Helping small businesses is what they do.

It's all part of a process designed to ensure Lockheed Martin's compliance with federal contracting stipulations that 23 percent of our 60 percent outsourced work goes to small businesses as defined by the U.S. Small Business Administration (SBA). Among the small businesses are subsets of SBA-defined disadvantaged small business that are at least 51 percent owned by one or more individuals who are socially and economically disadvantaged. SSC's Supplier Diversity Programs team cultivates candidate small businesses that are owned by women, minorities, veterans, and service-disabled veterans. Minority institutions such as historically black and tribal colleges involved in research are actively engaged, as are small businesses located in Historically Underutilized Business (HUB) Zones.

The benefits far surpass contractual compliance, says Supplier Diversity Programs deputy Michael Chang, who for four years has been an ardent advocate of supplier diversity. "Besides the importance of being compliant in all of



Nichols Manufacturing, in Milpitas, Calif., is one of many small businesses providing aerospace hardware to Space Systems Company. Pictured from left are Lettie Nichols, owner and president; Mike Nichols, production manager; and Ronny Badal, SSC procurement representative.

our contracts, the business case for partnering with small businesses is compelling," he says. "They are the engine that fuels the local economy. Small businesses bring innovation, lean-ness, and agility to our team. They are a key component of our company culture of inclusiveness."

The Supplier Diversity program at SSC provides the liaison between the small businesses and the SSC teams – the ones who actually source and buy goods and services. Chang says he and his colleagues provide SSC introductions for suppliers as well as help screen and train suppliers. "The procurement people – usually working within rigorous time constraints – need scrubbed, vetted lists of subcontractors and vendors. We're like matchmakers – we want successful pairings. Everybody wins when the homework is done."

In addition to Chang, the SSC Supplier Diversity team, interspersed at Denver and Sunnyvale campuses, includes Bob Thompson, Betty Padilla, Patrick Roybal, John Cooke, Vivian Herrman, Troy Delaney, Brian Catania, and Diane Garrett. They spend much of

the year cultivating contacts by taking their story on the road, wherever target small businesses and education institutions gather for annual meetings. Every year they attend anywhere from 75 to 100 small business conferences and networking events, such as the Native American Small Business Conference and Morehouse College's annual Entrepreneurship Conference, where Chang was recently a featured speaker. Graduate students in attendance learned the ins and outs of applying for research work from Lockheed Martin. Minority-owned businesses got plenty of savvy advice on how to register and become Lockheed Martin suppliers.



Michael Chang, SSC Supplier Diversity Programs deputy, offers practical networking advice at a recent Entrepreneurship Conference at Morehouse College.

For Chang, it's well worth the time and effort. "I do these workshops because they really do work," he says. "There is such willingness and enthusiasm to get on board."

Chang says that negotiating vast and sometimes uncharted waters to make subcontract deals can be challenging for both the suppliers and SSC. "Fortunately, small businesses with fewer layers of bureaucracy are often more nimble and can act more quickly than large firms to satisfy our requirements," he says, adding that as prime contractor representing our program customers, we sometimes bring our share of dynamics to the mix, too. "Things like changes in specifications, 'scope creep,' and schedule slips can diminish our ability to be a good customer for our suppliers. Large company and small company – we aim to leverage the assets and strengths of both."

Lockheed Martin was an early leader in minority subcontracting, initiating programs in the 1960s, a decade before President Richard Nixon established the Office of Minority Business Enterprise within the Department of Commerce. In 1993, Lockheed Missiles & Space Launch Operations received the Small Business Administration's prestigious Dwight D. Eisenhower Award for Excellence in recognition of its leadership in seeking out small and small disadvantaged businesses as suppliers and subcontractors.

Lockheed Martin Space Systems Company continues to receive recognition for outstanding Supplier Diversity Programs. "We're the largest aerospace company in the world – we have to set the standard for inclusiveness," Chang says. "I have a passion for making room at the table for anyone who adds to our mission success."

Commercial Space Senior Fellow receives top patent award

Dr. Neil Goodzeit, Lockheed Martin Senior Fellow at Commercial Space Systems Company in Newtown, Pa., received the corporation's Exceptional Value Patent Award in recognition of his long-term contributions developing innovative technologies for Space Systems Company products. A majority of Goodzeit's 32 granted U.S. patents are implemented on the renowned A2100 spacecraft as well as military space satellites (AEHF, MUOS, and GPS IIR). Additionally, many of his 14 pending patents are included in proposals such as GPS III and GOES-R.

Goodzeit is the first SSC employee to receive the award, which included \$10,000, the maximum allowable under the award guidelines. "I am grateful to receive this award and appreciate that my contributions have been recognized," Goodzeit said. "I would also like to thank my co-inventors over the past 25 years for their enthusiasm and dedication to making Lockheed Martin the number one aerospace technology company." Marshall Byrd, vice president and general manager of Commercial Space Systems, added his commendations by saying, "Dr. Goodzeit's innovations will be implemented on future spacecraft for many years to come – a truly remarkable achievement and legacy. We are very proud of Dr. Goodzeit and his contributions to our business, and we join in honoring him with this special award." Goodzeit's technical innovations cover enhanced spacecraft configurations, GPS-at-GEO navigation systems, high-efficiency orbit transfer and propulsion systems, systems for precision pointing and fuel-efficient thruster control, and optimized orbital constellation designs. A complete list of his patents is available at <http://www.uspto.gov/>.



Dr. Neil Goodzeit is the first Space Systems Company employee to receive the Lockheed Martin Exceptional Value Patent Award.

Eyewitness: Operational Excellence



Sherry Nelson

Software Technical Writer, Senior Sunnyvale, Calif.

Early in my Lockheed Martin career, I was given the opportunity to work on the Mobile User Objective System (MUOS) program as a software technical writer and as a satellite tool kit (STK) developer.

One of my assignments was to create a high-fidelity three-dimensional model of the MUOS spacecraft, which was integrated with the MUOS Performance Model (MPM) software. This task required establishing a close working relationship with the Newtown, Pa., space segment engineers and Analytical Graphics, Inc. (AGI), the creators of STK. The Newtown team was instrumental in providing technical details about the MUOS spacecraft, while AGI provided the technology to create the model and integrate it with the MPM software. My job was to oversee transformation of the dimensionless technical details into a very realistic three-dimensional model of the spacecraft.

While the MUOS performance model software was a great success, I felt that the customers, end users, and even our own Lockheed Martin MUOS team might really benefit from a brief, "big picture" video to accompany the product. A video might help people better understand the functionality of the whole system and fit all the pieces together better in their minds. My management concurred. I wrote the script and then collaborated with AGI to produce the three-minute video.

This movie received very positive customer feedback and proved to be instrumental in conveying the complexity of the MUOS satellite deployment sequence. It is shown at user conferences and to users in the field. And it has been so successful we are currently working on an updated version. A picture truly is worth a thousand words!



Test your ethics IQ Fair game or poison? Avoiding proprietary pitfalls

Dilemma

Kam works on a new remote sensing satellite program. He's responsible for integrating a supplier's component into the satellite payload. The component is the first application in the aerospace industry of an emerging technology.

Kam tells the supplier that he needs more background information to understand how the component works, so the supplier's rep sends him several reference documents via email.

As he opens the attachments, Kam notices that one of the documents is a white paper. He recognizes the name of the author, the chief scientist of a company that is also competing for the program. "This looks very useful," he thinks, "but I wonder if I'm supposed to have access to it."

He closes the attachment and shares his concern with a colleague, Jennifer.

"There are no proprietary information markings on the document," he says. "I'm thinking that the information is fair game. What do you think?"

"I think you should email the author of the paper and ask him," she says.

What should Kam do?

Tip

Check out Corporate Policy Statement (CPS) 710, Protection of Sensitive Information, <http://policy.global.lmco.com/p3/lockmart/cps/legal/cps-710.html>. Study Section 7, Third Party Proprietary Information, in particular.

Answer

Before he takes any further action, Kam should get advice from the company's Legal department, as stated in Section 7.5 of CPS-710:

"If there is reason to believe that the release of Third Party Proprietary Information to Lockheed Martin was not authorized by the owner (even if the information does not bear a legend identifying it as Proprietary), immediately seal and secure the information and take it directly to Lockheed Martin Legal Counsel, who will determine the appropriate action..."

Protecting the information in this way is the right thing to do. It's also the best way to nip the problem in the bud so that the potential negative impacts on all parties – Lockheed Martin and our suppliers and competitors – are minimized. Kam should not contact the supplier or competitor. This kind of potential breach needs to be handled through the proper channels, first by contacting the Legal department for further direction.

It may turn out that the information is not proprietary. Perhaps it was a paper given at a technical symposium. However, because of the potential damage that could result, it's best for Kam to be conservative and treat the information as proprietary until the company finds out otherwise.

New Horizons

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