Orbiter
July 2015

Hastings Becomes Associate Principal Director

July 30, 2015

Susan Hastings

Susan Hastings has been appointed associate principal director, Acquisition Analysis and Planning Subdivision (AAPS), Systems Engineering Division, Engineering and Technology Group. In her new position, Hastings is co-leading this bi-coastal organization dedicated to enhancing program execution through acquisition and systems engineering planning; economic and affordability analysis; and development life-cycle studies and research.

Hastings joined Aerospace in 2010 in the National Systems Group, Systems Engineering and Ground Division, Mission Success Group. In her most recent previous assignment, she led government support for the qualification and test program, mission assurance, and specialty engineering and launch base safety; and assisted with the management of product assurance for AAPS.

Prior to joining Aerospace, Hastings served as a United States Air Force acquisition officer and engineer for more than 20 years. She holds a bachelor of science degree in ceramic science and engineering from Pennsylvania State University, a master's of science degree in materials engineering from the University of Dayton, and is a graduate of the Defense Management System College Senior Program Managers Course and Air War College.

Delta IV Lifts WGS Satellite to Orbit

July 24, 2015

A Delta IV rocket roared off its Cape Canaveral launch pad at 8:07 p.m. ET on Thursday evening, July 23, powered by a new, upgraded main engine, to place the seventh Wideband Global SATCOM (WGS) communications satellite into orbit.

A Delta IV rocket takes off from the Cape carrying the seventh WGS satellite. (Photo: United Launch Alliance, LLC)

"The countdown was relatively uneventful from a launch vehicle standpoint, but a second consecutive day of typical Florida summertime thunderstorms made things interesting for the launch team," said Aerospace Vice President of Space Launch Operations Randy Kendall, reporting from the Cape. "It was a little touch and go with the weather, but I'd much rather have to worry about the weatherman than the launch vehicle."

This particular launch vehicle was flying in the Medium+ (5,4) configuration, with a five-meter fairing and four strap-on solid rocket motors. Its main engine was the new Aerojet Rocketdyne RS-68A, which delivers 702,000 pounds of liftoff thrust, compared with 663,000 pounds for the RS-68.

According to Kendall, "the vehicle lifted off from SLC-37B right at the opening of the launch window, and the spacecraft was successfully separated into its geosynchronous transfer orbit about 42 minutes later." The spacecraft is a high-capacity military communications satellite built in El Segundo by Boeing Satellite Systems.

Kendall congratulated the team, saying, "great job today by the integrated launch and satellite team executing a modified countdown procedure to work around some weather early in the count."

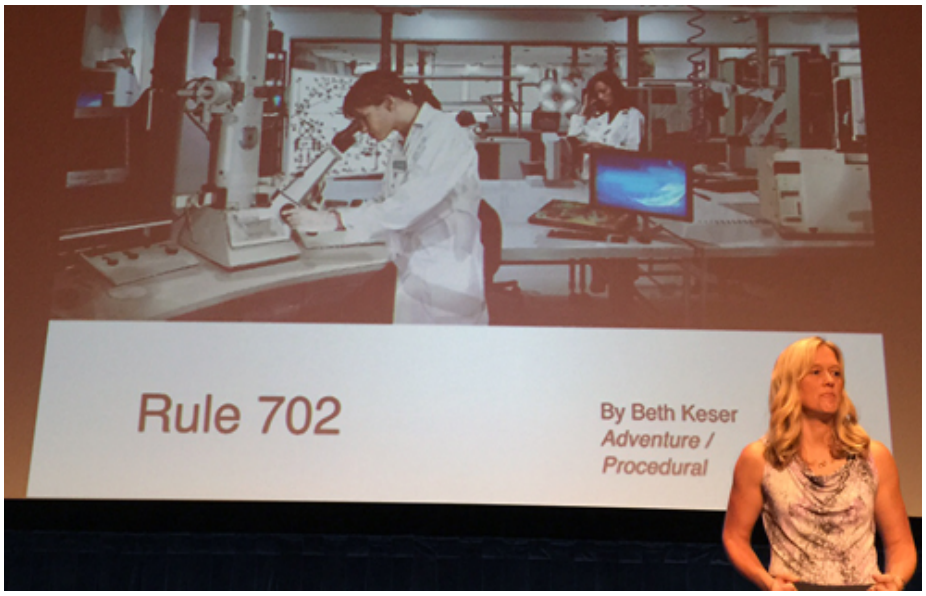
Looking for the “Next MacGyver” TV Show

July 29, 2015

Thirty years ago, the television series “MacGyver” debuted, starring Richard Dean Anderson as a spy who used engineering skills to solve difficult, and at times life-threatening, problems.

The creator of the series, Lee Zlotoff, has now partnered with the National Academy of Engineering, the USC Viterbi School of Engineering, and the MacGyver Foundation to hold the Next MacGyver competition, the purpose of which is to develop a new television series that will feature a female engineer in a leading role.

The culmination of the competition was held Tuesday, July 28, at the Paley Center for Media in Beverly Hills at which 12 finalists chosen from nearly 2,000 submissions worldwide, pitched their ideas for a TV series to a panel of judges, which included Dr. Wanda Austin, Aerospace president and CEO.



Beth Keser, a Qualcomm semiconductor engineer, was a competition winner with her pitch for Rule 702, a series about an engineering and science prodigy who becomes an expert witness and solves mysteries. (Photo: Jessica Brown)

“We need more positive STEM role models for young women,“ said Austin earlier during an interview with KPCC radio about the competition. “They need to see that you can have a successful math and science career and not be considered a nerd or a geek.”

The 12 finalists in the competition came from around the world and included movie producers, engineers, and writers.

Five winners of the competition were given $5,000 awards each and were paired with entertainment industry mentors who will help them produce a polished TV series pilot script.

Dr. Wanda Austin with Alton Romig, left, executive officer of the National Academy of Engineering, and Yannis Yortsos, dean of the USC Viterbi School of Engineering. (Photo: Jessica Brown)

Physical Sciences Staff Builds On Their Creative Side With Sculpture

by Heather Golden
July 20, 2015

When it came time to talk about a going-away gift for Dr. Rami Razouk, recently retired senior vice president of the Engineering and Technology Group, the Physical Sciences Laboratories staff wanted to send him off with something that told the story of his time here with them.

What they ended up with was a mixed media sculpture piece, later named "BOLO," that encapsulated themselves and decades of their work. BOLO is an acronym, commonly used within law enforcement, that means "be on the lookout."

"We wanted to build something that wouldn't just go in his garage, and was representative of our organization," said Lynn Friesen, currently the principal director of Office Product Management, who, at the time of the piece's construction, was the associate principal director of the Space Science Applications Laboratory (SSAL).

Lynn Friesen, principal director, Office Product Management, tells the story of some of the pieces on the BOLO sculpture the Physical Sciences Laboratories staff made as a going-away gift for the now-retired vice president of the Engineering and Technology Group, Dr. Rami Razouk. (Photo: Eric Hamburg)

Walter Buell, principal director, Electronics and Photonics Laboratory (EPL), and Jim Nokes, principal director, Space Materials Laboratory (SML), along with Friesen, decided to collect the parts for and build the sculpture themselves.

BOLO is constructed of pieces from 22 separate projects, spanning years of work and successes. Each of the three teams – SML, EPL and SSAL – contributed parts from projects they considered some of their teams' proudest achievements.

"We started by collecting stuff and things important to us, and meaningful to Rami because of the projects," Friesen said. "There were amazing odds and ends from the labs. The creative juices just flowed." Friesen added that none of the parts used in BOLO's construction were functional or of continued value to Aerospace, "only sentimental value."

The base of the piece was supplied by Nokes' team, and is a section of an exit cone for a Titan IV rocket that was evaluated for its thermal characteristics.

"It's been rattling around for decades," Nokes said. "We needed something that would give the piece some stability and was big enough to work as a base."

Another part Nokes identified as being particularly important to him was a baffle from a liquid rocket engine. The stainless steel baffle assembly was used to mitigate combustion instabilities in the Aerojet LR87 liquid rocket engine used on the first stage of the Titan IV rocket. It was one of the first projects Nokes worked on for Aerospace in the early '90s. Both the exit cone and the baffle were used as canvas to mount other smaller parts. The three secured one of their lab technicians, who routinely does this sort of handiwork, to affix each piece in a manner similar to how he would construct circuit boards.

"The closer you look, the more you see," Friesen said. "BOLO is not just representative of the outstanding research we've done, but also the workmanship of the piece itself speaks to that."

Buell's team supplied the most recent part on BOLO, the mirror pathfinder, which is a silicon wafer used for developing mirrors with aluminum oxide coatings for the Mount Wilson Optical Facility.

Friesen is particularly attached to MAPPER (multi-amplifier pulse peak energy rundown) hybrid, which is a custom hybrid designed by laboratory engineers to perform amplification and pulse-height analysis for energetic particles striking a multi-pixel silicon detector array. The MAPPER was the critical component for the Magnetic Electron Ion Spectrometer (MagEIS) instruments, and enables making electron and proton measurements previously not possible. She also pointed out the mDosimeter, which was the first prototype of the Aerospace micro-dosimeter developed and subsequently patented in PSL.

More than 100 of these have been purchased by various government organizations, commercial companies and universities for use in space systems as standard environmental sensors. Aerospace also routinely incorporates these micro-dosimeters in spaceflight hardware.

Unexpected, but enjoyable, side effects of this endeavor were the chance to learn more about each others' teams' work and to reminisce about long-completed projects.

"You pick up a part and ask colleague what it was; we learned a lot about what happened 10 and 15 years ago," Nokes said. "And this brought back memories of colleagues we've worked with who may have since retired or moved on."

"What I found enjoyable was spelunking down into the labs, finding all these bits and pieces, each of which had some story behind it," Buell added. "The whole process just grew. The idea evolved as we went and found pieces that went together, not just aesthetically, but also historically. Something we discovered is that, for convenience in [administrative] structure, there are those divisions [between the three labs]. But in the day-to-day operations, we all work together across all those disciplines.

"When you put this sculpture together, that's the message this piece sends," Buell said.

Aerospace Space Launch Team Tours Orbital ATK Facility

by Heather Golden
July 02, 2015

Conversations that began at this year's Space Symposium in April led to a follow-on visit between members of Aerospace's and Orbital ATK's senior leadership at Orbital ATK's Bacchus facility in Magna, Utah, on June 16.

Dr. Dave Gorney, executive vice president, Space Systems Group; Ray Johnson, vice president, Space Launch Operations; and Randy Kendall, vice president special studies, SLO; were given an overview briefing on Orbital ATK, a comprehensive tour of the solid propulsion manufacturing facilities, and an overview briefing on the new Antares III launch system concept that Orbital ATK is considering for potential use on EELV-class missions. The Orbital ATK group included Charlie Precourt, vice president, Propulsion Systems Division, and Kent Rominger, vice president, Strategy and Business Development, Propulsion Systems.

Orbital ATK executives showed their production facility in Magna, Utah to a team of Aerospace senior management on June 16. (Photo: Orbital ATK)

"The tour was very enlightening, as it walked us through every step of the solid motor manufacturing process, including case preparation, propellant mixing and pouring, and final assembly," said Kendall, who became head of SLO this week following Johnson's retirement. "The visit gave us a chance to understand the structure and business plans of Orbital ATK in the wake of the recent merger this past February, and the tour and discussion of the manufacturing processes gave us a good feel for the potential scalability if they do decide to try to enter the EELV market with their Antares III concept."

Kim Receives Alexander C. Liang Achievement Award

by Kimberly Locke
July 16, 2015

The late Alexander Liang's vision of mentoring others and enhancing relations between Aerospace and its customers is embodied in this year's recipient of the Dr. Alexander C. Liang Asian Pacific American Achievement Award, Dr. Eun Kim.

Throughout the award ceremony, which was sponsored by the Aerospace Asian Pacific American Association (AAPAA) and held July 15 in El Segundo, commitment to excellence was a recurring theme.

Anil Agrawal, AAPAA national president, welcomed attendees and explained the purpose of the award. “This award is to recognize Asian-American employees who have made significant individual achievements, contributions to the corporate mission, and contributions to the community,” he said. Agrawal added that the award was renamed in 2010 from the Aerospace Asian Pacific American of the Year Award to its current name in honor of the late Alexander Liang, who served as general manager of the Vehicle Systems Division, Engineering and Technology Group. Liang was a champion of Asians and Pacific Islanders at the corporation.

Left to right, Lesli Otake, Dr. Wayne Goodman, Dr. Eun Kim, and Anil Agrawal. (Photo: Eric Hamburg)

Murli Tolaney, chairman emeritus of MWH Global, Inc., a worldwide employee-owned environmental engineering, management, technology, and construction company, served as keynote speaker. He opened his remarks by reflecting on the migration of Asians and Indians to the U.S., which increased significantly after passage of new immigration laws giving preference to engineers, scientists, doctors, and other highly educated professionals.

He touched on some of the industry and education data associated with these populations and cited that “more than 25 percent of high-tech firms in Silicon Valley are run by Chinese and Indian CEOs and 50 percent of Asians have college degrees compared to less than 30 percent of all Americans.”

Tolaney pointed to the reasons for the success of first-generation Asian-Americans. “I believe it is drive, hard work, parents being involved with their children, they do not want to fail; and [their] bias for success,” he said. Tolaney also stressed the importance of balancing work and family life.

He provided the following advice for attendees to consider:

Do what you love
Have a mentor or two in your life
Persevere
Be a dreamer and learn from failures
Take risks

Tolaney has lived by much of his own advice. Growing up in what is now the central province of India, his family faced severe economic hardships resulting from the end of British rule over India. “I came to this country as an undergraduate without much money and worked my way through school,” he explained. “With an engineering degree, a lot of hard work, and what I must admit was some good luck along the way, I ultimately became chairman/CEO of the largest engineering company in the water field.”

Dr. Wayne Goodman, Aerospace Senior Vice President, Operations and Support Group, underscored the corporation’s commitment to diversity, referring to it as “part of our culture and our history.” He then expanded on the diversity of Aerospace’s workforce and how this wide range of diverse backgrounds is vital to the success of the corporate mission.

“By celebrating diversity, we strengthen the bonds between us and send a message of collective strength and unity to our community and our industry as a whole,” said Goodman.

Goodman also addressed current events involving diversity in America, including the landmark ruling by the U.S. Supreme Court legalizing same-sex marriage across the nation. Referring to this decision as “a major victory for social justice and equality,” Goodman said, “it showed that though Americans aren’t always in agreement with one another, we continue to evolve and push forward as people, toward a society that is more inclusive and compassionate than ever before.”

Goodman acknowledged the efforts of Aerospace’s eight affinity groups and their goals to combat bias, inspire change, and make progress when it comes to diversity and inclusion. “They are our leaders in this area,” said Goodman. “Their long history of representing the varied backgrounds and cultures of our workforce has added tremendously to the Aerospace experience.”

Leading up to the award presentation, Lesli Otake, Liang award committee chair, provided a summary of Kim’s background

and qualifications for the award.

Kim is an associate fellow of the American Institute of Aeronautics and Astronautics, an associate editor of the Journal of Propulsion and Power, serves on multiple technical and professional committees, and is an author of numerous technical operating reports and technical publications.

He has received several accolades and commendations for his work supporting and leading efforts in the areas of launch and national security space.

Kim is active in mentoring, teaching both Aerospace colleagues and Air Force customers, and volunteers and supports many Parent Teacher Student Association activities at Robert C. Fisler School in Fullerton, California. Kim has served on the Career Ministry of the Holy Wave Community Church in Anaheim in an effort to interest students in engineering and science.

Wayne Goodman and Eun Kim share a laugh with Kim's wife, Susie, and their daughters Caroline, left, and Lauren, prior to the award ceremony. (Photo: Eric Hamburg)

In accepting the award, Kim thanked the selection committee as well as Dr. Jeff Emdee, General Manager, Launch Systems Division, Space Launch Operations, Space Systems Group, who nominated him. "Receiving this award is such a surprising honor and means a lot to me personally and professionally," he said. "It is so special because this award is named in honor of the late Dr. Alexander Liang to remember his vision and commitment to excellence at Aerospace."

Kim recounted the times, early in his career, when he worked with Liang. Kim added that he was volunteered by Liang to mentor and teach college students at UCLA in an effort to enhance the corporation's relations with the university. "Over the years Aerospace hired some of those students," said Kim. "I am glad I was able to take part in this initiative headed by Dr. Liang."

Another time that Liang had an influence on Kim was in 2009 when Liang asked him to develop a short, comprehensive briefing on rocket propulsion for Dr. Wanda Austin, Aerospace president and CEO. "Since then, I have delivered this short course not only to Aerospace's leadership but also to our Air Force customers and Pentagon seniors," he recounted. "Presenting this course laid the foundation in making Aerospace the trusted adviser to the Pentagon acquisition officials and helped guide today's rocket propulsion decisions. Back then, I didn't know the impact his course would make over the years," he said.

Kim said this is another example of Liang's vision in ensuring Aerospace's contribution to addressing the nation's most complex technical challenges.

He concluded his remarks by thanking "many wonderful and talented managers who helped me grow and mature professionally and personally with their guidance, care, and patience."

UPDATE: GPS IIF Satellite Placed in 'Near-Perfect' Orbit

by Lindsay Chaney
July 15, 2015

In the opening seconds of its 18-minute launch window at 11:36 a.m. ET (8:36 PT), a United Launch Alliance Atlas V rocket rose into the cloudy-bright Florida sky carrying the 10th GPS IIF satellite for the United States Air Force.

Space Launch Operations Vice President Randy Kendall reported from Cape Canaveral that the launch followed "a very smooth countdown." He said that "after a coast period of almost three hours, the Centaur upper stage performed a second burn of 87 seconds to place the satellite in a near-perfect orbit, and early indications are that the spacecraft is healthy."

The Atlas V flew in the 401 flight configuration, the most-used Atlas V variation, with a four-meter fairing, no solid rocket motors, and one hydrogen-fueled engine in the Centaur upper stage.

The Spacelift Telemetry and Reporting System (STARS) lab in El Segundo was packed with VIP visitors to observe the launch. The crowd watched the countdown clock intently as the seconds ticked off toward T-minus zero. Final status checks were announced just prior to T-minus 20 seconds: Go Atlas, go Centaur, go GPS.

At T-minus zero, the RD-180 main engine ignited with 860,000 pounds of thrust, lifting the Atlas straight up from Space Launch Complex 41. The launch vehicle soon turned in a northeasterly direction and continued to accelerate under the power of its main engine. At T-plus 4 minutes and 8 seconds, the main engine shut down and was jettisoned a few seconds later in preparation for ignition of the RL10-C1 second-stage engine. At this point the launch vehicle weighed less than a quarter of what it did at liftoff.

The Atlas V rocket is illuminated by spotlights on the Cape Canaveral launch pad the night before it will launch GPS IIF-10. (Photo: United Launch Alliance, LLC)

At T-plus 17 minutes and 14 seconds, the Centaur reached a transfer orbit and shut down the RL10 engine for the nearly three-hour coast period.

“I’d like to congratulate the entire Atlas launch team as well as the GPS spacecraft team,” said Kendall. “It’s great to get this first launch as SLO VP successfully under my belt, but as my predecessor Ray Johnson used to say, ‘you’re only as good as your next launch,’ so I’m looking forward to another successful launch with the Delta IV/WGS-7 mission next week.”

Kendall noted Wednesday’s launch was the 55th Atlas V launch and the 58th operational launch of a GPS satellite on a ULA rocket. Two more GPS IIF launches are scheduled, one in October and one in January. That will complete the Boeing-built IIF block of GPS satellites.

GPS works through a constellation of satellites that emit continuous navigation signals. A GPS user’s receiver (which are included in virtually all smart phones today) calculates the time it takes for a signal from a satellite to reach the receiver, which is a direct measure of the distance to the satellite. Measurements collected simultaneously from four satellites are processed to solve for position on the Earth, giving latitude, longitude, and altitude. The timing signals are also used by ATM networks, electric grid operators, and other users who need precise time information.

Hanley Joins Aerospace as PD in Civil and Commercial

July 13, 2015

Jeff Hanley

Jeff Hanley has been selected as principal director, Human Exploration and Spaceflight Programs Directorate, Civil and Commercial Programs Division, Civil and Commercial Operations.

Hanley joins Aerospace from NASA’s Johnson Space Center (JSC) where he served as director of NASA’s Extravehicular Activity (EVA) Management Office. In this role, Hanley was responsible for managing the development, production, logistics, and sustained engineering of all flight hardware used to support the agency’s EVA capability within the Human Exploration and Operations Directorate.

He has varied experience in human spaceflight, technical management, operations, and program management. Prior to serving as director of EVA at JSC, Hanley began his NASA career in flight operations rising to the post of chief of the Flight Director Office at JSC. He moved into program management in 2005 with his assignment as program manager for NASA’s Constellation Program until 2010. Hanley served three years as deputy project manager for verification on the James Webb Space Telescope program prior to accepting his post as EVA director.

Hanley holds a master of science degree in natural and applied sciences from the University of Houston Clear Lake and a bachelor of science in electrical engineering from University of Houston. He has received numerous awards including the NASA Distinguished Service Medal and the NASA Exceptional Service Medal and was named Engineer of the Year in 2011 by the National Space Club.

History Brought to Life

July 09, 2015

Aerospace Military Veterans sponsored an Independence Day event at the Chantilly campus on Tuesday, July 7.

Featured speaker was Dr. Mal De Ponte, recently retired National Systems Group Senior Vice President.

The event included a reading of the Declaration of Independence and a performance by the U.S. Army Old Guard Fife and Drum Corps.

Members of the U.S. Army Old Guard Fife and Drum Corps participated in an Independence Day event in Chantilly on July 7. (Photo: Kelly Hart)

Patents – Q3 FY15

July 02, 2015

The United States Patent and Trademark Office has awarded patents to the following Aerospace employees:

Stephen La Lumondiere, Terence Yeoh, and David Cardoza; "Optimized Illumination for Imaging;" U.S. Patent No. 9,007,454; issued April 14, 2015.
Harry Tan, Robert Liang, and Joseph Han; "Network Coding for Satellite Communications;" U.S. Patent No. 9,007,984; issued April 14, 2015
Kasemsan Siri; "Multisource Power System;" U.S. Patent No. 9,013,061; issued April 21, 2015.
Heinrich Muller and Andrew Stapleton; "Stable Lithium Niobate Waveguide Devices, and Methods of Making and Using Same;" U.S. Patent No. 9,020,306; issued April 28, 2015.
Jerome Fuller; "Systems, Methods, and Apparatus for Providing a Multi-Fuel Hybrid Rocket Motor;" U.S. Patent No. 9,038,368; issued May 26, 2015.
Siegfried Janson; "Monolithic Sun Sensors Assemblies Thereof;" U.S. Patent No. 9,041,135; issued May 26, 2015.
Bernie Carpenter; "Bonding of Photovoltaic Device to Covering Material;" U.S. Patent No. 9,059,366; issued June 16, 2015.
Robert Dybdal, Chris Clark, Don Hinshilwood, and Lan Xu; "Systems and Methods for Reducing Narrow Bandwidth and Directional Interference Contained in Broad Bandwidth Signals;" U.S. Patent No. 9,065,521; issued June 23, 2015.

July 2015 Anniversaries

by Laura Johnson
July 01, 2015

5 YEARS

Engineering and Technology Group: Alexander August-Schmid, Alinn Herrera, Denny Ly, John Templeman, Julio Castro, Mikhail Tadjikov, Paulette Acheson, Peter Ward, Robert Moision, Scott Martinelli, Wei Yang, Zeve Akerling

National Systems Group: Michael Mull

Space Systems Group: Sam Kelman

10 YEARS

Enterprise Information Services: Daniel Evans, Shawn Ousley

Engineering and Technology Group: Bruce Lambert, James Williams Jr, Matthew Villella, Nichols Brown, Suzanne MacKusick, Yu Seok Kim, Zoltan Somogyi

National Systems Group: Daniel Bursch, James Ayers, Ty Rudder

Systems Planning, Engineering, and Quality: Norman Hetzel

Space Systems Group: Jiayu Chen, Lisa Thompson-Levis, Richard Lamb

Vaeros: Timothy Meisenhelder

15 YEARS

Enterprise Information Services: Bambi Yamamoto

Engineering and Technology Group: Jeffrey Lang, Jun Qian, Karine Marabyan, Makrui Bogumian, Michael Yonezaki, Oliver Ambrosia, Rodolfo Firpo

National Systems Group: Jonathan Becker

Operations: and Support Group: Jon Bach

Systems Planning, Engineering, and Quality: Catherine Venturini, William McKeithan

Space Systems Group: Carlose Green, Celia Williams, George Long, Hung Tang, Philip Mendicki, Timothy Wright, Ye Hong

Vaeros: Donny Pedrino, Laurel Kirkland

20 YEARS

Engineering and Technology Group: Thomas Gibson

25 YEARS

Enterprise Information Services: Patricia Jefferson

Engineering and Technology Group: Selma Goldstein

Operations: and Support Group: Erik Baer

Space Systems Group: Antonia Cuello, Mark Oleksak, Robert Chiu

30 YEARS

Enterprise Information Services: Cheryl Bien

Engineering and Technology Group: Don Hinshilwood, Jeffrey Lince, John Duffy, Leon Gurevich, Mike Worshum, Richard Briet, Ronald Hopkins, Scott Szogas

National Systems Group: John Lang

Space Systems Group: Jon Osborn

35 YEARS

Enterprise Information Services: Cassandra Lakey

Operations: and Support Group: Christopher Simons

Space Systems Group: Andy Guillen

40 YEARS

Operations: and Support Group: Denise Macmac

45 YEARS

Space Systems Group: Manfred Buechler

July 2015 Obituaries

by Carolyn Weyant
July 01, 2015

Sincere sympathy is extended to the families of:

Heather Bagwell, engineer manager, hired Dec 7, 1961, retired March 1, 1998, died May 31.

David Curran, senior engineering specialist, hired May 24, 1990, retired Aug. 1, 2008, died May 28.

William Giordano, member of the technical staff, hired Aug. 28, 1980, retired Aug. 1, 1993, died May 12.

Jeraldine Ingraham, executive secretary, hired March 20, 1979, retired Sept. 1, 1996, died June 4.

Norman Keegan, member of the technical staff, hired Oct. 22, 1979, retired Jan. 1, 2000, died June 12.

Marian Lichalk, secretary admin, hired Feb. 26, 1973, retired April 1, 2004, died May 26.

Julie Morosco, senior secretary, hired June 30, 1976, retired Nov. 1, 1999, died May 26.

Willard Olsen, member of the administrative staff, hired Oct. 10, 1960, retired Jan. 1, 1981, died May 3l.

Marjorie Thurston, graphic service coordinator, hired May 8, 1961, retired May 1, 1989, died May 16.

Gary Wilson, member of the technical staff, hired Nov. 6, 1972, retired Feb. 1, 2003, died April 29.

Alvin Young, systems director, hired Jan. 30, 1973, retired Oct. 1, 1996, died May 7.

To notify Aerospace of a death and have it included in the Orbiter, please contact Cynthia Johnson in Human Resources at 310-336-5806.

July 2015 Notes

by Carolyn Weyant
July 01, 2015

Notes of appreciation to fellow employees and Aerospace for thoughtfulness and sympathy have been received from:

Jason Cardema, on the recent passing of his mother, Fe Custodio Cardema.

To submit a note of appreciation to Aerospace, please contact Valerie Jackson in Human Resources at 310-336-0891.