



AEROSPACE Frontiers

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Center Celebrates Ares I-X Achievement

It all started with a concept on a piece of paper in January 2006, then a flat plate of steel on NASA Glenn's shop floor in July 2007. By October 2008, the center had constructed 11 flight segments on the first new rocket NASA has designed since the space shuttle in the 1970s.

On Oct. 28, the 11 segments, known as the upper stage simulator, became part of the Ares I-X test rocket, and lifted off from NASA's Kennedy Space Center in Florida for a 2-minute powered flight. This was the first flight test of the new U.S. launch vehicle system NASA is building for space exploration. The test flight objectives focused on first stage flight dynamics, controllability and separation of the first and upper stages.

During Glenn's Ares I-X Center Celebration in the Hangar on Nov. 10, Center Director Dr. Woodrow Whitlow Jr. reflected on how employees across the center came together to earn responsibility for the upper stage simulator and bring it to fruition.

"Everyone at the center is just as important as everyone else," he said. "This achievement is proof of that."

Space Flight Director Jim Free acknowledged the long hours and weekends employees dedicated to the project and how their efforts made all the difference. He said the center built more than hardware. It built its reputation in manufacturing and leadership in space flight development.



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"There's a difference between accomplishment and achievement," Free explained. "An accomplishment is doing your taxes. A true achievement is a one-of-a-kind experience for the center and you as an individual."

Continued on page 3

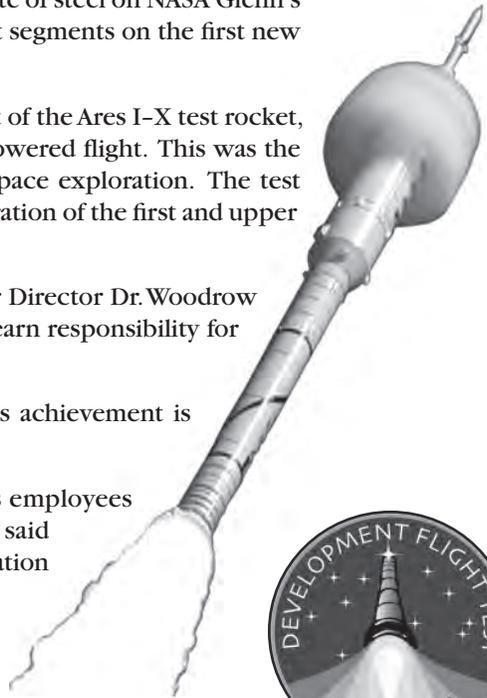


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Dr. Whitlow

A Great Year for a Great Team

As we enjoy the Holiday Season and move toward a new year, it is a good time to reflect on our accomplishments over the past 12 months. I can sum it with "Wow!" What a year for us at the NASA Glenn Research Center. I'm proud and humbled by your commitment to excellence and your willingness to give your all to get the job done and get it done safely. It's been a year of both professional and personal growth for all of us.

I'm writing this column on the heels of our celebration of the exciting and very successful Ares I-X test flight. It was a great opportunity for us to come together as a center to acknowledge a great achievement. When the rocket successfully lifted off on Oct. 28, it was a spectacular testimonial to the skill and fortitude of everyone at this center. We played a key role in this huge step forward in our nation's exploration goals.

While our work on the Ares I-X upper stage simulator was reason enough to be proud, we have many other accomplishments that stand out.

We helped resolve issues with the design of the Orion service module. To enhance the research capabilities of the International Space Station (ISS), we developed the Fluids and Combustion Facility that consists of a Fluids Integration Rack (FIR) for conducting various types of experiments on complex fluids and a Combustion Integration Rack (CIR) to perform combustion experiments in microgravity. The CIR launched to ISS in November 2008 and the FIR launched to ISS in August 2009. We delivered the traveling wave tube assembly for the Lunar Reconnaissance Orbiter, and it has performed flawlessly. In addition, we developed the Ares thrust vector control two-axis test rig and the IntraVenous fluid GENeration hardware. To help in the exploration of the far reaches of our solar system, we completed 2000 hours of testing of a new Xenon Thruster and over 1,000 hours of high-temperature operation of our Advanced Stirling Radioisotope Generator. Our excellence in aeronautics research

resulted in the development of a properties database for five alternate hydrocarbon fuels. With the Dryden Flight Research Center, we conducted the first ever aircraft test using 100 percent synthetic fuel and studied the impact on aircraft engine emissions and exhaust plume chemistry was studied. Your coworkers continue to provide leadership for the agency's Aeronautics Research Mission Directorate across four research centers to advance state-of-the-art aeronautics technologies.

The Space Environmental Test Project is rebaselined and on track to provide the world's largest, most comprehensive space environmental test facility. A new Main Gate House at Lewis Field, which will improve our security and efficiency in processing visitors, is just on the

State-of-the-Art Training Center

Training just got easier and more productive thanks to Glenn's new Training and Development Center in building 14. The training rooms offer state-of-the-art equipment in a comfortable setting.

"While we strive to improve our training programs and receive high scores in customer satisfaction, we wanted to improve customer satisfaction with our facilities as well," explained Human Capital Development Branch Chief Tom Spicer. "What has resulted is one of the best training facilities within the agency."

Some of the features of the training center include: 3 training rooms to accommodate 10 to 60 participants; 65-inch LCD HD flat panel monitors (1 configured with Smart Board interactive display); Copy Cam image capturing system that transforms whiteboard into color copy board; wireless microphone system, mouse and keyboards; multiple connections for internet and computer hookup located throughout each training room and break room with refrigerator and microwave.

During an open house and ribbon-cutting event on Oct. 27, Spicer acknowledged the team effort of the Human Capital Development Branch, Senior Management Logistics and Technical Information Services' Publishing Services and Imaging Technology Center and the Facilities and Test Directorate in helping secure the necessary funds and services to create the training center.

—BY DOREEN B. ZUDELL

horizon. We focused on improving how we do business, and twenty-six lean six sigma events were held to improve the efficiency of our processes.

We continue to make a substantial economic impact on the State of Ohio. The latest report indicates that Glenn contributed over \$1.2 billion in additional sales to the state, created over 7,000 jobs and increased household earnings up to \$401.8 million.

These are but a few of your many accomplishments of which you should be proud.

So as you're taking some well-deserved downtime with family, friends and coworkers this holiday season, please know that I and your management team are extremely proud of you and consider it a privilege to work with you. And remember, we are more than a team; we are the pioneers of NASA Glenn Research Center who dare to dream, ask the tough questions, put in the hard work and never settle for less than excellence. Now that's worth celebrating. Thank you for all that you have done!



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One of the three training rooms.

Center Celebrates Ares 1-X Success

Continued from page 1

Other Glenn senior managers involved in the hardware development affirmed the commitment of employees to the project. Director of Engineering Olga Gonzalez-Sanabria stressed team and individual growth that earned respect throughout the agency. Acting Deputy for Center Operations Mary Lester, who also leads the Logistics and Technical Information Division (LTID), said the excitement and dedication of the LTID staff was outstanding. Safety and Mission Assurance Director Thomas Hartline praised the center's safety practices.

"[This center] earned AS9100 Certification due to the Ares I-X," Hartline said. "People outside the center now look at us as the model of how safety should be involved in development of technology."

Glenn's Ares I-X Upper Stage Simulator Project Manager Vince Bilardo reflected on the incredible Ares I-X journey, how it began, and how it progressed along the way. He asked employees to take a few moments to think about the significance of the part they played in this historic achievement. "You helped develop and fly the first flight of new spacecraft—with your own minds and with your own hands."

While Manufacturing Division Chief Therese Griebel looked back with pride on the project, she encouraged everyone to look ahead with confidence and anticipation for the next challenge. "Bring it on!" she said.

—BY DOREEN B. ZUDELL

C-2009-4329



Photos by Bridget Caswell and Michelle Murphy



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C-2009-4342

Ares I-X Upper Stage Simulator Key Dates

• 5/15/06: Authority to proceed with design, fabrication and assembly of the upper stage simulator (USS)

• 5/01/07: Ares Manufacturing Facility modifications completed—new cranes, new rolling machine, electrical upgrades, etc.



• 7/13/07: First piece of flight hardware fabricated

• 12/20/07: First flight segment transported to building 333 for assembly

• 1/31/08: Pathfinder 2 Transportation Run—130 mile test run of transporting flight hardware



• 10/06/08: USS Pre-ship Review— Approval to Ship Hardware from Glenn to Kennedy Space Center

• 10/23/08 USS hardware shipped to Kennedy for Assembly and

Integration in the Vehicle Assembly Building



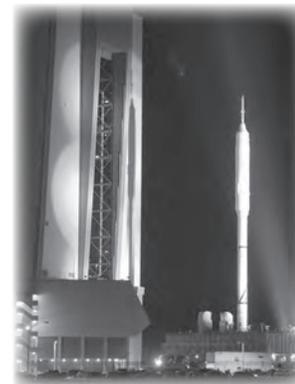
• 3/13/09: Final hardware custody turnover to Kennedy Ground Operations

• 5/13/09: USS Acceptance Review

• 8/14/09: Ares I-X Stacking completed in the Vehicle Assembly Building at Kennedy



• 10/20/09: Ares I-X Roll-Out to the Launch Pad Complex 39B



• 10/28/09: Successful launch of Ares I-X

Recognizing Veterans' Contributions

Maj. Gen. Harry W. Feucht Jr. of the Ohio Air National Guard highlighted a diverse program that included speakers and presentations to acknowledge veterans' service and sacrifice during Glenn's Veteran's Day Ceremony on Nov. 10. Local schools participated in the ceremony and donated items for active service personnel. Aircraft Operations Office Chief Alan Micklewright, commander, United States Navy (retired), pictured, conducted the program sponsored by the Veterans Awareness Committee.



C-2009-3563

Photo by Marvin Smith

Teaching Tolerance

How did Holocaust survivor Max Edelman overcome his fear of dogs to accept his own guide dog after experiencing the carnage of trained attack dogs in a Nazi Death Camp? At this year's Disability Awareness program on Oct. 22, Glenn employees learned about Edelman's inspiring transformation, as well as volunteer opportunities in the Puppy Raising Program from Leslie Stephens, a member of the Guiding Eyes for the Blind Volunteer Network. Glenn's Office of Equal Opportunity Programs and the Disability Awareness Advisory Group (DAAG) cosponsored the program.



Photo by Dick Woodward

Edelman, left, with DAAG member Thomas Hinsbaw.



C-2009-3393

Photo by Marvin Smith

Dr. Bruce Steinetz, senior technologist and seal team leader in LIDS lab, greets Dr. Schmitt.

Ensuring Safety

Safety and Mission Assurance (SMA) Director Thomas Hartline led a series of presentations to give employees the knowledge to comply with safety measures toward ensuring a safe work environment during Glenn's Safety Awareness event held on Oct. 22. Guest speaker John Lapointe, Glenn's SMA liaison at NASA Headquarters, gave an overview of NASA's Safety Reporting System that enables employees to elevate a safety

Apollo 17 Astronaut Visits

Dr. Harrison Schmitt, former Apollo 17 astronaut and U.S. Senator, was the guest speaker at Glenn's Green Forum on Oct. 27. Schmitt shared his views on global warming and presented concepts on advanced renewable energy development. He toured several facilities, including the Low Impact Docking System (LIDS) Seal Lab to learn about Glenn's support in developing a new spacecraft docking system.



Photo by Eli Abumeri

concern. Display tables arranged around the auditorium enabled employees to interact with safety personnel including Darlene Jackson, pictured above.



C-2009-4460

Photo by Bridget Caswell

Native American Wellness

What does the NASA Apollo 11/Eagle landing on the moon have to do with Native American Indian prophecy? During Glenn's Native American Indian Observance on Nov. 19, Don Coyhis of White Bison, Inc. explained the significance of that journey and how it inspires an entire nation to a spiritual transition, foretold by elders. Coyhis, a recovering alcoholic, turned to his Mohican nation roots for stability and founded the nonprofit organization White Bison in 1988. White Bison is the proud facilitator of the Wellbriety Movement, which focuses on delivering recovery resources to aid sobriety, addiction prevention and wellness (healing/forgiveness) while restoring cultural traditions in Native American communities nationwide.

*Propelling Glenn Forward: Our Center Directors***McCarthy Promoted Outreach, Embraced Diversity***This is the fourth in a series of articles spotlighting NASA Glenn's center directors.*

Coming from the world of academia, former Center Director John F. McCarthy appreciated the talent working for NASA's Lewis Research Center (now Glenn) and considered the center an example of the nation's best and brightest. When he arrived at Lewis in 1978, he already had firm goals in mind. He planned to promote Lewis internally and externally and increase the number of minorities and women working for the center.

McCarthy started working toward these goals immediately by granting the largest architect engineering services contract NASA had ever entered with a minority-owned firm, Madison and Madison International. Ground broke on January 12, 1979, for the Research Analysis Center (RAC), the first major research facility added to Lewis in more than a decade. Recognizing the center's expertise in research, McCarthy wanted to bring Lewis up to speed in computable mechanics. He was a proponent of computer analysis to help employees be more efficient and reduce the need for costly tests in the process of development and certification. The RAC was designed in part by Madison and Madison.

Later the following year, McCarthy threw his support behind an initiative to install coaxial cable at Lewis. The goal was to connect the RAC with other buildings to expand on the existing Lewis Information System, thus creating a communications network for data and television transmissions, better known as the LINK.

McCarthy also focused on developing NASA speakers. He knew the importance of Lewis's speakers program in educating the public about the center's work.

"A strong speakers program is a Lewis asset," McCarthy said. "It permits us to tell in-person the story of Lewis and NASA accomplishments. Such efforts help to make the public aware of the achievements and benefits of the nation's aerospace program."

The center's improved community relations and McCarthy's success at advancing the Lewis image impressed then NASA Administrator James M. Beggs. In particular, Beggs was proud of the outreach events in the greater Cleveland area that helped local citizens learn

*McCarthy*

about the work being done at Lewis. McCarthy's goal from day one.

McCarthy's support for bringing an RTA bus line to the center, beginning May 17, 1981, was predicated not only on employee access to mass transportation to avoid the high costs of gasoline, but also greater public access to the Visitor Information Center.

When McCarthy resigned as Center Director in 1982, Beggs commented, "John, I know, will be remembered here at Lewis not only for his sardonic wit, but for his strong promotion of Lewis programs in the Cleveland area and throughout the nation."

After he resigned, McCarthy returned to his previous job as professor of aeronautics and astronautics at the Massachusetts Institute of Technology (MIT). McCarthy's achievements were recognized in Notable Americans of 1978-1979, and the 1970-1980 Bicentennial Memorial editions of Community Leaders and Noteworthy Americans, the first edition of Men and Women of Distinction and the seventh edition of Men of Achievement.

McCarthy died suddenly on February 7, 1986, but his legacy lives on through his belief in strong communications for the center—internally and externally.

—BY CASSANDRA BARNES
LERCIP INTERN
& S. JENISE VERIS

News and Events**Developing Future Astronauts**

Over 325 students from 30 local schools and youth organizations participated in the 17th Annual Young Astronaut Day cosponsored by NASA Glenn's Office of Educational Programs and the Northern Ohio section of the American Institute of Aeronautics and Astronautics on Nov. 7. Astronaut Sunita Williams gave a spirited presentation to kickoff the full day of exciting team challenges—all designed to stimulate student interest and creativity in problem solving aeronautics, space science and engineering-related tasks.



Photo by Karen Edwards

Students performing the In-Space Repair Challenge with NASA volunteers Ryan Edwards, Plum Brook Station, and Monica Boyd (PATL), Educational Programs Office.

Astronauts Bring Silver Snoopy Awards

Twenty-two Glenn employees recently received a coveted Silver Snoopy Award. Astronauts annually present the award to less than one percent of the NASA workforce to show appreciation for outstanding efforts that help ensure the safety and reliability of spaceflight missions.

On Oct. 28, after cheering on the successful launch of the Ares I-X test flight, 19 Glenn employees applauded receiving the Silver Snoopy Award from STS-128 Pilot Kevin Ford and Mission Specialist Jose Hernandez. They include Randy Clapper, Mechanical Design Branch; Dr. Christopher DellaCorte, Tribology and Mechanical Components Branch; John Easton (PTO), Michael Hicks and Dr. Peter Struk, Combustion and Reacting Systems Branch; Michael Garrett, (ANLX) Systems Integration Branch; Carrie Green, (ARCO) Program and Project Assurance Division; Nancy Rabel Hall, Kevin Magee (ZINT), Gail Perusek and Christopher Sheehan (ZINT), ISS and Human Research Project Office; Trevor Jones, Jeffrey Larko and Mark McNelis, Structural Systems Dynamics Branch; Dr. Hani Kambawi, Propulsion and Propellants Branch; David Morgan, Applied Structural Mechanics Branch; Dr. Gary Ruff, Advanced Capabilities Project Office; Paul Steve, Diagnostics and Data Systems Branch; and Angela Windau, Safety, Health and Environmental Division.



C-2009-4062

Front row, left to right: Easton, Steve, Windau, Dr. DellaCorte and Dr. Struk. Middle row, left to right: Garrett, Hernandez, Dr. Kambawi, Dr. Rabel Hall, Magee, Green and Ford. Back row, left to right: McNelis, Larko, Morgan, Perusek, Sheehan, Jones, Clapper; Dr. Ruff and Hicks.



C-2009-4110

Photos by Michelle Murphy

On Nov. 6, Astronaut Sunita Williams (Expedition-14 & 15) honored the following three employees with the Silver Snoopy Award: David Myers, Applied Structural Mechanics Branch; Carol Quinn, Space Operations Project Office; and George Saad, Diagnostics and Data Systems Branch.

Pictured, left to right: Myers, Williams, Quinn and Saad.



Eight Honored as AIAA Associate Fellows

The American Institute of Aeronautics and Astronautics (AIAA) will honor eight Glenn members of the Region III/Northern Ohio Chapter as AIAA Associate Fellows during a ceremony at the 48th AIAA Aerospace Sciences Meeting on Jan. 4.

Associate Fellows are selected from the ranks of senior members based on a minimum of 12 years professional experience, notable achievement in their field and the recommendation of at least three current AIAA Associate Fellows. Glenn



Seated, left to right: Dr. Urban, Dr. Bakble, Dr. Lawrence and Fernandez, Standing, left to right: Miles, Giel, Cikanek and Dr. Ashpis.

Associates include Dr. David Ashpis and Paul Giel (ASCR), Turbomachinery and Heat Transfer Branch; Dr. Milind Bakhle and Dr. Charles Lawrence, Mechanics and Life Prediction Branch; Harry Cikanek, deputy director of the Engineering Directorate; Rene Fernandez, Program and Project Assurance Division; Jeffrey Miles, Advanced Metallics Branch; and Dr. David Urban, Combustion and Reacting Systems Branch.

In Appreciation

I would like to extend my sincere thanks to all of my friends and colleagues at the center for all of the flowers, cards and heartfelt expressions of appreciation on the passing of my mother and father. Your kindness and support were truly appreciated.

—Carol Cobbs

Innovation Rewarded

Seven Glenn employees received a Constellation Orion Innovation Award presented during the Orion Status Meeting and Preliminary Design Review Awards Ceremony on October 22. Mark Geyer, Orion Crew Exploration Vehicle project manager at NASA Johnson Space Center, joined Kathy Schubert, acting chief of the Service Module Project Office, in presenting awards. The Innovation Award acknowledges an individual or team who develop alternatives/solutions that enable NASA to save time and money. Dan Catalano, Tom Cressman, Frank Gati, Tom Goodnight, Shane Malone and Rick Manella, Engineering Directorate employees; and Rex Delventhal, Space Flight Systems Directorate, were recognized for packaging improvements that reduced weight and costs. Fred Wolff, Engineering Directorate, was recognized for engineering leadership on a distributed power design resulting in reduced mass and costs from streamlining the avionics system.



C-2009-2182 Photo by Marvin Smith
Seated, left to right: Malone and Gati. Standing, left to right: Cressman and Delventhal. Not pictured: Goodnight, Catalano, Manella and Wolff.

In Memory



Herb

David M. Herb, 74, who retired in January 2007 with 50 years of federal service, including 47 with NASA and 3 in the U.S. Army, died Nov. 16. Herb began his career in NASA's

Apprenticeship Program. At retirement, Herb served as contract support specialist in the Facilities Division responsible for scheduling and enforcing contract specifications and drawings on major construction activity at the center—a position he held for the majority of his career. His greatest passion, however, was serving as a member of Glenn's Speakers Bureau, where he made over 500 presentations on the Space Shuttle

Program and NASA spinoff technologies and products that contribute to our quality of life.



Zeleznik

Frank J. Zeleznik, 77, who retired in 1995 with 37 years of NASA service, died Oct. 16. Zeleznik started his prestigious NASA career in 1955, while completing his doctoral research at

Case Institute of Technology. Upon graduating in 1957, Zeleznik became a fulltime physicist working with his mentors, Sanford Gordon and Vearl N. Huff, to improve a Lewis method for calculating chemical equilibrium composition and rocket performance. They, subsequently, created the first Lewis computer code (1959) simulating the method applicable for an IBM 650 data processing system, which is still widely distributed. Zeleznik developed several other computer programs modeling elements of chemistry related to combustion engine performance for which he won a Center Award in 1981 and a NASA Exceptional Scientific Achievement Honor Award in May 1988. He also wrote 26 technical papers and served as an adjunct professor at Case Western Reserve and John Carroll universities. Zeleznik not

only earned the admiration of his peers, but also the community where he performed in local theaters.

Calendar

MAINTAIN YOUR WEIGHT: Mark your calendar for important Fitness Center programs:

- Jan. 4 to 8: Post Holiday Weigh-In for the Maintain Your Weight for the Holidays Program (at Medical Services and Fitness Center).
- Jan. 4 to 15: Body Composition Testing for Slimathon (at Fitness Center). For further details, call 216-433-6313.

AFGE MEETING: AFGE LOCAL 2182 will hold its next membership meeting on Wednesday, Jan. 6 at 5 p.m. at Denny's Restaurant, 25912 Lorain Road, North Olmsted.

FIRST KICKOFF: For the Inspiration and Recognition of Science and Technology (FIRST) 2010 Robotics Kickoff will be held on Saturday, Jan. 9 from 9 am to noon at Cuyahoga Community College, 2415 Woodland Ave., room 229, Cleveland. For more information, contact Carol Garlica at 216-433-5112.

IFPTE LOCAL 28, LESA MEETING: LESA will hold its next membership meeting on Wednesday, Jan. 13 at noon in the Small Dining Room of the Employee Center, building 15.

NASA PM CHALLENGE 2010: Nominations are now being accepted for Earned Value Management (EVM) awards of excellence to be presented at NASA's 7th PM Challenge in Galveston, TX, on Feb. 10, 2010. Two awards will be presented, individual and team. For more information, visit <http://evmexcellence.gsfc.nasa.gov/>.

Retirements

Harriet Marie Daniels, Fundamental Aeronautics Branch, retired on Sept. 3, 2009, with 30 years of federal service, including 19 with NASA.

Happy Holidays



DEADLINES

News items and brief announcements for publication in the January issue is noon, Dec. 18. Larger articles require at least 1 month notice.

<http://aerospacefrontiers.grc.nasa.gov>



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C-2009-3377

Photo by Bridget Caswell

CFC Surpasses Goal of \$375,000

Thank you, Glenn Research Center employees, for your outstanding generosity during this year's Combined Federal Campaign (CFC). I am pleased to tell you that Glenn contributed more than \$423,000 in donations to our annual fundraising drive—surpassing the campaign goal of \$375,000, and making this year's CFC donations the largest in history! More than 47 percent of employees participated in the campaign.

It was my pleasure to lead the Glenn's CFC to conveniently and efficiently provide financial support to the charities of their choice. I especially appreciated the energy, creativity, dedication and commitment of my fellow CFC committee members, chairs and co-chairs, and key workers that enabled a variety of events to further inspire your participation.

The success of this campaign is a result of the tremendous outpouring of support for worthy causes and is a reflection of the type of employees we have here at Glenn. Again, thank you for the generosity you have demonstrated. You—Help Make a Difference—for those who benefit from your contributions.

Gwynn Severt
 2009 CFC Committee Chair

For more information on CFC, visit <http://cfc.grc.nasa.gov>



C-2009-3386

Photo by Bridget Caswell



C-2009-3368

Photo by Bridget Caswell



The Stimulus Package, left, was one of 51 baskets donated by center organizations for a raffle that raised over \$9,000.

Photo by Bridget Caswell



Photo by Bridget Caswell

C-2009-3388



Photo by Marvin Smith



C-2009-3364

Photo by Bridget Caswell