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NOVEMBER 2004

BREAKING NEWS
GOVERNOR TAFT ANNOUNCES THIRD FRONTIER AWARDS – NCC NAMED WINNER OF TWO AWARDS

Governor Bob Taft announced Third Frontier Awards today during a special press conference held at the University of Dayton (UD). NCC was named winner of two Third Frontier Grants. Grant awards also went to the University of Dayton (UD) and the Dayton Development Coalition. The grants are designed to help higher education institutions and non-profit research organizations commercialize innovative Ohio-based projects.

(l) Governor Bob Taft and (r) NCC President Lou Luedtke following the Governor's presentation of two Grant awards to NCC.

NCC was awarded $100,000 for operating funds to support ongoing work in a previous NCC winning capital equipment project – Creating Affordable Large-Scale Complex Composite Products. NCC continues to make significant strides in fully developing the potential of its breakthrough ***Rapid Fiber Preforming*** process to produce cost effective, complex, very large composite products.

The Center's second grant award totaled $2.1 million for Commercialization of Piezoelectric Fibers for Energy Storage and Smart Systems. The funds will be used to develop a high volume, low cost process for producing piezoelectric materials.

Team collaborators are Advanced Cerametrics Inc., (ACI) based in Lambertville, New Jersey and Cleveland State University. As a result of the selection, ACI plans to establish a manufacturing facility in Ohio.

NCC PERFORMS LIVE LOAD TESTS ON TWO LOCAL FRP BRIDGE DECKS

As a vital technical resource, The National Composite Center (NCC) provides key performance monitoring services as part of its Composites FOR Infrastructure (C4I) program. Performance monitoring continues to be a critical ingredient to helping advance the commercial acceptance of Fiber Reinforced Polymer (FRP) bridge decks and provide bridge owners and designers with valuable durability and performance information. NCC contributed to its growing database with recent tests performed on two local FRP decks.

In late October NCC performed its second live load test on a composite bridge deck installed on Green County's Fairgrounds Road in April 2002. Early this month the Center also performed a baseline live load test on the newly installed Hales Branch Road Bridge in Clinton, County Ohio.

Boasting three spans totaling 7,072 square feet, the Fairgrounds Road bridge deck was the largest to be successfully installed under the Center's C4I initiative. The first live load test was performed six months after installation in cooperation with Bridge Diagnostic Inc. (BDI) to establish baseline performance for subsequent tests. The second test performed by NCC personnel on October 29, 2004 measured thermal strain levels on the deck and beams and deflections of the deck. A high speed run provided impact data on the bridge. The second test revealed that after two years of active service, the bridge deck's performance remained unchanged.

Live load test on Fairgrounds Road Bridge.

Deck deflection measurements using LVDT gauges were taken on Hales Branch Road Bridge.

Vibrating wire gauges measure thermal strain and temperature on Hales Branch Road Bridge.

NCC plans to conduct a detailed analysis of the test data in relation to measured bridge responses to known loads. The data will be used in a finite element analysis (FEA) bridge model to help secure a bridge rating.

NCC's installation of a pultruded FRP bridge deck on Hales Branch Road represents the second monitoring project being run by the Center. The project is being funded by the Innovative Bridge Research and Construction Program (IBRC).

The long term monitoring data acquisition system previously installed on the Fairgrounds Road Bridge has been transferred to the Hales Branch Road Bridge. NCC personnel also installed Vibrating Wire Gauges to measure strain and temperature. Subsequent testing and analysis will be used to obtain a bridge rating.

VECTOR PRESENTS PAPER AT DEFENSE MANUFACTURING CONFERENCE

Vector Composites Inc. exhibited at the Defense Manufacturing Conference (DMC) held in Las Vegas, Nevada Nov. 30 – Dec. 2. Vector showcased its C-17 pylon stub fairing made with NCC's ***Rapid Fiber Preforming*** technology and Vacuum Resin Transfer Molding (VARTM) process.

Vector also exhibited composite wings produced for an Army Future Combat Systems missile. The University of Dayton Research Institute (UDRI) performed the design work.

Using carbon fiber composite material, the wings were constructed from unidirectional fabric and woven cloth with NCC's Resin Transfer Molding (RTM) and ***Rapid Fiber Preforming*** processes. Delivery of the proof of the concept wings is slated for December 2004.

Acceptance of the proof could lead to full qualification and a test contract in 2005 and 2006 with a production schedule of 500 units a year for 10 years projected to begin in 2007.

DMC targets manufacturing technology groups. Vector hopes to use these products to attract new business opportunities.

In addition to its joint booth space with MANTECH and Lockheed Martin, Vector Vice President of Operations Dave Sabol presented a paper titled Affordable Composite Components for Loitering Missile Applications.

USU WRIGHT FLYER CEREMONY ATTRACTS NEARLY 200 ATTENDEES

More than 175 visitors sat and stood in the main terminal hanger of Lebanon's Warren County Airport on Dec. 2 for close to two hours listening to speakers that included former astronaut Neil Armstrong, Amanda Wright Lane, great grand niece of Orville and Wilbur Wright and Dr. David Widauf, former Associate Professor for the College of Engineering, Utah State University; Director of the USU Wright Flyer™ Project and a Colonel in the Air Force Reserves. Stephen Wright, great grand nephew of the Wright Brothers was also part of the special ceremony which officially welcomed the USU Wright Flyer™ to its permanent home at Warren County Airport.

(l) John Lane and (r) former astronaut Neil Armstrong sit in the USU Wright Flyer.

Sinclair Community College Professor Walt Davis, PE, emceed

the event. He is chairman of the Aviation Technologies Department. Other notables included Lebanon local John Lane who is a Master Flight Instructor (there are less than 300 in the United States). Lane is an FAA Flight Examiner and won the FAA Great Lakes Region Flight Instructor award last year. The Wright family helped create a bit of history for people to take home by posing with visitors on and off the Flyer.

With the transfer official, the USU Wright Flyer™ will be managed by newly formed non-profit organization USU Wright Flyer of Ohio and become part of a National Aviation Heritage Area being established. USU Wright Flyer of Ohio will now advance the Flyer's role as a tool to help re-engage young people with a passion for innovation and a renewed interest in aviation and aeronautics.

As part of the evening's fundraising activities to benefit the new organization, noted aviation photographer Dan Patterson created signed portraits for those interested. One new $5,000 sponsor was also confirmed - joining primary sponsors that include NCC, Warren County Airport, National City Bank and Lane's Lebanon Air Service. A number of individual sponsors have also stepped forward for this important effort. Sponsorship funds will be used to help support the organization and the activities planned for the Flyer.

"It's fitting the Flyer should make its home in the birthplace of both aviation and composites," said Lou Luedtke, President of NCC.

For more information about ways to support the non-profit USU Wright Flyer of Ohio organization contact Alan Wolfson at 513-774-7099 or email at usuwrightflyer@fuse.net.