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AUGUST 2004

NCC OFFERS PROGRESS REPORT ON LFT AND LSP PROJECTS

Since winning its capital equipment projects Long Fiber Thermoplastics for Low Cost, Light Weight Transportation and Creating Affordable Large-Scale Complex Composite Products, NCC has made considerable progress.

The Center, along with partners University of Alabama at Birmingham (UAB) and I-Plus, is working to advance Long Fiber Reinforced Thermoplastic (LFT) technology for near-term commercialization on projects for the Federal Transit Authority (FTA) and Army Research Laboratory (ARL).

The team expects to bridge the gap between LFT technology and production level parts capable of delivering increased performance, lighter weight and lower cost. Target markets include LFT replacement parts for heavy semi-structural metal components in automotive, lawn and garden and specialty transportation applications beginning with projects for the FTA and ARL.

(I to r) Dr. Bob Brannon and NCC engineer Jim Hickey handle molded side panel.

For the FTA, NCC produced a prototype of a bus side panel using its ***Rapid Fiber Preforming*** process. The preforms were sent to UAB for vacuum molding and testing. Tests confirmed that the panels possessed the high impact properties required by the bus manufacturer.

Over the next two years, NCC and UAB will apply the technologies that have been developed to design and fabricate full-scale production ready bus components for use on current production buses. I-Plus will work with NCC to develop a skin capable of giving the components a finished, aesthetic appearance. The Center will then fabricate and assemble the components for final qualification testing.

In its project for ARL, the team's goal is to look at ways to lighten the load and improve the safety of soldiers using LFT material fabrication techniques. UAB and NCC worked with ARL to select the first application, an artillery training round tail cone made out of aluminum.

The Army uses about 250,000 of these test rounds a year at a significant cost. The item was chosen because it is a high volume part that lends itself to the significant costs reductions available with LFT. Following initial design work submitted by UAB, NCC worked with a local Dayton toolmaker to design the necessary tooling. NCC expects to begin work on the prototype this fall.

Full coverage of these projects and the special skills each team member brings to the table can be seen in an upcoming feature length article in **CF Magazine's** October issue.

Underground gasoline sump containers produced by NCC

NCC's Large Scale Preformer (LSP) gives the Center the capability to produce a variety of complex, very large composite parts. At the onset of 2004, NCC produced and shipped a preform for an underground gasoline sump container to Piqua, Ohio based Retterbush Fiberglass using its P4A Preformer. Retterbush uses these preforms in their RTM process, a closed molding technique.

The preform is now being validated on the Center's LSP equipment. In addition, NCC is beginning its development of other large part applications.

In late September NCC hopes to demonstrate the progress of both its LFT and LSP projects for Governor Bob Taft and representatives from the Ohio Department of Development's (ODOD) Technology Division.

NCC SUBMITS 2005 WRIGHT PROJECT PROPOSALS – GEARS UP WITH COLLABORATORS

NCC has submitted four 2005 Wright Project proposals. They include two requests of $100,000 each for operating funds to support ongoing work in two previous NCC winning capital equipment projects – Creating Affordable Large-Scale Complex Composite Products and Long Fiber Thermoplastics for Low Cost, Light Weight Transportation.

The third proposal, titled Lightweight Structures, outlines a plan to develop lightweight structures in the advanced materials technology arena. The request totals close to $1.1 million. I-Plus based in Cleveland, Ohio, the University of Akron and the University of Dayton will collaborate with NCC on the project.

The fourth proposal, Commercialization of Piezoelectric Fibers For Energy Storage And Smart Systems, totals about $2.1 million. The funds would 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. If the proposal is selected, ACI plans to establish a manufacturing facility in Ohio.

NCC EARNS ISO 9001:2000

NCC successfully completed its audit by an outside registration agency and has been awarded ISO 9001:2000 certification. While fairly common among manufacturers, the certification is somewhat unique for a research and development organization. NCC's ability to secure the quality certification is the Center's latest example of its ongoing commitment to customer service and product excellence.

A quality management system, ISO 9001:2000 covers the key elements of processes, continuous improvement and customer satisfaction. The certification covers NCC's core capabilities and requires the Center to raise the bar even higher in its ongoing strategy to eliminate error, reduce overall costs for customers and provide a high quality, manufacturable end product.

The certification also means NCC is implementing additional steps to gain a better understanding of customer requirements.

NCC TO HOST AIR FORCE NANO TECHNOLOGY WORKSHOP IN SEPTEMBER

NCC will host the Air Force sponsored Vapor Grown Nanofiber Materials and Applications Workshop on September 14 -15. Attendees will gain an in-depth understanding of Vapor Grown Nanofibers (VGCF) and their applications in military, civilian aviation, and commercial markets. Cost effective and available in commercial quantities, nanomaterial is multifunctional. It can be used to improve electrical, thermal, and mechanical properties in organic matrix composites. Industry, academic, government researchers and engineers will present their insights on nanomaterial real-world applications.

Tuesday evening (Sept. 14), Applied Sciences Inc. will host a tour of their VGCF manufacturing facility which is located in Cedarville, Ohio. On Wednesday, a panel discussion will highlight the day's sessions. The panel will focus on future opportunities and barriers to the use of VGCF in military and commercial applications.

Pre-registration is due by August 27. The workshop fee is $80 and can be paid by cash or check. For more information or to register, contact Barb Hager by email at AFRL.MLB.OfficeAccount@wpafb.af.mil or call at 937-255-5731. You'll see added publicity about this event in CF Magazine's August issue.

NCC TO EXHIBIT AT COMPOSITES 2004 IN OCTOBER

NCC, a leader in linking composite technology to commercial markets, will showcase key technologies including its proprietary Litecast® and new developments in Long Fiber Thermoplastics (LFT) at Booth #2016 at Composites 2004. In addition to displaying LFT and Litecast® parts, visitors will be able to see first hand examples of NCC's ***Rapid Fiber Preforming*** and

closed molding expertise. The Center will also hold a demonstration involving vacuum infusion of a truck bumper. Sponsored by the American Composites Manufacturers Association (ACMA), the conference is expected to attract some 225 industry exhibitors. Composites 2004 will be held Oct. 6 – 8 at the Tampa Convention Center in Tampa, Florida.