Project Pioneer: Dr. Eugene J. Sanders

Starting out as a summer intern in 1956, Eugene J. Sanders began his 38-year career in 1958 at AEDC as a mechanical design engineer for Arnold Research Organization, Inc.

His contributions to the center's mission in test facility design and operation, project management, national and international cooperation and strategic planning earned him the recognition of AEDC Fellow in 1998.

Among a long list of design accomplishments early in his career were a cooling water system for the center's first arc heater and Range S-3, better known as the "chicken gun." He served as the operations engineer and wrote the first operating manual for Range G.

For decades the "chicken gun" has been the target of many jokes on base but has also made national news.

"We've had a lot of fun over the response we've got from our operation of Range S-3 [chicken gun]," he said, referring to remarks made by comedian Jeff Foxworthy and others. "But the truth is the Air Force has a serious problem with bird impacts on aircraft that fly at high speeds and low altitudes, and this facility has made a big contribution to solving this problem."

Dr. Sanders then became the supervisor of a group responsible for conducting tests in the small wind tunnels (tunnels A/B/C) and laboratory calibration of wind tunnel force measurement devices in the von Karman Gas Dynamics Facility.

"In addition to the design, fabrication and installation of test articles, my group completed two important projects—the aerotherm addition to Tunnel C and the computer monitoring of the status of all test unit mechanical systems during operation."

It was after this assignment that Dr. Sanders left AEDC and joined a special group that then Tennessee Governor Lamar Alexander formed to study better uses of the state's energy resources and to oversee the expenditure of the federal government's Department of Energy grants in Tennessee.

"I was responsible for statewide development programs involving low-head hydro, solar and biomass, in addition to conducting the State's first coal conference."

Dr. Sanders returned to AEDC in 1982 as an Air Force civilian. Responsible for resource requirements, he built unified programs in improvement and modernization, maintenance and repair and military construction.

"Also during this period, up until I was promoted to chief of the Aeronautical Systems Test Division, I was assigned to the aeroballistic ranges and involved in the development of nose-tip materials for re-entry vehicles, materials to protect spacecraft and the development of the lethality of kinetic-energy projectiles."

During his tenure with the Air Force, Dr. Sanders served as project manager for three Air Force Data Exchange Agreements—with the Japanese, South Koreans and French. He was appointed to the Fluid Dynamics Panel of the technical arm of the North Atlantic Treaty Organization (NATO). He was also elected chairman of the Tennessee section of the American Institute of Aeronautics and Astronautics.

During the 1990s, as technical director, Dr. Sanders oversaw high priority aerodynamics test programs like the F-22A Raptor, F/A-18/EF Super Hornet and the Joint Strike Fighter. He was also a key player in the AEDC commercial alliance with Boeing.

He was cited by Boeing as being largely responsible for the success of its commercial test programs at AEDC.

Dr. Sanders led three key efforts in the large wind tunnel area—cycle time reduction (from one test to another), benchmarking the facilities against like national and international facilities, and sustainment efforts to ensure peak performance of the facilities. These three areas were critical to AEDC's future.

He retired from AEDC in 1998.

"The main reason I retired was to spend more time with my children and grandchildren," he said. "And I've been able to do just that. They never cease to amaze me."

Reflecting on his years, Dr. Sanders appreciates the opportunities he has experienced while at AEDC.

"I was fortunate to have worked in many different areas of testing during my career at AEDC," he says, "Large wind tunnels, small wind tunnels, aeroballistic gun ranges, the 'chicken gun'—these experiences were a great asset to me when I began to interact with international organizations and some outstanding, talented people, many of which are still friends. I consider myself very lucky to have had a career like mine."

Dr. Sanders earned both his bachelor and master degrees from the University of Tennessee at Knoxville. Taking advantage of an Air Force sponsorship, he received a Ph. D in engineering from Vanderbilt University in 1993. His association with Vanderbilt continued with his acceptance of the position of adjunct professor. He has authored or co-authored more than 30 technical reports.

Since his retirement Dr. Sanders has served as President of Scenic Tennessee, a statewide organization whose mission is to preserve and enhance the scenic beauty of Tennessee. He is on the board of directors of the Tims Ford Council; is the president of the Franklin County Country Club and is presently on the Winchester board of public utilities.

Among the aircraft canopies that have been tested for birdstrike resistance at Arnold is that of the A-10 close air support aircraft. Gene Sanders, then project engineer, shows the impact area marked with and "X."