Y-12: Seawolf to National Prototype Center

In the early 1980s a major challenge that came to Y-12 was the Seawolf Propulsor, which ultimately led to Y-12 being designated as the National Prototype Center. This was a culmination of efforts begun as long ago as the early 1960s when Y-12 was called on by the National Aeronautics and Space Administration because of precision machining capabilities to help with the Gemini and Apollo programs.

A *National Prototype Center SUCCESS STORY* located at the following link marks the beginning of the expansion of Y-12's "work for others" efforts to include the United States Navy: *http://www.p2pays.org/ref/17/16041.htm*

"In 1989, the United States Navy wanted to build a full-scale prototype propulsor for the new Seawolf submarine. The difficult technical and scheduling requirements for the project required the use of advanced materials and technologies to achieve extreme tolerances.

"The Navy turned to the Y-12 National Security Complex, with 50 years of experience in prototype manufacturing for national defense.

"In 1993, Oak Ridge delivered the propulsor ahead of schedule and within budget. Significant achievements by Oak Ridge in completing the project included integrating technologies in design and simulation, advanced numerically controlled programming, complex machining and fabrication, welding and special process development and advanced inspection techniques.

"The first Seawolf submarine was commissioned in July 1997. The SSN-21 Seawolf is now undergoing sea trials in preparation for carrying out missions as the fastest, quietest submarine ever." (NOTE: This success story was likely published in late 1997 or early 1998. Ray)

The Success Story also states: "In recognition of Y-12's diverse, integrated capabilities and its commitment to succeeding with high-risk projects, the U. S. Congress in 1997 designated Y-12 as the National Prototype Center."

The Submarine Research Center *Bulletin No. 26 Propulsors* found at: http://www.submarineresearch.com/bull26.html, states; "In 1989 the Navy turned the Y-12 National Security Complex in Oak Ridge Tennessee into a propulsor development center. In 1993 the facility delivered to the Navy its first prototype propulsor. The propulsor (as later modified into two alternative designs from the prototype) was approved by the Senate in 1998 through the Defense Authorization Bill…"

This "propulsor development center" at Y-12 led to other opportunities for unique designs at Y-12. It also led to the successful manufacture of the full sized propulsor as well as other highly specialized work for other government agencies.

In 1998, a press release stated: "OAK RIDGE, TN --The U.S. Department of Energy (DOE) today announced an effort to create technology partnerships with private sector companies at The National Prototype Center (NPC) located at the Oak Ridge Y-12 Plant."

"The Y-12 Plant was designated as the National Prototype Center last year by the U.S. Congress. DOE is now seeking charter partners from the private sector. These charter partners would be able to more rapidly develop their new products and processes through their on-site access to the unique capabilities of the NPC.

"In making the announcement, James C. Hall, Manager of DOE's Oak Ridge Offices said four charter partners would be selected through a nationwide competition. 'We are encouraging companies who are

developing new products or processes that need a 'jump-start to market' to compete for these partnerships in the NPC,' said Hall.

"The announcement of the call for competition was made at the 25th Annual WATTec Conference and Exhibition held at the Knoxville Hyatt Regency. WATTec, known as Tennessee's Technology Conference, focused its 1998 program on technological economic development.

"Robert Van Hook, president of Lockheed Martin Energy Systems, the management and operating contractor for the Y-12 Plant, said, 'The NPC could be a springboard to get products into production far more quickly than the standard industrial product development process. Bringing new and innovative products or processes to market quickly and cost-effectively is critical to success in the current manufacturing environment.'

"The NPC charter partners will work with the NPC and have access to the world-class expertise and facilities of the Centers for Manufacturing Technology at the Y-12 Plant and Oak Ridge National Laboratory.

"Projects selected would be complementary to DOE's National Security mission and core competencies. Industry input on the opportunity and the details of the competition will be sought at a workshop planned for March 24 in Oak Ridge. A request for proposals will be published in the 'Commerce Business Daily' on March 30, with a deadline for proposal submissions of June 30. Awards to successful partners were to be made by July 15, 1998."

Next we will conclude our examination of the 1998 press release launching the National Prototype Center at Y-12. The growth in complementary work at Y-12 has continued to the programs that exist today which have resulted from the highly successful efforts of these early initiatives. Y-12 continues to serve our nation's varied and highly specialized needs for unique manufacturing capabilities as a National Prototype Center.