



GREEN MACHINING OF MULTI-SERVICE WEAPONS BY 3D WATERJET

PROJECT OVERVIEW

Modernize and demonstrate the usage of 3D Abrasive Waterjet (AWJ) technology by expanding the machining technology to DoD systems and components. The AWJ process will vastly reduce manufacturing time while improving readiness for DoD and components.

STUDY CASE:

- Among the many uses of AWJ are the cutting of recycled rubber/plastic railroad ties
- The United States Army Tank-automotive and Armaments Command (TACOM) Watervliet Arsenal has 1000's of center core hardwood sweeps used when processing parts
- Only 3 blocks can be taken from a core on a typical tree
- Wood sweeps life span 8 years*
- Recycled sweeps life span 50 + years

*When used outdoors

BENEFITS

AWJ is currently helping the DOD in the following areas:

- Provides for innovative methods to machine extremely difficult material
- Reduces the usage of environmentally toxic chlorinated Metal Working fluids (MWF's)
- Avoids the need for hard tooling that is required in traditional machine tool processes
- Reduces manpower for machining



Recycled rubber/plastic railroad ties cut out by automated waterjet replacing wooden sweeps

PATH FORWARD

Transitioned Technology-machine to DEVCOM AC, Weapons and Software Engineering Center (WSEC) Benet Laboratories Directorate located at Watervliet Arsenal
Transition Partners

- DEVCOM Armaments Center Picatinny Arsenal
- Anniston Army Depot

FOR FURTHER INFORMATION

National Defense Center for Energy and Environment

<http://www.denix.osd.mil/ndcee/home>

Combat Capabilities Development Command Armaments Center (DEVCOM AC) - Benét Laboratories

<https://ac.ccdc.army.mil/organizations/wsec/benet/>

DoD Executive Agent

Office of the Assistant Secretary of the Army for Installations, Energy, and Environment

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