

DEFENSE LOGISTICS AGENCY

ManTech Program Develops Production Capability for Lighter, Higher Energy Soldier Batteries

The Challenge:

Soldiers are relying on more batteries to meet the rising energy demands of their soldier-carried equipment, which adds weight and reduces mobility and effectiveness. Current non-rechargeable military batteries chemistries include lithium manganese dioxide (Li/MnO₂) and lithium sulfur dioxide (Li/SO₂). New higher energy density lithium carbon monofluoride (Li/CF_x) technology has been demonstrated to reduce the number of batteries and weight carried by the warfighter, but there is no domestic manufacturing capability to produce this technology in military batteries.



ManTech Response:

- DLA's Battery Network (BATTNET) program developed and implemented manufacturing technology on existing fabrication lines to enable production of hybrid Li/CF_x-MnO₂ batteries that meet military requirements
- Produced high performance BA-5790 and half-size batteries for testing and qualification by U.S. Army Communications and Electronics Research Development and Engineering Center (CERDEC)
- DLA (Manufacturing Technology) investment of \$890K with Ultralife Corp. and EaglePicher Technologies Inc.

Impact:

- Introduced the next generation technology to military batteries
- Established a U.S. source for a lighter battery to lessen the soldier carried load during missions
- Reduced the number of batteries required through a higher performance chemistry:
 - 110% increase in energy capacity compared to Li/SO₂ BA-5590 and 40% increase compared to Li/MnO₂ BA-5390
 - Half-size battery is 31% lighter with 7% more energy than BA-5590 and 50% lighter than BA-5390
- Increased shelf life from 5 years to 15 years
- Improved industrial base responsiveness by establishing an additional supply capability for one of the most common form factor batteries

110% Increase in Soldier Battery Energy

Participants

DLA, US Army CERDEC, Ultralife Corp., EaglePicher Technologies