



SMALL BUSINESS INNOVATION PROGRAMS
EXPLORED INNOVATIONS

SECURING RESOURCES FOR US DEFENSE & COMMERCIAL INDUSTRIES

TOPIC NUMBER:
L182-001-0006

TOPIC TITLE:
Rotorcraft Fuel
Bladder Weight and
Total Ownership
Cost Reduction

**CONTRACT
NUMBER:**
SP4701-18-P-0125

SBIP COMPANY:
Response
Technologies
West Warwick, RI

**TECHNICAL
PROJECT
OFFICE:**
Reverse Engineering

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**FORCE READINESS AND LETHALITY & SUPPLY CHAIN
INNOVATION**

**Response Technologies Redesigns the Flexible Fuel Bladder
for Military Aircraft**

Through a Defense Logistics Agency (DLA) Small Business Innovation Programs (SBIP) contract, Response Technologies is redesigning a decades old technology used daily by the United States military – the flexible fuel bladder. The current subtractive process used for manufacturing flexible fuel bladders has been essentially unchanged since WWII, and does not capitalize on modern manufacturing capabilities and efficiencies. As a result of their forward-thinking approach, the Response Technologies fuel bladder is crashworthy, ballistically-tolerant and self-sealing, making the improvements to the design potentially lifesaving.

In addition to the direct impact on warfighter readiness, the DoD supply chain sees a multitude of benefits such as:

1. An additively manufactured, seamless fuel cell that extends service utility by 50 percent;
2. A targeted total weight reduction of 20 percent;
3. A 40 percent reduction in Total Ownership Costs;
4. A 4X manufacturing lead time reduction resulting in lower supply chain costs and higher availability to increase weapon platform readiness;
5. A fuel cell interior that has universal fuel compatibility to include bio and synthetic fuels. This feature will reduce the likelihood of product obsolescence, and meet or exceed ASTM D471 test for Fuel Resistance;
6. A reduction of future procurement costs by 20 percent; and
7. An 8X reduction in new product design lead times.



Flexible Fuel Bladder. Image provided by Response Technologies, 2018

The fuel bladder, which transitioned to the Air Force and a major vertical life aircraft OEM, will be the first fuel cell that meets or exceeds all criteria for qualification under MIL-DTL-27422F.

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