BWXT Starts Production of TRISO Fuel for First U.S. Generation IV Microreactor

December 7, 2022

LYNCHBURG, Va.--(BUSINESS WIRE)-- BWX Technologies, Inc. (NYSE: BWXT) today with officials from the U.S. Department of Defense, Department of Energy, NASA and Idaho National Laboratory celebrated the landmark production of TRISO nuclear fuel that will power the first microreactor built and operated in the United States.

The Department of Energy (DOE) calls TRISO “the most robust nuclear fuel on earth.” The small, energy-dense coated uranium particles can withstand high temperatures, enabling smaller and more advanced reactor designs.

Under a $37 million award from the Idaho National Laboratory (INL), BWXT will manufacture a core for Project Pele, TRISO fuel for additional reactors and coated particle fuel for NASA. INL administers the contract and provides the technical support and oversight. Fuel for the reactor will be downblended from U.S. government stockpiles of high-enriched uranium (HEU) to high-assay low-enriched uranium (HALEU) and fabricated into TRISO fuel at the BWXT facility in Lynchburg, Virginia. BWXT facilities are the only private U.S. facilities licensed to possess and process HEU.

“TRISO particle fuel is ideal for the next generation of reactors poised to help us meet our country’s clean energy goals,” said U.S. Department of Energy Assistant Secretary for Nuclear Energy Dr. Kathryn Huff. “It is extremely exciting to see decades of DOE’s investments in TRISO fuel’s robust safety performance paying off to power many of the most innovative advanced reactor designs to be deployed within this decade.”

The Project Pele microreactor is designed to be capable of being safely transported in standard-sized shipping containers. Microreactors are designed to reduce the need for vulnerable fossil fuel deliveries relied on by the U.S. military, and also to provide power for disaster response and recovery, power generation in remote areas and deep decarbonization efforts.

“With supreme safety and performance characteristics, advanced nuclear fuels are the key enabler for fielding of next-generation reactor technologies,” BWXT President and CEO Rex D. Geveden said. “We are extremely pleased to initiate full-scale production of TRISO for the Pele program and further develop similar coated nuclear fuel technology for space exploration programs with NASA. This differentiating capability at BWXT results from a longstanding partnership with the Department of Energy’s Idaho National Lab, and it is gratifying to reach this milestone.”

“This commercial TRISO fuel production line is the culmination of more than 15 years of work at INL and other DOE national laboratories, in partnership with BWXT, to develop and qualify this fuel with immense potential for use in microreactors, space reactors and other advanced reactor concepts,” INL Laboratory Director John Wagner said. “As the United States moves steadily toward a carbon-free energy future, nuclear power is an essential part of the journey. Project Pele will demonstrate the viability of this fuel type, opening the door for other advanced reactors.”

BWXT Advanced Technologies announced in June that it was selected by the Department of Defense Strategic Capabilities Office (DoD SCO) to manufacture and deliver the Project Pele prototype microreactor to INL. The fuel will be delivered to the lab separately.

“TRISO fuel is capable of providing years of zero-carbon 24/7 energy in a safe and rugged form, with strategic implications for the DoD toward both its energy resilience and climate-change goals,” SCO Director Jay Dryer said.

BWXT has expanded its specialty coated fuels production manufacturing capacity through previously announced awards funded by the DoD Operational Energy Capabilities Improvement Fund Office and NASA and program management provided by SCO. In addition to TRISO, BWXT also produces specialty coated fuels for NASA in support of its space nuclear propulsion project within the agency’s Space Technology Mission Directorate.

"The high efficiency and high thrust provided by nuclear propulsion makes it an enabling capability for human missions to Mars," said Associate Administrator for NASA’s Space Technology Mission Directorate James L. Reuter. "Advancing nuclear fuels and systems are key to achieving our exploration goals at Mars."

TRISO stands for TRIstructural ISOtropic. TRIstructural refers to the three layers of carbon and ceramic materials that surround kernels or balls of HALEU fuel. ISOtropic means the coatings have uniform characteristics in all directions. Fuel particles, each the size of a poppy seed, are enriched to a level four times higher than fuel used in most of today’s commercial nuclear reactors. The coatings retain fission products, making each particle its own containment system. They also protect the fuel from the factors that

most degrade performance in conventional reactors – neutron irradiation, corrosion, oxidation and high temperatures.

Forward Looking Statement

BWXT cautions that this release contains forward-looking statements, including statements relating to the performance, timing, impact, quantity and value of TRISO nuclear fuel production for use in advanced microreactors. These forward-looking statements involve a number of risks and uncertainties, including, among other things, modification or termination of the project and delays. If one or more of these or other risks materialize, actual results may vary materially from those expressed. For a more complete discussion of these and other risk factors, please see BWXT's annual report on Form 10-K for the year ended December 31, 2021 and subsequent quarterly reports on Form 10-Q filed with the Securities and Exchange Commission. BWXT cautions not to place undue reliance on these forward-looking statements, which speak only as of the date of this release, and undertakes no obligation to update or revise any forward-looking statement, except to the extent required by applicable law.

About BWXT

At BWX Technologies, Inc. (NYSE: BWXT), we are People Strong, Innovation Driven. Headquartered in Lynchburg, Virginia, BWXT is a Fortune 1000 and Defense News Top 100 manufacturing and engineering innovator that provides safe and effective nuclear solutions for global security, clean energy, environmental restoration, nuclear medicine and space exploration. With approximately 6,700 employees, BWXT has 14 major operating sites in the U.S., Canada and the U.K. In addition, BWXT joint ventures provide management and operations at more than a dozen U.S. Department of Energy and NASA facilities. Follow us on Twitter at @BWXT and learn more at www.bwxt.com .

About Idaho National Laboratory

Battelle Energy Alliance manages INL for the U.S. Department of Energy's Office of Nuclear Energy. INL is the nation's center for nuclear energy research and development, and also performs research in each of DOE's strategic goal areas: energy, national security, science and the environment. For more information, visit www.inl.gov. Follow them on social media: Twitter, Facebook, Instagram and LinkedIn.

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Source: BWX Technologies, Inc.