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Study Validates Benefits of Lightbridge Designed Fuel Rods for Weapons-Grade Plutonium Disposition

Lightbridge's Design Consumes 5.5 Times More Plutonium

RESTON, Va., Feb. 07, 2023 (GLOBE NEWSWIRE) -- [Lightbridge Corporation](#) (Nasdaq: LTBR), an advanced nuclear fuel technology company, announced that a recently published peer-reviewed technical paper on the disposition of weapons-grade plutonium revealed that a Lightbridge-designed fuel rod significantly outperforms traditional mixed-oxide (MOX) fuel in consuming plutonium in a computer simulation, making the Lightbridge designed rods well suited for consuming excess weapons-grade plutonium.

The paper's title is "***Improved Disposition of Surplus Weapons-Grade Plutonium Using a Metallic Pu-Zr Fuel Design***." The paper was co-authored by Braden Goddard, Ph.D., Assistant Professor, Department of Mechanical and Nuclear Engineering at Virginia Commonwealth University, and Aaron Totemeier, Ph.D., Senior Nuclear Fuel Consultant to Lightbridge, for ***Nuclear Technology (NT)***, the leading international publication reporting new information on the practical application of nuclear science for peaceful uses. The paper can be accessed by visiting the following link:
<https://www.tandfonline.com/doi/full/10.1080/00295450.2022.2145836>.

The simulation detailed in the paper demonstrated that the Lightbridge plutonium disposition fuel variant consumes approximately 5.5 times more plutonium per fuel rod than MOX fuel. The high burnup of metallic fuel makes it particularly useful for consuming plutonium and reducing the material usefulness of the residual plutonium in the used fuel for weapons purposes. The simulation utilized the design of a variant of Lightbridge Fuel™, consisting of solid multi-lobe helically twisted metallic fuel rods (as opposed to the ceramic fuel rods currently used in nuclear power plants), which increases the fuel surface area, substituting the uranium-zirconium alloy with an equivalent plutonium-zirconium composition.

The proliferation resistance of Lightbridge Fuel rods has been presented previously in ***Nuclear Engineering and Design***, a technical journal affiliated with the European Nuclear Society. This peer-reviewed paper reported the results of a study that showed that Lightbridge's spent fuel could not be used by would-be proliferators to make nuclear weapons.

Seth Grae, President and CEO of Lightbridge, commented, "We are pleased with the acceptance and publication of this paper in this prestigious journal. The findings reported in this study were subject to rigorous review by top scholars, validating the plutonium disposition and proliferation resistance of this variant of Lightbridge Fuel rods. The findings will help to drive further awareness and support of Lightbridge Fuel within government and the private sector."

About Lightbridge Corporation

Lightbridge (NASDAQ: LTBR) is an advanced nuclear fuel technology development company positioned to enable carbon-free energy applications that will be essential in preventing climate change. The Company is developing Lightbridge Fuel™, a proprietary next-generation nuclear fuel technology for Small Modular Reactors and existing light water reactors and pressurized heavy water reactors, significantly enhancing reactor safety, economics, and fuel proliferation resistance. Lightbridge has secured a long-term strategic partnership with Idaho National Laboratory (INL), the nation's lead nuclear energy research and development laboratory, in collaboration with the U.S. Department of Energy (DOE) and has been awarded twice by the DOE's Gateway for Accelerated Innovation in Nuclear (GAIN) program to support the development of Lightbridge Fuel. An extensive worldwide patent portfolio backs Lightbridge's innovative fuel technology. Lightbridge is included in the Russell Microcap® Index. For more information, please visit www.ltbridge.com.

To receive Lightbridge Corporation updates via e-mail, subscribe at <https://www.ltbridge.com/investors/news-events/email-alerts>

Lightbridge is on Twitter. Sign up to follow @LightbridgeCorp at <http://twitter.com/lightbridgecorp>.

Lightbridge is on We Don't Have Time. Join the dialogue at <https://app.wedonthavetime.org/profile/Lightbridge>

For an introductory video on Lightbridge, please visit www.ltbridge.com or click [here](#) to watch the video.

Forward Looking Statements

With the exception of historical matters, the matters discussed herein are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, including statements regarding the timing and outcome of research and development activities, other steps to commercialize Lightbridge Fuel™ and future governmental support and funding for nuclear energy. These statements are based on current expectations on the date of this news release and involve a number of risks and uncertainties that may cause actual results to differ significantly from such estimates. The risks include, but are not limited to: the Company's ability to commercialize its nuclear fuel technology; the degree of market adoption of the Company's product and service offerings; the Company's ability to fund general corporate overhead and outside research and development costs; market competition; our ability to attract and retain qualified employees; dependence on strategic partners; demand for fuel for nuclear reactors, including small modular reactors; the Company's ability to manage its business effectively in a rapidly evolving market; the availability of nuclear test reactors and the risks associated with unexpected changes in the Company's fuel development timeline; the increased costs associated with metallization of our nuclear fuel; public perception of nuclear energy generally; changes in the political environment; risks associated with the further spread of COVID-19, including the ultimate impact of COVID-19 on people, economies, and the Company's ability to access capital markets; war in Europe; changes in the laws, rules and regulations governing the Company's business; development and utilization of, and challenges to, our intellectual property; risks associated with potential shareholder activism; potential and contingent liabilities; as well as other factors described in Lightbridge's filings with the Securities and Exchange Commission. Lightbridge does not assume any obligation to update or revise any such forward-looking statements, whether as the result of new developments or otherwise,

except as required by law. Readers are cautioned not to put undue reliance on forward-looking statements.

A further description of risks and uncertainties can be found in Lightbridge's Annual Report on Form 10-K for the fiscal year ended December 31st, 2021, and in its other filings with the Securities and Exchange Commission, including in the sections thereof captioned "Risk Factors" and "Forward-Looking Statements," all of which are available at <http://www.sec.gov/> and www.ltbridge.com.

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Source: Lightbridge Corporation