



UNITED STATES  
NUCLEAR WASTE TECHNICAL REVIEW BOARD  
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External Affairs

## U.S. NWTRB Releases Report on Commercial High Burnup Spent Nuclear Fuel Performance during Extended Storage and Transportation

On August 2, 2021, the U.S. Nuclear Waste Technical Review Board posted on its website ([www.nwtrb.gov](http://www.nwtrb.gov)) a report to the U.S. Congress and the Secretary of Energy, titled *Evaluation of the Department of Energy's Research Program to Examine the Performance of Commercial High Burnup Spent Nuclear Fuel during Extended Storage and Transportation*. The report is a product of a multi-year effort, during which the Board reviewed the U.S. Department of Energy's (DOE) research activities, which have the aim of obtaining data that can enhance the understanding of the performance of high burnup spent nuclear fuel (SNF) in extended storage and transportation conditions.

Extensive research has provided confidence that low burnup SNF can be stored for extended periods and transported in accordance with the U.S. Nuclear Regulatory Commission requirements. Similar research to improve the understanding of the performance of high burnup SNF has been started but is not yet complete. This report provides the Board's assessment of DOE's high burnup SNF research program and makes recommendations that, if implemented, will improve DOE's program and its ability to provide data that will enhance the understanding of high burnup SNF.

The comprehensive and highly technical report provides the characteristics of high burnup SNF and describes how these characteristics compare to low burnup SNF. The Board used the extensive domestic and foreign literature on SNF as a basis for reviewing DOE's high burnup SNF research activities. The Board's evaluation of DOE's activities focused on (i) SNF drying, (ii) hydrogen effects in high burnup SNF cladding, (iii) high burnup SNF performance under normal conditions of dry storage, (iv) high burnup SNF performance under normal conditions of transport, and (v) fuel performance modeling. The report presents findings and recommendations in each of these areas as well as on general aspects of DOE's high burnup SNF research program.

The Board was established in the Nuclear Waste Policy Amendments Act of 1987 to perform ongoing evaluation of the technical and scientific validity of DOE activities related to the

management and disposal of SNF and HLW. The Board is required to report its findings, conclusions, and recommendations to Congress and the Secretary of Energy. Board members are appointed by the President from a list of nominees submitted by the National Academy of Sciences. The Board is an independent federal agency in the Executive Branch.

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