



Orano Completes First Loading of Used Nuclear Fuel into Upper Compartments of Two-tiered MATRIX Dry Storage System

Compact horizontal system has 45% smaller footprint storing same number of canisters, simplified inspection access, and no critical lifts.

BETHESDA, Md., November 6, 2023 – Orano recently completed the first loading of used nuclear fuel into the first three upper modules of the two-tiered NUHOMS® MATRIX™ horizontal dry storage system installed at the Wolf Creek Nuclear Operating Corporation site. The joint team of Orano and Wolf Creek collaborated to complete the three loadings, which were achieved with zero safety events, less than the allotted dose goals, and zero human performance events.

Over the course of three weeks, three consecutive Extended Optimized Storage (EOS) 37PTH canisters were each filled with 37 used nuclear fuel assemblies in the reactor's used fuel pool and then transferred into the upper modules of the onsite MATRIX dry storage system. These three canisters join the five canisters loaded into the monolith's lower tier in 2022, filling eight of the available 11 modules in the constructed MATRIX system. Future loading campaigns will be conducted after expanding the MATRIX system with additional modules beginning in Spring 2024.

"I am proud of our Orano team fulfilling our commitment for safe, on-schedule performance in close coordination with the Wolf Creek team," said Amir Vexler, CEO of Orano U.S. "This first installation and full loading of our MATRIX system is another success resulting from the certainty, innovation, and efficiency we bring to every project."

When compared to other dry storage technologies, the compact two-tiered horizontal MATRIX design reduces the footprint requirements for an Independent Spent Fuel Storage Installation (ISFSI) by as much as 45% to store the same amount of used fuel.

For extended interim used fuel storage and aging management requirements, the MATRIX system integrates new design features and devices which enable the complete inspection of the stored canister without removing it from the module.

The universal MATRIX overpack also meets all storage requirements for shutdown and operating U.S. nuclear reactors, including the storage of high-burnup short-cooled fuel, and is designed to accommodate used fuel storage canisters with different diameters and fuel lengths.

Before the Wolf Creek loading campaign began, the Orano and WCNOC teams extensively trained together conducting dry runs with the equipment onsite and prior on the full-scale MATRIX mock-up located on Orano's TN Fabrication facility in Kernersville, NC. The TNF facility also manufactured the eight EOS 37PTH canisters for storing the used nuclear fuel.

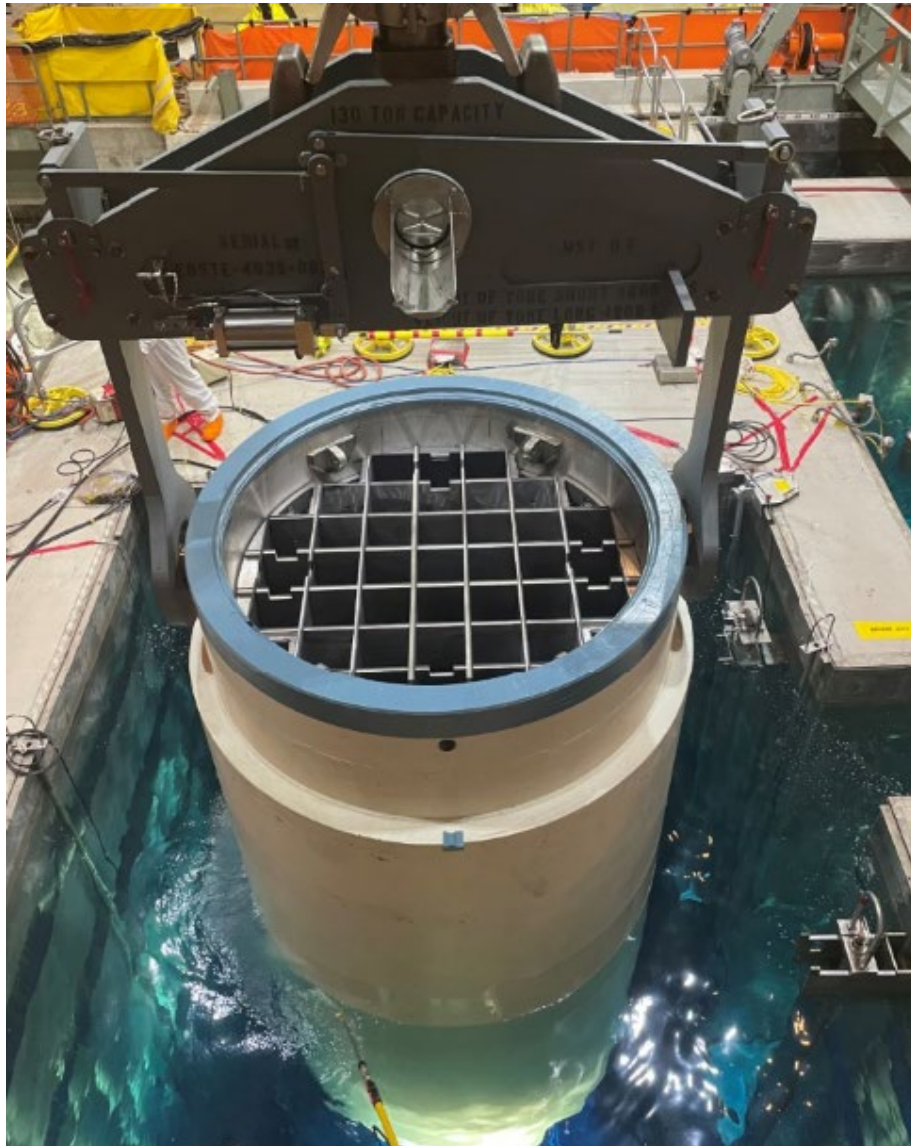
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Video: [Loading a canister into a MATRIX upper module at Wolf Creek.](#)

Images

Transfer cask and EOS 37PTH canister with interior grid being lowered into the reactor storage pool for loading the long, rectangular used fuel assemblies underwater. Once the canister was loaded and removed from the pool, all moisture was purged from inside the canister before sealing for dry storage in one of the MATRIX system's modules. Image: Orano.



Using a shielded cask, the loaded canisters of used nuclear fuel were transferred from the Wolf Creek reactor building to the nearby onsite MATRIX dry storage system with the self-propelled SEFIRO motorized transporter. Image: Orano.



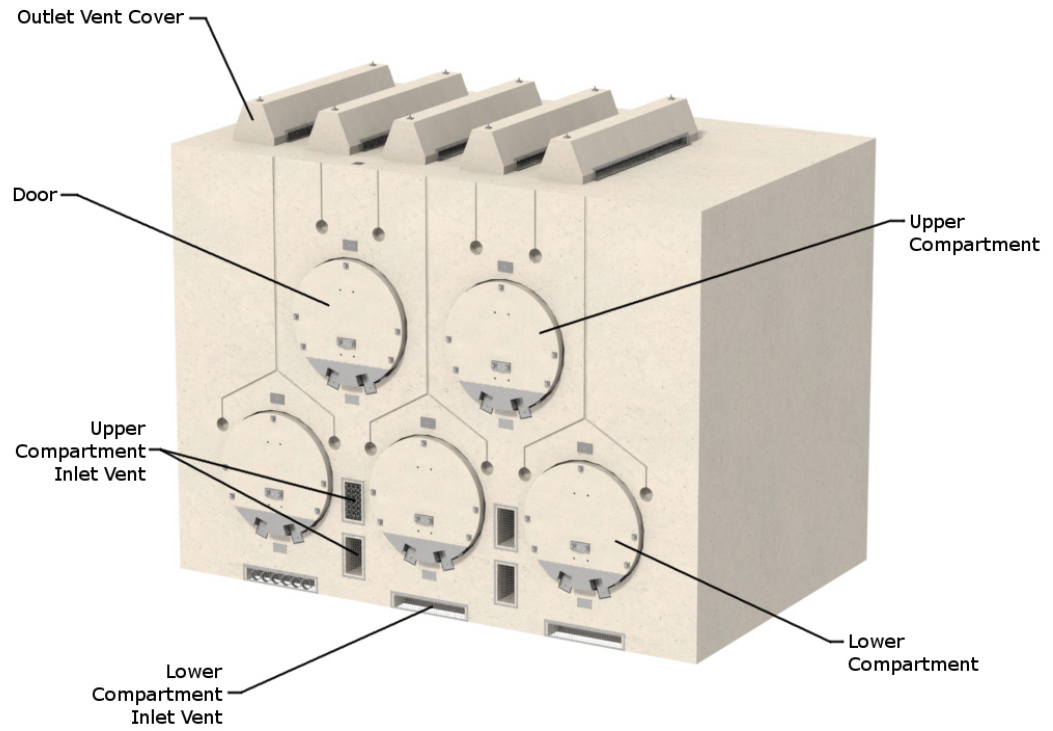
Once the lift was aligned with the opening, each sealed used fuel canister was moved remotely from the transfer cask into a MATRIX module. Image: Orano.



Orano's NUHOMS MATRIX used nuclear fuel dry storage system at Wolf Creek Nuclear Operation Company. At the bottom of each round module opening are two square inlets (covered with metal fittings) where transfer rails slide in when the module is opened to deposit the canister during loading. These rails can also be fitted with inspection equipment to completely examine the stored canister when the module is closed. Each module also has an inspection port to aid in visual inspection of the canister. Image: Orano.

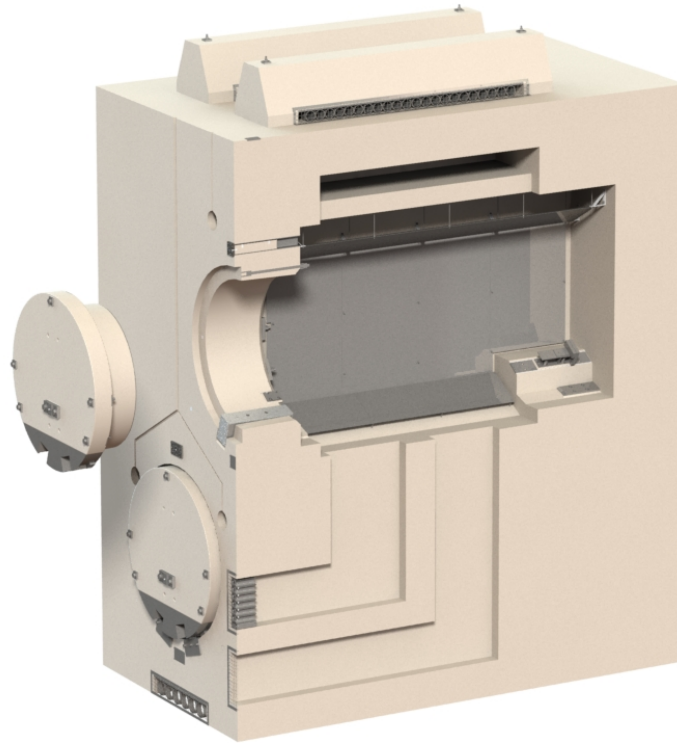


Labeled illustration of the Orano NUHOMS MATRIX dry storage system. Source: Orano.





Cutaway illustration showing the upper compartment of the Orano NUHOMS MATRIX dry storage system. Source: Orano.



Learn more about Orano's NUHOMS [MATRIX dry storage system](#).

About Orano USA: Orano USA, a regional subsidiary of Orano, is a leading supplier of nuclear fuel materials, used fuel management, decommissioning, decontamination, radwaste treatment solutions, and advanced reactor services to U.S. commercial and federal customers. Orano USA, through its subsidiary Orano Med in Texas, is also developing cancer treatments using targeted radio-immunotherapy, with its first drug currently in FDA-authorized clinical trials.

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