



FOR IMMEDIATE RELEASE

## By Sea and Land, Orano Performs Unique Transport of Segmented Crystal River Unit 3 Reactor to Disposal; Completing Its Decommissioning Tasks in Less Than 4 Years

*The four massive reactor packages were safely transported more than 1,800 miles each by barge and multi-axle trailer.*

**BETHESDA, Md., October 8, 2024** – Orano recently completed the transportation and disposal of the dismantled Crystal River Unit 3 reactor using only four large packages. The segmentation, packaging, and removal of the 35-foot nuclear reactor vessel and its internal components from the reactor building were completed by the Orano team in less than two years. Including the removal of the large cooling system components and the off-site shipment and final disposal of all generated low-level waste, Orano completed its scope in less than four years. All stages of this innovative project were completed safely and without a single lost-time accident.

“The successful transportation of these four packages demonstrates Orano’s ability to safely and effectively plan, implement, and finish the Optimized Segmentation of a nuclear reactor in world-record time,” said Jean-Luc Palayer, CEO of Orano USA. “With our expert team, this same concept of optimal waste disposal efficiency can be applied to any large, complex decommissioning project.”

Using Orano’s patented Optimized Segmentation process for decommissioning, the reactor’s internal components were segmented, removed, and then precisely and strategically repacked inside the reactor vessel in three layers based on the pieces’ radioactivity. After filling the remaining spaces in the reactor vessel with an engineered grout—solidifying it into a single mass—the monolith was cut with diamond wire saws into three large pieces: top, middle, bottom. The fourth piece, the reactor head, had been removed earlier.

The massive top and middle sections were each sealed inside tailor-made shipping packages designed, licensed, and procured by Orano. The reactor head and bottom section were separately placed inside custom-designed supersacks. In comparison with these four packages, a traditional reactor vessel dismantlement can generate up to 80 transport packages.

As expected during project planning, only the middle section required an NRC-approved Type B package. The top and bottom sections and the reactor head were shipped under DOT Industrial Package regulations.

A single barge carried all four packages across the Gulf of Mexico from the Crystal River 3 site on Florida’s west coast to Texas. The packages were then separately transported via truck hundreds of miles to the Waste Control Specialists disposal site in Andrews County in West Texas.

Moving these very large, very heavy packages ranging from 65 to 357 tons across Texas involved close coordination and communication with regional and local law enforcement, jurisdictions, and regulators, plus the expertise of Edwards Moving & Rigging company.

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For example, the Over-The-Road transport of the reactor's repacked middle section, the largest and heaviest package at 357 tons, required it to be suspended in the middle of a 303-foot-long conveyance, with two 16-axle trailers to distribute the weight evenly across the road surface. To avoid primary traffic corridors and limiting infrastructure, the middle and top packages' transport followed a winding 980-mile route going on average 8 miles per hour across the state.

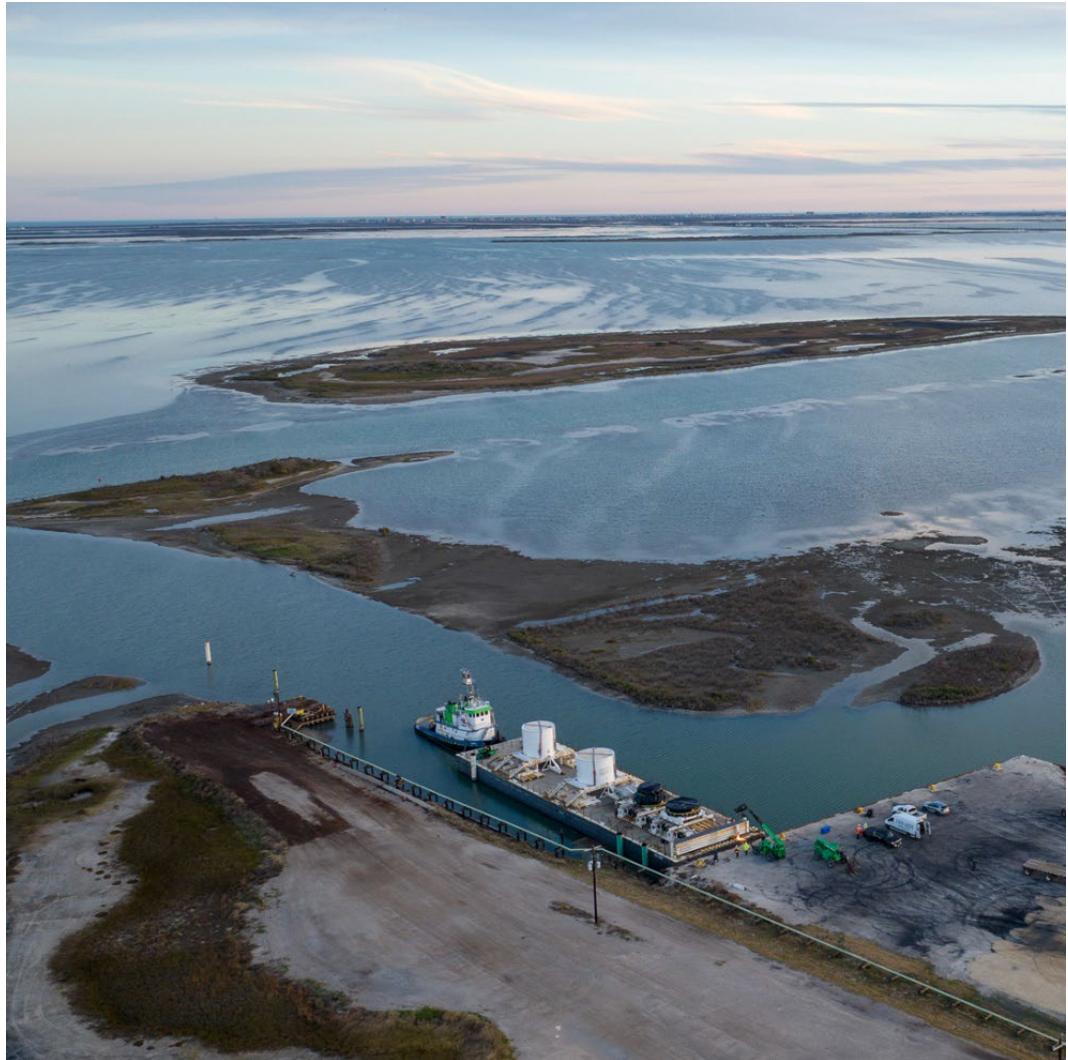
When crossing bridges, the custom transport extended the axles with additional wheels to double the width of the trailer and further distribute the weight across multiple lanes of roadway. At other times, making a turn with the long trailer required the temporary removal of corner light posts and signage.

Along with the four reactor vessel packages, the Orano team conducted 10 disposal shipments by rail of the CR3 reactor coolant system, including a pressurizer, four reactor coolant pumps, and four motors, plus the reactor vessel's integrated head assembly containing the control rod drives and service structure.

With this First-of-a-Kind success, the Orano Decommissioning Services team demonstrated three significant achievements: 1.) the best-in-class Optimized Segmentation approach achieves substantial benefits in reducing the overall execution schedule, project risk, worker dose, and cost, 2.) the ability to successfully plan and implement a strategy to remove, segregate, and reposition the reactor's internal components into the reactor vessel to achieve optimal waste disposal efficiency, 3.) the ability to design, license, fabricate, load, and transport the Type B special packages necessary to achieve the full value of the Optimized Segmentation philosophy. The success of this work sets the stage for future Optimized Segmentation decommissioning projects.

WHITE PAPER: Details about Orano's patented Optimized Segmentation process and its implementation [available here](#).

VIDEO: [The Optimized Segmentation of Crystal River 3](#)



*Barge with four packages arrives on the Texas coast after crossing the Gulf of Mexico from the Crystal River 3 decommissioning site in Florida.*



*Navigating a tight corner in a Texas town along the approved route.*



*With wing dollies extended to further distribute the weight, the middle package slowly progresses across a bridge.*

**About Orano USA:** Orano USA is a key nuclear supplier of materials and services to the U.S. nuclear industry and the federal government, ranging from supplying nuclear fuel materials and in-house engineering to field service capabilities and applying decades of reactor decommissioning experience in dismantling, packaging, and transporting waste. Orano USA also provides the full suite of technologies and services for managing used nuclear fuel. Orano USA, through its subsidiary Orano Med in Texas, is developing cancer treatments using targeted radio-immunotherapy.

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