

NAC INTERNATIONAL: AREAS OF SUPPORT FOR ADVANCED REACTORS

Advanced Reactors (ARs) introduce new challenges in nuclear waste management due to unique and highly diverse waste streams generated throughout the fuel cycle—from fuel fabrication and reactor operation to decommissioning. The NAC Family of Companies delivers comprehensive, technology-driven solutions for AR developers, covering every aspect of fuel cycle and nuclear waste management. Our expertise in storage, transportation, treatment, disposal, regulatory compliance, and strategic consulting ensures AR projects meet safety, regulatory, and commercial requirements efficiently.

KEY TECHNOLOGY SERVICES & SOLUTIONS

1. STORAGE

- **Spent Nuclear Fuel (SNF) Storage:** NAC designs and certifies long-term, transportable storage systems (e.g., MAGNASTOR®) for SNF and high-activity waste, ensuring safe containment and passive cooling.
- **Consolidated Interim Storage (CIS):** NAC is involved in a proposed CIS facility in West Texas, using dry cask technology for centralized nuclear waste storage until a permanent repository is available.

2. TRANSPORTATION & LOGISTICS

- **Packaging Solutions:** NAC has developed and certified multiple transport packaging systems for SNF, high-level, intermediate, and low-level wastes, as well as High-Assay Low-Enriched Uranium (HALEU) fresh fuel.



- **End-to-End Logistics:** With a fleet of certified Type B transportation systems, NAC provides comprehensive logistics for moving reactor components, fresh and irradiated fuel, and waste, with over 3,900 shipments worldwide.

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CONTACT:

Scott Dempsey, Chief Commercial Officer

Phone: +1 678-328-1231 | sdempsey@nacintl.com



TRISO coated particle fuel/Department of Energy/DOE AR Technologies



3. WASTE TREATMENT & DISPOSAL

- **Customized Solutions:** NAC evaluates and develops treatment/conditioning technologies for unique AR waste forms (e.g., TRISO fuels, molten salts) and disposal solutions for multiple waste streams.
- **Radioactive Waste Management:** Subsidiaries NAC LPT and NAC Philotechnics provide on-site characterization, packaging, and technical services for low-level and mixed radioactive waste, plus off-site treatment at licensed facilities.
- **Expertise:** NAC's team has more than 150 years of combined experience in safety analyses, regulatory compliance, and development of disposal facilities (shallow-land burial, mined deep geologic repositories, and deep boreholes).

4. CONSULTING & INTEGRATED SUPPLY CHAIN SUPPORT

- **Fuel Cycle Expertise:** NAC provides market analysis, fuel procurement services, regulatory guidance, SNF and radioactive waste management studies, and strategic planning for AR developers.
- **Nuclear Material Control & Accountability (MC&A):** NAC Reporter® software helps companies track radioactive materials and meet regulatory safeguards requirements.
- **Component Manufacturing:** NAC subsidiary Niagara Energy Products Inc. manufactures reactor components and waste containers, supporting integrated supply chains.

STRATEGIC & REGULATORY ASSISTANCE

- **Licensing & Certification:** NAC has extensive U.S. and international certification experience, including storage and transport system designs and repository license applications. Competent authorities in 30+ countries have approved the use of our transport packagings.
- **HALEU Transport Certification:** NAC's OPTIMUS®-L packaging system was the first to receive NRC approval for the transport of high-capacity (>500 lb) payloads of HALEU TRISO fuel in the U.S.
- **Regulatory Engagement:** NAC works with government agencies worldwide to help inform and shape regulations for new technologies, including waste acceptance criteria and multi-functional canister standards.

SUPPORT FOR AMENDED STANDARD CONTRACT NEGOTIATIONS

- **Expertise:** Any commercial nuclear reactor licensed in the U.S. after 1/1/2007 must execute an "Amended Standard Contract for New Reactors" with the DOE before it can receive an Operating License from the NRC. NAC assists AR developers in negotiating Amended Standard Contracts with DOE, ensuring challenges presented by unique waste streams and fuel cycles are addressed.
- **Technical & Commercial Insights:** NAC helps to select storage, transport, and disposal canisters, and to negotiate with DOE to place those canisters on its approved list, guaranteeing that DOE will accept them and compensate AR developers for their purchase under the Amended Standard Contract.

Contact NAC International for tailored support in advanced reactor waste management and fuel cycle solutions.