



Leaders in LLW Management, Decommissioning, Integrated Facility Operations & Project Execution

Nuclear and Mixed Waste Packaging, Transportation, & Disposal Training Services

Southern States Energy Board's
Radioactive Materials Transportation Committees
Orlando, Florida, December 10 – 11, 2024

Stewards of the environment

EnergySolutions (ES) at a Glance



EnergySolutions (ES) is a global nuclear leader delivering environmentally sustainable and technologically innovative solutions across the full lifecycle of the nuclear industry.

With decades of experience, EnergySolutions serves commercial, government and international customers in the nuclear, environmental, and energy sectors. ES is dedicated to providing innovative and cost-effective solutions to manage complex nuclear challenges.



Owner, Operator & Licensee in

- Nuclear waste management
- Treatment and disposition
- Metals recycling
- Facility decontamination
- Decommissioning and site remediation

Primary Customers

- All U.S. nuclear utilities
- Medical & Research facilities
- U.S. and Canadian government agencies – DOE, DOD, EPA, BLM, Corps of Engineers
- International utilities & companies

Reactor D&D Site Remediation

- 2 decades of nuclear decommissioning experience
- 8 utility D&D projects completed, with sites achieving regulatory closure
- 4 active utility D&D projects totaling >\$4 billion

Nuclear Services Division

- Capital projects
- Utility maintenance & modifications
- New nuclear construction
- Mechanical, Electrical, Civil Engineering

Fully Integrated Assets & Operations

- (2) Licensed Disposal Sites
- (5) LLW Processing Facilities
- (3) National Transload Centers
- (1) Packaging Facility
- (4) Active D&D Projects



*D&D Completed
Zion, LaCrosse, SEFOR

SEAMLESSLY OWNED & INTEGRATED			
LOGISTICS	PROCESSING & TREATMENT	TREATMENT & DISPOSAL	TURNKEY D&D & REMEDIATION
<ul style="list-style-type: none"> • Containers • NRC/DOT Casks • Road, Rail & Barge Transport • Large Components 	<ul style="list-style-type: none"> • Recycling & Storage • Volume Reduction • Sort & Seg • Segmentation • Survey for Release 	<ul style="list-style-type: none"> • VTD & Grouting • Permanent Disposal • LLW, MLLW (Clive) • LLW, MLLW, A, B, C Waste (Barnwell) 	<ul style="list-style-type: none"> • Commercial & Govt • Full Site Remediation • Spent Nuclear Fuel Management • Delicensing & Closure

Owned & Integrated WM Assets & Operations



Bear Creek Operations

- Incineration and Compaction
- Metal melt furnace
- Five-year storage permit
- Two radioactive materials licenses
- Mixed waste treatment permit
- Sort, segregate, and mix high-activity waste to meet Class A requirements
- LLW water processing through evaporation

Erwin ResinSolutions

- Spent Ion Exchange Resin Processing
- Dewater, chemically reforms, homogenizes, and VR of spent resins into a solid-phase, stable waste form for disposal at Clive
- LLW water processing through evaporation

Memphis Logistics Ctr

- Barge, Rail, Road Access
- "Safeshop" Customer Hot shop Rental
- Rad Equipment Storage
- Outage Equipment Service Center
- Equipment Decontamination
- Container Decontamination
- Tank Segmentation
- Large Component Staging

Packaging & Transport

- Waste Packaging (MHF Packaging) - 20+ years of manufacturing experience of containers, packages, casks, rail car and container liners; stringent QA/QC program
- Road Transportation - subsidiaries in US (Hittman Transport) and Canada (PHTS Logistics) can cover all of N. America radiological/nuclear cargo with 250 million safe miles
- Rail & Transload (MHF Services) - national network of facilities, largest fleet of private railcars serving Hazardous, Toxic, & Radioactive Waste clients



Clive LLW Disposal Facility, Utah

- Owner-operator of the 640-acre low level radioactive waste facility
- Maintains NRC, Utah, EPA licenses to dispose of Class A LLRW, mixed LLRW, NORM, and 11e(2) byproduct material (U or Th mill tailings)
- Logistics facilities manage hundreds of weekly road and rail cargos
- Receives both bulk and non-bulk containers and large components, including reactor vessels, RVHs, SGs, OSDs, FWHs, etc.
- Microencapsulation & vacuum thermal desorption treatment facilities

Barnwell Disposal Facility, South Carolina

- Operates the 235-acre Barnwell facility in SC under a decades long contract
- Host disposal site for Atlantic LLW Compact
- Licensed to dispose of Class A, B, and C waste including irradiated hardware and large components
- Includes resin and other LLW processing facilities

D&D and Remediation Success

SEFOR



La Crosse



ZION



Active Decommissioning Projects



Fort Calhoun Nuclear Generating Station

In April 2019, *EnergySolutions* signed a contract with Omaha Public Power District to decommission the station. The plant operated for 43 years and shut down in 2016.



San Onofre Nuclear Generating Station

In October 2019, the California Environmental Quality Act permit was unanimously approved for the San Onofre Nuclear Generating Station decommissioning project.



Three Mile Island—Unit 2

In December 2020, *EnergySolutions* completed the process for its subsidiary, TMI-2 Solutions, to acquire the Three Mile Island—Unit 2 Nuclear Power Plant, from subsidiaries of FirstEnergy Corp.



N.S. Savannah

In the spring of 2020, Radiation Safety & Control Services, Inc. (RSCS), announced a partnership with *EnergySolutions* to decommission the world's first nuclear-powered merchant ship, the N.S. Savannah.



Kewaunee Power Station (KPS)

In May 2021, *EnergySolutions* announced the stock transfer of KPS from Dominion Energy, and is in the process of approval by the U.S. Nuclear Regulatory Commission (NRC) and Public Service Commission of Wisconsin.

Liquid & Solid Waste Processing Technology

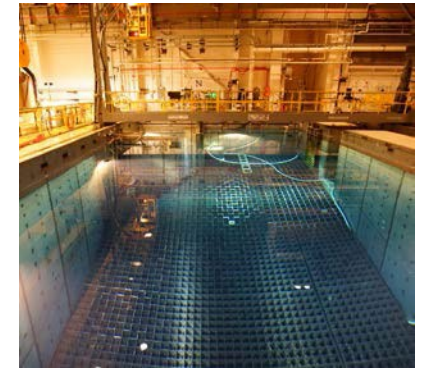
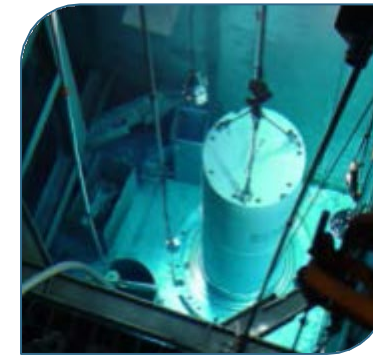
- Systems at > 30 nuclear plants
- Expert staff embedded into utility operations teams
- Membrane-based systems
- Media-based demineralization-ion exchange systems
- Pretreatment technologies (chemical, ultra-filtration, mechanical filtration)
- Specialty filtration systems
- High Integrity Containers (HICs)
- Solid waste processing equipment



**TURNKEY SOLUTIONS IN USE AT 30 UTILITY STATIONS TODAY,
CURRENTLY DEPLOYED AT FUKUSHIMA REMOVING ALL CONTAMINATION EXCEPT TRITIUM**

Spent Fuel & IHW Management Services

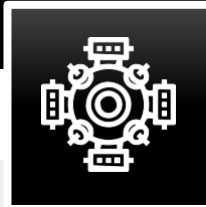
- Underwater transfer and loading, cask transportation, vacuuming and waste characterization services.
- Design, fabrication and licensing of storage and transport casks.
- Performed 125 fuel pool projects resulting in over 500 IHW shipments to date, such as transporting used nuclear from pool to ISFSI pads
- Since 2001, have safely processed, packaged, and delivered over 200 cask shipments of highly irradiated reactor components.
- Ability to provide turnkey spent fuel pool services
- 10-160B cask is an alternative to the RH72-B cask for transporting remote-handled TRU waste (RH-TRU) to WIPP



Market Segments – Nuclear Services



Nuclear New Build



- Engineering, Procurement, Construction (EPC)
- Professional Staffing & Craft Labor
- ASME Fabrication
- Module Constructability
- Construction Management
- Automatic Welding Technologies



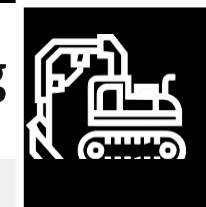
Nuclear Operating Plants



- Capital Projects (EPC)
- Site & Fleet Maintenance & Modification (MMC)
- Large Component Replacement
- Digital System Replacement
- Professional Staffing & Craft Labor
- Specialty Services
- Turnkey / Managed Tasks
- Security System Upgrades









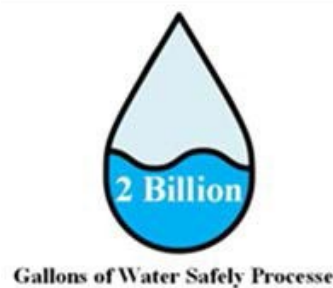


Nuclear Decommissioning



- Self Perform for ES D&D Sites
- Specialty Services
- Scaffolding
- Spent Fuel Management
- Major Component Removal
- Machining & Welding
- Waste Handling
- Dismantling & Demolition
- Site Restoration

Statistics, Accomplishments, and Awards

- More than 40 years of service to the nuclear industry
- We have over 50 Certified Shippers (Brokers) that make over 5,000 shipments per year
- Comprehensive nuclear service provider
- Prepared to meet evolving needs of the industry
- We understand nuclear performance expectations
- We are a dedicated partner in our customer's success

 <p>200:1 Waste Reduction Ratio</p>	 <p>2 VPP Sites Were Awarded by the NSC</p>	 <p>200+ Years Cumulative Nuclear Experience ENERGYSOLUTIONS</p>
 <p>82,000 Tons of Metal Recycled Since 2005</p>	 <p>30 Years of Community Commitment</p>	 <p>3.5 Million Hours Without a Single Lost-Time Accident At Clive Disposal Facility</p>
 <p>2 Billion Gallons of Water Safely Processed</p>	 <p>148,000,000 Safely Driven Miles</p>	 <p>EnergySolutions owns 90% of NRC Approved Casks</p>

EnergySolutions Training Services

- EnergySolutions and been conducting nuclear transportation compliance training since 1979
- Multiple training formats available:
 - Seminar style, open enrollment, at hotel meeting rooms throughout the U.S.
 - Onsite at a customer's facility
 - Online, computer-based training
 - Webinar conducted
- www.energysolutionstraining.com website available to register for open-enrollment and online classes
- Teach approximately 40 classes per year
- Training meets DOT 49 CFR 172 Subpart H, Training, and NRC IE Bulletin 70-19, Low-Level Waste
- Nuclear Power Plants 70%, Federal Government 25% (primarily Navy and DOE), Industrial 2%, International 2%, State Government 1%
- State Agency customers: Mississippi and Illinois Emergency Management Agencies

EnergySolutions Training Services

Courses include:

HAZARDOUS MATERIAL/DANGEROUS GOODS TRANSPORTATION TRAINING

- ❖ DOT/NRC Radioactive Waste Packaging, Transportation & Disposal
- ❖ DOT/NRC/EPA Hazardous Waste/Mixed Waste Packaging, Transportation & Disposal
- ❖ Load Securing for Radioactive Material Shippers
- ❖ IATA Air Transport of Radioactive Materials
- ❖ DOT HazMat General Awareness
- ❖ DOT General Packaging Requirements
- ❖ DOT/NRC RAM Packaging Requirements
- ❖ Radiological Control Technician (RCT) Radioactive Material Transportation
- ❖ IAEA International Transport of Radioactive Materials
- ❖ IMDG International Water Transport of Radioactive Materials
- ❖ HRCQ & RAM-QC Quantities of Concern



EnergySolutions Training Services

Courses include:

MOTOR CARRIER TRAINING

- ❖ DOT Hazardous Materials for Drivers
- ❖ Federal Motor Carrier Safety (FMCSA) Regulations for Drivers
- ❖ Load Securing for Radioactive Material Carriers
- ❖ Transportation of Radioactive Materials for Drivers & Carriers

REGULATOR, INSPECTOR, EMERGENCY MANAGEMENT, FIRST RESPONDER TRAINING

- ❖ Regulator Inspection of Radioactive Material Shipments
- ❖ Incident/Accident Response by First Responders





ENERGY *SOLUTIONS*

Mark Lewis

Director, Broker and Training Programs

(803) 960-3619

mslewis@energysolutions.com

Donnie James

Senior Instructor

(504) 401-3250

djames@energysolutions.com

Angie Lott

Training Coordinator

841-3573

poneid@energysolutions.com