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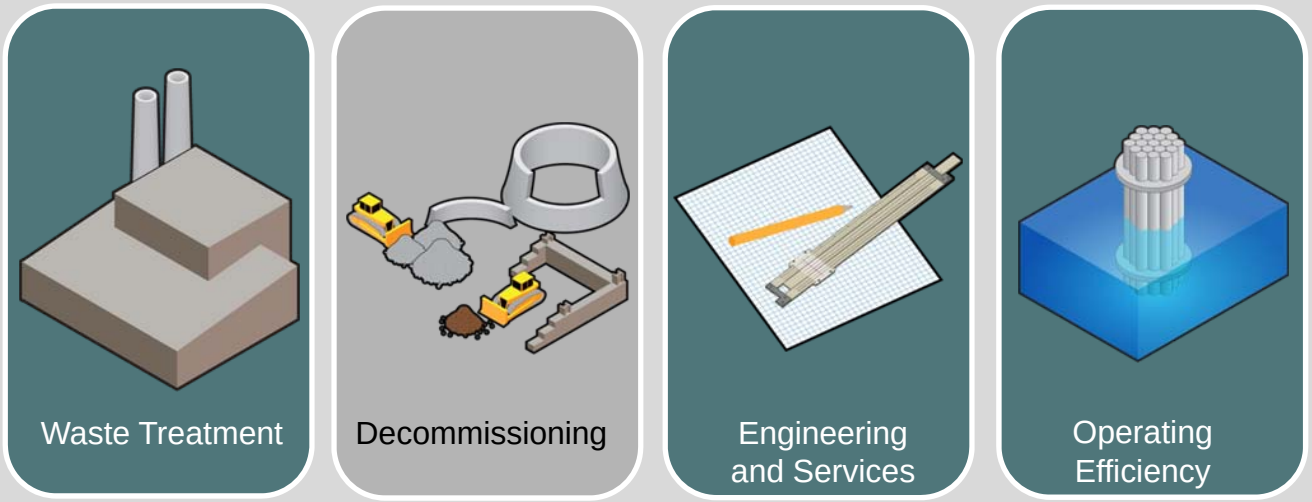
Nuclear Power Plant Waste Management - LLW Processor Issues

Waste Management 2011 – Session 47

Studsvik

A worldwide leader in the nuclear waste industry, providing innovative services and products to improve each client's operating efficiency.

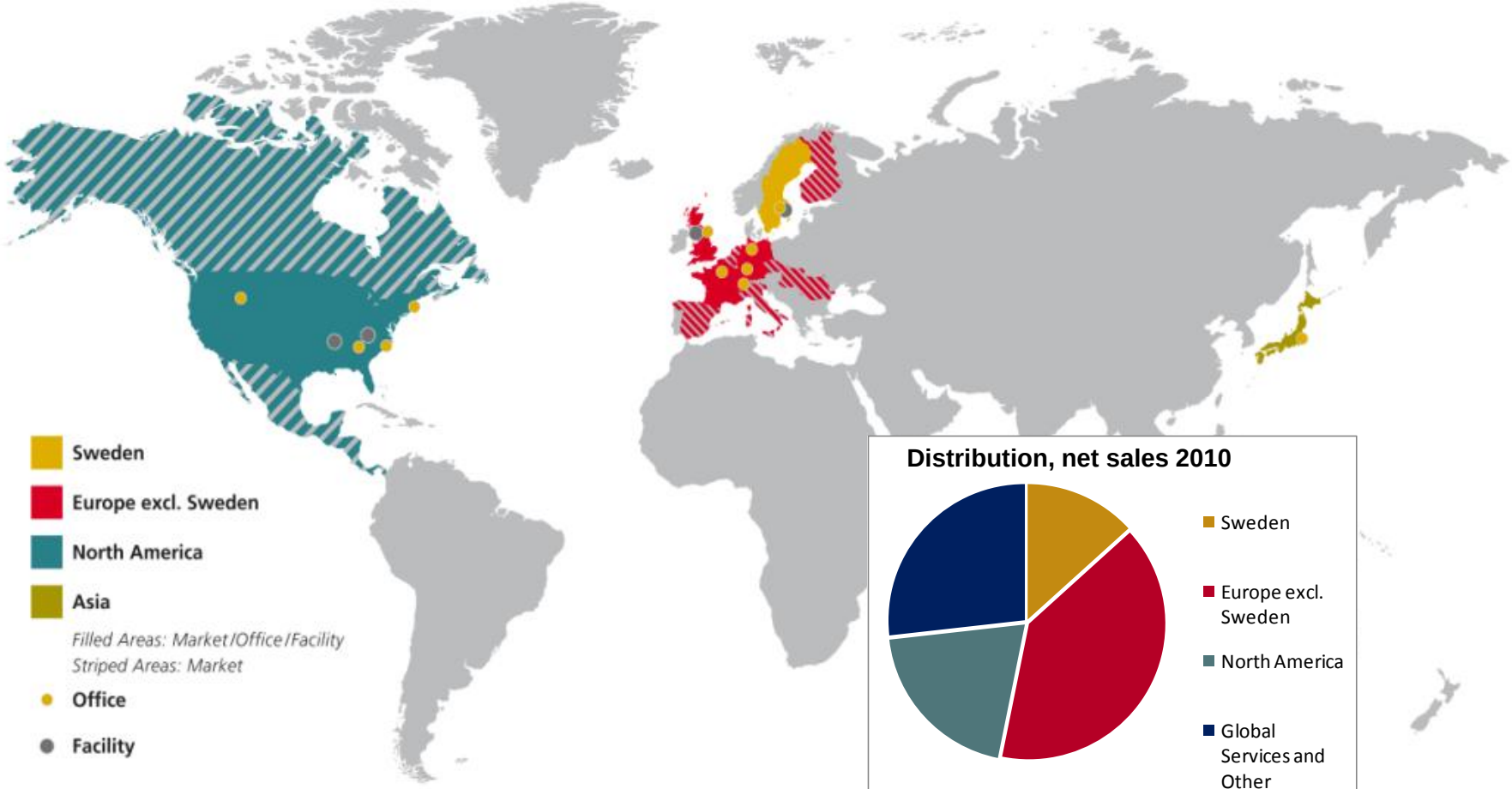
Business Areas



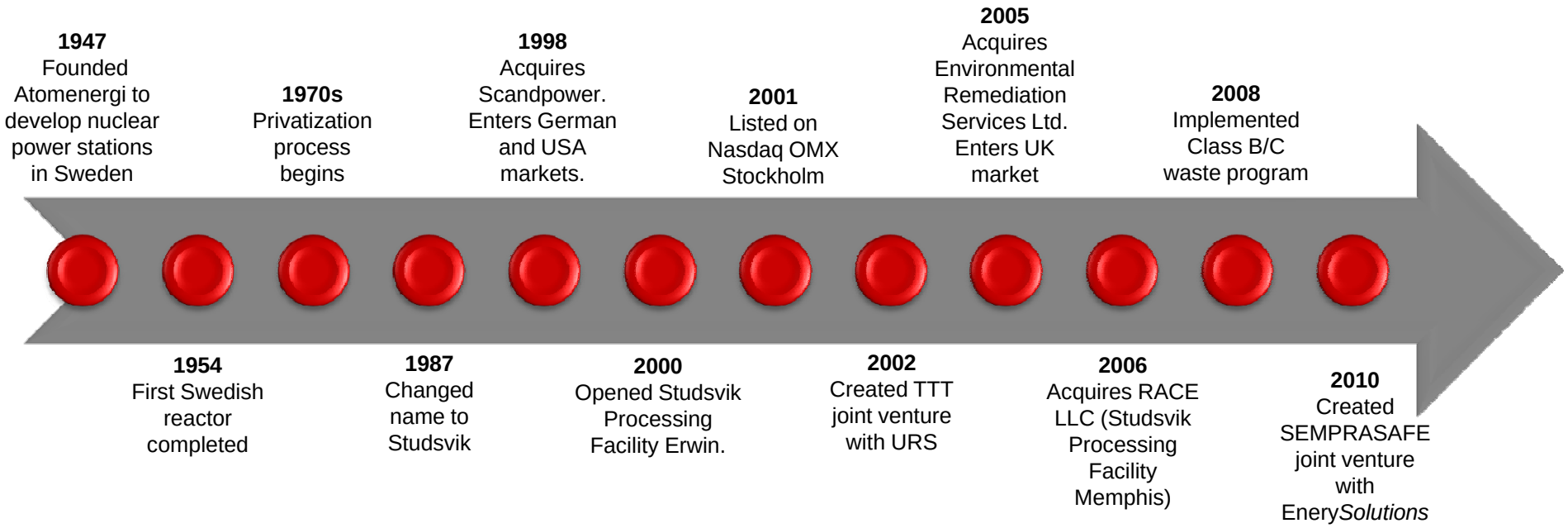
Studsvik Capabilities

Studsvik North America Offerings

Studsvik's Markets



Innovation Timeline

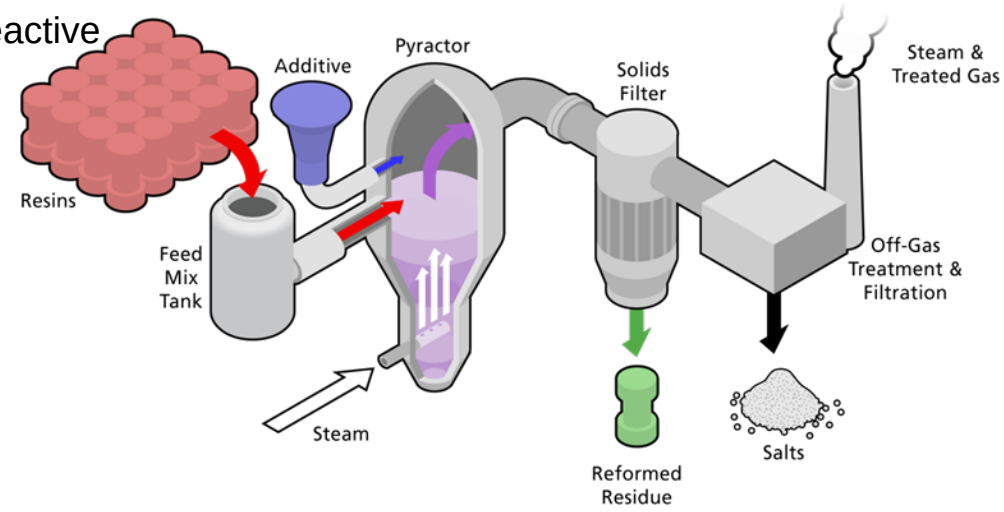


Waste Treatment Offerings

- Thermal Organic Reduction (THOR®)
- Thermal Conversion Reformer
- T-Spray
- Large Component Processing
- Bulk Survey For Release (BSFR)
- Advanced Material Processing (AMP)

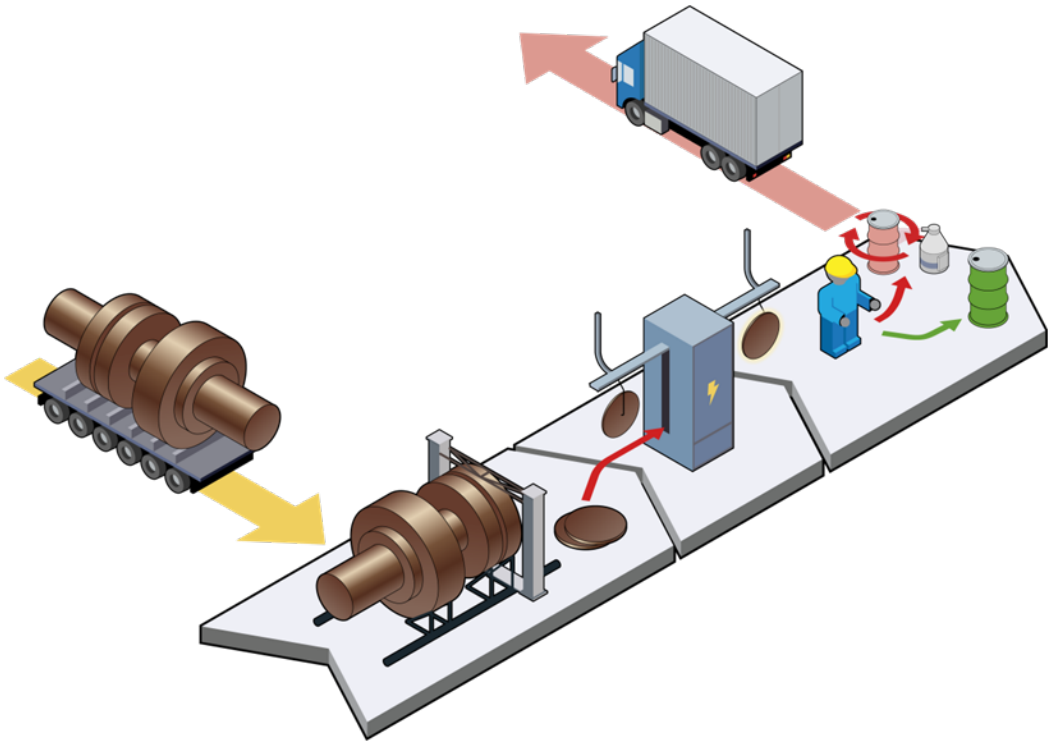
THOR Process

- Patented thermal technology
  - Pyrolysis/steam reforming system
  - Reduces wet organic waste to a non-reactive waste form
- Waste streams processed
  - Bead resins, powdered resins, sludges
  - Activated charcoal
  - Non-Metal Filter Cartridges
  - Dry Active Waste (DAW)
- Benefits
  - Volume reduction
  - Creates a safer, more stable, inorganic waste form
  - Controllable for specific waste classifications



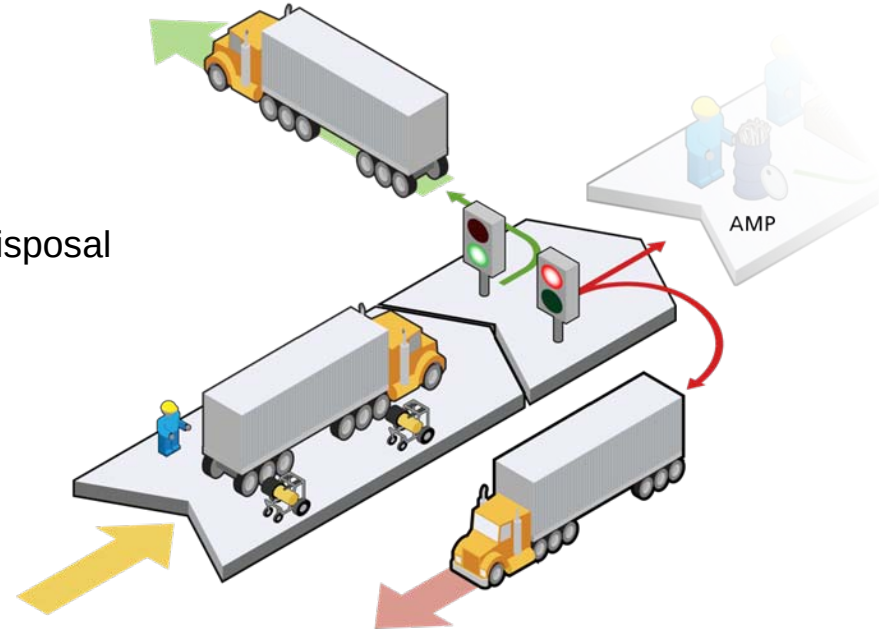
Large Component

- Process and recycle large components
- Turnkey services
- Waste streams processed
  - Nearly any component
  - Examples
    - Steam generators
    - Reactor heads
    - Feed water heaters
- Benefits
  - Volume reduction
  - Recycling
  - Up to 97% release



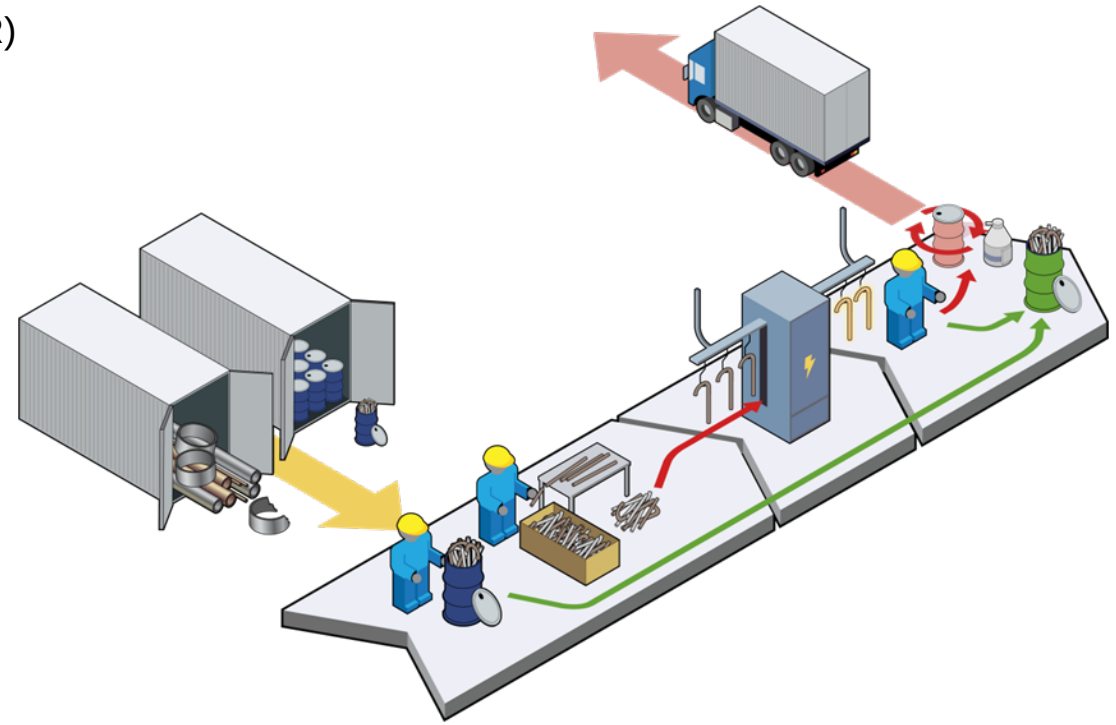
Bulk Survey For Release (BSFR)

- Process and dispose medium or high density solid waste materials
  - ISOCS gamma spectroscopy system used to survey waste
  - Controlled disposal to specific Subtitle-D disposal facilities
- Waste streams processed
  - Soils, rubbles, scrap metal, equipment
  - Dry Active Wastes (DAW)
  - Bulk liquids, oils, sludges (absorbed)
- Benefits
  - Cost effective alternative to direct LLRW disposal



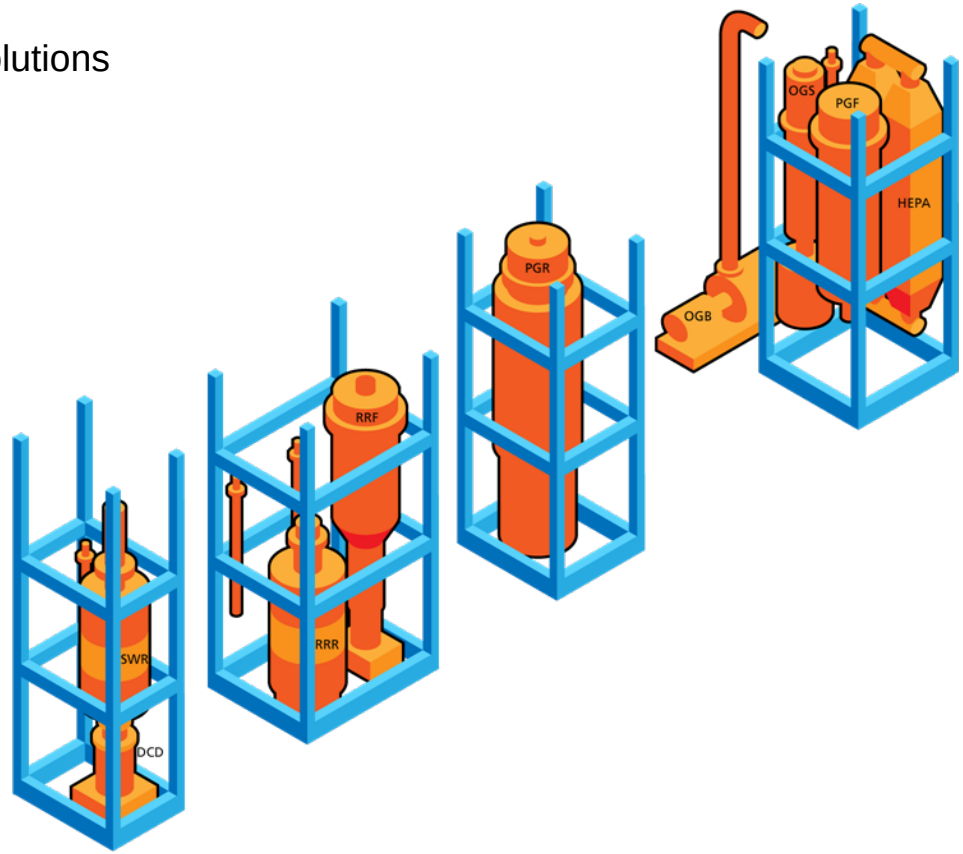
Advanced Material Processing (AMP)

- Sort and process waste materials
  - Bulk Survey for Release (BSFR)
  - LLRW Disposal
  - Free Release
- Waste Streams Processed
  - Dry Active Waste (DAW)
  - Metals
- Benefits
  - Conservation of LLRW landfills
  - Recycling
  - Lower disposal costs



Engineering and Consultancy Services

- Custom solutions to problematic waste streams
  - Fluidized bed stream reforming
  - Other proprietary thermal treatment solutions
- Services
  - Testing
  - Design
  - Equipment supply
  - Start-up and technical assistance
  - Turn key solutions
- Example projects
  - DOE Idaho
  - DOE Savannah River
  - Multiple projects internationally
    - UK
    - France
    - Japan

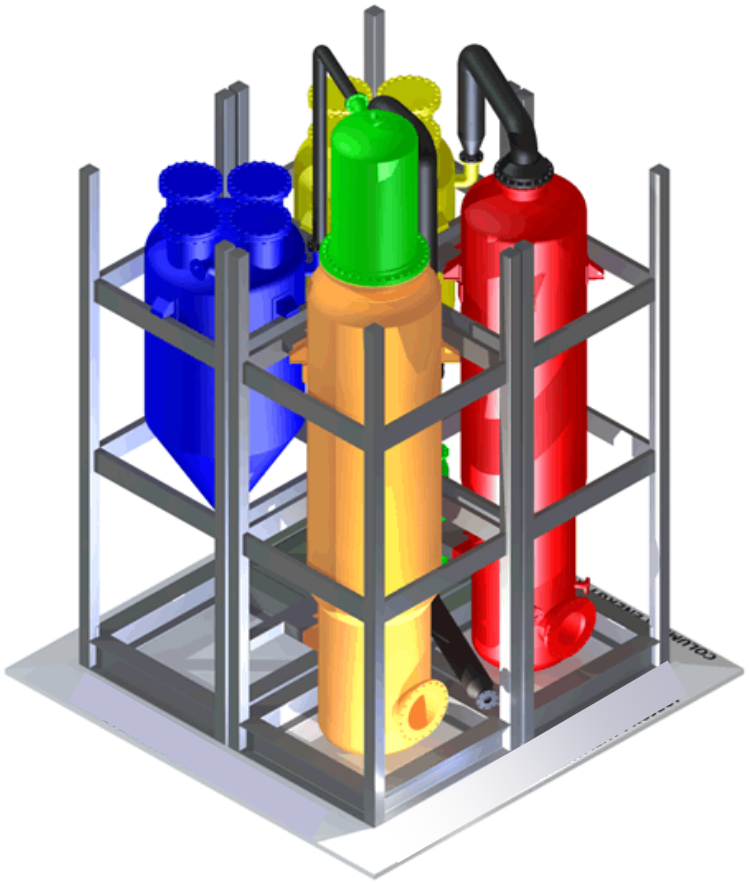


DOE Idaho Sodium Bearing Waste (SBW)

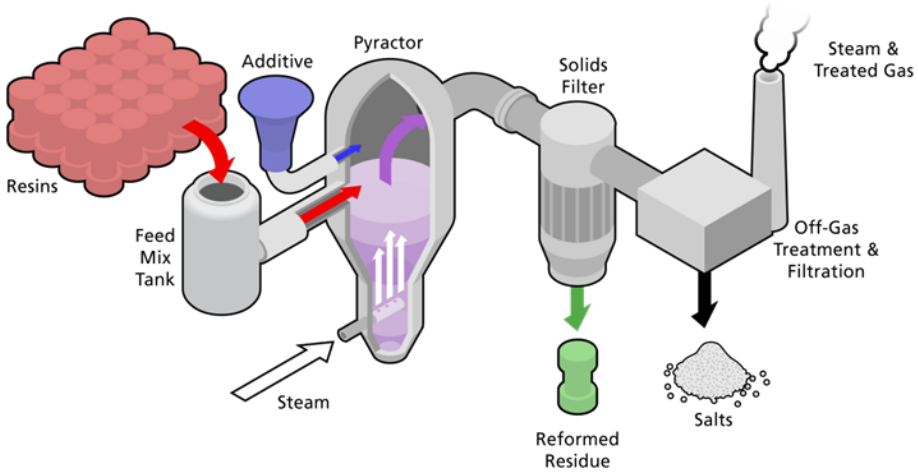
- THOR treatment of 3.8 million liters of SBW generated from the spent nuclear fuel solvent extraction processes
- Status
  - Plant start-up
  - Online Fall 2011

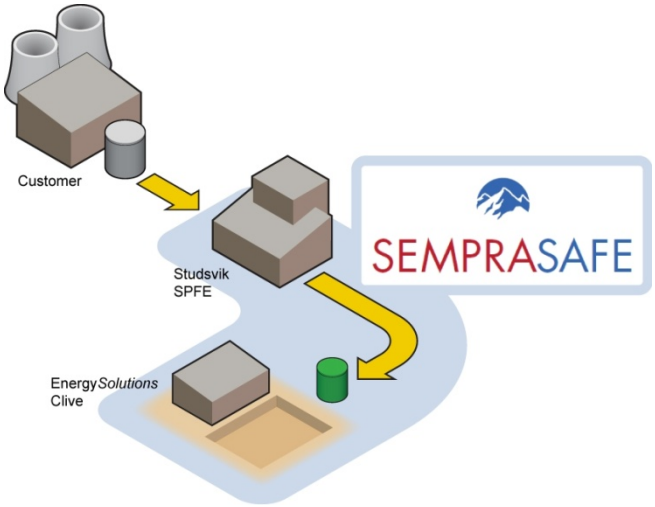
DOE Savannah River Tank 48

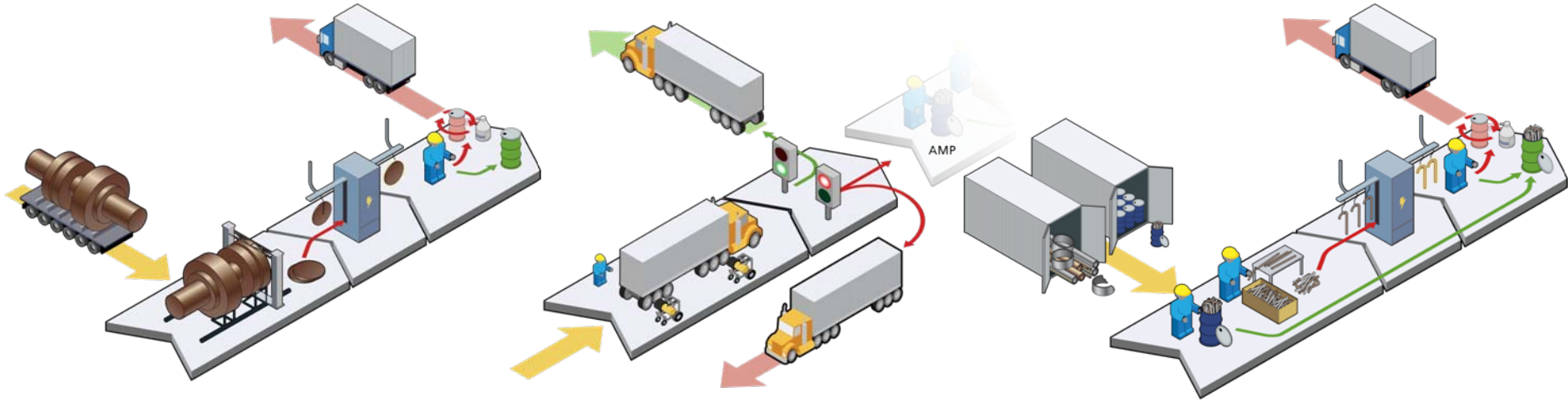
- THOR treatment of 1 million liters of high-level radioactive liquid tank waste
- Status
  - Integrated pilot plant tests complete
  - Detailed design for full-scale plant underway



Risk-Informed, Performance-Based







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