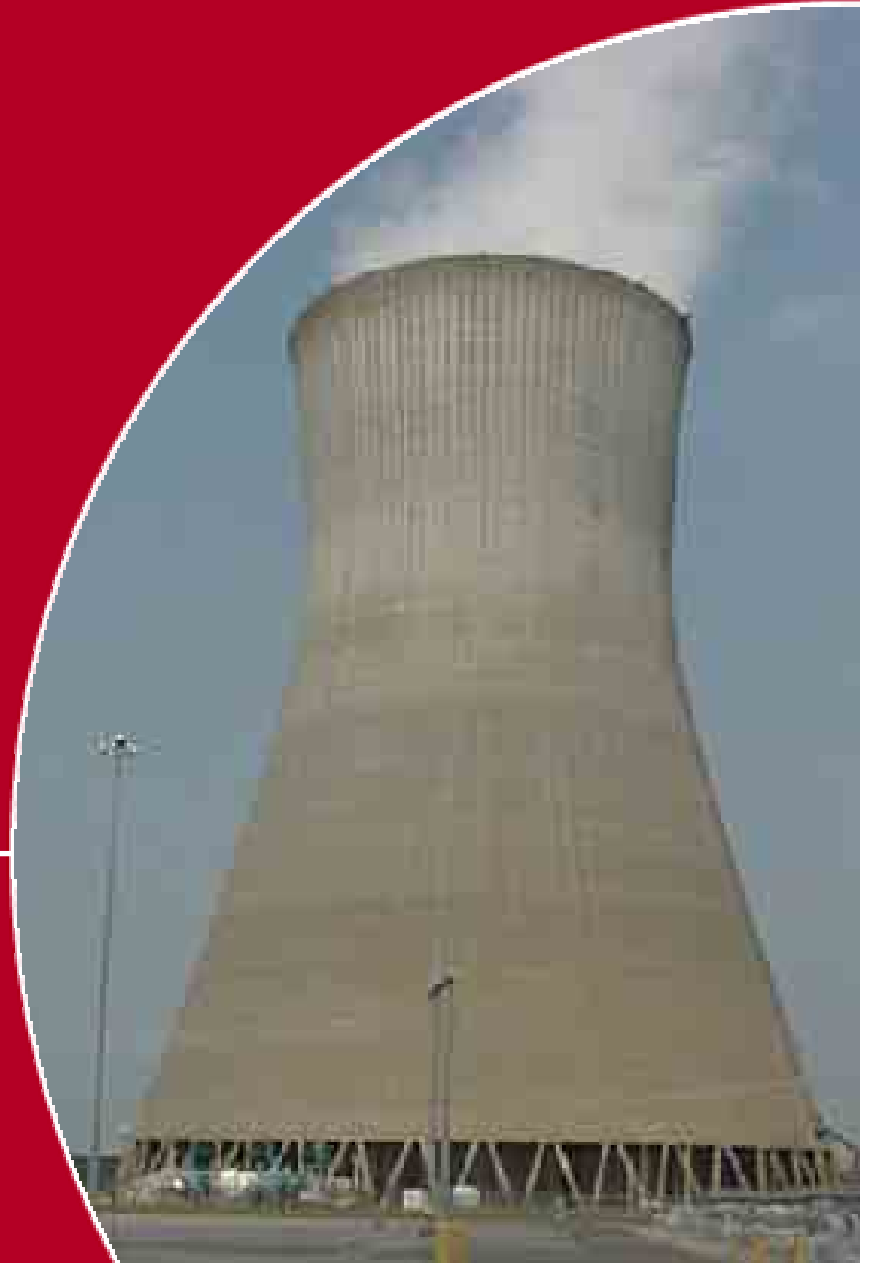


Studsvik

**Full Service
International
Company**

with Complete Processing Capabilities

Author: Jim Harris, Technical Sales Manager, Studsvik, Inc.



Waste Treatment

SPF - Erwin



Studsvik Processing Facility Erwin

- **Erwin, TN: Began Operation in 1999**

Studsvik – Erwin, TN

In the Door Volume: ~350,000 ft³

Volume After Processing: ~ 70,000 ft³

Volume Saved: ~280,000 ft³

Volume Reduction Ratio: 5:1

Waste Streams Processed:

- *Resins Consisting of -*
 - *Bead and Powdered Resins; Charcoal; Sludge*
- *Aqueous Liquids*
- *Filter Cartridges (Inorganic and Organic)*
- *Organic Waste Streams*



Waste Treatment
SPF - Memphis



Studsvik Processing Facility Memphis

- **Memphis, TN: Began Operation in 2000**

Studsvik – Memphis, TN

In the Door Volume: ~500M lbs

Waste Streams Processed:

- General Waste / DAW / Metals
- Large Components (Pressurizers, Turbines, etc)
- Aqueous / Organic Waste Streams
- Decommissioning / Demolition Rubble

Methodologies:

- BSFR (*Bulk Survey for Release*)
- Survey for Free-Release
- Waste Sorting / Volume Reduction



Other Ventures:

THOR Treatment Technologies, LLC, a joint venture with URS/Washington to practice the THOR process within the US Government.

Complete Processing Capabilities

SPF - Erwin

- Pyrolysis/Steam Reforming (THORsm)
- IE Resins (*Bead, Pdx, Charcoal, Sludge, Aqueous Liquids*)
- Filter Cartridges (*Inorganic and Organic*)
- Discrete Material (*Velocity Limiters, Valves, CET, etc.*)
- Aqueous / Organic Waste Streams
- Casks / Transportation
- Field Services (*Resin Dewatering, Tank Desludging*)
- Transportation/Logistics
- T-Spray Liquid Processing

SPF - Memphis

- General Waste / DAW / Metals
- Waste Sorting / Volume Reduction (AMP)
- BSFR (*Bulk Survey for Conditional Release*)
- Survey for Free-Release
- Aqueous / Organic Waste Streams
- Large Component Processing (*Turn-Key*)
- Decommissioning / Demolition Rubble
- Field Services / Project Management
- Transportation/Logistics
- Specialty / Unique Waste Streams
- Process and Return Services
- Process and Storage Services
- Steam Generator Processing Building

Pyrolysis / Steam Reforming

Incoming Resin



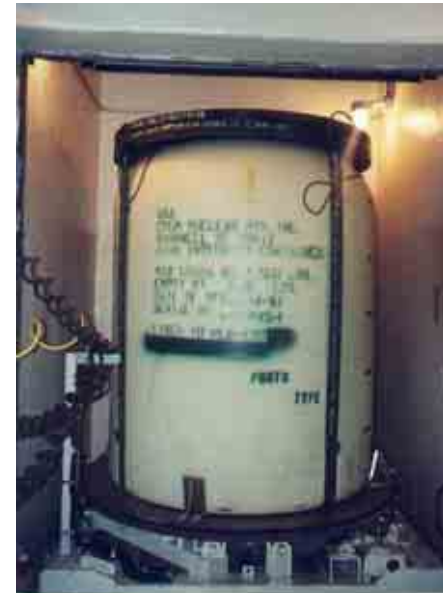
Polystyrene Beads

Pyrolyzed Resin



**Metal Oxides &
Residual Fixed Carbon**

Final Product



**Packaged in
8-120 HIC's**

Organic Filter Processing



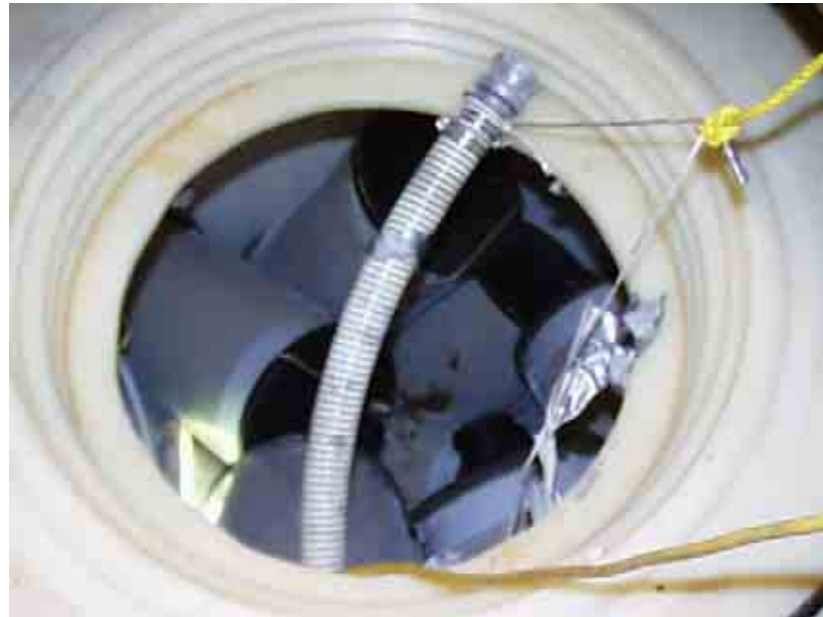
BEFORE

AFTER



Filter / Discrete Material Over-Fill

- Over-Fill with Reformed Residue (RR)



T-Spray Liquid Processing



- Aqueous Liquids such as:
 - Borated Water, Salt Water Intrusions, etc.
 - UF/RO Reject
 - Evaporator Bottoms



Large Components

- Steam Generators
- Low / High Pressure Turbine Rotors
- Turbine Casings
- Reactor Vessels
- Reactor Pressure Vessel Heads
- Pumps, Valves, and Motors
- Heat Exchangers
- Feedwater Heaters
- Pressurizers
- Condensers
- Evaporators
- Missile-Shields
- Concrete Shield Plugs
- Polar Cranes
- Contaminated Tanks



Studsvik Logistics (Transportation)

- Studsvik Logistics
 - 25 Tractors
 - >18 million miles
- Studsvik Casks
 - 8-120B (2 each)
 - 14-190M (1 each)
- Studsvik Containers
 - Intermodals, Sealands,
 - B-25 Boxes, Special Bags



Highlights

- Processing and Storage or Processing and Return Services
- Steam Generator and Large Component Processing
- Barge, Direct Rail and Truck Access
- 1,250 Ton Crane
- Largest Decon Booth in USA
- Segmentation / Decon Shop
- General Waste Processing
- Detailed Sorting and Conditioning Area (AMP)
- BSFR Throughput Area
- Free Release Area to Reg. Guide 1.86



International Accomplishments

- Studsvik AB won a contract for the modernization of reactor 3 at the Oskarshamn plant which includes the replacement of 1,400 tons of metal components.
- Studsvik acquired ALARA Engineering AB, a nuclear engineering consultancy with customers in the Swedish and Finnish nuclear industry. The acquisition supplements Studsvik's consulting operations and provides new growth opportunities.
- Studsvik AB has received an order from Vattenfall Ringhals for the treatment and metal recycling of three steam generators. The contract value is 4 million USD.



Studsvik LLW Management Plan

- Waste is processed through Studsvik's THOR™ process
 - Significant (~5:1) volume reduction
 - Chemical form is changed (organics removed) resulting in extremely stable waste form (“Reformed Residue”)
 - Radiological identity of Reformed Residue can no longer be attributed to discrete generators and becomes attributable to Studsvik
- Studsvik accepts financial responsibility for disposal of the Reformed Residue
- Class A LLW is shipped for disposal
- Class B and C LLW is containerized and stored at a licensed storage facility until a final disposition path is available

Studsvik

For Questions Contact:

Jim Harris

(901) 848-1438

Jimmy.Harris@studsvik.com