

# Introduction Studsvik AB

Lotta Nystrand/Ian McKinley

Fuel and Materials Technology

**Studsvik**



# Studsvik worldwide

Leading supplier of specialist nuclear and radiological services



## Customer Groups

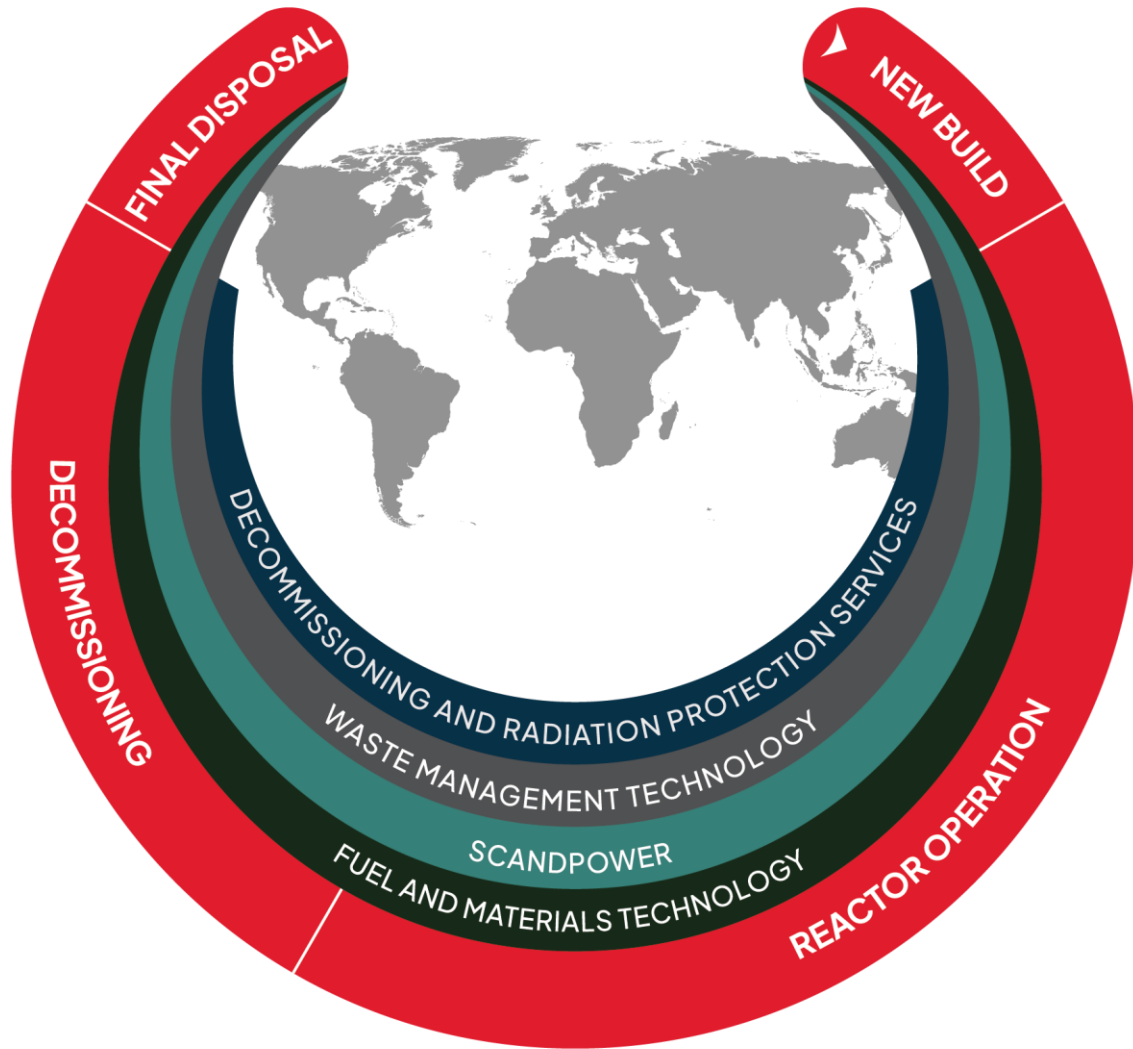
- Power Plants & Fuel Vendors
- Research Organisations
- Nuclear Regulators
- Fusion and Big Science
- Medical Technology

## Global Sales 2023

826M SEK

Listed on  
Nasdaq Stockholm

## ▴ Studsvik's business areas



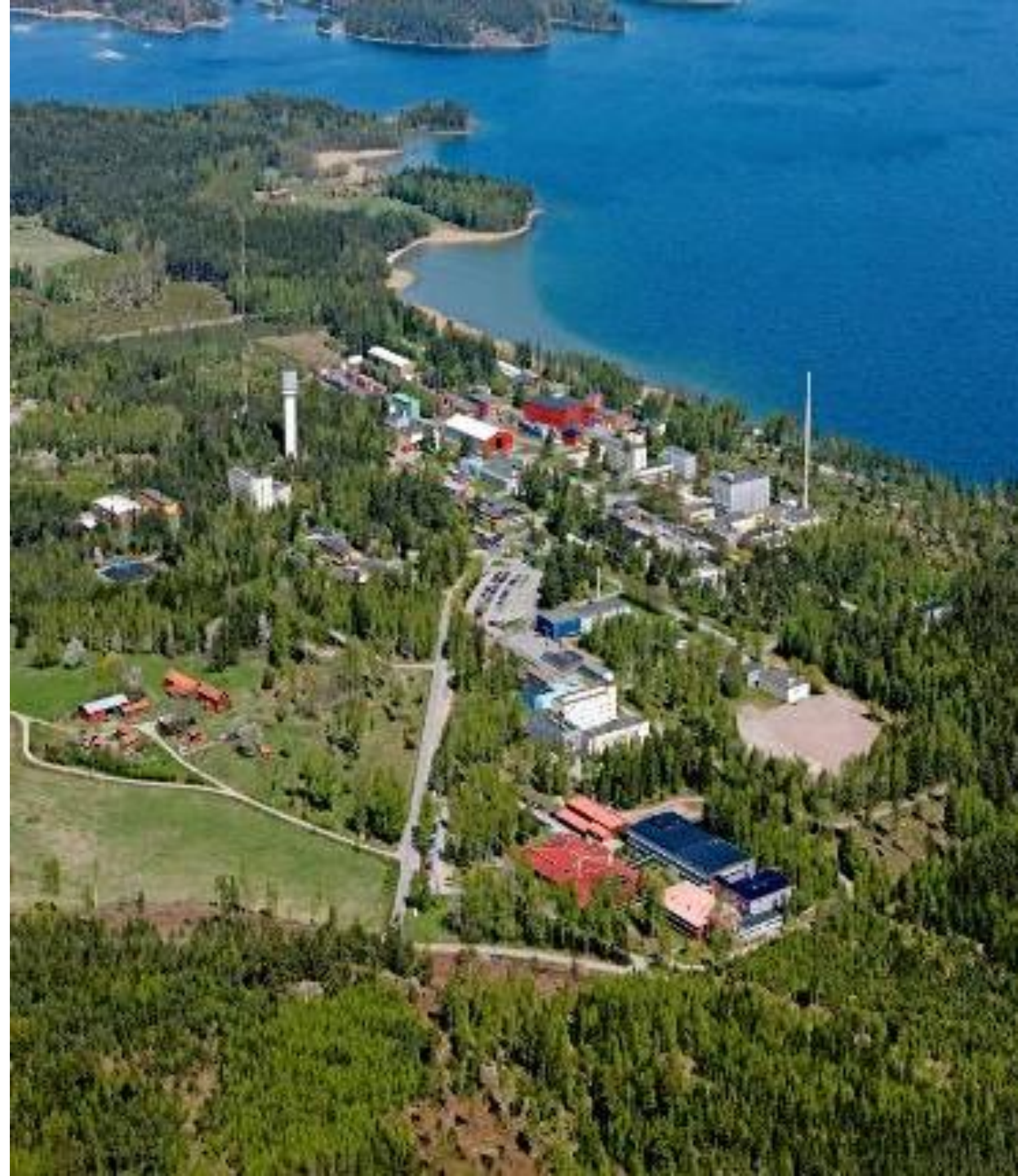
We offer services  
throughout the  
nuclear lifecycle.



## ■ Studsvik site is part of our unique heritage

- Former organisation for Swedish government's civil and military R&D established 1947
- Nuclear licensed facility developed from the late 1950's
- Operating research reactors into this century
- Three laboratories for research in Materials Technology since 1960s
- Own deep-water harbour
- Located 100 km south of Stockholm in Sweden, 1 hour drive

**Studsvik**





## ► Fuel and Materials Technology

**Studsvik**



## Unique nuclear licensed testing facilities



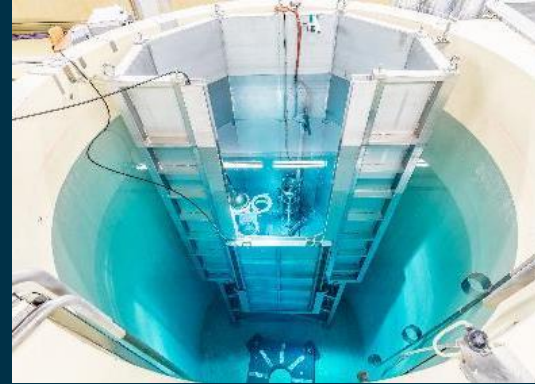
**Hot Cell Laboratory**

- Fuel testing and Qualification
- 7 concrete cells with >40 fuel rods examined per year
- Unique fuel and material library
- More than 600m fuel rods
- Manufacturing of Co60 radiation sources for cancer therapy
- VR Tour



**Material Testing Laboratory**

- 11 lead cells and 8 steel cells with advanced material and mechanical test methods
- Testing of irradiated cladding and components
- Irradiated metals testing and fabrication
- Reactor lifetime extension and material qualification



**Pool Facility**

- Facility with 3 pools of 8m depth
- Storage, measurement and re-packing of fuel/components
- Equipment development

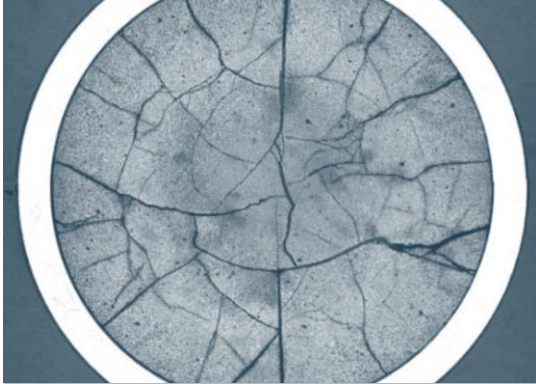


**Autoclave Laboratory**

- Testing of non-radioactive material
- Autoclaves with simulated LWR environment
- Test rig development

**Lab facilities for advanced microscopy, analysis and chemistry**

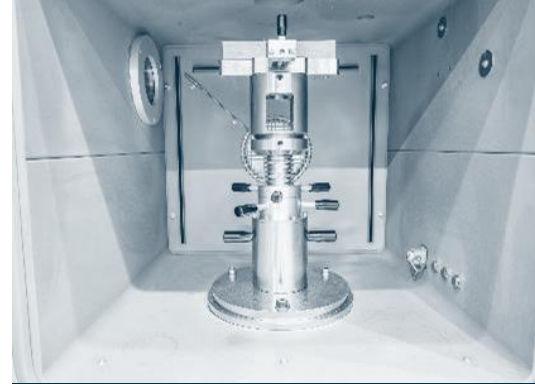
# ▀ Studsvik FMT – The International Laboratory



**Nuclear Fuel Qualification**



**Final Disposal Simulation  
and Back-end Solutions**



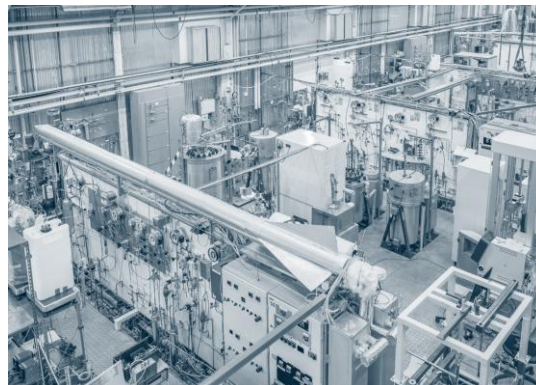
**Materials Qualification  
incl. Lifetime Extension**



**Transport of Irradiated  
Materials**



**Hot Cell Technologies and  
Expertise**



**Water Chemistry  
Simulation**



**Sealed sources for  
medical application**



**Engineering**



## Radioactive Transports

- Studsvik casks
  - Full-size – NCS-45 B(U)F
  - Small casks for samples – worldwide
- Dedicated transport group
- Transports from Europe, Asia, USA and South America
- Transport volume per year:
  - ~10 transports of irradiated fuel
  - ~10 transports of irradiated materials





## ▲ Fusion & Big Science

- Mechanical testing and corrosion studies for nuclear fusion for 40 years
- Ongoing projects for particle accelerators and space applications
- Development of bespoke testing and sample irradiation to meet unique materials challenges
- 75 years of fission expertise used to support big science customers around the world, helping meet regulatory compliance and enhance device performance.



## International cooperation projects



*Participants represent; fuel manufacturers, utilities, regulators and national laboratories*

### OECD-NEA projects:

- **SCIP** (Studsvik Cladding Integrity Project) covers both operations and back-end since 2004.
  - Members in 15 countries & 40 organizations
- **SMILE** (Studsvik Material Lifetime Extension Project) based on PWR and BWR materials from decommissioned reactors since 2021.
  - Members in 10 countries & 20 organizations

### Studsvik joint research projects:

- **SPARE** Post Halden program to secure the highest priority fuel for future research and experiments
- **LAGER** PIE project to better understand and quantify the radial distribution of burnable gadolinium isotopes in a fuel rod with low and relevant burnup.





**Studsvik**

## ■ The Studsvik Site / Studsvik Tech Park

- Nuclear operating license
- The facility is designed for 2,000 employees
- Approx. 400 people are currently on site. Mainly Studsvik, Cyclife and SVAFO
- Land area 150 ha, water area 400 ha
- Protected area 80 ha (monitored and protected).
- Deep harbour
- Used to power the 50 MW research reactor, R2
- Like a mini-municipality with its own infrastructure including heating, water, sewage and electricity distribution and related services
- Procedures and facilities at site to handle low-high level waste streams





**Thanks for listening!**