Training and HR Development in RWM

Shifting From R&D to Preparing for the Operation of a Disposal Facility
Ensuring Competence and Competence Providing Infrastructures for a Small Waste Management Organisation
Case of Posiva Oy

Marjatta Palmu, Senior Adviser
Nuclear Waste Management of the Existing NPP’s in Finland

TEOLLISUUDEN VOIMA OYJ
- Olkiluoto power plant
- Interim storage of spent nuclear fuel
- Operating waste repository commissioned in 1992

In the future

FORTUM POWER AND HEAT OY
- Loviisa power plant
- Interim storage of spent nuclear fuel

POSIVA OY
- Final disposal of spent nuclear fuel planned start of operations in 2020

15.2.2011
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Posiva Oy Founded in 1995

- Ownership: Teollisuuden Voima Oyj 60 %, Fortum Power and Heat Oy 40 %
- ISO 9001 certified in 2008, ISO 14000 certified in 2010
- Mission: Final disposal of spent nuclear fuel of the owners

- Gradual change from a R&D company to an implementing organisation
- Steady increase of personnel: 92 people
  - total direct employment effect over 300 persons
- Accrued budget in 2010: EUR 61 million
- Estimate for 2011: EUR 71 million
Focus from Development to Design, Construction and Demonstration for the Operating License

- FSAR of the disposal facility: Main tasks
  - Demonstrations in ONKALO URCF (RSC), the final construction works
  - Design, sealing, NDT and manufacturing of canister
  - Design and construction of encapsulation facility and its equipment
  - Main drawings and construction of repository, development and manufacturing of disposal technology and equipment

- Supporting tasks
  - Transportation of spent fuel (procurement)
  - Safeguards issues - not only for ONKALO
  - Training of operating personnel
  - Cost estimates and the Waste Management Scheme
  - Ensuring operational safety in the facilities
40 Years Long Road to Safe Disposal

1978
Start of feasibility studies of geologic disposal

1983
Site investigations

KPA -Spent fuel storages

Posiva founded in 1995

1995
VLJ-repositories

2001
Decision in Principle by Government and ratification by Parliament

2001
Application for construction license

2012
Construction of ONKALO and confirming investigations at Olkiluoto

2018
Application for operations license

2018
Test operation and commissioning

2020
Start of disposal

Start of disposal
A Lot of New Young Employees Hired. Investment in the Induction of New Personnel

Source: Annual report 2009

Age structure of personnel

Number of personnel

Source: Annual report 2009
Training of Personnel

Type of training courses having reruns:
- Basics in GD Safety Assessment
- Basics in Geosciences and
- Basics in Groundwater
- Regulatory Guidelines

Sourcing training from TVO:
- Nuclear specific topics and radiation protection

Specific topical seminars and workshops

Number of training days per employee

Source: Annual report 2009
Posiva’s Training in Geological Disposal Now – Selected Basics and Specialized Courses

- Posiva Facility Design course (2009)
- ITC School cooperation Cement and Cementitious materials in GD 2008
- Revised and extended Basics in safety assessment 2006-2009
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- Posiva-NAGRA-ONDRAF/NIRAS Safety Case Workshop 2007
- Posiva-VTT: 1st Basics in safety assessment 2003-2005

- Need to train facility operators
- National Basics KYT Pilot integrated into Basics in safety assessment in 2010

Basics in Geosciences 2007, 2010
Basics in Groundwater 2006, 2009

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Different Needs at Different Times

- Site selection stage – site investigation and technology development focus (personnel: ~20-30 people),
- ONKALO URCF stage – learning to build and operate underground (personnel up to 90 people),
- Licensing application preparation stage until operating license (personnel up to 120 people).

- Preparing for operations – becoming a nuclear operator
  - Not only the operations but also the different new requirements e.g. validations and qualifications, pre-reviews, inspections are of source of new needs,
- Reflected in Posiva’s strategy and organisation
  - New skills and new competence needed for existing personnel, too.
  - Definition of qualifications of personnel for safety critical tasks.
Entire Disposal Facility around Year 2100 and Foreseen Closure around Year 2130
Posiva's New Strategy Map 2010

Main goal 2012

Submission of a license application in 2012 that qualifies to receive a construction license in 2014.

Values

Accountability
Trustworthiness
Openness
Dedication

Vision

We start disposal in 2020.

Mission

Development, licensing and implementation of safe disposal for Posiva’s owners’ spent nuclear fuel.

Main goal 2018

Submission of license application in 2018 that qualifies to receive an operating license in 2020.
Working Together with Universities to Create a Network of Competence Infrastructures

- First national pilot on the Fundamentals –course
  - Initiative from the Ministry (TEM), coordination by Aalto University

- Petrus II network
  - End-user needs on professional development schemes
  - Use of the competence data from various end-users, not only from Posiva

- International activity increasing
  - OECD/NEA ad hoc groups and EC’s EHRO-N
A National Competence Working Group by the Ministry of Employment and the Economics Parliament required a study on the availability of competence for new build.

A working group established by TEM with a main group and subgroups engaging around 120 experts

1. Availability and need of nuclear specific work force (experts and operators)
2. E&T offering and needs
3. National research programmes (KYT, SAFIR)
4. Research infrastructures
5. International research cooperation
6. VTT’s research reactor (FIR1)
7. Finnish suppliers’ capability and competitiveness for new build
Going Down is Good! ONKALO tunnel at PL3100
But So is Going Upwards, too!

Ventilation and hoisting equipment buildings in Autumn 2010