

Radiation Protection Training in Loviisa NPP, Legislative Guidance and Development of Training Process

M. P. Ritala, J. K. Karhula, M. P. O. Koivisto and J. E. Vanhanen
Fortum Power Division
Loviisa NPP
Finland

Content of the presentation

- History of the regulatory requirements for radiation protection training in Finland
- History of the radiation protection training in Loviisa NPP
- Training process for company's own employees and contractors in Loviisa NPP
- Future challenges and opportunities

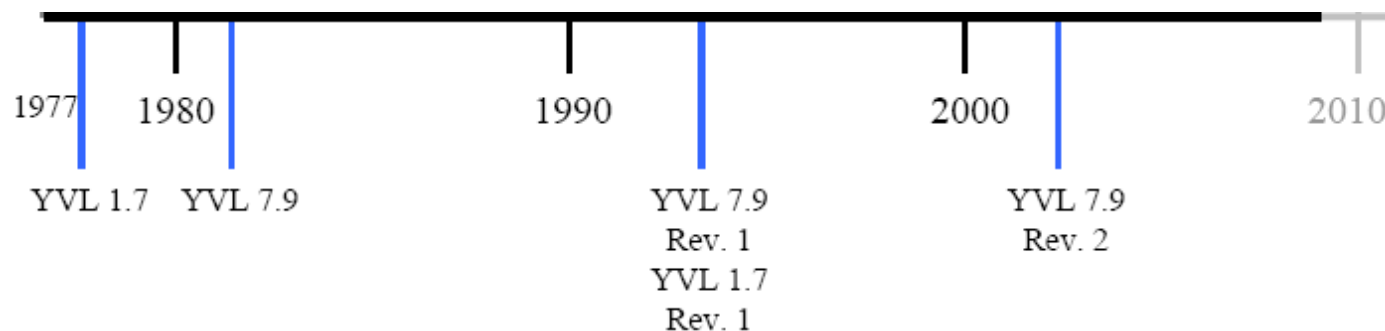


From past to present

History of regulations and RP training in Loviisa

History of the regulatory requirements for RP training in Finland

- Industrial Safety Act (1958) gave general requirements for training regard to working circumstances
- The Nuclear Safety Guides (YVL guides) gave requirements for
 - Training and qualification of plant staff (YVL 1.7, 1978)
 - Radiation protection training (YVL 7.9, 1981)
- Later revisions specified more accurately significance of e.g. training for workers with contribution to the radiation protection objectives and using of mock-up facilities



Radiation protection training over the history of Loviisa NPP

- 1970's and 1980's
 - During the first decade of operation the radiation protection training had relatively simple material and methods
 - Overhead projector slides with drawn illustrations of phenomenas and methods
 - Radiation protection matters covered the majority of the site induction training

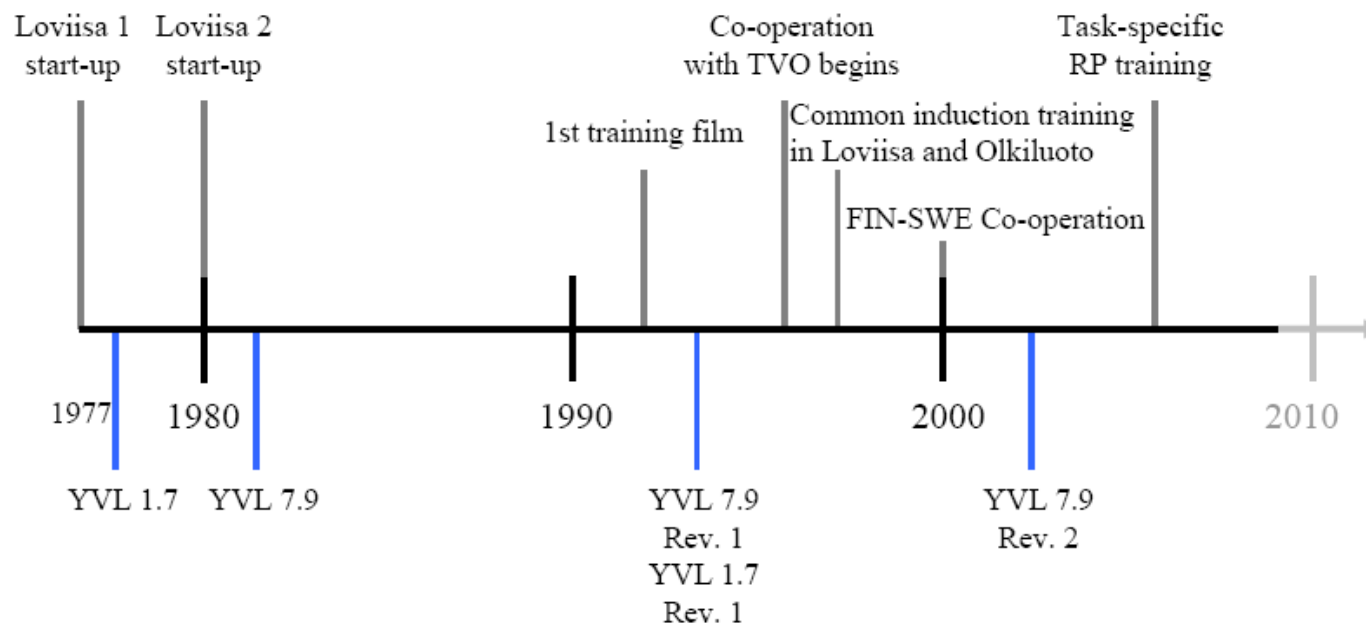
Radiation protection training over the history of Loviisa NPP

- 1990's
 - Site Induction Training was divided into Industrial Safety and Radiation Protection modules
 - First training film for radiation protection module
 - Cooperation in site induction training began between Fortum (then IVO) and TVO

Radiation protection training over the history of Loviisa NPP

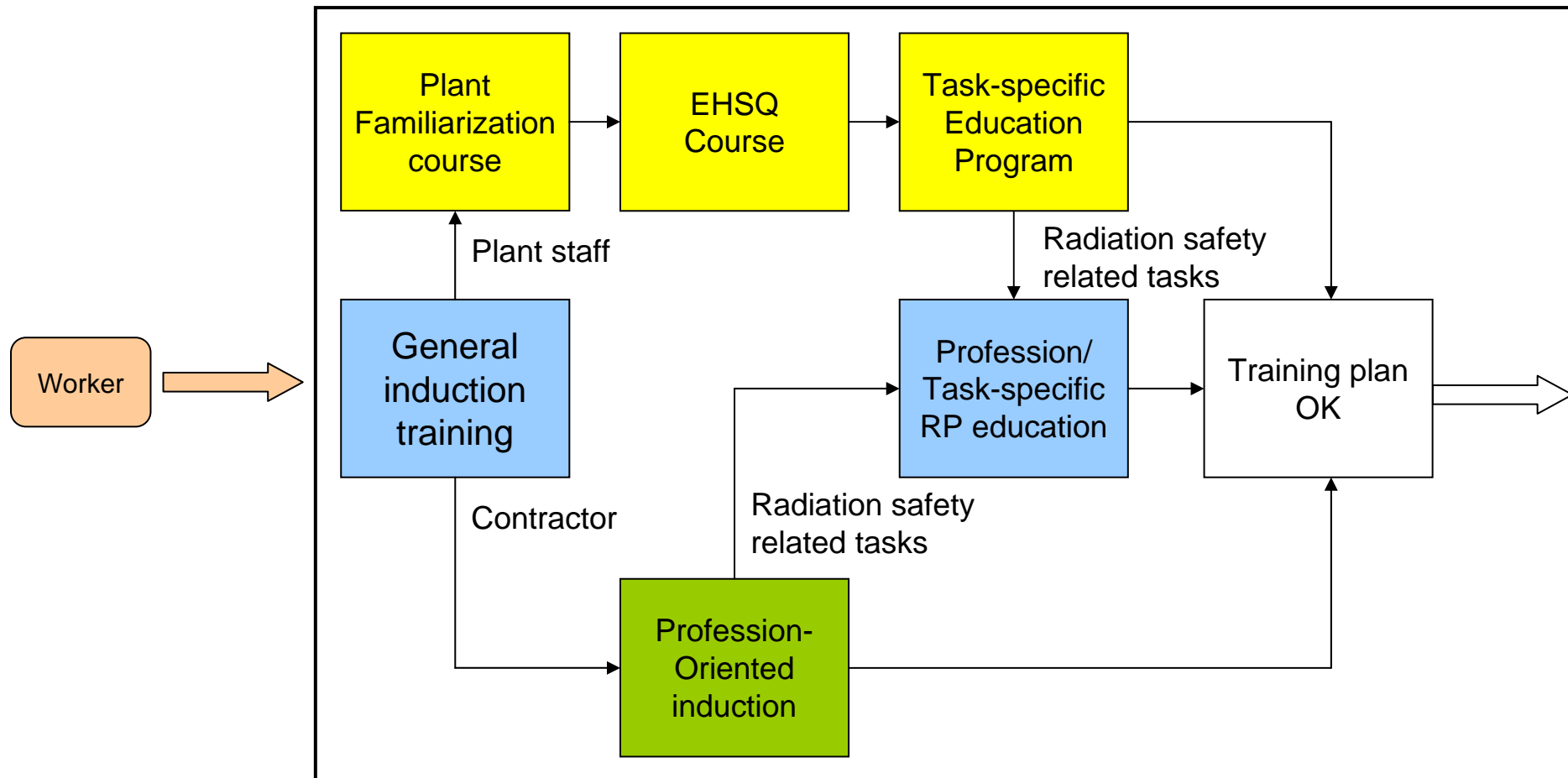
- 2000's
 - Cooperation was enlarged to cover the nuclear power plants in Finland and Sweden
 - Training methods and exams were standardized as far as applicable
 - More illustrative training films concerning
 - Radiation, radiation protection and radiologically controlled area
 - Contamination
 - General procedures etc.
 - Task-specific radiation protection training for the majority of RP critical working groups was introduced in 2008

Regulations and RP training over the history



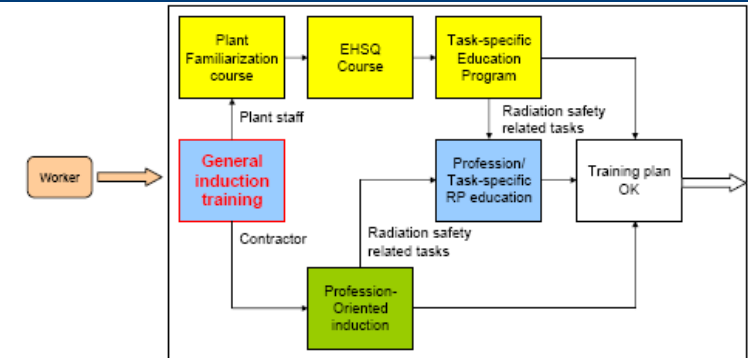
Training process in Loviisa NPP

Training process in Loviisa NPP



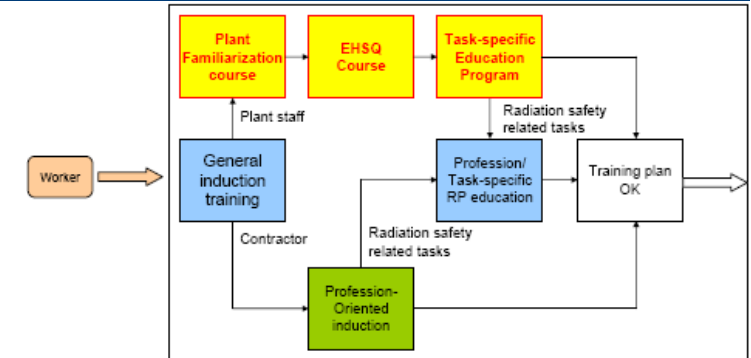
General Induction training

- Prerequisite for working in Loviisa NPP
- Common for all employees
- Passed training is approved in all nuclear power plants in Finland and Sweden
- Content
 - Industrial safety matters
 - General site information
 - Emergency preparedness arrangements
 - General knowledge on radiation protection and RP arrangements in Loviisa NPP
 - Radiation and contamination monitoring
 - Basic knowledge on radiation, dose, health effects etc.
 - Means for minimizing radiation dose etc.



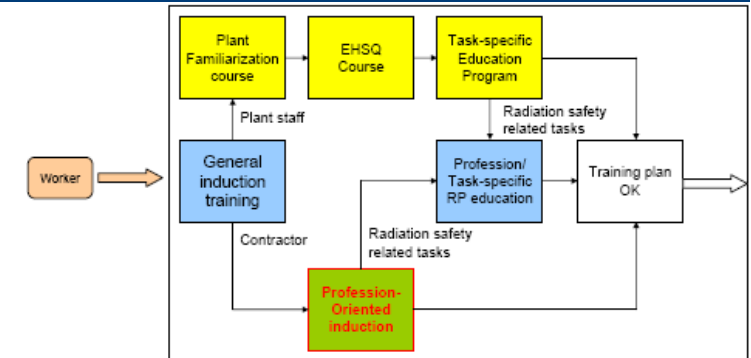
Training for plant staff

- Plant staff is familiarized to the site during Plant Familiarization and EHSQ courses
- One day for radiation protection in EHSQ
 - Deepening the information learnt in the Site Induction Training in class room training
 - Linking it to plant RP actions
 - Illustrating the phenomena during guided workshops
- A personal training plan is made for each worker
 - Depending on the task, training might include topics in field of radiation protection



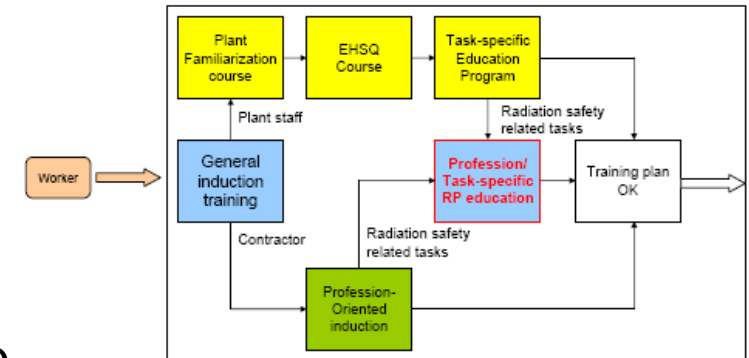
Contractor training

- Induction Training for Contractors is given in profession-oriented induction
 - Training packages for 21 different working groups
 - Training is given either by
 - Foreperson or
 - Plant contact person
 - Focus on industrial safety in tasks the working group is about to perform
 - Familiarization to the working environment



Task-specific radiation protection training

- In radiation safety related tasks, deeper training is given concerning e.g.
 - Radiation physics
 - How radiation and contamination builds up
 - Health effects of radiation and radioactive substances
 - Radiological circumstances at plant during the outage and when at power operation
 - Radiological risks in the specific working group
- Class room training + practical training for certain working groups
- Training is tailored for the tasks of the specific working group

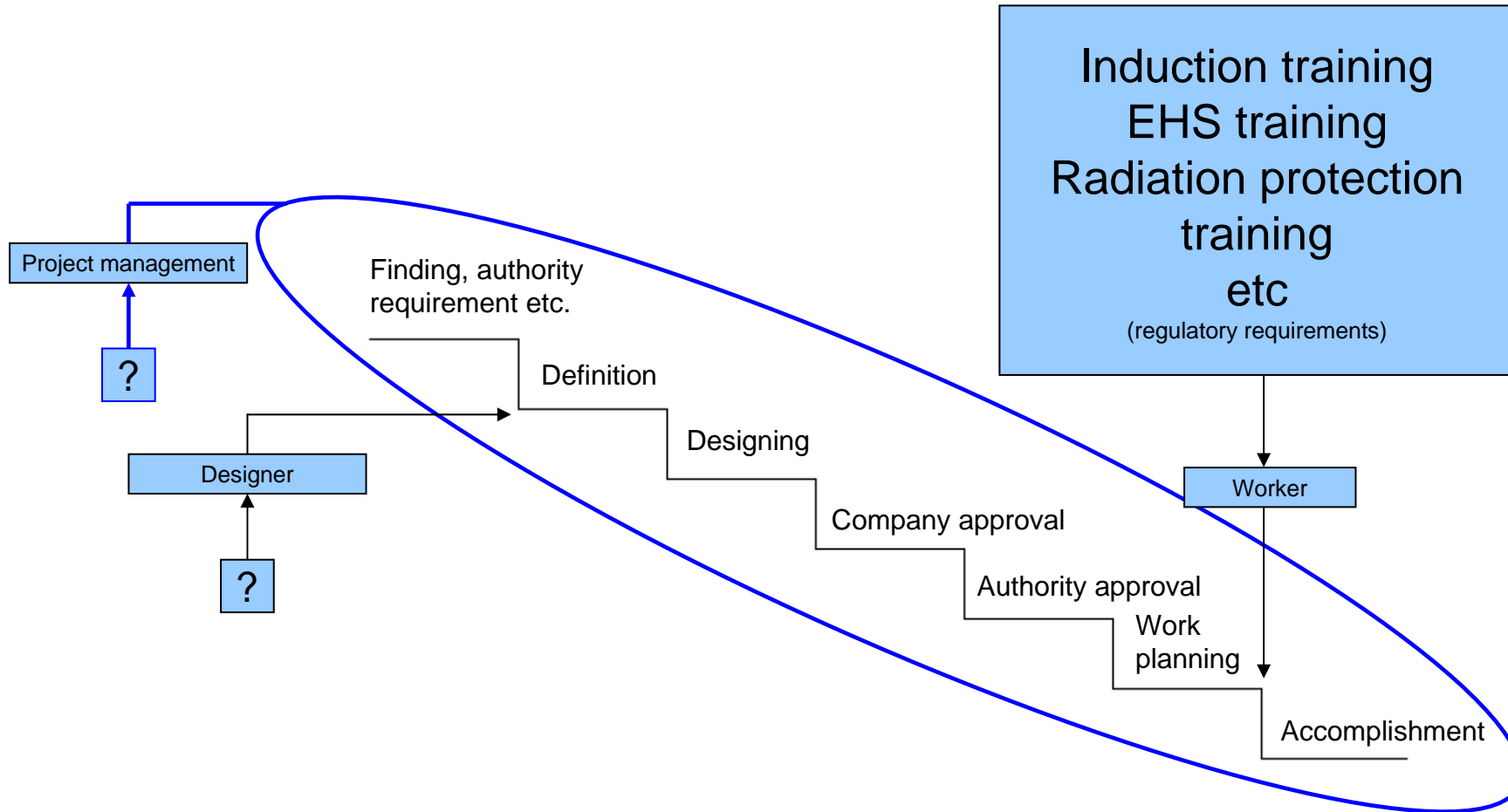


Future challenges and opportunities

Future challenges

- Change of generation
 - Remarkable percentage of the personnel will retire between 2005 and 2012
- Possible new nuclear power plant installations in Finland
 - Three applications for Decision in Principle for building new power plants
 - The parliament will decide the number and licence-holders in 2010
- Making radiation safety a more solid component of the whole planning and management of plant modification projects

Future challenges: RP training vs. planning and implementation process



Future opportunities

- Mentioned challenges will point out need for making radiation protection more effective
 - Mock-up facilities
 - Computer-aided and internet-based training
 - Better means for illustrating radiation and radiation protection issues such as
 - Animations
 - Phosphorescent substances in illustrating contamination etc

- Thank you for your attention!
- Further information

Fortum Power Division
Loviisa NPP
PO. Box 23
07901 Loviisa
Finland

