

Assuring Future Competence in Nuclear Safety in Finland

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Background

Within last few years we have been faced the fact that ageing of experts in nuclear safety field cannot be ignored in Finland. A great number of all experts /specialists with special competences on nuclear safety studied at early 70' and had their first permanent jobs in the 'golden era' of nuclear power. These experts are going to retire within next ten years. Therefore both the regulatory body and licensees in Finland have the situation where the age distribution of staff member has become distorted.

Also the amount of students in universities which have nuclear technology as their major subject has diminished remarkably until the decision of the new nuclear power plant unit in Finland was made in May 2001. After that the amount of students has risen.

Assuring competences within the regulatory body

STUK adopted the systematic approach to training in early 90's, this method is widely presented in IAEA TECDOC 1254 (2001). However, the very low turnover of staff led to decrease of training needs and therefore also the systematic training efforts decreased. In 2001 a need to restart the systematic approach to assuring competences was identified. To improve competence management at the regulatory body a competence analysis was carried out and a human resource plan for nuclear safety area for the near future was made.

Competence analysis is a method which is quite commonly used on public sector and governmental organisations in Finland. STUK studied carefully the models used in other public sector organisations and adjusted the method to its own purposes. The model used has four competence categories: substance related, management skills, common working skills and STUK related working skills. Substance related competences were defined and described at working unit level. Descriptions for the rest three categories were made at STUK level and those were common for all departments.

Substance related competencies common to all working at the department were also defined. In STUK's case more than 80 competences related to nuclear safety were identified and 7 of those were common for all experts.

The process itself included four stages:

- Competences needed in the future were determined on the basis of strategy, also the statistics of personnel such as age distribution was used. Competences were described and target values were defined.
- Analysis of competencies was carried out. Current competencies were assessed first by self assessment made by each staff member and then managers assessed all their subordinates. The gap between target values and current situation was made visible and a common consensus of the situation was established.
- Development plans were produced on the basis of analysis. Competence areas which needed to be strengthened or assured were identified and preliminary time schedule for improving effort was drafted.
- Action plans for assuring and improving competences were produced. These action plans include systematic training, recruiting and partnerships management.

Results

Results of competence analysis were encouraging. Most competence areas were covered at proper level, some will need to be improved but none was totally missing. For the future challenges we need to pay extra attention to knowledge management, how we assure that the knowledge we have at the moment will not vanish with retirement of experienced specialists.

Two separate plans were made on the basis of these results: plan for training regulatory personnel and HR-plan (at the first stage recruiting plan for next five years). In STUK's training plan there are three focus areas. Plant knowledge needs to be strengthened, both knowledge on operating plants as well as the new plant type. First training courses have already been organised with TVO, the licensee building the new EPR-unit in Olkiluoto. Plant knowledge related to operating units will be organised in late fall this year or in the beginning of next year. It is possible that also this training will be organised with licensees.

Another focus area in STUK's training program is quality management and especially QM and QA related to manufacturing and contractors. For achieving better competence on this area STUK has decided to train inspectors as Lead Auditors on external training courses.

Independently from STUK's competence analysis a six week basic professional training course on nuclear safety was organised by STUK with two technical universities (Helsinki and Lappeenranta), Ministry of Trade and Industry, VTT (Technical Research Centre of Finland) and licensees. This was a remarkable investment on nuclear safety competence.

A recruitment plan was also produced. Already 9 new experts have been recruited. Individual programs for familiarization and training have been produced. New experts have been recruited for example for reactor physics, stress analysis, software reliability, construction, fire safety, lay-out and electrical engineering. For some expertise areas it is difficult to recruit new specialists and therefore STUK has made partnership agreements or consultant contracts with other organisations such as VTT and foreign regulators. For example automation is one of these areas. Until now our experiences have been mainly encouraging.

Lessons learned

It is STUK's experience that the competence analysis is worth the trouble. It gives the organisation and employees a common conception on its competences and on future needs. It also makes it easier to motivate all staff members to use their working hours on training and capability building. On the other hand it must be admitted that it takes resources and all employees have not been very anxious to do this.

The results of competence analysis should lead to some improvement projects. The progress of improvement actions should be followed-up on regularly basis. It is important not to forget to communicate the results to employees.