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Regulatory Point of View of SAT Application

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Abstract. I present the regulatory system for monitoring operator training and check competency of operator personnel in Hungary and the effects of SAT to the regulatory framework/practice related to recruitment, training and authorisation of operating personnel. Also I introduce an application to manage the initial and refreshing training to regulatory bodies.

1. Introduction

2. Hungarian legislation

The Atomic law No. 116/1996, the Governmental Decree No. 108/1997 describes the general requirements for employing, training and examining personnel and control the training process in the nuclear facilities.

The Nuclear Safety Standard (Volume 1 and 4) contains the specific request for initial qualification and training of operation personnel.

The regulation, RE-2371 defines the scope of positions where the license is needed.

2.1 Initial qualification and training requirement of operating personnel

Basic requirements are the engineer degree (MSc. or Bsc.), medical and psychological certificates, initial training program and practical training. The initial training program is as a follow:

General courses (QA, industrial safety)

Theoretical training (thermodynamics, heat transfer, reactor physics, reactor protection, manual operation etc.)

Practical training (full scope simulator, on the job training)

SAT describes the general and special training course for each position.

2.2 Licensing process of operating personnel

A licensing committee determines the acceptability of a candidate. An expert of regulatory body takes part in the examination board's activity with veto. The prerequisites of the license is as the follow:

Passing the training programme

- Take part in the simulator-training program
- Practical training
- Written exam
- Oral exam

2.3 *Renewal of the license*

The license is valid for three years. If the licensed operator interrupt his activity during more than 6 months, then he lost his license. The requirements for the renewal of the license are:

- Medical and psychological certificates,
- Participation in refreshing training program,
- Participation in simulator training program,
- Oral exam.

The validity of the license could expired for medical reason, 6 month break in the work, serious violation of safety requirements or for the operating organisations' request.

2.4 *Continuing training*

The regulatory body approves the annual refreshing training program.

2.5 *Regulatory assessment,*

The aim of the assessment activity is to help to improve the efficiency of the training. The Authority monitoring the implementation of SAT and influence the accomplishment and the continuous improvement of that.

2.5.1 *Daily inspection*

It can be the check of the SAT documentation, the training material, and the participation in refreshing training or simulator training program.

2.5.2 *Periodical inspection*

As a part of comprehensive periodical inspection, NSD audit the training system in the NPP. NSD send the report to NPP after the evaluation. The response of the NPP appoints the action of the NSD.

2.5.3 *Approval of annual training programme*

NPP send the annual classroom and simulator training program to NSD for approval.

2.5.4 *Random check*

NSD check the SAT documentation, the training material

3. *Current issue*

3.1 *Effect of SAT*

3.1.1 *More effective training*

The SAT system well defined, well checkable. The training materials the controlling questions and the requirements were harmonised.

The requirements are defined and public. The different sets of questions are available for every written and oral exam, The big (but limited) number of the questions is disadvantage for instructor to maintenance (and for candidate too).

3.1.2 Change of the validity of the license

The validity of the license was decreased from 2 years to 3 years. The workload of the member of the examination board was reduced.

3.2 Safety modifications

Big number of safety modification was implemented at Paks NPP. The two most important modifications are the digital reactor protective system and the new symptom based emergency procedures.

The reactor protective system was fully implemented. One of the licensee conditions was an additional license for the staffs of the control room. The written and the oral exam were the test or the validation of the new SAT based training and examination.

The new emergency procedures are under installation. The check of competency is going on the full scope simulator.

We are very close to the end of this activity. The experiences of the simulator exam will be the basis of the expansion of the practical check in the examination process.

These two safety improvements were very useful for training cause.

The other side of the coin is the big time demand of the teaching the new information to the staff.

4. Systematic Modular Approach to initial and Continuing Training in HAEA NSD (SZIMAT)

4.1 Objectives

The basic objective of the development of the SZIMAT is to manage the training of all HAEA NSD staff. The scope of the SZIMAT is every employee in HAEA NSD. It was develop from 1998 to 1999.

4.2 Training modules and training units

The qualification requirements are based on the task and duties as defined in the job descriptions.

There are two sets of training modules: the basic knowledge areas, and the specific areas.

4.2.1 The basic knowledge areas

The basic knowledge areas contain:

- rules of application of nuclear energy
- Internal rules
- QA
- Radiation and fire protection
- Informatics and office techniques
- Nuclear engineering
- Nuclear installations
- International relationship

4.2.2 The Special knowledge areas

The Special knowledge areas are as the fallow:

- QA

- Chemistry
- Civil engineering
- Radiation protection
- Fire protection
- Physical security
- Ageing management
- Decommissioning
- PSA
- Root cause analysis
- Strength calculation
- R&D
- Training of RB
- Training of operator
- INES and IRS national officer
- Theory of management
- Severe accident sequences
- Emergency preparedness

The system is flexible, make possible the formulation of an effective training/self-training program for the entire staff of NSD (for example: the refreshing training or the safety modification), specific groups of staff or even a single staff member.

SZIMAT determine for the modules of the training programme:

- Content,
- Description
- Status (mandatory, expected, preferred)
- Objective of the aspect of regulatory work
- Potential form of training (inside, outside)
- Ways of provide the acquisition of skills and knowledge

SZIMAT provide the basic steps for selecting the training modules and define priorities.

4.2.3 *Training process*

The different training that NSD use as the fallow:

- Initial training
- Refreshing training
- Special training
- Special expert meetings

4.2.4 Objectives of the re-qualification: evaluation for motivation

Qualification	Time at NSD, [year]		Classification/salary level	Conditions for re-qualification
	Relative in the category	Absolute from joining NSD		
Newcomer	0,5 – 1	0,5 - 1	Newcomer or one level lower than in Act on CS	Implementation of initial traing requirements
Beginner	0,5 – 1	1 – 2	According to the level in Act on CS	Qualification exam
Fellow	2 – 3	3 - 5	One level higher than in Act on CS	Evaluation by direct superior
Sovereign fellow	2 – 3	5 - 8	Tanácsos	Evaluation by direct superior and a study in a job specific tonic
Leading fellow	–	–	Szak-főtanácsos (personal salary)	