

The Swedish Nuclear Power Inspectorate's Regulations concerning the Competence of Operations Personnel at Reactor Facilities

General Recommendations concerning the Application of the Swedish Nuclear Power Inspectorate's Regulations above

Decided on February 23, 2000

(In all cases concerning interpretation the Swedish version takes precedence.)

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On the basis of 20a § of the Ordinance (1984:14) on Nuclear Activities, the Swedish Nuclear Power Inspectorate has issued the following regulations.

Applicability and Definitions

1 § These regulations contain provisions concerning the competence of operations personnel at the following types of nuclear facilities for which operating licences have been granted under the Act (1984:3) on Nuclear Activities

- a nuclear power reactor,
- a research or materials testing reactor.

Basic safety regulations are included in the Swedish Nuclear Power Inspectorate's Regulations (SKIFS 1998:1) concerning Safety in Certain Nuclear Facilities.

2 § The following terms and definitions are used in these regulations:

Position: a set of tasks with associated responsibilities and authorities that has been established within the organisation.

Operations personnel: personnel belonging to one of the categories of operations management, control room personnel and field operator.

Operations management: personnel authorized to order a change in facility operating status and/or personnel authorized to make technical operational decisions in the facility's emergency preparedness organization.

Control room personnel: personnel working at the facility's central control room conducting either supervisory tasks, reactor system operation or turbine and electrical system operation.

Field operator: personnel conducting rounds and other operational measures locally in the facility.

Basic Provisions

3 § The necessary competence for the operations personnel to carry out tasks that are important to safety must be analyzed. A systematic method shall be used for such analyses. The analyses shall be kept up-to-date.

4 § A systematic competence evaluation shall be conducted to check that the operations personnel have the competence ensuing from analyses conducted in accordance with 3 §. The competence evaluation shall be conducted with established criteria for acceptable performance. Such criteria shall exist for each individual position.

5 § In order to hold a specific position, operations personnel must be authorized for that position. Authorizations are issued by the licensee.

An authorization may be issued if an evaluation shows that the candidate is competent and otherwise suitable to conduct the tasks to be carried out in that position and that are important to safety. Authorizations may be issued for a maximum period of validity of three years.

During the period of validity of the issued authorization, an evaluation shall be made every year of whether essential competence for safety is being maintained.

6 § An employee may, at the same time, be authorized for a maximum of two different positions involving control room duties.

7 § In order to hold an authorization for control room duties, the employee shall work in the control room to the extent necessary in order to maintain familiarity with the tasks of the position.

In spite of the provisions of the first paragraph, control room personnel may be authorized for a maximum of one year without working in the control room on condition that the tasks he conducts are related to the operation of the facility.

8 § The authorization shall be revoked by the licensee if the employee does not complete the stipulated training in accordance with 12 § or does not work in accordance with 7 § or if the employee does not pass the annual competence evaluation in accordance with 5 § third paragraph.

9 § The application, effectiveness and suitability of the system for training and competence evaluation of the operations personnel shall continuously be investigated by the licensee's quality assurance function in accordance with SKIFS 1998:1 Chapter 2. 4 § second paragraph.

Training for a position

10 § Programmes of training which aim at providing authorization for specific positions shall exist for operations personnel. The programmes shall be based on analyses in accordance with 3 §.

11 § In order to gain admission to training in accordance with 10 §, the employee in question shall have such a documented educational background and experience that the employee can complete the training within the time frame established by the training programme.

Retraining

12 § Operations personnel shall undergo retraining every year for each position. The retraining shall be of the scope and direction that is necessary for the personnel to maintain and develop the competence that is essential for safety.

In the case of the control room personnel of a nuclear power reactor, part of the retraining shall be conducted by using a full-scale simulator, which sufficiently replicates, in order to ensure that the training is effective, the control room and the facility model where the employee will work.

13 § Documented procedures shall exist for the inventory of training needs and for planning retraining in accordance with 12 §.

Exceptions

14 § The Swedish Nuclear Power Inspectorate may grant exceptions from these regulations if particular grounds exist.

Entry into Force and Transitional Regulations

These regulations shall enter into force as of January 1, 2001.

The "Swedish Nuclear Power Inspectorate's Regulations for Competence Follow-up of Control Room Personnel", latest edition October 1, 1990 and "Regulations concerning Personnel Exercising Operations Management Functions, Certain Maintenance Personnel, Field Operators and Personnel within the Training Function", published on January 1, 1989 are, at the same time, rescinded.

In the case of operations personnel who, when these regulations enter into force, have been evaluated in accordance with the regulations mentioned in the second paragraph and SKIFS 1998:1 and who, thereby, are assessed as having the intended competence (in the case of control room personnel, normal competence) as well as being otherwise suitable, an initial authorization may be issued in accordance with 5 § second paragraph.

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GENERAL RECOMMENDATIONS

**The Swedish Nuclear Power Inspectorate's
General Recommendations concerning the
Application of the Regulations concerning
the Competence of Operations Personnel at
Reactor Facilities (SKIFS 2000:1);**

General Recommendations:

Such general recommendations concerning the application of regulations which state how someone can or should act in certain respects.

[1 § Swedish Statute Book Ordinance (1976:725)]

The Swedish Nuclear Power Inspectorate's General Recommendations concerning the Application of the Regulations concerning the Competence of Operations Personnel at Reactor Facilities (SKIFS 2000:1);

On 1 §

SKIFS 1998:1 contains provisions concerning staffing, personnel competence, the suitability of the personnel otherwise as well as quality assurance of activities that are important to safety. Such activities include recruitment, in-house training and competence evaluation of the operations personnel. SKIFS 1998:1 also contains provisions concerning reporting to SKI of the training activities conducted with respect to safety. These regulations (SKIFS 2000:1) contain requirements made, in addition to the stipulations in SKIFS 1998:1, with respect to the responsibility and importance of the operations personnel for the operational safety at a reactor facility.

On 3 § and 10 §

The IAEA's recommendations on training and the evaluation of training for personnel at nuclear power plants can provide guidance on the implementation of the systematic competence analysis and training planning which is required¹. Requirements on the documentation of training planning are provided in Chapter 2. 3 § of SKIFS 1998:1.

On 4 §

Information from training in the form of written tests, oral presentations and demonstration of problem-solving abilities as well as work-related performance evaluations should be used in the competence evaluation. The need to interact with other employees in the position in question should be taken into account to an adequate extent in such evaluations.

¹ Latest edition: Nuclear Power Plant Personnel Training and Its Evaluation. A Guidebook. IAEA Technical Report Series No 380, Vienna 1996.

The criteria mentioned can be both qualitative and quantitative. The criteria should be selected so that they adequately demonstrate how established competence requirements are met.

On 5 §

Authorizations should be documented and registered in a manner that is easily accessible.

It is sufficient if the evaluation which precedes the renewal of an authorization takes into account all of the annual competence evaluations and the other conditions that are important to safety. "Other conditions that are important to safety" refers to, for example, an in-depth evaluation of the suitability of the employee otherwise for the position where a medical evaluation should also be included. Compare General Recommendations to Chapter 2. 3 § Point 4 of SKIFS 1998:1.

On 6 §

When applying the provision concerning two positions, assistant shift supervisor or equivalent and shift supervisor may be counted as one position. Furthermore, a reactor operator at a pressurized water reactor may also be considered to be authorized for the position of assistant reactor operator.

Positions can overlap each other with respect to tasks if this is an analyzed condition and corresponding competence requirements are made on each position. For example, within the framework of the authorization, a turbine operator should be able to carry out certain maneuvers in the reactor systems and a reactor operator should be authorized to conduct some of the shift supervisor's tasks if the supervisor is temporarily absent.

On 7 §

In the assessment of the extent of work experience needed in order to maintain familiarity with the tasks of a position, a possible guideline is 40 shifts per year.

Other tasks relating to facility operation can include, for example, experience feedback, safety analysis, operations training, facility procedures, control room work method development, control room design modification or work in other projects to develop the operational design of the facility or work on the facility safety analysis report.

On 8 §

A authorized employee who does not pass the annual competence evaluation should be given the opportunity, after implementing the additional measures necessary, to undergo evaluation again within one month.

On 9 §

The quality assurance function should have an up-to-date view of the quality of the licensee's system for training and competence evaluation of the operations personnel, within the respects covered by SKIFS 1998:1 and by these regulations, as well as issue those recommendations that are justified. Recurrent assessments should be conducted when essential changes are made. Furthermore, sampling should be conducted in connection with the annual retraining and competence evaluation. The aim of the sampling should be to supervise the maintenance of quality over time.

The scope and conduct of the quality audits should be covered by procedures that are adopted by the licensee. The licensees should co-operate in a suitable manner on the planning and conduct of the audits with the aim of achieving a consistent basis of evaluation.

On 11 §

Personnel who intend to be authorized for positions in the central control room should have basic training that is at least equivalent to the basic qualification as well as a standard qualification for admission into a university engineering programme corresponding to 120 points².

Personnel who intend to be authorized for operations management positions should have sufficient knowledge of the facility, sufficient experience of the operation of the facility or similar facilities and should have a suitability for supervisory tasks.

On 12 §

The following should be taken into account to an adequate extent in the retraining:

- changes in the facility's operating status
- handling of abnormal operating events and accidents

² Currently called standard qualification E.3.

- measures in the event of external events that can affect operational safety, such as fire and threat situations
- emergency preparedness planning for the facility and co-operation with the rescue services
- co-operation, management and communication within the shift team and with other facility functions when handling various operational scenarios (this applies to control room personnel)
- handling of protective equipment
- technical or organizational modifications to the facility
- modifications of procedures and documentation that affect facility operations
- events occurring at the facility in question or other similar facilities in Sweden and abroad, which are relevant to facility safety
- results from research and technical development that are relevant to facility safety
- repetition of facility design and operational characteristics.

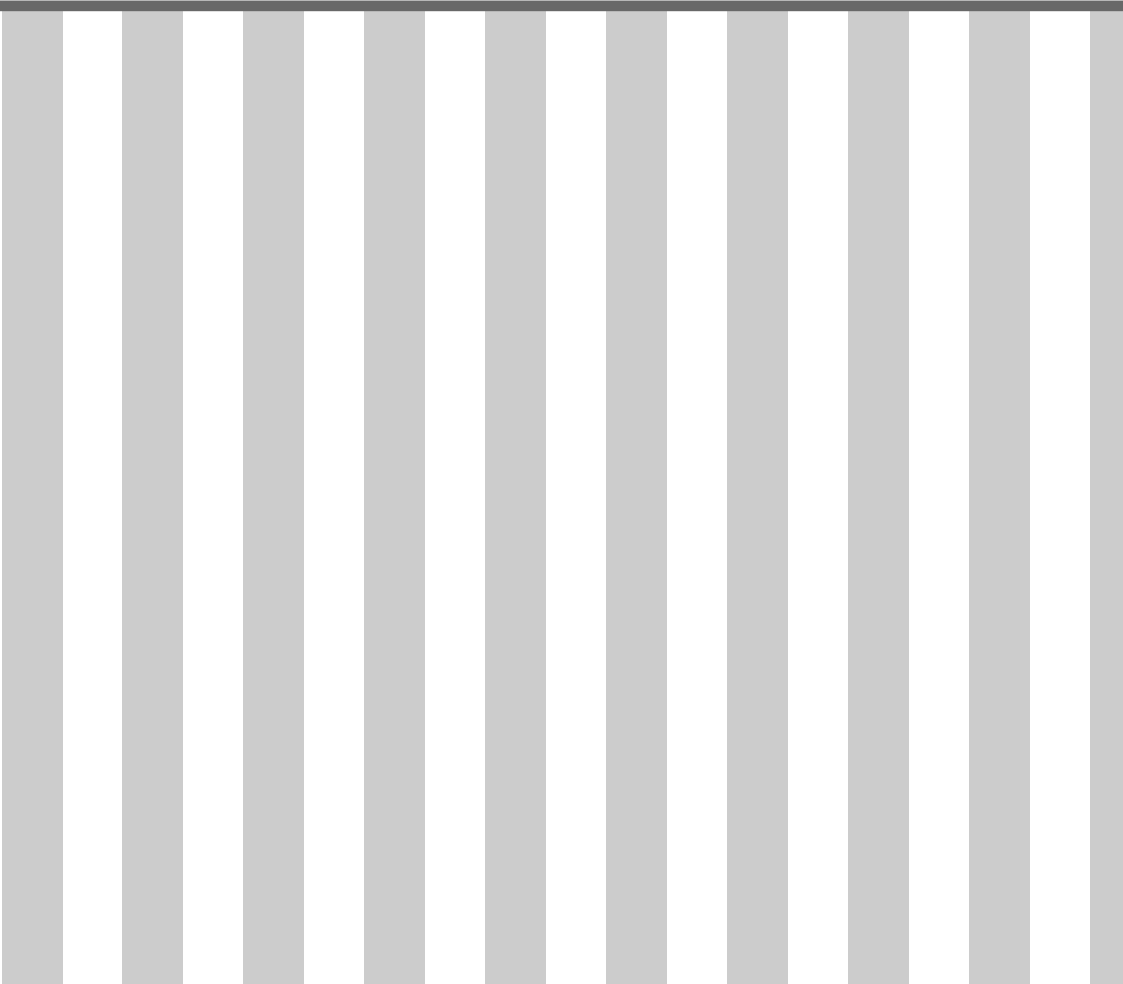
To ensure that the operations personnel maintain and develop the competence essential for safety, the time allotted to the retraining should be derived from the above and from the findings of the analyses conducted in accordance with 3 §. In the case of control room personnel at a nuclear power reactor, this should involve a minimum of ten days per year, of which five days using a full-scale simulator.

Personnel who are authorized for more than one position should undergo retraining that is specially arranged for the positions in question.

Simulator-based retraining should normally be provided for all of the members of the shift team together.

On 13 §

The training needs inventory should be conducted in a systematic manner and should have a several years perspective with respect to aspects that are not determined by events, such as the repetition of facility design and operational characteristics.



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