

# Swedish Radiation Safety Authority Regulatory Code

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## The Swedish Radiation Safety Authority's Regulations and General Recommendations concerning the Competence of Operations Personnel at Reactor Facilities

*Please note that translated versions of the Authority's regulations  
lack legal force and are for information purposes only.*



## The Swedish Radiation Safety Authority's Regulations concerning the Competence of Operations Personnel at Reactor Facilities;<sup>1</sup>

SSMFS 2008:32

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decided on 19 December 2008.

On the basis of Section 20 a of the Ordinance (1984:14) on Nuclear Activities, the Swedish Radiation Safety Authority issues the following regulations.

### Applicability and definitions

**Section 1** These regulations contain provisions concerning the competence of operations personnel at:

- nuclear power reactors;
- research or materials testing reactors.

Basic safety provisions are included in the Swedish Radiation Safety Authority's Regulations (SSMFS 2008:1) concerning Safety in Nuclear Facilities.

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

<i>position:</i>	a set of tasks with associated responsibilities and authorisations established within the organisation,
<i>operations personnel:</i>	personnel belonging to one of the categories of operations management, control room personnel and field operators,
<i>operations management:</i>	personnel authorised to order a change in facility operating status and/or personnel authorised to make technical operational decisions in the facility's emergency preparedness organisation,
<i>control room personnel:</i>	personnel working at the facility's central control room conducting either supervisory tasks, reactor system operation or turbine and electrical system operation,
<i>field operators:</i>	personnel conducting rounds and other operational measures locally in the facility.

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<sup>1</sup> These regulations and general recommendations were previously published in the Swedish Nuclear Power Inspectorate Regulatory Code (SKIFS 2000:1 and SKIFS 2008:2).

## **Basic provisions**

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

**Section 4** A systematic competence evaluation shall be conducted to check that the operations personnel have the necessary competence by using analyses conducted in accordance with Section 3. The competence evaluation shall be conducted with established criteria for acceptable performance. Such criteria shall have been drawn up for each individual position.

**Section 5** In order to hold a specific position, operations personnel must be authorised for that position. Authorisations are issued by the licensee.

An authorisation 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 for safety. Authorisations may be issued for a maximum period of validity of three years.

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

**Section 6** An employee may be authorised for a maximum of two different positions at the same time involving control room duties.

**Section 7** In order to hold an authorisation 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 authorised for a maximum of one year without working in the control room, provided that the tasks being conducted are related to the facility's operations.

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

**Section 9** The application, effectiveness and suitability of the system for training and competence evaluation of the operations personnel shall be investigated continuously by the licensee's quality assurance function in accordance with the second paragraph of Chapter 2, Section 8 of the Swedish Radiation Safety Authority's Regulations (SSMFS 2008:1) concerning Safety in Nuclear Facilities.

## **Training for a position**

**Section 10** Programmes of training which aim at providing authorisation for specific positions shall be available for operations personnel. The training programmes shall be based on analyses in accordance with Section 3.

**Section 11** In order to gain admission to training for a position in accordance with Section 10, the candidate shall have a documented educational background and level of experience enabling the candidate to complete the training within the time frames established by the training programme.

## **Retraining**

**Section 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 operations personnel to maintain and develop the level of competence that is essential for safety.

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

**Section 13** Documented procedures shall be in place for an inventory of training needs and for planning retraining in accordance with Section 12.

## **Exceptions**

**Section 14** The Swedish Radiation Safety Authority may grant an exception from these regulations if there are particular grounds and if such exception may be made without circumventing the aim of the regulations.

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These regulations shall enter into force as of 1 February 2009.

SWEDISH RADIATION SAFETY AUTHORITY

ANN-LOUISE EKSBORG

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## **The Swedish Radiation Safety Authority's General Recommendations concerning the Application of the Regulations concerning the Competence of Operations Personnel at Reactor Facilities (SSMFS 2008:32);**

**SSMFS 2008:32**

Published on 30 January  
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decided on 19 December 2008.

The Swedish Radiation Safety Authority hereby issues the following general recommendations.

### ***Section 1***

The regulations of the Swedish Radiation Safety Authority (SSMFS 2008:1) concerning operational safety at nuclear facilities contain provisions concerning staffing, personnel competence, the general suitability of the personnel as well as quality assurance of activities that are important for safety during such nuclear activities. Such activities include recruitment, in-house training and competence evaluation of the operations personnel. SSMFS 2008:1 also contains provisions concerning reporting to the Swedish Radiation Safety Authority of the training activities conducted with respect to safety. The regulations (SSMFS 2008:32) concerning the competence of operations personnel at reactor facilities contain requirements imposed, in addition to that stipulated in SSMFS 2008:1, with respect to the responsibility and importance of the operations personnel for the operational safety at a reactor facility.

### ***Sections 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 required implementation of the systematic competence analysis and planning for training.<sup>1</sup> Requirements on the documentation of training planning are provided in Chapter 2, Section 9, first paragraph, item 5 of the regulations of the Swedish Radiation Safety Authority (SSMFS 2008:1) concerning operational safety at nuclear facilities.

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<sup>1</sup> Latest edition: Nuclear Power Plant Personnel Training and its Evaluation. A Guidebook. IAEA Technical Report Series No. 380, Vienna 1996.

**Section 4**

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

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

**Section 5**

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

It is sufficient if the evaluation preceding the renewal of an authorisation takes into account all of the annual competence evaluations and other conditions that are important for safety. "Other conditions that are important for safety" refers to, for example, an in-depth evaluation of the general suitability of the employee for the position which should also include a medical evaluation. Compare with the general recommendation on Chapter 2, Section 9, item 5 on the regulations of the Swedish Radiation Safety Authority (SSMFS 2008:1) concerning Safety in Nuclear Facilities.

**Section 6**

When applying the provision concerning two positions, an assistant shift supervisor or the equivalent and a shift supervisor may be considered to constitute one position. Furthermore, a reactor operator at a pressurised water reactor may also be considered to be authorised for the position of assistant reactor operator.

Positions may overlap with respect to tasks if this is an analysed situation and corresponding competence requirements have been imposed on each position. For example, within the framework of one's authorisation, a turbine operator should be entitled to carry out certain manoeuvres in the reactor systems and a reactor operator should be authorised to conduct some of the shift supervisor's tasks if such supervisor is temporarily absent.

**Section 7**

When assessing the extent of work needed in order to maintain familiarity with the tasks of a position, a suggested point of reference is 40 shifts per year.



Other tasks relating to facility operations may, for example, include experience feedback, safety analysis, operations training, facility procedures, development of control room work methods, control room design modification and work in other projects to develop the operational design of the facility and its safety analysis report.

### ***Section 8***

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

### ***Section 9***

The quality assurance function should have an up-to-date perception of the quality of the licensee's system for training and competence evaluation of the operations personnel in the respects covered by the regulations of the Swedish Radiation Safety Authority (SSMFS 2008:1) concerning Safety in Nuclear Facilities and by these regulations, as well as the justified recommendations that have been made. Recurrent assessments should be conducted when essential changes are being made. Furthermore, sampling should be conducted in connection with the annual retraining and competence evaluation. The aim of such sampling should be to supervise the maintenance of quality over time.

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

### ***Section 11***

Personnel intended for authorisation for a position in the central control room should have a level of 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 180 credits.

Personnel intended for authorisation for an operations management position should have sufficient knowledge of the facility, sufficient experience of the operation of the facility or similar facilities and should have good potential for supervisory tasks.

### ***Section 12***

The following should be sufficiently taken into account in retraining:

- changes in the facility's operating status,
- handling of abnormal operating events and accidents,
- measures for dealing with external events that can affect operational safety, such as fire and threat situations,

- emergency preparedness planning for the facility and co-operation with public 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 organisational modifications to the facility,
- modifications of procedures and documentation that affect facility operations,
- events occurring at one's own facility and similar facilities in Sweden and abroad which are relevant to facility safety,
- results from research and technical development which are relevant to facility safety,
- refresher courses regarding facility design and operational characteristics

To ensure that the operations personnel maintain and develop the level of competence essential for safety, the time allotted for their retraining should be derived from the above and from the general results of the analyses conducted in accordance with Section 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 authorised for more than one position should undergo retraining that is specially arranged for the positions in question.

Retraining using a full-scale simulator should normally be provided jointly to all of the members of each shift team.

### ***Section 13***

The training needs inventory should be conducted in a systematic manner and should have a perspective of several years in terms of aspects that are not determined by events, such as refresher courses regarding facility design and operational characteristics.

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These general recommendations apply as of 1 February 2009.

SWEDISH RADIATION SAFETY AUTHORITY

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